

Boulder County Composting Capacity Analysis

FINAL REPORT

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Boulder County Composting Capacity Analysis

Determining the Existing and Needed Capacity

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EXECUTIVE SUMMARY

The following report presents findings of a compost capacity analysis conducted by IWMC for the County of Boulder. The primary objective of the report was to document the capacity of the compost facility being operated by Western Disposal (Western) at a site in the City of Boulder. The report also looks at the existing waste characterization, at waste reduction programs which would potentially reduce available feedstock, analyzes the potential for the City of Boulder Wastewater Treatment Plant to accept municipal organics for digestion, and presents an order-of-magnitude cost estimate for a stand-alone compost site.

Compost Capacity

Based on an analysis of the physical composting capacity of the Western site, there is additional capacity, both existing and potentially available with minor pad improvements (the operating pad would need to be improved to meet stormwater and drainage requirements). Western currently operates on an improved pad of approximately 6.41 acres. They processed almost 10,000 tons on this pad in 2013. The entire site is 10.71 acres, so were Western to expand the pad, they could expand the site's capacity. Also, Western currently manages the facility relatively moderately (2 complete compost cycles per year). Increasing the management intensity of the operation would also increase the site's capacity. IWMC has independently verified the available compost capacity based on windrow shape and retention time (see Appendix A).

However, while there is sufficient physical capacity at the Western Disposal site, that capacity is only available to Western's customers. Currently the majority of yard trimmings and food scraps from residential and commercial sources are hauled to the Western Disposal composting site located near Butte Mill Road in Boulder. Because the facility is privately owned and operated, Western Disposal can dictate who has access to their facility. Other haulers, like Eco-Cycle, which collects roughly 3,500 tons of commercial food scraps in Boulder County, does not access the Western site and instead hauls material to a transfer facility located at the old Stapleton airport (approximately 24 miles), where it is consolidated and hauled to a site outside of Keenesburg (approximately 41 miles) for composting. The City of Lafayette recently went out to bid for collection of residential organics and selected Republic Services. However, rather than hauling the material to the Western Disposal site, Republic will be hauling the same route that Eco-Cycle now hauls, to Stapleton, followed by a transfer to A-I in Keenesburg. A map showing the relationship of existing organics processing facilities in the project area is shown as Figure I. Clearly there is an abundance of organics processing capacity in the region.

Waste Characterization

The Waste Characterization completed in 2010 identified significant organics remaining in the waste stream. This is consistent with similar studies IWMC is familiar with across the US. Data provided by Western Disposal (and to the extent possible verified by IWMC) indicates that

there is some potential growth in organics diversion expected in Boulder County in the next 3 to 5 years. Tables ES-1 and ES-2 show an estimate of the current and potential future organics collected in Boulder County. Table ES-2 provides an estimate of those tons that will be directed to the Western site. By Western's own estimates, the volume of material needing to be processed may double in the next three to five years.

The least reliable data are estimates of commercial organics growth. Currently both Western Disposal and Eco-Cycle (the two biggest, though not the only, haulers of commercial organics in Boulder County) average about 8 tons per commercial food scraps account per year. Volumes of organics generated per commercial account vary widely. However, the City of Boulder is planning on implementing mandatory commercial and multifamily organics, which will have an impact on the volumes of organics collected in Boulder County.

Waste Reduction

There are a number of non-centralized ways to manage organics (backyard and on-site composting); while these are excellent and cost-effective ways of managing municipal organics, they rarely have significantly high participation rates to affect municipal collection programs. Further those individuals or entities that might be backyard composting may have been doing so prior to the 2010 waste characterization, so the tons they are managing may already be excluded from those estimates.

No significant on-site composting projects were identified in this study. Were a large generator to adopt an on-site digestion project, those tons might be removed from the capacity equation, but this does not seem to be a popular option in the Boulder region (and this would further reduce the capacity requirements of the Western Disposal Compost Site).

Table ES-1. Current and Potential Tonnage of Organics Collected in Boulder County.

Jurisdiction	Currently Collected (tons)	Potential Future Collections (tons)
Residential		
Boulder	4,035	5,086
Lafayette		1,849
Longmont		5,457
Louisville	1,126	1,423
Superior		781
Boulder County Unincorporated & Towns	2,253	4,640
Subtotal	7,414	19,236
Commercial	5,431*	6,593
TOTAL	12,845	25,829

*This includes all commercial food scraps currently collected by Western Disposal and Eco-Cycle, (including the University of Colorado).

Table ES-2. Current and Potential Tonnage of Organics Collected by Western Disposal.

Jurisdiction	Currently Collected		Potential Future Collections	
	Residential (tons)	Commercial (tons)	Residential (tons)	Commercial (tons)
Boulder	4,035		5,086	
Lafayette	0		0	
Longmont	0		5,457	
Louisville	1,126		1,423	
Superior	0		781	
Boulder County Unincorporated and Towns	2,253		4,640	
TOTAL	7,414	1,906	17,387	2,307**
TOTAL TONS TO WESTERN	9,320		~20,000	

*This includes the maximum tons that potentially could be delivered to Western Disposal only. There is no guarantee, for example that the City of Longmont's tons will eventually be delivered to Western Disposal once Longmont implements a separate collection program. Longmont's tons are included to show a likely maximum.

**This number assigns the estimated commercial tons potentially collected in Boulder County @ 8 tons per account, per year and proportionally assigns them to Western based on the current proportional split with Eco-Cycle.

Co-Digesting Food Scraps At The City Of Boulder WWTP

Although the City of Boulder Wastewater Treatment Plant (WWTP) is interested in potentially co-digesting food scraps in one of their digesters, the fact that there is little to no excess capacity (i.e., an existing, vacant digester) at the facility would mean that costs to implement this alternative would be significant; the existing energy production infrastructure would also likely need to be upgraded to accommodate municipal food scraps. In addition, WWTPs are limited as to the type of food scraps they can manage, which may be incompatible with how (and what types) of food scraps are currently collected (specifically food-soiled paper and compostable service ware).

Potential New Facility Costs

Capital

An order-of-magnitude estimate of capital costs associated with developing a roughly 30,000 tons per year composting facility was created. Developing a new, stand-alone compost facility might require capital in excess of \$4 million, not including site acquisition costs. These costs are meant to be an order-of-magnitude estimate of capital costs. Other site development work, different equipment choices and other site development costs (like stormwater management, fencing, initial permitting, etc.,) are not included in this estimate.

Operating and Maintenance

Estimating operations and maintenance costs for a hypothetical facility is more challenging than developing capital costs. Many of the key operating costs like labor, fuel, and maintenance can be highly variable. Labor costs (particularly benefits and worker's compensation) will vary whether the facility is privately operated or publicly operated. For this order-of-magnitude estimate a range of \$400,000 to \$700,000 per year is presented. Operating and maintenance costs will vary substantially based on the feedstock, for example, if the City of Boulder implements mandatory commercial and multi-family organics collection as proposed in the 2014 Zero Waste Evaluation Study the facility will likely need to add an elevated picking station, additional labor to sort contaminants, and most likely a building to conduct the sorting in. None of these costs are included in this estimate, but would increase both capital and operating costs.



Figure 1. Relationship of Available Organics Facilities near Boulder, Colorado.

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INTRODUCTION

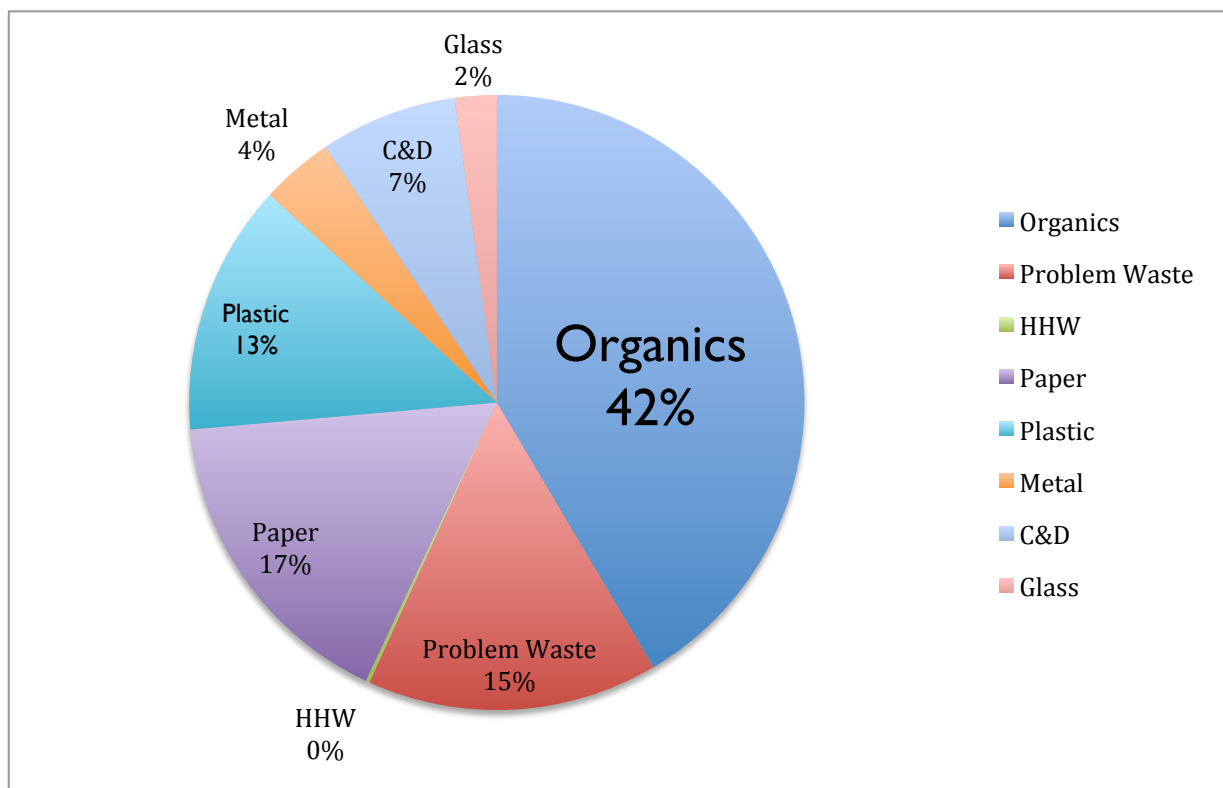
Boulder County has a number of organics processing facilities within a reasonable hauling distance of the centroid of Boulder County. The primary facility is a composting facility operated by Western Disposal. This facility handles the majority of the organic materials generated in the City of Boulder and in Boulder County. Because this facility is privately owned and operated, it is not available to some haulers. Those haulers not utilizing the Western site are currently hauling materials to a transfer facility near the old Stapleton airport (outside of Denver), before the materials are transferred to a composting site near Keenesburg. However, there is new and expanding capacity in the region which will also draw organics from Boulder County. A-I Organics' Keenesburg facility is already receiving organics from Boulder County. Their Eaton site was recently permitted to accept food scraps and is a new option for commercial organics, particularly in the northern part of the County. Finally, a large manure and food scraps digester is currently being constructed near LaSalle, which is also expected to compete for Boulder County organics.

This report examines the waste characterization for Boulder County, makes estimates of the likely volumes of organic materials being separated for composting by various entities, and looks at the capacity of the only in-county composting option. The report also briefly examines waste reduction techniques which may impact the need for compost capacity in Boulder County. Finally, the report looks at the cost of duplicating the in-county compost capacity of the existing site (as a stand-alone site).

WASTE CHARACTERIZATION REVIEW

A countywide waste characterization study was conducted in 2010¹. This study estimated Boulder County's waste generation at 221,000 tons per year (Based largely on data reported from the City of Longmont, extrapolated for the entire County). The study further estimated that organics (a combination of yard trimmings and food scraps) comprised 42 percent of waste, or 91,692 tons. Clearly organics comprises a significant fraction of the Boulder County waste stream. Indeed food scraps and yard trimmings were the two most prevalent items in the residential waste stream and food scraps and compostable paper were the two largest categories in the "Industrial, Commercial, and Institutional" (ICI) sector. Figure 1 shows the relative percentages of each category, highlighting the organic fraction.

Figure 2. Waste Characterization for Boulder County.



¹ 2010 Waste Composition Study, MSW Consultants, December 2010.

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The waste characterization is consistent with other, similar waste characterizations IWMC has reviewed. We echo the need for ongoing waste characterization studies to understand variations and to start from a benchmark. These types of studies tend to get better (more accurate) and more useful the more frequently they are conducted.

Table 1 shows the populations of the major communities in Boulder County. Table 2 shows a rough estimate of the percentage of organics attributed to each community. These are estimates of waste disposal, all based on the 2010 waste characterization.

Table 1. Population of Boulder County Communities.

Community	Population
Incorporated	
City of Boulder	101,808
City of Lafayette	25,733
City of Longmont	88,669
City of Louisville	19,074
Unincorporated & Towns	
Town of Erie	19,722
Town of Jamestown	281
Town of Lyons	2,092
Town of Nederland	1,478
Town of Superior	12,782
Town of Ward	154

Table 2. Proportional Organics Generation (Residential).

Jurisdiction	Residential Generation (tons)	Percentage of Population	Estimated Residential Organics Disposal (tons)	
			Yard Trimmings @ 12.9%	Food Scraps @ 13.1%
Boulder	~44,552	43%	5,747	5,836
Lafayette	~11,261	11%	1,453	1,475
Longmont	~38,803	38%	5,006	5,083
Louisville	~8,347	8%	1,077	1,093
Total	102,963	100%	13,282	13,488

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Extrapolating from the 2010 waste characterization, there may be roughly 27,000 to 34,000 tons of residential organics potentially available for composting in the four largest cities in the County. However, no collection program is 100 percent effective at capturing these organics. Looking at the numbers a different way (and including the commercial organics), there may be as many as 61,500 tons of organics *potentially* available in the entire County for composting (or digestion) (see Table 3). The table pulls out the total *potentially* compostable or digestible organics from the 2010 waste characterization. However, some of these tons will be very difficult to divert (it is not expected that any of the towns will be developing source-separated organics collection programs in the near future).

Table 3. Estimate of Total Potential Organics, Boulder County.

	Residential Tons	ICI Tons	TOTAL
Mixed Yard Trimmings	13,284	3,956	
Branches	1,624	1,140	
Leaves	5,366	5,105	
Food Waste	13,539	17,415	
TOTAL	33,813	27,616	61,429

So the total volume of organics potentially available needs to be measured against realistic participation and capture rates, available programs, and competing disposal alternatives. The following is a summary of programs in local communities. Western Disposal has estimated residential organics collection based on their records collecting this material in the City of Boulder, unincorporated Boulder County, and in Louisville. The volume collected ranges from 437 to 607 pounds per service address per year.

A recent study in Alameda County (California) looked at participation rates in commercial organics programs. Participation rates among commercial generators varied from 0% to 88% participation. This data is presented in Table 4. The large range of experience highlights the challenges of predicting participation among commercial generators. It is important to note that while commercial organics collection is not currently mandatory in Alameda County almost every jurisdiction in the county offers some type of a financial incentive to encourage participation. Both Boulder County and the City of Boulder offer modest incentives to encourage organics collection and zero waste practices. These incentives are summarized in Table 5. The other challenge is the range of food-generating businesses in Boulder County from small sandwich shops to large grocery stores. This makes it extremely challenging to generalize regarding volumes to be set-out. It is unknown exactly how much suitable, currently uncollected, commercial organics may be available.

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Another recent study² reported commercial organics participation rates in EPA Region 5. The reported average commercial diversion rate was reported to be 21 percent, with the highest being 42% and the lowest 8%. Table 4 highlights the Alameda County data.

Table 4 Commercial Organics Participation Rates in Alameda County, CA

Jurisdiction	Number of Food-Generating Businesses	Participating Food-Generating Businesses	Percentage of Participating Food Generating Businesses
Alameda	308	218	71%
Albany	98	42	43%
Berkeley	707	241	34%
Dublin	177	104	59%
Emeryville	153	Unk.	Unk.
Fremont	655	70	11%
Hayward	725	94	13%
Livermore	342	119	35%
Newark	233	4	2%
Oakland	1,903	Unk.	Unk.
Piedmont	16	14	88%
Pleasanton	381	0	0%
San Leandro	243	120	49%
Union City	239	45	19%
Castro Valley SD	151	45	30%
Oro Loma SD	277	9	3%
TOTAL	6,608	1,125	17%

Other sources use a range from 20 percent to 75 percent. The City of Seattle expects to reach 75 percent commercial organics participation once their (soon to be approved) mandatory organics program is fully implemented.

² “Best Management Practices in Food Scraps Programs”, Econservation Institute, February 2012.

Table 5. Incentives for Organics Collection and Zero Waste in Boulder City and County.

City of Boulder Compost Incentive

Organics collection is available for businesses through local haulers. The City offers businesses an incentive of \$2.50 per subscribed cubic yard of organics collection.

City of Boulder New Business Zero Waste Start-Up \$250 Rebate

For any new commercial recycling and/or organics collection, the City will rebate up to \$250 towards the purchase of interior bins, compostable bags, compostable service ware, and related items. An advisor is available to review a businesses needs and assist in the ordering process.

Boulder County \$150 off of Zero Waste services coupon

Boulder County Resource Conservation Division reimburses businesses \$150 towards new “Zero Waste Services” (which could include organics collection). This is done by providing a \$150 “off” coupon, the coupons are redeemed by establishing new zero waste services.

City of Boulder. The City of Boulder (Population 101,808) has the most extensive organics collection program, with an estimated 23,261 single-family homes currently having curbside organic collection. An unknown number of commercial establishments also participate in food scraps collection, either via Western Disposal or Eco-Cycle. It is challenging to estimate the actual numbers of businesses participating, because many businesses in Boulder County share a trash, recycling or organics bin (i.e., there can be multiple businesses, but only one “account”). According to City of Boulder records for 2013, Western Disposal collected commercial organics (not including Multi-Family accounts) from 201 commercial accounts for a total of 1,589 tons; in the same period, Eco-Cycle collected 1,151 tons from 147 accounts. Both of these average out to slightly less than 8 tons per account. The City of Boulder has developed a Zero Waste Plan and a recent evaluation of that plan recommended implementing mandatory commercial and multifamily organics collection. If fully implemented, this will have an impact on the amount of food scraps collected in the County.

Boulder County. Boulder County (Population 61,982) represents residents in areas that Western characterizes as North, South, and Mountain. According to Western, approximately 19,346 single family homes in the unincorporated area (and townships) have curbside organics collection, with the majority of this being in the designated area of “Boulder County South”, which surrounds the City of Boulder.

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Table 6. Current Tonnages of Material Collected for Composting, Boulder, Colorado.

	Residential (tons)	Commercial (tons)
City of Boulder	4,035	
City of Louisville	1,126	
Boulder County Unincorporated	2,253	
Western Disposal		1,906
Eco-Cycle		3,525
TOTAL	7,414	5,431

City of Longmont. Longmont (Population 88,669) is the largest city in Boulder County with no curbside organics collection (they do offer brush and food scraps drop-off). The City provides municipal garbage collection and has plans to offer residential organics collection in the near future. The City of Longmont does not collect commercial waste and does not have any plans to provide commercial organics collection.

City of Lafayette. The City of Lafayette (Population 25,733) recently went out to bid for a hauler to collect residential organics. However, this bid will only cover those residents not within a Homeowners Association. In the short term, Western estimates that approximately 5,434 homes will have access to curbside organics, with an additional 3,023 homes coming online in the next 5 to 10 years.

City of Louisville. The City of Louisville (Population 19,074) currently provides approximately 5,138 single family homes with curbside organics collection. Western Disposal believes an additional 1,168 homes may come on board with curbside in the next 5 to 10 years.

Town of Superior. Superior, (Population 12,782) does not currently provide organics collection, nor were any plans identified to add this service in the future. However, Western assumes 781 tons might be collected (predominantly via commercial accounts) in the next 3 to 5 years. Superior has been promoting the use of under sink disposers, which could potentially reduce the volume of food that needs to be collected.

University of Colorado. One of the major generators in Boulder County is the University of Colorado (CU), which collects organics from its three main food service establishments (the residence halls/housing department, the student union, and the athletic department) and also collects wood from campus operations. The woody material tends to go to Western Disposal,

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whereas the approximately 700 tons of food scraps goes to A-I Organics via the transfer facility near Stapleton.

Tables 7 summarizes the current and the projected tonnage of organics collected in Boulder County. According to Western's records, they collected 7,432 tons of organics from the residential sector and 1,906 tons from commercial (52 businesses) for a total of 9,454 tons. In 2013, they produced roughly 20,000 yards of compost (from slightly less than 10,000 tons incoming).

Table 7. Projected Tonnage of Material Collected for Composting, Boulder, Colorado.

Jurisdiction	Projected Residential* (tons)	Projected Commercial (tons)**	
		Food Service Establishments***	Tonnage (@8 tons per account)
City of Boulder	5,086	402	3,216
Longmont	5,457	183	1,464
Lafayette	1,849	56	448
Louisville	1,423	51	408
Superior	781	24	193
Boulder County Unincorporated & Towns	4,640	108	864
TOTAL	19,236	824	6,593

* Residential Projections from Western Disposal.

** Commercial projects are based on reported collection tons per account from Western and Eco-Cycle. The University of Colorado (a major generator) may be inflating these numbers.

***These numbers may be food service "accounts" versus "food service establishments" as some food service businesses in Boulder County share one service account for multiple businesses.

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The 2010 waste characterization may contain the most reliable waste characterization data for the entire county. This report has been supplemented with actual 2013 tonnage reports from the City of Boulder, the Zero Waste Program Evaluation and Western Disposal's Summary of Waste Sort Results (2013). In other cases estimates of capture rates have been made. However, based on the 2010 characterization, the total tonnage of organics disposed in Boulder County was 91,692 tons. Waste characterizations necessarily make generalizations about material types and include materials as "organic" which are nonetheless not typically accepted at commercial composting or anaerobic digestion facilities. By adding the tonnages of "mixed yard waste" (17,721 tons); "branches, limbs, etc." (2,765 tons), "leaves" (10,471 tons); and "food waste" (31,055 tons), there are a total of 51,562 tons of organics potentially suitable for processing in Boulder County. Breaking these numbers down further, the 2010 study estimated that residential organics comprised a total of 49,394 tons and commercial comprised 42,104 tons. If you break the residential organics stream down into its potentially *capturable* component parts you get (mixed yard waste, 13,284 tons; branches and limbs, 1,624 tons; leaves, 5,366 tons; and food scraps, 13,539 tons) there are 33,813 tons of residential organics available. If we break down the total commercial "organics" into categories potentially recovered for processing (i.e., mixed yard waste, 3,956 tons; branches and limbs, 1,140 tons; leaves 5,105 tons; and food waste 17,415 tons) there are 27,616 tons of commercial food being disposed that could *potentially* be recovered for composting.

As shown in Table 7, Western Disposal has projected their expectations for additional residential organics diversion. Western expects an additional 19,236 tons. If in fact there are an additional 33,813 tons of disposed organics, then Western expects an additional 56 percent of diversion from the residential sector. As mentioned elsewhere in this report, estimating organics collection participation within the commercial sector is more challenging. Table 7 shows one method of projecting additional organics tons. The average tons collected per account by both Western Disposal and Eco-Cycle is slightly less than 8 tons per account, per year. Multiplying this number by the number of accounts provided in Western's estimate, Boulder County might expect an additional 6,593 tons. If there are 27,616 tons of potentially available commercial organics tons then this methodology is projecting an additional 24 percent recovery. Which is close to what the City of Seattle is projecting to collect based on implementation of their mandatory commercial food scraps collection ordinance.

SURVEY OF COMPOSTING CAPACITY

To begin the process of understanding both existing and needed composting capacity in the Boulder County region, IWMC surveyed key stakeholders to assess opinions and subjective impressions of the need for additional composting capacity. Surveys included:

- Western Disposal Staff
- A-I Organics Staff
- Eco Cycle Staff
- City of Boulder
- City of Longmont
- City of Lafayette
- City of Fort Collins
- University of Colorado Recycling staff

In general, most interviewees were well aware of the current status of organics collection in and around Boulder County. Some of the entities were in favor of Boulder County siting a new compost or transfer facility to handle the volume that Western was not managing in the County. Others understood the nature of competition and realized there might not be a significant need for additional compost capacity in Boulder County at this time.

The following is a summary of the existing compost and future digestion capacity in the project area. The relative location of these facilities is shown in Figure 1.

Western Disposal. Western operates a 10-acre windrow composting facility in the City of Boulder. The facility is primarily accessed by Western for its residential and commercial customers. A discussion of the capacity of this site starts on page 15.

A-I Organics, Keenesburg. A-I Organics – a regional composting company, has two composting operations in the area. The Keenesburg facility is a very large site, with the ability to process a wide array of organics. Material delivered to this site from Boulder County is typically transferred at a site near the Stapleton Airport before being trucked to Keenesburg. The use of a Doda “bio-separation” system (or similar) to remove contaminants may also have the unintended consequence of removing compostable bags and service ware delivered to this site, causing concern for some.

A-I Organics, Eaton. The Eaton facility is the corporate headquarters for A-I Organics was recently permitted to accept food scraps. This site now offers additional capacity, especially for organics originating in the northern part of Boulder County.

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Heartland Biogas. Heartland Biogas is a large manure and food co-digester currently being constructed on a site near LaSalle, Colorado. While the facility is still being constructed, it is anticipated that it will target large generators of clean source-separated food scraps. A-I Organics is under contract to supply food scraps to the facility. It is likely that this facility will source appropriate commercial food scraps from Boulder County and the surrounding area if possible, further diminishing the need for compost capacity in Boulder County. It is estimated that this facility will require 600 tons per day of suitable food scraps materials, or approximately 200,000 tons per year.

Colorado regulations for these types of facilities do not typically contain a specific capacity for a site, subject to limitations that may be imposed by a Certificate of Designation.

BACKYARD AND MID-SIZED ON-SITE COMPOSTING

While backyard composting is the most cost-effective and climate friendly manner in which to deal with residentially-generated materials, experience has shown that while a small percentage of residents will participate, not all residents will, making centralized collection and processing a necessity.

Some generators of organic materials choose to compost their own materials at their own site. While there are many benefits to this, there are also challenges. Many large generators who have considered mid-sized, on-site composting have not moved forward due to operational concerns and economies of scale. A recent study in King County, Washington found that although both schools and businesses were good candidates for on-site composting, though most businesses did not keep it up, especially if food scraps collection was available or would be available in 3 to 4 years. Schools were good candidates, but required ongoing training. Both types of generators reported a 7-year payback on purchase of the composting unit.

All of the entities interviewed for this report were asked if they were aware of any existing or planned mid-size on-site composting or anaerobic digestion operations. None were identified (though CU is, in the long-term, contemplating the possibility of on-site processing). This is important because there are a number of options available to food scraps generators and were a mid or large generator to implement an on-site program, it would reduce the volume of material potentially available to a Boulder County facility.

However, it is unlikely that any mid-size, on-site, or backyard composting efforts will significantly affect the need for curbside organics collection. Any projects that do develop will decrease the need for expanded capacity in the County.

ANAEROBIC DIGESTION AT THE CITY OF BOULDER WASTEWATER TREATMENT PLANT

There are a number of efforts across the country at select wastewater treatment plants (WWTPs) to accept both high strength liquids and/or municipal or industrial food scraps as a means of utilizing excess digester capacity while producing additional bio-gas. One of the most well-known of these projects is the East Bay Municipal Utility District's (EBMUD) project in Oakland, California. EBMUD receives food scraps from the City of San Francisco (and other sources) and co-digests them in one of their digesters. EBMUD originated this project as a way to utilize excess capacity in their digesters. Perhaps the key to this project (which is still considered a pilot project) is the existence of significant, built-but-currently-unused, digester capacity. Having the capital for the digesters already spent is one of the key factors in the economics of the project.

Since this ground-breaking project, a few other WWTPs have also entered into pilot projects to co-digest high strength liquids and food scraps, these include the Hyperion Treatment Plant run by the Sanitation Districts of Los Angeles County near Carson, California, and the Central Marin Sanitary District, near Novato, California. Other WWTPs have been developing capacity to take high strength liquids, like Fats, Oils and Grease (FOG) which is also seen to increase both revenues and gas production.

The challenges with accepting municipal food scraps at a WWTP are many. First, the plant must have available digestion capacity. Many observers believe that for this approach to work, there must be a dedicated digester, but most of the current pilots are working with existing digesters and co-digesting the food and biosolids.

The City of Boulder WWTP currently has two digesters, neither of which has "excess" capacity. A third digester was envisioned, but never built. Thus, there are a number of infrastructure improvements that would need to be made in order for the WWTP to be able to accept, process, and digest any locally generated food scraps or high strength liquids. One of the critical factors of the current co-digestion projects around the country is taking advantage of existing excess capacity. This was the primary motivation behind the EBMUD project. The economics of co-digestion at a WWTP become much more favorable when the hard infrastructure is already paid for. In the City of Boulder's case, in addition to the need to capitalize and construct a new digester, it is likely that the cogeneration equipment would need to be both upgraded and expanded to handle the increased gas load.

Also, it is unknown how much work is required to "clean-up" and change solid food scraps into a slurry that is suitable for co-digestion. This typically involves manual and mechanical sorting,

screening, and filtering to make a suitable co-digestion feedstock. Depending on the scale, the investment in the receiving and pre-processing technology could be significant. It is unknown whether or not residents would accept trash trucks hauling what is perceived as municipal solid waste to the WWTP. Certainly there would be an increase in traffic at the WWTP.

Acceptable Materials

One of the challenges of receiving municipal food scraps at a WWTP is that most food scraps programs allow residents or businesses to include many items which are compostable, but are not food (and may not be readily “digestible”). For example, paper products, like napkins and pizza boxes, and compostable service ware like PLA cups and plates. The current education materials used by Western Disposal and Eco-Cycle in their food scraps collection outreach programs include a large number of materials which would be challenging in a “low solids” digester environment (such as the one conducted by the City of Boulder WWTP). While the technology to remove these materials exists, it is unclear how residents (and program managers) might feel about encouraging residents and/or businesses to include items for recycling which are ultimately pulled out of the waste stream and disposed. The City of Portland (Oregon) is currently experiencing some growing pains along these lines as they switched from a composter to a digester for their municipally collected food scraps; the digester was not designed to handle large amounts of paper, cardboard, or compostable plastics. Many of these items are now excluded, causing confusion and frustration among some generators³.

Compost Quality

Some observers are concerned that adding municipal food scraps to WWTPs and co-digesting the material with sewage sludge degrades the quality of the resulting product(s). While there can be perception issues regarding the disposal and use of biosolids, there may be no significant agronomic difference between food that is digested and put on agricultural ground and food that is co-digested with biosolids and put on similar agricultural ground. There are also some observers that believe that the energy inherent in food scraps should be put back on the soil, continuing the nutrient cycle, rather than being used for energy.

Summary

A feasibility analysis of adding municipal food scraps to a future digester at the City of Boulder WWTP could be completed as there may be some benefits of a co-digestion project, however it is clear from discussions with plant staff and IWMC’s experience with similar programs (predominantly in CA) that because there is no significant digester capacity (i.e., no existing,

³ “Agency Shifts to Food-Only Commercial Organics” BioCycle Magazine, July 2014 Pgs. 30 – 32.

vacant digester), the primary benefit of these programs (taking advantage of existing capacity, thus lowering production costs) do not currently exist at this plant. The challenges of accepting, cleaning, and processing food scraps in order to co-digest at a yet-to-be built digester, as well as the impact on the existing food scraps collection programs, would seem to present significant obstacles both in terms of project economics but also in terms of the impact on existing collection programs.

GRASSCYCLING AND WASTE REDUCTION

Grasscycling, the practice of leaving grass clippings on the lawn rather than collecting them, is by all accounts, a cost-effective and environmentally friendly practice. Numerous state and local programs across the country strive to promote this practice via brochures, trainings and providing low-cost “mulching” mowers. Grasscycling has the potential to divert significant amounts of grass from municipal collection programs (whether destined for landfill or composting). It is unknown exactly how much grass is contained within the overall organics waste stream in Boulder County, but it is not insignificant. The challenge with grasscycling is quantifying the actual impact of an outreach program promoting it. The City of Seattle estimated that a homeowner aggressively grasscycling could perhaps divert as much as 500 pounds per 1000 square feet of lawn. However, grass generation varies significantly based on climate and soil type and the Seattle estimate probably overstates what one might expect in Boulder. In order to properly quantify the effect of a grasscycling outreach program, one would need to establish a baseline (How many people are already grasscycling? What is the total area of managed turf within the study area?). Any individuals already grasscycling might not have had their tonnage show up in the 2010 waste characterization.

So, while encouraging grasscycling is an excellent practice, one that promises reductions in greenhouse gasses, and potentially the need to collect less yard trimmings, no studies were identified which reasonably quantified the impact grasscycling might have on the needed compost capacity in Boulder County.

Colorado is an arid climate and some homeowners and businesses have begun to recognize this in their landscaping and have promoted “xeriscaping” which includes drought tolerant, low water using, and native plants. These are all positive developments and to the extent possible, could be encouraged by Boulder County. However, as shown in the 2010 Waste Characterization, there are still significant yard trimmings and organics heading to area landfills. Thus, whatever impact xeriscaping or drought-tolerant landscaping may be having on the generation of yard trimmings is very hard to measure.

COMPOST CAPACITY

It is important to understand that there are many factors which go into calculating a given site's capacity (and many management techniques an operator can use to manipulate that capacity). First and foremost might be that Western Disposal does not compost 100 percent of what is delivered to the site. According to "*Organics Processing Capacity Requirements for Boulder County*" (see Appendix B) Western processed 20,000 cubic yards of compost, 31,500 cubic yards of mulch, and 7,650 cubic yards of ground wood in 2013. Thus, out of 59,150 cubic yards processed, only about a third was made into compost. Most compost operators have this flexibility and use it to manage material and market fluctuations.

Existing Capacity at Western Disposal

IWMC conducted interviews with facility staff and toured the compost operation run by Western Disposal located in the City of Boulder. Western Disposal operates a traditional windrow operation, largely serving the needs of Western's customers who contract with Western for organics collection services. The facility receives both yard trimmings commingled with residential food scraps as well as commercial food scraps. In addition to discussing the site and capacity issues with Western Disposal Staff, IWMC reviewed the "*Organics Processing Capacity Requirements for Boulder County*" document prepared by Western. Using assumptions provided in that document and from Western staff, IWMC created an estimate of the facility capacity based on the available land at the site and assumptions about size of windrows and residence time. These calculations are contained in Appendix A. It is estimated by Western that they are currently processing roughly 10,000 tons per year (9,454 tons processed in 2013) on the current pad which is 6.41 acres. Western believes that a total of 10.73 acres of "pad" could be permitted at this site. Western estimates the current pad (6.41 acres) could accommodate 14,500 tons of material per year. If the "full" pad were used, Western believes they could accommodate 24,272 tons per year (more than they believe is available in the waste stream).

Although IWMC's on-site investigation only included a short site visit, the existing site does not appear to be anywhere near its capacity. IWMC observed quite a bit of additional windrow area and very small stockpiles of material. Also, the site is managed moderately, with a relatively long retention time (2 cycles per year, or a 6 month retention time). Decreasing the retention time from two turns per year, to three (or four) would have a significant impact on both production and capacity.

Estimate of Additional Capacity at Western Disposal

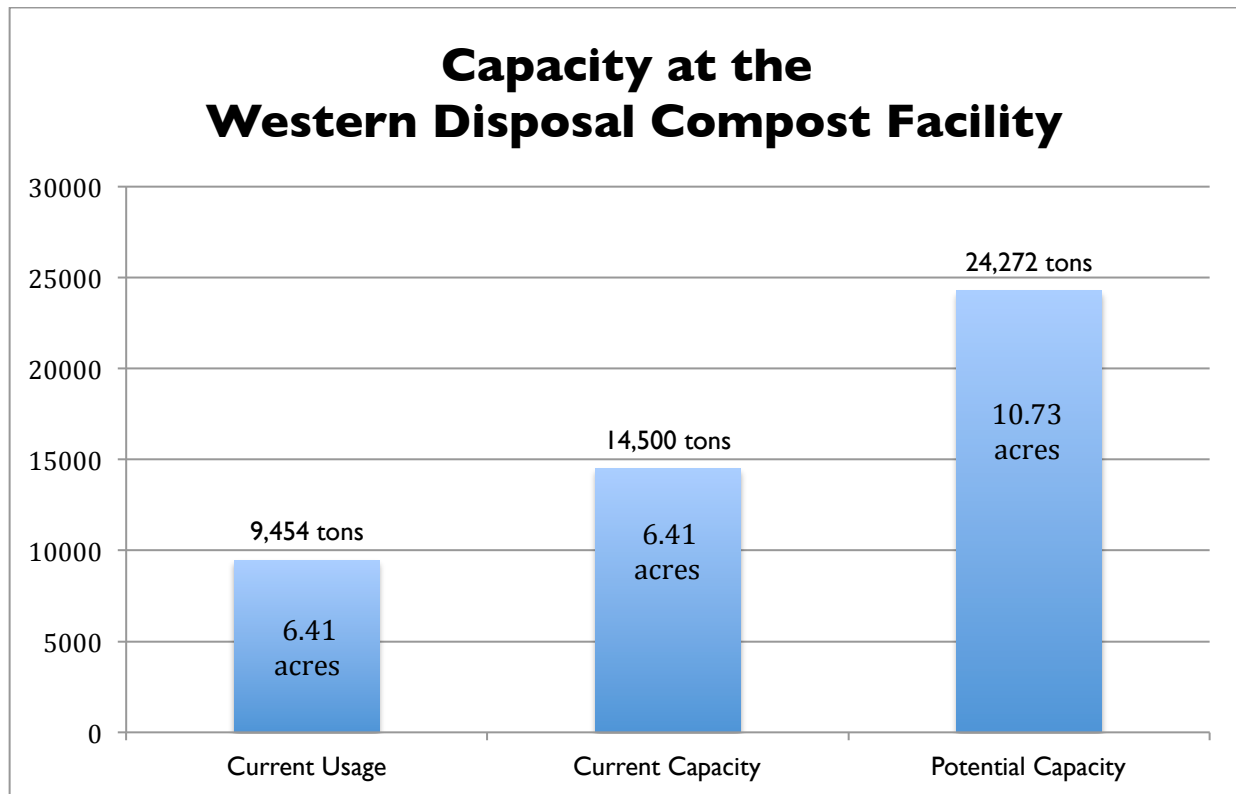
Western Disposal provides two estimates of the capacity of the composting site in their "*Organics Processing Capacity Requirements for Boulder County*" document. This document looks at the current permitted pad (6.41 acres) and assumes that the amount composted on it today is

the “Actual” (9,454 tons) and that a larger amount is the “Capacity”. By increasing the pad size by 4.32 acres (a 67 percent increase), Western believes they can also get a concurrent 67 percent increase in the “Capacity”. Western further believes that the addition of nitrogen (needed to reduce the carbon to nitrogen ratio) would allow them to increase the speed of the composting process (or decrease the retention time). Nitrogen is more plentiful in food scraps than in yard trimmings. One way to reduce the carbon to nitrogen ratio would be to accept more food scraps - though not all materials covered under the term “food scraps” are low in carbon (cardboard from a supermarket, for example). The Western analysis appears to be saying that they could double the tonnage received at the current pad (from 7,548 tons to 15,825 tons), and by increasing the available pad they could go from processing 12,594 tons, to 24,273 tons. Further, by decreasing the retention time, (from 2 turns per year to 2.5 turns) they could process up to 30,340 tons per year. Earlier in the document, Western estimates a total of 19,190 tons available within the entire Boulder County waste stream, including those cities which do not currently have organics collection. It is unclear whether or not this analysis includes additional commercial organics. However, what Western is saying is that they have more than sufficient capacity for all of the projected organics in the County. Figure 3 shows graphically the representation between the current utilization of the compost facility operated by Western Disposal, its potential utilization (both on the 6.41 acre pad) and the potential future capacity on the expanded 10.73-acre pad.

IWMC Estimate of Compost Capacity

As shown in Appendix A, using simple calculations of windrow size and retention time, the 10.71 acre site could accommodate approximately 30,000 cubic yards at any one time, or per cycle. Thus, if aggressively managed the site might be able to produce three or four times that volume on the 10-acre site. Conversions of yards to tons varies, but using a conservative estimate of bulk density and a conservative estimate of volume reduction during composting the site could be managed to accommodate 30,000 cubic yards per cycle. How many cycles are completed in a year makes a significant impact on the capacity of the site. Western currently completes two cycles per year. They believe with additional nitrogen (to decrease the carbon to nitrogen ratio) they could accommodate 2.5 cycles per year. However other management techniques could be employed (including more frequent turning, different turning equipment, closer attention to process variables and overall increasing management intensity) that would increase the site’s capacity well beyond 2.5 cycles.

Figure 3. Capacity at the Western Disposal Compost Facility in Boulder Colorado.



IWMC's analysis is based on using assumptions of existing equipment and operating practices. The site currently uses a Resource Recycling Systems KW 616 compost turner. This machine can accommodate a windrow of approximately 6 feet high by 16 feet wide. In practice, this makes a windrow of approximately 2.2 cubic yards per linear foot⁴. The formula for calculating the area of a trapezoid is $A = h \times (b-h)$, where b is the base and h is the height. Thus $6 \times (16 - 6) = 60$ cubic feet. To convert this to cubic yards, divide by 27 (the number of cubic feet in a cubic yard), thus the KW 616 creates a windrow profile of approximately 2.2 cubic yards per linear foot. This value can then be multiplied by the available area, minus the area needed for aisles and related space. Assuming a 15-foot aisle between piles, the 10.73-acre site could accommodate approximately 38 windrows at one time. The other major factor influencing site capacity is the retention time and management intensity. Currently the facility is managed rather moderately, with two "turns" per year. By increasing the management intensity of the facility (decreasing the carbon to nitrogen ratio, and more actively managing the site) the number of turns could be increased. Also it is important to note that a site that is

⁴ The manufacturer of this machine uses a slightly different formula $(2/3(6*16))/27$ which gives a slightly larger yardage per linear foot (2.38), making our assumptions slightly more conservative.

predominantly managing yard trimmings may have more capacity for food scraps than would seem apparent. This is because food scraps are predominantly water and do not add a significant amount of volume, the way adding a similar volume of yard trimmings might. Thus adding a cubic yard of food scraps to say, 5 yards of yard trimmings does not necessarily equal six yards; the bulk density of the piles increases, but the volume does not increase commensurately. This is especially true over time as free liquid in the food scraps replaces the moisture required for composting.

Additional Capacity Needs

At this point, there is not sufficient evidence that additional capacity (beyond expanding the permitted pad area to 10.7 acres) is needed at the Western Disposal site. Recent bids (City of Lafayette) have taken some of the potential volume off of the table, in the sense that this material will be going to the A-I site in Keenesburg. Although Western Disposal has estimated potential future growth in organics collection programs, it is not certain how much of this will be directed to the Western site. It is also unclear how much suitable commercial organics may be available for composting in the future. Further, there may be increased competition for commercial organics once the Heartland Biogas facility is operational and is potentially attracting some commercial food scraps from the Boulder County region. A-I's facility in Eaton was also recently permitted to allow food scraps, further expanding available compost capacity in the region.

MANDATORY ORGANICS COLLECTION

The City of Boulder has established an aggressive Zero Waste goal. As part of understanding this goal, the City commissioned a Zero Waste Evaluation Study in 2014. This report has a number of recommendations, which, if implemented, may have an impact on Boulder County's need for additional Organics Processing Capacity. IWMC has reviewed the Zero Waste Evaluation Study and also contacted cities with similar goals and plans in place to determine a sense of the impact such goals might have on organics collection and processing. These issues are discussed below.

Zero Waste Evaluation Study

This report identifies a figure of 20,600 tons of organics being landfilled annually. It is not clear where this figure comes from. The report makes a number of recommendations which, if fully implemented, could potentially affect the need for additional organics processing capacity in Boulder County, these include:

- **Every other week trash collection.** Concurrent with this, organics collection would be changed to weekly.
- **Multi-Family Organics Collection.** Modify existing policy to require haulers to provide organics collection to homeowners with shared trash containers.
- **Mandatory Commercial Organics Collection.** This would require all commercial establishments to subscribe to organics collection.
- **Use of Compostable Packaging.** It is unclear how this might affect the organics collection program, but it is generally understood that the use of compostable bags increases participation in organics collection programs.
- **City purchase of Locally-Produced Compost.** This is intended to help support the market development efforts of the city's compost producers.

Table 8 summarizes the expected diversion identified in the Zero Waste Evaluation Study.

Table 8. Estimated Diversion from Zero Waste Evaluation Study.

Program	Expected Diversion
Weekly Collection of Organics	Not Estimated
Multi-Family Organics	300 – 600 TPY
Mandatory Commercial	8,900 – 17,700 TPY
Use of Compostables	Not Estimated
TOTAL	8,900 – 17,700 TPY

Thus, the Zero Waste Evaluation Study is predicting, out of a total of 20,600 tons disposed, implementing the abovementioned programs will achieve between 43 percent and 86 percent diversion of the commercial organic stream. The City of Seattle, which has been aggressively collecting commercial organics for roughly 8 years, in an open market system with aggressive contractors, is currently achieving an estimated 50 percent capture rate. As described below, the City of Seattle is currently contemplating and is likely to adopt an ordinance requiring collection of commercial organics. City staff expect that over time, they will achieve a diversion rate of up to 75 percent. Thus the estimates in the Zero Waste Evaluation Study may be aggressive, if not overstated.

Cities With Mandatory Organics Collection

As of the writing of this report, the only US city with mandatory organics collection is San Francisco, CA. However, a number of other programs are currently in the development or near implementation stages of similar programs. Table 9 summarizes the programs in a number of cities which have mandatory commercial organics programs (or something similar). These include San Francisco, California; Seattle, Washington; Portland, Oregon; New York City, New York; and Vancouver, British Columbia. Each of these programs is described below.

City and County of San Francisco. The City and County of San Francisco, a very dense urban area, developed an ordinance requiring separation of organics in 2009, more than 10 years after implementing voluntary source-separated organics. The text of the Ordinance (100-09) is contained in Appendix C. San Francisco, a city that covers a mere 49 square miles (smaller than the footprint of the Denver Airport) has far less green material than a typical northern California community and have been collecting food scraps separately since 1997, going citywide in 1999. Because residential food scraps and commercial food scraps are often commingled on the tipping floor of the Recology MRF, (prior to composting) IVMC was not able to identify any data showing a specific increase in participation based on transitioning from voluntary food scraps collection to mandatory. The total amount of organics collected has certainly increased, but no metrics that would be useful for this report were identified. One

Table 9. Cities with Mandatory Organics Collection

Jurisdiction	Population (2012)	Ordinance
San Francisco, CA	825,863	Required residents and businesses to separate food scraps from garbage in 2009.
Seattle, WA	634,535 (Metro 3.5 million)	Proposed Ordinance would go into effect 1/1/2015, enforcement would start 7/1/2015. Ban includes food, food soiled paper, cardboard, etc.
Portland, OR	603,106 (Metro 2.3 million)	No ban. Residents have every other week trash and weekly, inclusive organics collection citywide. Having issues with material types and processing facilities.
New York, NY	8,337,000	Local law 146-2013; on or after July 1, 2015, "Covered entities must either arrange for separate collection; transport their own organic materials for processing; or engage in on-site processing. Covered entities include: Businesses generating more than one ton of food waste per week.
Vancouver, BC	603,502 (Metro 2.3 million)	Disposal of organic materials not allowed in regular garbage, including food scraps, and yard waste (which is already banned). Goes into effect 1/1/2015.

Copies of relevant laws, fact sheets, etc., as well as contact information for the selected cities, are contained in Appendix C.

report⁵ claims that “Organics collection increased by 45%” but without a baseline and tonnage data, it is difficult to know what to do with this metric. Also, San Francisco has a number of unique facets which make it a difficult city to compare to other cities and has come under fire recently for some of the ways they (and their City-Charter-mandated hauler, Recology) count some recycling⁶.

City of Seattle, Washington. Seattle is on the cusp of implementing a mandatory food scraps collection ordinance, but of the date of this report, they have not approved such an ordinance. City staff projects that collected organics will increase 25 percent. But they have no operational data to back up this claim. Seattle’s food scrap ban will most likely look much like their existing “Director’s Rule SW-402.1”, which requires businesses to recycle “significant amounts” (defined as more than 10 percent) of disposed paper, cardboard, cans, bottles, etc. The proposed ordinance will add food to the mix of required materials. The City enforces the existing bans on businesses using inspectors and fines.

Portland, Oregon. Portland, Oregon also does not have a mandatory organics collection ordinance, but has switched all residential customers to every other week garbage service with weekly, inclusive green bin (all organics) collection. As mentioned earlier in this report, Portland has struggled with implementing some aspect of these programs. The switch from weekly to every-other-week happened relatively quickly and caused some confusion. The closure of one of the City’s contracted composting sites due to odors has also put strain on the program⁷ A recent audit of the City’s program found the residential side of the program was functioning as expected but the commercial sector was experiencing a number of issues.⁸ The Audit reported 58 percent of the commercial food scraps in Portland are collected and sent to composting and/or digestion. The main recommendation of the Audit was that Portland’s Bureau of Planning and Sustainability should:

“Increase the food waste participation rate for the commercial sector, including multifamily housing units. Identify clear incentives for businesses to divert food waste from the landfill.”

⁵ <http://sfenvironment.org/news/press-release/sf-attains-77-percent-recycling>, accessed September 18, 2014.

⁶ <http://fivethirtyeight.com/features/san-francisco-stalls-in-its-attempt-to-go-trash-free/>, accessed September 18, 2014.

⁷ “Agency Shifts to Food-Only Commercial Organics” BioCycle Magazine, July 2014 Pgs. 30 – 32.

⁸ http://www.oregonlive.com/portland/index.ssf/2014/04/portland_composting_audit_find.html, Accessed September 18, 2014.

New York City, New York. The City of New York, under the last days of the Bloomberg administration enacted fairly sweeping food waste collection legislation (Local Law 146-2013) which will go into affect on July 1, 2015. New York's law is modeled after similar, typically state legislation (like Connecticut, Rhode Island, and Massachusetts) which require certain (typically larger) generators to collect, self-haul or manage onsite their organics. A copy of Local Law 146-2013 is contained in Appendix C. IWMC did not identify any projections of participation by the City, regardless, collecting food scraps separately on the East Coast is very new and perhaps more challenging then on the West Coast and it remains to be seen what type of metrics these programs might have. There are also serious issues with lack of local infrastructure which may influence how well these programs might do. Local Law 77 established a pilot collection program which will run from September 2012, through the implementation of Local Law 146⁹. Although there is some data from this pilot study, the only "commercial " accounts participating in the program have been schools, which may not be representative of the larger category of commercial generators (i.e., supermarkets, restaurants, etc.).

Vancouver, British Columbia. The City of Vancouver, British Columbia has completed a rigorous planning and consultation process for developing a future organics disposal ban. While the consultation process is complete, the ban is not yet in effect. In fact, the strategy to implement the ban has not been made public yet either. Although the Metro Vancouver website has a great deal of information regarding the consultation process, there is obviously, no hard data from the program. Vancouver has had success banning other materials from landfill disposal and feels that they will be successful with the food scraps ban. Non-compliance will be monitored with inspections and fines.

⁹ http://www.nyc.gov/html/nycwasteless/html/resources/reports_LL77_DiversionReport_June2014.shtml, accessed September 18, 2014.

STRUCTURAL/POLICY NEEDS

Although the City of Boulder has an aggressive zero waste plan and a number of programs which could potentially increase the need for organics processing, it is challenging to recommend an investment in compost capacity to Boulder County at this time. To the east of Boulder, in Eaton, Keenesburg and near LaSalle are three facilities which offer significant amounts of capacity for food scraps. The Heartland facility is estimated to require as much as 600 tons per day of food scraps. A-I Organics Eaton facility was recently permitted to allow acceptance of food scraps.. Similarly the A-I Keenesburg facility is currently receiving food scraps from Boulder County and is expected to continue to do so. Both of the newer facilities (Heartland and Eaton) may likely draw food scraps material from Boulder County. Secondly, waste hauling in Boulder County is largely an open market system. This is particularly true for commercial organics. Even if the County were to develop in-county capacity, there is no guarantee that any of the potential commercial organics would flow to the facility. Although there are administrative structures which might remedy this, they are beyond the scope of this report.

FACILITY NEEDS

The following section describes aspects of developing a potential stand-alone facility, including economic impacts, siting criteria, and costs.

Environmental Impacts

Ideally composting sites are developed with mitigations in place to minimize potential environmental impacts. A full environmental review should be completed before or during the siting process. The major potential environmental impacts of a municipal or commercial composting facility include odors and air quality, transportation (traffic issues), noise, and dust. Most of these can be mitigated through project design and an adequate siting analysis. Table 10 lists a summary of potential environmental impacts to be expected with a municipal or commercial compost facility.

Some of these impact areas may have state or local requirements (like depth to groundwater or proximity to water courses), which should be reviewed before embarking on a siting analysis.

Siting Requirements

Every individual interviewed for this project believes siting a new composting facility in Boulder County would be a challenge. Identifying ten-acre (or larger) parcels suitable for an industrial composting site is challenging in most urban and suburban areas. Many of these facilities are sited on agricultural land, far from sensitive receptors. While it is possible that a potential site exists within Boulder County for a new compost facility, it is beyond the scope of this report to identify potential sites. To maximize efficiency, the site would most likely be located in the Northern part of the county surrounding Longmont, the largest city in Boulder County yet to implement curbside organics collection.

There are any number of siting criteria which can be accounted for when siting a municipal or commercial composting facility. The criteria listed in Table 11 is a good place to start. Each of these criteria is discussed below. In addition there may be site or County-specific siting criteria which may be added to this list.

Boulder County Composting Capacity Analysis

Determining the Existing and Needed Capacity

Table 10. Potential Environmental Impacts at Composting Facilities.

Land Use/General Plan Consistency
Geologic Resources
Resources/Parks
Sewage/Water Quality
Water Supply/Drainage/Flooding
Biological Resources
Transportation
Population/Housing
Safety/Health
Air Quality (Odor)
Noise
Aesthetics
Energy
Historical/Archeological
Public Services/Utilities

Table 11. Siting Criteria for Municipal Composting Sites.

Transportation Impacts
Transportation Distance
Traffic
Air Quality
Neighborhood Impacts
Air Quality (odor)
Noise
Environmental Impacts
Biological Resources
Cultural Resources
Hydrology and Water Quality
Site Costs
Site Acquisition Costs
Population and Housing
On-Site and Off-Site Development Costs
Utilities and Service Systems
Land Use Designation and/or Zoning
Visual Impacts

TRANSPORTATION IMPACTS

Transportation Distance. How far is the site from the material centroid?

Traffic. What is the impact of siting a facility at this location? Is the Level of Service for access roads going to be impacted by the additional traffic the facility will bring? How many new trucks will the facility need for feedstock receipt and product delivery? Does the facility have good access for heavy trucks?

Air Quality. What are the potential air quality impacts of the facility? What is the horsepower of the processing equipment? Will processing equipment be diesel or electric? What are the expected transportation emissions?

NEIGHBORHOOD IMPACTS

Air Quality (odor). What is the potential for the site to create objectionable off-site odors? Are there competing sources of odor in the vicinity? What are the prevailing winds?

Noise. What is the noise standard for the neighborhood? Can the facility meet this?

ENVIRONMENTAL IMPACTS

Biological Resources. Are there valuable or important biological resources on the site that need to be protected or avoided?

Cultural Resources. Are there identified cultural resources on the site which must be protected or avoided?

Hydrology and Water Quality. Are there water resources (wells, ponds, or rivers) in close proximity to the site which need to be protected? Is the site soil adequate to protect groundwater resources? Does the site have positive drainage?

SITE COSTS

Site Acquisition Costs. What is the cost of land? Is the site sufficiently sized to plan for future growth and expansion?

Population and Housing. Will the project affect developing neighborhoods or traditional housing areas? Is the project slated for new residential development? Is there anything preventing (or encouraging) new population growth around the facility? What is the ultimate density of nearby residential housing?

Boulder County Composting Capacity Analysis

Determining the Existing and Needed Capacity

On-Site and Off-Site Development Costs. What are the site development costs? Are there off-site development costs (extensions of roads, pads, buffer areas, etc.)?

Utilities and Service Systems. Are existing utilities available on site or will they need to be extended? Water? Electricity? Roads? Etc.

LAND USE

Land Use Designation and/or Zoning. What is the current zoning of the site? What is the land use designation? Is the site identified in any specific plans? What is the surrounding land use and is it compatible with commercial composting?

Visual Impacts. What are the potential visual impacts of the facility? Will the facility impact any scenic view or vista? Is there any potential for a visual buffer?

COST ESTIMATE

In order to estimate the costs of developing additional capacity for composting in the Boulder County region, a conceptual facility was developed for the purposes of developing an order-of-magnitude cost estimate. The order-of-magnitude cost estimate involved estimating the capital costs of a 30,000-ton per year facility. There are definitely economies of scale in composting, so larger facilities have lower unit costs.

Capital Costs

Capital costs would primarily include a grinder, a compost turner, a water truck, and a screen¹⁰. Rolling stock would include one or two front-end loaders. Perhaps the biggest individual capital cost would be in site acquisition. Acquiring ten, relatively flat, vacant acres in the appropriate project area, far from sensitive receptors, would be a challenge and might require a formal siting study. A summary of order-of-magnitude capital costs is shown in Table 12. This estimate envisions a 30,000-ton per year site, using equipment similar to what Western Disposal is currently using.

Table 12. Order-of-Magnitude Capital Costs for a 30,000 ton per year Compost Facility*

Equipment	Unit Cost	Number	Total Cost
Site Improvement Costs	\$500,000	1	\$500,000
Front End Loader	\$350,000	2	\$700,000
Grinder	\$850,000	1	\$850,000
Windrow Turner	\$300,000	1	\$300,000
Water Truck	\$300,000	1	\$300,000
Trommel Screen	\$200,000	1	\$200,000
Yard Truck	\$50,000	1	\$50,000
Capital Costs			\$3,900,000

*These costs are order-of-magnitude costs for planning purposes, this is not meant to be a construction estimate.

This estimate does not include a cost for land acquisition. If privately-owned land were purchased, it could easily cost an additional \$1,000,000 (10 acres @ \$100,000 per acre.). Unfortunately, given the economies of scale in composting, the capital costs for a small site are significant. This estimate assumes purchase of all new equipment and significant site improvements to accommodate permitting requirements (primarily for pad surface and

¹⁰ The equipment chosen for this representative analysis matches the equipment currently in use by Western Disposal, a Vermeer 8000 grinder, a Wildcat 516 screen, and a KW 616 windrow turner, the front-end loaders and the yard truck were generic based on IWMC's experience.

stormwater management). Clearly trying to amortize the costs of a ten-acre site and the equipment to process 30,000 tons of material are significant. Unfortunately the only way to reduce the unit costs is to spread them over additional tons processed. Five million dollars divided by 30,000 tons is approximately \$166 dollars per ton. Obviously a County-financed facility could amortize this cost over a longer period but regardless, it would be a significant investment.

Also, the City of Boulder has identified mandatory collection of both commercial and multi-family organics. The quality and composition of materials collected from voluntary source-separated organics collection programs tend to differ significantly from the quality and composition of materials collected from mandatory commercial and multi-family organics collection programs. In general, organics collected from mandatory programs and multi-family units tend to have significantly more contamination – predominantly glass and plastic. If these materials are to be managed at the publicly-owned and privately operated facility, additional capital will be required for either manual or automated contamination removal equipment. Given Colorado's climate, contamination removal would likely have to take place inside of a building, further escalating capital costs.

Operating Costs

IWMC has developed a conceptual order-of-magnitude estimate of operating costs. These costs are for planning level discussions and should not be construed as detailed construction or operating costs. Operating costs for composting facilities can be highly variable. Labor, fuel, and equipment maintenance can vary significantly based on feedstock, management practice, fuel prices, etc.

Labor

It is assumed the facility could be managed with one management level general manager/foreman and three equipment operators and a laborer. However, labor requirements can vary significantly. For example if the City of Boulder implements mandatory commercial and multifamily organics collection, the facility may need to add additional labor to sort contaminants out of the feedstock. This may also affect the capital costs as the facility may require a sorting building and an elevated sorting platform to conduct the sorting.

Fuel

All of the key processing equipment would be portable and diesel powered, including the grinder, turners, screen and two front-end loaders. In order to estimate fuel use an estimate of productivity was made based on the equipment selected above, against the tonnage processed. Obviously fuel can be one of the most variable costs at an operation like this.

Boulder County Composting Capacity Analysis

Determining the Existing and Needed Capacity

Maintenance

The capital budget assumes all new equipment, but all equipment requires regular scheduled and unscheduled maintenance. Maintenance estimates were based on hours worked and manufacturer's estimates. Composting is a particularly challenging work environment and maintenance costs are better estimated based on real world experience after a number of years operating a given piece of equipment.

Testing, Supplies, Etc.

The O&M cost estimate includes modest cost for supplies and for analytical testing.

Table 13. Order-of-Magnitude Operating Costs for a 30,000-ton per year Compost Facility.

	Range	
	Low	High
Labor	\$250,000	\$350,000
Maintenance	\$70,000	\$190,000
Fuel	\$70,000	\$150,000
Supplies, testing, etc.	\$10,000	\$10,000
TOTAL O&M Costs	\$400,000	\$700,000

Operations and maintenance costs for a 30,000-ton per year facility would have a range of \$400,000 to \$700,000 per year. Some of the annual costs are highly variable. Chief among these are labor and fuel. However, unscheduled maintenance can also be highly variable. If Boulder County decides a new stand-alone compost facility is critical infrastructure then the County should conduct a detailed engineering analysis and cost estimate to refine these estimates. These estimates are designed to give solid waste planners an order-of-magnitude understanding of the costs of a stand-alone facility,

FINDINGS

1. There appears to be a significant amount of both available and potentially available capacity for additional feedstock to be processed at the Western Disposal Compost Facility.
2. Combining the total available capacity of the Western Disposal site (potentially up to 25,000 tons per year), the A-I Organics Eaton site (up to 50,000 tons per year) and the Heartland Biogas facility (approximately 200,000 tons per year - of food scraps), as well as the Keenesburg facility (capacity unknown, but it is a very large facility) there is more than adequate capacity for all Boulder County generated organics in the region.
3. The cost of developing a stand-alone, publicly owned compost facility is on the order of magnitude of \$4 million, not including land acquisition cost. These costs will increase if the City of Boulder (or other major generators) develop a mandatory organics collection ordinance for commercial and multi-family organics (due to potential contamination).
4. The annual operations and maintenance costs for a stand-alone, publicly owned compost facility is on the order of \$400,000 to \$700,000. O&M costs are highly variable and a more detailed cost estimate should be conducted if the County is to pursue this option.
5. Most observers believe it would be very challenging to find a suitable, affordable site in Boulder County for a regional compost facility. Although a few potential sites have been identified, that is just the first step in the process of developing a facility.
6. Although the City of Boulder Wastewater Treatment Plant is potentially interested in co-digesting food scraps with their biosolids, there is no extra capacity (no existing dedicated digester) to accomplish this. Developing a new, stand-alone digester, with the requisite upgrades to energy generating equipment will be a significant cost.
7. Boulder County is an open market system for solid waste and recycling. There is no guarantee a given hauler will deliver organics to a county-owned facility. Numerous efforts to develop publicly-owned, and privately operated facilities have failed recently, for a number of reasons. The need for guaranteed feedstock definitely played a role in some of these failures (Sacramento County, Sonoma County Waste Management Agency, and Alameda County Waste Management Authority, to name three).

RECOMMENDATIONS

1. Based on the available organics processing capacity in the region, combined with the uncertainty of the development of additional collection programs in an open market system, there would not appear to be a compelling need to develop stand-alone compost capacity in the county at this time. Given that access to the Western Disposal compost site can be limited, Boulder County could explore avenues that expand access to the Western site. This could include the development of a public private partnership, or another form of arrangement.
2. If Boulder County wants to increase participation in organics collection by the commercial sector, they should fully investigate means of providing increased financial incentives or developing a mandatory ordinance. However, these tools (incentives and ordinances) require concurrent and significant public education and outreach. This should be part of any cost estimate of the program.
3. The City of Boulder could consider conducting a feasibility analysis of accepting municipal food scraps at the wastewater treatment plant, which would further refine the needs for this alternative to move forward.
4. Boulder County could consider conducting a targeted analysis focusing on generators of commercial organics to determine the current participation levels and future potential volumes of commercial organics. This study could try to bring clarity to the “number of accounts” versus “number of food generating businesses” discussion and also identify a more accurate estimate of current participation levels and likely future participation levels.

REFERENCES

Organics Processing Capacity Requirements for Boulder County, Undated, Western Disposal, Internal Document

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“Using In-Vessel Systems to Compost Food Residuals” On-site Composting Takes Root in King County, Undated. King County Website: <http://your.kingcounty.gov/solidwaste/garbage-recycling/onsite.asp>

On-Site Composting of Restaurant Organic Waste, Economic, Ecological, and Social Costs and Benefits. Undated Master’s Thesis, Marissa Mitchell.

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Boulder County Composting Capacity Analysis

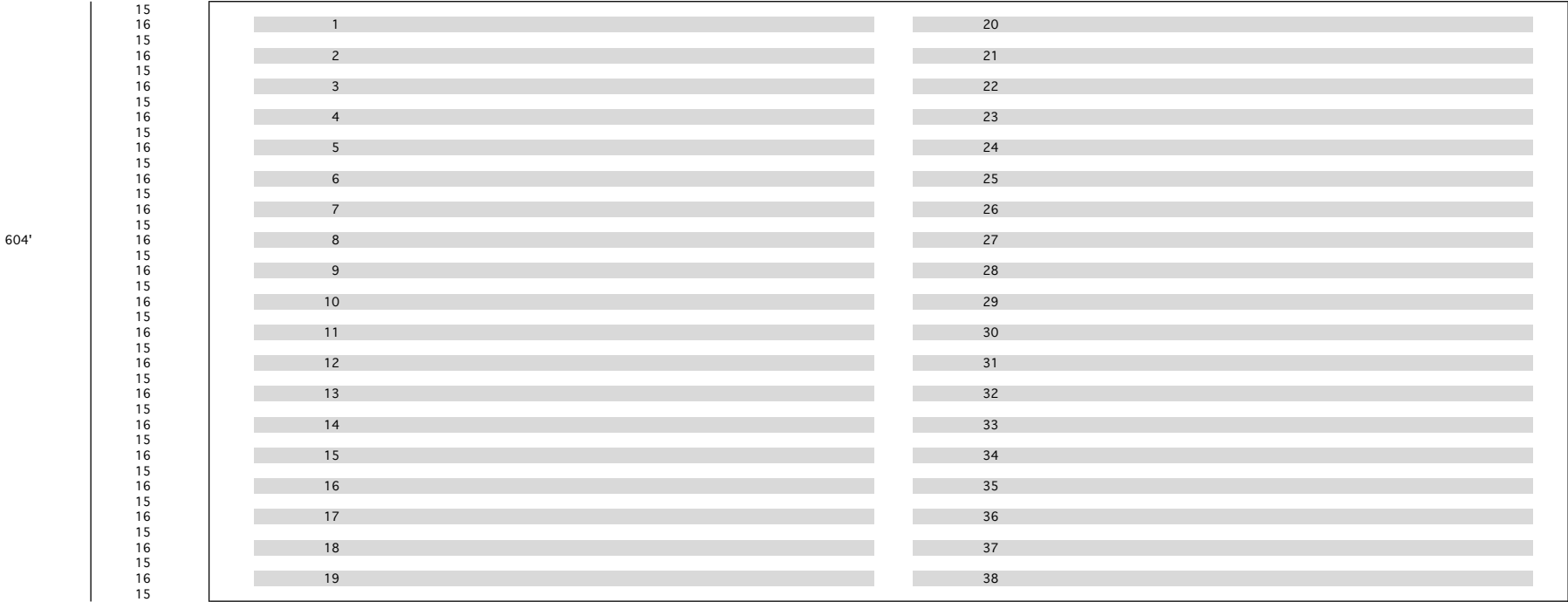
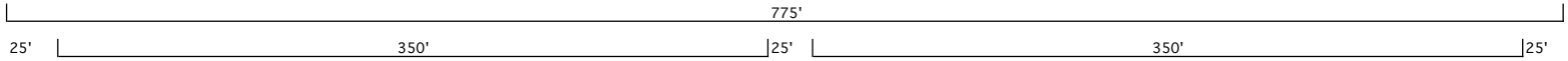
Determining the Existing and Needed Capacity

APPENDIX A **Compost Site Capacity Analysis**

IWMC's analysis and assumptions for the compost site capacity analysis and a site plan follow this page.

BOULDER COUNTY COMPOST CAPACITY ANALYSIS
Site Capacity Review of Western Disposal

Windrowing Area	467,399 10.73	Square feet Acres
Site		
Windrow Profile		
Base	16	Feet
Height	6	Feet
Top	8	Feet
Length	350	Typical
Aisle Width	15	feet
Profile	2.2	cubic yards per linear foot
Windrow Area Requirements		
Windrow Area	5,600	square feet
Aisle Area	5,250	square feet
Total Windrow Area	10,850	square feet
Additional space needed	1610	Square feet per windrow
Total area needed per windrow	12,460	Square feet per windrow
Number of windrows	38	
Bulk Density	1000	pounds per cubic yard
Capacity	29,176 14,588	cubic yards per cycle tons per cycle
Assume 30 percent reduction	37,929 18,964	cubic yards per cycle tons per cycle
Assume 2 cycles per year	75,857 37,929	cubic yards per year tons per year
Seven day per week basis	211 105	cubic yards per day tons per day



604

Length	775	One windrow =	778 cubic yards
Width	604		
Area	468100	38 windrows =	29,564 Cubic yards
	10.7 Acres		

Boulder County Composting Capacity Analysis

Determining the Existing and Needed Capacity

APPENDIX B

Organics Processing Requirements For Boulder County

The Western Disposal-produced Report: “Organics Processing Capacity Requirements for Boulder County” follows this page.

Organics Processing Capacity Requirements for Boulder County

ISSUE:

As Boulder County and many of the incorporated entities within it move towards zero waste, questions have arisen about the adequacy of existing facilities in the County to handle potential volumes of materials coming from both current and new programs.

One of the facilities being scrutinized is the Western Disposal Services Organics Processing Facility located at 2655 N. 63rd Street in the City of Boulder. This report attempts to quantify potential volumes and establish the capacity of the Western facility.

The Site:

The site is a 13.98 acre piece of land situated on 63rd Street in the City of Boulder between the Boulder County Recycling Center and the Stazio Ball fields. Of the 13.98 acres in the site, 10.73 acres are suitable for compost operations. The site is permitted to accept vegetative waste only and has been in operation since 2001.

The Western Facility was built by Western to process the materials they were collecting from their own residential and commercial customers.

When the City of Boulder and parts of Boulder County mandated haulers collecting residential refuse had to imbed organics collection in their service, Western agreed to let other residential haulers utilize the site.

While commercial organics collection is not mandated in any area of Boulder County, Western has been working to build a commercial organics collection business and has restricted their organics site to accepting only the commercial materials they collect.

Western recently sent a letter to all of the haulers delivering ostensibly residential materials to the site stating that they would not accept their residential material if it contained material from commercial businesses or from municipalities that were bidding for one hauler.

CURRENT STATUS OF ORGANIC PROGRAMS IN BOULDER COUNTY:

Boulder County has a population of 310,000 people, approximately 90,822 single family homes, 37,276 multi-family dwelling units and 14,119 business establishments. (See Attachment 1.)

RESIDENTIAL SERVICES:

Currently 47,745 single family homes, or 53% of the total single family homes, are in areas where curbside organics collection programs are required by ordinance. (See Attachment 2, Table D)

COMMERCIAL SERVICES INCLUDING MULTI-FAMILY HOUSING:

There are no areas within Boulder County where organics collection is required for commercial or multi-family buildings. Western Disposal and Eco-Cycle, Inc. both offer voluntary organics collection from businesses and multi-family buildings throughout the county. Attachment 1, Table B indicates that there are approximately 14,119 business establishments in Boulder County including 824 locations serving food and 3,533 multi-family residential buildings in the County.

Of the estimated 402 locations serving food in the City of Boulder, Western is serving 52 of them and unknown how many of them are being served by Eco-Cycle, Inc. Of the estimated 1,785 multi-family buildings in the City of Boulder, 92 are being served by Western Disposal. It is unknown how many of the multi-family buildings are being served by Eco-Cycle, Inc. While it is unknown how many food establishments and multi-family units are being served by Eco-Cycle, Inc. the volume is not considered to be significant.

DROP-OFF FACILITIES:

In addition to the curbside and business collection programs, the city of Boulder and Boulder County sponsor a yard-waste and wood-waste drop-off program at Western Disposal's facility at 5880 Butte Mill Road in the city of Boulder. Those programs serve both residential and commercial customers. The material from these drop-off sites is processed into yard-waste mulch and is not addressed in this report. In order for this material to be converted to compost a high nitrogen additive would need to be added – most probably manure or sewage sludge. Western Disposal's Organics Processing Facility is not permitted to accept manures or sewage sludge and likely never would be due to its urban setting.

Additionally, Western has a Food-Waste drop-off dumpster co-located with the yard-waste drop-off site where residential and commercial customers can drop off food waste for composting. That material is used in the composting process.

PROCESSING OF MATERIALS:

The materials collected at curbside, collected from businesses or dropped off under City of Boulder and Boulder County programs are processed at the site on 63rd Street.

There are three products produced at Western's organics processing facility:

- Compost - which is made from the materials collected at curbside and food-waste collected from businesses. In 2013 Western produced approximately 20,000 yards of compost.
- Ground Yard Waste Mulch – which is made from organics dropped off under the city of Boulder and Boulder County programs. In 2013 Western produced approximately 31,500 yards of ground mulch.
- Ground Wood – which is made from the dimensional wood-waste dropped off under the city of Boulder and Boulder County programs. In 2013 Western produced approximately 7,650 yards of ground wood.

POTENTIAL VOLUME TO BE GENERATED FOR COMPOSTING IN BOULDER COUNTY:

Single-Family Residential: The best available statistics regarding volumes coming from existing residential programs is the data Western Disposal reports to local government each year. Table C on Attachment 2

summarizes those statistics. The residential statistics reinforce each other with both the City of Boulder and the City of Louisville having almost identical generation rates and the one suburban area, Boulder County South, producing considerably more – as one would expect. Table E on Attachment 2 indicates that if all of the single family residences in Boulder County (excluding the Mountain residences) were covered by organics collection ordinances, there could be 19,190 tons of material to be composted per year.

Commercial: The volume of food-waste and other organics that can be collected from the commercial businesses, offices and multi-family buildings is unknown at this time. However, from experience and industry literature we know that most of the organic material to be collected from these sources is food-waste which is 70% water, therefore we do not expect a significant impact from commercial and multi-family programs.

WESTERN ORGANICS PROCESSING CAPACITY:

MULCH AND GROUND WOOD PRODUCTION:

The grinding of yard-waste and wood-waste to make mulch and ground wood products is not a regulated activity in Colorado and can be done anywhere that zoning doesn't prohibit it. Western Disposal has vacant land adjacent to its permitted compost facility where the stockpiling of unground materials, the grinding of materials and the storage of ground materials can be accommodated without any permitting process. For that reason, this report does not address materials not bound for compost production.

COMPOST PRODUCTION LICENSING REQUIREMENTS:

In order for a non-agricultural entity to produce compost in Colorado, application must be made to the Colorado Department of Public Health and the Environment. The application process is long, complicated and expensive. At the end of the permitting process, if the applicant is successful and if the host community agrees to do so, a Certificate of Designation is issued for the site. Western Disposal has such a Certificate of Designation (CD) approved by the State Department of Public Health and the Environment and issued by the City of Boulder.

Certificates of Designation are very specific about the materials that can be accepted for composting at a designated site. Western Disposal's current permit only allows vegetative wastes to be processed. No manures or sewage sludge can be accepted for processing at the site. That is a limitation upon the productivity of the site.

COMPOSTING PROCESS FACTORS:

The composting process is a natural one that relies upon bacteria to digest organic waste and turn it into compost which can be used to amend soil to increase its ability to breathe and hold water. The process depends upon a balance of carbon (which comes from woody materials) and from nitrogen (which comes from the green parts of plants, food waste and from manures). The speed at which organic material is converted to compost is dependent (within limits) upon the amount of nitrogen available in the process. The material Western collects at curbside from residential customers and from the commercial organic routes gets nitrogen to feed the composting process from the food waste and green plant materials in the

mix. While the food waste and green materials in the mix provide nitrogen, the nitrogen ratio is not optimum and more nitrogen rich feed-stocks would speed up the composting process.

WESTERN'S COMPOST PROCESSING CAPACITY:

Attachment 3 analyzes current and projected capacity of the Organics Processing Facility.

Western currently has lined 6.41 acres of the 10.73 acres available for composting with a liner so that compost can be made upon it. In 2013, Western processes 9,454 tons of material into compost on that pad. The area with pad is not being used as intensively as it could be because there is more pad space available than there is material to fill it. Western estimates that it could process an additional 5,046 tons of material on if pad use was optimized. That would make the capacity of the current pad 14,500 tons of materials per year. See Attachment 6, Table I

The facility could accommodate a pad of 10.73 acres in size, which would be a 67% increase over the current pad size. That change would increase the capacity from the current 14,500 tons per year to 24,272 tons per year 25% more than would be needed if all the residences in Boulder County had curbside organics collection service.

Currently there are two production cycles per year at the site. That is, it currently takes six months for a windrow of material to complete the composting process. As noted above, the six-month time frame is the result of a less than optimum mix of carbon and nitrogen in the materials being composted. If additional nitrogen could be added to the mix, then it would be possible to reduce the six-month production time and increase the capacity of the facility.

Attachment 3, Table F shows the potential capacity of the site growing to 30,340 tons at 2.5 cycles per year, about 60% more than the maximum expected volume from residential collections in the County. We believe that if local government were to require organics collection service from all establishments that serve food, there would be sufficient additional nitrogen to achieve the two and one-half cycles per year level of operations. The 6,068 tons of additional capacity generated by increasing from 2 cycles to 2 and one-half cycles plus the unused 5,082 tons of capacity on the existing pad (for a total of 11,150 tons of capacity) would be more than enough to handle any commercial and multi-family volumes created by new ordinances.

POTENTIAL FOR ALL OF BOULDER COUNTY TO ADOPT ORGANICS COLLECTION:

It is unlikely that the maximum number of housing units addressed by this report would all be subjected to organics collection mandates. It is even less likely that all of the multi-family and businesses located within Boulder County would be subjected to mandatory organics collection.

POTENTIAL FOR COMPETING COMPOST SITES:

As the demand for residential organic collection programs grows in the Denver metropolitan areas, other compost sites will be developed that will attract some of the volumes being generated in Boulder County. As that happens, the capacity necessary to process materials at the Western site will diminish.

CONCLUSION:

The capacity of the Western Disposal compost facility has been established in Attachment 3 at 14,500 tons as currently configured, 24,272 tons if the site is expanded and at 30,340 tons if more nitrogen can be introduced into the process. The demand from residential organic programs being expanded to virtually the whole county would create a demand of only 19,190 tons. Volume derived from commercial and multi-family programs would likely not be sufficient to use the 11,150 ton potential unused capacity at the site.

Because of the demonstrated capacity of the Western Organics Processing Facility and additionally because it is unlikely that all of the single family housing units in Boulder County will be subject to mandatory organics collection, because it is unlikely that a large number of multi-family and business accounts would be subject to mandatory organics collection and because we believe competing composting facilities will develop in the area, we believe that the Western Disposal composting facility has more than sufficient capacity to handle the likely volumes of residential and commercial volumes to be composted in Boulder County.

ADDENDUM:

Western Disposal services has been making and marketing compost and other organic materials for over ten years. We can report marketing of the materials produced is the most difficult portion of the process. While composting is an organic process dependent upon the correct mixtures of oxygen, water, carbon, nitrogen and bacteria, it is a manageable process. Marketing of the materials, however, requires constant attention to the markets and the ability to adapt processes and procedures very quickly to produce what the market is requesting. It also requires a lot of flexibility in terms of pricing day-to-day.

We believe that the collection of organics at curbside and from businesses and multi-family housing structures will increase over time and the supply of materials could easily exceed the demand for the materials. That will only make the marketing of materials more challenging.

We believe that any community that requires the collection of organics must be willing to cooperate with the producer to see that the material finds an appropriate use.

ATTACHMENTS

Attachment 1

Table A – Table of Census Data for Boulder County Residential population

Table B – Table of Census Data for Boulder County Commercial population

Attachment 2

Table C – Organic Generation Rates for Western’s Residential Customers

Table D – Status of Curbside Organic Collection Programs for Boulder County Residential Population.

Table E – Potential Residential Volume of Organics in Boulder County

Attachment 3

Table F – Calculation of Western Organic Facilities Potential Capacity to Process Materials

Attachment 4

Table G – Distribution of Organic Material Receipts by Month

Attachment 5

Table H – Miscellaneous Volume, Weight and Conversion Factors

Attachment 6

Table I -- Summary of Materials Collections in Boulder, Louisville and Lafayette 2009 thru 2013

Attachment 7

Table J – Calculation of Compost Pad Usage at 14,500 tons of Input per Year

DEMOGRAPHIC INFORMATION ON BOULDER COUNTY -- RESIDENTIAL

Table A

Community	Population	Housing Units	Multi Family Unit Count	Single Family Dwelling Count
City of Boulder	101,808	43,479	20,218	23,261
Longmont	88,669	35,008	10,047	24,961
Lafayette	25,733	9,997	1,540	8,457
Louisville	19,074	7,892	1,586	6,306
Superior	12,782	4,698	1,128	3,570
Total Incorporated Communities	248,066	101,074	34,518	66,556
Boulder County Mountain *	9,116	3,974	406	3,569
Boulder County North *	3,451	1,505	154	1,351
Boulder County South *	49,415	21,545	2,199	19,346
Total Unincorporated County	61,982	27,024	2,758	24,266
Total Boulder County	310,048	128,098	37,276	90,822

DEMOGRAPHIC INFORMATION ON BOULDER COUNTY -- COMMERCIAL

Table B

Community	Population	Business Establishments	Multi-Family Buildings	Food Service Establishments
City of Boulder	101,808	5,569	1,785	402
Longmont	88,669	3,023	1,176	183
Lafayette	25,733	1,015	82	56
Louisville	19,074	900	106	51
Superior	12,782	396	128	24
Total Incorporated Communities	248,066	10,903	3,277	716
Boulder County Mountain *	9,116	473	38	16
Boulder County North *	3,451	179	14	6
Boulder County South *	49,415	2,564	204	86
Total Unincorporated County	61,982	3,216	256	108
Total Boulder County	310,048	14,119	3,533	824

* The designation of Boulder County North, South and Mountain is one assigned by Western Disposal and Boulder County. There are no statistics for the individual areas, just for the unincorporated areas as a whole. They have been divided based upon Western's division of customers in the areas.

GENERATION RATES FOR WESTERN CUSTOMERS

Table C

(2013 volumes)

Community	Service Address Count	Tons Of Organics Collected	Pounds Per Service Address Per Year
-----------	-----------------------	----------------------------	-------------------------------------

Residential:**Urban**

City of Boulder	18,469	4,035	437
City of Louisville	5,137	1,126	438
Average Urban			437

Suburban

Boulder County South	7,427	2,253	607
Average Suburban			607

RESIDENTIAL CURBSIDE COLLECTION PROGRAM STATUS

Table D

Community	Population	Single Family Homes	Currently Have Curbside Organic Collections	Likely to Adopt Organic Collections Soon	Likely to Adopt Organics Collection in 5 to 10 Years	Unlikely to Adopt Organics Collection
City of Boulder	101,808	23,261	23,261			-
Longmont	88,669	24,961		24,961		
Lafayette	25,733	8,457		5,434	3,023	-
Louisville	19,074	6,306	5,138		1,168	-
Superior	12,782	3,570			3,570	-
Total Incorporated Communities	248,066	66,556	28,399	30,395	7,762	-
Boulder County Mountain *	3,099	3,569				3,569
Boulder County North *	49,586	1,351		1,351		
Boulder County South *	9,297	19,346	19,346			
Total Unincorporated County	61,982	24,266	19,346	1,351	-	3,569
Total Boulder County	310,048	90,822	47,745	31,746	7,762	3,569
		100.0%	52.6%	35.0%	8.5%	3.9%

* The designation of Boulder County North, South and Mountain is one assigned by Western Disposal and Boulder County. There are no statistics for the individual areas, just for the unincorporated areas as a whole. They have been divided based upon Western's division of customers in the areas.

POTENTIAL VOLUMES

Table E

Sources	Dwellings Covered	Annual Pounds of Material Per Dwelling	Projected Annual Tons
Existing Programs			
City of Boulder	23,261	437	5,086
City of Louisville	5,138	437	1,123
Boulder County South	19,346	437	4,230
	47,745		10,439
Potential Programs			
City of Longmont	24,961	437	5,457
Balance of City of Louisville	1,168	437	255
City of Lafayette (City Program)	5,434	437	1,188
Balance of City of Lafayette	3,023	437	661
Superior	3,570	437	781
Boulder County North	1,351	607	410
	39,507		8,751
Total Potential Tons	87,252		19,190

Table F

COMPOST YARD CAPACITY

Compost Yard Physical Characteristics	
Area Permitted for Compost Production	13.98 Acres
Area Occupied by Entrance Road	3.25 Acres
Net Compost Yard Area	10.73 Acres
Area with Compacted Clay Liner	6.41 Acres
Area Suitable for Additional Liner	4.32 Acres
Per Cent Increase in Pad Area Possible	67%

Existing Compost Yard Capacity Per Year (2 Cycles Per Year)		
	2013 Actual	Capacity
Tons Entering Compost Process:		
Curbside Collections	7,548 Tons	12594.0 Tons
Commercial Organics	1,906 Tons	1906.0 Tons
	9,454 Tons	14,500 Tons
Grinding Conversion to Yards	9	9
Ground Yards Entering Compost	85,086 Yards	130,500 Yards
Compost Conversion Factor	35%	35%
InProcess Compost Yards	29,780 Yards	45,675 Yards
Compost Shrink Factor	67%	67%
Finished Compost Yards	19,953	30,602
Expanded Compost Yard Capacity		
Tons Entering Process Currently	9,454 Tons	14,500 Tons
Increase Factor	67%	67%
Expanded Capacity	15,825 Tons	24,272 Tons

Potential Compost Yard Capacity Increase By Adding Nitrogen		
Assuming the Entire Permitted Site Was Lined for Production:		
Capacity with Current Mix Would Be	15,825 T/P/Y	24,272 T/P/Y
If turns per year increased To:		
2.5 Cycles Per Year	19,782 T/P/Y	30,340 T/P/Y

Table G

DISTRIBUTION OF ORGANIC RECEIPTS BY MONTH

Month	All Receipts		Compostable Portion	
	Tons Received	Percent of Total	Compostable Tons	Percent Compostable
January	861	5%	491	5%
February	704	4%	392	4%
March	1,008	6%	455	5%
April	1,345	7%	720	8%
May	2,016	11%	1188	13%
June	1,897	11%	1063	11%
July	1,913	11%	930	10%
August	1,829	10%	918	10%
September	1,384	8%	793	8%
October	1,755	10%	948	10%
November	2,422	13%	1069	11%
December	914	5%	486	5%
	18,048	100%	9453	100%

Western Disposal Services, Inc.
25-Jun-14

Table H

REVIEW OF ORGANICS COLLECTION AND PROCESSING STATISTICS
Based Upon 2013 Data

Customers Served with Curbside Organics Collection at 12/31/2013

Area	Service Address Count	Annual Tons of Organics Collected	Average Cart Size	Annual Yards of Service	Annual Pounds of Organics Per Annual Yard of Service
Single Family Homes					
City of Boulder	18,458	4,035	47	112,599	71.7
City of Louisville	5,171	1,111	100	66,825	33.3
Boulder County South	7,427	2,253	73	69,315	65.0
	31,056	7,399		248,739	59.5
Multi-Family Collections					
City of Boulder	92	102		1,566	130.3
City of Louisville					
Boulder County South	4	9		156	115.4
	96	111		1,722	128.9
Industrial - Commercial					
City of Boulder	201	1,589		22,487	141.3
City of Louisville		110		1,563	140.8
City of Lafayette		8		100	160.0
Boulder County South	24	133		2,115	125.8
Town of Superior	1	8		360	44.4
Town of Lyons		19		221	171.9
Weld County		51		210	485.7
City of Broomfield		61		736	165.8
City of Longmont		54		5,569	19.4
	226	2,033		33,361	121.9
TOTAL ALL AREAS	31,378	9,543		283,822	67.2
LOST IN TRANSPORT		(89)			
	31,378	9,454	-	283,822	67.2

Western Disposal Services, Inc.
Calculation of Maximum Boulder County
Organics Processing Need

April, 2014

SOLID WASTE GENERATION RATES Western Disposal Residential Customers

ACTUAL EXPERIENCE IN LOUISVILLE

Table I

Yearly Collection Totals - Tons					Annual Generation Rates Per Household - Pounds			Daily Generation Rate Per Household				
Total Trash	Total Recyclables	Total Compostables	Total All Materials	Average Monthly Service Address Count	Average Trash	Average Recyclables	Average Compostables	Average All Materials	Average Trash	Average Recyclables	Average Compostables	Average All Materials
2,347.6	1,170.4	743.4	4,261.4	4,871	1,652	824	523	2,999	4.53	2.26	1.43	8.22
3,790.3	2,030.8	1,333.2	7,154.3	4,963	1,527	818	537	2,883	4.18	2.24	1.47	7.90
3,732.9	1,931.7	1,218.0	6,882.5	4,990	1,496	774	488	2,759	4.10	2.12	1.34	7.56
3,711.0	1,979.9	1,188.1	6,879.0	5,060	1,467	783	470	2,719	4.02	2.14	1.29	7.45
3,752.4	1,976.3	1,125.7	6,854.4	5,138	1,461	769	438	2,668	4.00	2.11	1.20	7.31
54.7%	28.8%	16.4%	100.0%									

ACTUAL EXPERIENCE IN LAFAYETTE

Yearly Collection Totals - Tons														Annual Generation Rates Per Household - Pounds				Daily Generation Rate Per Household			
Total Trash		Total Recyclables	Total Compostables	Total All Materials	Average Monthly Service Address Count	Average Trash	Average Recyclables	Average Compostables	Average All Materials	Average Trash	Average Recyclables	Average Compostables	Average All Materials								
4,496.0	1,629.8		6,125.7	5,084		1,769	641	-	2,410	4.85	1.76	0.00	6.60								
4,931.6	1,728.0		6,657.6	5,103		1,933	676		2,609	5.30	1.85	0.00	7.15								
4,348.1	1,595.3		5,943.4	5,164		1,684	618		2,302	4.61	1.69	0.00	6.31								
4,508.1	1,610.2		6,118.2	5,282		1,707	610	-	2,317	4.68	1.67	0.00	6.35								
4,505.7	1,621.9		6,127.6	5,434		1,658	597	-	2,255	4.54	1.64	0.00	6.18								
73.5%	26.5%	0.0%	100.0%																		

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ACTUAL EXPERIENCE IN BOULDER

Yearly Collection Totals - Tons				Annual Generation Rates Per Household - Pounds				Daily Generation Rate Per Household			
Total Trash	Total Recyclables	Total Compostables	Total All Materials	Average Monthly Service Address Count	Average Trash	Average Recyclables	Average Compostables	Average All Materials	Average Trash	Average Recyclables	Average Compostables
10,063.0	7,359.0	3,121.0	20,563.0	17,690	1,140	832	353	2,325	3.12	2.28	0.97
9,986.0	7,258.0	3,467.0	20,721.0	17,948	1,114	809	386	2,309	3.05	2.22	1.06
9,802.0	7,104.0	4,019.0	20,925.0	18,076	1,085	786	445	2,315	2.97	2.15	1.22
10,143.0	6,987.0	4,423.0	21,553.0	18,234	1,113	768	485	2,364	3.05	2.10	1.33
10,640.0	7,032.0	4,065.0	21,737.0	18,469	1,152	761	440	2,354	3.16	2.09	1.21
48.9%	32.4%	18.7%	100.0%								

2013 % Composition

TOTALS AND AVERAGES

Yearly Collection Totals - Tons				Annual Generation Rates Per Household - Pounds				Daily Generation Rate Per Household			
Total Trash	Total Recyclables	Total Compostables	Total All Materials	Average Monthly Service Address Count	Average Trash	Average Recyclables	Average Compostables	Average All Materials	Average Trash	Average Recyclables	Average Compostables
16,926.6	10,159.2	3,864.4	30,950.1	27,645	1,225	735	280	2,239	3.52	2.33	0.92
18,717.9	11,014.8	4,800.2	34,532.9	28,014	1,336	786	343	2,465	3.84	2.54	1.13
17,883.0	10,630.9	5,237.0	33,750.9	28,230	1,267	753	371	2,391	3.68	2.44	1.06
18,362.1	10,577.1	5,611.1	34,550.3	28,576	1,285	740	393	2,418	3.71	2.47	1.09
18,898.1	10,630.2	5,190.7	34,719.0	29,041	1,301	732	357	2,391	3.75	2.50	1.07
54.4%	30.8%	15.0%	100.0%								

2013 % Composition

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Western Disposal Services, Inc.
25-Jun-14

ANALYSIS OF COMPOST PAD USAGE BY MONTH

Table J

Assumptions:									
Distribution of Tons for Composting Through the Year:									
January	5.2%	Annual Tons for Composting Delivered to Compost Yard	14,500						
February	4.2%	Ratio of Yards Placed in Windrow to Tons Received:	3.33 to 1						
March	4.8%	Weight Per Yard of Ground Material in Windrow	600 pounds						
April	7.6%	Months to First Windrow Consolidation	3						
May	12.6%	Months to Second Windrow Consolidation	3						
June	11.2%	Ratio of Finished Compost Yards to Tons Delivered	2.00 to 1						
July	9.8%	Windrow Capacity	1200 yards per windrow						
August	9.7%	Maximum Windrow Count	18 per cycle						
September	8.4%	Cycles Per Year	2						
October	10.0%								
November	11.3%								
December	5.2%								
	100.0%								

This worksheet calculates the number of windrows on the pad at any one time. The capacity of the pad is 18 windrows each containing 1,200 yards of ground material each. If the number of windrows exceeds 19, there could be a problem.

This worksheet calculates the number of windrows on the pad at any one time. The capacity of the pad is 18 windrows each containing 1,200 yards of ground material each. If the number of windrows exceeds 19, there could be a problem.

ATTACHMENT 7

Month of Receipt	Tons Received	Yards Into Windrows	Windrows Created	Cumulative Windrows Created	Windrows Combined on Pad	Cumulative Windrows Combined on Pad	Windrows Completed and Removed From Pad	Cumulative Windrows Completed and Removed from Pad	Net Windrows on the Pad
Year 1									
January	754	2,511	2.09	2.09				-	2.09
February	609	2,028	1.69	3.78				-	3.78
March	696	2,318	1.93	5.71				-	5.71
April	1,102	3,670	3.06	8.77	1.05	1.05		-	7.73
May	1,827	6,084	5.07	13.84	0.84	1.89		-	11.95
June	1,624	5,408	4.51	18.35	0.97	2.86		-	15.49
July	1,421	4,732	3.94	22.29	1.53	4.39	1.05	1.05	16.86
August	1,407	4,684	3.90	26.19	2.53	6.92	0.84	1.89	17.38
September	1,218	4,056	3.38	29.57	2.25	9.17	0.97	2.86	17.54
October	1,450	4,829	4.02	33.60	1.97	11.15	1.53	4.39	18.07
November	1,639	5,456	4.55	38.15	1.95	13.10	2.53	6.92	18.13
December	754	2,511	2.09	40.24	1.69	14.79	2.25	9.17	16.28
Total	14,500	48,285	40.24	40.24	14.79	14.79	9.17	9.17	
Year 2									
January	754	2,511	2.09	42.33	2.01	16.80	1.97	11.15	14.38
February	609	2,028	1.69	44.02	2.27	19.07	1.95	13.10	11.85
March	696	2,318	1.93	45.95	1.05	20.12	1.69	14.79	11.05
April	1,102	3,670	3.06	49.01	1.05	21.16	2.01	16.80	11.05
May	1,827	6,084	5.07	54.08	0.84	22.01	2.27	19.07	13.00
June	1,624	5,408	4.51	58.59	0.97	22.98	1.05	20.12	15.49
July	1,421	4,732	3.94	62.53	1.53	24.50	1.05	21.16	16.86
August	1,407	4,684	3.90	66.43	2.53	27.04	0.84	22.01	17.38
September	1,218	4,056	3.38	69.81	2.25	29.29	0.97	22.98	17.54
October	1,450	4,829	4.02	73.84	1.97	31.26	1.53	24.50	18.07
November	1,639	5,456	4.55	78.38	1.95	33.22	2.53	27.04	18.13
December	754	2,511	2.09	80.48	1.69	34.91	2.25	29.29	16.28
Total	14,500	48,285	40.24	40.24	20.12	20.12	20.12	20.12	

Beginning Windrow Count 0
 Windrows Created During Year 40.24
 Windrows Combined During Year 14.79
 Completed Windrows Removed 9.17
 Net Windrows on Pad 16.28

Beginning Windrow Count 16.28
 Windrows Created During Year 40.24
 Windrows Combined During Year 20.12
 Completed Windrows Removed 20.12
 Net Windrows on Pad 16.28

APPENDIX C

Mandatory Organics Collection Ordinances, Laws, Fact Sheets, etc.

The following documents related to Mandatory commercial food scraps collection, follow this page. Contact information for each program is contained immediately following this page.

San Francisco Mandatory Food Scraps Collection Ordinance.

Seattle Composting Requirement, Frequently Asked Questions

New York City Commercial Organics Law

Commercial Organics Ban Information Package, Metro Vancouver

CONTACTS

The following individuals can be contacted for more information on the existing (San Francisco) and planned mandatory commercial organics programs.

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[Mandatory Recycling and Composting.]

Ordinance amending the San Francisco Environment Code by adding Chapter 19, Sections 1901 through 1912, entitled "Mandatory Recycling and Composting Ordinance," amending the San Francisco Public Works Code by amending Section 173, and amending the San Francisco Health Code by amending Sections 291, 291.1, 291.2, 291.4, 291.7, 291.11, 291.12, 291.15, 291.17, and 293.1, and by repealing current Sections 291.9 and 291.16 and adding a new Section 291.16, all to: (1) require all persons located in San Francisco to separate recyclables, compostables and landfilled trash and participate in recycling and composting programs; (2) provide enforcement mechanisms and penalties for violations; (3) ensure that all properties subscribe to refuse collection service; and (4) authorize a Department of Public Health inspection fee of \$167 per hour; and making environmental findings and setting an operative date.

Note: Additions are single-underline italics Times New Roman;
deletions are ~~strikethrough italics Times New Roman~~.
Board amendment additions are double underlined.
Board amendment deletions are ~~strikethrough normal~~.

Be it ordained by the People of the City and County of San Francisco:

Section 1. **Findings.** The Board of Supervisors finds and declares:

1. The City and County of San Francisco has a duty to protect the natural environment, the economy, and the health of its citizens.

2. The California Integrated Waste Management Act of 1989 requires cities and counties to reduce, reuse and recycle (including composting) solid waste generated in the state to the maximum extent feasible before any incineration or landfill disposal of waste, to conserve water, energy and other natural resources, and to protect the environment.

Mayor Newsom , Supervisors Mirkarimi, Daly
BOARD OF SUPERVISORS

1 3. The California Integrated Waste Management Act of 1989 mandates that each local
2 jurisdiction in the state divert 50% of discarded materials from landfill. Every city and county
3 in California could face fines up to \$10,000 a day for not meeting the 50% diversion goal. In
4 2001, the California Integrated Waste Management Board adopted a Strategic Directive
5 statewide zero waste goal.

6 4. The State of California regulates hazardous waste (e.g., paint, batteries, electronics)
7 and sets management standards, including banning landfill disposal of hazardous waste, to
8 protect public health and the environment, and conserve natural resources. As a result,
9 services to collect and recycle hazardous waste materials include more than 100
10 neighborhood drop-off sites throughout the city for various materials, a year-round facility that
11 accepts all materials, and an appointment-based home pick-up service.

12 5. For each ton of municipal waste landfilled, about 71 tons of waste have been
13 created "upstream" from the mining, manufacturing and distribution of materials in the product
14 lifecycle, resulting in significant resource depletion, pollution and climate-changing impacts.

15 6. Organic or compostable waste that is buried in the anaerobic conditions of landfills
16 creates methane gas along with the leaching of toxins. Methane gas is at least 21 times as
17 potent as carbon dioxide in changing the planet's climate. Twenty percent of San Francisco's
18 planned reductions in climate-changing emissions come from diverting additional solid waste
19 from landfill.

20 7. The Board of Supervisors has adopted goals of 75% diversion from landfill by 2010
21 and zero waste to landfill or incineration by 2020. This policy includes urging greater
22 consumer responsibility, including mandatory participation in diversion programs.

23 8. People who live in, work in, or visit San Francisco generate over 2 million tons of
24 solid waste annually. While the city has an overall landfill diversion rate of 70% (as reported
25

1 to the State), most residents and businesses divert closer to 50% through recycling and
2 composting, resulting in over 660,000 tons per year of material from San Francisco being
3 landfilled in 2006.

4 9. Growth in the rate of landfill diversion in San Francisco has leveled off in recent
5 years, with an increase of less than 1% from 2005 to 2006, and continued voluntary diversion
6 participation alone will not likely enable the City to meet its 75% diversion goal by 2010.

7 10. San Francisco's agreement with the Altamont Landfill in Alameda County provides
8 for waste disposal of up to 15 million tons. At the end of 2007, nearly 12 million tons of this
9 contract capacity had been used, leaving about 3 million tons of capacity remaining. At the
10 current disposal rate at the Altamont Landfill there are about 5 years left (until 2013) on the
11 City's landfill contract. Increased diversion will extend the life of this landfill contract with its
12 favorable low disposal costs, while any new landfill contract will likely increase disposal costs
13 and subsequently trash collection rates in San Francisco.

14 11. After years of voluntary, convenient, nation-leading, award-winning programs and
15 outreach and financial incentives, a comprehensive study found that 36% of what San
16 Francisco sends to landfills is compostable (primarily food scraps) and 31% is recyclable
17 (mostly paper), and this breakdown essentially applies to all sectors (residential, commercial
18 and City government).

19 12. There are facilities in the City and surrounding areas that can effectively reuse,
20 recycle, compost or otherwise process and market most materials discarded in San Francisco
21 and thereby divert such materials from landfill while creating jobs.

22 13. Many state and local governments have mandated recycling of various materials
23 and composting of yard trimmings, or conversely banned them from landfill, resulting in
24 significant increases in waste diversion.
25

1 14. State legislation that would have mandated owners or managers of multifamily
2 buildings to provide recycling collection for their tenants was vetoed by the Governor because,
3 as he stated, local jurisdictions already have the authority to mandate this participation locally.

4 15. The Board of Supervisors passed a mandatory Construction and Demolition Debris
5 Recovery Ordinance (No. 27-06), effective July 1, 2006, which helped divert more than 26,000
6 additional tons from landfill in its first year of implementation.

7 16. In keeping with the Precautionary Principle, codified in Chapter 1 of the
8 Environment Code, this Chapter requires diversion of recyclable or compostable materials
9 from landfill for beneficial use as a deterrent to unsafe and wasteful practices. In this way, the
10 City will create and maintain a healthy, viable environment for current and future generations,
11 and will become a model of sustainability.

12
13 Section 2. The San Francisco Environment Code is hereby amended by adding
14 Chapter 19148, Sections 19014804 through 19124812, to read as follows:

15 **SEC. 19014804. TITLE.**

16 *This Chapter shall be entitled "Mandatory Recycling and Composting".*

17
18 **SEC. 19024802. DEFINITIONS.**

19 *For the purposes of this Chapter, the following words have the following meanings:*

20 *(a) "Adequate Refuse Collection Service" means that a dwelling or commercial property is*
21 *serviced by a Collector for recyclables, compostables, and trash, and that the level of service is*
22 *sufficient to contain the refuse generated at that dwelling or commercial property.*

23 *(b) "City" means the City and County of San Francisco.*

1 (c) "Collection" means taking physical possession of and removing discarded material from
2 the place of generation for subsequent off-site management of that material.

3 (d) "Collection Container" means the receptacle that is provided, designated and serviced by
4 the collector for the collection of recyclables, compostables or trash.

5 (e) "Collector" means a person, firm or corporation licensed and permitted to collect refuse by
6 the Director of Public Health pursuant to the provisions of the Refuse Collection and Disposal
7 Ordinance adopted November 8, 1932, as amended, and any other collectors of discarded material not
8 excluded under that ordinance.

9 (f) "Commercial Property" means a parcel or any portion of real property where refuse is
10 generated that is not a dwelling, including schools, institutions, and City properties.

11 (g) "Compostable" means any material that can be broken down into, or otherwise become
12 part of, usable compost (e.g., soil-conditioning material) in a safe and timely manner as accepted in
13 San Francisco's compostables collection program, such as food scraps, soiled paper and plant
14 trimmings. Compostable materials can also include disposable plastic food service ware and bags if
15 labeled "Compostable", in accordance with the Food Service Waste Reduction Ordinance (No.
16 295-06) and Department of the Environment regulations for easy identification, meeting the ASTM
17 Standard Specification (D6400) for compostable plastics, and consistent with State labeling law
18 (California Public Resources Code Section 42359) that any plastic bag or food container labeled
19 "Compostable" must meet the ASTM Standard Specification for compostable plastics.

20 (h) "Construction and Demolition Debris" means building materials generated from
21 construction and demolition activities including, but not limited to, fully-cured asphalt, concrete, brick,
22 rock, soil, lumber, gypsum wallboard, cardboard and other associated packaging, roofing material,
23 ceramic tile, carpeting, fixtures, plastic pipe, metals, tree stumps, and other vegetative matter resulting
24 from land clearing and landscaping for construction, deconstruction, demolition or land developments.
25

1 Hazardous waste, as defined in California Health and Safety Code Sections 25100 et seq., is not
2 construction and demolition debris for purposes of this Chapter.

3 (i) "Customer" means any person being served food from a food vendor or event.

4 (j) "Department" means the San Francisco Department of the Environment.

5 (k) "Designated" means clearly labeled and color-coded for a material type, such as labeled
6 blue receptacles for recyclables, green for compostables and black for trash.

7 (l) "Director" means the Director of the Department of the Environment or his or her designee.

8 (m) "Disposable Food Service Ware" means all containers, bowls, plates, trays, carton, cups,
9 lids, straws, forks, spoons, knives, napkins and other items that are designed for one-time use for
10 serving food.

11 (n) "Dwelling" means a residence, flat, apartment, or other facility, used for housing one or
12 more persons.

13 (o) "Event" means any function that serves food and is permitted through any agency,
14 including, but not limited to, the Department of Parking and Traffic, the Recreation and Park
15 Department, the Port of San Francisco or, to the extent permitted by law, the National Park Service.

16 (p) "Food Vendor" means any and all sales outlets, stores, shops, vehicles or other places of
17 business located or operating in the city that operate primarily to sell or convey foods or beverages to
18 consumers, and stores that sell food or beverages in combination with a gasoline station.

19 (q) "Janitor" means the person who is hired by owners and managers of commercial
20 properties and their contractors to process refuse on-site before it leaves the premises.

21 (r) "Manager" means the authorized agent for the owner of a building, structure or property,
22 who is responsible for the day-to-day operation of said building, structure or property.

23 (s) "Multifamily Property" means a property that includes multiple residential households
24 and has a single account with collector(s) for recyclables, compostables and trash.

1 ~~(ts)~~ "Person" means a natural person (including a resident, employee, or visitor), a firm,
2 business concern, association, partnership, corporation or governmental entity, including the City and
3 County of San Francisco and its departments, boards and commissions, and successors or assigns.

4 ~~(ut)~~ "Public Trash Container" means any receptacle installed by a public agency at a
5 sidewalk, park or other public area and that is not under the control, unless otherwise required by this
6 Chapter, of a multifamily or commercial property, food vendor or event manager.

7 ~~(yu)~~ "Recyclable" means any material that can be sorted and reconstituted, for the purpose of
8 using the altered form in the manufacture of a new product, as accepted in San Francisco's recycling
9 collection program, such as paper, bottles and cans. Recycling does not include burning, incinerating,
10 converting, or otherwise thermally destroying solid waste.

11 ~~(wv)~~ "Refuse" has the meaning set forth in the Refuse Collection and Disposal Ordinance
12 adopted November 8, 1932, as amended, and includes recyclables, compostables, and trash, but not
13 construction and demolition debris or hazardous waste, all as defined in this Chapter.

14 ~~(xw)~~ "Source Separate" means to divide refuse at the place of discard generation, prior to
15 collection, into separate containers that are designated for recyclables, compostables or trash.

16 ~~(yx)~~ "Transfer Station" means a facility that is permitted under Health Code Section 294 to
17 receive discarded materials and transport them to a landfill for disposal.

18 ~~(zy)~~ "Trash" means material that is designated for landfill disposal by the collector and does
19 not include either recyclable or compostable materials. The term "trash" does not include hazardous
20 waste, as defined in California Health and Safety Code Sections 25100 et seq., or construction and
21 demolition debris as defined in this Chapter.

22
23 **SEC. 19034803. SOURCE SEPARATION OF REFUSE REQUIRED.**
24
25

1 All persons in San Francisco must source separate their refuse into recyclables, compostables
2 and trash, and place each type of refuse in a separate container designated for disposal of that type of
3 refuse. No person may mix recyclables, compostables or trash, or deposit refuse of one type in a
4 collection container designated for another type of refuse, except as otherwise provided in this
5 Chapter.

6
7 **SEC. 19044804. REQUIREMENTS FOR OWNERS OR MANAGERS OF MULTIFAMILY AND**
8 **COMMERCIAL PROPERTIES.**

9 (a) Owners or managers of multifamily or commercial properties must provide Adequate
10 Refuse Collection Service to the tenants, employees, contractors, and customers of the properties.

11 (b) Owners or managers of multifamily or commercial properties must supply appropriate
12 containers, placed in an appropriate location, to make source separation of refuse convenient for the
13 tenants, employees, contractors, and customers of the properties. The containers must:

14 (1) Be of appropriate number and size in light of the recyclable, compostable, and trash
15 quantities reasonably anticipated to be generated at the location;

16 (2) Bear appropriate signage and be color coded to identify the type of refuse to be
17 contained—blue for recyclables, green for compostables, and black for trash—and meet any additional
18 design criteria established by the Department by regulation; and,

19 (3) Be placed as close together as possible, to provide equally convenient access to
20 users.

21 (c) Owners or managers of multifamily or commercial properties must provide information
22 and/or training for new tenants, employees and contractors, including janitorseustodians, on how to
23 source separate recyclables, compostables and trash, and must re-educate existing tenants, employees
24 and contractors at least once a year.

1 (d) Owners and managers of commercial properties or their contractors will work with
2 on-site janitors to create effective source separation programs as a means of achieving
3 compliance, meeting citywide diversion goals, and achieving the diversion or disposal rate
4 reported annually to the State of California.

5 (ed) New construction or expansion of multifamily or commercial properties may be subject to
6 Department of Building Inspection requirements, such as Administrative Bulletin 088 and Building
7 Code Chapter 13, Section 1304C, to provide adequate space for recyclables and compostables, which
8 includes requiring any chute systems to keep compostables, recyclables and trash separate.

9
10 **SEC. 19051805. REQUIREMENTS FOR OWNERS OR MANAGERS OF FOOD VENDORS**
11 **AND EVENTS.**

12 (a) Owners or managers of food vendors and events must provide Adequate Refuse Collection
13 Service to their employees, contractors and customers.

14 (b) Owners or managers of food vendors and events must supply appropriate containers,
15 placed in appropriate locations, to make source separation of recyclables, compostables, and trash
16 convenient for the employees, contractors, and customers of the food vendors and events. The
17 containers must:

18 (1) Be of appropriate number and size in light of the recyclable, compostable, and trash
19 quantities reasonably anticipated to be generated at the location;

20 (2) Bear appropriate signage and be color coded to identify the type of refuse to be
21 deposited—blue for recyclables, green for compostables, and black for trash—and meet any additional
22 design criteria established by the Department by regulation; and,

23 (3) Be placed as close together as possible to provide equally convenient access to
24 users.

1 (c) Owners or managers of food vendors and events must provide information and/or training
2 for new tenants, employees, and contractors, including janitors/custodians, on how to source separate
3 recyclables, compostables, and trash, and must re-educate existing tenants, employees, and contractors
4 at least once a year.

5 (d) Food vendors that provide disposable food ware must have at least one container each for
6 recyclables, compostables and trash for use by customers and visitors, placed inside near a main exit,
7 unless that food vendor does not use disposable food ware for on-site consumption and
8 serves minimal to go orders per day, but not including any to go orders delivered to residents
9 by a delivery service. Food vendors meeting the requirements of this Section are exempt from the
10 requirement of Public Works Code Section 173 to place "a litter receptacle outside each exit."
11 Multiple food vendors that provide disposable food service ware and share a common eating area may
12 share an appropriate number, size, and placement of containers for recyclables, compostables and
13 trash for convenient use by customers or visitors.

14 (e) Food vendors and events must not put any fats, oils or grease in trash collection containers.

15
16 **SEC. 19064806. REQUIREMENTS FOR REFUSE COLLECTORS, TRANSFER STATIONS,**
17 **AND PROCESSING FACILITIES.**

18 (a) All collectors must appropriately designate the collection containers they provide to
19 customers for source separation of recyclables, compostables and trash. The containers must:

20 (1) Bear appropriate signage that allows users to clearly and easily identify which
21 containers to use for recyclables, compostables or trash;

22 (2) Be color-coded—blue for recyclables, green for compostables and black for trash;
23 and,

24 (3) Bear the name of the collector to whom the container belongs.
25

1 **(b) (1) If a collector finds materials that are not the correct type as designated for that**
2 **container, such as recyclables or compostables in a trash container, or trash in a compostables or**
3 **recyclables container, the collector then must leave a tag on the container identifying the incorrect**
4 **materials.**

5 **(2) If the collector continues to find incorrect materials in a collection container after**
6 **the collector has left a previous tag for that customer and that type of container, the collector must**
7 **leave another tag on the container identifying the incorrect materials and send a written notice to the**
8 **person who subscribes for that collection service.**

9 **(3) If the collector continues to find incorrect materials in a collection container after**
10 **the collector has already left two or more tags for that customer and that type of container, the**
11 **collector may refuse to empty the container, subject to California Code of Regulations Title 14,**
12 **Section 17331, or as determined by the Director of Public Health or his or her designee. If the**
13 **container is not emptied, the collector must leave a tag and send a written notice to the person who**
14 **subscribes for the collection service, identifying the incorrect materials and describing what action**
15 **must be taken for the materials to be collected; provided, however, that a collector may not refuse on**
16 **this basis to empty containers from multifamily or commercial properties with multiple tenants and**
17 **joint account collection service.**

18 **(4) The collector shall, upon request, provide to the Director a list of the names and**
19 **addresses of those persons who have received tags or notices or whose containers have not been**
20 **emptied due to non-compliance with this Chapter, or copies of the tags or notices issued by the**
21 **collector. The collector shall also provide to the Director, upon request, a list of the names, addresses,**
22 **and service levels of the collector's customers and any additional information required by the Director.**

1 (c) Within 90 days of the end of each calendar year, each collector must submit to the
2 Department, on a form specified by the Director, an annual report of all tons collected by material type
3 and to whom the material was sent.

4 (d) No person may deliver recyclables or compostables, including those mixed with trash, to a
5 landfill or transfer station for the purpose of having those materials landfilled, except as follows:

6 (1) A collector may drop off recyclables or compostables at the San Francisco transfer
7 station for landfill if the transfer station has agreed to provide to the Director, upon request, audits of
8 collection vehicles for a specified period going forward in time. The transfer station's audit shall
9 report the quantity of recyclables or compostables, stated as estimated tons per load or as a percentage
10 of the loads, deposited at the transfer station by collection vehicles specifically identified in the request
11 over a reasonable period of time occurring after the request.

12 (2) A processing facility that sorts and reconstitutes recyclables for the purpose of using
13 the altered form in the manufacture of a new product or turns compostables into usable and marketable
14 compost (e.g., soil-conditioning) material may send to a landfill a minor portion of those materials that
15 constitutes unmarketable processing residuals, if the processing facility provides to the Director, upon
16 request, audits of specific collection vehicles for a specific period going forward in time, of the
17 quantities of recyclables or compostables sent to the landfill from the processing facility.

18 (e) No person may deliver trash from the city, including trash mixed with recyclables or
19 compostables, to a processing facility, unless the processing facility has agreed to provide to the
20 Director, upon request, audits of collection vehicles for a specified period going forward in time. The
21 processing facility's audit shall report the quantity of trash, stated as estimated tons per load or as a
22 percentage of the loads, deposited at the processing facility by collection vehicles specifically identified
23 in the request over a reasonable period of time occurring after the request.

1 **SEC. 19074807. REQUIREMENT TO SUBSCRIBE TO REFUSE COLLECTION SERVICE.**

2 Owners of residential, multifamily or commercial properties, events or other facilities that
3 generate refuse must subscribe to and pay for Adequate Refuse Collection Service, and provide an
4 accessible location for sufficient levels of service with collector(s) for source separated recyclables,
5 compostables and trash, except as otherwise provided in this Chapter. Owners of such properties are
6 responsible for any failure to subscribe to or pay for sufficient levels of refuse collection service. The
7 Director of Public Health, pursuant to Health Code Article 6, as amended, shall enforce requirements
8 for adequate and continuous refuse collections services.

9
10 **SEC. 19084808. ENFORCEMENT.**

11 (a) The Director and his or her designee may administer all provisions of this Chapter and
12 enforce those provisions by any lawful means available for such purpose, except as otherwise provided
13 in this Chapter.

14 (b) To the extent permitted by law, the Director may inspect any collection container, collection
15 vehicle load, or receiving facility for collected trash, recyclables or compostables.

16 (c) Except as otherwise provided in this Chapter, the Director of the Department of Public
17 Health or his or her designee may impose administrative fines for violations of those provisions of this
18 Chapter, or of rules and regulations adopted pursuant to this Chapter, that pertain to the jurisdiction of
19 the Department of Public Health.

20 (d) Except as otherwise provided in this Chapter, the Director of Public Works or his or her
21 designee may impose administrative fines for violations of those provisions of this Chapter, or of any
22 rule or regulation adopted pursuant to this Chapter, that pertain to the jurisdiction of the Department
23 of Public Works.

1 (e) San Francisco Administrative Code Chapter 100, "Procedures Governing the Imposition of
2 Administrative Fines," as amended, is hereby incorporated in its entirety and shall govern the
3 imposition, enforcement, collection, and review of administrative citations issued to enforce this
4 Chapter and any rule or regulation adopted pursuant to this Chapter; provided, however, that:

5 (1) The Director of Public Works or the Director of Public Health may adopt
6 regulations providing for lesser penalty amounts than those provided in Administrative Code
7 Section 100.5;

8 (2) The fine for any violation at a dwelling or commercial property that generates less
9 than one cubic yard of refuse per week may not initially exceed \$100; and,

10 (3) No person who is the owner, tenant, manager, employee, contractor, or visitor of a
11 multifamily or of a multi-tenant commercial property shall be subject to fines or penalties for violation
12 of Section 19034803 (but will remain subject to such enforcement for violations of section 1904
13 and other sections of the Ordinance), unless and until the Director of the Department of the
14 Environment has adopted specific regulations setting out the liability of such persons. The Director
15 shall not adopt such regulations prior to July 1, 2011.

16 (f) The City shall use administrative penalties collected under this Chapter, including recovery
17 of enforcement costs, to fund implementation and enforcement of this Chapter. Remedies under this
18 Chapter are in addition to and do not supersede or limit any and all other remedies, civil or criminal.

19
20 **SEC. 19094809. FORMS, REGULATIONS AND GUIDELINES.**

21 (a) After public notice and a public hearing, the Director may adopt necessary forms,
22 regulations, and guidelines to implement this Chapter.

23 (b) The Department shall provide assistance regarding compliance with this Chapter.
24
25

1 (c) The Department shall provide information on its website regarding what materials are
2 accepted as recyclables, compostables, and trash under this Chapter.

3
4 **SEC. 19104810. EXCEPTIONS**

5 (a) A property owner or manager may seek a waiver from the Director of all or portions of this
6 Chapter, if the applicant submits documentation, using a form specified by the Director and including a
7 signed affidavit under penalty of perjury, that shows that the property does not have adequate storage
8 space for containers for recyclables, compostables or trash. In cases where after on-site verification
9 space limitations are determined to exist, the Director shall evaluate the feasibility of sharing
10 containers for recyclables, compostables or trash with contiguous properties, and, where feasible,
11 requiring container sharing in lieu of providing a waiver.

12 (b) Except as otherwise required by the Director, a collector may drop-off compostables or
13 recyclables at the San Francisco transfer station that have been collected from public trash containers.
14 The Director may require public trash containers to have a recyclables receptacle attached.

15
16 **SEC. 19114844. DISCLAIMER OF LIABILITY.**

17 The degree of protection required by this Chapter is considered to be reasonable for regulatory
18 purposes. The standards set forth in this Chapter are minimal standards and do not imply that
19 compliance will ensure safe handling of recyclables, compostables or trash. This Chapter shall not
20 create liability on the part of the City, or any of its officers or employees for any damages that result
21 from reliance on this Chapter or any administrative decision lawfully made in accordance with this
22 Chapter. All persons handling discarded materials within the city should be and are advised to
23 conduct their own inquiry as to the handling of such materials. In undertaking the implementation of
24 this Chapter, the City is assuming an undertaking only to promote the general welfare. It is not
25

1 assuming, nor is it imposing on its officer and employees, an obligation for breach of which it is liable
2 in money damages to any person who claims that such breach proximately caused injury.

3
4 **SEC. 19124812. DUTIES ARE DISCRETIONARY.**

5 Subject to the limitations of due process and applicable requirements of State or federal laws,
6 and notwithstanding any other provisions of this Code, whenever the words "shall" or "must" are used
7 in establishing a responsibility or duty of the City, its elected or appointed officers, employees or
8 agents, it is the legislative intent that such words establish a discretionary responsibility or duty
9 requiring the exercise of judgment and discretion.

10
11 Section 3. The San Francisco Public Works Code is hereby amended by amending
12 Section 173, to read as follows:

13 **SEC. 173. PLACEMENT AND MAINTENANCE OF LITTER RECEPTACLES.**

14 (a) It is the intent of this Section to ensure that public areas are kept clean and free
15 from litter.

16 (b) Any person, firm or corporation operating a grocery store, a liquor store or an
17 establishment selling food or beverages for consumption off the premises shall place and
18 maintain a litter receptacle outside of each exit from said premises for the use of the patrons
19 thereof during business hours; provided, however, that a person, firm, or corporation is not
20 required under this Section to place and maintain a litter receptacle outside each exit if that person,
21 firm, or corporation places and maintains a set of three containers for recyclables, compostables and
22 trash for use by customers and visitors as specified in Chapter 19 48 of the Environment Code.

23 (c) Any person, firm, corporation, or property owner operating a place of employment
24 shall provide and maintain adjacent to the place of employment sufficient ashtrays or other
25

1 receptacles for the disposal of cigarettes, cigars, and other similar combustible products used
2 by employees and patrons who smoke. The Director of Public Works shall authorize the
3 placement of such ashtrays or other receptacles in the public right-of-way where necessary.

4 (d) The design, capacity, location, and number of ashtrays and receptacles shall be
5 prescribed by the Director of Public Works. Decals may be placed upon said receptacles
6 subject to the limitations set forth in Section 171 of this Article.

7 (e) The receptacle shall be emptied when full and at the close of business each day
8 and the contents thereof shall be stored or set out for collection in the same manner as other
9 refuse generated in the operation of the business. Each receptacle shall be maintained in a
10 clean and sanitary condition.

11 (f) Violation of this Section shall constitute an infraction and shall be punishable by a
12 fine of not less than \$80 nor more than \$100; for a second offense by a fine not less than
13 \$150 nor more than \$200; and for each additional offense by a fine not less than \$250 nor
14 more than \$500. In the alternative, an administrative penalty not to exceed \$250 may be
15 assessed for each violation. Such penalty shall be assessed, enforced and collected in
16 accordance with Section 39-1 of the Police Code.

17
18 Section 4. The San Francisco Health Code is hereby amended, by amending Sections
19 291, 291.1, 291.2, 291.4, 291.7, 291.11, 291.12, 291.15, and 291.17, and by repealing the
20 current Section 291.16 and adding a new Section 291.16, to read as follows:

21 **SEC. 291. OWNER RESPONSIBILITY FOR MAINTENANCE OF REFUSE COLLECTION**
22 **SERVICE TO DWELLINGS AND COMMERCIAL PROPERTIES; DEFINITIONS.**

23 Unless the context otherwise specifies or requires, the terms defined in this Section
24 shall, for all purposes of this Article, have the meanings herein specified, the following
25

1 definitions to be equally applicable to both the singular and plural forms of any of the terms
2 herein defined:

3 (a) The term "City" means the City and County of San Francisco;

4 (b) The term "Collector" means a refuse collector duly licensed pursuant to the
5 provisions of the Initiative Ordinance;

6 (c) The term "Commercial Property" means a parcel or any portion of real property where
7 Refuse is generated that is not a Dwelling, including schools, institutions, and City properties.

8 (d) (e) The term "Director" means the Director of Health of the City, or his authorized
9 agents;

10 (e) (d) The term "dwelling" means a residence, flat, apartment, or other facility, used for
11 housing one or more persons in the City and County of San Francisco;

12 (f) (e) The term "Initiative Ordinance" means the Initiative Refuse Collection and
13 Disposal Ordinance adopted November 8, 1932, as amended; and

14 (g) (f) The term "Owner" when used with reference to a dwelling shall mean, and shall
15 conclusively be deemed to be, the legal Owner of the dwelling and when used in reference to a
16 commercial property shall mean, and shall conclusively be deemed to be, the legal Owner of the
17 commercial property.

18
19 **SEC. 291.1. OWNER RESPONSIBLE FOR REFUSE COLLECTION SERVICE.**

20 The owner of any dwelling or commercial property shall subscribe to and pay for adequate
21 refuse collection service rendered to such dwelling or commercial property by a collector and
22 shall provide at a location accessible to the collector for an adequate container or containers
23 for deposit of refuse of such capacity as the Director of Public Works may prescribe. The
24 necessity for and type of refuse collection service required and the rates charged therefor
25

1 shall be governed by the Initiative Ordinance, Chapter 1948 of the Environment Code, and any
2 applicable rules and regulations adopted by the Director of Public Health.

3 Nothing in this Section is intended to prevent an arrangement or the continuance of an
4 existing arrangement, under which payments for refuse collection service are made by a
5 tenant or tenants, or any agent, in behalf of the Owner. However, any such arrangement will
6 not affect the Owner's obligation to the City.

7
8 **SEC. 291.2. FAILURE TO INITIATE SERVICE, MAINTAIN ADEQUATE SERVICE, OR TO**
9 **PROVIDE SUFFICIENT REFUSE CONTAINERS.**

10 When an owner fails to initiate adequate refuse collection service within 15 days of
11 occupancy of a Dwelling or commercial property by any person, including a business entity, or
12 fails to maintain adequate refuse collection service, the Director will evaluate the need for service and
13 what would constitute adequate service in this context, and, where appropriate, give the Owner an
14 order from the Director ~~notification~~ that such service or additional service is required. In
15 determining the need for service or additional service, the Director may make use of any relevant
16 information or evidence, including information provided by the Collector regarding the existing level of
17 service. A copy of the Director's order ~~said notice~~ will be sent to the Collector. If the Owner
18 does not arrange with the Collector for service within 15 days from the date of mailing of the
19 order, or request within that time a hearing before the Director to dispute a service or change of
20 service requirement ~~notice~~, then the Collector shall, consistent with the Director's order, initiate,
21 maintain, or increase ~~and continue~~ refuse collection service for said dwelling or commercial
22 property.

23 When in the judgment of the Director additional refuse containers are required, they
24 shall be provided by the Owner upon written notification from the Director.

1 The Director, in consultation with the Department of the Environment and after a public notice
2 and hearing, may adopt forms, regulations, and guidelines to ensure the payment and collection of
3 refuse services from any commercial property managers who fail to initiate or maintain sufficient
4 refuse service, including standards and criteria for determining whether a Commercial property has
5 provided for sufficient refuse service, or to otherwise implement and enforce Sections 291 et seq.

6 The Director of Public Health, or his or her designee, may impose administrative fines for
7 violations of Sections 291.1 and 291.2, or any rules or regulations adopted by the Director to
8 implement and enforce Sections 291 et seq. San Francisco Administrative Code Chapter 100,
9 "Procedures Governing the Imposition of Administrative Fines," as amended, is hereby incorporated in
10 its entirety and shall govern the imposition, enforcement, collection, and review of administrative
11 citations issued to enforce this Chapter and any rule or regulation adopted pursuant to this Chapter;
12 provided, however, that the Director may adopt regulations providing for lesser penalties than those
13 provided in Administrative Code Section 100.5.

14 No person who is the owner, tenant, manager, employee, contractor, or visitor of a multifamily
15 dwelling or of a multi-tenant commercial property shall be subject to fines or penalties for failure to
16 provide adequate refuse collection service, unless and until the Director has adopted specific
17 regulations establishing the responsibilities of such persons under this Article.

18 The fine for any violation at a dwelling or commercial property which generates less than one
19 cubic yard of refuse per week may not initially exceed \$100.

20 In addition to any administrative penalty assessed pursuant to this Article, the Director may
21 assess the responsible Owner the reasonable enforcement costs incurred by the City, including
22 reasonable attorneys' fees. The imposition of enforcement costs is within the discretion of the Director.

23
24 **SEC. 291.4. COLLECTOR ENTITLED TO PAYMENT FOR SERVICES RENDERED.**
25

1 Pursuant to the provisions of the Initiative Ordinance, the Collector shall be entitled to
2 payment from the owner for services rendered. When the Owner has been directed to
3 initiate service but fails to provide an adequate container or containers at an accessible
4 location and the Collector attempts to collect refuse from the dwelling or commercial property,
5 then such attempt shall be deemed the rendering of collection service for which Collector is
6 entitled to compensation in the same manner and amount as if refuse had actually been
7 collected. Should there be failure to make payment for any service rendered to any dwelling
8 by the Collector, or rendered to a commercial property pursuant to an order of the Director of
9 Public Health under Section 291.2, the means for effecting payment shall be in accordance
10 with the procedure set forth hereunder.

11 12 **SEC. 291.7. PAYMENT BY DEPARTMENT OF PUBLIC HEALTH LIEN.**

13 Following Within 45 days following the receipt of the complaint filed in accordance with
14 Section 291.5, the Director shall, regardless of any sale or other transfer of property following
15 the date of receipt of such complaint, process the complaint for payment to the Collector from
16 a continuing appropriation account so provided herein under Section 291.14, and the Owner
17 shall be liable to the City for fees paid. The payment by the City will, upon the recording
18 thereof in the manner herein provided, create a lien on the real property to which the service
19 was rendered. The lien will be officially recorded in the County Recorder's files, the lien to
20 carry and will include additional charges for administrative expenses of \$50 or 10 percent of
21 the amount owned, whichever is higher, plus any applicable recording fees, and interest at a rate
22 of 1 1/2 percent per full month compounded monthly from the date of the recordation of the
23 lien on all fees and charges due. The Owner shall be notified by the Director that the fees and
24 charges are due to the City. In addition, the Owner shall be notified that if the fees and
25

1 charges remain unpaid, subsequent proceedings may be taken to make said fees and
2 charges a special assessment on the real property to which said refuse collection service was
3 rendered.

4
5 ~~SEC. 291.9. DIRECTOR'S HEARING.~~

6 ~~Prior to the report of delinquent collection services fees being submitted to the Board of~~
7 ~~Supervisors, the Director shall cause a hearing to be held as to each owner of the real~~
8 ~~property to which service was rendered. At such hearing, the Owner may make any protest or~~
9 ~~objection regarding inclusion on the list.~~

10 ~~The Director shall fix a date, time and place of hearing and shall cause a notice, at least 10~~
11 ~~days prior to said hearing, to be mailed to the Owners.~~

12 ~~At the conclusion of the hearing, the Director shall issue a report of delinquent charges~~
13 ~~together with his recommendation as to any charge.~~

14
15 **SEC. 291.11. REPORTS OF DELINQUENCIES TRANSMITTED TO THE DIRECTOR**
16 **BOARD OF SUPERVISORS.**

17 Any charges that remain unpaid by a residential property owner or a commercial
18 property owner pursuant to an order of the Director under Section 291.2 for a period of 60 or
19 more days after the date upon which they were billed are delinquent and may be collected in
20 the manner set forth in this Article. A report of delinquent charges shall be transmitted to ~~the~~
21 ~~Board of Supervisors by~~ the Director. Upon receipt by the ~~Director Board of Supervisors~~ of the
22 report, ~~he or she~~ it shall fix a time, date and place for hearing the report and any protests or
23 objections thereto.

1 **SEC. 291.12. HEARING.**

2 The Director Board of Supervisors shall cause notice of the hearing to be mailed to the
3 Owner of the real property to which the service was rendered not less than 10 days prior to
4 the date of hearing. At the time fixed for the report, the Director Board of Supervisors shall hear
5 it with any objections of the Owner liable to be assessed for delinquent accounts. The
6 Director Board of Supervisors may make such revisions, corrections or modifications of the
7 report as it may deem just and in the event that the Director Board of Supervisors is satisfied
8 with correctness of the report (as submitted or as revised, corrected or modified), the Director
9 shall confirm the report it shall be confirmed or rejected by resolution. The decision of the Director
10 Board of Supervisors on the report and on all protests or objections thereto shall be final and
11 conclusive.

12
13 **SEC. 291.15. MANNER OF GIVING NOTICES.**

14 Any notice required to be given hereunder by the City, the Director or any Collector to
15 an Owner shall be sufficiently given or served upon the Owner for all purposes hereunder if
16 personally served upon the Owner or if deposited, postage prepaid, in a post office letter box
17 addressed to the "Owner" at the official address of the Owner maintained by the Tax Collector
18 of the City for the mailing of tax bills or, if no such address is available, to the Owner at the
19 address of the dwelling or commercial property.

20
21 **SEC. 291.16. INSPECTION FEE.**

22 If the Director of Public Health causes a Dwelling or a Commercial Property to be inspected to
23 determine whether the Owner has complied with Section 291.1, the Owner of the Dwelling or

1 Commercial Property shall pay an inspection fee equal to \$167 per hour of Department of Public
2 Health staff time spent during the inspection.

3
4 **~~SEC. 291.16. PENALTY.~~**

5 ~~Notwithstanding the provisions of Section 291.3 of this Article, any person who shall violate any~~
6 ~~of the provisions of Sections 291.1 or 291.2 of this Article shall be guilty of an infraction or a~~
7 ~~misdemeanor. If charged as an infraction, upon conviction thereof, said person shall be punished for~~
8 ~~the first offense by a fine of not less than \$10 nor more than \$50; and for a second and each additional~~
9 ~~offense by a fine of not less than \$20 nor more than \$100.~~

10 ~~If charged as a misdemeanor, upon conviction thereof, said person shall be punished by~~
11 ~~imprisonment in the County Jail not exceeding one year or a fine not exceeding \$1,000. The complaint~~
12 ~~charging such violation shall specify whether the violation is a misdemeanor or infraction, which~~
13 ~~decision shall be solely that of the District Attorney.~~

14
15 **SEC. 291.17. SEVERABILITY.**

16 If any part or provisions of Sections 291 through 291.16 ~~291.16~~ or application thereof, to
17 any person or circumstance is held invalid, the remainder of the Section, including the
18 application of such part or provision to other persons or circumstances shall not be affected
19 thereby and shall continue in full force and effect. To this end the provisions of the Sections
20 are severable.

21
22 Section 5. The San Francisco Health Code is hereby amended by amending
23 Section 293.1, to read as follows:

24 **SEC. 293.1. VIOLATIONS.**

1 It shall be unlawful for any person other than the Collector, an authorized City employee
2 for enforcement purposes, or the generator of recyclable materials ~~City's authorized curbside~~
3 ~~recycling program collectors~~ to take, remove, move or otherwise appropriate recyclable materials
4 that have been placed in a container designated by a Collector for recyclables or to take, remove,
5 move, or otherwise appropriate the container that is placed for collection ~~the container in which~~
6 ~~recyclable materials are placed for collection and the matters contained therein~~. The City and its
7 duly authorized collectors shall have the exclusive right to collect recyclable materials placed
8 for collection in public sidewalk and street areas.

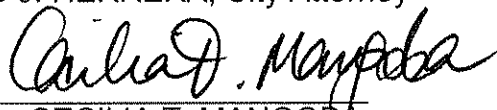
9 Section 6. **Environmental Findings.** On December 9, 2008, the Planning
10 Department determined that the actions contemplated in this Ordinance are categorically
11 exempt under the California Environmental Quality Act (California Public Resources Code
12 sections 121000 et seq.). Said determination is on file with the Clerk of the Board of
13 Supervisors in File No. 081404 and is incorporated herein by reference.

14 Section 7. **Severability.** If any part or provision of this ordinance, or the application
15 thereof to any person or circumstance, is held invalid, the remainder of the ordinance,
16 including the application of such part or provision to other persons or circumstances shall not
17 be affected thereby and shall continue in full force and effect. To this end the provisions of the
18 ordinance are severable.

19 Section 8. **Operative Date.** The operative date of this ordinance shall be 90 days
20 after its effective date.

21 APPROVED AS TO FORM:
22 DENNIS J. HERRERA, City Attorney

23 By:


24 CECILIA T. MANGOBA
25 Deputy City Attorney



City and County of San Francisco

City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

Tails Ordinance

File Number: 081404

Date Passed:

Ordinance amending the San Francisco Environment Code by adding Chapter 18, Sections 1801 through 1812; entitled "Mandatory Recycling and Composting Ordinance," amending the San Francisco Public Works Code by amending Section 173, and amending the San Francisco Health Code by amending Sections 291, 291.1, 291.2, 291.4, 291.7, 291.11, 291.12, 291.15, 291.17, and 293.1, and by repealing the current Section 291.16 and adding a new Section 291.16, all to: (1) require all persons located in San Francisco to separate recyclables, compostables and landfilled trash and participate in recycling and composting programs; (2) provide enforcement mechanisms and penalties for violations; (3) ensure that all properties subscribe to refuse collection service; and (4) authorize a Department of Public Health inspection fee of \$167 per hour; and making environmental findings and setting an operative date.

April 7, 2009 Board of Supervisors — SUBSTITUTED

June 9, 2009 Board of Supervisors — AMENDED, AN AMENDMENT OF THE WHOLE BEARING NEW TITLE

Ayes: 11 - Alioto-Pier, Avalos, Campos, Chiu, Chu, Daly, Dufty, Elsbernd, Mar, Maxwell, Mirkarimi

June 9, 2009 Board of Supervisors — PASSED ON FIRST READING AS AMENDED

Ayes: 9 - Alioto-Pier, Avalos, Campos, Chiu, Daly, Dufty, Mar, Maxwell, Mirkarimi

Noes: 2 - Chu, Elsbernd

June 16, 2009 Board of Supervisors — FINALLY PASSED

Ayes: 9 - Alioto-Pier, Avalos, Campos, Chiu, Daly, Dufty, Mar, Maxwell, Mirkarimi

Noes: 1 - Chu

Excused: 1 - Elsbernd

File No. 081404

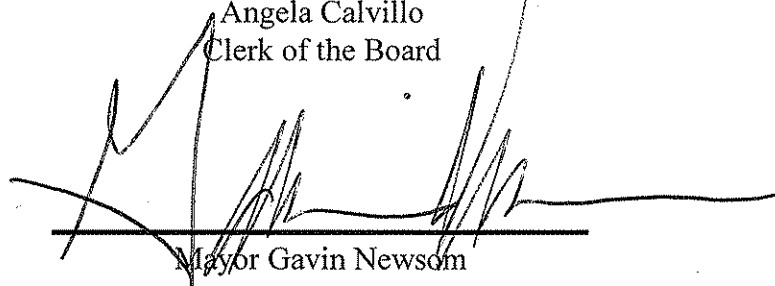
I hereby certify that the foregoing Ordinance
was **FINALLY PASSED** on June 16, 2009 by
the Board of Supervisors of the City and
County of San Francisco.

6/23/2009

Date Approved



Angela Calvillo
Clerk of the Board



Mayor Gavin Newsom

Seattle Composting Requirement Frequently Asked Questions

Why is Seattle considering prohibiting food from the garbage?

Seattle sends approximately 100,000 tons of food waste 300 miles to a landfill in Eastern Oregon each year, resulting in higher costs and greenhouse gas emissions.

Based on the success of Seattle's existing recycling and yard waste ordinances, Seattle Public Utilities (SPU) projects that the food waste law will divert 38,000 tons of food scraps from the landfill via composting, thus helping the city achieve its goal of recycling and composting 60 percent of its waste by 2015.

When would Seattle's composting requirement ordinance take effect?

If this ordinance is passed by City Council, SPU would begin an education campaign in October, 2014. Food waste would be prohibited from commercial and residential garbage beginning January 1, 2015. SPU would start enforcing the law on July 1, 2015.

What items would be prohibited from the garbage under the composting requirement ordinance?

Recyclable items, such as paper, uncontaminated cardboard, bottles, cups, jars and cans are currently prohibited from the garbage. Starting January 1, 2015, no food and compostable paper, including food-contaminated cardboard, paper napkins and paper towels, would be allowed in the garbage.

How would Seattle enforce this composting requirement ordinance?

Starting January 1, 2015, all commercial establishments that generate food waste or compostable paper would have to subscribe to a composting service, compost their food waste on-site, or self-haul their food waste for processing. (Single-family and apartments are already required to have composting service.)

As of July 1, 2015 all commercial, single-family and multi-family garbage containers that would be found to contain more than 10 percent recyclables or food waste by volume would face penalties of Seattle municipal code.

Single-family properties whose garbage contains more than more than 10 percent recyclables or food waste by volume would receive a notice on their garbage container and a \$1 fine would be levied on their bi-monthly garbage bill.

Multi-family and commercial properties whose garbage contains more than 10 percent recyclables or food waste by volume would receive a warning notice. Upon the third notice, the property would receive a \$50 fine.

Doesn't Seattle already prohibit food and recyclables from the garbage?

Seattle prohibited yard waste from the garbage in 1988.

Seattle prohibited recyclables from the garbage in 2005.

Seattle began curbside food waste collection in 2005.

In 2009, Seattle required all residential properties to either subscribe to food and yard waste collection or participate in backyard composting. Seattle businesses that have customer dining area disposal stations where customers discard single use packaging must collect recyclable and compostable packaging in clearly labeled bins and send it to a recycling or composting facility for processing.

Since late 2011 multi-family buildings have been required to provide compost collection service for their residents.

More than 300,000 commercial, single-family and multi-family units participate in food waste collection. SPU estimates that businesses and residents have diverted nearly 400,000 tons of food from the landfill since 2005.

How do Seattle residents feel about this requirement?

In a recent survey, 74% supported it and 11% opposed it.

What effect have Seattle's recycling and composting laws had on the city's recycling rate?

From 2003 to 2013, the amount of compostable and recyclable material that Seattle has diverted from the landfill each year has increased from 38.2 percent to 56.2 percent, or 407,125 tons a year. However, the growth of recycling has slowed down in recent years. This composting requirement is a necessary step to meeting our recycling goals.

Will businesses be held accountable if their customers or the general public put food in their garbage?

Public litter cans would exempt from the ordinance.

Garbage containers in customer dining areas would be exempt from the ordinance when a business provides containers for food waste collection.

What will happen to the food that is collected?

Seattle sends more than 125,000 tons of food and yard waste to composting processors, where it is turned into compost for local parks and gardens.

Won't food waste collection make a mess and attract pests?

Like garbage, food waste is collected at least once a week from commercial and residential properties, thus minimizing vector issues. Businesses and residents currently utilize compostable bags and other compost containers in their kitchens to further reduce pests and odors.

How can I get help starting food waste collection?

Seattle Public Utilities offers free assistance to businesses and residents to help them recycle and compost, including providing education materials in multiple languages. Visit www.seattle.gov/util or call **(206) 684-3000**.

Will this food waste collection save me money?

Normally customers that divert a high percentage of their food waste to composting can reduce their overall solid waste bill.

Do any other cities have similar laws?

Seattle is the latest of several cities that have passed food waste requirements, including Vancouver, BC, Portland, OR, San Francisco, CA, and New York, NY.



Legislation Text

File #: Int 1162-2013, **Version:** A

Int. No. 1162-A

By Council Members James, Brewer, Chin, Fidler, Gentile, Koo, Rodriguez, Van Bramer, Mark-Viverito, Gennaro, Koppell, Lappin and Ulrich (by request of the Mayor)

A Local Law to amend the administrative code of the city of New York, in relation to commercial organic waste.

Be it enacted by the Council as follows:

Section 1. Subchapter 2 of chapter 3 of title 16 of the administrative code of the city of New York is amended by adding a new section 16-306.1 to read as follows:

§ 16-306.1 Organic waste. a. When used in this section or section 16-324 of this chapter:

“Arena” means an establishment or facility that hosts live sporting or entertainment events.

“Capacity” means the combined capacity of facilities that are capable of accepting and processing, consistent with the terms of this section and exceeding a nominal amount, organic waste expected to be generated by and collected from designated covered establishments.

“Catering establishment” shall have the same meaning as set forth in section 20-359 of this code.

“Covered establishment” means:

1. any location at which a food manufacturer has a floor area of at least twenty-five thousand square feet ;
2. any location at which a food wholesaler has a floor area of at least twenty thousand square feet;
3. any location at which a retail food store has a floor area of at least ten thousand square feet, or any retail food store that is part of a chain of three or more retail food stores that have a combined floor area space of at least ten thousand square feet and that operate under common ownership or control and receive waste

collection from the same private carter;

4. arenas or stadiums having a seating capacity of at least fifteen thousand persons;

5. any food service establishment that is part of a chain of two or more food service establishments that have a combined floor area of at least eight thousand square feet and that: (i) operate under common ownership or control; (ii) are individually franchised outlets of a parent business; or (iii) do business under the same corporate name, provided that the requirements of subparagraph (i) of paragraph 1 of subdivision c of this section shall not apply to any such food service establishment when the building or premises in which such food service establishment is located is in compliance with such requirement pursuant to paragraph seven of this definition;

6. any location at which a food service establishment has a floor area of at least seven thousand square feet, provided that the requirements of subparagraph (i) of paragraph 1 of subdivision c of this section shall not apply to any such location when the building or premises containing such location is in compliance with such requirement pursuant to paragraph seven of this definition;

7. any building or premises where food service establishments having a total combined floor area of at least eight thousand square feet are located and where the owner of the building or premises, or its agent, arranges or contracts with a private carter for the removal of waste from food service establishments having no less than eight thousand square feet of such building or premises, provided that any such food service establishments shall comply with the requirements of subparagraphs (ii), (iii) and (iv) of paragraph 1 of subdivision c of this section, but such requirements shall not apply to the owner or agent of any such building or premises;

8. any location at which a food preparation establishment has a floor area of at least six thousand square feet;

9. any catering establishment that is required to provide for the removal of waste pursuant to section 16-116 of this code whenever the anticipated attendance for any particular event is greater than one hundred

persons;

10. any food service establishments located within and providing food to one or more hotels totaling at least one hundred sleeping rooms; and

11. sponsors of a temporary public event.

“Designated area” means within a one hundred mile radius of the city.

“Food manufacturer” means any establishment that processes or fabricates food products from raw materials for commercial purposes, provided that it shall not include any establishment engaged solely in the warehousing, distribution or retail sale of product.

“Food preparation establishment” means a business that is primarily engaged in providing food or food services for a temporary, fixed time, or based on contractual arrangements for a specified period of time at locations other than such establishment’s permanent place of business.

“Food service establishment” means any premises or part of a premises that is required to provide for the removal of waste pursuant to section 16-116 of this code where food is provided directly to the consumer, whether such food is provided free of charge or sold, and whether consumption occurs on or off the premises. Food service establishment shall include, but not be limited to, full-service restaurants, fast food restaurants, cafes, delicatessens, coffee shops, and business, institutional or government agency cafeterias, but shall not include retail food stores, convenience stores, pharmacies, and mobile food vending units, as such term is defined in section 89.03 of the health code. Food service establishment shall also not include any premises or place of business where the sole or primary source of food is a refreshment counter where the available food is limited to items such as beverages, prepackaged items, and snacks.

“Food wholesaler” means any establishment primarily engaged in the wholesale distribution of groceries and related products including, but not limited to, packaged frozen food, dairy products, poultry products, confectioneries, fish and seafood, meat products, and fresh fruits and vegetables but shall not apply to establishments that handle only pre-packaged, non-perishable foods.

“Hotel” shall have the same meaning as set forth in section 27-2004 of the housing maintenance code.

“In vessel composting” means a process in which organic waste is enclosed in a drum, silo, bin, tunnel, reactor, or other container for the purpose of producing compost, maintained under controlled conditions of temperature and moisture and where air-borne emissions are controlled.

“Organic waste” shall have the same meaning as set forth in section 16-303 of this title, except that for purposes of this section, organic waste shall not include food that is donated to a third party, food that is sold to farmers for feedstock, and meat by-products that are sold to a rendering company.

“Private carter” means a business licensed by the business integrity commission pursuant to title 16-A of this code.

“Retail food store” means any establishment or section of an establishment where food and food products offered to the consumer are intended for off-premises consumption, but shall exclude convenience stores, pharmacies, greenmarkets or farmers’ markets and food service establishments.

“Sponsor of a temporary public event” means the applicant for a street activity permit pursuant to chapter 1 of title 50 of the rules of the city of New York, or any successor provision, for any activity on a public street, street curb lane, sidewalk or pedestrian island or plaza with an anticipated attendance of greater than five hundred persons per day where the activity will interfere with or obstruct the regular use of the location by pedestrian or vehicular traffic. Such term shall not include activities conducted pursuant to a valid film permit, demonstrations, parades or block parties.

“Stadium” means an establishment or facility that hosts live sporting or entertainment events.

b. The commissioner shall, on a regular basis and no less than annually, evaluate the capacity of all facilities within the designated area and the cost of processing organic waste by composting, aerobic or anaerobic digestion, or any other method of processing organic waste that the department approves by rule. If the commissioner determines that there is sufficient capacity and that the cost of processing organic waste consistent with this section is competitive with the cost of disposing of organic waste by landfill or incineration,

he or she shall designate by rule all covered establishments or a subset of covered establishments, based on any criteria, among such covered establishments, that generate a quantity of organic waste that would not exceed the evaluated capacity. All such designated covered establishments shall comply with the requirements of subdivision c of this section beginning no later than six months following such designation. In addition, the commissioner shall include in his or her evaluation the capacity of any facilities outside of the designated area that have arrangements or contracts with transfer stations or private carters to accept and process organic waste generated by and collected from covered establishments.

c. 1. Each designated covered establishment shall:

i. either (A) ensure collection by a private carter of all organic waste generated by such establishment for purposes of composting, aerobic or anaerobic digestion, or any other method of processing organic waste that the department approves by rule, (B) transport its own organic waste to a facility that provides for composting, aerobic or anaerobic digestion, or any other method of processing organic waste that the department approves by rule, provided that the covered establishment first obtains a registration issued by the business integrity commission pursuant to subdivision b of section 16-505 of this code, or (C) provide for on-site in vessel composting, aerobic or anaerobic digestion, or any other method of processing organic waste that the department approves by rule for some or all of the organic waste it generates on its premises, provided that it arranges for the collection or transport of the remainder of such organic waste, if any, in accordance with clause (A) or (B) of this subparagraph;

ii. post a sign, which shall be in addition to any other sign required to be posted pursuant to this code, that states clearly and legibly the trade or business name, address, and telephone number of, and the day and time of pickup by, the private carter that collects the covered establishment's organic waste, that such covered establishment transports its own organic waste, or that such covered establishment provides for on-site processing for all of the organic waste it generates on its premises, provided that:

(A) such sign shall be prominently displayed by affixing it to a window near the principal entrance to

the covered establishment so as to be easily visible from outside the building or, if this is not possible, prominently displayed inside the covered establishment near the principal entrance;

(B) catering establishments shall not be required to display on such sign the day and time of the pickup by the private carter that collects the establishment's organic waste; and

(C) this paragraph shall not apply to sponsors of temporary public events;

iii. provide separate bins for the disposal of organic waste in any area where such organic waste is generated and disposed of; and

iv. post instructions on the proper separation of organic waste where such instructions will be visible to persons who are disposing of organic waste, provided that this subparagraph shall not apply to sponsors of temporary public events.

2. Any covered establishment that arranges for the collection by a private carter of its organic waste pursuant to this subdivision shall not commingle such organic waste with other designated and non-designated recyclable material or solid waste, and shall place such organic waste out for collection by a private carter in a container or containers that (i) has a lid and a latch that keeps the lid closed and is resistant to tampering by rodents or other wildlife, (ii) has the capacity that meets the disposal needs of the covered establishment and its private carter, (iii) is compatible with the private carter's hauling collection practices, and (iv) is closed and latched at the time it is placed out for collection.

3. Any private carter that collects source separated organic waste from a covered establishment shall either:

i. deliver collected organic waste to a transfer station that has represented that it will deliver such organic waste to a facility for purposes of composting, aerobic or anaerobic digestion, or any other method of processing organic waste that the department approves by rule; or

ii. deliver such organic waste directly to a facility for purposes of composting, aerobic or anaerobic digestion, or any other method of processing organic waste that the department approves by rule.

d. Any transfer station that receives source separated organic waste pursuant to this section shall deliver or have delivered such organic waste directly to a facility that accepts organic waste for purposes of composting, aerobic or anaerobic digestion, or any other method of processing organic waste that the department approves by rule. This subdivision shall not apply to waste that cannot be processed at an organic waste processing facility.

e. The provisions of this section relating to private carters shall be enforced by the business integrity commission. The provisions of this section relating to covered establishments shall be enforced by the department, the department of health and mental hygiene, and the department of consumer affairs.

f. The department, the business integrity commission, the department of health and mental hygiene, and the department of consumer affairs may promulgate any rules necessary to implement this section, including, but not limited to, rules establishing reporting requirements sufficient to demonstrate compliance with this chapter.

g. Any person who owns or operates two or fewer food service establishments may request, and the commissioner shall grant, a waiver of the requirements of this section if: (1) no single food service establishment has a floor area of at least seven thousand square feet; (2) the food service establishment or establishments are individually franchised outlets of a parent business covered by paragraph five of the definition of “covered establishment” set forth in subdivision a of this section; and (3) the owner or operator establishes that such food service establishment or establishments do not receive private carting services through a general carting agreement between a parent business and a private carter. Such waiver shall be valid for twelve months and shall be renewable upon application to the commissioner via the department’s website.

§ 2. The opening paragraph of subdivision a of section 16-324 of the administrative code of the city of New York, as amended by local law number 77 for the year 2013, is amended to read as follows:

a. Subject to the provisions of subdivision b of this section, any person who violates this chapter, except section 16-306.1 of this chapter, subdivision g of section 16-308 of this chapter or section 16-310.1 of this

chapter, or any rule promulgated pursuant thereto, shall be liable for a civil penalty recoverable in a civil action brought in the name of the commissioner or in a proceeding returnable before the environmental control board, as follows:

§ 3. Section 16-324 of the administrative code of the city of New York is amended by adding a new subdivision e to read as follows:

e. (1) Any covered establishment that violates section 16-306.1 of this chapter or rules of the department, the department of health and mental hygiene, or the department of consumer affairs promulgated pursuant thereto shall be liable for a civil penalty recoverable in a civil action brought in the name of the commissioner or the commissioner of health and mental hygiene, or the commissioner of consumer affairs, or in a proceeding returnable before the environmental control board, the health tribunal at the office of administrative trials and hearings, or the administrative tribunal of the department of consumer affairs, in the amount of two hundred fifty dollars for the first violation, five hundred dollars for the second violation committed on a different day within a period of twelve months, and one thousand dollars for the third and each subsequent violation committed on different days within a period of twelve months, except that the department, the department of health and mental hygiene, and the department of consumer affairs shall not issue a notice of violation, but shall issue a warning, for any violation by a designated covered establishment that occurs during the first twelve months after the commissioner designates such covered establishment pursuant to subdivision b of section 16-306.1.

(2) Any transfer station that violates section 16-306.1 of this chapter or rules of the department promulgated pursuant thereto shall be liable for a civil penalty recoverable in a civil action brought in the name of the commissioner or in a proceeding returnable before the environmental control board in the amount of two hundred fifty dollars for the first violation, five hundred dollars for the second violation committed on a different day within a period of twelve months, and one thousand dollars for the third and each subsequent violation committed on different days within a period of twelve months, except that the department shall not

issue a notice of violation, but shall issue a warning, for any violation by a designated covered establishment that occurs during the first twelve months after the commissioner designates such covered establishment pursuant to subdivision b of section 16-306.1.

(3) Any private carter that violates section 16-306.1 of this chapter or rules of the business integrity commission promulgated pursuant thereto shall be liable for a civil penalty recoverable in a civil action brought in the name of the chair of the business integrity commission, or in a proceeding brought by the chair of the business integrity commission held in accordance with title 16-A of this code, except that the chair of the business integrity commission shall not issue a notice of violation, but shall issue a warning, for any violation by a designated covered establishment that occurs during the first twelve months after the commissioner designates such covered establishment pursuant to subdivision b of section 16-306.1.

§ 4. This local law shall take effect July 1, 2015.

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LS 4466

Together we're keeping food out of our garbage



metrovancover

SERVICES AND SOLUTIONS FOR A LIVABLE REGION

Q & A on Metro Vancouver's Organics Disposal Ban

The way we manage our waste is changing. Together we are keeping food out of the garbage. In 2015, Metro Vancouver will introduce an organics disposal ban to support this change. These are some of the more common questions businesses in the region have asked.

1. What does this mean?

It means we will no longer throw food in the garbage. The ban is on disposal of the 'organic' waste. In this case 'organic' refers to things that can decay into compost, specifically food and yard waste.

Metro Vancouver, the regional government, manages all of the garbage produced from 2.3 million residents and businesses in the region (geographic range from Lion's Bay to Langley, in South Western British Columbia). Some businesses have been choosing to recycle their food waste for many years. Putting a disposal ban in place is a tool to encourage further reducing and recycling the food we waste.

2. Who is impacted?

The organics disposal ban applies to all waste generated in this region, whether that waste is residential, commercial, or institutional. Everyone needs to be separating food from regular garbage at home, work, school and public places.

3. Are we the first place to do this?

No, while our region is seen as a leader in waste management for having a firm commitment to recycling more of our garbage, we are not the first to put a disposal ban on organics. San Francisco, Halifax, Nanaimo, Portland, Massachusetts as examples. The upcoming organics ban is the latest change in the way we manage our waste, and like blue box recycling or cardboard-only bins, this practice will seem more normal over time.

4. What's wrong with putting food in the garbage?

In our region, about 20% of the garbage going to landfill or waste-to-energy is food; that's over 250,000 tonnes per year, and is similar to global numbers. When we throw away food all the nutrients, soil, water, money and energy that went into food production is lost. Further, food

decaying under the landfill, where there is little oxygen, produces methane, a powerful greenhouse gas that contributes to global warming. In the right conditions, food that is separated from the garbage for proper processing can decay cleanly into compost or biofuel. So instead of wasting nutrients and producing greenhouse gasses, we can capture nutrients and produce soil to grow more food in or a biofuel to replace using fossil fuels.

5. What are examples of the types of food that are considered banned?

Food is thrown away all along the production line, from growing to processing, to retailing and into restaurants and homes. Restaurant and retail businesses might think of pre-consumer (in the kitchen before cooking) and post-consumer (plate scrapings and leftovers) foods. The disposal ban also includes packaged and frozen food, bakery, delis and cafes – any food you can think of.

6. How will my business separate food from regular garbage?

You're not creating more garbage, but separating the same garbage into different containers. You need to assess how you currently manage your garbage; including ordering, storage, kitchen preparation, staff rooms, bins and contracts. Metro Vancouver has a guide to getting started for restaurants. Visit metrovancover.org and search 'Closing the Loop'. City websites have tips for residents, including apartments.

7. Is this going to cost me more money?

For many businesses, separating food from regular garbage significantly reduces the volume and service required for regular garbage. It also prompts us all to recognize and reduce waste. Some businesses already separating food from regular garbage find it cost-neutral, while others see slight decrease or increase in costs,

Q&A CONTINUED

depending on their bin sizes and hauling service contracts. In 2014 Metro Vancouver is working with small businesses to record and share examples and costs to separating food from regular garbage. Results will be shared by end of 2014.

8. Do I have to commit space and provide different access to store or haul away a separate bin for food?

You will need space for the food bin(s). Your garbage hauler may have solutions. You may be able to share a food bin with a neighbouring business or start to use smaller garbage bins.

9. Are there companies that provide services like hauling food to a compost facility, that can help me get started, or de-package food if required?

As more businesses start separating waste, more services are becoming available. The Recycling Council of BC Hotline at 604-REC-YCLE (604-732-9253) maintains a current list of service providers. Many hauling businesses that collect your regular garbage can also collect food waste. Other businesses only collect recycling.

10. Can I line the collection bins with plastic bags?

Nuisances like odour need to be managed in order to keep them from becoming a problem. Bins can be cleaned on the spot, or switched for cleaned bins at collection.

The facilities in our region make high-quality compost, and end users of that compost don't want product with plastics in it. Often plastic-looking bags labelled 'compostable', 'biodegradable' or similar often require very specific conditions to work. Also, it is difficult for employees to identify the bag type in large mixed waste piles. For these

reasons plastic bag liners are generally not accepted.

There are some exceptions for commercial waste, which is high volume compared to residential waste. You need to clarify your options with your landlord or service provider. For home collection use a newsprint to line your bins, or tip and rinse regularly. In addition to plastic, examples of other contaminants to avoid are labels, wrapping, elastics, meat trays, plastic cutlery, and aluminum foil.

11. How will the ban be enforced and will there be fines once the disposal ban is in place?

Metro Vancouver has disposal bans on many other recyclable items like cardboard, paper and hard plastics. Enforcement is done when garbage loads are delivered to a disposal facility. There are fines associated with all disposal bans. Our priority is to keep food out of the landfill, not to develop an extensive fining process.

12. When does this start?

The organics disposal ban will come into effect in 2015. Initial enforcement will include warnings and information, and after a grace period surcharges will apply. Many households and businesses are separating food waste from regular garbage already.

Need more information? Visit [Metro Vancouver.org](http://MetroVancouver.org) and search 'Organic Disposal Ban'