

# **Best Practices for Local Government Solid Waste Recycling, Diversion from Landfill and Waste Reduction**

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**Prepared by Mecklenburg County Land Use & Environmental Services Agency,  
Solid Waste Division**

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## Executive Summary

In preparation for its upcoming Solid Waste Management Plan, Mecklenburg County solid waste division staff conducted a study of 24 local government recycling and waste diversion programs. Staff was seeking to identify program elements that offer successful diversion of solid waste from landfills.

Staff conducted a literature review and then selected 24 local governments to examine. Staff reviewed website content and other available documents such as Solid Waste Management Plans from the selected communities. A profile was developed for each of the 24 local governments. The profiled communities were contacted via phone or email and asked to review completed profiles and/or interviewed prior to profile development. Many of the local governments responded with information, some did not.

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### Local Governments Profiled

Alameda County, CA	Greensboro, NC	Philadelphia, PA
Atlanta, GA	Indianapolis, IN	Portland, OR
Austin, TX	Jacksonville/Duval County* FL	San Francisco, CA
City of Boulder, CO	King County, WA	San Jose, CA
Chicago, IL	Nashville/Davidson County* TN	Seattle, WA
Denver, CO	Oakland, CA	Toronto – Canada
Fairfax County, VA	Orlando/Orange, FL	Metro Vancouver BC Canada
Fresno, CA	Orange County, NC	Wake County, NC

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### \* Combined City/County Government

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Following profile development, essential data was pulled from each profile and organized to provide better understanding. The data was organized by program category, such as residential curbside, multi-family, commercial, and construction/demolition.

The data presented in the Best Practices section, identify some program elements that may contribute to the higher diversion/recycling levels reported. Following are some of the program elements identified by program area.

#### City Residential Curbside

- mandatory recycling participation and/or mandatory provision of recycling service,
- variable rate system where garbage charges are based on the size of subscribed container and recycling and composting collection are free (i.e., the less garbage you produce, the less you pay - also called Pay-As-You-Throw or PAYT)
- food waste collection program (usually combined with yard waste)
- ban on disposal of recyclable and compostable items in the garbage container (garbage is not picked up if recyclable or compostable items are in trash or a fine is levied).

#### Multi-family

- Recycling service required with garbage either free with garbage service or at an extra charge.
- Mandatory recycling requirement
- Some have food waste collection for multi-family

### **Commercial**

- Mandatory recycling
- Mandatory food waste (San Francisco is absolute, others if food waste generating business)
- Free collection
- Styrofoam ban for restaurants
- Food-service containers must be recyclable or compostable (local govt. decides/approves containers)
- Recycling plan

### **Construction/Demolition**

- Mandatory recycling percentage
- Economic incentive – fee required with permit, fee returned if recycling quota met (50-65%)
- Disposal bans
- Materials must be taken to a certified facility with mandated recycling percentage requirements
- Waste management plans submitted with construction and/or demolition permit application (this is used in conjunction with mandatory or deposit fee), and final reporting after project completion.

### **Waste Reduction (Reduce, Reuse)**

- Green purchasing (buy recycled, lower toxicity)
- Product reuse centers/exchanges
- PAYT
- Grants
- Educational partnerships
- Opt-out of yellow pages and junk mail
- Extended Producer Responsibility

### **Event Recycling**

- Recycling requirement
- Styrofoam ban
- City provides containers or collection services
- Recyclable or compostable food/beverage packaging requirement

Many local governments also had school, litter and in-house recycling efforts. These are presented in the body of the report.

The table below provides a matrix of program elements and the communities employing them.

	Alameda County,	Atlanta, GA	Austin, TX	Boulder, CO	Chicago, IL	Denver, CO	Fairfax County, VA	Fresno, CA	Greensboro, NC	Indianapolis, IN	Oakland, CA	Orange County, NC	Orange County, FL	Philadelphia, PA	Portland, OR	San Francisco, CA	San Jose, CA	Seattle, WA	Toronto Canada
<b><u>Residential Single-Family</u></b>																			
Mandatory Curbside Recycling							X						X		X				X
Variable Rate – PAYT			X	X						X	X				X	X	X	X	X
Food Waste Collection				X			X				X				X	X		X	X
Disposal Ban																		X	
<b><u>Multi-family</u></b>																			
Recycling Service Required			1	X			X				X				X				
Mandatory	X	X			X	X										X	X	X	X
Food Waste Service																			
<b><u>Commercial</u></b>																			
Mandatory Recycling					X	4	2						X	X	4	X		4	X
Mandatory Food Waste															5	X			X
Required Recycling Svc.			3																
Food service containers must be recyclable/compostable																		X	
Styrofoam ban											X				X				
<b><u>Construction/Demolition</u></b>																			
Mandatory recycling percentage	X			X	X		X			X					X	X		X	
Economic incentive – refundable deposit fee with permit																	X		
Disposal Ban												X						X	
Must use certified facility							X									X			
<b><u>Waste Reduction</u></b>																			
Green purchasing (buy recycled, lower toxicity)	X																		
Product reuse centers/exchanges			X	X			X				X				X		X	X	X
Grants																			
Opt out (yellow pages and/or junk mail)																X		X	
Extended Producer Responsibility																X		X	
<b><u>Event Recycling</u></b>																			
Recycling requirement		X														X	X	X	
Recyclable/compostable food/bev. packaging required																	X	X	
Provides containers/services			X									X			X				X
<b>1-Required if more than 100 units), 2-Mandatory if 50% or greater recyclables in trash, 3-required if 100 employees or more, 4-paper and cardboard mandatory, 5-mandatory if food waste generating business, city decides</b>																			

## 1.0 Introduction

As Mecklenburg County strives for continuous improvement and in preparation for the County's 2012 Solid Waste Management Plan update, Mecklenburg County Solid Waste staff conducted a study to identify successful "waste diversion" practices among communities in the United States and Canada. The County reviewed the practices, policies and programs of twenty four communities.

Profiles of diversion, recycling, and waste management practices and systems were created for each community. Staff was seeking to identify program elements that offer successful diversion of solid waste from landfills. This report does not include a "Recommendations Section" as the intent of this study was to present practices and programs which could increase knowledge on current and future practices and policies that divert waste from landfills. Many of the programs identified, if successfully implemented in a local community could bring about the expansion of waste reduction and recycling. This report contains a menu of options for communities to consider for implementation into their waste management systems.

The study begins with a discussion of waste recycling and diversion basics. This includes *Factors Affecting Waste Diversion* which provides a basic understanding of recycling and markets for recycled materials. In addition, government policies that can influence recycling and waste diversion are discussed. *The Character of Solid Waste and Organization of Programs* helps the reader understand why solid waste recycling programs are organized the way that they are. *Infrastructure and Facilities* explains the critical role these elements play in making recycling and waste diversion work. The *Methodology* section provides results from a literature review that was conducted, how we selected the communities to study and how profiles were developed. The *Best Practices* chapter pulls the essential data from each profile and organizes the information into program element categories (e.g., residential curbside programs, commercial/business, etc.).

## 2.0 Waste Recycling and Diversion Basics

### 2.1 Factors Affecting Waste Diversion

#### Recycling

Basic information about the nature of recycling is helpful in understanding both the choices that communities make and the opportunities available for recycling. In our economic system, there is a need/demand for products, so manufacturers make products and then distribute them through a system of wholesale and retail outlets. The products are purchased by consumers and eventually the products are no longer useful or desired and they are disposed. Recycling is the reverse of this process where discarded materials must find their way back to a manufacturer and it begins with private sector demand for the materials (markets).

#### Markets and Market Demand (price)

Recycling is only possible if there is a market demand for the materials you want to recycle. This means that the material must be capable of being economically processed into a form that is competitive with virgin materials. Consequently, local government recycling programs focus their efforts on materials for which market demand exists and try to collect and process these materials into a form that is sufficiently free of contaminants to be sold on the private market.

Markets and market demand for many materials may also be driven by the international marketplace. Paper and plastics products are often purchased by Asian, Indian and European markets. In addition, the value of materials can be affected by inexpensive raw material imports as has occurred in the past with steel and aluminum. Prices paid for materials may also fluctuate by proximity to the manufacturer or end user, and can be affected by the cost of collecting and transporting materials.

Virgin material prices can affect the value of recycled materials, when oil prices increase (plastics are made from oil), it favors the value of recycled plastics. In the case of glass bottles and jars. Glass is made from lime, soda ash and sand, which are abundant and inexpensive. Consequently, the price paid for recycled “cullet” at a glass factory is low (compared to paper or plastic). How the material is collected can lead to breakage and mixing of glass colors resulting in a negative value for glass and may result in communities/businesses having to pay for materials to be recycled.

### **Disposal Fees**

The fees associated with disposing of waste can also influence decisions to recycle and how much to recycle. In the Northeast, where garbage disposal fees are much higher than in the South, businesses have much more economic incentive to reduce their waste and recycle as much as possible.

### **Public Policy**

Federal, state and local policies can also influence recycling. These policies include: landfill bans, mandates, incentives, and disincentives, subsidies, deposit laws, advance disposal fees, packaging policies, producer responsibility laws, low-interest loans, grants and tax breaks.

Internal policies can also be useful, especially if initiated by a large consumer. By requiring the use of recycled content paper by federal agencies, the federal government was able to influence recycled content standards, quality of recycled content paper and demand for these products.

State policies that benefit recycling have generally consisted of recycling goals, recycling requirements, recycling grants, tax incentives, beverage container deposit laws, disposal fee surcharges and disposal restrictions (bans). The state of North Carolina has banned disposal of many items including plastic beverage bottles, washers/refrigerators and other “white goods”, wooden pallets, and aluminum cans. The State has also implemented a disposal surcharge and applied 12.5% of the revenues collected from that surcharge to recycling efforts.

California has beverage container deposit laws, market development zones, as well as recycling goals and requirements for its local governments. Oregon has deposit laws and requires that multifamily communities of five or more units have the opportunity to recycle.

Local government policies generally consist of goals, recycling requirements, incentives and disposal bans. Mecklenburg County has a business recycling ordinance (requirement) and a requirement that single-family homes receive curbside recycling and yard waste collection services. Disposal bans are most effective when they are successfully enforced. Some municipalities in the country mandate residential recycling while others provided financial incentives (residents charged directly for tiered garbage service but receive recycling service for free).

## **2.2 The Character of Solid Waste and Organization of Programs**

Waste reduction programs across the country are generally organized into residential waste, commercial waste, and construction/demolition waste. The reason for this is that these waste sources are different in character and strategies must address their differences as well as where the waste materials are being generated.

Residential waste is fairly homogenous across the country. A resident in a hotter climate may consume more “cold” beverages than someone in a cold climate, but generally we all shop at the same chain stores, consume the same products and generate similar wastes. There are some predictable differences between home owners and multi-family residents. A home owner will consume more home improvement products and generate yard waste for example. All residential households generate food waste.

Commercial waste streams tend to be the largest portion of solid waste in cities and towns. They are also the most diverse in character. Different business types generate different waste streams. Restaurants generate food waste and food packaging materials (primarily cardboard). Office buildings generate mostly paper. Retail generates mostly cardboard. Manufacturing waste consists of transport packaging waste and process waste. While transport packaging waste is predictable (wooden pallets/crates, plastic stretch wrap, corrugated cardboard), process waste depends on the type of product being manufactured. Process waste that is landfilled can include dewatered non-hazardous sludge or foundry sand.

In this report, commercial waste is sometimes referred to as CII or commercial/industrial/institutional. Commercial includes restaurants, retail and office buildings. Industrial would be the manufacturing facilities mentioned above. Institutional consists of hospitals, universities, prisons and other similar large waste generators.

Construction and demolition waste consists mainly of concrete, metal, treated and untreated wood, roofing materials, drywall, dirt, sand and gravel. There is a difference between construction wastes and demolition wastes in terms of recyclability. Painted drywall is not recyclable, so this material is lost in demolition. It is also difficult to differentiate between treated and untreated wood when the wood is aged, so this is also a material that is rarely recycled in demolition projects.

Most programs in larger cities address residential household hazardous waste as well as electronics, tires and white goods as these are either banned or at least problematic in landfills.

## **2.3 Infrastructure and Facilities**

Waste management requires infrastructure. Infrastructure includes collection infrastructure (collectors/haulers), processing infrastructure and end-use or disposal infrastructure. Prior to the advent of recycling, infrastructure generally consisted of garbage collectors and disposal facilities. Now there are recycling processing facilities which sort, package and transport recyclables to market.

In order to recycle yard waste, a yard waste processing facility is required. If you want to recycle food waste, a more sophisticated version of a yard waste processing facility is required to address odors and avoid problems with animal/insect pests.



In the profile section, we tried to catalogue the facilities that the local government operated to address its waste management needs and goals.

### **3.0 Methodology**

#### **3.1 Literature Review**

This study began with a literature review which sought to identify best practices or benchmarking studies that were relevant and accessible.

In determining which programs to review, consultants and local government recycling managers nationwide, known for their long-term leadership and commitment to recycling and waste reduction were contacted, as well as reviews of waste diversion list-serves, and internet research.

#### **Available Studies: Outstanding Program Comparisons**

County staff found a variety of comparative studies of recycling programs, conducted during various periods of time and covering specific geographic areas. A study of note was one conducted for Metro Vancouver BC (Canada) by Skumatz Economic Research Associates (SERA) entitled *2007 North American Waste Management Systems Comparison Study: Outstanding Communities and Programs in North America & Beyond*. SERA profiled 19 North American communities and 7 specialty programs for a total of 26.. The study identified best practices and provided a quantitative analysis of leading alternatives.

The study reported curbside recycling results ranging from 98 to 791 pounds per capita per year. Most ranged from 120 to 250 pounds with Seattle reporting 301 pounds. The study found that residential curbside yard waste programs alone collect on average 117 pounds/person/year and adding food waste increases this to 219 pounds.

Bans on disposal of recyclable materials were not found to increase recycling rates, the pounds per capita were nearly identical and the diversion rate was actually higher for cities without bans.

The results indicated that a focus on commercial programs may be the next best step as communities with commercial programs had higher diversion rates. Communities that have regulated commercial haulers (Portland) report significant results.

“Some of the most useful (and likely effective) regulations include: 1) making hauler permits contingent on offering recycling, and 2) requiring the cost of recycling to be embedded in the trash fee so recycling doesn’t cost businesses more.”

For the full report, see:

<http://www.metrovancouver.org/services/solidwaste/planning/ReportsforQA/SERA-WasteManagementSystemsComparisonStudy.pdf>

#### **Available Studies: Commercial only**

In 2002 the City of Ann Arbor Michigan commissioned a Commercial Recycling Study conducted by Resource Recycling Systems. The study included best practices profiles covering commercial and commercial organic waste diversion. The Study was subsequently used in Ann Arbor’s 2007 SWMP

update, especially by the city appointed commercial recycling implementation committee.

[http://www.a2gov.org/government/publicservices/systems\\_planning/recycle/Documents/City%20of%20Ann%20Arbor%20Commercial%20Recycling%20Support%20Recommendations%20\(2006\).pdf](http://www.a2gov.org/government/publicservices/systems_planning/recycle/Documents/City%20of%20Ann%20Arbor%20Commercial%20Recycling%20Support%20Recommendations%20(2006).pdf)  
(program profiles begin on page 33, about a 1/5 of the way into the document)

The profiled programs covered commercial recycling, commercial organics, and C&D recycling.

### **Available Studies: C&D only**

*Survey and analysis of C&D Recycling Programs, 2008*, was completed for the City of San Jose by R3 Consulting. The study provides detailed comparisons of California C&D programs and lays out options for San Jose to consider.

The study can be found at: [http://www.sjrecycles.org/construction-demolition/pdf/cddd\\_Survey-Analysis-CDPrograms\\_11-04-08.pdf](http://www.sjrecycles.org/construction-demolition/pdf/cddd_Survey-Analysis-CDPrograms_11-04-08.pdf)

*Government Policies for Increasing the Recycling of Construction and Demolition Debris, 2007* (Cochran, Henry, Dubey, and Townsend) provides a concise discussion of policy options for C&D debris recycling. Policies discussed include: direct regulation (requirements, bans), market incentives (e.g., disposal fees), and education. The full report can be read at:  
[http://www.dep.state.fl.us/waste/quick\\_topics/publications/shw/recycling/InnovativeGrants/IGYear7/finalreports/ClayIRGRecyclingFinalDeliverable\\_10\\_23\\_2007.pdf](http://www.dep.state.fl.us/waste/quick_topics/publications/shw/recycling/InnovativeGrants/IGYear7/finalreports/ClayIRGRecyclingFinalDeliverable_10_23_2007.pdf)

County staff conducted their own analysis of US Programs with Exceptional C&D Waste Reduction Policies for the 2009 Solid Waste Management Plan. A table located on page 6-12 of the plan lists the programs and policies that yielded exceptional results.  
<http://charmec.org/mecklenburg/county/SolidWaste/Documents/Final%202009%20SWMP%206-23-09.pdf>

## **3.2 Selection of Local Governments**

### **Selection Process**

Based on the literature review, local governments were selected for their recognition and leading efforts in recycling and waste diversion and those with similar demographics or programs to Mecklenburg County. Many communities well-known for their recycling efforts tended to be congregated in western-states, notably California, Washington and Oregon, with State mandates, high landfill disposal fees and/or communities desirous of waste minimization efforts.

Communities were also selected from the eastern half of the United States that were well-known for their recycling and waste reduction efforts, comparable in size, had notable program elements for waste reduction, or was a program that has been reviewed or referenced as leaders in other areas of governance.

### **County vs. City vs. Regional Authority**

All governmental programs have jurisdictional boundaries and roles that they fulfill. In Mecklenburg County, the City and Towns all provide garbage, recycling and yard waste collection. The County

provides processing of curbside recyclables and yard waste, drop-off centers for recycling, household hazardous waste, batteries, tires and many other services. Waste diversion, from a governmental perspective, entails a network of state mandates/goals and city/county initiatives and roles that culminates in the waste diversion rate that is achieved. This is true for every community profiled.

This is illuminated for the reader by the addition of a section to the profile that describes the role of the governmental entity being profiled and their role in waste reduction, while also discussing briefly the other players in that local government’s overall waste reduction strategy.

<b>Local Governments Profiled</b>		
Alameda County, CA	Greensboro, NC	Philadelphia, PA
Atlanta, GA	Indianapolis, IN	Portland, OR
Austin, TX	Jacksonville/Duval County* FL	San Francisco, CA
City of Boulder, CO	King County, WA	San Jose, CA
Chicago, IL	Nashville/Davidson County* TN	Seattle, WA
Denver, CO	Oakland, CA	Toronto – Canada
Fairfax County, VA	Orlando/Orange, FL	Metro Vancouver BC Canada
Fresno, CA	Orange County, NC	Wake County, NC
<b>* Combined City/County Government</b>		

### 3.3 Profile Development

Mecklenburg County staff developed community profiles with the assistance of municipal representatives across the United States and Canada. The focus of this effort was programs that diverted waste from disposal through reduction, recycling, reuse or composting programs. Additional information on programs and infrastructure was captured that supported the integration of solid waste management. Research was conducted that utilized the following process:

- Review of the websites documenting all program elements identified on the site
- Review of Solid Waste Management Plans and Ordinances if available
- Program profiles drafted
- Questions were highlighted website did not address
- Municipal representatives were contacted seeking review of the virtual documents and provided with additional requests for information

The level of participation by local governments varied and ranged from reviewing the “virtual” profile, providing detailed review and feedback, providing limited information or no response at all.

## 4.0 Best Management Practices – Program Elements

In this section, program elements that local governments with high diversion/recycling rates exhibit and /or successful program elements are highlighted.

Leaders in recycling and waste reduction all had a noticeable commitment to achieving a high diversion or recycling rate as observed in the following practices:

- Goal setting
- Public participation in the planning process and implementation processes in pursuit of established goals
- Commitment and support of elected officials
- Mandatory programs with enforced participation
- Requiring private sector haulers and processors to provide services and report results (willingness to franchise exclusive service rights in order to control service delivery and achieve objectives).
- Knowledgeable and committed staffs

### Goals/Results

Table 4.0 provides an overview of governments with diversion or recycling rates of 40% or greater. Diversion is often calculated as total quantity diverted divided by total quantity diverted plus disposed. However, what is counted as “diverted” varies from state to state and sometimes even between local governments. Recycling rate is usually the total recycled tonnage divided by the “reference waste stream” (total MSW or total residential waste for example). As with the diversion rate, what is counted as recycling varies from community to community as well as the “reference waste stream” which makes comparison challenging.

Whether the community established a “diversion” or “recycling” goal, you have to appreciate that these communities are serious about recycling and waste diversion. Goals range from 40 - 75% in the near term (2015 at the latest) and up to 90% (zero waste) in the longer term. Measuring results may vary from community to community, but a community’s success is determined by the accomplishment of its goals and satisfaction of its customers.

Consider King County Washington’s program which serves 1.28 million people. Of the 1,682,971 tons of waste generated, they recycled 815,490 and disposed of 867,481 tons (excludes C&D).

**Table 4.0: Governments with Waste Diversion or Recycling Rates of 40% or Higher.**

Government	Pop. Served	Goals	Disposal Fees	Total Program Results
Alameda County CA	1.5 million	75% diversion by 2010 By 2020, less than 10% by weight of landfilled material will consist of recyclables/organics	Landfill \$38-\$50 Transfer Stations \$65-\$120	69% diversion (2009)
Boulder, CO	103,600	60% WR 2007; 70% 2012; 85% 2017; Zero by 2025	\$82.75/ton @ local transfer sta., \$19.25 /cu. yd. @ landfill (15-20 miles away)	34-48% (mixed info on website)
Chicago, IL	2.69 million			45%

<b>Government</b>	<b>Pop. Served</b>	<b>Goals</b>	<b>Disposal Fees</b>	<b>Total Program Results</b>
<b>Fairfax County, VA</b>	1.08 million	25% of MSW recycled	\$53/ton	42%
<b>Fresno, CA</b>	480,000	D75% 2012: D90% 2025		75% diversion
<b>King County, WA</b>	1.28 million	R55% 2015 R70% 2020	\$117.82/ton	R48% (62% if asphalt & concrete included)
<b>Oakland, CA</b>	390,724	90% reduction in disposal tonnage by 2020		66% diversion (2008)
<b>Orange County, NC</b>	133,100	61% per capita waste reduction		56% waste reduction (compared to 91-92 baseline year). Does not include C&D in calculation.
<b>Portland, OR</b>		Zero waste stream growth, recycle 75% by 2015	\$89.53/ton	67% recycling rate
<b>San Francisco, CA</b>	805,235	75% diversion by 2010, Zero waste by 2020		77% Diversion
<b>San Jose, CA</b>	945,942	75% diversion by 2013 Zero waste by 2022		70% diversion
<b>Seattle, WA</b>	608,660	R60% (2012), R70% (2025) excludes C&D	\$40/ton	R53.7%
<b>Toronto</b>	2.6 million	D70% 2010	\$100/ton	D67% (2010)
<b>Metro Vancouver, BC</b>	2.3 million	70% Diversion by 2015	\$97 per metric tonne	R55%

**D = Diversion Rate; R = Recycling Rate**

As indicated in Table 4.0, some programs establish zero waste goals. Zero waste appears to be most often measured as 90% waste diversion by some future date. Beyond numerical goals, some program goals contained language that addresses the effects of markets and the economy or incorporated sustainability, for instance:

- San Jose - promoting the highest and best use of materials to eliminate waste and pollution, with an ultimate goal of reducing waste generation by more than 90%
- King County adopted “Zero Waste of Resources” as a principle designed to eliminate the disposal of materials with economic value and a viable market.
- Alameda County established a criterion that less than 10% of landfilled material will consist of recyclables/organics by 2020
- Portland added “Make the whole system more sustainable and safer for garbage haulers and neighborhoods” and “Reduce toxics and greenhouse gases”.

The following programs established specific goals by sector, for example:

- San Francisco – increase residential diversion to 55%, increase commercial diversion to 80%, increase city government diversion to 85%
- Metro Vancouver – increasing recycling from apartments and condos from 14% to 30%, increasing recycling for houses from 44% to 65%

Some programs have state regulatory requirements that motivate their efforts, for example:

California requires:

- 50% diversion by 2000
- new law requires recycling in multi-family complexes if more than 5 units
- AB 2176, requires special events and public venue facilities with over 2,000 participants per day to develop and implement a solid waste management plan and implement recycling and waste reduction strategies.

Oregon State law requires:

- Local governments must provide weekly residential curbside collection of source-separated recyclable materials
- Recycling collection service provided to multi-family dwelling complexes having five or more units

*Oregon Administrative Rules (OAR 340-090-0040)*

#### **4.1 City Residential Curbside Programs (usually single-family up to 4 unit residential building)**

Table 4.1a provides highlights of city residential curbside services. A three-cart system, garbage, recycling and mixed food/yard waste, seems to be the most prevalent for high-yield communities. Most of the profiled local government programs with high recycling/diversion rates employed one or more of the following:

- a mandatory recycling program,
- a variable rate system where garbage charges are based on the size of subscribed container and recycling and composting collection are free (i.e., the less garbage you produce, the less you pay - also called Pay-As-You-Throw)
- food waste collection program (usually allowed to be combined with yard waste)
- a ban on disposal of recyclable and compostable items in the garbage container (garbage is not picked up if recyclable or compostable items are in trash).
- Every other week garbage collection with weekly recycling and yard/food.

While implementing the addition of food waste to their weekly curbside collection of yard waste, Portland Oregon is also switching to bi-weekly garbage collection. Alameda County makes their garbage container the smallest of the three.

Participation is a mix of enforcement (mandatory or enforced disposal bans), incentives (cheaper rates if you recycle/compost – PAYT/variable rate systems), or a combination thereof. Some programs use fines to enforce, others do not collect garbage if recyclable/compostable materials remain in the garbage containers.

**Table 4.1a – City Residential Curbside Programs**

	<b>Recycling</b>	<b>Yard Waste Collection</b>	<b>Food Waste Collection</b>	<b>Garbage</b>	<b>Other</b>	<b>Results</b>
<b>Atlanta, GA</b>	Voluntary weekly bins	30,000 tons collected annually		Weekly	ReCart program with Recycle Bank for 96 gal. single stream pilot	3 lbs/hhld per week recycling, 13.3 lbs. hhld/wk. yard waste
<b>Austin TX</b>	bi-weekly 90-gal. Single stream Free with garbage service	Weekly free with garbage service		Variable rate PAYT – weekly (30, 60, 90 gall. Carts)	Charged extra if garbage in recycling cart	
<b>Boulder CO</b>	Svc. Required	Haulers must provide 32 gallon bi-weekly combined yard/food service + up to 3 bags of leaves and 3 bundles of branches		Weekly, Variable PAYT	Center for Hard to Recycle Materials (CHARM)	D 46%
<b>Chicago, IL</b>	Bi-weekly single stream cart system	Weekly btw. Apr. 1 – Nov. 30		Weekly	38 drop-offs, Block Captain program	DSS collected rate is 8%, private collection rate is 19%, diversion rate is 45%
<b>Denver, CO</b>	Voluntary 96 gall. bi-weekly	Every 3 weeks	Pilot coll. 65 gal. cart. \$29.25/qtr.		HHW coll. from home \$15 charge	55% partic., 79% setout
<b>Fresno CA</b>	Mandatory Weekly 96 gall.	Combined yard/food collection Weekly 96 gall.		Weekly 96gall.	Fines for contamination applied to utility bill	D 74% Partic. rate 90%
<b>Greensboro, NC</b>	Bi-weekly 96 gall. single stream	Weekly loose leaf pick up		Weekly	Bi-weekly bulky item coll. 29 public recycling sites	61%
<b>Indianapolis</b>	Bi-weekly 96 gall. roll cart \$6.75/mo.	Commingled with trash most of year, collected separately leaf season Nov. 7 – Dec. 2		Weekly – WTE facility	27 drop-offs, ToxDrop program, Pedestrian recycling	4982 tons in 2010
<b>Oakland CA</b>	Weekly 64 gall. Single stream	Combined yard/food collection Weekly 64 gall.		Weekly, Variable PAYT		
<b>Philadelphia, PA</b>	Mandatory single stream	Commingled with trash most of year, collected separately during leaf season		Weekly with no containers provided. 32 gallon per week limit	RecycleBank incentive program	19% diversion rate (2011)

	Recycling	Yard Waste Collection	Food Waste Collection	Garbage	Other	Results
<b>Portland OR</b>	PAYT – weekly 60-68 gal. blue recycling roll-cart and 13.5 – 16 gal. yellow bin (glass)	Combined yard/food collection		Every other week.	Small grants program	R51%
<b>San Francisco</b>	Mandatory	Mandatory Yard/food	Mandatory Yard/food		PAYT	D 60%
<b>San Jose</b>	Required Svc.	Required Svc.		PAYT		60%
<b>Seattle, WA</b>	Recyclables prohibited from disposal in trash	Yard/food (Yard waste disposal ban)	Yard/food		PAYT Garbage is uncollected if recycling, food or yard waste inside	R 70.3% (66.1 lbs./hhld. Month) 2010
<b>Toronto</b>	Mandatory bi-weekly single stream	Bi-weekly 10 months per year	Mandatory weekly includes animal waste/bedding, diapers	Bi-weekly, PAYT	Curbside E-waste	Blue bin 94% Partic. Green bin 87% Partic. SF = 63% diversion

**R = Recycling Rate, D = Diversion Rate, hhld = household, SF = Single-family,**

The addition of food waste to curbside collection and the choice of food wastes to include, depends in large part on the facility used to process the materials. Most programs co-mingling food and yard waste allowed non-meat food waste, some also allowed meat and bones, Toronto’s went as far as to allow animal waste and bedding plus diapers. Table 4.1b displays materials included in curbside collection for these communities. The number of materials accepted ranged from 8 to 21. The communities with the highest number of materials accepted were Seattle (21), Toronto (18) and Fresno and Portland (each with 17).



Table 4.1b: Materials Collected Curbside

	Alameda County, CA	Atlanta, GA	Austin, TX	Boulder, CO	Chicago, IL	Denver, CO	Fresno, CA	Greensboro, NC	Indianapolis, IN	Oakland, CA	Orange County, NC	Philadelphia, PA	Portland, OR	San Francisco, CA	San Jose, CA	Seattle, WA	Toronto Canada
Paper, news, magazines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Paperboard boxes	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Corrugated Cardboard	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cartons (gable top)	X			X	X		X	X		X	X	X		X	X	X	X
Coated papers (hot drink cups)						X										X	
Shredded paper		X				X		X			X		X	X			X
Aseptic packaging	X				X		X	X		X			X			X	X
Plastics 1 & 2 bottles	X	X	X		X	X		X	X		X	X				X	
Plastics 1-5 + 7 bottles		X			X	X			X	X		X	X			X	X
Plastics 1-7 incl. clamshells, deli trays except Styrofoam		X	X	X	X	X	X					X		X	X	X	X
Plastic – large rigid							X	X					X	X		X	
Plastic Bags (bagged not loose)							X									X	X
Plastic Lids (3 in. or wider)							X							X		X	X
Aluminum Cans		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Aluminum Foil				X	X	X				X	X		X	X		X	X
Tin and Steel Cans		X		X	X		X	X	X	X	X	X	X	X	X	X	X
Aerosol Cans (empty)				X		X	X	X		X	X	X	X			X	
Scrap Metal (2'x2'x2' or 30lbs)	X						X						X		X	X	
Metal jar lids & steel bottle caps				X			X							X	X		X
Glass Bottles and Jars	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Oil filters	X									X							
Used Motor Oil	X									X			X		X	X	
Textiles															X		
Electronics																	X
Fluorescent bulbs																	
Yard Waste	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X
Food waste – veggie only	X			X			X						X				
Food waste – w/meat, dairy										X				X		X	X

#### 4.1.1 Residential Multi-family

It was observed that municipalities with high diversion rates require that multi-family housing receive recycling services, in addition some programs added food waste service. Other observed practices included, charging customers if recycling is found in their garbage containers, such as in Seattle. Table 6.1.1 provides an overview of City programs for multi-family residents.

**Table 4.1.1: Residential Multi-family (MF) Programs**

	Recycling	Yard and Food Waste	Other	Results
<b>Alameda County CA</b>	Mandatory		State Law requires recycling services in MF properties over 5 units	
<b>Atlanta, GA</b>	Mandatory		MF properties must contract with private haulers to provide recycling per City Ordinance	
<b>Austin, TX</b>	Required if 100 units or more		Universal Recycling Ordinance = by 2014 recycling required of 26 units or greater MF	
<b>Boulder, CO</b>	Free svc. Req.		Haulers providing garbage must also provide recycling at no extra charge	D 17%
<b>Chicago, IL</b>	Mandatory			
<b>Denver, CO</b>			MF communities with under 8 units receive recycling service	
<b>Fairfax County, VA</b>	Mandatory		Recycling of cardboard and paper for MF properties	
<b>Fresno CA</b>	Req. Svc.			
<b>Greensboro NC</b>			Duplexes and quadraplexes receive recycling service	
<b>King County WA</b>			Duplexes and quadraplexes receive recycling service	
<b>Oakland CA</b>	Req. Svc.	Yard/food combined		
<b>Orange County NC</b>	Fee based svc.		MF residents sort recyclables in 96-gallon roll carts for a fee of \$19 per unit	
<b>Philadelphia PA</b>			MF communities with under 6 units receive recycling service	
<b>Portland OR</b>	Property owners/managers are required to provide recycling service adequate for the number of households. The centrally located collection area must have a two-sort recycling system for glass and commingled paper, plastic and metal.	Yard only Req. svc.	<ul style="list-style-type: none"> <li>- Recycling stations must be as convenient as trash.</li> <li>- Recycling information must be provided to new residents within 30 days of move in and on an annual basis thereafter.</li> <li>- technical assistance including free posters, refrigerator magnets and large durable signs. Staff will hand deliver materials and speak to residents one-on-one.</li> <li>- Property Manager's Guide for Successful Multifamily Recycling.</li> </ul>	

	Recycling	Yard and Food Waste	Other	Results
<b>San Francisco CA</b>	Mandatory	Mandatory		All MF have recycling, 75% have food waste
<b>San Jose CA</b>	Mandatory		Monthly Service fee	
<b>Seattle, WA</b>	Mandatory svc.	Mandatory food waste svc.	Recycling container contamination = billed at garbage rate, recycling in garbage = \$50 fine. free kitchen carry-out buckets, disposal ban	29.6% recycling rate, 29.6 lbs./hhld 2010
<b>Toronto Canada</b>	Required Participation, City provides in-unit recycling containers for residents	Food only - Weekly collection. Mandatory if utilizing City's collection svc.	Free centralized e-waste collection container for each building. City provides free in-unit "kitchen catchers"	18% diversion rate
<b>Metro Vancouver BC</b>			Most multifamily buildings receive recycling service through the municipality	

**SF = single family, MF = multi-family, YW = yard waste, R = recycling rate, D = diversion rate**

Multi-family housing does not typically produce a lot of yard waste and consequently it is often treated the same as commercial yard waste, generated by landscaping companies.

Multi-family housing consistently yields lower diversion/recycling rates than does single-family housing. Alameda County has conducted a series of studies to address participation and yields from multi-family housing. The most recent was the *Multi-family Dwelling Recycling Evaluation Report* – December 2008. ([http://www.stopwaste.org/docs/mfd\\_evaluation\\_rpt.pdf](http://www.stopwaste.org/docs/mfd_evaluation_rpt.pdf))

#### 4.2 County Residential Programs

Traditionally and in all cases observed, cities provided or contracted for direct collection services to single-family or curbside solid waste services. For multi-family housing, cities either provided services or set policies for service provision. The County's role as observed in this study, was to set policy and/or in a supportive role in providing facilities and processing infrastructure.

Table 4.2 highlights programs offered by the counties included in this study.

**Table 4.2: County Residential Programs**

	<b>Goal</b>	<b>Recycling</b>	<b>Yard &amp; Food Waste</b>	<b>Garbage</b>	<b>Other</b>	<b>Results</b>
<b>Alameda County CA</b>		Weekly 64 gall.	Weekly 64 gal. Yard/food	32 gal.	HHW and Ewaste	75% set-out rate and avg. monthly wgt is 70lbs/hhld (85 lbs/hhld for organics)
<b>Fairfax County, VA</b>		Weekly 64 gal. single stream	Mar – Dec. separate yard waste collection	Weekly 96 gal.	HHW and drop-off centers	
<b>Jacksonville/Duval County, FL</b>		Weekly single stream	Limited to 5 cu. Yds. Weekly of yard waste	Weekly 20-32 gall. can, twice a week w/ fee	HHW & e-waste facility	54% participation rate (2009)
<b>King County WA</b>	Per capita generation of 14.2 lbs/wk by 2020	SF Recycling Service Required, bi-weekly single stream. MF recycling service optional	Yard/food 98% of single family customers have	Weekly, PAYT	HHW and E waste events, drop-off centers. Electronics disposal ban	SF R54% YW 95% MF R10%
<b>Nashville/Davidson TN</b>	25% recycling	Monthly 96 gal., USD only	3 times per year	Weekly 96 gal., USD only	HHW and Ewaste drop-off centers	R44%
<b>Orange County FL</b>		Mandatory 2-bin system. Weekly	Yard waste only, Weekly, 3cu.yd. limit	2x/wk. 50 gallon	HHW, bulky 1x/wk.	Avg. 20 lbs/hhld/mo. recycling
<b>Orange County NC</b>	61% waste reduction per capita	Provides weekly svc. for Carrboro, Chapel Hill and Hillsborough. Provides bi-weekly svc to rural residents. 2-bin system paper & containers. 95 gall. carts at 95% of MF complexes			3R fee to finance waste reduction. 5 recycling only drop-offs + 5 convenience centers	Towns = 85% participation, Rural = 60 % participation
<b>Metro Vancouver, BC*</b>		SF & MF		Educa-tion	Drop-off centers, disposal ban	R44%
<b>Wake County, NC</b>	20% waste reduction per capita	Drop-off sites only			HHW	

SF = single family, MF = multi-family, YW = yard waste, R = recycling rate, D = diversion rate, USD = Urban service district, HHW = household hazardous waste

### **4.3 Commercial/Industrial/Institutional**

Perhaps the most important waste stream to apply waste diversion/recycling strategies is the commercial sector. Commercial waste often makes up 50% of an urban community's waste with the remainder generated by residential and construction activities.

It is observed that mandatory recycling or mandatory provision of service is being implemented by high performance communities as a mechanism for addressing business waste. California has a law pending that would require all businesses generating 4 cubic yards or greater of waste to recycle. San Francisco adds pay-as-you-throw (PAYT) or variable rate fee system to its "mandatory" to reinforce results. Austin, Texas' looser mandatory requirement of 100 employees or more is yielding to a tighter restriction addressing business square footage.

Some communities have added commercial food waste programs. Orange County, NC provides free service to 30 large generators. Portland and Seattle make it mandatory if food waste is generated.

Recognizing the need to address commonly used materials that are NOT recyclable, several communities banned the use of Styrofoam in food services or, alternatively banned the use of non-recyclable and non-compostable materials. These communities also require that businesses purchase from an approved list or that they approve the materials before they are introduced.

Commercial results varied from 25 to 63% diversion/recycling. San Francisco reported 95% of restaurants participating. Table 4.3 provides highlights from the profiled communities.

**Table 4.3: Commercial, Institutional, Industrial Waste**

	<b>Recycling</b>	<b>Food Waste</b>	<b>Other/Notes</b>	<b>Results*</b>
<b>Alameda County CA</b>	Awaiting pending state law req. recycling if 4 cy or greater		Business Partnership (assistance, grants up to \$70k, low-interest loans up to \$240k), Business Efficiency Awards, Compost at Work, Landfill ban on “plant waste”, Small Business Hhld HazWaste Prog.	
<b>Austin TX</b>	Required if 100 employees or more; City provides w/ garbage collection to downtown area & small businesses		Free Assistance, Business Recognition program., Universal Recycling Ordinance = by 2015 recycling required if sq. ft. greater than 26,000	
<b>Boulder CO</b>			Technical assistance, Business Zero Waste start-up rebate, Business Recycling Coupon, Commercial Composting Collection Incentive. City facilities, such as CHARM, are also open to businesses.	25% diversion
<b>Chicago IL</b>	Mandatory with business license & private garbage contract		Must include 3 recyclable items	19% diversion
<b>Fairfax County VA</b>	Mandatory		Must include cardboard and mixed paper. If annual waste stream of 100 tons or avg. occupancy of 200, additional recyclable material required.	
<b>Fresno CA</b>	Mandatory if 50% or greater recyclable materials in their waste stream			
<b>Greensboro NC</b>	City provides if bus. Provides dumpster		Called Team Recycle Program, fees range from \$30-\$60/month based on # of collections. City won't empty dumpster if contaminated.	
<b>Jacksonville/Duval County FL</b>	City provides to small bus. w/ no more than 10 cans		Yard waste collection included in City contracts. Businesses can take appliances to City's Appliance Center.	
<b>King County WA</b>			County conducts studies in support of City programs. Business HHW is accepted from exempted SWGs at weekend “wastemobile” events.	R63% 2009
<b>Metro Nashville TN</b>	Limited Metro service provided to core area		Landfill bans on yard waste, cardboard & electronics. Tech. Assistance to businesses seeking to establish or expand waste reduction & recycling.	
<b>Oakland CA</b>			Small business recycling program, Polystyrene Ban	
<b>Orange County FL</b>	Mandatory, same materials as res.		There has been no dedicated budget or staff for commercial recycling education or enforcement for past 5 years.	
<b>Orange County NC</b>	County collects recyclables at 210 locations (free).	Divert 2500 tons/yr. from 30 businesses. Targets only large generators.	3-R fee helps finance. Landfill bans and Waste audits. Private contractor collects/processes food waste.	900 tons/yr recyclables diverted

	<b>Recycling</b>	<b>Food Waste</b>	<b>Other/Notes</b>	<b>Results*</b>
<b>Philadelphia PA</b>	Mandatory		Submit recycling plan (including education program), which is linked to property tax database.	
<b>Portland OR</b>	Must recycle paper and containers.	Mandatory if food waste generating business	City provides assistance & resources. Progress measured thru quarterly reports from haulers. Business Recognition Program w/ certification. Polystyrene & single use bag ban for restaurants, grocery stores & retailers.	R64%
<b>San Francisco CA</b>	Mandatory PAYT	Mandatory PAYT	80% comm. goal or 25,000 tons diverted; can purchase recyclable/compostable goods thru Green Business program; commercial compliance tool kit; San Francisco Green Business Program; e-waste landfill ban and polystyrene ban; mattress recycling; commercial wood, scrap metal and large plastic recycling; tire recycling; window glass recycling; Styrofoam drop-off; VSQG HHW drop-off program	95% food svc participating
<b>San Jose CA</b>			Transitioning to franchise system w/ single hauler to achieve 75% diversion; small bus. HHW disposal at HHW facilities; ban on plastic carryout bags in 2012.	R22%
<b>Seattle WA</b>	Paper & cardboard not allowed in garbage. Customers with City contracted cart-based service receive recycling for free.	Styrofoam ban for food service containers – must be recyclable/compostable, must have recycling bins placed at locations.	Self-hauling to recycling stations, Free consulting services, Disposal ban: paper OCC, yard waste - \$50 fine if 10% found in garbage	R58.9% per 2010 per SWMP, 44000 tons food divers.
<b>Toronto</b>	Businesses using City svc. receive free organics and recycling coll. Svc (mandatory)	Businesses using City svc. receive free organics and recycling coll. svc (mandatory)		12,000 tons recyclables & 9,500 tons organics in 2010
<b>Metro Vancouver</b>		Plan to intro 2015 ban on disposal of food scraps	Disposal bans, web-based guidance documents on business sustainability & waste assessments	
<b>Wake County NC</b>			Technical assistance, annual waste reduction grants up to \$10k & 2 multi-material recycling facilities open to businesses	

**R = Recycling rate, D = Diversion rate, OCC = old corrugated cardboard, hhld = household**

#### **4.4 Construction and Demolition Waste**

Construction and demolition waste (C&D) is relatively homogenous compared to business or residential waste. Construction itself is a phased process with each phase yielding similar materials. This creates opportunities for recycling.

Many local government C&D programs have high diversion rates and employ specific policy tools to achieve their objectives. Strategies include:

- Recycling/Diversion requirements (mandates)
- Economic incentives – fee or deposit required during permitting, deposit is refunded if recycling goal is met.
- Disposal bans
- All mixed C&D materials must be taken to an approved recycling facility. Facilities are certified by the local government and must meet a specific recycling goal.

San Jose offers a unique incentive program whereby contractors must pay a deposit that is fully refundable with proper documentation that the C&D debris has been diverted from burial in the landfill. The goal they must meet is 50% of project waste diverted. All permitted projects must pay the deposit (a few exemptions apply). There are a number of certified facilities available to San Jose builders. These facilities are certified to recycle 50% of waste received. Builders can simply take their waste to one of these facilities, provide their permit # upon arrival and the permit # is recorded along with the weight ticket. This makes it easy for the builder to apply for a deposit refund.

King County and San Francisco have mixed waste processing facilities with required minimum recycling rates. All construction waste is then simply filtered through these facilities to achieve results. Some communities additionally require a recycling plan be submitted to show how they propose to meet the mandatory requirements.



**Table 4.4: Construction and Demolition Waste**

<b>Government</b>	<b>Disposal Bans</b>	<b>Recycling</b>	<b>Facilities</b>	<b>Notes</b>	<b>Results</b>
<b>Alameda County CA</b>		County C & D Ordinance (applies to County Projects). All but one community within Alameda have C&D Ordinance requiring 50% or greater diversion rates.	Under contract with WM to handle this material. - One C&D Mixed processing facility. - 12 facilities that process asphalt, brick concrete, porcelain (private) - 3 Dry Wall and Sheet Rock reuse/recycling facilities (private) - 5 building materials reuse facilities (private)	Small Commercial Green Material Rebate Program offers cash incentives for purchasing recycled content building materials. In addition, a Carpet Tile Pilot program exists in which excess carpet tiles can be donated for reuse.	From 2000-2010, the percentage of C&D Waste Identified in the waste stream fell from 21% to 12%. The program has a goal of 8000 tons of new waste diverted annually
<b>Boulder, CO</b>		Construction 50% req. Demolition 65%	No mixed C&D processors in Boulder, but several specialty recyclers are available.	C&D waste counted separately from overall residential and commercial tonnage	D83% in 2010.
<b>Chicago, IL</b>		R50% (2007)	16 facilities will accept all mixed C&D materials 28 Facilities will accept sorted materials only		D65%
<b>Fresno, CA</b>		Mandatory if the project generates 8 cubic yards or greater of trash	5 City approved mixed C&D processors. 1 City approved specialty processor		
<b>Jacksonville/Duval County, FL</b>			All facilities in City required to meet 80% diversion rate		
<b>King County, WA</b>	All C&D	Job sites must have separate containers for recyclable materials and non-recyclable materials	6 C&D mixed processing facilities	State req. source sep. eff. 2009	D90%
<b>Oakland, CA</b>		Requires recycling 100% of asphalt and concrete and 65% of all other C&D waste	Under contract with WM. Same resources as Alameda County, CA - 2 asphalt, brick, concrete, & porcelain recyclers (private) . - 2 building materials reuse locations	Part of Alameda County, CA	
<b>Orange County, NC</b>	Clean Wood Waste and Metal	Regulated Recyclable Material Ordinance. OCC, clean wood and scrap metal required. Must have WM plan.	4 certified mixed C&D materials reclamation facilities.	Adding shingles later this year to required list.  The economic downturn has effect	Volume of C&D waste fell almost 50% after Ordinance implemented & continues to fall.

				on C&D recycling tonnage	
<b>Portland, OR</b>	Concrete, asphalt, land-clearing, cardboard, metal, wood	75% recycling required if total job cost is greater than \$50,000. Pre-construction recycling plan required. \$500 fine for non-compliance.	3 mixed C&D materials processors	Operates voluntary C&D reuse program at transfer stations.	
<b>San Francisco, CA</b>	All C&D	All C&D must go to registered facilities recycling a minimum of 65%. Full Demolition projects must submit a Demolition Debris Recovery Plan, providing a minimum of 65% diversion from landfill.	2 registered facilities located inside city limits of SF. 10 additional facilities located in the region.		Diversion rate hard to calculate due to lack of tracking mechanisms for private sector source-separated C&D materials
<b>San Jose, CA</b>		Incentive program. Deposit required, refund if they recycle 50% of waste.	21 City-certified recovery facilities. <ul style="list-style-type: none"> <li>• 11 source separated</li> <li>• 5 other/specialty</li> <li>• Mixed C&amp;D:</li> <li>• 3 transfer stations</li> <li>• 4 landfills with Mixed C&amp;D operations</li> <li>• 4 processors focused on Mixed C&amp;D</li> </ul>	The 21 City-certified recovery facilities must divert 50% of material generated from new construction and demolition projects.	Nearly 100% diversion on source-separated material; average of 55% diversion on Mixed C&D  In 2008, diverted 866,000 tons of C&D Waste, (79% of total materials received)
<b>Seattle, WA</b>	-Metal, Asphalt, bricks, OCC concrete by 2012 -Clean wood, carpet, gypsum, plastic film by 2013 -Tear-off asphalt shingles by 2014	R60% (2012), R70% (2025)  90/10 Rule: C&D recycling collection containers cannot contain more than 10% non-recyclable materials.	3 permitted, commingled C&D processing facilities.	New solid waste mgt. plan will recommend 70% diversion rate.  By 2013, implement transfer station floor sorting program for loads that appear to be 50% recyclable.	R61.4% D65.6% Waste diversion rate consists of recycling and beneficial use (boiler fuel)  \$40/ton
<b>Metro Vancouver, BC</b>	Clean Wood (2015)	2015 Mandatory on-site	At least two privately operated mixed Processing facilities. Numerous small "recycling depots" are in operation.	All Private mixed waste processing, Licensed by Metro	D80%

D = Diversion; R=Recycling

#### 4.5 Schools

As seen in the table below, all school programs vary widely among local governments across the country. Some school systems receive no support and others receive dedicated employees, programs, and sponsorships. One County of particular interest is King County, Washington. King County has a program called SWD’s Green Schools Program where assistance is given to over 400 schools in 11 school districts. It is the vision of this program for “all schools and school districts in King County to practice resource conservation and engage their students and staff in environmental stewardship”. The difference in this program in comparison to others is that it offers a 3 tier system where each tier achieves different levels of certification towards sustainability and stewardship. Level 1 focuses on waste reduction, recycling and hazardous materials management. Level 2 establishes and implements an energy conservation program. Level 3 addresses water conservation and pollution. Each level of certification helps each school educate, promote, and enhance each teacher, student and staff’s knowledge of environmental stewardship which has created the backbone of an exemplary program.

**Table 4.5: Schools**

	<b>Government Support</b>	<b>Recycling Services Provided</b>	<b>Number of Facilities</b>	<b>Notes</b>	<b>Results</b>
<b>Alameda County CA</b>		lrecycle@school Educational Program		Bay-Friendly school gardens program	N/A
<b>Boulder CO</b>	SOME	Eco-Cycle Provides support/services to public schools			N/A
<b>Denver Public Works CO</b>	Y	Collection, Containers (18 & 95 gal.), Presentations, Instruction, & Educational Materials	118		90 Tons/Month
<b>Fairfax VA</b>	N	All public schools are required to recycle mixed paper and cardboard			N/A
<b>Fresno CA</b>	Limited	No Dedicated Program – Will make presentations upon request			N/A
<b>Greensboro NC</b>	Y	Educational Classes, Presentations, and Incentive Programs			N/A
<b>King County WA</b>	Y	Educational support services	+ 400 (11 school districts)	Schools Progress through 3 tier levels of environmental participation.	N/A
<b>Orange County/ NC</b>	Y	Hauling Services Provided		Has pilot composting program with 1 ea. Elementary, Middle and High School	N/A
<b>Orange County/ Orlando FLA</b>	Limited	Educational Presentations and Incentive Contests		Public School system has own recycling coordinator and contracts	N/A
<b>Wake County NC</b>	Y	Feed The Bin Program(Mixed Paper), Educational Presentations	170	Separate dumpster cardboard collection service	661 Tons Per Year
<b>Metro Vancouver</b>	Y	Home computers are accepted at schools, and use of a ‘best practices guidance document’			

	<b>Government Support</b>	<b>Recycling Services Provided</b>	<b>Number of Facilities</b>	<b>Notes</b>	<b>Results</b>
<b>Chicago, IL</b>		All commercial establishments that are required to have a Chicago business license and contract for private garbage collection are required to have recycling programs.			

#### 4.6 Event Recycling

Event recycling programs are practiced by many of the local government’s examined in this study. Event recycling, while not yielding a large amount of waste diversion, reinforces a recycling ethic and provides a way to recycle while away from home or business where recycling containers may be available. Some communities have created policies that address our “throw-away” society and require event vendors to use recyclable or compostable food and beverage containers that have been approved by the local government. Some require event organizers to submit a recycling plan, others provide recycling containers and services. Table 4.6 highlights some of these programs.

**Table 4.6 Event Recycling**

	<b>Event Recycling</b>	<b>Results</b>
<b>Alameda County CA</b>	<b>PUBLIC RESOURCES CODE SECTION 42648-42648.7</b> (AB 2176, Montanez, Chapter 879, Statutes of 2004), the large venues and large events recycling law, requires large venue (2,000 + participants per day) facilities and large events (as defined by Public Resources Code 42648 (b) and (c)) in each city and county to plan for solid waste reduction and upon request, report information regarding their waste reduction efforts to their local jurisdiction. The law also directs the Department of Resources Recycling and Recovery (formally known as the California Integrated Waste Management Board (CIWMB)) to provide guidance and assistance to venues and local jurisdictions in meeting their obligations.	
<b>Atlanta GA</b>	Effective 1/1/2007, the city of Atlanta enacted an ordinance that requires recycling at outdoor events.	
<b>Austin TX</b>	On October 22, 2009, City Council passed resolution 20091022-040 directing the City Manager to provide recycling services at all City sponsored and City co-sponsored events. The city of Austin, in conjunction with KAB (Keep Austin Beautiful) offers an Event Recycling Rebate as an incentive for event organizers to make their outdoor events more sustainable and help reduce the amount of trash sent to the landfill. Items eligible for rebate: plastic bottles; aluminum cans; cardboard.	Over a year's time, staff provided recycling services to a total of 17 events resulting in: 10 tons of recyclables collected <ul style="list-style-type: none"> <li>• Average 44% diversion rate</li> <li>• More than 200 total volunteers recruited</li> <li>• Events averaged 30 event recycling containers and related supplies delivered and loaned by SWS to organizers per event</li> </ul>
<b>King</b>	Washington State requires beverage vendors at official gatherings and	

	<b>Event Recycling</b>	<b>Results</b>
<b>County WA</b>	events to provide recycling for single-serving plastic, glass, and aluminum containers. Event organizers area also responsible for monitoring and servicing recycling bins during event, and having the recycled items hauled to a Recycling and Disposal Station	
<b>Oakland CA</b>	See Alameda County. Oakland provides educational materials for the larger events	
<b>Orange County NC</b>	Orange County SWS provides bins and carts service, including pick up, to small quasi-public events. They also lend recycling tools such as bins to private and larger events.	88-95% diversion rate (can and bottles and occasional garbage picks)
<b>Portland OR</b>	Voluntary program. The BPS provides educational materials and Clear Stream bins.	
<b>San Francisco</b>	Special Events Ordinance recycling & composting requirement. Events are required to provide adequate collection of recycling, composting and trash. Event organizers are required to educated employees and contractors, including janitors, on how to separate materials. Enforces <b>PUBLIC RESOURCES CODE SECTION 42648-42648.7</b> (AB 2176, Montanez, Chapter 879, Statutes of 2004)	
<b>San Jose</b>	Workshops, grants, ban on EPS + recycling req. if 1000 attendee. <b>PUBLIC RESOURCES CODE SECTION 42648-42648.7</b> (AB 2176, Montanez, Chapter 879, Statutes of 2004),	
<b>Seattle, WA</b>	Event vendors must use recyclable or compostable food packaging and collect materials at event. City approves packaging. Must recycle plastic bottles, aluminum cans, glass bottles, cardboard, newsprint, paper.	
<b>Toronto</b>	City provides blue and green bin service at no cost (garbage is event organizer responsibility). Organizers required to submit WM plan	
<b>Metro Vancouver, BC</b>	Educational Support	

#### 4.7 Local Government In-house Recycling Programs

In the spirit of “practice what you preach”, local governments need to adhere to the same practices and philosophies that they communicate with the larger community that they govern. Since government is essentially a business, they should practice the same policies and practices that are communicated to the business community. These include meeting recycling requirements and recycling other materials such as toner cartridges and batteries, practicing waste reduction techniques such as two-sided copying and printing, purchasing recycled content products and materials, reducing toxicity of materials used and setting goals for further waste reduction. Table 4.7 provides information on how communities in this study have addressed this in-house recycling.

**Table 4.7: Local Government In-house Recycling Programs**

Government	Program (Y/N)	Goal	Notes	Results
Alameda County CA	Yes		Created several model policy documents such as disaster debris management, environmentally friendly purchasing, green buildings for public agencies, and Bay-Friendly Landscaping	N/A
Atlanta, GA	Yes		Recent legislation allows the City to accept free recycling services for Mixed Office Paper in City Hall, City Hall East and City Court.	
Austin, TX	Yes	Zero Waste Policy	Recycling Containers at every desk, common areas, facilities, and buildings. Accept all items accepted in residential curbside recycling Program.	N/A
Chicago, IL	Yes		All commercial establishments that are required to have a Chicago business license and contract for private garbage collection are required to have recycling programs.	
Denver, Co	Yes		Recyclables are collected from city-owned buildings and facilities	
Fairfax County, Virginia	Yes		County code requires all institutions to provide a recycling system for cardboard and mixed office paper	
Greensboro, NC			Greensboro services their own containers at govt. buildings.	
Indianapolis, IN	Yes		The City of Indianapolis has a staff of two persons that collects from internal departments as a part of the Public Work's collection program.	
Philadelphia, PA	Yes		All businesses are required to submit a Recycling Plan	
San Francisco, CA	Yes	85% Diversion	Executive Directive 08-02, Required Departmental Waste Assessments, Resource Conservation Plans, and Annual Reports.	85% Diversion
San Jose, CA	Yes	100% Diversion	Zero Waste Strategic Plan includes diverting 100% of waste to a waste to energy facility.	
Toronto	Yes	70% by 2010	Waste Diversion Team (City agencies, Boards, Commissions, and Divisions)	67% Diversion

#### 4.8 Waste Prevention (Reduce, Reuse)

Management of waste, whether it is collected and transported to a landfill, or if it is collected and transported to a recycling or composting facility, costs time and money, and creates pollution (vehicles on the road, product manufacturing and its associated wastes and pollution, etc.). Waste prevention is the most economical way to manage waste, if it isn't generated it doesn't need to be managed and all of the associated costs and pollution can be avoided. The Environmental Protection Agency has held Reduce, Reuse at the top of its waste management hierarchy since it first weighed in on waste management many years ago. Despite the logic of waste prevention, this remains one of the more difficult areas for local governments to address. The manufacture, importation and use of products that are not recyclable or contain hazardous substances, are not issues that local governments have much influence over, yet some local governments are supporting extended producer responsibility initiatives

that may lead to future changes in product supplier decisions. Table 4.8 provides an overview of profiled local government programs.

**Table 4.8: Waste Prevention: Source Reduction**

<b>Government</b>	<b>General</b>	<b>Reduce</b>	<b>Reuse</b>	<b>Extended Producer Responsibility</b>
<b>Alameda County CA</b>	Bay-Friendly Gardening, Education-irecycle @school program	StopWaste Business Partnership, includes grants and Low interest loans for waste prevention,	Use Reusables (transport packaging),	Green Purchasing initiative
<b>Austin, TX</b>	Zero Waste planning	Home Rebate Challenge, Compost Classes Waste Reduction Education for Businesses, PAYT	Free Chemicals at Reuse Store	
<b>Boulder, CO</b>	Partnerships with Eco-Cycle, PACE and the Center for ReSource Conservation	Zero Waste Technical Assistance through PACE, Business Zero Waste Start UP Rebate, PAYT	Center for Hard to Recycle Materials (CHARM)	
<b>Fresno, CA</b>			Old Coats, Gift of Sight (glasses), Donate programs	
<b>King County, WA</b>	Recycling Grants for municipalities \$1million/yr (includes waste prevention),	EcoConsumer Program, home composting, grasscycling	Online exchange, Take-It-Back network,	
<b>Oakland, CA</b>	Education-irecycle @school & Service learning Waste Reduction	Green Packaging Ordinance (Polystyrene ban), PAYT		
<b>Orange County, NC</b>	3R Fee, Public Education and outreach	Home Composting Classes	Salvage Sheds	
<b>Portland, OR</b>		Portland Recycles! Small grants for waste prevention & education		Styrofoam ban for retail vendors
<b>San Francisco, CA</b>		Perfectly Good program, Food Service Waste Reduction Ordinance, Junk mail program, Zero Waste grants	Neighborhood collection days, Donate program	Extended Producer Responsibility Resolution

Government	General	Reduce	Reuse	Extended Producer Responsibility
<b>San Jose, CA</b>		Home composting, plastic bag ban, Go Green Schools Program, PAYT		
<b>Seattle, WA</b>		Opt-out of yellow pages and junk mail. Home composting, waste reduction grants, Resource Venture website and links, PAYT	Take it Back & reusable materials diversion program, Edible food waste Recovery, Reusable shopping bags	Green Purchasing program
<b>Toronto, Canada</b>			ReUse Centers	
<b>Metro Vancouver, BC Canada</b>	Educational tools, media campaigns, videos, and website	Junk Mail (Red Dot) Sustainable schools- best practices document	Home computers taken to schools for reuse	Extended Producer Responsibility Regulations

**SF = single family, MF = multi-family, YW = yard waste, R = recycling rate, D = diversion rate**

#### 4.9 Litter

Some local government waste management programs include litter management, while for others it is a separate program (usually Keep America Beautiful – KAB or state highway department program). Table 4.10 highlights program identified in our study that address litter.

**Table 4.9: Litter Programs**

Government	Litter Programs	Results*
<b>Atlanta GA</b>	Adopt-a-Spot Litter Reduction Program	
<b>Austin TX</b>	Street Sweeping System – Res. Streets swept 6/yr, major streets swept 1/month	Remove 6,200 tons of trash from roadways per year
<b>Chicago IL</b>	Spring Clean & Green Event – City provides tools & bags	9,800+ volunteers from 380+ community groups participated
<b>Denver CO</b>	Keep Denver Beautiful & Graffiti Prevention & Removal	
<b>Jacksonville/Duval County FL</b>	Clean It Up, Green It Up community improvement initiatives	Volunteer cleanup efforts over the last year resulted in 9,857 volunteers participating in 555 cleanups totaling 19,766 volunteer hours valued at \$385,634.66, resulting in the collection of an estimated 13,871 bags of litter
<b>Philadelphia PA</b>	Litter Prevention & Clean-Up Program – Street cleaning unit, 900 big belly solar receptacles installed, “Unlitter Network” for businesses	
<b>Greensboro NC</b>	Clean-Up Program for illegal dump site, Great American Clean-Up and NC Big Sweep	



<b>Indianapolis IN</b>	Pedestrian recycling containers installed, Great Indy Clean-Up
<b>Metro Nashville TN</b>	Metro Beautification & Environment Commission – Coordinates Great American Clean-Up & America Recycles Day, graffiti prevention & adopt-a-street program.
<b>Toronto</b>	New pedestrian litter bins w/ cigarette butt receptacles, litter reported to 311; Beautiful Streets program. – community gardens, neighborhood murals & improve public spaces projects

#### 4.10 Summary of Best Practices

Following is a summary of program elements shared by local governments with high recycling/diversion rates.

##### City Residential Curbside

- a mandatory recycling program,
- a variable rate system where garbage charges are based on the size of subscribed container and recycling and composting collection are free (i.e., the less garbage you produce, the less you pay - also called Pay-As-You-Throw)
- food waste collection program (usually allowed to be combined with yard waste)
- a ban on disposal of recyclable and compostable items in the garbage container (garbage is not picked up if recyclable or compostable items are in trash or a fine is levied).

##### Multi-family

- Recycling service required with garbage either free with garbage service or at an extra charge.
- Mandatory recycling requirement
- Some have food waste collection

##### Commercial

- Mandatory recycling
- Mandatory food waste (SF absolute, others if food waste generating business)
- Free collection
- Styrofoam ban for restaurants
- Food-service containers must be recyclable or compostable (local govt. decides/approves containers)
- Recycling plan

##### Construction/Demolition

- Mandatory recycling percentage
- Economic incentive – fee required with permit, fee returned if recycling quota met (50-65%)
- Disposal bans
- Materials must be taken to a certified facility with mandated recycling % requirements
- Waste management plans submitted with permit application
- Final reporting after project completion

##### Waste Reduction (Reduce, Reuse)

- Green purchasing (buy recycled, lower toxicity)

- Product reuse centers/exchanges
- PAYT
- Grants
- Educational partnerships
- Opt out of yellow pages and junk mail
- Extended Producer Responsibility

**Event Recycling**

- Recycling requirement
- Styrofoam ban
- City provides free svc
- Recyclable or compostable food/beverage packaging requirement

The following table provides a matrix of program elements and the communities employing them.

	Alameda County,	Atlanta, GA	Austin, TX	Boulder, CO	Chicago, IL	Denver, CO	Fairfax County, VA	Fresno, CA	Greensboro, NC	Indianapolis, IN	Oakland, CA	Orange County, NC	Orange County, FL	Philadelphia, PA	Portland, OR	San Francisco, CA	San Jose, CA	Seattle, WA	Toronto Canada
<b><u>Residential Single-Family</u></b>																			
Mandatory Recycling Participation							X						X		X		X	X	X
Variable Rate – PAYT			X	X					X	X				X	X	X	X	X	X
Food Waste Collection				X			X			X				X	X		X	X	
Disposal Ban																		X	
<b><u>Multi-family</u></b>																			
Recycling Service Required			1	X			X			X				X					
Mandatory	X	X			X	X					X					X	X	X	X
Food Waste Service																			
<b><u>Commercial</u></b>																			
Mandatory Recycling					X	4	2					X	X	4	X		4	X	
Mandatory Food Waste														5	X				X
Required Recycling Svc.			3																
Food service containers must be recyclable/compostable																		X	
Styrofoam ban											X			X					
<b><u>Construction/Demolition</u></b>																			
Mandatory recycling percentage	X			X	X		X			X				X	X		X	X	
Economic incentive – refundable deposit fee with permit																	X		
Disposal Ban												X						X	
Must use certified facility							X									X			
<b><u>Waste Reduction</u></b>																			
Green purchasing (buy recycled, lower toxicity)	X																		
Product reuse centers/exchanges			X	X			X				X					X		X	X
Grants																			
Opt out (yellow pages and/or junk mail)																X		X	
Extended Producer Responsibility																X		X	
<b><u>Event Recycling</u></b>																			
Recycling requirement		X														X	X	X	
Recyclable/compostable food/bev. packaging required																	X	X	
Provides containers/services			X									X		X					X
<b>1-Required if more than 100 units), 2-Mandatory if 50% or greater recyclables in trash, 3-required if 100 employees or more, 4-paper and cardboard mandatory, 5-mandatory if food waste generating business, city decides</b>																			



## Appendix A: Local Government Profiles

## **Alameda County, California Solid Waste Management Services**

**Population served by program: 1,510,271 (2010 Census)**

### **1.0 Description of Government Profiled:**

The Alameda County Waste Management Authority and Recycling Board (WMA) is an independent agency, which was established in 1976 to provide waste management planning and programs. In 1990, the Source Reduction and Recycling Board was established by an act of the voters, and integrated into the existing Authority. The two boards, the Waste Management Authority and Recycling Board and the Source Reduction and Recycling Board, share the same staff, with overlaps on board membership.

The WMA's 17-member board of elected officials includes representatives from each of the fourteen city councils, the County Board of Supervisors and two sanitary district boards that mainly serve unincorporated areas. The Authority operates under a "Joint Exercise of Powers Agreement [JPA] for Waste Management", adopted by the member agencies.

Initially, the JPA gave the Authority responsibility for the County Solid Waste Management Plan. Later, it added the County Hazardous Waste Management Plan and, in 1990, the County Integrated Waste Management Plan. The Authority's role also grew to include program development as well as planning.

Before 1990, the Alameda County Planning Department provided staffing on an "as-needed" basis. However, in 1990, the Authority established an independent staff that now has nearly 30 positions. Their website [www.stopwaste.org](http://www.stopwaste.org) is a comprehensive overview of all efforts to reduce the waste stream for Alameda County. The budget for these efforts is \$17 million, of which \$2 million is earmarked for outreach programs and \$5 million for funding pass-through to member agencies. The Annual Budget for Fiscal Year 2011-12 can be found here, <http://www.stopwaste.org/home/index.asp?page=509>.

The following areas are located within Alameda County: Alameda, Albany, Berkeley, Castro Valley (Castro Valley Sanitary District), Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, San Lorenzo (Oro Loma Sanitary District) and Union City. Each City (with the exception of Berkeley, which is publically owned and operated) contracts out for their garbage and recycling services.

There are currently two active landfills in the County. (A third is in the process of being closed.) They are owned by Waste Management and Republic respectively. Landfill charges vary from \$38.00 to \$50.00 per ton and transfer stations from \$65.00 to \$120.00. (Approximately \$20 per ton of landfill charges consist of fees passed through to state and local entities, including StopWaste.Org.) There are no Waste to Energy facilities in Alameda County.

### **2.0 Overall Recycling/Waste Reduction Goals of Local Government**

Measures set out as early as 1990 wanted to achieve a 75% diversion from landfill by 2010. (The state mandates a 50% recycling goal.) Based on Data from 2009, a 69% diversion goal was reached. Each municipality within Alameda County also calculates their individual diversion rate,

<http://www.stopwaste.org/docs/diversion-rates-by-jurisdiction.pdf>. However, a new criterion has been established for the county that by 2020, less than 10% of landfilled material will consist of recyclables/organics (by weight as part of the MSW). A 2008 Waste Characterization Study showed 60% of landfilled MSW was recyclable, (48% organics 12% recycling), <http://www.stopwaste.org/docs/rb-final-initial-study-neg-dec-a.pdf>. The full Waste Characterization Study can be found here, <http://www.stopwaste.org/docs/acwcs-2008r.pdf>.

### **3.0 Single Family Residential Waste Management**

Each resident receives three carts. This includes two 64-gallon carts for recycling and organics and a 32-gallon cart for garbage. Recycling is not currently mandatory, but there is a draft ordinance under consideration to effect that change. Until this Ordinance is passed there cannot be any inspections or recycling enforcement.

Every city and sanitary district provides curbside recycling and yard waste pickup on a weekly basis with the exception of Oro Loma Sanitary District, which provides curbside recycling on a bi-weekly schedule. The only other differentiation in the recycling programs is in the City Hayward, which does not accept food scraps with yard waste.

The following is a general list of what is acceptable for curbside recycling:

- #1 PETE Bottles (CRV)
- #1 PETE Bottles (non-CRV)
- #1 PETE Wide Mouth Container
- #1-#7 Narrow-neck Bottles
- #2 HDPE Bottles (CRV)
- #2 HDPE Bottles (non-CRV)
- #4 LDPE Bottles (CRV)
- Aerosol Cans (empty) (No hazardous material)
- Aluminum Cans (CRV)
- Aluminum Cans (non-CRV)
- Aluminum Foil & Pans
- Aluminum Scrap
- Appliances (small/non-working) (Includes toasters, mixers, etc.)
- Aseptic Packs (Drink Boxes)
- Batteries - Household / Flashlight (for Alameda residents only)
- Beer Bottles
- Beverage Containers (mixed)
- Bimetal (CRV)
- Bottles- Glass (CRV)
- Bottles- Glass (non-CRV)
- Cardboard
- Catalogues/Magazines
- Cereal Boxes
- Chipboard
- Christmas Trees
- Drink Boxes (aseptic packs)
- Envelopes (reuse)
- Fluorescent Tubes/Bulbs/Lamps (for Alameda residents only)
- Food Scraps (Collected in yard trimmings cart; includes all food products; coffee grounds, filters and tea bags; and food-soiled paper)

- Glass Bottles (CRV)
- Glass Bottles (non-CRV)
- Grass Clippings
- Juice/Soy & Rice Milk Boxes
- Junk Mail (recycle)
- Leaves
- Magazines
- Margarine Tubs (wide mouth)
- Metal - Scrap (No more than 30 pounds per recycling pickup)
- Milk Cartons (paper)
- Milk Jugs (#2 HDPE)
- Newspaper
- Oil Filters (Contact ACI to request a free plastic bag for oil filter recycling)
- Paint- Latex (for Alameda residents only)
- Paper (mixed)
- Paper (white)
- Paperboard
- Plastic Bottles (CRV)
- Plastic Bottles Narrow-neck (#1-#7)
- Telephone Books
- Tin Cans
- Used Motor Oil
- Yard Trimmings
- Yogurt cups (wide mouth container)

Bulky Clean-up services are available in all jurisdictions except for Pleasanton and are as follows: Alameda, Albany, Berkeley, San Leandro and Castro Valley Sanitary District provide this service once a year; Emeryville, Fremont, Oakland, Union City and Oro Loma Sanitary District provide Bulk Clean-Up twice a year; Dublin, Livermore and Newark provide the service three times a year; and Piedmont will provide pick-ups four times a year. The availability of the service varies in whether it is pre-scheduled or on call and in whether there are limits on the amount of trash that will be collected. The City of Hayward will do a Bulky Clean-Up once a year by appointment, but only for e-waste items.

Alameda County has a 75% set out rate, and the average monthly weight for recycling is 70 lbs per household for recycling and 85 lbs for organics. Extensive back yard composting has been in effect for at least 15 years in Alameda County. It is estimated that 20% of homes with a yard, compost, <http://www.stopwaste.org/docs/compostsurveysummary.pdf>. Currently, all of the compost facilities are privately held and are located outside of the County. However, In July 2006, the Authority Board initiated a new process to identify locations suitable for in-county composting. The Board, through work sessions, is considering options for securing the necessary organics processing capacity.

Another service that is available to residents is Bay-Friendly Gardening. The Bay-Friendly Gardening program provides resources and information to help residents make environmentally friendly gardening choices. It is not a particular style, but an approach. Bay-Friendly Gardeners work with nature to reduce waste and protect the watersheds of the San Francisco Bay.



There is an average rate of \$25.00 a month for the mandatory residential services (not participation), which is usually billed quarterly by direct billing. Frequency and availability of collection services for residential refuse varies greatly among jurisdictions. A comprehensive guide is available on the website, [http://www.stopwaste.org/docs/residential\\_recycling\\_services\\_in\\_alameda\\_county.pdf](http://www.stopwaste.org/docs/residential_recycling_services_in_alameda_county.pdf).

#### 4.0 Multi-Family Residential Waste Management

A new State Law (Assembly Bill 341) requires recycling services in any multi-family dwelling over 5 units. However, despite this fact, recycling in multi-family building has been relatively unsuccessful. The issues revolve around contamination, and unfortunately, quality data is not available, as the majority of multi-family accounts are picked up on commercial routes by front end loaders. This is due to the fact that individual residents of multi-family housing are not able to sign up for recycling services on their own. The last case study on the issue was completed in 2008, [Multifamily Dwelling Recycling Evaluation Report - December 2008](#).

This chart illustrates the types of recyclable materials that are accepted from apartments in the various jurisdictions within the County.

	Mixed Paper, Cardboard, Newspaper	Glass Bottles & Jars	Alum., Steel & Tin Cans	Alum. Foil & Pans	Aerosol Cans - Empty	Scrap Metal	Plastics #1 & 2	Plastics #3-7	Yard Waste (Food Scraps)	Motor Oil	Latex Paint	Milk & Juice Cartons
Alameda	X	X	X	X	X		X	X	F			X
Albany	X	X	X	X	X	X	X	X	F	X		X
Berkeley	X	X	X	X			X		X			
Castro Valley	X	X	X		X		W	W	F		X	X
Dublin	X	X	X	X	X		X	X		X		X
Emeryville	X	X	X	X	X		X	X	X			
Fremont	X	X	X	X	X		W	W				X
Hayward		X	X				W	WS				X
Livermore	X	X	X		X		W	W				X
Newark	X	X	X		X		W	W	X			X
Oakland	X	X	X	X	X		X	X	X	O	D	X
Oro Loma	X	X	X		X		X	X	X			X
Piedmont	X	X	X	X			X	X	X			
Pleasanton	X	X	X				X	X				
San Leandro	X	X	X			X	X	X				X
Union City	X	X	X	X	X	X	X	X	X			X
Uninc. Areas	X	X	X		X		W	W	X			X

F = includes food scraps; W = includes wide-mouth containers, lids or plates; D = Dry, empty cans only; S = #6 Clean Styrofoam; O = Oil filters

## 5.0 Business/Commercial Recycling

Businesses are defined by zoning in Alameda County. Churches, hospitals, private educational institutions and Federal Buildings all fall under the Business/Commercial recycling umbrella, and therefore, have to contract with a Franchise Holder or provider for that district.

The StopWaste Business Partnership, instituted in 1998, is a program of StopWaste.Org that offers companies and institutions in Alameda County free help to lower operating costs, increase efficiency and protect the environment through recycling and waste prevention improvements. The StopWaste team is made up of both private and public service professionals and services provided include free publications and tools (case studies, guides, posters and vendor lists); funding assistance (grants ranging from \$5,000-\$70,000 and low-interest loans ranging from \$50,000-\$240,000 for waste prevention, reuse and recycling projects); expert advice and recognition (Business Efficiency Awards and free publicity as a case study or online success story).

Businesses also have the opportunity to compost, and again, free evaluations/site visits are offered by the Stop Waste partnership. The Compost at Work guide provides additional information, [http://stopwaste.org/docs/compost\\_at\\_work.pdf](http://stopwaste.org/docs/compost_at_work.pdf).

Bay-Friendly Landscaping is a whole systems approach to the design, construction and maintenance of the landscape in order to support the integrity of one of California's most magnificent ecosystems, the San Francisco Bay watershed. The Bay-Friendly landscape professional can create and maintain healthy, beautiful and vibrant landscapes by:

- Landscaping in harmony with the natural conditions of the San Francisco Bay watershed
- Reducing waste and recycling materials
- Nurturing healthy soils while reducing fertilizer use
- Conserving water, energy and topsoil
- Using integrated pest management to minimize chemical use
- Reducing stormwater runoff
- Creating wildlife habitat

### Landfill Ban

CalRecycle and the California Air Resources Board are developing a statewide mandatory commercial recycling measure, slated to go into effect in 2012. It is likely that this law, once developed, will apply to all businesses that generate at least four cubic yards of waste a week. Until mandatory commercial recycling is approved, the County cannot perform inspections or enforcement of commercial recycling programs. However, in 2010, Alameda County instituted a landfill ban prohibiting the disposal of plant debris (e.g. grass, leaves, shrubbery, vines and tree branches) in county landfills. Plant debris must be separated from all garbage and deposited in the disposal facility's designated "clean green" area or a designated "organics" cart or collection bin. The ban applies to any person or organization generating significant amounts of plant debris that hauls the material to disposal facilities in Alameda County, or places it in bins for collection. This includes:

- Residential landscapers and gardeners
- Commercial landscapers and gardeners
- Commercial and residential property managers
- Municipalities and institutions (e.g. colleges, hospitals)
- Businesses and institutions subscribing to 4 cubic yards or more of weekly solid waste collection service.

Landscapers and organizations that fail to separate plant debris from waste can be fined. However, the goal of the ordinance is compliance and environmental protection, not the collection of fines.

## **6.0 Construction and Demolition:**

All of the jurisdictions located within Alameda County, with the exception of Pleasanton, have adopted Construction and Demolition (C&D) Debris Recycling Ordinances. There is also a County C&D Ordinance that applies to all County-owned projects, regardless of their location. The dominant model within these Ordinances requires diversion of 100% of concrete and asphalt from the landfill and 50% of all other materials. However, some of the municipalities simply require a 50% total diversion rate; they do not specifically address concrete and asphalt. The County Ordinance requires that at least 50% of the total debris generated by a covered construction or demolition project be diverted from the landfill through recycling or reuse, but that traditional public works projects covered under the ordinance must obtain a 75% diversion rate for asphalt, concrete and earth debris.

The threshold at which a project becomes “covered” under the Ordinances varies greatly by jurisdiction. Some require all permitted demolition projects to comply, while others only affect demolition projects above a specific value. This designated value ranged from \$3,000 to \$40,000. For new construction projects, the threshold value ranged from \$50,000 to \$300,000. Projects falling below applicable thresholds were simply encouraged to comply and not required. The success of these programs varies as does the enforcement and tracking, depending upon the city.

Other C&D recycling programs include a Carpet Tile Pilot Program where excess carpet tiles from renovations that are still in good condition can be donated to one of three participating facilities for reuse and other document resources. These include a sample C&D Waste Management Plan; a Builder’s Guide to Reuse & Recycling, which includes a directory for C&D and landscaping materials; and a Design for Reuse primer.

## **Green Buildings**

Businesses that own or occupy small commercial facilities in Alameda County are eligible to participate in a ‘green’ materials rebate program through Energy Upgrade California in Alameda County. Administered by StopWaste.Org, the Small Commercial Green Materials Rebate Program offers cash incentives for purchasing recycled content products in conjunction with other green building upgrades in commercial tenant improvements or retrofits.

The Program provides experts who can help in the specification and selection of appropriate green materials upgrades, a value up to \$1,000 per project. They also help participants navigate the energy-and water-efficiency rebate scene in their area, providing an unbiased opinion on cost-effective strategies. Finally, they issue a rebate up to \$2,500 to offset the investment of time and/or money for installing preferred green materials.

Rebates are available for the following recycled-content materials:

- Carpet
- Ceiling tiles
- Ceramic tile
- Recycled paint for exteriors
- Building insulation
- Salvaged materials

- Recycled content aggregate

Early in 2010, the California Building Standards Commission (CBSC) and the Department of Housing and Community Development (HCD) finalized the first statewide mandatory green building code in the country for newly constructed buildings: Title 24, Part 11 of the California Building Standards Code (commonly called "CALGreen"). CALGreen took effect as of January 1st, 2011.

In developing CALGreen, CBSC and HCD significantly raised the minimum environmental standards for construction of new buildings in California. Mandatory provisions in CALGreen will contribute to public health through fundamental green building practices, which reduce the use of VOC emitting materials, strengthen water conservation, require construction waste recycling and extend storm water pollution prevention efforts to most jobsites.

## 7.0 Event Recycling

In 2004, the State of California passed AB 2176, a law that requires special events and public venue facilities with over 2,000 participants per day to develop and implement a solid waste management plan and implement recycling and waste reduction strategies. This makes recycling available and convenient to the public attending large venues and events, while promoting planning for recycling at those locations during design and operation. The law also requires that local cities and counties report on progress with waste reduction and recycling at the top 10% of large venues and special events in their annual solid waste and recycling reporting to the State.

In order to comply, the event operator must submit the post-event waste management information to the local agency (city or county), upon request. The information requested includes:

- Name and location of event or venue
- Description of event or venue
- Brief description of types of waste generated
- Types and amounts of waste disposed and diverted
- Description of existing solid waste reduction, reuse and recycling programs
- If no programs are in place, description of why there are no programs
- Contact information for responsible persons submitting the annual report to the local agency

Event operators must also formally review and update their waste management/recycling plan every two years. If the event conforms to the State's definition of a large event, the operator should:

- Meet with local waste haulers and recycled materials buyers
- Develop a solid waste reduction plan
- Develop a program implementation timeline
- Consult with local organizations to develop a successful recycling program:
  - Recycling coordinator of local agency
  - Local food banks
  - Community conservation corps
- Address the types of waste material generated by the event or facility:
  - Paper

- Cardboard
- Bottles and cans
- Food and food soiled paper
- Consider implementing the following programs:
  - Minimize the use of plastics, especially plastic film used in packaging
  - Reduce the volume or weight of waste materials
  - Purchase recyclable and longer-lasting products
  - Purchase products made of recycled materials.
  - Donate to charity
  - Resell usable materials
  - Recycle or compost marketable materials

A Special Events Best Practices Guide for waste reduction is available on the stopwaste website, <http://www.stopwaste.org/docs/specialevents-swp.pdf>. This guide provides a plan for getting started, a suggested event recycling timeline, recycling tips for specific types of events, sample contract and policy language and a post-event recycling worksheet.

## 8.0 Green Purchasing

StopWaste.Org works with all public agencies and large employers', as well as Schools to promote green purchasing. The organization offers free fact sheets and other resources to help entities make more sustainable purchasing decisions.

Another green purchasing initiative that StopWaste.Org is involved in is the "Use Reusables" campaign. This is a joint project with the Reusable Packaging Association, with the support of the Environmental Protection Agency through a Climate Showcase Communities grant. Launched in 2007, the campaign provides free educational resources, training workshops and expert advice to help businesses transition to reusable transport packaging. Transport packaging includes pallets, boxes, crates and other containers used to ship ingredients, parts and products between producers, manufacturers, wholesalers and retailers. Reusable transport packaging replaces one-time (and limited-use) pallets and boxes with durable, reusable totes, bins and pallets.

## 9.0 Schools and other Public Agencies

Public schools are responsible for contracting their own solid waste and recycling services.

The irecycle@school program is open to all public schools in Alameda County and some charter schools. The program provides free technical assistance, teacher training and education resources (including a teaching kit on the 4Rs) to assist in designing and/or enhancing a district-wide recycling program. Public schools can also request a free 45-minute assembly during which students will learn how to reduce their carbon footprint by food scrap recycling and reducing consumption. An initiative that is specific to fifth grade classrooms is the 4Rs Student Action Project, which engages students in addressing real environmental issues at their school and in their community.

The Service-Learning Waste Reduction Project (SLWRP) is a partnership between StopWaste.Org's irecycle@school program, the Alameda County Office of Education and middle and high schools in Alameda County. SLWRP seeks to empower students by increasing their waste reduction knowledge through engaging

active learning experiences. A team of teachers (typically about five from each school) receive support and training from ACOE and StopWaste.Org to develop in-class lessons as well as practical school-wide waste reduction strategies on campus.

Field trips to the award-winning irecycle@school Education Center offer fourth grade students an opportunity to learn first-hand what happens to their recyclables, garbage and green waste at a working material recovery facility and transfer station. Field trips to the irecycle@school Education Center provide real-life application of concepts taught in the classroom in the areas of physical science, life science and investigation/experimentation.

Field trips include:

- A two-hour program including a visit to the Education Center, Garbage Pit and Material Recovery Facility
- An opportunity to trace the path of yard waste, recyclables and garbage from curbside to remanufacture or disposal
- Learning about the 4Rs (Reduce, Reuse, Recycle, Rot) and exploring how student's individual actions can help reduce waste
- A hands-on activity in the Education Center aligned to the State Content Standards
- Simulate the sorting of recyclables in a Materials Recovery Facility (MRF) using air, magnets, screens and manual sorting
- Meeting professionals modeling waste reduction practices
- Pre and post-field trip lessons aligned to California State Standards
- Free bus pick up and drop off at school

Bay-Friendly school gardens is another school program that provides a holistic approach to creating and maintaining school gardens and hands-on learning opportunities. They demonstrate ecological concepts and environmentally-friendly practices that foster a sense of stewardship in students while protecting the San Francisco Bay watershed.

## **Local Governments**

StopWaste.Org has created several model policy documents that local governments can download from their website. These address issues such as disaster debris management, environmentally friendly purchasing, green building for public agencies, Bay-Friendly landscaping for public agencies and C&D recycling.

## **10.0 Household Hazardous Waste**

There are four permanent household hazardous waste facilities located throughout the County in Oakland, Hayward, Livermore and Fremont. The first three are open Thursday through Saturday, while the Fremont facility is open Wednesday through Saturday. State Regulations limit the amount of waste one may transport to 15 gallons of liquid waste, or 125 lbs of solid waste. Therefore, individual items/containers must be no larger than 5 gallons or weigh no more than 50 lbs if they are dropped off at one of these locations.

All four facilities accept the following materials:

- Paint, stain, varnish, thinner and adhesives
- Auto products such as old fuel, motor oil, oil filters and batteries
- Household batteries, fluorescent bulbs, cleaners and sprays
- Garden products, including pesticides and fertilizers

- Home generated "sharps" waste in approved containers
- Prescription and over the counter medicines, except for controlled substances

State law bans disposal in the garbage of household batteries, fluorescent lamps, electronic devices, computers, televisions and cell phones. While the first two items can be dropped off at household hazardous waste facilities, the e-waste products cannot. However, StopWaste.Org does provide a list of recycling service providers that will collect or accept these products, free of charge in many cases.

### **Used Motor Oil Recycling**

Besides the Household Hazardous Waste Facilities, there are also other ways to dispose of used motor oil and filters. The Department of Resources Recycling and Recovery (CalRecycle) provides a tool on their website that allows one to search for nearby businesses that will accept used motor oil free of charge. Many cities also provide curbside recycling collection for these products. Twelve of the jurisdictions in Alameda County collect both used motor oil and filters curbside for single family homes or apartments with up to four units. The exceptions are Livermore and the unincorporated areas of the County, which only accept used motor oil, but not filters, and Berkeley, Piedmont and Pleasanton, which do not have curbside motor oil recycling at all. The Cities of Alameda, Albany and Oakland actually collect both motor oil and filters from apartment complexes as well, which are defined as buildings with five or more units and shared collection service.

### **Small Business Program**

Nonprofit groups, landlords, condo operators, contractors, small businesses or any other organization or commercial entity that meets the criteria below are eligible to participate in the Alameda County Small Business Household Hazardous Waste Program.

- Be located in, and generate the waste in Alameda County
- Qualify as a Conditionally Exempt Small Quantity Generator (CESQG) as defined in the California Health and Safety Code, section 25218.1, and the Code of Federal Regulations section, 40CFR261.5.
- Produce less than 220 lbs, or 27 gallons of all kinds of hazardous waste per month, and less than 2.2 lb of Extremely Hazardous Waste per month
- Have less than 2200 lbs (about 220 full one gallon paint cans, or 45 full five gallon buckets of paint) of all kinds of hazardous waste in storage at any time.

Upon Acceptance into the program they will provide applicants with a transportation variance which permits them to transport up to 220 pounds (about 27 gallons of liquid of average weight). However, the restriction that no individual container can be over 5 gallons or 50 lbs. in size remains the same.

The fee schedule is as follows:

- Paint and paint related materials - \$0.50/pound
- Solvents, flammable liquids, detergents - \$2.50/gallon or \$0.75/quart
- Aerosol cans up to 16.4 oz - \$1.50 each
- Aerosol cans greater than 16.4 oz - \$2.00 each
- Propane tanks - \$10.00 each
- Motor oil/lubricating/hydraulic oil - \$0.30/gallon
- Contaminated motor/lubricating/hydraulic oil - \$2.50/gallon
- Oil filters from cars - \$0.75 each
- Large oil filters from trucks - \$5.00 each
- Antifreeze - \$1.75/gallon

- Petroleum contaminated soil, lead paint chips - \$0.75/pound
- Photo chemical liquids - \$5.00/gallon
- Acids, bases, photo chemicals, solid and liquid swimming pool chemicals, neutral oxidizers, bleach - \$2.00/pound
- Flammable solids - \$2.50/pound
- Pesticides, herbicides, fungicides - \$3.00/pound
- Fertilizers - \$2.00/pound
- Dry cell batteries not including mercury - \$0.50/pound
- Mercury, mercury containing articles - \$7.00/pound
- Cyanides, extremely hazardous materials - \$25.00/pound
- Organic peroxides - \$1.00/tube, \$5.00/pint, \$10.00/quart, \$40.00/gallon
- \$23.00 Administrative Fee per Drop off

### **Successes and Challenges**

The biggest success Alameda County has experienced is the uniting of all the stakeholders in the County toward their waste reduction/recycling goals, with the support of local and state politicians as well as businesses and residents.

Their biggest challenge is food waste/organics recycling and separating these materials from Municipal Solid Waste.

### **Sources:**

[www.stopwaste.org](http://www.stopwaste.org)

[www.acgov.org](http://www.acgov.org)

Phone interview with the Source Reduction and Recycling Manager of Alameda County, CA, 10/13/11

Some text may have been taken directly from documents available through the profiled government's websites and Mecklenburg County wishes to give full credit to the web and document authors.



## **City of Atlanta, Georgia Solid Waste Services**

**Population served by program: 460,000+**

**Disposal rate per ton: \$37.36**

The Office of Solid Waste Services is responsible for the collection and disposal of solid waste within the City of Atlanta. Additionally, the office provides vacant lot clean-up; maintenance of various rights-of-way specified in the Atlanta City Code and dead animal removal and disposal. The office also oversees landfill operations; the City's recycling program; enforcing codes related to lawn maintenance and the disposal of yard trimmings; and assists in citywide emergency operations.

### **Administration**

The Administration Division is comprised of Education and Enforcement, Waste Reduction and Management Analysis. These units are responsible for code enforcement and compliance, maintaining contracts devoted to waste reduction, recycling and composting, route analysis, mapping, off-site plan review, budget preparation and developing educational publications and activities.

### **Operations**

The Operations Division is responsible for household garbage collection and bulk rubbish and yard trimming collection. Operational divisions are organized by function in order to increase their efficiency in operations and service delivery

### **Overall Recycling/Waste Reduction Goals**

The Georgia Comprehensive Solid Waste Management Act of 1990 (the Act) was enacted to ensure proper solid waste management by State, local governments, and Regional Development Centers, prevent environmental degradation, manage resources, and effectively reduce and manage solid waste for the State and its residents. The Act set forth the State's waste reduction goal, which requires a twenty-five percent (25%) per capita reduction rate in the amount of solid waste being disposed during the 10-year planning period of 2005-2014. The City has identified the following solid waste management components for consideration in the long-term planning for managing solid waste in the City of Atlanta in order to reach the goal:

- Education and Public Involvement on Source Reduction and Recycling
- Construction and Demolition Debris Recycling
- Eco-Industrial Parks
- City-Owned Transfer Stations
- Landfill Disposal

The City has identified over seventy (70) existing and new programs to help the City reduce waste, improve collection, research disposal options, ensure that land limitations on solid waste handling facilities are met, and increase education and public awareness of solid waste management.

## Residential

The City of Atlanta provides voluntary recycling services to an estimated 87,000 single family homes. Residential Recycling is collected once a week. A recycling bin is provided to customers upon establishing service. If a citizen would like to use a larger recycling cart they may use their own but it must be clearly labeled for "RECYCLING". Citizens also have the choice of requesting a larger City of Atlanta 95 gallon rolling recycling cart

Items accepted curbside:

- Aluminum cans
- Steel (tin) cans
- Glass bottles and jars
- Plastic: all hard food containers and plastic bottles: #1 - #7 (Check bottom of containers for the number.) – **NO plastic bags, NO hoses, NO pipes or wiring, NO furniture, NO polystyrene, also known as Styrofoam**
- Newspaper
- Mixed paper
- Office paper
- Junk mail and envelopes
- Magazines and catalogues
- Telephone directories
- Boxboard (cereal boxes, tissue boxes)
- Shredded paper tied in a clear plastic bag
- Flattened Cardboard

## Recycling Results

Approximately 6,985 tons of materials from single family residences serviced by the City were collected for recycling. The average recycling rate in the City of Atlanta is 3 lbs/per household/per week.

## Yard Trimmings/Composting

Georgia law prohibits yard trimmings from being processed with household garbage because yard trimmings are not accepted at landfills. Therefore, the City has a special collection every other week for yard trimmings.

### Separate Yard Trimmings from other Solid Waste

1. Place yard trimmings in an approved container such as a 32-gallon plastic container clearly marked "YARD TRIMMINGS", and place the container at the curb. A 32-gallon container can be obtained at minimal cost at home or hardware stores.
2. Place yard trimmings in special paper Kraft bags available from most hardware and grocery stores. Yard trimmings placed in PLASTIC BAGS will NOT be collected.
3. Or, instead of putting your yard trimmings at the curb, you can compost them. Check out these helpful hints for [composting](#).

The City of Atlanta collects over 30,000 tons of yard and garden material each year. However, the City does not have a program dedicated to composting. There are several links to home composting information on the City of Atlanta's Solid Waste website.

The yard trimmings are taken to William B. Hartsfield Solid Waste Reduction Plant on James Jackson Parkway, and then processed as boiler fuel for various mills. (Source: City of Atlanta, Comprehensive Solid Waste Management Plan 2005)

### **Recycling Drop-off Program**

The research information reviewed did not reveal that the City of Atlanta has a recycling drop-off center program.

### **Recycling Collection for Multi-Family**

The City does not currently offer recycling services to multi-family dwellings. Some private waste haulers provide recycling services for the multi-family complexes they service for garbage collection.

An improved recycling ordinance for multi-family dwelling was passed by Atlanta City Council in the Fall of 2007. This ordinance clarifies recycling requirements and the city's enforcement powers regarding multi-family recycling.

Basically, it states that the owners of multi-family owners must:

- Furnish commercial containers for the collection of recyclables.
- Owners and Associations subject to this section shall have until July, 2008 to comply with requirements
- As a condition for the approval for any building permit for new multi-family dwelling, all plans must demonstrate that the space allocated shall be of a size necessary to locate and service containers.
- Each owner or Association member will be required to submit an annual report to document recyclables collected.
- Waivers can be granted for applicants that can prove that it is physically impossible or economically unreasonable to add additional space for containers.

### **School Recycling**

There was no reference to school recycling in the City's SWMP or on their website. Review of the City of Atlanta's Public Schools website indicates that efforts to recycle are being made in several schools. There was no information observed that would indicate that a system wide recycling program is currently in place in City of Atlanta Public Schools.

### **Business/Commercial Recycling**

The City of Atlanta does not have a Business/Commercial recycling program. Private Hauling companies collect all commercial waste generated in the business sector. The City is considering implementing a reporting system for private haulers to determine who collects waste within the City, where the waste is disposed of or recycled, and how much waste is disposed of or recycled.

## **Construction and Demolition Recycling**

In the City of Atlanta, C&D debris is collected by both private haulers and the City of Atlanta and is disposed of in private C&D landfills. The City of Atlanta does not have a C&D recycling program. Tipping fees for C&D waste are \$20.18/Ton.

## **Outdoor Event Recycling**

Effective January 1, 2007 the City of Atlanta enacted an ordinance that requires recycling at outdoor events. The Ordinance states: "As part of requirements to clear and remove all solid waste from an outdoor event property, recycling shall be provided at all outdoor events..." (Ord. No. 2004, §1, 1-12-04; Ord. No 2004-11, §2, 3-9-04; Ord. No. 2006-66, § 7, 9-26-06)

## **Household Hazardous Waste Collection**

The City of Atlanta does not have a collection program for household hazardous waste (HHW). Citizens can find information on what is considered HHW and how and where to disposal of it by visiting the solid waste page of the City of Atlanta's website.

## **Garbage Collection**

The City of Atlanta collects solid waste from two primary sources: Single family and multi-family residents, providing weekly services directly to approximately 121,000 customers.

## **Bulky Waste Collection**

Effective August 1, 2011 Citizens no longer have to call Public Works for bulky item collection. Bulk Items are collected once per month within each quadrant of the City.

## **Disposal**

There is one private MSW landfill operating within the City limits—Chambers Bolton Road facility. The City of Atlanta pays an average tip fee of \$37.36. The City also utilizes the Hartsfield Pathological Incinerator for incineration of animal carcasses.

## **Other Waste Reduction/Recycling Programs/Future Plans or Options**

### **ReCART (Rewards for Collecting All Recyclables Together)**

City of Atlanta is excited to present the ReCART (Rewards for Collecting All Recyclables Together) Curbside Recycling Pilot Project! ReCART is a one year pilot program (with (2) two one year renewals at the City's discretion), whose premise is to measure change in recycling habits of an initial 10,000 city households to determine the viability of a citywide program to increase recycling through incentives. The participating households represent a cross section of recyclers throughout the City.

In order to complement Atlanta's existing sustainability initiatives, the City of Atlanta has partnered with Rehrig Pacific, a container company and service provider, to bring this unique incentive based pilot

recycling program to its residents. As part of this pilot program, Rehrig Pacific has collaborated with key sponsor Coca-Cola Recycling, LLC and rewards partner *RecycleBank*® to offer Atlanta residents a premiere rewards and loyalty program that incentivizes household recycling.

The *RecycleBank*® rewards program will encourage better participation in the curbside recycling program. It will also allow the City to evaluate changes in the amounts of recyclables collected from residents participating in the pilot program.

Each home in the pilot area will receive a brand new 96-gallon blue cart retrofitted with an ID tag to match the cart to the household address and a RecycleBank account number. City trucks have been retrofitted with technology to read the cart ID tag. Upon activating their account with RecycleBank, either online or by phone, the household will begin to earn RecycleBank Points with every pick-up.

### **Program Participants**

In the ReCART pilot project, participating households will earn RecycleBank Reward Points for all accepted recyclables placed in the new 95 gallon carts. Points can be redeemed for rewards, gift cards, groceries, and products at hundreds of local and national RecycleBank Reward Partners. Partners include giant national brands and retailers such as Coca-Cola, Kraft Foods, Target.com, Publix, and CVS/pharmacy, as well as local partners like Zoo Atlanta, Radial Café, Rita's Water Ice, MetroFresh, Edgewood Avenue Pizza, and Six Feet Under.

### **Adopt-a-Spot Litter Reduction Program**

The City of Atlanta Department of Public Works (DPW) is seeking volunteers to lend a hand in keeping public spaces clean. Any portion of the City's public right-of-way, is eligible for adoption including traffic islands, medians, city owned lots, and MARTA stops, if available. Volunteers are required to agree to maintain the adopted space for up to one year and complete DPW Safety Training. Adopted spaces may be renewed upon request. DPW reserves the right to approve or disapprove a location.

Adopt-a-Spot Volunteers will receive:

- A sign installed to identify their ownership of the adopted location
- Certificate of appreciation
- Garbage bags
- Safety vest & work gloves

All program requirements are strictly enforced. Adopt-a-Spot volunteers required to notify DPW if they are unable to keep their adoption commitment. If so, the spot will become eligible for someone else to adopt.

Areas are checked regularly by Public Works staff. Volunteers will be notified if problems develop in their adopted area.

### **The Zero Waste Zone**

The Zero Waste Zone ~ Downtown Atlanta is an Atlanta Recycles project in partnership with the Green Foodservice Alliance. The geographic area of the ZWZ is the downtown Atlanta convention district where a tremendous tonnage of "waste" is sent to landfills that could otherwise be recycled into new products. The charter participants represent the largest foodservice operations in the area, including convention facilities, event and entertainment venues, hotels and restaurants.

ZWZ Participants pledge to comply with the following criteria:

- Recycling of common recyclables (paper, cardboard, metals, glass and plastics)
- Recycling of spent grease (from kitchen fryers) to be used in the local production of bio-fuel.
- Donation of excess edible food in compliance with the Good Samaritan Food Donation Act to organizations that feed the hungry.
- Composting of food residuals (organic food waste).

The goal of the Zero Waste Zone is to decrease the amount of waste going to landfills and to increase the beneficial use of things that otherwise may be thrown away.

### **City Hall, City Hall East and City Court (Paper Recycling)**

Legislation was recently approved allowing the City to accept free Recycling Services for Mixed Office Paper (Mixed office paper - Envelopes - Telephone directories – Newspapers – Magazines) in City Hall, City Hall East and City Court. The Office of General Services (OGS) and Visy Recycling, Inc. have completed the initial planning sessions and are ready to begin what is defined as the evaluation phase of this project.

### **Georgia Solid Waste Laws and requirements**

The Georgia Comprehensive Solid Waste Management Act (Official Code of Georgia Annotated [O.C.G.A.] Statue 12-8-20) of 1990. The legislation was enacted to ensure the proper solid waste management by State, local governments, and Regional Development Centers in the State will prevent environmental degradation, manage resources, and effectively reduce and manage solid waste for the State and its residents.

Senate Bill 157 (passed in 2011) changes planning requirements for local government solid waste management. Effective July 1, 2011, this legislation removes DCA and the Regional Commissions from the process of reviewing and approving solid waste management plans.

Local governments must maintain solid waste management plans, but may do so without a third party review. Local government solid waste management plans, whether local, multi-jurisdictional or regional, must at a minimum:

- Provide for 10 years of collection capability and disposal capacity from the date of completion of the plan
- Enumerate the solid waste handling facilities as to size and type
- Identify those sites that are not suitable for solid waste handling facilities based on environmental and land use factors.

The Department will continue to maintain a simplified version of its annual solid waste survey. While we no longer require local governments to participate, we encourage them to provide this information voluntarily, as the data from this survey is valuable to Georgia's businesses that use recycled materials in their manufacturing processes.

<b>Key program elements identified from Local Govt. website</b>	
<b>Residential</b>	
	Weekly voluntary residential curbside recycling collection.
	Recycling collection at multi-family per 2007 ordinance (Private haulers)
	ReCART (Rewards for Collecting All Recyclables Together) Curbside Pilot Program 10,000 households.
<b>Commercial</b>	
	City Hall, City Hall East and City Court (Paper Recycling)
Construction and Demolition Waste:	
<b>Event Recycling</b>	
	Effective January 1, 2007 the City of Atlanta enacted an ordinance that requires recycling at outdoor events.
<b>Waste Prevention</b>	
	Adopt-A-Spot Litter Reduction Program

### **Cited Sources**

City of Atlanta 2005-2014 Comprehensive Solid Waste Management Plan

<http://www.atlantaregional.com/land-use/planreviews>

<http://www.gasustainability.org>

<http://www.atlantarecycles.com>

[http://www.atlantaga.gov/government/publicworks/solidwaste\\_110507.aspx](http://www.atlantaga.gov/government/publicworks/solidwaste_110507.aspx)

<http://www.dca.state.ga.us/development/Environmentalmanagement/publications/composting.pdf>

<http://www.atlanta.k12.ga.us/Page/1>

Some text may have been taken directly from documents available through the profiled government's websites and Mecklenburg County wishes to give full credit to the web and document authors.

## **City of Austin, Texas Austin Resource Recovery**

**Population served: 790,390 (2010 Census)**

**Disposal rate per ton: \$20.63**

### **1.0 Description of Government Profiled**

Austin Resource Recovery (formerly Solid Waste Services) provides comprehensive services that encourage recycling and keep as much waste as possible out of local landfills. Curbside services include trash collection, single stream recycling, yard trimmings and periodic bulk and large brush collections. The Department also provides anti litter services including street sweeping, dead animal collection, etc.

The Austin Resource Recovery Annual Budget FY 2012 is \$84 million. They currently pay \$20.63 per ton to dispose of waste.

### **2.0 Overall Recycling/Waste Reduction Goals of Local Government**

The City of Austin's Zero Waste Goal is to reduce the amount of waste Austin's residents send to the landfill by 90 percent by the year 2040. The U.N. Urban Environmental Accord's goal is to reduce by 20% the per capita solid waste disposal to landfills by 2012 and Zero Waste by 2040.

#### **Commercial Recycling Rate:**

- % Commercial (inclusive of C&D) – Commercial tonnages are not tracked separately from the rest of ARR collections.
- % Municipal - Municipal tonnages are not tracked separately from the rest of ARR collections.
- % Special events – Special event data is just beginning to be tracked and we have not compiled data on this yet.

#### **Residential Recycling Rate:**

- % Residential tonnages are not tracked separately from the rest of ARR collections

#### **Citywide Recycling Rate:**

- 38.57% - ARR collection customers diversion rate

#### **C&D Recycling Rate:**

- % N/A

### **3.0 Residential Waste Management**

#### **3.1 Single Family Home Recycling**

City of Austin single family, duplex, or triplex dwellings are required to use the City's Pay-As-You-Throw services. Commercial services are also available on a subscriber basis for commercial customers with a low-volume of waste. Payment exemptions include the following:

- the customer has requested and received an exemption from the Director and alternate services have been arranged.
- the volume of materials set out is prohibitive or a health threat.
- the location is prohibitive (private streets, accessibility difficult, narrow alleys,



- excessive distance from road, etc.)
- particular waste characteristics make mechanically handled containers preferable, such as animal manure, etc.

According to the City of Austin's Solid Waste Services Department's Guidelines, Austin has chosen this method of recycling collection because it allows customers to mix recyclable paper, plastic, aluminum cans and glass in one bin. All recyclables go in the 90-gallon blue cart and is collected every other week. Recycling is included for free with garbage service.

### **Acceptable Materials**

According to the City of Austin's Solid Waste Guidelines, the following items are accepted in the single stream or curbside recycling program:

- **Paper:** (newspaper, office paper, junk mail, envelopes, wrapping paper)
- **Boxboard and cardboard:** Corrugated cardboard and boxboard including:
  - cereal boxes
  - shoe boxes
  - most gift boxes
  - soda/beverage containers
  - most food packaging containers such as boxes of macaroni and cheese, rice, microwave meals.
- **Aluminum and metal cans:** food cans (labels left on OK), soda cans
- **Glass:** Jars and bottles
- **Plastic containers:** # 1 through # 7, including yogurt and margarine tubs

### **Extra Recycling**

Additional items may be placed in a cardboard box or a reusable container and picked up at no extra charge.

### **Processing**

The recycling processing facility uses an automated system to sort and bale the recyclables.

### **Garbage in Recycling Cart**

Residents may be charged for extra garbage if garbage is placed in their recycling carts.

### **Service Providers**

The City of Austin Solid Waste Department provides collection services.

## **3.2 Household Hazardous Waste**

The City of Austin's Household Hazardous Waste (HHW) Facility is open to City of Austin and Travis County residents to safely dispose hazardous waste.

Residents of the City of Austin and Travis County may bring up to 30 gallons of home-generated hazardous waste to the Household Hazardous Waste Facility free of charge. Residents may be charged at cost for the disposal of the extra waste. Residents are encouraged to bring items in containers with less than 5 gallons of capacity.

### Free Chemicals at the Reuse Store

The Household Hazardous Waste Facility offers The Reuse Store for residents to take any brand new or slightly used items that are brought to the Household Hazardous Waste Facility. From October 2008 to September 2009, the Reuse Store and Old Paint Program saved \$9,695 through reduced disposal costs.

#### **Residents may take the following items:**

- Automotive Fluids
- Cleaning Products
- Fertilizers
- Paint
- Pesticides
- Solvents
- Other Household Chemicals

### Free Paint at Household Hazardous Waste Facility

The Household Hazardous Waste Facility offers Austin ReBlend for residents to take paint that is brought to the Household Hazardous Waste Facility. Austin ReBlend is a 100 percent post-consumer, rebleded flat paint (with low VOCs) made from paint collected at the Household Hazardous Waste (HHW) facility. Paint dropped off by customers is inspected before it is chosen to be used in Austin ReBlend. It is then consolidated, blended, filtered and packed by trained personnel to ensure a quality product.

Available in five gallon containers and in two colors:

- Texas Limestone (off white)
- Balcones Canyonlands (dark beige)

Austin ReBlend is available for residential and non-profit use, but currently not for commercial use.

### Lawn Chemicals

Lawn care chemicals, such as fertilizers, fungicides, outdoor pesticides, herbicides, weed killers, bug spray, wood preservatives and pool chemicals, are toxic and may cause long-term illness. At the Household Hazardous Waste Facility, new or nearly new products are stored at the Public Reuse Center and given away on a first come, first served basis. Bug sprays and weed killers that are banned by the EPA and other chemicals that are not suitable for the reuse center are shipped to an EPA-regulated incinerator.

### **3.3 Electronics**

In 2007, the Texas Legislature mandated that manufacturers selling new computer equipment in Texas must provide a program for collecting and recycling of consumers' used computer equipment. Each manufacturer is responsible only for its own brand(s) of computer equipment. The collection and recycling must be convenient and free at the time of recycling.

Computer equipment is considered:

- Monitor
- Desktop computer or laptop
- Accompanying keyboard and mouse made by the same manufacturer

The manufacturers are required to offer collection and recycling only for computer equipment purchased primarily for personal or home-business use—regardless of when it was sold. By law, the customer is responsible for any confidential information left on the computer equipment.

Computers and electronics are recycled through the private sector. Austin provides a listing of local electronic recyclers to residents and educational materials.

### **3.4 Home Composting**

#### Home Rebate Challenge

To encourage home composting the City of Austin offers the Home Composting Rebate Challenge as a rebate program challenging Austinites to do three things:

1. Downsize to a 32-gallon green garbage cart
2. Take a free basic home composting class
3. Purchase a home composting system and start composting

Customers who do these three things are eligible for a rebate on a home composting system. The rebates are for 75 percent of the total cost of the composting system (taxes excluded) up to \$75 in value. Bins are sold from numerous online vendors and local garden stores. Several different types of bins are also on display at the Compost Demonstration Garden at the Botanical Gardens in Zilker Park.

#### Compost Classes

Citizens may also participate in compost classes offered by the City of Austin. Class location information can be found on Austin's Farmers Market website. Online composting classes are also available. Austin organizations have the opportunity to host a free backyard composting class at their location upon request. Organizations are responsible for gathering a minimum of 25 participants, and SWS will teach the class in English or Spanish.

### **3.5 Residential Garbage**

Solid Waste Services provides weekly garbage collection to its residential customers. Whether a new or existing customer, curbside garbage pickup is called Pay-As-You-Throw and allows residents to choose the size of garbage cart that best fits their needs.

#### **3.5.1 Available Cart Sizes and Rates**

Solid Waste Services provides garbage carts to its customers. Three sizes of garbage carts are available:

- 30 gallon (usually green)
- 60 gallon (usually grey)
- 90 gallon (usually brown)

#### Exchanging/Adding Carts

For \$15 (plus tax), residents can exchange their garbage cart for one of a different size or add an additional cart. The fee is waived if they are switching to a smaller cart. Their [monthly rate](#) will change depending on the size of cart. If they have extra garbage on a regular basis, residents may want to consider upgrading to a larger cart.

#### **3.5.2 Collection Rates**

The monthly rate depends upon the size of garbage cart chosen. Citizens pay for the collection of:

- A set volume of garbage
- Unlimited recycling
- Unlimited yard trimmings

<b>CART SIZE</b>	<b>BASE RATE</b>	<b>CART CHARGE</b>	<b>TOTAL</b>
30 gallon	\$8.75	\$4.75	\$13.50
60 gallon	\$8.75	\$10.00	\$18.75
90 gallon	\$8.75	\$22.20	\$29.95

**NOTE:** Fees stated are per account, per month. The garbage, recycling and yard trimmings must be generated by the resident’s household. No business waste except from a home office. Prices and fees do not include tax.

Extra Garbage Fee

The monthly rate does not cover the collection of garbage that does not fit easily in the cart when the lid is closed.

Residents must place a \$4 (+ tax) “Extra Garbage Sticker” on all extra bags of garbage.

Residents will be charged \$8 (+ tax) on their next utility bill for the collection of each extra bag that does not have a sticker on it.

New Service Fee

New customers are charged \$15 to cover the costs of setting up their accounts. This fee is assessed upon connection of utilities.

Cart Upgrade Fee

There is a one-time \$15 fee to upgrade the cart or add an additional cart. This fee is waived if the exchange takes place within 60 days of beginning service. There is no fee to change to a smaller cart.

Anti-Litter Fee

Solid Waste Services charges all residential electric utility accounts in the City of Austin a \$5.00 anti-litter fee. This fee pays for a number of services, including:

- Street sweeping
- Dead animal collection
- The Household Hazardous Waste Facility
- Enforcement of certain city codes

New Service Fee

New customers are charged \$15 to cover the costs of setting up their accounts. This fee is assessed upon connection of utilities.

Cart Upgrade Fee

There is a one-time \$15 fee to upgrade the cart or add an additional cart. This fee is waived if the exchange takes place within 60 days of beginning service. There is no fee to change to a smaller cart.

**3.5.3 Street Sweeping**

The street sweeping system is designed to clean the gutters and prevent automotive fluids and other contaminants from polluting Austin's creeks and drainage ways. Clean streets provide a healthy, safe and attractive environment for all users of the roadway. City street sweeping crews remove more than 6,200 tons of trash and debris from roadways each year, that's the equivalent of 4,150 average-sized cars!

Residential streets are swept six times a year, while major streets are swept once a month. This schedule allows for the regular sweeping of many of the City's prized bicycle facilities, located both on residential and major streets. Solid Waste Services cannot sweep streets without curbs, but litter is periodically picked up by hand from these streets.

### **3.7 Bulky or Large Item Collection**

SWS collects items that are too large for garbage carts during specially-scheduled bulk collections. Collection Guidelines:

Separate items into three piles; 1) metals, 2) passenger car tires and 3) non-metals items. They are collected by different trucks.

#### **Items Collected Include:**

- Appliances (Refrigerators and freezers must be clean, empty and free of odors, with doors removed.)  
**Note:** If the refrigerator or freezer is still working, you can get money for it through [Austin Energy's refrigerator recycling program](#).
- Barbeques (remove fuel and charcoal)
- Doors (wood or metal only; no glass doors)
- Furniture
- Lawn mowers (remove fuel and motor oil)
- Lumber (remove nails)
- Mattresses and box springs
- Pallets
- Railroad ties and utility poles, no more than 6 feet long
- Rolled fencing
- Tires (Passenger car tires only; limit of 8 per household; must be removed from rims)

#### Self-Haul Options

Residents can also haul most bulk items to any of the landfills in the area. They will have to pay tipping fees.

Some landfills may have restrictions on certain materials.

Appliances and metal items (except televisions, computers and microwaves) can be recycled free of charge at the City of Austin Landfill's Recycling Diversion Center.

### **3.8 Recycling Drop-off Centers**

The City of Austin requires that all businesses with 100 employees or more and multi-family properties with 100 units or more must provide on-site recycling services. Under this requirement, businesses and multi-family properties continue to choose their own waste haulers and recyclers and to negotiate prices for these services.

The City provides Recycling Drop-off Centers for the collection of recyclable materials:

#### Downtown Austin

Ecology Action is a non-profit organization which runs a free recycling drop off center in downtown Austin.

#### South Austin

FM 812 Resource Recovery Center

**Items Collected:**

- Newspaper
- Paper and pressed cardboard (like cereal boxes and egg cartons)
- Aluminum cans, foil, and pie plates
- Tin cans
- Metal
- Plastic (#1 thru #7). Included are bottles, jars, drink containers, and trays.
- Glass bottles and jars
- Corrugated cardboard
- Clean and dry plastic bags
- Small amounts of residential telephone books, hard & soft cover books
- DURING BUSINESS HOURS: Cell phones, clean and dry plastic bags

**4.0 Commercial/ Multi-Family Recycling Guidelines**

The City of Austin requires that all businesses with 100 employees or more and multi-family properties with 100 units or more must provide on-site recycling services. Under this requirement, businesses and multi-family properties continue to choose their own waste haulers and recyclers and to negotiate prices for these services.

Most businesses contract with their choice of private haulers for garbage and recycling service. However, the City of Austin provides garbage and recycling collection services for some small businesses, usually in residential areas, that do not require dumpsters. The City is only able to provide cart collection service. In addition, Solid Waste Services manages a downtown garbage collection contract for businesses and residents on designated streets downtown.

**Commercial Service Features**

- Garbage collection from 90 gallon cart(s)
- Garbage carts can be emptied multiple times a week depending on your need
- Free bi-weekly recycling collection

**Monthly Rates**

The monthly rate consists of the following charges:

- Base Rate: \$30
- Cart Charges: \$22.20 x [number of carts] x [collections per week]
- Frequency Surcharge:
  - \$0 for service once a week
  - \$40 for service twice a week
  - \$200 for service 6 days a week

**Additional Charges**

- Anti-litter Fee: All businesses in the City pay a \$7.50 fee regardless of who collects their garbage
- New Service Fee: \$15
- Cart Delivery Fee: \$15 for adding additional carts after service has already been established. There is no charge for additional cars requested when service is established.
- Extra Garbage Fees:
  - \$4 per bag with purchase of extra garbage stickers
  - \$8 per bag without sticker

## Recycling

- Solid Waste Services collects recycling once every other week from businesses that uses their garbage service at no extra charge.

### Commercial Garbage Collection – Central Business District

To reduce the amount of truck traffic in the downtown area, Solid Waste Services manages a commercial garbage contract for designated businesses of a geographic area.

The monthly rate includes the following:

- Base Rate: \$8.75
- Volume Charge: \$10.00 per cubic yard per week
- Central Business District Special Cleaning Service: \$17.00

In addition, all businesses within the City of Austin pay a \$7.50 anti-litter fee as part of the Solid Waste Services portion of their utility bill.

### **4.1 Other Commercial Programs**

Waste Reduction Assistance Program (WRAP) - Austin provides assistance to businesses utilizing the following programs:

#### Free Recycling and Waste Reduction Assistance

The Waste Reduction Assistance Program is a free program to help Austin businesses prevent waste and recycle. SWS provide on-site waste assessments and demonstrate ways to implement or expand recycling, reduce waste and improve the environment. This service is voluntary, confidential and free of charge.

#### Waste Reduction Tip Sheets

Solid Waste Services has developed a number of tip sheets to help companies, both large and small, implement recycling and waste reduction programs for the following sectors; Hotels/Motels, Junk Mail, Offices, Paper, Restaurants, Starting a Recycling Program, and Waste Assessments.

#### More Conservation Programs

SWS also sites information on water conservation, water and wastewater, energy conservation and green building.

#### Business Recognition Program

#### **WasteSMART Program**

WasteSMART is Solid Waste Services program that recognizes local businesses that reduce and recycle waste and buy recycled products.

#### **Universal Recycling Ordinance (URO)**

#### **(effective 10/1/12)**

The Austin City Council approved changes to the current Commercial/Multifamily Recycling Ordinance on Nov. 4, 2010. The new ordinance, renamed the Universal Recycling Ordinance (URO), becomes effective October 1, 2012. These changes affect all commercial and multifamily properties within the Austin city limits. The ordinance will be phased in over the next four years, requiring more than 4,500 properties to recycle by October 2015.

## 5.0 Event Recycling

Austin's SWS is confident that providing a rebate to reduce waste at events will help event organizers identify the best waste reduction efforts to implement at their events. For all events, vendor training and commitment, proper signage, dedicated staff/volunteers, and advanced waste management planning is essential to minimizing the amount of waste

### Event Recycling Rebate Overview

#### Purpose

The purpose of the Event Recycling Rebate program is to:

- Provide event organizers a financial incentive to introduce or improve waste reduction/diversion efforts at outdoor events in Austin;
- Gather data from qualifying events to use in developing best practices guidance and future city policy initiatives; and
- Help promote and achieve the City of Austin's Zero Waste goal.

#### Eligibility Rules

- Event must be outdoor event within the Austin city limits that is open to the public. The event need not be free to the public but the public must have equal access to purchase tickets and attend the event.
- Event must expect to draw a minimum of 500 attendees/spectators.
- Applicant must obtain all necessary permitting from the City of Austin for the event. (e.g. Parks and Recreation Department, Office of Special Events, Austin Police Department), and must comply with all permit requirements.
- Distribution of Styrofoam or glass containers at park facilities or on public rights-of-way DISQUALIFIES the event from the rebate program.
- Event date must be not less than 2 months, nor more than 12 months from the date of submittal of Part 1 Event Recycling Rebate Eligibility Form.
- If the event takes place in the evening or if alcohol will be sold or served, the event must privately contract for paid staff for all waste management needs.
- Event must provide, at a minimum, recycling of plastic bottles, aluminum cans, and cardboard.

#### Rebate Rules

- An Event Organizer is eligible for no more than two rebates per calendar year.
- The Event Recycling rebate may not exceed \$750.00 per event.
- The rebate amount for an event will be calculated based on the total cost of the waste reduction/diversion services, excluding delivery fees and taxes.
- Staff costs may be included in calculation of rebate, but only for staff dedicated solely to waste diversion services at the event.
- Waste diversion costs exceeding the calculated rebate amount are the responsibility of the Event Organizer.
- Event Recycling Rebates are available on first come, first served basis; there is no reservation system.
- The Event Recycling Rebate program may be amended or terminated by the City without notice.
- Breach of Event Recycling Rebate program rules may result in forfeit or repayment of rebate.



## 6.0 Internal Recycling Program

### Office Stream Recycling – Recycling at City Facilities

The City of Austin leads by example. Office Stream Recycling enables city employees to easily recycle all the items that are accepted in residential curbside recycling. With recycling containers available desk side and in common areas, city facilities and buildings are doing their part to meet Austin's Zero Waste goal.

## 7.0 Planning for Zero Waste

### Zero Waste Strategic Planning

The Plan addresses both upstream and downstream policy and program options; green business, green buildings, and jobs; as well as regional coordination.

Austin's Zero Waste Plan takes into consideration Austin's current and planned public and private solid waste infrastructure, as well as their city's Climate Protection Program. Recommendations developed through this process are integral to achieve the U.N. Urban Environmental Accord's goal to reduce by 20% the per capita solid waste disposal to landfills by 2012 and Zero Waste by 2040.

To implement the Zero Waste Plan, Austin will focus first on:

- **Leading by example.** Evaluate departmental waste streams for baseline data and future monitoring within one year of adoption of the Plan. Within three years of adoption of the Plan, frame, develop and implement, where appropriate and feasible, waste diversion programs with input from City Departments.
- **Evaluating the Commercial and Multi-family Recycling Regulations.** Consider and implement proactive education and enforcement methods for the Commercial and Multi-family Recycling regulations. Develop and present to City Council City Code amendments as necessary to require recycling at all commercial enterprises and multi-family residences and include them in the stakeholder process. The proposed City Code amendments should become effective in phases over a three year period.
- **Outreach.** Reach out to institutions, industrial facilities, and manufacturers, to encourage them to adopt and implement zero waste goals.
- **Promoting composting.** Promote composting to remove organic material and compostables from landfills, which is necessary to reduce methane and carbon emissions. First, identify the best strategies to promote on-site composting at work and home. Second, evaluate infrastructure for residential curbside, commercial, and institutional composting; develop strategies to increase composting capacity; and implement a pilot curbside composting program when composting capacity is available.

### Zero Waste Plan – Related Resolutions and Ordinances

- [Zero Waste Plan Overview](#)

The following public records are related to the City of Austin and the department of Solid Waste Services waste reduction efforts:

- [Approved resolution eliminating the purchase by the City of disposable water bottles for use within Governmental facilities within City Hall](#)
- [Approved resolution adopting plan to reduce by fifty percent the number of plastic bags entering the city solid waste stream](#) (April 10, 2008)
- [Limiting use of non-compostable plastic bags](#) (April 19, 2007)
- [Recycling electronic waste](#) (March 22, 2007)

- Adoption of Climate Protection Plan for the reduction of greenhouse gas emissions (February 15, 2007)
- Guiding principles for the delivery of solid waste; endorsement of zero waste goal (January 12, 2006)
- Shared Responsibility for Waste Reduction (August 3, 2000)
- Long-term planning efforts, Solid Waste Department (June 8, 2000)
- Comprehensive Recycling Resolution (January 11, 1990)

**Universal Recycling Ordinance (URO)  
(effective 10/1/12)**

The Austin City Council approved changes to the current Commercial/Multifamily Recycling Ordinance on Nov. 4, 2010. The new ordinance, renamed the Universal Recycling Ordinance (URO), becomes effective October 1, 2012. These changes affect all commercial and multifamily properties within the Austin city limits. The ordinance will be phased in over the next four years, requiring more than 4,500 properties to recycle by October 2015.

**8.0 Facilities**

**Disposal**

The City of Austin Landfill has been closed. However, there are several locations in the Austin area where the public may drop off appliances, construction waste and other large items such as the FM 812 Resource Recovery Center, Austin Community Landfill, BFI, Eco Depot Convenience Center, Texas Disposal Systems Landfill, Travis County Landfill (construction waste only), and Williamson County Landfill.

**Reference Sources**

Documents available through the profiled government’s websites (e.g., Solid Waste Management Plan) including:

<http://www.ci.austin.tx.us/sws/>

Some text may have been taken directly from documents available through the profiled government’s websites and Mecklenburg County wishes to give full credit to the web and document authors.

Reviewed by a representative from Austin Waste Reduction Programs in December 2011

**Boulder, Colorado**  
**Local Environmental Action Division (LEAD)**

**Population served by program: 103,600 (2010 estimate).**

Disposal rates from local transfer station: \$82.75/ton for commercial + C&D, \$68.50/ton for residential waste, \$120.50/ton for heavy demolition (shingles, asphalt, concrete, dirt)

Disposal rates from Front Range Landfill in Erie Colorado (15-20 miles from Boulder): \$19.25/cu.yd. for residential and commercial waste, \$35.75/cu.yd. for C&D

### **1.0 Description of Government Profiled**

The City of Boulder's waste reduction and recycling programs fall under the Department of Community Planning and Sustainability's Local Environmental Action Division (LEAD).

The City of Boulder's funding for waste reduction and recycling comes from a 1993 voter approved ballot initiative that charges a "trash tax" on residential and commercial waste. The trash tax generates approximately \$1.8 million per year.

Waste reduction and recycling in Boulder involves more than just the City's programs, regulations, policies, staff and facilities. The program relies on an intricate web of relationships forged through policies and inclusive, cooperative agreements with facilities and services including integration with Boulder County's program, use of Eco-Cycle's extensive expertise and services, subsidies for other private and non-profit services and facilities. PACE and the Center for ReSource Conservation (CRC)

### **2.0 Overall Recycling/Waste Reduction Goals.**

In 2006, the City Council adopted a zero waste resolution and a Master Plan for Waste Reduction. The 2006 Plan established a 60% waste reduction goal by 2007, 70% by 2012, and 85% by 2017. The Plan is updated every five years and the City is currently engaged in the process of creating the 2011 Plan update.

In 2010, Boulder County also adopted a Zero Waste plan with a goal of achieving zero waste by 2025.

Waste diversion is measured as (recycled, composted and reused materials) divided by (total materials discarded).

It is unclear what the current diversion rate is for the City. Attachment G of the 5-year Update to the Master Plan for Waste Reduction (February 8, 2011) provides a waste diversion rate of 34% in 2009. [http://www.bouldercolorado.gov/files/LEAD/Waste%20Reduction/MPWR/Final\\_Memo\\_MPWR\\_SS\\_2.8.11.pdf](http://www.bouldercolorado.gov/files/LEAD/Waste%20Reduction/MPWR/Final_Memo_MPWR_SS_2.8.11.pdf) The Community Waste Reduction Snapshot shows 37% [http://www.bouldercolorado.gov/files/LEAD/Waste%20Reduction/MPWR/Community\\_Waste\\_Reduction\\_Snapshot.pdf](http://www.bouldercolorado.gov/files/LEAD/Waste%20Reduction/MPWR/Community_Waste_Reduction_Snapshot.pdf), and Boulder's Waste Reduction Snapshot provides a 48% waste diversion rate for 2009 [http://www.bouldercolorado.gov/files/LEAD/Waste%20Reduction/MPWR/Biz\\_Res\\_Waste\\_Reduction\\_Snapshot.pdf](http://www.bouldercolorado.gov/files/LEAD/Waste%20Reduction/MPWR/Biz_Res_Waste_Reduction_Snapshot.pdf)

The City recognizes the inherent problem with using waste diversion as its sole zero waste metric and hopes to address this in the 2011 plan.

As a staff memorandum to the Mayor in February of 2011 states:

“If diversion is always reported as a ratio of materials recycled to materials generated, it is difficult to see absolute increases or decreases in the materials being generated or collected, or to have a full understanding of progress being made toward the community’s zero waste goal.”

That same memo recommends consideration of some additional metrics including:

- Tons diverted
- Total cost and cost per ton diverted
- Participation rates
- Volume of toxic waste managed properly
- Greenhouse gas emissions reduced by avoiding disposal of the collected materials
- Greenhouse gas emissions reduced by avoiding vehicle trips to a processing facility located further away from the point of generation
- Jobs created and economic expansion

### **3.0 Residential Waste Management**

#### **3.1 Single-Family Homes**

Curbside collection of waste, recycling and yard/food (compost) is provided by four private haulers.

##### **3.1.1 Recycling**

A city ordinance passed in 2008 requires that haulers provide residential trash customers with curbside single-stream recycling and compost collection service (see below). These are embedded in the trash service and not an extra charge to the customer. Recycling service is provided every other week on the same day as garbage. The garbage system is a variable rate fee structure or PAYT system.

Recycling items collected curbside includes:

- Newspaper, magazines, phone books, paper-back books, mixed paper, paper bags, corrugated cardboard, Milk cartons, drink boxes, magazines, catalogs, file folders, paperboard, paper egg cartons, other scrap paper (except frozen food boxes and shredded paper)
- Plastic tubs, bottles, jugs, jars (1-7 except Styrofoam)
- Loose metal jar lids & steel bottle caps
- Metal cans (aluminum, tin and steel)
- Aerosol cans (must be empty)
- Aluminum foil (food removed) and pie pans
- Glass bottles and jars

Residents may also recycle at the recycling center on 63<sup>rd</sup> street.

#### **Center for Hard to Recycle Materials (CHARM)**

The City contracts with Eco-Cycle to operate the Center for Hard to Recycle Materials.

For a \$3 per-car fee\*, residents may take the following items to CHARM:

- Block foam packaging and insulation
- Athletic shoes
- Bicycles and bicycles parts incl. tires and tubes
- Books and manuals

- Cooking oil
- Electronics (audio equipment, copiers, fax machines, phones, computers, TV's, VCR's, DVD players, small electronics)
- Fire extinguishers
- Plastics (large durable #2's, #2 and 4 plastic bags)
- Printer cartridges
- Scrap metal (Freon containing appliances are charged \$15 for safe removal of freon)
- Shredding Services
- Toilets, sinks and urinals
- Textiles
- Yoga mats

\*Scrap metal and items collected curbside are not charged the \$3 per vehicle fee. Discounts are also available through a "frequent recycler card".

### **3.1.2 Curbside Food and Yard Waste**

Trash haulers are required to provide 32 gallons of "compost service" in the base trash rate. Compost is collected every other week (alternating with the single stream recycling pickup). Larger carts are available if customers subscribe to a higher service level (but the charges may not exceed 75% of the cost of adding more trash service).

Curbside compost service includes:

- Yard waste (leaves, garden trimmings, branches, grass, and weeds),
- compostable paper products (napkins, paper towels, non-coated paper plates, coffee filters, and tea bags),
- Compostable products made from plant starches (take-out containers, cups, and utensils made from corn starch), and
- Plant-based food waste (vegetable and fruit waste).

Haulers are also required to take (at no charge to the customer) up to three additional compostable bags of leaves and three - 3'x 6' bundles of branches tied with compostable twine (no plastic or nylon). Branches cannot be thicker than 6 inches each, and bundles must weigh 35 lbs or less. Residents will continue to have the option to take yard waste materials at no cost year-round to the Yard Waste Drop-off site.

### **3.1.3 Single-Family Garbage**

Garbage is collected weekly by the residential customer's choice of four franchised haulers. Haulers must embed the cost of recycling and organics (yard and non-meat food waste) into the costs of garbage service- thus providing recycling and yard/food waste collection at no additional charge whether the resident opts to use it or not. Garbage collection is also PAYT, offered at variable rates depending on size of garbage container selected.

### **3.1.4 Hazardous Materials Management Facility**

Boulder County's Hazardous Materials Management Facility accepts household hazardous waste from all residents of Boulder County, City and County of Broomfield, and the Town of Erie. Proof of residency is required when waste is delivered. Hazardous wastes are recycled or disposed of in accordance with relevant laws and guidelines.

### **3.1.5 Policies and Results**

All trash and recycling haulers are required to report to the city their annual quantities of trash, recycling and compostable materials collected within the city. In addition, all residential trash haulers are required to bring recyclable materials to the Boulder County Recycling Center, unless requested by the resident to do otherwise.

#### **Results**

Diversion rates for the single-family residential sector are 46 percent.

## **3.2 Multi-Family**

Multi-family complexes are defined as housing units with shared trash and recycling service in a common area.

### **3.2.1 Recycling (multi-family)**

Trash haulers are required to provide free recycling collection to their multi-family accounts (see 3.2.4 below).

### **3.2.2 Food and Yard Waste (multi-family)**

There are no requirements for compost collection in multi-family developments.

### **3.2.3 Garbage (multi-family)**

Dumpster service is provided by the private sector on a fee basis.

### **3.2.4 Policies and Results (multi-family)**

Trash haulers providing trash collection to multifamily customers must also provide recycling collection at no additional charge. For multifamily customers with centralized trash collection areas, haulers are required, at a minimum, to provide recycling containers with a volume equal to one-half of the volume of the trash collection service.

In 2009, when this regulation was enacted, multifamily recycling increased by 58 percent.

Diversion rate for multi-family residential is 17 percent.

## **4.0 Business/Commercial**

### **4.1 Business/Commercial Recycling**

No requirements currently exist for recycling or compost collection from businesses. Costs for recycling and compost collection are separate from and in addition to trash service costs.

According to the City's website, there are six recycling service providers in Boulder. Businesses are encouraged to recycle and compost through several incentives the City offers (see 4.4, policies and results).

Businesses are encouraged to deliver items to the City's drop-off center, wood waste facility, and yard waste center. The Center for Hard to Recycle Materials also accepts materials from businesses and offers collection services for a fee.

Businesses may also sign up for regular hard-to-recycle materials collections.

The City offers free Zero Waste Technical Assistance to businesses through Partners for a Clean Environment (PACE) program.

#### **4.2 Business/Commercial Yard/Food Waste**

There are no commercial yard/food waste requirements. The City does offer a commercial compost collection subsidy (see below)

#### **4.3 Business/Commercial Garbage**

Private haulers provide all garbage service to the commercial sector (except for those businesses choosing to self-haul).

#### **4.4 Business/Commercial Policies and Results**

##### **Business Zero Waste Start-up Rebate**

The City offers a rebate up to \$250 for compost/recycling collection items including containers compostable collection bags, compostable service ware, compostable take-out containers, education and material signage. The business must have recycling or composting collection service to qualify.

##### **Business Recycling Coupon**

In order to encourage businesses to start recycling, the City offers a coupon which pays for the first 3 months of the new service.

##### **Commercial Composting Collection Incentive**

In order to encourage businesses to compost, the City offers the business an incentive of \$2.50 per subscribed cubic yard of compost collection.

##### **Results**

Diversion rate for business/commercial waste is 25 percent.

## **5.0 Schools**

Only one reference to school recycling programs was listed on the City's website. That reference indicates that Eco-Cycle provides or facilitates education of students in Boulder Valley School District.

## **6.0 Construction & Demolition (C&D) Waste**

As part of the Green Points Green Building requirements, the city requires that new residential construction projects recycle at least 50 percent of the construction waste generated. Complete residential demolition projects are required to divert at least 65 percent of materials generated. The tonnage recycled as a result of this ordinance is included in the recycling tonnages reported from the commercial haulers.

There is also a wood waste drop-off center located at Western Disposal's transfer station. This drop-off provides a lower cost alternative to the landfill for contractors and homeowners to recycle dimensional lumber.

## **7.0 Event Recycling**

Based on a thorough review of Boulder's website, there does not appear to be any event recycling requirements or guidelines.

## **8.0 Education**

The city contracts for education and outreach services through the following:

- Recycle Boulder hotline administered by the Center for ReSource Conservation
- University of Colorado (CU) Green Teams for student-to-student outreach and education
- Student education in Boulder Valley School District schools coordinated through Eco-Cycle
- Other Eco-Cycle education, funded in part by the city, including a contribution toward the production of the Eco-Cycle Times, the Eco-Cycle Holiday Guide and other periodic and seasonal outreach.

In 2011, the city will spend approximately \$75,000 on these education programs.

## **9.0 Waste Prevention (Source Reduction)**

There were not any waste prevention activities mentioned on their website.

## **10.0 Facilities**

### **10.1 Disposal**

There are no landfills in Boulder County. The nearest landfill is about 15-20 miles East in Erie Colorado. Western Disposal owns and operates a transfer station in Boulder. The transfer station operators remove recyclables from the transfer station waste stream.

### **10.2 Recycling Processing**

### **10.3 Composting Facilities**

A private company owns and operates a compost facility near the company's transfer station on 63<sup>rd</sup> street. The facility accepts: compostable materials (food and yard waste) collected from the curb by any residential hauler in Boulder; commercial and multifamily unit compostable materials collected by Western Disposal only; and compostable materials dropped off at the city-sponsored yard waste drop-off center.

Haulers other than Western Disposal must take their compostables to one of the A1 Organics facilities. The Golden Colorado facility accepts all types of yard and wood waste. The Stapleton location accepts food waste as well as yard and wood waste.



	<b>Key program elements identified from Local Govt. website</b>
<b>Residential</b>	
	Requirement that haulers provide bi-weekly residential curbside recycling
	Requirement that haulers provide bi-weekly residential curbside yard and food waste collection
	Drop-off center on 63 <sup>rd</sup> str.
	Center for Hard to Recycle Materials
	PAYT/variable rate garbage service (incentive to recycle and compost)
	Requirement that haulers provide recycling service to multi-family accounts.
<b>Commercial</b>	
	Free Zero Waste Technical Assistance through PACE
	Business Zero Waste Start Up Rebate
	Business Recycling Coupon
	Commercial Composting Collection Incentive
	Green Points Green Building requirement that new construction projects recycle at least 50% of waste generated.
	Complete residential demolition projects are required to divert at least 65% of materials generated.
	Wood waste drop-off center.
	City contracts for education services

**Sources**

City of Boulder, LEAD website

February 8. 2011 Memorandum to the Mayor; Five Year Update to the Master Plan for Waste Reduction

City of Boulder Master Plan for Waste Reduction, February 2006

Boulder County Zero Waste Action Plan

Interview: EcoCyle staff, 10/13/11

Interview: Green Girl Recycling staff, 10/13/11

Front Line Landfill, Erie Colorado

A1 Organics (phone call)

Western Disposal (phone call)

Some text may have been taken directly from documents available through the profiled government’s websites and Mecklenburg County wishes to give full credit to the web and document authors.

# Chicago, Illinois Waste Reduction Programs

**Population served by program: 2,695,598 (2010 census)**

## 1.0 Description of Government Program

The City of Chicago collects approximately 1.1 million tons of residential garbage and recyclables annually. Through a Managed Competition system of rewarding service routes, the City works to implement a variety of recycling and waste management programs for businesses and residents. Specific activities include:

- Regulating certain waste management facilities within the City through permitting and inspection
- Operating the Household Chemicals and Computer Recycling Facility
- Operating the City's Blue Cart Recycling Program;
- Providing technical assistance and support for the City's recycling initiatives;
- Providing assistance for the development of city-wide waste reduction and management programs and policies; and
- Providing community and education outreach for the City's recycling and waste management programs.

Two departments collaborate to deliver these services. The Chicago Department of Environment develops environmental policies, initiatives and programs, enforces the City's environmental code and regulations and works with other City departments, sister, state and federal agencies, businesses and not-for-profit organizations to achieve results.

The Department of Streets and Sanitation (DSS) collects residential garbage from approximately 600,000 households in Chicago, its trucks service more than 350 routes each weekday. City crews service all single-family residences and apartment buildings of four units or less. More than one million tons of garbage and recyclables are collected annually. DSS also handles collections for the [Blue Cart Recycling Program](#).

### Annual Departmental Budget

The City of Chicago is assuming the cost of the program. Part of the cost is offset by a savings of disposal because the recycled material is not going to landfill. Additionally, some cost is off set because the sorting center that accepts the recyclables pays the City by weight for the material. Also, the Illinois Department of Commerce and Economic Opportunity is providing assistance in the form of a four year, \$8 million grant to partially fund the purchase of the carts.

The current Blue Cart Recycling program services 240,000 homes at a cost of \$13.8 million to the City.

## 2.0 Diversion Rates

As a whole, the City of Chicago generates 7,299,174 tons of waste every year.

Of that, 3,248,231 tons is currently being diverted, which represents a current overall diversion rate of 45%.

The current diversion rates for the DSS-Collected Residential, Privately-Collected and C&D sectors are 8%, 19% and 65%, respectively.

The maximum reasonably achievable overall diversion rate is 57% and 43%, 42% and 67% for the DSS-Collected Residential, Privately-Collected and C&D sectors.

### **3.0 Residential Waste Management**

#### **3.1 Blue Cart Recycling Program (single-stream)**

In areas of Chicago with the Blue Cart program, the Department of Streets & Sanitation picks up recyclables and yard waste separate from the garbage.

Areas that are not yet on the Blue Cart Program can recycle by bringing recyclables to any of the city's 38 Regional Blue Recycling Drop-Off Centers. Chicago discontinued using a Blue Bag for Chicago's residential recycling in 2008.

Residents in a Blue Cart area are given a blue recycling cart to deposit recyclable materials including paper, cardboard, plastics, glass, tin and aluminum. Material placed in the blue cart can be loose or bagged and there is no sorting needed. While residents do not have to rinse containers before they are put into their blue cart, they are encouraged to do so to avoid smells if they store recycling in the home. Residents are asked to make sure all items are emptied before being placed in the blue cart. Residents are asked to flatten all boxes, like cereal boxes, to save space in carts. Large cardboard boxes can be placed next to their carts.

Blue carts are emptied by the Department of Streets & Sanitation on an every other week schedule. If residents have curbside garbage service, their blue cart is emptied on the same day as their garbage. If residents have alley garbage service, their blue cart is emptied during the week of collection.

As of the summer of 2010, 240,000 households were using the Blue Cart program. The program applies to residents of the selected neighborhoods who normally receive city garbage pick-up. In other words, those who live in a single family home or buildings of up to four units.

#### **Accepted**

Materials accepted in the Chicago Blue Cart Program & Recycling Drop-off Centers:

- Glass: jars and bottles
- Metal: cans, aluminum foil and pie tins
- Paper and Cardboard (flattened): Cereal boxes, paper towel rolls, cardboard (flatten all boxes), junk mail, magazines, catalogs, telephone books, paper bags, office paper and file folders, newspaper and inserts, paper greeting cards, wrapping paper
- Plastic: bottles and containers (#1-5,7 accepted), plastic beverage rings
- Waxy cartons: Aseptic packages and waxy cartons (milk, juice, soy cartons)

### **3.2 Areas without Blue Cart service**

If residents do not live in an area with Blue Cart service, they can still recycle. The City operates 38 Blue Recycling Drop-Off Centers in different communities throughout Chicago.

### **3.3 Public Education**

#### Block Captains

Residents can become part of a grassroots volunteer network and support the Blue Cart Recycling Program. The Department of Environment invites residents who live in a Blue Cart area to help spread the word about the program to their neighbors, answer questions, and provide feedback to staff about how the program is working in their area.

The City of Chicago provides Block Captains with the following:

- A monthly email update that includes current recycling rates, events, and initiatives.
- Tips on how to reach out to their neighbors and tools, such as lawn signs and introduction cards to do so.
- Information to help them accurately answer recycling related questions.
- Access to knowledgeable staff to help them resolve issues and further educate them about the program.

#### Reward System – RecycleBank

Recyclebank is a program that rewards individuals for recycling and other positive environmental behaviors. Eligible households earn points relative to how much they recycle and those points can be redeemed for coupons or gift cards from businesses or donated to local environmental programs. In August 2009, the City partnered with Recyclebank to conduct a field test involving approximately 10,000 households in its Blue Cart Recycling program areas. The field test was designed to measure, understand and improve recycling rates in Blue Cart areas.

Recyclebank's contract expired on April 1, 2011 and will not be renewed. If residents have been a Recyclebank Customer, their Recyclebank Points will expire if they have no redemption or earn activity for 12 months. However, they can continue to earn points for activities outside of recycling at home. Actions like learning about green activities, referring friends, and using a points code for actions like pledging to recycle certain product packaging or other green actions. Recyclebank has teamed up Citizens Utility Board (CUB) to offer all residents the CUB Energy Saver Program at no cost to you.

For local businesses this means that Chicago residents can continue to earn points for activities outside of home recycling, and their existing points are still valid at stores as long as they have account activity during a 12 month period.

### **3.4 Recycling Collection - Managed Competition**

Mayor Emanuel announced on Monday, July 18, 2011, that the City of Chicago will be making changes to the city's Blue Cart Recycling program including the implementation of managed competition, which will ultimately lead to the extension of recycling services throughout the city of Chicago.

"I promised the people of Chicago that my administration would work to deliver the best services in the most cost-effective way possible. Delivering our Blue Cart recycling program at a lower cost to taxpayers is the first step in making recycling collection available citywide," said Mayor Emanuel.

Cities across the United States, such as Charlotte, North Carolina and Phoenix, Arizona, have realized significant cost savings by implementing managed competition for their recycling programs. Using both private and public workers, these cities made their service delivery more efficient for their residents. In Chicago, the current Blue Cart Recycling program services 240,000 homes at a cost of \$13.8 million to the City. Bids from private sector companies have come in at approximately \$6.6 million for the same service areas, indicating a projected savings of more than 50 percent.

This week, contracts will be signed with two different vendors to take over a portion of the recycling pickup services in the city. The city will be divided into six service areas, four of which will be serviced by two private sector companies, beginning in September or October of this year. The remaining two service sectors will be managed by the city's Department of Streets and Sanitation.

Employees from the City's Department of Streets and Sanitation who currently service areas that will be serviced by the private sector companies will be shifted to other duties within the department to fill vacant positions.

Residents will not see any changes to materials collected or collection frequency, as the contracts include specific performance standards. Additionally, four months after the program begins, 20,000 households will be added to further streamline existing pickup routes. In 2012, there will be additional households added. Ultimately, the program will be extended throughout the city. The City will continue to collect refuse and manage the Recycling Drop-off Centers throughout the process.

The two vendors are Waste Management, which will collect in Areas 1, 3, and 6, and Midwest Metal Management, which will collect in area 5. Those vendors, who were the lowest bidders in each of the respective areas, will have 60-90 days to begin collection services. The City will evaluate both the public and private operations to determine the quality and costs to providing the collection service, and make decisions for the future of this program based on these results.

### **3.5 Household Hazardous Waste**

#### **Household Chemicals & Computer Recycling Facility Overview**

Residents are requested to dispose of their household chemicals responsibly and recycle their old computers by dropping them off at the City's permanent Household Chemicals & Computer Recycling Facility.

The Household Chemical and Computer Recycling Facility accepts a range of items, including household cleaners, oil-based paints, solvents, cell phones, compact fluorescent light bulbs, computers and related equipment to name a few. It does NOT accept business/commercial sector wastes, explosives, fireworks or latex paint. The facility is open for drop-offs on the following days only:

- Tuesdays (7 am – 12 pm)
- Thursdays (2- 7 pm)
- The first Saturday of every month (8 am – 3 pm)

If a holiday falls on any of the above days, the facility will not be open.

During business hours, an attendant is outside, ready to help unload vehicles and accept materials. Materials should be not left outside the facility unattended.

The Household Chemicals and Computer Recycling Facility accept these chemicals:

- household chemicals, such as bleach, harsh cleaning materials, drain cleaners, etc.

- batteries (alkaline, button cell, rechargeable, lithium, car batteries, etc.)
- oil-based paints, aerosol paints and paint thinners
- solvents (mineral spirits, stains, paint strippers, preservatives, sealers)
- unused or expired medications (non-controlled only)
- compact fluorescent light bulbs and tubes
- antifreeze
- motor oil, gasoline, auto fluids
- herbicides, pesticides and insecticides
- propane tanks for BBQ grills
- lead acid batteries
- all aerosol cans (spray paint, hair spray, etc.)
- lawn, pool and hobby chemicals
- mercury (thermometers, switches, thermostats)
- small fire extinguishers
- small non-refillable cylinders (NRC's)

The Household Chemicals and Computer Recycling Facility accepts these electronic materials:

- all computer related equipment (monitors, mouse, hard drives, CPU's, computer cables, keyboards, laptops, etc.)
- cell phones
- fax machines
- scanners
- printers/copiers
- televisions/TV's (both working and non-working TV's)
- DVD players
- MP3/digital music players
- PDAs
- VHS players
- Video game consoles
- Zip drives
- Computer cables

### **3.6 Yard Waste**

#### Residents

Between April 1 and November 30 of each year, residents in the Blue Cart area are encouraged to place their yard waste (grass clippings, leaves, weeds, etc.) in paper (preferred) or plastic bags and place it next to their carts.

If they are in a Blue Cart service area, then Yard Waste is now collected every other week by yard waste crews, pick-up will be on the same week as blue cart collection.

### **3.7 Composting in Chicago**

#### Residential Composting

Every year, Chicago residents throw out tons of leaves, lawn clippings and other organic material. This "waste" makes up more than half of the city's residential trash in the spring and summer growing seasons, and again in the fall when leaves are dropping. Organic waste, however, is a valuable resource that can be composted instead of thrown out in the trash.

There are two options for Chicagoans to compost their organic waste:

1. If residents have a blue cart:  
Place yard waste (leaves, branches, twigs and grass clippings only—no food scrap allowed, please) in a bag and leave it next to your cart for weekly pick-up between April 1 and November 30 each year. Paper bags are preferred but plastic is also accepted. This yard waste is composted in a commercial composting facility in northwestern Indiana.
2. If residents do not have a blue cart or wish to compost food scraps, which are not accepted in the blue cart yard waste collection program:  
They are encouraged to try back yard composting. The City hosts Sustainable Backyard Workshops where residents learn about back yard composting and then receive a rebate towards purchasing a compost bin. Residents can also build their own compost bins with information found at the Chicago Home Composting Program website.

There are restrictions to the size of residential compost systems.

Results

[http://www.cityofchicago.org/content/dam/city/depts/doe/general/RecyclingAndWasteMgmt\\_PDFs/BlueCart/2010YearEndResults.pdf](http://www.cityofchicago.org/content/dam/city/depts/doe/general/RecyclingAndWasteMgmt_PDFs/BlueCart/2010YearEndResults.pdf)

### **3.8 Residential Garbage**

Residential Garbage is defined as that produced from 600,000 households in single-family homes or apartment buildings of four units or less (others must arrange for private garbage collection).

Chicago collects approximately 1.1 million tons of residential garbage and recyclables annually. Pick-ups are weekly, Mondays through Fridays. Collections are made weekdays with 350 daily routes.

The average number of living units collected daily by each garbage truck has been increased during the past year, in part due to the creation of a "night shuttle" program. Previously, the garbage trucks needed to leave their alleys in time to dump their loads and return to their assigned yards by the end of each shift.

Now, the truck crews skip their last dumping and remain longer on their routes. Parked fully loaded at the end of the day, they are then shuttled to their dump sites by specially assigned second shift drivers. This results in greater productivity from the laborers on each truck, who no longer are idle while their vehicles are off to dump the loads.

Chicago's municipal garbage trucks bring their refuse to Sorting Centers.

#### Bulky or Large Item Collection

A private hauler collects "bulky" items, such as mattresses, sofas, refrigerators, or tires at the curb for a small fee.

### **4.0 Multi-Family**

Recycling must be made available to all residents who live in apartments, condominiums and cooperatives, according to the Workplace and Residential Recycling Ordinance that became law in January of 1995. If the building uses a private waste hauler (metal dumpster on site), the building

management must offer tenants an effective recycling program. The Recycling Ordinance defines an effective program by three things: Source reduction and separation, an education program and a written recycling plan.

Source separation means separating recyclables from trash before the waste hauler picks them up. An effective program recycles three materials such as newspaper, glass and plastic. In special cases, a waste service can collect only two materials if the landlord also implements two waste reduction measures, such as using energy saving light bulbs and reusing supplies.

All residents must be told what can be recycled and how to prepare it. The landlord needs to either distribute pamphlets or post signs in common area, and tell people about changes in the recycling plan 10 days before they happen.

A written recycling plan with five parts must also be available to all apartment residents. First, the three recycled materials and any source reduction measures the landlord uses should be identified. Second, how to prepare the recyclables and what happens to them once the waste hauler picks them up. A summary of the education program should be in the third part, and the fourth part should be the contract with the waste hauler. Finally, there must be semi-annual waste hauler quality reports and any reports of contamination.

#### Apartments & Condos

Collection of yard trimmings by complex are encouraged. Residents should contact their property manager for details.

### **5.0 Business/Commercial**

Chicago's City Council adopted the Workplace and Residential Recycling Ordinance in 1994, requiring all property managers and building owners to implement an effective recycling program by January 1, 1995. The City regularly inspects businesses to ensure compliance and issues citations for noncompliance. An effective recycling program includes a contract for recycling service, a recycling plan and education.

The refuse collection customer for each commercial establishment located in the City of Chicago is required under the Chicago High Density Residential and Commercial Source Reduction and Recycling Ordinance to provide an effective recycling program for that establishment. For commercial establishments, an effective recycling program is defined as:

All commercial establishments that are required to have a Chicago business license and contract for private garbage collection area are required to have recycling programs under the Chicago High Density and Commercial Source Reduction and Recycling Ordinance. This information sheet will help you establish an effective commercial/retail recycling program.

1. Source separation of at least three recyclable materials (such as newspaper, glass and plastic). This means that recyclable materials are separated from other solid waste before the point of collection and kept separated until they can be recycled. In special cases, a waste service can collect only materials if the commercial establishment also implements two waste reduction measures, such as using energy saving light bulbs and reusing supplies.



2. A written plan detailing the program and made available to all current and prospective office establishments affected by the plan. At a minimum, the plan should include:
  - a. Recyclable materials collected and source reduction measures implanted;
    - i. Type of collection method(s) used
    - ii. Targeted recycling rates
    - iii. Summary of the education program
    - iv. Any written quality reports received from the hauler
3. Any educational program that informs all new tenants (if the refuse collection customer is a building owner) or new employees (if the refuse collection customer is the business owner/operator), and at least annually all affected tenants or employees, how to participate in the building's recycling program and why it's important to recycle. The program should include:

**Flyers** explaining why it is important to recycle and how the program operates including the types of materials recycled, the location of the collection points, the name of the recycling provider, the collection schedule and a phone number to call with any questions

**Permanent signs** placed in common areas identifying the location of the recycling collection points

**Signs** marking the location of all recycling collection points

**Notification** about changes in the recycling plan to tenants and employees within 10 days of any such change

If the refuse collection customer is the building owner and not the commercial business owner/operator, a notice to their tenants that they must also inform their employees about the building's recycling program, how it operates and encourage their participation

The basic requirement for commercial establishments is to recycle three items. However, if a commercial establishment can:

- Demonstrate through a waste audit that their waste stream contains fewer than the required materials;
- One recyclable item constitutes more than 51 percent by weight of its waste stream; or
- If you can recycle only that one item,

You must keep the waste audit results with your recycling program for review by the Department of Environment.

The City recommends a "source separated, single stream" collection program, similar to the City's Blue Cart program. The ordinance also specifies that a "source separated" program is preferable to "post-collection" systems. The City further recommends that the program you choose keep recyclable items separate from regular trash. Commercial establishments may not use a "post-collection" system, which is any process that separates recyclables from waste after being collected, as the sole method of recycling unless a written waiver is received from the Department of Environment. In order to obtain this waiver a "post-collection" system, the establishment must show they're implementing a source separation recycling program that would cause undue financial hardship and space constraint economic, safety or space hardship and provide the results of an analytical waste audit.

### Private Sector Provider in Chicago Example

Waste Management Chicago offers single stream recycling service programs to businesses in Chicago.

Waste Management identifies themselves as the first major solid waste company to focus on Single-stream recycling services, allowing their customers to commingle recyclable paper and mixed containers in one bin for collection. The convenience of single-stream recycling service greatly increases participation and recovery.

Single-stream recycling service is made possible through the use of various mechanized screens and optical sorting technologies. With single-stream recycling services well under way in residential applications, Waste Management Chicago is advancing the same easy recycling services for other commercial applications.

Waste Management Chicago's Single Stream Recycling provides recycling programs for condominiums, restaurants, and office buildings in Chicago.

### **5.2 Commercial Yard Waste**

The Chicago Department of Streets & Sanitation requires landscaping and tree removal services that do work within Chicago City Limits, under Chapter 7-28-395 of the Municipal Code of Chicago, to remove and properly dispose of any waste generated by their work.

Any violator is subject to a fine no less than \$200.00, or no more than \$500.00, for each offense. Each day that a violation continues constitutes a separate and distinct offense.

### Commercial Composting

There are several companies in the Chicago area that provide commercial composting services. These include: Land & Lakes Company, Resource Center, and Enviropure Systems.

### **6.0 Construction & Demolition (C&D) Waste**

The Department of Environment promotes the responsible separation and recycling of construction and demolition (C&D) debris to help contractors and individuals save on costly disposal fees while protecting the environment.

### City Ordinance requires 50% recycling in 2007

In 2005, the Chicago City Council passed amendments to the *Construction or Demolition Site Waste Recycling Ordinance* to increase the amount of C&D debris that is recycled in Chicago. Starting with building and wrecking permits applied for March 1, 2006, contractors must keep track of how much waste is generated at project sites and strive to meet the recycling goals set forth in the new ordinance. In 2006, the goal was 25%.

Beginning with permits applied for January 1, 2007, contractors must recycle 50% of the C&D debris generated at a job site.

Recycling compliance forms will be handed out at the Department of Buildings (DOB) at the time of permit issuance. Contractors must fill out the form and return it at DOB at the end of each project, together with an affidavit from the waste hauler or recycler, if applicable.

[http://www.cityofchicago.org/content/city/en/depts/dae/supp\\_info/construction\\_anddemolitiondebris\\_recycling.html](http://www.cityofchicago.org/content/city/en/depts/dae/supp_info/construction_anddemolitiondebris_recycling.html)

### C&D Debris Defined

C&D debris is non-hazardous, non-contaminated solid waste resulting from construction, remodeling, and repair or demolition operations on pavement, buildings and other structures.

C&D debris includes waste from new construction, renovation, and demolition projects, and may include:

Bricks, concrete, and other masonry materials  
Rock Wood, including non-hazardous painted, treated, and coated wood  
Scrap metal  
Plaster  
Gypsum drywall  
Plumbing fixtures and piping  
Non-asbestos insulation  
Roofing shingles and other roof coverings  
Reclaimed asphalt pavement  
Glass  
Plastics  
Landscape waste

In 2003, more than 1.4 million tons of construction steel, 615 thousand tons of concrete and brick and 122 thousand tons of wood were recycled in Chicago.

### How to Recycle C&D Debris

The first step in C&D recycling is to plan ahead. It is important to estimate how much and what types of material will be generated at the construction or demolition site. Then it can be decided how the materials should be sorted and which recycling service providers you hired. For more information, the City of Chicago provides a construction and demolition *Best Management Practices* guide for C&D operations. This guide includes case studies and strategies for meeting the C&D recycling requirements.

In addition, the State of Illinois produces a helpful C&D recycling guidebook which may be obtained by calling 888-EPA-1996. Additional information can be found at the Illinois EPA—Construction and Demolition Debris website.

[http://www.cityofchicago.org/content/city/en/depts/dae/supp\\_info/recycling1/recyclingaz/lettera1.html](http://www.cityofchicago.org/content/city/en/depts/dae/supp_info/recycling1/recyclingaz/lettera1.html)

## **7.0 Facilities**

There are presently 38 Blue Recycling Drop Off Sites citywide.

## **8.0 Zero Waste Planning**

### **2009 Chicago Waste Characterization Study and Waste Diversion Study Results**

In 2009, the City of Chicago, Department of Environment contracted with CDM to perform a Waste Characterization Study and a Waste Diversion Study (the Studies). The Waste Characterization Study details the quantity, sources and composition of the city's waste stream. The Waste Diversion Study measures the city's current diversion rate and estimated the maximum reasonably achievable diversion rate. Both studies looked at waste composition, waste generation and diversion rates for three sectors:

- Department of Streets and Sanitation (DSS)-Collected Residential (4 units or less)

- Privately-Collected (residential buildings 5 units or more and institutional, industrial and commercial)
- Construction & Demolition (C&D)

### Diversion Rate

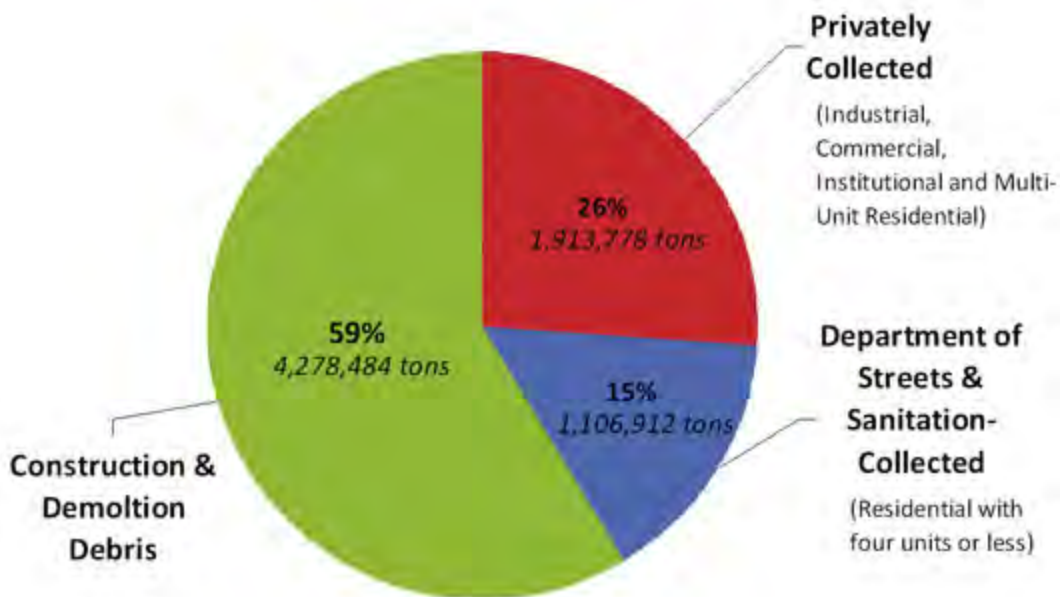
A current diversion rate is the percentage of total waste currently being generated that is diverted from landfill disposal by means such as source reduction, reuse, recycling and composting. A maximum reasonably achievable diversion rate is the highest percentage of total waste that can be reasonably diverted from the landfill based on existing and accepted diversion technologies that are currently available in other areas but may not be implemented in Chicago yet.

### How the Studies were Completed

To determine the composition of the City's waste stream, over 500 samples from the DSS-Collected Residential and Privately-Collected sectors were collected and physically characterized by manually sorting the samples into 81 different material categories and weighing them. In addition, over 350 samples from the C&D sector were collected and visually characterized due to their bulky size. The sampling was conducted at 14 waste facilities located across the city and performed over two seasons (summer/fall and winter). The diversion rate was measured based on data reported by recycling facilities to the City and surveying additional recycling and reuse facilities in and around the city.

### Waste Generated and Waste Diverted

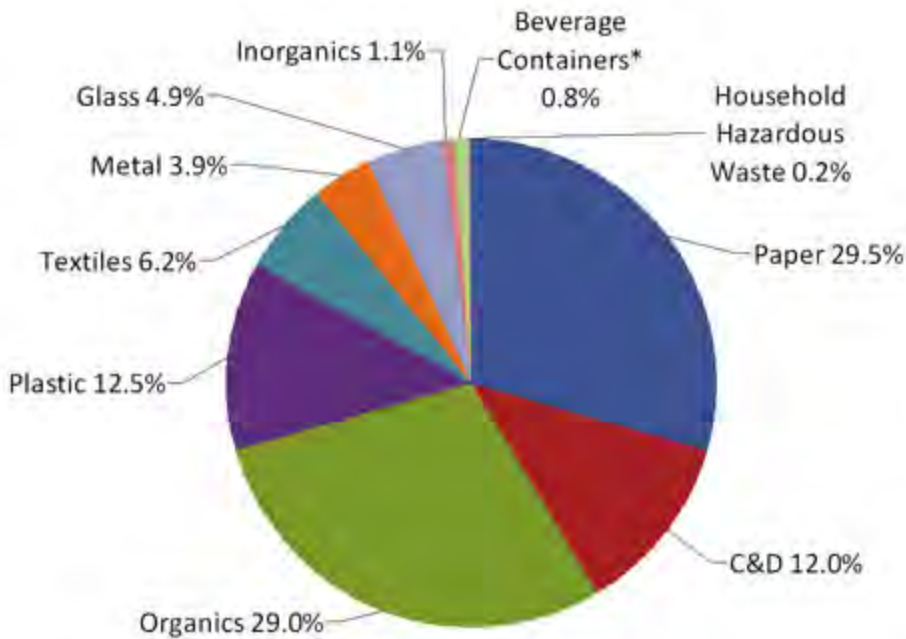
As a whole, the City of Chicago generates 7,299,174 tons of waste every year. Of that, 3,248,231 tons is currently being diverted, which represents a current overall diversion rate of 45%. The current diversion rates for the DSS-Collected Residential, Privately-Collected and C&D sectors are 8%, 19% and 65%, respectively. The maximum reasonably achievable overall diversion rate is 57% and 43%, 42% and 67% for the DSS-Collected Residential, Privately-Collected and C&D sectors.



**Figure 2. Waste Generation by Sector**

The DSS-Collected Residential and Privately-Collected sectors, the paper and organic material groups alone comprise 58.5% of the waste stream. Although some components within these two material groups have significant recycling rates (such as 64% of high-grade paper in the private sector), targeting these material groups for diversion or recycling offers the greatest impact.

The C&D sector is already achieving a 65% diversion rate! Although currently 90% or more of concrete, asphalt and metal are being captured, the Studies found that recycling materials such as wood, brick and gypsum could still be improved.



**Figure 3. DSS- and Privately-Collected Waste Composition**

\*Beverage Containers include only water bottles and coated milk/juice cartons.

## 9.0 Waste Prevention Programs

### Catalog Choice

To help consumers' combat unwanted mail, the City of Chicago has joined forces with communities across the country to debut a free mail preference service called Catalog Choice. Residents and businesses can stop unwanted phone books, catalogs, coupons and credit card solicitations at the source by signing up for the free service at <https://chicago.catalogchoice.org>.

## 10.0 Litter

### 2011 Clean & Green Held Citywide

"Mayor Daley's Spring Clean & Green has been a mainstay of the City's spring cleaning efforts for well over two decades." "Under the Clean & Green program, the Department of Streets & Sanitation provides brooms, rakes, trash bags and other tools; the people give a little time and a lot of spirit! The result is better and cleaner place for everyone to live, work and do business."

During a recent spring event, more than 9,800 volunteers from over 380 community groups took part in the citywide clean-up effort.

## Sources

Documents available through the profiled government's websites (e.g., Solid Waste Management Plan):

<http://www.cityofchicago.org/content/city/en/depts/doi.html>

[www.chicagorecycles.org](http://www.chicagorecycles.org)

Some text and diagrams are taken directly from these documents and Mecklenburg County wishes to give full credit to the web and document authors.

## **City of Philadelphia, Pennsylvania Streets Department – Sanitation Division**

**Population served by program: 1,526,006 (2010 Census)**

### **Form of Local Government**

The City of Philadelphia is a unique municipal government within the Commonwealth of Pennsylvania. In 1854 the boundaries of the City of Philadelphia and the County of Philadelphia were made coterminous and the governments consolidated. All remaining separate county functions were assumed by the City in 1952. While the City of Philadelphia organizationally contains both typical municipal and county functions, the City is defined as a municipality by the Commonwealth and generally subject to the requirements of a municipality.

### **Operating Organization**

Solid waste services in the City of Philadelphia are provided through the Sanitation Division of the Streets Department. Other divisions within the Streets Department include those related to street design and maintenance, traffic engineering and street lighting. For FY 2011 the Sanitation Division Operating Budget was approximately \$95 Million, most of which comes from the General Fund. Sanitation also receives a variable amount of funding each year from the Commonwealth of Pennsylvania, Department of Environmental Protection. These monies are collected from the Tipping Fee Tax assessed against all solid waste disposed in the Commonwealth. Typically, the Sanitation Division receives about \$4 Million from the Commonwealth annually for sole use in its recycling program. The Sanitation Division has 1,271 full time positions, of which 190 are assigned to recyclable collection and four are recycling professional/administrative positions with responsibilities for recycling promotion, education and administration.

### **Overall Recycling/Waste Reduction Goals of Local Government**

The underlying mandate for recycling in the Commonwealth of Pennsylvania derives from the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988. Commonly referred to as “Act 101”, this legislation requires that all municipalities within the Commonwealth with a population of greater than 10,000 (includes Philadelphia) have a residential curbside recyclable collection program, collecting at least three materials. Businesses and institutions within these same municipalities are required to recycle aluminum, high grade office paper and corrugated cardboard in addition to the curbside recyclable materials chosen to be recycled by the municipality. Act 101 set a recycling goal of 25%. Another significant aspect of Act 101 was the assessment of a recycling fee on all waste disposed in either landfills or waste-to-energy facilities. Most of the monies collected from this fee are returned by the Commonwealth to the municipalities in the form of grants to fund local recycling programs.

Prior to the enactment of Act 101, the City of Philadelphia adopted its own mandatory recycling ordinance (Bill 1251A) in 1987. This ordinance made source separated residential recycling mandatory for residential properties with six or fewer dwelling units. The ordinance also set a goal to recycle at least 50% of the City’s total waste stream within four years of enactment, a goal not achieved. The Recycling Ordinance was incorporated into the Philadelphia Code under Chapter 10-717. This chapter does provide for penalties for non-compliance.



In 2009, the newly elected Mayor Nutter rolled out a sustainability initiative called Greenworks Philadelphia. This plan establishes 15 targets to improve the environment, reduce energy use, increase jobs and improve quality of life. One of these 15 targets is to divert 70% of the solid waste from the landfill. For FY 2011 the calculated diversion rate for residential units directly served by Sanitation collection services was 19%.

### **Residential Trash Collection – Single Family**

The Sanitation Division provides weekly residential curbside trash collection for residential dwellings of six units or less. Each single family residential unit is limited to a maximum of four 32-gallon containers or eight 32-gallon trash bags. The resident is responsible for providing the collection containers; there are no City provided containers. Trash collection is performed with public employees using rear-load compactors. Approximately 540,000 residential units are served.

### **Curbside Recycling – Single Family**

In 1989 the City of Philadelphia was the first municipality in Pennsylvania to implement curbside collection of residential recyclables. From the beginning of the program, residential recycling was mandatory for residents. But with years of no investment in the program, removal of certain materials collected, and no enforcement of the mandatory requirements, residential diversion rates fell to 6% a few years ago. In recent years the Sanitation Division has made significant improvements to the program. Recyclable collection was converted to commingled single stream and all plastic containers were added to the recyclable mix.

Sanitation performs the recyclable collection service with public employees and now uses the same type compaction rear loader trucks as used in trash collection. The full range of single stream materials are now collected as discussed in a following section. To improve residential participation, Sanitation uses both enforcement and incentives to recycle. Generally, enforcement is limited to reminders to recycle, particularly to those that have not set out recyclables and are found to have recyclables in their trash. Greater detail on Sanitation code enforcement follows in another section.

On the incentive side, Sanitation first implemented a pilot Recyclebank program in a small area of Northwest Philadelphia. This program required each recycling container to be weighed and then the individual resident received reward points based upon the weight of the recyclables set out for collection. With this pilot system each collection truck needed to have an on-board scale to weigh the individual recycling containers. Operational difficulties with the weighing systems and the reduced collection productivity resulting from weighing each unit caused Sanitation to alter the approach when it deployed as a citywide program two years ago.

The modified Recyclebank program now in place is called the Philadelphia Recycling Rewards program. To participate in the program a resident needs to enroll over the internet and establish a Recyclebank account. The resident is then mailed a sticker to be placed on their primary recycling bin. The sticker contains a UPC bar code and an RFID tag (radio frequency identification), the latter of which is now employed. To date, 184,000 residents have enrolled in the Philadelphia Recycling Rewards program, about a third of the residential units served by Sanitation.

Each resident enrolled in the Philadelphia Recycling Rewards program receives reward points based upon whether their recycling bin was serviced that week and based upon the total weight of recyclables collected on their particular collection route. The recyclable collection truck reads the RFID to indicate whether a particular resident participated. Then when the collection truck is weighed at the materials

recovery facility, the net weight of recyclables is downloaded into the reward system. Reward points are then assigned to those who participated that week in proportion to the weight collected from their neighborhood. Points may be redeemed for coupons or discounts at local retail establishments and restaurants. The Philadelphia Recycling Rewards program has been considered effective as it has significantly increased participation rates.

### **Residential Materials Recycled**

Residential recycled materials are collected commingled single stream without further separation and include:

- All grades paper and cardboard
- All plastic bottles and containers, resins 1-7
- Glass containers and jars
- All steel and aluminum cans (aerosol cans included)

Only rigid #6 polystyrene is collected, expanded polystyrene or Styrofoam is not.

### **Residential Recyclables Processing**

All of the recyclables collected by the Sanitation Division at curbside and at the convenience centers are delivered to a materials recovery facility owned and operated by Waste Management. This facility is located in Northeast Philadelphia and was the subject of significant modernization with a recent conversion to single stream recyclable processing. Approximately 115,000 tons of recyclables were delivered by Sanitation to this facility in FY 2011. This Waste Management facility also receives recyclables from other sources. Under their multi-year processing contract with the City of Philadelphia, Waste Management pays the City a bid price per ton that is adjusted quarterly based upon a derived index of commodity prices. The current revenue to Sanitation from the recyclables delivered is \$65 per ton.

### **Yard Waste Collection**

During most of the year, yard waste may be commingled with trash and set out for combined collection. No separate yard waste collection is provided by Sanitation. During a six-week period of the fall leaf season, yard waste is collected separately at curbside. Sanitation provides this scheduled service with public employees in November and December, all neighborhoods being served several times. All leaves must be placed by the residents into biodegradable paper bags and then placed at the curb. Purchase of the biodegradable paper bags is the responsibility of the resident.

The collected leaves are taken to the Fairmount Park Organic Recycling Center where it is combined with yard wastes resultant from the Park's operation. The operation is a windrow composting program. The compost and mulch produced are available in small quantities to Philadelphia residents free of charge. Commercial quantities are sold.

### **Multi-family Residential Trash and Recycling**

The Sanitation Division provides curbside collection for multi-family dwellings up to six units. Those with more than six units are not directly provided solid waste or recycling services by Sanitation and each must contract with a private hauler. All multi-family dwellings of more than six residential units are

governed by the Commercial Regulations for the Private Hauling of Recyclables and Non-Recyclable Materials. Each must file a Recycling Plan and comply with the Regulations as described in the Business/Commercial Recycling section below, with the expectation by Sanitation that all of the single stream residential materials will be recycled. Enforcement and penalties are the same as described for Business/Commercial Recycling.

### **Recycling Convenience Sites**

The Sanitation Division operates three (3) full service waste and recycling centers, all open Monday through Saturday. All are directly operated by public employees.

These are:

- Southwest Philadelphia Center
- Northwest Philadelphia Center
- Northeast Philadelphia Center

These Convenience Centers are available to Philadelphia residents and customers must show proof of residence. Only personal vehicles are allowed, no commercial vehicles or vehicles with a gross vehicle weight greater than 6,000 pounds per day. All services are provided free of charge and include:

- Residential waste disposal – trash, bulky, tires
- Recycling – all curbside recyclable materials
- Recycling of discarded electronics

No unstaffed recyclable drop-off sites are maintained.

### **Business/Commercial Recycling**

Recycling in the commercial, institutional and industrial sectors became mandatory in 1994 with the adoption of the Commercial Regulations for the Private Hauling of Recyclables and Non-Recyclable Materials. Under these regulations, all businesses in Philadelphia are required to submit a Recycling Plan. Within their Plan they are to indicate the materials that the business will recycle and the private hauler(s) that are servicing the business. Depending upon the type of business and the wastes that they generate, the materials required to be recycled differ. There are no prescriptive material requirements. For general commercial, industrial and governmental entities, to the extent that they are generated in significant quantities, the following materials are expected to be recycled:

- Office paper, newsprint and mixed paper
- Corrugated cardboard
- Glass food and beverage containers
- Plastic containers, #1 and #2
- Aluminum, including cans
- Steel and bimetal cans
- Ferrous and non-ferrous metals
- Food waste and other organics
- Concrete, sand, gravel, lumber
- Plaster, drywall, gypsum roofing materials
- Yard waste
- Motor oils

These materials must be source separated and set out separately from solid waste for collection. Businesses are further required to provide suitable containers for recyclable collection and establish an education program that communicates effectively to the facility occupants. The filing of the Recycling Plan was recently converted to an electronic process under which the applicant is linked to the property tax database maintained by the Board of Revision of Taxes. This linkage provides an ability to cross check to ensure businesses have filed Recycling Plans. There are penalties up to \$300 per day per violation for non-compliance. However, there has been little enforcement and compliance is generally not monitored.

### **Construction and Demolition Recycling**

The same Commercial Regulations for the Private Hauling of Recyclables and Non-Recyclable Materials that govern business recycling as described above also apply to construction and demolition waste recycling. Under these regulations, all businesses in Philadelphia are required to submit a Recycling Plan. Included with the Plan are the materials that the business will recycle and the private hauler(s) that are servicing the business. Depending upon the type of business, the materials required to be recycled differ. See preceding Business/Commercial Recycling section for details. The Sanitation Division provides no direct programs for C&D collection or recycling.

### **Household Hazardous Waste**

The Sanitation Division does not maintain a permanent household hazardous waste (HHW) receiving facility. HHW is collected at scheduled one-day events throughout the year. For calendar year 2011 there are seven such events scheduled in different geographical areas of the City. The events are run by a contracted service provider. At the HHW events residents may bring the usual range of HHW materials including: paints, lawn and garden chemicals, household cleaners, automotive fluids, batteries, fluorescent light bulbs, etc. Also collected at these events are discarded electronics.

### **Electronic Waste**

Sanitation receives discarded electronics at its three convenience centers. Discarded electronics may also be brought to the seven scheduled HHW events as described above. It is not permissible to set out discarded electronics in regular residential trash collection.

### **Bulky Waste Collection**

Sanitation does not provide curbside collection for most oversize bulky wastes. Residents may secure the services of a private hauler to remove appliances, televisions, electronic and tires or deliver them to one of the three convenience centers. Because residential trash service is provided with manual rear loader collection vehicles, residents are permitted to place up to two compactable furniture items per week at the curb for collection. This includes sofa, mattresses and box springs.

### **Residential Waste Disposal**

In FY 2011 the Sanitation Division disposed a total of 580,000 tons of solid waste, about 503,000 tons resultant from curbside residential trash collection. All of the waste was delivered to privately operated transfer stations located within Philadelphia. From these transfer stations the waste is transported to a

Covanta waste-to-energy facility, two Waste Management landfills and a Republic Landfill. The average price paid for transfer and disposal of the residential waste in FY 2011 was \$68 per ton. The term of all current disposal contracts expire in June 2012.

### **Litter Program**

Philadelphia's litter prevention and clean-up program aligns with most urban programs in that it combines neighborhood beautification, litter prevention and litter clean-up efforts. Within the Sanitation Division is a Street Cleaning Unit with over 120 personnel and numerous mechanical street cleaning equipment. Recently installed throughout the City were approximately 900 "big belly" compacting waste and recyclable receptacles that are solar powered units. There is currently a promotional and educational program called the "Unlitter Network" that is engaging businesses in promoting the litter prevention message. Within this network there is a business ambassador and "litter free zone" program focusing on business areas.

The Streets Department is aligned with, but does not operate, the local Keep America Beautiful affiliate. Called Keep Philadelphia Beautiful, it coordinates a number of volunteer neighborhood beautification, litter prevention and recycling education efforts. Keep Philadelphia does receive significant funding from the Sanitation Division and Sanitation is represented on the Board of Directors.

### **Sanitation Code Enforcement**

Sanitation maintains a program for the enforcement of all aspects of the Sanitation Code. This program is called SWEEP, the Streets and Walkways Education and Enforcement Program. Paramount among its enforcement responsibilities have been the regulation of private waste dumpsters. All dumpsters must be licensed by the user, not the hauler, and meet certain design and location specifications. Much of the time spent by the 57 enforcement officers has been on the regulation of dumpsters. In addition, the officers enforce solid waste set out, litter and snow removal regulations. Some of their time is dedicated to enforcing mandatory residential and commercial recycling requirements, but to date this has been minimal. It is expected that Sanitation will ramp up these recycling enforcement efforts in future years.

### **City of Philadelphia Key Waste Reduction/Recycling Programs**

The following program elements were identified by the Philadelphia Sanitation Division as being most influential in achieving its waste reduction/recycling goals:

#### **Current**

- Philadelphia Recycling Rewards program providing Recyclebank financial awards and neighborhood competition to those participating in the program.
- Moving from dual stream to single stream and adding all plastic containers as the residential recyclable collection approach
- Mandatory recycling for all businesses including multi-family residential units. Even though minimally enforced, compliance aspects influence behavior.
- Electronically linking the filing of the business recycling plans to the Board of Revision of Taxes property tax database. This linkage better enables the identification of business that have not submitted the required Recycling Plan.
- Consistent source of dedicated funding of recycling programs from the Commonwealth of Pennsylvania's solid waste tipping fee tax.

## Future

- Recycling processor, Waste Management plans to add aseptic containers to the materials accepted at the materials recovery facility utilized by Sanitation. Working with the Carton Council on developing a promotional program to increase participation.
- Expect next year to bring before City Council a revised mandatory recycling ordinance.
- Redirection of some of the SWEEP enforcement personnel from dumpster/litter enforcement to residential and commercial recycling.

## Reference Sources

Phone interview – with the Environmental Services Director and former Recycling Coordinator, Streets Department, Sanitation Division; 9/30/11.

### Internet websites

City of Philadelphia FY 2011 Budget

<http://www.phila.gov/PDFs/2011OperatingBudget24-44.pdf>

Philadelphia Streets Department

<http://www.philadelphiastreet.com/>

Philadelphia Recycling Program

<http://www.phillyrecyclingpays.com/>

Philadelphia Code of Ordinances – Chapter 10-700 Refuse and Littering

[http://www.amlegal.com/nxt/gateway.dll/Pennsylvania/philadelphia\\_pa/thephiladelphiacode?function=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:philadelphia\\_pa](http://www.amlegal.com/nxt/gateway.dll/Pennsylvania/philadelphia_pa/thephiladelphiacode?function=templates$fn=default.htm$3.0$vid=amlegal:philadelphia_pa)

Pennsylvania Laws – Act 101 of 1988

<http://www.palrb.us/pamphletlaws/19001999/1988/0/act/0101.pdf>

Pennsylvania Department of Environmental Protection

<http://www.depweb.state.pa.us/portal/server.pt/community/waste/6006>

Some text may have been taken directly from documents available through the profiled government's websites and Mecklenburg County wishes to give full credit to the web and document authors.

**City/County of Denver, Colorado**  
**Denver Department of Public Works**  
**Solid Waste Management Section**

**Population served by program: 566,974**

**Disposal rate per ton: 1.47 tons/HH/Yr.**

**Description of Government Profiled**

The Department of Public Works oversees solid waste services in the City and County of Denver through Denver Solid Waste Management which is one of three sections of the Operations Division of the Department. Public Works provides solid waste management to approximately 170,000 single-family and multi-family homes (seven or fewer units) within the City and County of Denver. Trash is collected weekly in a 96 gallon cart. Recyclables are collected using a single stream collection method on an every other week basis. Large Item pickups are schedule for collection every nine weeks.

Public Works collects approximately 250,000 tons of total wastes per year (includes recyclables and organics) through an integrated program of collecting solid waste, recyclables and food waste (organics) for composting.

The City and County of Denver owns the Denver Arapahoe Disposal Site Landfill that is operated under contract by a vendor. All trash and construction and demolition debris managed by the City and County must be disposed of at the Denver landfill. Public Works also owns and operates a transfer station.

The Operation Division of Solid Waste is managed by the Deputy Manager of Operations. A Solid Waste Director reports to the Deputy Manager of Operations and is responsible for managing the personnel of the following programs: Trash and Recycling, Keep Denver Beautiful and Graffiti Prevention and Removal. Denver Solid Waste Management has one hundred ninety-nine (199) employees (24 recycling employees) and operates under a \$24 million annual budget with \$15 million of it being spent on refuse collection and disposal; \$3.4 million is spent on Large Item Pickup with the remaining budgeted dollars being shared between Keep Denver Beautiful and the Graffiti Prevention and Removal programs.

**Overall Recycling/Waste Reduction Goals of Local Government**

According to Denver’s Master Plan for Managing Solid Waste in the Mile High City (2010), the City of Denver’s goal is a 30% reduction in total landfill waste by 2011. The City plans to reach this goal by maintaining and growing existing programs and initiatives and also implementing new strategies that include

- Legislative: Reduce landfill waste through innovative programs and policies.
- Operational: Improve operational efficiencies by moving Denver households to a fully automated, three-cart system.
- Behavioral: Increase diversion by encouraging participation in citywide recycling and Compost collection programs.

This goal could be achieved through reduction of landfill disposal by 2011 using 2004 as a baseline year. This goal could be achieved through reduction in or reuse of the solid wastes produced by residents, or through increased diversion of waste materials.

## **Residential**

Denver Recycles is a voluntary curbside recycling program with more than 100,000 households participating. Curbside collection is provided to single family homes and multi-family homes that have less than 7 units. At their request, a resident receives a purple 96 gallon recycling cart that is collected every-other-week.

### Recycling items collected curbside:

#### **Plastics #1-#7**

- Soda, water, shampoo and soap bottles
- Milk, laundry detergent, and cat litter jugs
- Yogurt, sour cream, cottage cheese, and butter tubs
- Peanut butter and mayonnaise jars
- "To-go" or "take out" plastic drinking cups
- Plastic trays like those used for microwave dinners
- "Clam-Shell" containers like those used for strawberries and bakery goods
- Plastic containers like those used to package salad mixes

#### **Aluminum**

- Aluminum cans, foil, trays and pie plates are all accepted for recycling

#### **Cardboard**

- Flatten and cut to pieces no larger than 2 feet by 2 feet
- Only broken down boxes inside the cart will be collected for recycling
- Pizza boxes accepted

#### **Glass**

- Food and beverage glass only

#### **Paper**

- Window envelopes are okay to recycle
- Newspaper
- Paper Bags
- Phone Books
- Limit Shredded Paper- all shredded paper must be placed in a closed paper bag
- Opened mail
- Greeting cards
- Postcards, index cards and file folders
- Loose leaf and legal pad paper
- Stationary, letterhead, copy and typing paper
- Paper envelopes (plastic windows OK)
- Brochures and glossy ads
- Paperboard
- Wrapping paper

#### **Steel and empty aerosol cans**

- Aerosol cans must be empty
- Labels are OK



## **Electronics Recycling**

Electronics recycling is not provided by the Denver Public Works but they encourage citizens to recycle their electronics and have partnerships with local vendors to accept electronics from citizens for a fee and also sponsor an electronic recycling event (usually annually) where citizens can provide their electronics for recycling for free.

## **Appliance Recycling**

Appliances are collected curbside by appointment with a limit of four (4) items being collected per appointment.

## **Recycling Results**

Denver City/County residents had a participation rate of 55% and an average set out-rate of 79% and averaged 30lbs./household. Denver Solid Waste does not pay a tipping fee for delivery of single stream recycling to the MRF; and receives payments for the materials recycled.

## **Yard Waste Collection**

Yard waste is collected every 3 weeks during overflow collection week. No yard waste can be disposed of in the trash cart. The guidelines for collection are:

- Tie loose branches in bundles no longer than 4 feet in length and in bundles weighing no more than 50 pounds. No branches may exceed 4 inches in diameter. A maximum of ten branch bundles per household will be collected.
- Do not place branches in your city issued black barrel and place at least 4 feet away from black barrels when setting bundles out for collection.
- Leaves and yard clippings must be in bags or containers and weigh no more than 50 pounds each when full. A maximum of ten (10) bags will be collect per household during overflow collection.

## **Organics (Yard Waste, Food Waste, Composting)**

### **Home Composting**

Denver Recycles has Home Composting information on its website and also offers free home composting classes and worm composting class available from May-October.

### **Compost Collection Pilot Program**

Between October 2008 and March 2010, Denver Solid Waste implemented a pilot program to compost yard and food waste as part of a State of Colorado Public Health & Environment grant project. In 2008 and 2009, the project collected about 1,600 tons of material from 3,300 households in neighborhoods throughout Denver. Citizens can register on the Denver Recycles website to participate in the Compost Collection Pilot Program. Denver's compost collection pilot program is a fee-based service program. The base payment for this service is \$29.25 per quarter (3 months). Paying participants in the Denver

Composts program receive a 65-gallon green composting cart and weekly collection. Organic material such as yard debris, food and soiled paper are all accepted in the program.

### **Master Composter**

Residents of Denver can become a Master Composter through Denver Recycles Master Composter Program.

Here's how the program works:

- **Instruction:** Receive 40 hours of instruction in compost science, bin construction, worm composting, recycling and solid waste management, urban gardening and community outreach.
- **Service:** In exchange for your training you'll be required to return 40 hours of community service teaching composting and recycling to Denver residents. You'll have one year to complete your community service requirement.
- **Dedication, not experience:** You do not need to be an experienced composter or gardener to participate, but you must be able to commit the time necessary to attend the classes, tours and demonstration site sessions.
- **Cost:** A materials fee is requested but not required.
- **Schedule:** Classes will be held about once a week for 10 weeks on a combination of Monday evenings, Saturday mornings and one Friday field trip.
- **Enrollment:** Approximately 30 enthusiastic and committed participants will be selected.

### **Leaf-Drop/Tree Cycle Programs**

Denver Solid Waste operates seasonal collection programs for fall leaves and Christmas trees. The leaf-drop collection allows Denver residents to drop bagged leaves at several sites throughout the City on three consecutive Sundays in November and at a transfer station during the week, in October and November. Household collection of undercoated Christmas trees is made available to citizens on regular trash days in early January of each year. These materials are mulched and grinded and made available to residents through a free citizen give-away program every spring. In 2010, over 455 tons of leaves were collected and composted through LeafDrop!

### **Recycling Drop-off Program**

Denver Solid Waste does not provide drop-off recycling to its citizens. However, Denver Recycles has compiled a directory for citizens to utilize in identifying businesses in the area that will accept materials for recycling.

### **Recycling Collection for Multi-Family**

Large Multi-Family communities (8 units and above) receive no solid waste services from Denver Public works and must contract directly with private haulers for recycling services.

## **School Recycling**

In the fall of 2009, a unique partnership was formed between Denver Public Schools and Denver Public Works Solid Waste Management where the City provides trash and recycling collection services to all Denver Public Schools.

Recycling is being provided to over 118 Denver Public Schools. School administrators and staff are also participating in the program. The program is recycling approximately 180,000 pounds of materials a month.

Denver Recycles Provides Denver Public Schools:

- 18-gallon purple recycling bins for each classroom and office
- 95-gallon purple recycling carts (in rare cases, a recycling dumpster is provided for very large schools)
- Regular recycling collections
- Introductory presentation at school staff meeting
- Assemblies to help kick-off the program and motivate students to participate
- An opportunity for kids to understand about the benefits of recycling, create life-long habits and become environmental stewards
- Supplemental materials such as lesson plans, fact sheets and classroom posters
- Ongoing technical assistance by Denver Recycles staff

## **Business/Commercial Recycling**

The City & County of Denver Public Works Department's Solid Waste Management, is only authorized to provide services to residential homes and multi-family homes of seven or fewer units. Thus, does not provide services to business/commercial properties. The Denver Recycles website provides a listing of private companies providing commercial recycling service in the Denver area.

## **Construction and Demolition Recycling**

Research information reviewed did not reveal that Denver Solid Waste had a program dedicated to C&D recycling.

## **Household Hazardous Waste Collection**

Denver residents may dispose of and recycle their household hazardous waste properly through the City's Household Hazardous Waste Program. Residents living in single-family homes or buildings of seven units or less can make an at-home collection appointment once per calendar year. All participants must submit a \$15 copayment at the time of their appointment.

To qualify for an appointment, citizens must have either:

1. A minimum of 25 pounds of any one material listed under the Acceptable Household Hazardous Waste list (No appointments for only latex paint. Latex paint can be disposed of through a private vendor for \$2 per unit).

2. A minimum of 3 different types of materials listed under the Acceptable Household Hazardous Waste list.

Once the appointment is made:

1. A collection Kit is shipped to residents and should be received a few days before your scheduled collection. The Kit includes a bag to contain your materials, instructions, labels and a tie to secure the bag.
2. HHW must be assembled according to the instructions and must include the \$15 copayment. No materials will be accepted without lids or those which are leaking or not labeled. Containers must be 5-gallons or less. The collection bag holds about 10-12 gallons. If you have more waste than will fit in the bag and are willing to pay for collection of the excess material, then please call the 1-800 hotline to arrange for payment for those additional items.

Denver residents that reside in multi-family buildings with more than 7 units are not eligible for a door-to-door collection, but may make an appointment to drop off items at the Denver Regional Household Hazardous Waste Facility. Residents using the program will be responsible for a \$15 co-payment. Drop-off appointments are limited, so only residents living in buildings with more than 7 units are eligible for drop-off appointments.

### **Household Hazardous Waste Drop-Sites**

As with the recycling materials, citizens also have access to a directory of sites that will accept Household Hazardous Waste for disposal.

### **Garbage Collection (Single-family)**

Solid waste collection is provided weekly to the citizens of Denver utilizing three systems of collection.

- Manual collection-each household provides its own container (19% of trash collection)
- Barrel collection-Denver Public Works provides each household with a standard 96-gallon roll cart (31% of trash collection)
- Dumpster collection-Denver Public Works provides a dumpster to serve multiple households (47% of trash collection).

### **Large Item Pickup (LIP)**

Denver residents that have trash service provided by the City & County of Denver/Solid Waste Management may have large items (such as furniture and mattresses) picked up on a nine-week rotation schedule. This is referred to as Large Item Pickup (LIP) collection service. LIP collection service is based on the type of trash collection provided by Solid Waste Management.

Follow these general guidelines when setting out LIP items:

- 7 AM - LIP items should be set out by 7 AM according to Your Pickup Schedule on type of trash service.
- 4 feet away - LIP items should be placed 4 feet away from the trash cans, dumpsters or other obstructions (recycling carts, cars, poles, mailboxes, etc).

- 5 items - A maximum of five large items (furniture, etc.) will be collected per LIP cycle (every nine weeks) per household.
- If you would prefer to see your large items reused or recycled, visit the Recycling Directory for drop site locations for things like mattresses, furniture and yard debris.

SERVICE TYPE	SET-OUT DAY FOR LIP ITEMS
BARREL	Regular day of service during assigned LIP week.
MANUAL	Regular day of service during assigned LIP week.
DUMPSTER	Monday during assigned LIP week. The LIP items will be collected sometime during the week. The LIP truck will go through the alley once during the scheduled LIP week.

### **Garbage Collection for Multi-Family**

Large Multi-Family communities (8 units and above) receive no solid waste services from Denver Public works and must contract directly with private haulers for solid waste collection and disposal services.

### **Disposal**

Denver Solid Waste pays \$40.25/ton tipping fee for disposal of residential solid waste at the Denver Arapahoe Disposal Site Landfill. Denver receives a rebate from the landfill operator.

### **Denver City/County Future Plans or options being considered:**

#### **Short-term**

- Phased Standardization of Refuse Collection
- Citywide Household composting (organics) collection
- Add a new recycling drop-site
- Expand and improve public outreach
- Expand Household Hazardous Waste and Latex Paint Collection
- Further reduce large Item pick up collections
- Explore eliminating refuse overflow collections
- Consider a hauler licensing program
- Consider a restaurants food diversion program
- Consider having large multi-family communities verifying refuse collection service

**Long Term**

- Add third new recycling drop-site
- Construct a new refuse transfer station
- Consider Pay-as-you-throw
- Consider C&D Waste Diversion Policy

<b>Key program elements identified from Local Govt. website</b>	
<b>Residential</b>	
	Every other week voluntary residential curbside and multi-family (7 units and under) recycling collection.
	Compost collection pilot program with weekly collection of yard/food waste from 3,300 households.
	Leaf-Drop/Tree Cycle Programs
	Household Hazardous Waste Collection. Residents of single family homes can make an appointment for at home collection once per year for \$15.
	E-Cycle coupon program that allows residents to drop off electronics to private company for discounted rate.
<b>Commercial</b>	
	Collects recyclables from city-owned buildings and facilities.
	Collects recyclables from Denver Public Schools.

**Cited Sources:**

A Master Plan for managing solid waste in the Mile High City (October 2010)

<http://www.denvergov.org/LivinginDenver/TrashandRecycling/tabid/435540/Default.aspx>

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<http://www.alpinewaste.com/>

[http://www.denvergov.org/Portals/709/documents/master-plan/master\\_plan\\_exec\\_summary.pdf](http://www.denvergov.org/Portals/709/documents/master-plan/master_plan_exec_summary.pdf)

[http://www.denvergov.org/Portals/709/documents/master-plan/master\\_plan\\_research\\_and\\_analysis.pdf](http://www.denvergov.org/Portals/709/documents/master-plan/master_plan_research_and_analysis.pdf)

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**Fairfax County, Virginia**  
**Waste Reduction Programs**  
**Department of Public Works and Environmental Services**

**Population served by program: 1,081,004 (per 2010 census)**

**Disposal rate per ton: \$53.00**

Fairfax County's Solid Waste Management Program is responsible for providing a comprehensive system for recycling, collecting, and disposing of solid waste. The program is part of the County's Department of Public Works and Environmental Services. The Division of Solid Waste Collection and Recycling (DSWCR), is responsible for the collection of refuse and recyclable materials within Fairfax County's sanitary districts and from County agencies. The agency coordinates the County's waste reduction and recycling program. It is also responsible for the administration and program operations of the Solid Waste General Fund Programs (e.g., Health Department Referrals, Community Cleanups, Evictions and Court-Ordered Cleanups) on behalf of the County. Recycling Operations is responsible for providing the overall management of solid waste reduction and recycling programs that are required by the County and for developing plans for future recycling programs and waste reduction systems. The goal for FY 2012 is to maintain the recycling rate in the municipal solid waste stream at or above the Commonwealth of Virginia mandated goal of 25 percent. Based on Calendar Year 2010, the current rate is 42 percent. (Please note that the annual recycling rate for Fairfax County is calculated in a calendar year basis as required by state rules.)

**Overall Recycling/Waste Reduction Goals of Local Government**

Fairfax County's waste reduction goal is to reduce the County's municipal solid waste stream through the effective development, implementation and management of comprehensive waste reduction and recycling programs to ensure that Fairfax County meets or exceeds the Commonwealth of Virginia's mandated goal of recycling 25 percent of the solid waste stream.

**Disposal**

The I-95 Energy Resource Recovery Facility (waste to energy facility) is utilized to dispose of waste in Fairfax County. The Division of Solid Waste Disposal and Resource Recovery oversees operation of the I-95 Energy Resource Recovery Facility and is responsible for providing a minimum of 930,750 tons of waste to the facility annually (a commitment referred to as the Guaranteed Annual Tonnage).

The I-66 Transfer Station receives 75% of the county's waste collected. The waste is packed on to tractor trailers and trucked to the Energy Resource Recovery Facility or another permitted disposal facility. The other 25% goes directly to the Energy Resource Recovery Facility.

**Residential**

County code requires that:

a) occupants of single-family homes and townhouses shall source-separate: container glass; metal food and beverage containers; plastic bottles and jugs; yard waste; scrap metal; and cardboard and mixed paper, including but not limited to corrugated cardboard, magazines, newspaper, office paper, and miscellaneous paper products.

b) Owners of multi-family dwelling units for which site plan first submission occurred before July 1, 2007, shall provide, or cause to be provided, a recycling system for their residents to source-separate cardboard and mixed paper (including but not limited to corrugated cardboard, magazines, newspaper, office paper, and miscellaneous paper products), and must provide each unit with notification regarding the use and participation in such system upon occupancy and at least once annually thereafter. Notification may be in the form of community newspapers or other outreach techniques.

(c) Owners of multi-family dwelling units for which site plan first submission occurred on or after July 1, 2007, shall in addition to the requirements of 109.1-2-2(b) provide, or cause to be provided, a recycling system for their residents to source-separate container glass, metal food and beverage containers, plastic bottles and jugs, and scrap metal, and must provide each unit with notification regarding the use and participation in such system upon occupancy and at least once annually thereafter. Notification may be in the form of community newspapers or other outreach techniques.

Violation of any provision of the recycling requirements shall be punishable by a civil penalty not to exceed \$500.00 for each offense. No criminal penalties shall be imposed for such violations. Each household, business, or collection point at which a violation of any provision of the recycling requirements occurs shall constitute a separate offense.

### **Single Family curbside program description**

Recyclable materials are collected at the curbside on weekly basis. For residents whose recyclables are collected by the county, a 64 gallon bin is provided for single stream collection.

The following materials are required to be source separated for recycling collection:

- Container glass (bottles and jars);
- Metal food and beverage containers (cans and tins);
- Plastic bottles and jugs;
- Yard waste (on a seasonal basis);
- Scrap metal; and,
- Cardboard and mixed paper (junk mail, office paper, newspapers, magazines, etc.).

Occupants of single-family homes and townhouses must source-separate yard waste for recycling from March 1 to December 24 of each year. Yard waste is comprised of leaves and grass and woody materials such as branches, sticks and twigs. From December 25 through the end of February, the collector must still collect yard waste from the curb but is allowed to mix it with trash rather than collect it separately.

Natural Christmas trees up to 8 feet in length must be collected for recycling, if set out during the first two weeks in January.

Containers are not provided for yard waste. Garbage is collected curbside, weekly, in a 96 gallon container.

### **Multi-family**

Owners of all multifamily dwelling units (e.g., apartments and condominiums) must provide a system for their residents to recycle cardboard and mixed paper. In turn, solid waste collectors must offer recycling service for these materials and collect them at least once per week.

Owners of multifamily dwelling units built after July 1, 2007, must provide a system for their residents and tenants to recycle the following materials:



- Mixed paper and cardboard;
- Container glass (bottles and jars);
- Metal food and beverage containers (cans and tins);
- Plastic bottles and jugs; and
- Scrap metal.

Note about recycling scrap metal - the primary source of scrap metal in multifamily dwellings is appliances such as refrigerators, washing machines, dryers, stoves, etc. When the property management company replaces these items, they must be recycled. This can be accomplished by contracting with a collection company to remove them for recycling or by taking them to a scrap metal recycler or other appropriate method. In condominium communities, the property manager should provide information to residents about how to recycle their individual appliances as scrap metal.

Yard Waste is not collected for Multi-Family properties.

There are 7 recyclable materials drop off centers. All centers take the curbside accepted recyclable materials. Two centers accept Household Hazardous Waste including used oil/filters, batteries, fluorescent light tubes and CFL's. Additional collections events are scheduled during the year to collect residential HHW.

Bulky waste is collected as requested by the resident.

## **Business/Commercial**

County code requires all nonresidential establishments, including businesses, schools, and institutions, to provide a recycling system to their tenants, occupants, employees and vendors. The owner or manager of such properties must provide a system to recycle cardboard and mixed paper, which includes white and colored office paper, magazines, newspapers, junk mail and any clean paper that tears. In addition, solid waste collectors must offer weekly recycling service for these materials.

County code required that all Non-Residential properties recycle cardboard and mixed paper. Owners of non-residential properties that have an annual total waste stream of 100 tons or more from a single nonresidential entity; or an annual combined waste stream of 100 tons or more from a complex or institution; or an annual average occupancy of 200 persons or more at a nonresidential property are required to recycle another principal recyclable material (PRM). A PRM is any material from the following list that makes up the largest proportion of the property's recyclables waste stream (by weight):

Cardboard and mixed paper; Ferrous scrap metal; Nonferrous scrap metal; Used motor oil; Container glass; Aluminum or tin cans; Cloth; Automobile bodies; Plastic; Clean wood; or Brush, leaves, grass, and other arboreal materials, i.e., yard waste.

Any nonresidential property that meets one of the size criteria listed earlier must recycle the material from the PRM list that is generated in the greatest quantity by weight, in addition to paper and cardboard.

Yard waste is only required to be recycled if it is considered a principal recyclable material for that business (i.e. landscapers). There are no food waste requirements. There are 3 collections days a year for conditionally exempt small quantity generators.

## Schools

Public and private schools located in Fairfax County are required to recycle mixed paper and cardboard. In addition to mixed paper and cardboard, the county's public schools recycle glass bottles and jars, metal food and beverage cans and plastic bottles and jugs. They also collect fluorescent lamps for recycling.

## Construction/Demolition

County codes require construction, renovation, and demolition contractors to source separate and recycle corrugated cardboard.

## Key program elements identified from Local Govt. website

Rank the program elements from most effective (1) to least.

- 4 Weekly Curbside recycling collection (Residential)
- 1 Mandatory Residential recycling by county code
- 2 Mandatory Non-Residential recycling by county code
- 5 Recycling Drop Centers
- 3 Recycling Outreach and Education

## Sources

Interview with staff from Fairfax County, Virginia Solid Waste

<http://www.fairfaxcounty.gov/living/recycling/>

<http://www.fairfaxcounty.gov/dpwes/>

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**City of Fresno, California  
Department of Public Utilities  
Solid Waste Management Section**

**Population served by program: 480,000+**

**Waste Diversion: Seventy-Five percent (75%)**

**1.0 Description of Government Profiled**

The City of Fresno Solid Waste Management is a Division of the Department of Public Utilities and has more than 250 employees; 6 of which are dedicated to waste reduction/recycling. The City of Fresno Solid Waste Management Division collects 450,000 tons of trash, recyclables and green waste annually from 106,000 single family homes, 2,450 multi-family complexes (approximately 30,000 units) and 4,000 businesses. Fresno's Public Utilities Department is responsible for collection and management of these resources.

**2.0 Overall Recycling/Waste Reduction Goals**

As are all California jurisdictions, the City of Fresno is mandated by the California Integrated Management Act of 1989 (AB 939) that requires a fifty percent (50%) diversion rate be achieved by the year 2000. The AB 939 also mandated that all California jurisdictions reduce, re-use, recycle and compost all discarded materials to the maximum extent feasible before any landfilling or other destructive method is used.

The City of Fresno was compliant with Mandate AB 939 and on June 26, 2007, The Fresno City Council unanimously adopted a seventy-five percent (75%) waste-diversion goal by 2012 and a zero-waste goal by 2025 (90% diversion). <http://www.fresno.gov/NR/rdonlyres/9112A6F3-33A3-428E-9762-6EBC0E0523B7/0/ZeroWasteStrategicActionPlan.pdf>

**Solid Waste Fees (applies to residential and business/multi-family)**

Fresno Utility Rate Commission administers fees to residents for the collection and disposal of all waste materials. The rates reflect the bi-monthly charge that is paid by each citizen. The fee is included in the City of Fresno Utility bill. The bi-monthly charge covers a two month period. All rates can be found at: [http://www.fresno.gov/NR/rdonlyres/38DDC6FA-5F87-47D8-B985-0F0D467F5D4C/22815/MFS\\_PUBLICUTILITIES1.pdf](http://www.fresno.gov/NR/rdonlyres/38DDC6FA-5F87-47D8-B985-0F0D467F5D4C/22815/MFS_PUBLICUTILITIES1.pdf)

**3.0 Residential Single-family**

Each Week, the City of Fresno services over 106,000 homes picking up over 4,465 tons of green waste, recyclables, and trash. Each resident receives a blue, green and gray cart for recycling, organics, and trash (respectively). All carts are collected weekly on the same day.

**3.1 Residential Recycling**

Mandatory single-stream residential collection of recyclables is accomplished in a blue 96-gallon cart emptied by the City of Fresno once a week.

Acceptable Materials for Recycling in blue Cart:

- All Paper – including cardboard, books, junk mail, envelopes, newspaper, inserts, telephone books, magazines, catalogs, flattened paper milk cartons, juice boxes, office paper including computer, copy & ledger paper, construction paper & manila folders, paper bags and packaging.
- All Plastic (except Styrofoam) – including milk & juice containers, shrink & bubble wrap, plastic grocery bags, & plastic toys.
- All Metal – including aluminum cans, tin/steel cans, empty paint & aerosol cans, lawn chair frames, metal frames, all steel items
- Small Appliances – including transistor radios, blow-dryers, curling irons, small microwave ovens, coffee pots, toaster ovens, small power tools (batteries removed).
- Glass – including all container glass, jars, and bottles.  
No sheet glass, windows, ceramic glass, or mirrors.

**Recycling Results**

The City of Fresno Recycling Staff reports a participation rate of over ninety percent (90%) and a diversion rate of seventy-four percent (74%).

**Contamination**

Fresno spends about \$500,000 a year to remove contamination found in recycling carts. Items such as diapers, clothing, or food waste are considered contamination when placed in the blue recycling cart. Contamination is also a problem in green waste carts.

The City may levy the following fines for contamination found in the respective carts:

- 1st instance .....Notice of Violation
- 2nd instance .....Notice of Violation
- 3rd instance .....\$50 Fine
- 4th instance .....\$100 Fine
- 5th instance .....\$200 Fine
- All violations thereafter .....\$200 Fine, up to \$1,500 (per fiscal year)

These fines will show up in the citizens City Utility Bill.

**3.2 Yard Waste Collection (Green Waste)**

Standard residential collection of Green waste is accomplished in a green 96-gallon cart emptied by the City of Fresno once a week.

Acceptable Materials in the green cart are:

- \*Fruits and Vegetables
- \* Leaves
- \* Grass
- \* Weeds
- \* Sawdust
- \* Palm Fronds

- \* Trees including real Christmas trees
- \* Untreated Wood

### **3.3 Garbage Collection (Single-family)**

Standard residential service is a gray 96-gallon cart emptied by the City of Fresno once a week. Garbage from the gray cart is taken to Cedar Avenue Recycling and Transfer Station. Once garbage has been off-loaded at the transfer station, the garbage is loaded onto large trucks and taken out to American Avenue Landfill.

### **Recycling Drop-off Program**

The City of Fresno does not own or operate any recycling drop off centers.

### **3.4 Recycling Collection for Multi-Family**

In October of 2005, the Fresno City Council passed an ordinance that requires multi-family complexes to recycle at each location. Each week, the City of Fresno services 2,450 apartment complexes and condominiums.

### **3.5 Bulky Waste Collection**

The City of Fresno does not offer bulky waste collection to its citizens. Operation Clean Up, one of the most popular and necessary operations in the City of Fresno, provides a way for residents to dispose of bulky items that do not normally fit into their regular garbage pickup. Operation Clean Up disposes trash and debris, green waste, electronic waste, and old appliances/ furniture in accordance with all rules and regulations of the State of California and the Federal Government. The Operation Clean Up program is one of the most popular, and necessary, operations in the City of Fresno. Once a year this program makes its rounds throughout the entire City of Fresno. Prior to Operation Clean Up, the biggest contender the City of Fresno faced was illegal dumping. Illegal dumping costs residents hundreds of thousands of dollars a year to clean up. In order to minimize illegal dumping, Operation Clean up is not publicized. Citizens receive a flier at their doorstep announcing the Clean Up at least one week before the scheduled date.

### **3.6 Household Hazardous Waste Collection**

The City of Fresno and Fresno County co-sponsor two household hazardous waste drop-off events each year, one in the spring and one in the fall. Items collected include old medications, fluorescent tubes and bulbs, paint, Cleaners, Paints, Automotive Fluids,(etc.: Gasoline · Transmission fluid · Brake fluid · Nail polish · Spot remover · Thermostats · Propane tanks · Toxic or caustic household cleaners · Oven cleaners · Pool chemicals · Garden pesticides · Herbicides · Fertilizer · Wood preservatives · Old paint · Varnish · Paint stripper · tar), batteries, sharps, electronic waste

If a resident cannot wait until the HHW drop-off event, a website provides businesses that will take some of the materials year-round <http://www.co.fresno.ca.us/DepartmentPage.aspx?id=18071>

## **4.0 School Recycling**

The City of Fresno does not have a program dedicated to school recycling. However, recycling presentations are available to pre-k, elementary, middle schools, high schools and colleges, within the

City of Fresno. Interactive and entertaining presentations cover information on recycling, resource conservation, and protection of the environment. Students can learn about the importance of recycling and the programs available to them in Fresno. Recycling staff also works with school staff to relate the information and materials covered in school curriculum.

There is no fee for the presentations and all handouts are free.

## **5.0 Business/Commercial Recycling**

In September 2005, Fresno City Council adopted a solid waste ordinance that extended the definition of mandatory collection to include recycling services by an authorized collection agent for every commercial establishment. The implementation plan requires compliance by all commercial locations that generate fifty (50) percent or greater recyclable product in their waste stream.

Each Week, the City of Fresno services over 6,900 businesses with yard/food waste, recycling and trash collection.

## **6.0 Construction and Demolition Recycling**

In June of 2005, the Fresno City Council adopted an ordinance to encourage and provide for the diversion of commercial materials and construction and demolition material from landfill disposal in order to reduce waste and comply with AB939.

The recycling of construction & demolition (C&D) is required for any City-issued building, relocation or demolition permitted project that generates at least 8 cubic yards of material by volume.

Permit holders are required to hire a private collector or solid waste hauler except when there is private collection by any person or company that transports waste and/or recyclables through use of its own transportation, such as a truck and/or trailer without compensation for such transportation. (FMC Section 9-408(c)(1).

Exemptions may be requested in writing to the Solid Waste Management Division at least 14 days prior to application for a City building permit but will only be given for sites that will generate less than 8 cubic yards of waste.

## **7.0 Disposal**

Garbage from the gray cart is taken to Cedar Avenue Recycling and Transfer Station. Once garbage has been off-loaded at the transfer station, the garbage is loaded onto large trucks and taken out to American Avenue Landfill in Kerman.

American Avenue Landfill is owned and operated by Fresno County, beginning operation in 1992 for public and commercial solid waste haulers. It is estimated that the landfill will be able to continue operation until 2031.

## **8.0 Other Waste Reduction/Recycling Programs**

### **Give the Gift of Sight Program**

A program where citizens drop off old eyeglasses or sunglasses to be donated to others. They are cleaned, repaired, and then given to people throughout the world.

### **Donate old Books, Movies, and Music**

Instead of throwing your old books, videos, DVD's, or CD's away donate them to your local library. All branches of the Fresno County Library will gladly accept items that are still in good condition.

### **Old Coats Can Keep Others Warm**

Donate old coats year around to local thrift stores or save them for the annual Coats for Kids drive in November.

### **Take old clothing and furniture to the numerous thrift stores throughout Fresno.**

Salvation Army

Goodwill

Disabled American Veterans Charities of Fresno County

### **Recycle your Dell Computer**

Dell has a free program to collect and recycle its products. Dell owners simply need to register their PCs and peripherals at "Dell product recycling". After registering, owners will be issued a printable, pre-paid shipping label for home pick-up of the equipment by DHL.

## **9.0 Future Plans or options being considered:**

### **Zero Waste Strategic Action Plan**

The purpose of the City of Fresno's Zero Waste Strategic Action Plan is to achieve seventy-five (75%) diversion by 2012 and zero waste by 2025.

The new Zero Waste Goal changes the way the City looks at waste generation, focusing on three components:

- Reduce Up-Stream Wastes - "Waste Avoidance"
- Reuse Mid-Stream Wastes - "Reuse of Discards"
- Recycle Down -Stream Wastes - "End-of-Pipe Diversion"

The City has Target goals of 75% Diversion by 2012 and incrementally increasing by 5% every four years to achieve a 90% diversion rate by 2025.

<b>Key program elements identified from Local Govt. website</b>	
<b>Residential</b>	
	Every week mandatory single stream residential curbside recycling collection
	Weekly residential curbside yard/food (green) waste collection
	Ordinance requires multi-family recycling (collection 2 days a week)
	Notice of Violations/Fines associated with contamination
	The City of Fresno sponsors two HHW drop off events a year
<b>Commercial:</b>	
	Mandatory recycling for business that generate 50% or greater recyclable product in their waste stream
	Schools education program
<b>Construction and Demolition Waste:</b>	
	Recycling of C&D is required for any City-issued building, relocation or demo permitted project that generates at least 8 cubic yards of material by volume
<b>Others:</b>	
	Give the Gift of Sight-a program where citizens can drop off old eyeglasses/sunglasses to be reused
	Donate old books, movies, music to local library
	Old coat can keep other warm-Donating of old coats year round to local thrift stores

**Cited sources:**

<http://www.fresno.gov/NR/rdonlyres/9112A6F3-33A3-428E-9762-6EBC0E0523B7/0/ZeroWasteStrategicActionPlan.pdf>

<http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/SolidWaste/Recycling/Default.htm>

<http://www.co.fresno.ca.us/DepartmentPage.aspx?id=18071>

<http://www.calrecycle.ca.gov/Archive/21stCentury/Events/FutureMar99/issues1.htm>

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**Greensboro, North Carolina  
Waste Reduction Programs  
City of Greensboro Field Operations Department**

**Population served by program: 269,666 (per 2010 census).      Disposal rate per ton: \$41.00**

**1.0 Description of Government Profiled**

The City of Greensboro is governed under a Council-Manager system of government. The City Manager serves as the chief executive officer for the City of Greensboro and is assisted by the Deputy City Manager, an Assistant City Manager for Economic Development, an Assistant City Manager for Community Affairs and Communication, and an Assistant City Manager for Public Safety and Human Resources. Greensboro's Field Operations Department is managed by the Deputy City Manager and oversees solid waste and recycling collection, street and stormwater maintenance, and landscape and mowing services.

The City of Greensboro is located in Guilford County. The County's Planning and Development Department has developed the Guilford County Solid Waste Management Plan (2009), which is currently endorsed by the City of Greensboro.

**2.0 Overall Recycling/Waste Reduction Goals of Local Government**

In 2006, Guilford County and its municipalities established a local waste reduction goal of 0% to be reached by FY 2012-13 and to be maintained through FY 2018-19. In FY 07-08, the County had gotten to within 1% of this goal by achieving a 1.37 ton per capita rate. The County believes that this reduction in waste was due in part to the sharp decline in the economy that has been seen during that time. To achieve the goal of 0% per capita waste reduction in FY 2012-13, Guilford County was planning to modify its per capita disposal rate to 1.35 tons. Based on population projections and using the new per capita rate, the County's future landfill disposal was proposed to be limited to 665,775 tons for FY 2012-13 and 713,875 for FY 2018-19.

**3.0 Residential Waste Management**

**3.1 Single-Family Homes (includes duplexes up to quadraplexes)**

The City of Greensboro provides weekly curbside collection of garbage and yard waste for single-family homes. Recyclables and bulk items are collected every other week.

**3.1.1 Recycling**

Each resident receives a 90-gallon recycling cart that is picked up every other week on the same day as garbage. Greensboro was one of the first communities in the United States to use automated recycling collection. All materials collected from the recycling program are taken to the Re-Community Recycling Center where they are sorted by hand and machines.

In addition to curbside recycling, the City has 20 public recycling dumpsters located throughout the city for use by both residents and businesses. Most of these public recycling dumpsters are located at fire stations, schools, and public parks.

Recycling items collected curbside include:

- Plastic bottles and jugs ONLY (Round plastic containers like yogurt and margarine tubs are not accepted);
- Metal cans (aluminum, tin and steel);
- Aerosol cans (must be empty);
- Newspaper, magazines, catalogs, phone books, mixed paper, junk mail, empty paper bags, corrugated cardboard, milk cartons, drink boxes, scrap paper, (shredded paper is accepted if placed in a paper bag);
- Chipboard or paperboard;
- Glass food and beverage containers from residential customers but not from commercial customers; and
- Rigid plastics such as buckets, milk crates, laundry baskets, plastic toys, and flower pots.

Only plastics that are bottle-shaped (with a mouth or opening that is narrower than the base) are accepted in the City recycling program. Plastics that are not bottle-shaped, such as margarine tubs or yogurt containers, are not recyclable in the Greensboro program. According to the Greensboro website, the manufacturing processes used to create the different shapes results in containers with incompatible properties. Bottles and jugs are made through a process called blow-molding, whereas other plastic containers, such as yogurt containers, are made through a process called injection-molding. Greensboro's recycling process can not sort out the materials made from the separate process. When plastic resins produced by the different processes are mixed together, the resulting product is not usable for either application.

White goods can be collected curbside by appointment. All white goods are transported to the Guilford County Scrap Tire and White Goods Collection Facility, located on Bishop Road. In addition, a drop-off site for appliances has been opened at the Northeast Fire Station, located on Jackson School Road in Brown Summit, NC.

Scrap tires can be dropped off at the Guilford County Scrap Tire and White Goods Collection Facility. In addition, the State of North Carolina has enacted a point-of-purchase disposal fee on tires.

### **3.1.2 Yard Waste**

North Carolina law requires yard waste to be separated from trash and recycling. The City of Greensboro provides curbside yard waste collection to single-family homes weekly on the regular garbage collection day. Collected yard waste is transported by city trucks to Greensboro's composting facility located at the City's White Street Landfill.

The City of Greensboro Field Operations Department conducts its annual Loose Leaf Collection Program from mid-November to the end of January. The collected leaves are transported to the White Street Landfill, where they are made into compost.

After the holiday season, Christmas trees are collected by the City based on the regular trash collection schedule and transported to the composting facility at the White Street Landfill. As an alternative, trees can be hauled directly to the White Street Landfill by residents, but normal yard waste disposal fees would apply. In addition, Guilford County has three drop-off sites for free Christmas tree disposal, each of which is open until January 15<sup>th</sup>. These sites include the Guilford County Prison Farm in Gibsonville, the Piedmont Triad Farmers' Market, and the Tabernacle United Methodist Church.

### **3.1.3 Single-family Garbage (up to quadraplex)**

The majority of residential waste collection in Greensboro is performed with automated waste collection vehicles. Single-family homes receive a free 90-gallon roll-out trash cart for waste storage. Additional carts can be purchased for \$70 if needed. Bulk trash, such as furniture and mattresses, are collected every other week, at the same scheduled time as recyclables pick-up.

A small number of communities in Greensboro are still manually collected. When the City of Greensboro switched to automated collection, some communities could not receive automated service due to narrow streets or parking issues. As a result, these communities have continued to receive manual collection. In these communities, residents must provide their own 32-gallon trash can; however, the City will provide plastic green recycling bags for residents in these communities.

In FY06-07, the City of Greensboro eliminated the disposal of MSW at the White Street Landfill in conjunction with the opening of a transfer station owned by the City. The transfer station began operations in September 2006. All MSW from the City of Greensboro (approximately 240,000 tons per year) is transported from the transfer station to the Uwharrie Environmental Landfill located in Montgomery County, North Carolina.

Because permitted MSW landfill space is extremely limited in the County, and because the waste being transferred out of the county goes to a privately owned MSW facility that has a limited capacity remaining, future disposal is a serious concern for Guilford County. In FY 06-07, County staff initiated a regional solid waste planning group that now includes representatives from surrounding counties. As of the writing of the 2009 Guilford County Solid Waste Management Plan, meetings of the group had resulted in minimal interest in a regional disposal plan, but talks continue.

## **3.2 Multi-Family**

On March 1, 2005, the City Council approved changes to Chapter 25 of the City ordinances allowing the City to provide trash collection services to attached units (townhomes or patio homes) that are capable of receiving automated collection service. Existing townhome communities that currently receive private trash collection service may be eligible to convert to City service if they meet certain criteria. However, before the City can take over private solid waste collection service, it must publish notice of its intention in the local newspaper and place the issue for discussion on the City Council agenda. In addition, there is a minimum 15-month waiting period before City service can begin.

Guilford County does require all licensed garbage collectors that collect waste from multi-family homes to provide recycling collection as part of their service. Each company has their own list of acceptable materials, but all companies collect aluminum and metal food and beverage cans, plastic bottles labeled with #1 PETE or #2 HDPE, and newspaper. Some services also collect cardboard, magazines, office paper, and chipboard.

## **4.0 Business/Commercial**

### **4.1 Business/Commercial Recycling**

In North Carolina, about 60% of solid waste comes from local commercial and industrial businesses. To reduce this amount, the City of Greensboro has implemented its Team Recycle Program, wherein the City provides recycling collection as long as the business provides its own dumpster. Recycling collection fees range from \$30-\$60 per month, based on the amount of collections required per week.

Acceptable materials include the following:

- Office and computer paper;
- Newspapers and magazines;
- Corrugated cardboard and chipboard (flat cardboard);
- Plastic food and beverage bottles;
- Aluminum and tin (steel) cans;
- Empty aerosol cans; and
- Hard plastics (laundry baskets, buckets, etc).

At this time, glass is not accepted for recycling from commercial dumpster locations.

If the dumpster is contaminated with garbage or other unacceptable materials, the City will not empty the dumpster until the unaccepted items are removed. Once the contamination is removed, the City will inspect the dumpster and will restart service on the next available service day.

During the 2005 legislative session, the North Carolina General Assembly passed House Bill 1518, requiring holders of certain ABC permits (liquor licenses) to recycle all beverage containers. On January 1, 2008, House Bill 1518 became effective, requiring most bars and restaurants to recycle all beverage containers. Although there is no requirement in the bill for local governments to provide recycling collection of beverage containers to bars and restaurants, the City of Greensboro does provide recycling service, if requested, to permit holders in the Central Business District (CBD) and to permit holders that currently receive trash or recycling dumpster service from the City of Greensboro. ABC permit holders can contact their current waste hauler and other recycling service companies to find other options.

### **4.2 Business/Commercial Garbage**

The City of Greensboro does provide commercial collection of wet and dry garbage. Collection fees range from \$97-\$257 per month for each stationary container, based on the amount of collections required per week.

## **5.0 Schools**

Recycling is part of the North Carolina core curriculum and fits into the second grade science program. The 2<sup>nd</sup> Graders and Recycling program, is a hands-on presentation that teaches children about the importance of recycling; the meaning behind the three arrows in the recycling symbol, the components of the waste reduction process (Reduce, Reuse, Recycle); what is recyclable in Greensboro's program; and what happens to recyclables when they leave their home.

As part of America Recycles Day (November 15), schools in Greensboro participate in the Ca\$h and Cans Recycling Challenge. The challenge is open to all elementary and middle schools within the city limits of Greensboro. Students collect aluminum beverage cans, place them in clear plastic bags, and bring them to the Re-Community Recycling Center located at 706 Patton Avenue. Schools that collect the most aluminum cans prior to America Recycles Day win a trophy, a check for the amount of aluminum collected, and a celebration event for their school at Proehlfic Park Family Sports Complex & Fitness Center.

The City of Greensboro Field Operations Department offers several opportunities for teachers, organizations, and individuals to learn about recycling and waste reduction. Presentations are given on weekdays, except Wednesday, at the Re-Community Recycling Facility. Free nights and weekend recycling presentations are held at the Bur-Mil Park Wildlife Center.

The City of Greensboro website contains links for interactive ways to teach kids about recycling. For young adults, the City of Greensboro promotes the RE<sub>3</sub> campaign, a social marketing-based promotion designed to increase participation in recycling. Recycling coordinators across the state of North Carolina use RE<sub>3</sub> materials in their programs, presentations, and interaction with the public to reinforce recycling concepts and to promote positive behavior change.

In addition, Guilford County makes classroom recycling lessons available to elementary, middle, and high school teachers, and encourages and provides assistance with administrative and classroom recycling programs. The Cooperative Extension Service visits area schools and demonstrates landfill processes, and conducts a program that demonstrates composting. In FY06-07, County staff worked with the school system curriculum and instruction directors to have recycling designated as part of both the 2<sup>nd</sup> and 5<sup>th</sup> grade standard course of study. The County has continued to provide a recycling assembly program to an average of eight elementary schools per fiscal year.

## **6.0 Construction & Demolition (C&D) Waste**

The City of Greensboro owns and operates a C&D Landfill (the White Street Landfill). The White Street Landfill accepts only construction debris and yard waste. Tipping fees are \$10 per car and \$31 per ton for all other vehicles.

Solid waste crews do collect small amounts of construction debris from do-it-yourself home improvement projects. The collection of building materials is limited to two 32-gallon containers per job. If the remodeling project involves a large item, the homeowner can request a solid waste supervisor to inspect the material for possible collection.

## **7.0 Event Recycling**

As of the 2009 update to the Solid Waste Management Plan, the City of Greensboro did not perform any event recycling. However, following the 2006 update to the Solid Waste Management Plan, Guilford County purchased a small number of event recycling containers, and staff began approaching coordinators of community events about recycling.

## 8.0 Waste Prevention (Source Reduction)

In 2008, North Carolina announced a new goal of 2 million tons recycled annually by 2012. In order to reach this goal, the North Carolina Division of Pollution Prevention and Environmental Assistance (DPPEA) calculated Guilford County must increase its per capita recycling rate of 337.18 pounds by 114.27 pounds, or 34%. In the development of the 2009 Guilford County Solid Waste Management Plan, an online solid waste questionnaire was designed to encourage public input. An overwhelming majority of responses received indicated that the public was unaware of upcoming landfill bans on rigid plastic bottles, use oil filters, wooden pallets, and e-waste. As a result, Guilford County has committed to the development of a **public awareness campaign**, which will be coordinated with DPPEA's public education efforts. In addition, the County is working with local recycling centers in an effort to ensure that all rigid plastic bottles will be accepted for recycling.

**Backyard composting** remains the least expensive way to remove organics from the waste stream. The Cooperative Extension Service (held at Guilford County Agricultural Center) provides solid waste and recycling educational opportunities for residents, including classes on backyard composting, vermicomposting, and grass-cycling.

In 2008, Guilford County obtained private funding (through Volvo) to produce a **solid waste services guide** that includes information about solid waste and recycling for the city of Greensboro and surrounding municipalities. In addition, environmental educators are on County staff to promote community understanding and use of waste reduction programs.

Greensboro sponsors and promotes local events in the spring (**Great American Clean-Up**) and fall (**NC Big Sweep**) that enlist community in efforts to clean up neighborhoods and waterways. Guilford County and the City of Greensboro continue to sponsor a **Spring Cleanup Day** where County residents can dispose of scrap tires, white goods, HHW, and pesticide containers. Greensboro operates an **Adopt-a-Street** program which allows residents to play an active role in keeping Greensboro clean. In addition, according to the 2009 Solid Waste Management Plan, Guilford County had intended to promote the NCDOT **Swat-a-Litterbug** program.

## 9.0 Facilities

### 9.1 Disposal

In July 2001, Greensboro's City Council voted to not permit any further expansion of the City-owned White Street Landfill for MSW and to actively pursue alternatives. The decision was in response to ongoing complaints from residents about the landfill's appearance, odors, and truck traffic. The City Council looked at options for trash disposal and held public hearings to get resident input. After reviewing the costs and environmental impacts of the different options, the Council voted in February 2003 to build a City-owned transfer station at 6310 Burnt Poplar Road.

Construction of the transfer station began in August 2005 and was completed in September 2006 at a cost of \$8 million. The 9.4-acre site includes a main building that is about 36,000 square feet and a scale

building that is 400 square feet. The transfer station can process up to 1,200 tons of trash per day. Construction debris is accepted at a fee of \$41 per ton.

The transfer station is staffed by City employees who load collected trash into tractor-trailer trucks operated by Hilco Transport Inc of Greensboro. Hilco transports the waste 73 miles and unloads it at the Uwharrie Landfill in Mt. Gilead, North Carolina, which is operated by Republic Services. Republic Services and Hilco Transport were both chosen through a competitive bid process and were selected as the lowest cost option for the transportation and disposal of the City's waste. Both vendors have five-year contracts with the City.

The original hauling contract awarded to Hilco, Inc. was \$1.694 per road mile plus a fuel adjustment and annual CPI adjustment. The original tipping fee for the disposal contract awarded to Republic Services of North Carolina was at a rate of \$19.76 per ton of waste for the City's projected 160,000 tons annually.

On July 20, 2011, the City of Greensboro issued an RFP to provide the City with landfill operations services for the management of municipal solid waste at the White Street Landfill. On Tuesday, September 20, 2011, after much public debate, the City Council unanimously voted to continue its contract with Republic Services until the end of the year. Future plans for waste disposal are currently being discussed.

The White Street Landfill continues to accept only construction debris and yard waste. Tipping fees for cars are \$10 per car for both construction and demolition debris and yard waste. All other vehicles are required to pay a tipping fee of \$31 a ton for C&D and \$40 a ton for yard waste.

Greensboro also provides a **Household Hazardous Waste (HHW)** and **e-waste disposal** program through ECOFLO, Inc. at the company's Greensboro facility on Patterson Street. The program includes disposal of used oil filters, computer equipment and televisions. Use by commercial entities is prohibited.

## **9.2 Recycling Processing**

All materials collected from the recycling program are taken to the Greensboro Re-Community (formerly FCR) Recycling Center where they are sorted by hand and machines.

White goods can be collected curbside by appointment. All white goods are transported to the Guilford County Scrap Tire and White Goods Collection Facility, located on Bishop Road.

The City of Greensboro does not dispose of used tires; however, they may be disposed of at the Guilford County collection facility on Bishop Road, through a program administered by the Guilford County Planning and Development Department. Residents may bring a limited number of regular size automobile and truck tires for disposal at no charge. Businesses and waste haulers may also use the facility, provided they are properly registered and bring the appropriate regulatory paperwork. Tires that are not eligible for free disposal will incur a fee of \$0.73 per passenger vehicle tire, \$3.65 per heavy truck tire, or \$0.0365 per pound for oversize tires.

## **9.3 Composting**

The City of Greensboro operates a compost operation at its White Street Landfill. The compost facility is open Mondays through Fridays from 7:50AM to 4:30PM, and Saturdays from 7AM to 12:30PM. Compost and mulch are sold on site at \$20 per ton (bulk/dump trucks) or per load (pickup truck load). Yard waste and also be dropped off directly at the compost facility, though a fee of either \$10 (cars) or \$40 per ton (all other vehicles) is required.

The City's compost is made predominantly from residential yard waste, tree clippings, grass clippings, and leaves (Type 1). The process takes place on approximately 10 acres within the White Street Landfill. The City receives about 35,000 tons of raw materials each year. Out of that amount, approximately 24,000 tons is processed into compost and the remainder is converted to mulch.

After receiving the material, a grinder capable of grinding trees up to 30 inches in diameter grinds the material into about two-inch size pieces. The material is then put into windrows about 20 feet wide, 165 feet long, and 8 feet high for curing. After about 8-10 weeks, the product is run through a trammel screen to separate the finer particles for bags.

#### **Sources:**

The City of Greensboro's Field Operations website: <http://www.greensboro-nc.gov/index.aspx?page=466> and all reports, documents linked to the website.

2009 Guilford County Solid Waste Management Plan

Greensboro, North Carolina News & Record website: [http://www.news-record.com/content/2011/09/21/article/gate\\_city\\_waste\\_services\\_drops\\_bid\\_to\\_run\\_white\\_street\\_landfill](http://www.news-record.com/content/2011/09/21/article/gate_city_waste_services_drops_bid_to_run_white_street_landfill)

Some text may have been taken directly from documents available through the profiled government's websites and Mecklenburg County wishes to give full credit to the web and document authors.



**Indianapolis, Indiana  
Department of Public Works'  
Waste Reduction Programs**

**Population served by program: approximately 800,000**

**1.0 Description of local government profiled**

The Indianapolis Department of Public Works (DPW) serves approximately 800,000 people in Marion County. The reduce, reuse and recycle program resides within the Office of Sustainability which is under the DPW and provides waste management services for 264,700 residential units.

**Staffing Requirement in Full Time Equivalents**

The City has three types of collections:

- 1) Curbside collection performed by a private contractor and is on a subscription service between resident and private contractor.
- 2) The City has a drop-off program. Under this program, there's a staff of four drivers for the weekday operations. A contractor performs weekend service with a staff of four.
- 3) Internal recycling: The City has a staff of two that collects from internal departments.

**Waste Disposal Rates for Indianapolis, IN (Tipping Fees)**

- Disposal Rate per Ton (Residential): Covanta Waste to Energy is \$27.50 per ton. Landfill is 28.50 per ton.
- Disposal Rate per Ton (Commercial): Landfill is \$16.00 per cubic yard. Transfer stations range from \$32.00 to 38.00 per ton.

**2.0 Residential Waste Management**

Indianapolis has 12 solid waste districts, excluding Lawrence, Speedway, Beech Grove and Southport. There are three service providers covering these 12 districts.

**Curbside Recycling**

The City of Indianapolis offers a wide range of options for recycling and properly disposing of waste, from curbside recycling, to drop off recycling, to proper management of household hazardous waste. The City attempts to help the residents and businesses of Indianapolis manage natural resources in the best possible way through education of its programs as well as opportunities with other organizations and businesses. It is estimated that roughly 60% of household materials are accepted in Indianapolis' recycling programs.

The City of Indianapolis offers bi-weekly curbside recycling to all Indianapolis residents. The curbside program is offered on a subscription basis at \$6.75 per month. In most cases, when households subscribe to this service, they receive a 96-gallon rolling cart for the placement and collection of recyclable materials by trucks with automated pick-ups.

Recycling items collected curbside:

- Newspapers and magazines(bundled and tied, or in a paper bag)
- Glass

- Plastics, 1 -7, except Styrofoam
- Paper & Cardboard
- Aluminum, tin and steel beverage and food cans

Cardboard is not recycled and is considered trash for the curbside program.

In 2010, there were 15,437 subscribers. Total curbside recycling for 2010 was 4982 tons.

### **Processing of Recyclables**

Recyclables are taken to a local recycling processor.

### **Pedestrian Recycling**

There are several pedestrian recycling containers throughout the streets of Indianapolis. Some are located in central downtown, Broad Ripple and on Massachusetts Avenue. The city hopes to continue current efforts and have the number of recycling containers grow. These containers accept bottles and cans. They are designed to redirect common pedestrian waste to be recycled.

### **Electronics Recycling and Household Hazardous Waste**

The City of Indianapolis has a program called [ToxDrop](#) for all city citizens where you can drop off your electronics and household hazardous waste to be recycled and/or disposed of properly. Residents are limited to disposing of five (5) computer systems per visit.

A state disposal ban on electronics went into effect on January 1, 2011.

The act of improperly disposing of household hazardous waste (HHW) and eScrap items, including leaving them at the [ToxDrop](#) sites outside of the noted hours of operation, is considered illegal dumping.

### **Household Hazardous Waste**

Citizens of Marion County properly dispose of all their unwanted and unused household hazardous waste (HHW) through the ToxDrop program. Over the last decade, the ToxDrop program has diverted annually in excess of 1.0 million pounds of HHW from the city's sewers, waterways, and landfills. ToxDrop is an Indianapolis/Marion County program managed by the Department of Public Works.

Residents are limited to disposing of twenty-gallons (20) of liquid waste or seventy-five (75) pounds of solid waste, per visit.

Throughout the year, ToxDrop partners with community organizations to host ToxAway and eScrap events.

### **Recycling Drop-Off Programs**

There are 27 recycling drop-off locations throughout Indianapolis/Marion County. The drop-off sites accept all colors of glass, No. 1 – No. 7 plastic containers (except Styrofoam), aluminum, tin, steel beverage and food cans, newspapers and magazines. Plastic bags cannot be placed in the containers.

### **Leaf Collection and Christmas Trees**

The Department of Public Works conducts the annual Leaf Collection Program from November 7 – December 2. Each household is permitted 40 bags of leaves for weekly disposal.

This program helps the Indianapolis/Marion County environment by turning the leaves into useable compost, offered free to citizens, to help strengthen and beautify lawns and gardens county-wide.

The City participates in composting organic waste in the following ways:

- Christmas trees are chipped every year to make mulch for IndyParks landscaping.
- Leaves collected around the City each fall are sent to South Side Composting and can be used by any Marion county resident for personal use. (2561 Kentucky Ave., 317-247-6808)

Shrubbery cuttings, small limbs and twigs are considered “trash” and are not collected with the leaf program.

## Residential Garbage

In Marion County, there are two types of trash collection: **automated pick-up** (when the truck picks up your can with a mechanical arm) or **manual collection** (when a crew member manually picks up your can to empty it into the truck).

Effective January 1, 2011, Indiana households, public schools and small businesses will no longer be able to mix unwanted computer monitors, computers, televisions, printers, computer peripherals (i.e., keyboards, mice, etc.), DVD players, video cassette recorders or fax machines with municipal waste that is intended for disposal at a landfill or intended for disposal by burning or incineration.

### Accepted for collection:

- Bagged household garbage - including food waste and cloth.
- Shrubbery Cuttings - tie small limbs and twigs in bundles no larger than 3 feet by 3 feet. For those with automated pickup, the bundle should be placed in the cart. For those with hand collection, the bundle counts as one bag of trash.
- Boxes - empty boxes, flatten and tie into bundles. For those with automated pickup, bundles should be placed in the cart. For those with hand collection, the bundle counts as one bag of trash.
- Vehicle tires without rims - for those with automated pickup, the tire should be placed in the cart. For those with hand collection, the tire counts as one bag of trash. Tires with rims count as one item of [heavy trash](#).

### Unacceptable for collection:

- Loose trash - place ALL trash into bags.
- Used motor oil and paint - take these items to your local ToxDrop site.
- Debris from construction or demolition, including discarded building materials such as: drywall, roofing, brick, stone, roofing material and wood. Some materials may be recycable or reusable. Otherwise, make arrangements to have the material taken to the landfill.
- Trees - large tree limbs or tree stumps.
- Brush and vegetation created by building contractors, commercial tree or lawn services.
- Sod, fill dirt and trash from a contractor’s clearing work, including other materials that require special handling.
- Explosives - Call IMPD and ask for the bomb squad at 327-6502, and make arrangements for them to be picked up or brought in.
- Tanks used for storing propane and other gases.

- Electronic items such as computers, computer-related parts and cell phones may be dropped off at the city's regular ToxDrop locations. Other electronic items such as televisions and stereos should be taken to one of our special eScrap events.
- Ashes and sand - make arrangements to have the material taken to the landfill.
- Medical, pathological and biological waste - for information regarding the disposal of these wastes, ToxDrop.
- Automotive parts - such as engines, gas tanks, rear bumpers, springs, fenders and seats. Make arrangements with a private junk yard.
- Farm equipment, marine vessels or any of their major parts - make arrangements with a private junk yard.
- Septic, human and animal waste. (NOTE: minimal amounts, like diapers and kitty litter, are okay, provided they are securely bagged).

If legally unacceptable items are placed at the curb, a DPW informational tag (in both English and Spanish) is left on the can to notify the resident on how they can meet the pickup requirements.

### **Bulky Item Pickup**

Each Indianapolis household may place a maximum of two (2) items of heavy trash out for collection each month. If the home is serviced by DPW crews, heavy trash is collected on a specific day each month. If the home is serviced by a private contractor, heavy trash can be placed by the curb once a month on any of the regular trash days.

Acceptable heavy trash items:

- Household furnishings - couches, desks, tables, chairs, dressers.
- Appliances (without Freon-gas refrigerant) - stoves, water heaters, water softeners. -- Appliances containing Freon require special handling—  
To have a Freon unit collected, empty and disable the appliance and set it out at the curb or alley where your trash is normally picked up. Freon units do not count as part of the monthly two heavy trash items allotment.
- Disassembled bicycles and swing sets.
- Automobile/truck tires mounted on their rims/wheels.
- Lawnmowers - must be drained of all gas and oil.

If citizens have more than two items of heavy trash to dispose of each month, they are instructed to haul them to the Marion County Citizens' Transfer Station.

The cost to drop-off a safely-loaded car-load is \$2.00 and the cost for a pickup truck load is \$5.00. Trailer loads are not permitted. Only regular or heavy trash items are accepted.

### **Neighborhood Cleanup**

The Department of Public Works' solid waste services division partners with many neighborhood organizations and Keep Indianapolis Beautiful to take part in the Great Indy Clean-up as a part of the nation-wide Great American Clean-up. These neighborhood clean-up events give residents the opportunity to spruce up their own part of town while DPW assists by providing heavy-equipment and dumpsters.

### **3.0 Business/Commercial**

Indianapolis/Marion County do not have a business/commercial recycling program. However, the Greater Indianapolis Chamber of Commerce's Green Business Initiative promotes "green" business practices including recycling.

#### **Internal City/County Recycling Program**

The City of Indianapolis/Marion County has an internal policy for waste reduction and recycling governing the practices of their employees.

In 2010, 106 city/county buildings had recycling services available including police and fire stations.

### **4.0 Construction & Demolition (C&D) Waste**

The Office of Sustainability is developing policies, programs and initiatives to promote green building practices. There are currently no programs or information provided by the City to recycle construction/demolition waste.

### **5.0 Event Recycling**

**The City of Indianapolis does not provide event recycling support.**

Keep Indianapolis Beautiful (KIB) does provide recycling support for special events. KIB provides portable recycling collection bins (called ClearStreams) for events. Citizens provide a credit card deposit for the use of the bins. There is NO CHARGE to the credit card as long as the bins are returned in a timely manner. The credit card is charged \$55 per bin damaged or not returned. To ensure that they can accommodate everyone's requests, a \$10 late fee is charged each week the bins are not returned after the "Return Date" indicated on the paperwork. Also, KIB does not have the resources to clean the containers, so a \$25 fee is charged for bins that come back too dirty/sticky to loan out again. These containers require a special sized liner, which is 40" x 46". KIB provides one free liner per bin borrowed. Each additional liner after that costs \$1.00 each.

### **6.0 Facilities**

The City has a contract with a private vendor for processing recyclables.

Yard waste is collected with the trash and taken to the Waste to Energy Facility all year except for the limited fall leaf program which runs one month in November. During that time, the yard waste is taken to a local vendor where it is turned into compost.

The City uses a Waste to Energy Facility for the 264,700 residents who receive curbside service.

### **7.0 Litter**

The City of Indianapolis and Keep Indianapolis Beautiful, Inc. join together to support The Great American Clean Up. In this one day event, residents hit the streets to pick up all the litter and trash that clutters their beautiful city.

## **8.0 Other programs – Not part of City of Indianapolis**

### **KEEP INDIANAPOLIS BEAUTIFUL PROGRAMS**

#### **Recycle and Reuse Locations in Indianapolis**

Keep Indianapolis Beautiful maintains the online **Recycle and Reuse Guide** to inform residents of local companies and organizations that accept materials for recycling/reuse. Residents are urged to donate any usable items to non-profit organizations like Goodwill, AMVETS, Salvation Army, and Habitat for Humanity's ReStore.

#### **Project ReDirectory**

Participating schools collected 50.45 tons of phone books for recycling this year in KIB's Project ReDirectory Phone Book Drive.

#### **NeighborWoods Program**

Through the collaborative efforts of The Kroger Company, the Abitibi Bowater Corporation and Keep Indianapolis Beautiful, Inc., the residents of Marion County are helping to restore the tree canopy of Indianapolis by recycling their newspapers and junk mail. Abitibi's PaperRetriever.com program pays non-profit organizations for the recyclable paper materials they collect. The Kroger Company has placed PaperRetriever.com collection bins at each of their Marion County locations, all of which directly support KIB's NeighborWoods program. Residents are able to help raise the funds needed to purchase trees that will be planted in Marion County by dropping their paper for recycling at their local Kroger store.

### **Sources**

Documents available through the profiled government's websites (e.g., Solid Waste Management Plan) including:

<http://www.indy.gov/eGov/City/DPW/Residential/Recycling/Pages/home.aspx>

Some text may have been taken directly from documents available through the profiled government's websites and Mecklenburg County wishes to give full credit to the web and document authors.

## **Jacksonville/Duval County, Florida Solid Waste**

**Population served by the program: Approximately 950,000**

### **Description of Government Profiled**

Jacksonville is the largest city in the U.S. state of Florida in terms of both population and land area, and the largest city by area in the contiguous United States. It is the county seat of Duval County, with which the city government consolidated in 1968.

The city has a recycling program with separate pickups for garbage, yard waste and recycling. Collection is provided by several private companies under contract to the City of Jacksonville.

Due to the consolidation of services, the employee who oversaw waste reduction/recycling was cut due to budget constraints and has not been replaced.

The Solid Waste Division of the Department of Public Works is responsible for disposing of trash. It plans, builds and operates sanitation and solid waste management facilities in Jacksonville and manages solid waste removal activities. Solid waste collection is funded through a solid waste fee, which is billed to single family residences of four units or less. This non-ad valorem based fee is included on property tax statements and is equal to \$12.65 per month. Prior to 2008, solid waste collection and disposal were funded by the City's general budget. In response to the expected shortfalls in ad valorem revenue, Jacksonville established a separate user fee to solely fund solid waste collection.

The Solid Waste Division is separated into three operational activities categories: Collection, Disposal Operations and Sanitary Services. Collection provides residential curbside collection of garbage, yard waste and recycling (blue bins, appliances and tires). This activity also provides limited commercial collection of garbage and yard waste from small businesses within the former core city area. Contracts are administered with three private garbage haulers for residential collection of garbage, yard waste and recycling services throughout the General Services District.

Disposal Operations oversees landfill operations, the yard waste processing facilities, and the Household Hazardous Waste program. In addition, this activity handles landfill closures and ongoing maintenance after closures for the East, North, and Trail Ridge landfills. They also assess and remedy contaminants found at other closed landfills.

Sanitary Services monitors and collects litter and illegal dumping along the streets and public rights-of-way.

The diversion rate from Landfill is a 75% State goal by 2020. By the end of 2012, the State's goal is a 40% diversion rate.

### **Facilities**

Trail Ridge Landfill services the City of Jacksonville and the Duval County area of Northeast Florida. The site is owned by the City of Jacksonville, and Waste Management has a life-of-site operational agreement with the city. The site is a Class I landfill permitted to accept non-hazardous municipal solid waste, including household garbage, commercial waste and special waste. It is also permitted as a waste tire processing site. Trail Ridge Landfill receives approximately 2,500 - 3,000 tons of waste daily. Transfer stations are not used. Regular waste

(household garbage and building materials) is charged at a rate of \$29.87 per ton, which is prorated based upon the actual weight of the waste disposed. The facility is open to the public from Monday through Saturday.

During the active life of the landfill, a landfill gas collection system is installed and expanded as required. Once the gas is collected, it is piped to an on-site landfill gas-to-energy plant. The gas-to-energy plant will continue to operate for many years once the landfill is closed.

Jacksonville currently contracts out its MRF operations and is being paid \$41.00 per ton for collected materials. Southland Recycling is the selected vendor; they have a 5-year contract.

At one time, the City operated a mulch facility, but this location is now closed.

### **Single Family Residential:**

Jacksonville has a curbside weekly collection program. Ordinance states that residents shall place trash, garbage and recycling separately at curbside, but there is no enforcement on curbside recycling. A second day of garbage collection is available for a fee. According to the Solid Waste Compliance Manager for the City of Jacksonville, the estimated participation rate is 25-28%, but there are not any statistics available to corroborate this number. The Florida Department of Environmental Protection reported a single-family curbside recycling participation rate of 54% in 2009. Yard waste is also collected curbside, with garbage and yard waste placed in standard 20-32 gallon cans or sealed plastic bags. Furniture and other bulky items are also collected curbside. However, residents must call to schedule the collection of appliances or tires (up to four). Recyclable items should be placed in blue bins or paper bags.

#### Limitations of Curbside Program:

- Containers must be 40 pounds or less
- The City no longer provides blue recycling bins; new residents can use paper bags or comparably size 18-gallon plastic bins
- Yard waste is limited to five cubic yards per week, with limbs not to exceed five feet in length or six inches in diameter (tree removal and trimming services are required by ordinance to remove any yard waste they generate)
- Building materials are limited to one cubic yard per week, not to exceed five feet in length (only allowed if construction work performed by homeowner)
- Used oil is prohibited by law from being disposed of in landfills (residents are advised to contact local oil retailers)

#### The following recyclable materials are collected:

- Plastic food, beverage, detergent bottles and jugs with necks and screw-on tops that are labeled with a 1 or 2. (Please place tops/lids in garbage; no butter tubs or similar items)
- Glass bottles & jars (green, brown and clear)
- Metal & aluminum cans
- Newspapers & inserts (on rainy days, hold for next collection day)
- Magazines, catalogs & telephone books
- Brown paper bags can be placed in the recycle bin or be filled with additional recyclables.
- Corrugated cardboard must be flattened and cut in pieces 2' by 3' or smaller.

Currently, the City does not have a food waste program; however, they do encourage and provide tips for composting and maintaining a countertop compost bucket.



## **Business/Schools/Multifamily**

Commercial and Multi-Family (4 units or more) includes schools, institutional, government buildings, churches, retail, light and heavy manufacturing facilities, warehouse, transport and logistical facilities, processing facilities, restaurants, entertainment facilities, maritime facilities, rail, bus and transportation facilities, airports. The Solid Waste collection and disposal for these entities is provided, for the most part, by non-residential franchise haulers. The city only provides waste collection services for a fee to small commercial entities that generate no more than 10 cans or bags of waste per collection.

Small commercial business accounts must make their own arrangements for the disposal of appliances, tires and building materials. These items are not included in the service contract. Businesses may either arrange for collection and disposal through an independent waste hauler or take items to Trail Ridge Landfill themselves. Commercial businesses may also take their appliances to the City's Appliance Center. Tires can be disposed of at American Rubber Technologies. Yard waste collection is included in the small commercial business service contracts.

As far as industrial waste and /or sludges, independent agencies and institutions that generate these wastes are responsible for industrial waste and sludge disposal with some entities transporting the materials to the City owned landfill for disposal.

There are no measuring metrics to provide other than total tonnage received at the landfill from these types of customers

## **Construction/Demolition:**

The goal for construction and demolition diversion is 80%. All C&D facilities in the County are required to meet a diversion rate of 80%. In order to attain this, education and recycling requirements for processing, treatment and disposal facilities through local ordinances needs to be implemented, as well as inspections of the facilities by Solid Waste personnel. The measurements are correlated as total tonnage out, either processed or disposed of, as a percentage of tonnage in.

## **Household Hazardous Waste (HHW)**

There is only one HHW drop-off facility located in the County. As of May 3, 2011, hours of operation are Tuesday through Saturday, 8 a.m. until 5 p.m. However, during 2011, the Solid Waste Division will host six household hazardous waste and electronic waste (e-waste) mobile collection events throughout the city. Most household appliances are collected and recycled. Used oil, fluorescent light tubes, CFLs, auto batteries and small home batteries are stored at a dedicated household hazardous waste facility for off-site transport, disposal and/or recycling by subcontractors.

Types of HHW collected at the drop-off facility and mobile collection events:

- Paint, paint thinners & strippers
- Rechargeable batteries
- Photographic chemicals
- Thermometers and thermostats
- Drain cleaners
- Pool chemicals
- Aerosol cans
- Pesticides
- Antifreeze
- Fertilizer
- Acids
- Gun powder, Ammunition & fireworks
- Fluorescent bulbs and tubes, including CFL
- 20-pound propane cylinders

Types of e-waste collected at the drop-off facility and mobile collection events:

- Televisions\*
- Computer monitors\*
- Computer terminals
- CPUs
- Keyboards
- Printers
- Scanners
- Stereo equipment
- Radios
- VCRs
- DVDs
- Camcorders
- Desk and mobile phones
- Pagers
- Power tools
- Small kitchen appliances (i.e. microwaves, toaster ovens)
- Health and beauty appliances

\*There is a limit of 3 Cathode Ray Tubes (CRTs) and televisions per customer.

E-waste items will also be collected as part of normal garbage collection service if left at the curb. However, once these items enter the waste stream with normal garbage they cannot be recycled and are disposed of in the landfill. These items are only collected from residences. Businesses should check for available recycling centers to arrange for the recycling and/or disposal of any e-wastes.

### **Litter**

Clean It Up, Green It Up helps improve the quality of life through development and implementation of community improvement initiatives. These programs support beautification, education, reduction of litter, recycling, improvement of waste handling practices and natural resource conservation. Such programs foster community pride and galvanize community support for initiatives intended to restore, maintain and enhance the beauty of Jacksonville.

The City assists community groups interested in participating in volunteer cleanup events or organizing and planning volunteer neighborhood cleanup projects. Organized volunteer groups can qualify for free support materials such as trash bags, gloves. Arrangements can also be made to borrow safety vests and litter collection pickup tools. Volunteer cleanup efforts over the last year resulted in 9,857 volunteers participating in 555 cleanups totaling 19,766 volunteer hours valued at \$385,634.66, resulting in the collection of an estimated 13,871 bags of litter and marine debris.

Coordinating efforts included the Florida Great American Cleanup, the St. Johns River Celebration, International Surf Day Cleanup, July 5th Beaches Cleanup, International/Florida Coastal Cleanup, Neighborhood Cleanups, the Adopt-A-Road program and Keep Jacksonville Beautiful.

### **Sources**

Website: <http://www.coj.net/Departments.aspx> and

<http://www.coj.net/Departments/Public-Works/Solid-Waste.aspx>

Reviewed by Solid Waste Compliance Manager for the City of Jacksonville, Florida on 8/10/11

Some text may have been taken directly from documents available through the profiled government's websites and Mecklenburg County wishes to give full credit to the web and document authors.

## **King County, Washington Waste Reduction Programs King County Solid Waste Division**

**Population served by program: 1.28 million (~70% of County pop.) Disposal rate per ton: \$117.82**

### **1.0 Description of Government Profiled**

The Solid Waste Division (SWD) provides garbage transfer, disposal and recycling services for residents and businesses in all of King County, except for Seattle and Milton. SWD also provides household hazardous waste disposal options and recycling education programs for its residents. King County SWD has interlocal agreements with 37 municipalities.

SWD's service area represents about 70 percent of King County's population as a whole. Most of the customers live in incorporated areas of the county. King County customers generate about one million tons of solid waste each year. SWD's customers include commercial haulers, as well as both residential and non-residential self-haulers who use county transfer station facilities. SWD does not provide residential curbside collection.

To represent the many perspectives of the residents and businesses in King County, the division has two advisory committees:

- The Solid Waste Advisory Committee (SWAC) includes interested citizens, as well as representation from public interest groups, labor, recycling businesses, the marketing sector, manufacturing, the waste management industry, and local elected officials; membership is balanced geographically.
- The Metropolitan Solid Waste Management Advisory Committee (MSWMAC) was formed by county legislation in 2004 to establish a process for collaborative participation with the 37 cities that have signed ILAs with the county (KCC 10.25.110). MSWMAC, which consists of elected officials and staff from the cities, began meeting with the division on a monthly basis in 2005. The committee advises the County Executive, the SWIF, and the County Council in all matters related to solid waste management, and participates in development of the comprehensive solid waste management plan.

Information about SWD's history, workings and long-range planning efforts can be found in the "documents" page <http://your.kingcounty.gov/solidwaste/about/Planning/documents-planning.asp> .

### **2.0 Overall Recycling/Waste Reduction Goals of Local Government**

One of SWD's highest priorities is to reduce the overall amount of material that is disposed through the implementation of innovative waste reduction and recycling services - at county facilities and in the communities - and specialized programs. SWD's overall goal is to conserve natural and reusable resources through readily available services and a continued emphasis on public awareness.

In 2009, total waste generation was 1,682,971 tons with 815,490 recycled and 867,481 tons disposed (does not include C&D).

The 2011 SWMP, currently in draft form, has proposed waste disposal goals of:

- Residential/multi-family goal of per capita waste generation of 14.2 lbs./wk. by 2020
- Business/commercial goal of per capita waste generation of 22.9 lbs/wk. by 2020
- Overall recycling rate of 55% by 2015 and 70% by 2020.

The division has chosen to calculate King County's recycling rate based on the known amount of materials diverted from disposal at the Cedar Hills Regional Landfill. As such, it does not include materials such as C&D or car bodies that are handled largely by the private sector. Neither does the division include any estimate of waste prevention, primarily because of the lack of measurable data. The county's recycling rate in 2009, based on the definition above, was 48 percent. If C&D materials were also counted, the rate would be about 49 percent. Adding recycled asphalt and concrete would raise the calculated rate to approximately 62 percent. The rate would be higher still if hard-to-measure materials such as car bodies and land-clearing debris were added.

In 2004, King County adopted "Zero Waste of Resources" as a principle designed to eliminate the disposal of materials with economic value. Zero Waste does not mean that no waste will be disposed; it proposes that maximum feasible and cost-effective efforts be made to prevent, reuse, and reduce waste. The division has been taking steps to eliminate the disposal of materials for which there is economic value and a viable market.

<http://your.kingcounty.gov/solidwaste/garbage-recycling/zero-waste.asp>

The 2011 Plan is recommending required standardization of curbside collection requirements to include standardized materials and food waste added to yard waste. Below is a link to the 2011 SWMP.

<http://your.kingcounty.gov/solidwaste/about/planning/comp-plan.asp>

### **3.0 Residential Waste Management**

King County ensures that garbage and recycling collection and disposal services are available in the unincorporated areas and in 37 of the 39 cities in the county, excluding Seattle and Milton. Seattle provides its own services, and Milton is part of Pierce County's system.

The collection of garbage and recyclables in the county is provided by private solid waste management companies, or haulers, except in Enumclaw and Skokomish, which operate their own collection systems.

#### **3.1 Single-Family Homes (includes duplexes up to quadraplexes)**

##### **3.1.1 Recycling**

A King County ordinance requires all residential customers to pay for recycling as part of their collection services. King County does not provide any curbside service. King County promotes participation of recycling through its website, including where, what and how.

In nearly all areas of King County, recycling is included in the household garbage collection service. Garbage service is a variable rate (PAYT) service depending on the number or size of containers a household sets out. Consequently, King County residents have a clear financial incentive to reduce the amount they dispose and increase the amount they recycle.

As of 2009, curbside recycling was available to more than 99 percent of residents in the county. There are two private companies that service King County (excluding Seattle and Milton), Allied Waste (formerly Rabanco) and Waste Management. The Allied and Waste Management websites state that recycling service is free if the resident subscribes to garbage service. There is a variable rate service for garbage.

Seventy-three percent of the households in King County's service area are single-family homes. In 2009, these single-family households recycled on average about 54 percent of their waste. Almost 95 percent of the yard waste and 75 percent of the paper were recycled by this sector in 2009.

Recycling is collected every other week on the same day as garbage.

Since 2001, the collection companies have transitioned to single-stream recycling, whereby all the recyclable materials are placed in one large cart for curbside pickup.

Residents may also take recyclables to area transfer stations and drop-off locations including those operated by the private sector.

King County's website offers a "what do I do with" feature for recycling that has a pull-down menu...Clicking on an item opens a page with the location, details, and contact information for the reuse, recycling, or proper disposal options available for the material or product. Options are also displayed for participating retailers in the region's Take It Back Network that accept products such as electronics and fluorescent bulbs and tubes for recycling.

In addition to the materials identified for curbside collection in the last comprehensive solid waste management plan – newspaper, mixed paper, and cardboard; tin and aluminum cans; plastic bottles; glass bottles and jars; and yard waste – new materials have been added over time. These materials include polycoated paper, shredded paper, aseptic packaging (such as juice boxes), plastic tubs and jugs, scrap metal, and food scraps and food-soiled paper. The county's service-level ordinance and many city contracts have already been updated to include these materials. Some cities have added other materials for collection, such as electronics, fluorescent bulbs and tubes, and plastic bags.

### **3.1.2 Food and Yard Waste**

Curbside food/yard waste service is provided by individual municipalities and private haulers.

In 2001, the division began working with the cities and collection companies to phase in curbside collection of food scraps and food-soiled paper in the yard waste cart. Compostable food scraps and food-soiled paper, which currently make up about one-third of the waste disposed by single-family residents, include all fruit and vegetable, meat, and dairy products; pastas; breads; and soiled paper used in food preparation or handling (such as paper towels). When these materials are combined with yard waste for collection, the mixture is referred to as organics.

Ninety-eight (98) percent of single-family customers who subscribe to garbage collection now may add food scrap to their curbside yard waste collection. Only Vashon Island and the Skokomish and Snoqualmie Pass areas, which house less than one percent of the county's residents, do not have this service.

Eight cities, comprising about 30 percent of the single-family households in the county, have adopted rate structures that embed the cost of organics collection in the curbside garbage collection fee, providing a further incentive for residents to reduce disposal and maximize use of the recycling options

for which they are paying. In 2008, the average pounds of garbage disposed per household in these eight cities was 17 percent lower than the average for the rest of King County.

The primary processor for nearly all yard waste, food scraps, and food-soiled paper collected in the county is Cedar Grove Composting, Inc.

### **3.1.3 Single-family Garbage (up to quadraplex)**

Weekly curbside garbage service is provided by individual municipalities. Garbage collected by private- and public-sector solid waste collection companies is taken to county transfer stations, where it is consolidated and transported to the Cedar Hills Regional Landfill for disposal

Household garbage collection service is a variable rate (PAYT) service depending on the number or size of containers a household sets out.

### **3.1.4 Single-family Household Hazardous Waste and E-waste.**

Individual municipalities provide recycling collection events.

The “Wastemobile” provides household hazardous waste disposal services for King County residents and accepts a wide variety of materials. Business waste is accepted from conditionally exempt small quantity generators (SQGs). These are typically full weekend events (Friday through Sunday) and occur throughout the area.

Households, small businesses, schools & school districts, small governments, special purpose districts, and charities can recycle electronic products free of charge with the E-Cycle Washington program (a State program).

- televisions
- computers
- computer monitors
- portable or laptop computers including "tablet computers"
- e-readers (also called e-book readers)

Computer peripherals such as keyboards, mice, and printers are **not included** in this program.

## **3.2 Multi-Family**

### **3.2.1 Recycling (multi-family)**

Twenty-seven percent of the households in King County’s service area are in multi-family complexes. Multi-family units receive solid waste collection services from the private sector. It is up to the property manager whether to provide recycling services to the residents.

In 2009, the average multi-family recycling rate in the county’s service area was 10 percent. King County conducted a pilot educational outreach project which yielded mixed results. See the full text of the study at:

<http://your.kingcounty.gov/solidwaste/garbage-recycling/documents/KingCountyMulti-familyReport.pdf>

### **3.2.2 Garbage (multi-family)**

Curbside garbage service is provided by individual municipalities or private providers.

### **3.2.3 Policies and Results (multi-family)**

No policies.

Ten-percent recycling rate for MF households.

## **4.0 Business/Commercial**

### **4.1 Business/Commercial Recycling**

Non-residential generators – businesses, institutions, and government entities – recycled an estimated 63 percent of their waste in 2009.

Businesses must contract with a private hauler to receive recycling service. SWD offers a “business services” portion of their website that assists businesses with setting up recycling, finding a hauler, educating employees, and waste prevention.

### **4.2 Business/Commercial Yard/food waste**

Businesses are encouraged to donate edible food to hunger relief agencies. Businesses are also encouraged to send food waste to composting facilities. King County does not have any requirements for business generated food waste composting, although some of the municipalities within the County may have such requirements.

King County has completed a study of commercial on-site composting. Most on-site composting systems are "in-vessel" meaning they are in a container and they are usually fully contained and vermin resistant.

In order to assess first-hand the benefits and draw-backs of on-site in-vessel composting King County launched a pilot program in 2003 to place in-vessel systems with partnering businesses, organizations, and schools who maintain the systems and provide data and feedback on them to the county.

In 2008, the County contracted for a Recycling Education Campaign: Commercial Sector Outreach Evaluation:

<http://your.kingcounty.gov/solidwaste/garbage-recycling/documents/KingCountyCommercialReport2008.pdf>

The Cedar Grove Composting facility not only processes organic materials into compost, but offers collection of organics to area businesses and sells the finished compost locally. A growing number of cities now offer organics collection to businesses through their existing curbside collection contracts.

### **4.3 Business/Commercial Garbage**

Commercial garbage service is provided by private service providers.

## 5.0 Schools

SWD's Green Schools program provides assistance to over 400 schools and 11 school districts.

Per SWD's website, the program's vision is for "all schools and school districts in King County to practice resource conservation and engage their students and staff in environmental stewardship".

The program is sponsored by King County Department of Natural Resources and Parks, Solid Waste Division and is available to public and private K - 12 schools and school districts in King County (except those within the City of Seattle).

The program offers numerous educational and support services. Essentially, the school progresses through three program levels. The first establishes waste reduction, recycling and hazardous materials management. Level 2 establishes and implements an energy conservation program and level 3 addresses water conservation.

To achieve level 1 status, the school must monitor garbage and recycling and calculate a recycling rate at least twice per year. In addition, the school must initiate 3 waste reduction practices in the areas of paper conservation, organics/compostables and environmental purchasing.

For more information: <http://your.kingcounty.gov/solidwaste/education/index.asp>

## 6.0 Construction & Demolition (C&D) Waste

Debris from the construction, remodeling, repair, or demolition of buildings, other structures, and roads was banned from disposal at county facilities in 1993. Since then, the division has contracted with Waste Management, Inc. and Allied Waste to dispose of and recycle these materials. Between them, the two companies operate six facilities in the region that collect C&D. While initially most of the C&D was collected for disposal, both companies have been increasing their ability to sort and recycle more and more of these materials.

Current contracts with the companies provide monetary incentives to increase their C&D recycling. Materials that can be diverted for recycling or other uses include concrete, asphalt roofing, clean wood, steel and other metals, and gypsum wallboard. With the increase of private-sector recycling facilities in the region, both contractors and homeowners have more options for recycling C&D materials.

Effective April 2009, a statewide rule took effect that requires job sites to have separate containers for recyclable materials and non-recyclable materials (garbage), wherever C&D recycling is being performed. The intent is to reduce contamination in the container slated for recyclable C&D.

In 2009, more than 1 million tons of C&D was generated in King County. C&D includes debris from the construction, remodeling, repair, or demolition of buildings, other structures, and roads. It includes clean wood, painted and treated wood, gypsum wallboard, roofing, siding, structural metal, wire, insulation, packaging materials, and concrete, asphalt, and other aggregates. Of the almost 900,000 tons of C&D diverted from disposal in King County in 2009, over 70 percent – more than 700,000 tons – was concrete, asphalt, and other aggregates. Other materials that are being diverted, either to recycling or beneficial use (see adjacent description), include clean wood and gypsum and small amounts of metals, paper, and other assorted materials.



At the C&D processing facilities, loads are deemed either appropriate or inappropriate for recycling. For loads deemed appropriate for recycling, the materials are sorted for shipment to market. If deemed inappropriate for recycling (typically due to contamination by garbage or materials that cannot be recycled), the materials are transferred directly to a disposal facility. In some cases, easily separated recyclables may be extracted for recycling before the load is disposed.

## **7.0 Event Recycling**

Washington State Law requires beverage vendors at official gatherings and events to provide recycling for single-serving plastic, glass and aluminum containers. Event organizers are also responsible for monitoring and servicing recycling bins during events, and having the recycled items hauled to a Recycling & Disposal Station.

## **8.0 Recycling Grants for Municipal Partners**

The county provides grant funds and technical assistance to cities to help further waste prevention and recycling programs and services within their communities. In 2008, King County distributed about \$1 million in grant funds to cities; these funds are supported by the solid waste tipping fee. All cities in the service area are eligible for the funds. The formula for their allocation includes a base amount plus a percentage based on the city's population and employment.

The grant monies can be used to support a number of activities, including:

- Encouraging and promoting waste reduction
- Continuing to implement and improve general recycling programs
- Improving opportunities for the collection of specific commodities, such as paper
- Improving opportunities for the collection and/or composting of organic materials
- Increasing the demand for recycled and reused products
- Fostering sustainable development through the promotion of sustainable building principles in construction projects
- Managing solid waste generated by public agencies in a manner that demonstrates leadership
- Broadening resource conservation programs that integrate WPR programs and messages
- Providing product stewardship opportunities

## **9.0 Waste Prevention (Source Reduction)**

King County operates an Online Exchange. The goal is to keep relatively inexpensive, re-usable items out of the waste stream. The maximum dollar amount for household items is \$250. There is no price limit in place for reusable building materials.

The county's EcoConsumer program offers resources and incentives to help citizens balance consuming and conserving.

- The cities and the county promote grasscycling and backyard composting to manage yard waste on site.
- Some cities have distributed reusable shopping bags to residents or issued coupons for free bags that can be redeemed at local retail stores.
- School programs teach waste prevention techniques, such as how to pack a waste free lunch.

- The county's Green Holidays program offers tips on giving green gifts, green entertaining and decorating, and recycling, reuse, and energy savings during the holiday season.
- The county is working with architects and other design professionals to incorporate the concept of design for disassembly – a forward-thinking design principle that allows for the easy recovery of products, parts, and materials once a building is disassembled or renovated.
- The county provides technical assistance and resources to those seeking certification through the nationally recognized Leadership in Energy and Environmental Design (LEED) process for construction. LEED offers incentives and points for the reuse of buildings and building materials.
- The cities and the county hold special collection events for reusable household goods, and the county collects reusable household goods, clothing, and building materials at some transfer stations.
- The county and the cities are working with food producers, schools, and restaurants to capture edible foods, which might otherwise be scrapped, for donation to local food banks and other social service agencies.
- The county is working closely with area governments and others to make it easier for residents to opt out of receiving unwanted mail and telephone books. A joint opt-out Web site is being planned that will serve all King County residents.

Product reuse is another way of preventing waste and is accomplished primarily through the private sector. There are numerous charitable organizations that pick up or provide drop-off sites for household items and clothing. Reusable building materials are also collected and resold at several locations in King County.

There has also been major growth in the resale market for items through online classified services, auctions, and exchange programs. The division's Web site features an online materials exchange program for posting household items and reusable building materials for sale or exchange, as well as yard sale events.

## **10.0 Electronics and Fluorescents**

In October of 2005, fluorescent light bulbs and tubes, and computers, monitors, TVs and cell phones were no longer accepted in the garbage or at the King County Transfer Stations. Instead, consumers now find how to recycle these products through the Take it Back Network recyclers. [Take it Back Network](#) recyclers accept fluorescent bulbs and tubes and a variety of electronic equipment such as computers, monitors, printers, TVs, cell phones, PDAs, fax machines, stereos, DVD and VCR players, other household electronics and rechargeable batteries. These recyclers are required to recycle the products domestically in an environmentally sound manner. Take it Back Network members charge a fee for their recycling services. Learn more about these programs in the [fluorescent bulb and tube recycling brochure](#) (PDF, 116 K) and in the [Electronics Recycling Brochure](#) (PDF, 210 K).

## **10.1 Transfer and Disposal Facilities**

King County operates 10 transfer stations. All but 3 of these also serve as recycling drop-off locations.

Garbage that is collected in the county's service area by the commercial haulers is taken to SWD transfer stations, where it is packed into larger transfer trailers for transport to the Cedar Hills Regional Landfill

for disposal. The transfer stations also are open to the general public, who may bring garbage to the stations in addition to using curbside collection services.

**10.2 Composting Facilities**

A private facility, Cedar Grove Composting Inc., appears to be the only compost facility in the area. Cedar Grove composts both yard and food wastes and services both residential and business customers.

	<b>Key program elements identified from Local Govt. website</b>
	Ordinance requiring residential customers to pay for recycling as part of their garbage collection services.
	SWD’s efforts to work with the municipalities to add food and yard waste combined collection for curbside
	Grant funds to cities (\$1 million in 2008)
	2003 pilot program for business in-vessel composting
	SWD’s Green Schools program
	Construction and Demolition waste – ban on disposal in county facilities, contracts with private sector that offer monetary incentives to recycle.
	King County’s On-line Exchange for re-useable items

**Sources:**

King County website and documents available through the County’s website (e.g., Solid Waste Management Plan).

<http://your.kingcounty.gov/solidwaste>

Some text may have been taken directly from documents available through the profiled government’s websites and Mecklenburg County wishes to give full credit to the web and document authors.

## **Metro Nashville/Davidson County, Tennessee Public Works Department - Waste Management**

**Population served by program: 626,681 (2010 Census)**

### **Form of Local Government**

Metropolitan Nashville (Metro) is a combined city/county government formed in 1963 by the merger of the governments, and their respective functions, of the City of Nashville and Davidson County. At the time of merger, the merged government only included the unincorporated portions of Davidson County that were outside the incorporated municipality of the City of Nashville. Recently, the small City of Lakewood also joined the Metro government. Davidson County also includes six smaller incorporated municipalities that are not part of the consolidated government. These municipalities are Belle Meade, Berry Hill, Forest Hills, Goodlettsville, Oak Hill and Ridgetop. These municipalities are separately governed from Metropolitan Nashville and do not receive solid waste services from Metro, but they do participate with Metro in the preparation of a solid waste management plan.

### **Operating Organization**

Within the Metro governmental structure, solid waste services are provided through the Public Works Department. Waste Management is one of six divisions contained in the Public Works Department; others include typical street maintenance and engineering functions. Another program administered through the Public Works Department is the Metro Beautification and Environment Commission (MBEC) which is home for Metro's Keep America Beautiful affiliate and various clean-up programs. For FY 2012 the Waste Management Fund Operating Budget is approximately \$23 Million. Of that amount, approximately \$3.5 Million is paid for by direct fees and charges, the remainder of income consists of transfers from the General Fund. Solid Waste has 110 full time positions included in the budget. Included within that staff are five professional positions with responsibilities for solid waste program/recycling promotion and education.

The services provided by the Metro government differ within the overall jurisdiction. The Urban Services District (USD) is comprised of the area that was the City of Nashville at the time of consolidation. While comprising less than a third of the land area, the USD has nearly two-thirds of the population (393,907 as of 2010). The General Services District (GSD) comprises the former suburban and rural areas of Davidson County with the exception of the six smaller municipalities. A primary difference in the level of governmental services between the USD and the GSD is in solid waste management. In the USD all residential solid waste services are government provided. In the GSD, securing and separately paying for solid waste services is the responsibility of the individual resident. Tax rates differ between USD and GSD to pay for this differential level of service.

### **Overall Recycling/Waste Reduction Goals of Local Government**

Metro's has local goals for both per capita waste reduction and public sector recycling rate. The recycling goal for the public sector, which is limited to the Metro directly provided residential waste collection, is 25%. Measurement for this goal is calculated as the total public sector recycling tons (including curbside, drop off and yard waste) as a fraction of total residential tons (including self performed and contracted refuse collection). This goal is derived from the Tennessee Solid Waste Management Act of 1991, which as amended in 1999, required all solid waste planning entities to meet

a 25% per capita reduction goal for municipal solid waste disposed in Class 1 landfills or incinerators by 2003, establishing 1995 as the base year for measurement purposes. The Act was again amended in 2007 to set 25% as an ongoing reduction goal with no specified date of achievement. The Solid Waste Management Act is codified in the Tennessee Code Annotated, Section 68-211-861. For FY 2011 the Public Sector Recycling Rate was reported as 31%.

In 2008, Metro along with the other incorporated municipalities in Davidson County, jointly prepared and submitted to the Tennessee Department of Environment and Conservation a ten-year solid waste management plan that calls for a 60% reduction in per capita waste disposal (combined MSW and C&D) by 2018, when measured against a base year of 1995. The 1995 baseline rate was 1.83 tons disposed per person per year. The estimated waste reduction through FY 2011 is 30%, bringing the per capita waste disposal rate down to approximately 1.25. Recent reduction has been negatively impacted by the severe floods of 2010 and the subsequent resultant increase in construction and demolition waste disposal.

### **Residential Trash Collection – Single Family**

As previously indicated, Metro provides differing levels of service in the USD and the GSD. For curbside trash collection in the USD, each household is provided one 96-gallon roll-out cart free of charge; additional carts may be obtained at cost. Currently there is no limit on the number of additional roll-out carts that may be obtained by a resident. Trash is collected weekly, primarily with automated collection vehicles. Trash collection services are provided by Metro directly with public employees in part of the USD. In the remainder of the USD Metro contracts with two private haulers, Red River Waste Solutions and Waste Industries, to provide residential waste collection services. Residents of the GSD are provided no curbside trash collection services by Metro and must individually secure and pay for the services of a private hauler.

Beginning in July 2012, residents in the USD using more than 2 trash carts will be charged an additional collection and disposal cost for each additional cart. While the differential fee has not yet been calculated, Metro plans to fully burden all differential costs between additional waste disposal fees and recycling revenues. In July 2014 the additional collection and disposal fees will be applied for any household with more than 1 trash cart.

### **Curbside Recycling – Single Family**

In the USD, Metro provides curbside recycling service on a once per month collection schedule. Participation in the residential curbside program is voluntary. Each household is provided with one 96-gallon roll-out cart free of charge. Additional recycling carts may be requested at no additional charge. Residents may sign up for e-mail reminders of their scheduled recycling collection day. Metro provides this automated curbside collection directly with public employees.

As with trash collection, no governmental curbside recycling collection services are provided in the GSD. Many residents of the GSD currently individually contract for curbside recycling services, but a firm count was not available. Private waste haulers serving the GSD are not currently obligated to provide curbside recycling collection to the residential trash customers, but will be required to offer recycling collection as of July 1, 2013. Private haulers will then be required to submit a recycling plan to the Public Works Department and are permitted to charge additional fees for curbside recycling. The Public Works Director must approve both the recycling plan and associated fees.

## **Residential Materials Recycled**

Recycled materials are collected commingled single stream without further separation and include:

- All grades paper and cardboard ( includes food boxes and aseptic containers)
- All plastic bottles and containers, resins 1-7
- All steel and aluminum cans, foil and trays (aerosol cans included)

No glass of any kind is included in the curbside recycling program. The decision not to include glass was based upon the single stream processing requirement of the private materials recovery facility.

## **Residential Recyclables Processing**

All curbside, convenience center, and drop-off center recyclables collected by Metro are delivered to private local materials recovery facility, owned and operated by QRS Recycling. QRS operates two material recovery facilities in the Nashville area and receives private recyclables in addition to the Metro deliveries. Under their contract Metro receives a revenue share on the commodities sold from the recyclables delivered. Metro also has use of QRS's recycling education center at the material recovery facility. Approximately 22,000 tons of Metro's residential recyclables were processed by QRS in FY 2011.

## **Yard Waste Collection**

As of July 1, 2011 Metro banned yard waste from being placed in trash containers for curbside collection. All Metro residential customers in both the USD and GSD have scheduled yard waste collection three times per year. Metro directly provides this service with public employees. Brush and limbs may be set out loose for collection. All grass clippings and leaves must be placed at the curb in biodegradable paper bags. Biodegradable bags must be purchased by the resident. The bags are sold commercially in grocery stores and at one of Metro's convenience centers for 5 – 30 gallon bags for \$3.

The collected yard waste is taken to Metro's Bordeaux Mulch Facility. Yard waste is also accepted free of charge to Davidson County residents at two of Metro's facilities, the Bordeaux Mulch Facility and the Omohundro Convenience Center. Tipping fees are charged to businesses and contractors. The Bordeaux Mulch Facility produces several landscaping products including mulch and compost for sale to the public. The Bordeaux Mulch Facility is owned by Metro but its operation is contracted out to Red River Waste Solutions. Approximately 38,000 tons of yard waste were handled by Metro in FY 2011.

Metro encourages home composting and offers home composting classes through the MBEC. Metro also sells home composting bins and supplies at its Omohundro Waste and Recycling Facility.

## **Multi-family Residential Trash and Recycling**

Residents of multi-family dwellings with more than two units are not directly provided solid waste or recycling services by Metro, each must contract with a private hauler. The disposal bans recently included in the amended Solid Waste Code do apply to multi-family residential units, these are:

- Effective July 1, 2011 – yard waste is banned from trash collection
- Effective July 1, 2013 – cardboard is banned from trash collection
- Effective July 1, 2015 – electronic waste is banned from trash collection

As of July 1, 2013, all private haulers servicing multi-family residential units must offer recyclable collection services. Recycling collection is voluntary, at the option of the residential unit.

### **Recycling Convenience and Drop-off Sites**

Metro has three (3) full service waste and recycling centers, all directly operated with public employees. These are:

- East Center – open Monday-Saturday and Sunday morning
- Omohundro Center – open Tuesday-Saturday
- Anderson Lane Center – open Tuesday-Saturday

These Convenience Centers are available to all residents of both the USD and the GSD, but residents are limited to visiting no more than twice per day. Some services are provided free of charge, for some disposal there is a fee. Services provided include:

- Residential waste disposal – trash, bulky, C&D, tires
- Recycling – all curbside recyclable materials and glass bottles
- Food grease at Omohundro Center only
- Household hazardous waste and electronic waste at East Center only

Metro also provides thirteen (13) unstaffed recyclable drop-off sites located around Davidson County. All accept the range of curbside recyclable materials, some additionally accept glass bottles.

### **Business/Commercial Recycling**

Metro provides very limited business trash and recyclable collection in the downtown core area of the USD to businesses that can be served with only 96-gallon roll out containers. The limit is two trash carts per business. Business may also place flattened cardboard next to their roll-out containers and it will be collected for recycling. Generally, businesses are required to secure their own waste and recyclable service providers. There are no business recycling mandates, but the same landfill bans that apply to residential units apply to businesses. Again, these are:

- Effective July 1, 2011 – yard waste is banned from trash collection
- Effective July 1, 2013 – cardboard is banned from trash collection
- Effective July 1, 2015 – electronic waste is banned from trash collection

As of July 1, 2013, all private haulers servicing business units must offer recyclable collection services. Recycling collection is voluntary, at the option of the business unit. Metro does provide technical assistance to businesses seeking to establish or expand waste reduction and recycling programs.

### **Construction and Demolition Recycling**

Metro provides no direct programs for C&D recycling, but does receive for disposal small quantities of C&D materials from residential generators at one of the convenience centers. Any C&D recycling in Davidson County is voluntary. Metro has assembled a comprehensive directory of C&D recycling service providers and provided technical assistance to businesses on C&D waste reduction. Metro also provides a limited financial incentive for C&D recycling. Any C&D disposal facility in Davidson County is charged a \$1.00 per cubic yard solid waste generator fee by Metro. Half of that fee is waived if the C&D material is reused or recycled.

## **Household Hazardous Waste**

Metro operates a permanent household hazardous waste (HHW) receiving facility at one of its convenience centers, the East Waste and Recycling Facility. Residents of Davidson County may dispose up to 15 gallons or 100 pounds of HHW per month. Metro accepts the full range of HHW including CFL's and automotive fluids. The East Waste and Recycling Center is open seven days a week (half day Sunday). The HHW facility is staffed with Metro personnel.

## **Electronic Waste**

Metro receives discarded electronics at two of its convenience centers, the East and Omohundro Waste and Recycling Facilities. Residents of Davidson County may dispose at either location the full range of electronic wastes but are limited to disposing one computer system per month. It is still permissible to place discarded electronics in the trash for residential collection. However, the Metro Solid Waste Code bans the placing of discarded electronics in trash collection as of July 1, 2015.

## **Bulky Waste Collection**

Metro coordinates an on-call scheduled bulky waste collection, no regularly scheduled service is provided. Bulky wastes include:

- Furniture, mattresses, box springs etc.
- Appliances, white goods, air conditioners, televisions
- Automobile parts

The collection service is directly provided by the Davidson County Sheriff's Office. There is a limit of six items per collection.

## **Residential Waste Disposal**

Metro is several years into a 20-year waste disposal contract with Allied Waste, now Republic Services of Nashville. Metro and its contracted collectors deliver residential waste to Allied's Nashville Transfer Station. Allied then transports the waste to the Allied Middle Point Landfill in Murfreesboro, Tennessee. The current all inclusive tipping fee is approximately \$32 per ton. From residential collections in the USD and waste deposited at the convenience centers, Metro directly disposed about 150,000 tons in FY 2011 through this contract. According to its FY 2010 Annual Report to the Tennessee Department of Environment and Education, Metro reported that 852,856 tons of waste of all types (residential, commercial, construction and demolition) originating from the jurisdiction were disposed in landfills that year.

## **Litter Program**

The Metro Beautification and Environment Commission (MBEC), administered through the Public Works Department, but with its own governing board, is the Keep America Beautiful affiliate for Nashville. It coordinates a number of volunteer neighborhood beautification, litter prevention and recycling education efforts. MBEC coordinates Metro's involvement in the Great America Cleanup and America



Recycles Day. MBEC is also involved in graffiti prevention and cleanup efforts. Metro also administers a local adopt-a-street program.

### **Metro Nashville Key Waste Reduction/Recycling Programs**

The following program elements were identified by Metro as being most influential in achieving its waste reduction/recycling goals:

#### **Current**

- Banning yard waste from trash collection
- Public information/education effort on the curbside recycling “Curby” program
- Recycle and Win Program, with Coca Cola Consolidated and Kroger grocery stores as sponsors (similar program to that in Mecklenburg County)
- School education efforts both at schools and the Recycling Education Center contained in the QRS materials recovery facility
- Technical assistance to businesses starting a recycling program
- C&D disposal fee waiver for materials recycled instead of disposed

#### **Future**

- As staff calls it, “pay as you throw lite”. The introduction of additional residential service fees for the collection of multiple trash roll-out containers. Additional fees for more than two carts in 2012, and more than one cart in 2014
- Cardboard being banned from disposal in 2013
- Requirement that all private haulers provide recyclable collection service as of 2013

#### **Reference Sources:**

Phone interviews - with staff from the Public Works, Waste Management Division, and Beautification and Environment Commission; 9/21/11.

Metro Nashville Budget

[http://www.nashville.gov/citizens\\_budget/docs/budgetbook/fy2012/fy12\\_final\\_budget.pdf](http://www.nashville.gov/citizens_budget/docs/budgetbook/fy2012/fy12_final_budget.pdf)

Metro Nashville Public Works Department – Waste Management Division

<http://www.nashville.gov/Recycle/>

Metro Nashville Solid Waste Management Plan

<http://www.nashville.gov/Recycle/pdfs/SWRB/SolidWastePlan.pdf>

Metro Nashville Code of Ordinances – Waste Management

<http://library.municode.com/index.aspx?clientID=14214&stateID=42&statename=Tennessee>

Tennessee Annual Report on Solid Waste Management Act of 1991

<http://www.tn.gov/recycle/docs/0910GovRpt.pdf>

Some text may have been taken directly from documents available through the profiled government’s websites and Mecklenburg County wishes to give full credit to the web and document authors.

## **Oakland, California**

### **Solid Waste Management and Waste Diversion**

#### **Population served by the program: 390,724 (2010 Census)**

The 2010 U.S. Census ranked Oakland as the eighth largest city in California, with a population of 390,724. Oakland's diverse, well-educated population is attractive to both retailers in search of customers with disposable income and businesses in search of skilled workers. The California Department of Finance estimates Oakland's population as of January 1, 2011, at 392,932.

To put Oakland's population in perspective: the city has a larger population than Minneapolis, Miami, St. Louis, Pittsburgh, Cincinnati and Newark. Oakland's population is more than twice that of Salt Lake City and nearly four times larger than neighboring Berkeley.

According to the City website since 2000 recycling is up 33% and landfilling is down 27%

#### **1.0 Description of Government Profiled**

The city of Oakland operates the City's solid waste management and waste diversion programs. Solid waste programs in the City are a joint effort between the Alameda County Waste Management and Recycling Board (WMA). Implementation of the collection system in Oakland is primarily the responsibility of the City of Oakland's Public Works Agency.

The WMA is an independent agency, established in 1976 to provide waste management and planning programs. In 1990 the Source Reduction and Recycling Board was established and integrated into the existing Authority. The WMA consists of a 17 member board of elected representatives from each of the fourteen city councils, the County Board of Supervisors and two sanitary boards that mainly serve the unincorporated area. The WMA operates under a "Joint exercise of Powers Agreement" adopted by the member agencies. The WMA is responsible for the County Integrated Solid waste management Plan. The WMA role also includes program development and planning for the member groups

#### **2.0 Overall Recycling/Waste Reduction Goals of Local Government.**

Oakland, California's recycling and waste diversion goals are driven by compliance with the State of California goals which required a 50% diversion by 2010, the City however passed that goal and recognized that the drive towards waste reduction was slowing down. As a result The City of Oakland took the initiative to go beyond the required reduction goals and passed a Zero Waste Resolution on March 7, 2006. The city directed its public works department to come up with a strategic plan to meet the zero waste goal by 2020. The text of the Ordinance is included as Appendix A.

Oakland is no longer measuring progress in terms of diversion rates, but rather in terms of disposal tonnage. The current goal is a 90% reduction by 2020

In order to best understand this program as well as those of the other municipalities in Alameda County it is essential to review the County programs run under the WMA as those programs provide the infrastructure necessary for many of the programs run by the municipalities within the County.

### 3.0 Residential Waste Management

Oakland's existing recycling programs were initiated in 1993, the residential system changed when the City went to a 3 cart system in 2005... Residents in one- to four-unit buildings receive once-a-week pickup of recyclables and garbage. Oakland uses a three-cart system:

- Green cart- for yard trimmings and food scraps recycling
- Gray cart- for bottles, cans, jars, paper and cardboard
- Burgundy cart- for garbage and non-recyclables.

Recycling is not currently mandatory and, Recycling costs are included in trash rates for all residential customers.

Residential garbage and yard trimmings are picked up once a week by Waste Management of Alameda County. Residential Recycling is picked up by two service providers. In North and West Oakland: Recycling service is provided by California Waste Solutions. In East Oakland: Recycling service is provided by Waste Management of Alameda County.

It is illegal to dispose the following items in the cart system, toxic chemicals found in the home, household batteries, florescent lamps, electronic devices, TV and computer monitors, mercury thermometers and switches. Disposal of these items is provided for in programs operated by Alameda County.

Bulky pick-up is available to every resident living in a single family home and occupant of 2-4 unit buildings. It is also available on a limited basis for residential dwellings up to 9 units.

#### 3.1 Single-Family Homes (includes one to four unit building)

Each resident receives a gray 64 gallon comingled recycling cart that is picked up once a week on the same day as garbage.

Recycling items collected curbside include:

- Glass bottles and jars
- Plastic bottles and tubs
- Aerosol cans (empty)
- Aluminum cans & foil
- Carbonless paper
- Catalogs and junk mail
- Steel or tin cans
- Drink boxes (juice)
- Soup boxes
- Milk cartons
- Carbonless paper
- Cardboard boxes flattened
- Computer Paper
- Egg cartons (paper only)
- Envelopes (plastic windows okay)
- Grocery bags (paper only)

- Junk mail
- Magazines
- Newspaper (glossy paper inserts okay)
- Office paper
- Paper towel & toilet paper tubes
- Phone books
- Shoe boxes

Curbside Oil and Oil Filter Recycling is also provided by the town provided residents use the free oil and oil filter recycling kit provided by the recycling service provider. Drop off is also available at businesses that accept used oil and oil filters. Residents may also collect 16 cents for each gallon of used oil recycled at state-certified oil recycling centers.

### **3.1.2 Food and Yard Waste**

Alameda County Waste Management Authority enacted a ban on disposal of plant debris in county landfills (Landfill Ban) effective January 1, 2010. Plant debris cannot be disposed of in regular garbage containers and must be segregated and handled through separate yard trimmings organics collection. The ban applies to individuals, businesses and multi-family residences in Alameda County. Each resident receives a green 64 gallon recycling cart for food and yard waste in addition each resident received a food scraps pail. Yard debris - such as leaves, grass, and plant trimmings - are not allowed in the garbage can. Food and yard waste is collected weekly, on the same day as garbage. Special bags are available, at no extra charge, for customers who generate more than 64 gallons per week. Properly prepared extra yard trimmings may be set out at no extra charge.

Acceptable items for the food/yard waste container include:

- Yard trimmings including:
  - Leaves
  - Flowers
  - Grass & weeds
- Houseplants
- Trimmings
- Branches less than 4' long and 6" in diameter or across
- Unpainted, untreated wood less than 4' long and 6" in diameter or across
- Food scraps including:
  - Fruits & vegetables
  - Meats, poultry and bones
  - Coffee grounds
  - Eggshells
  - Dairy products
- Food-soiled paper products including:
  - Paper napkins and towels
  - Paper plates and cups
  - Paper ice cream cartons
  - Coffee filters and tea bags
  - Paper restaurant take-out containers

**3.1.3 Single-family Garbage (includes one to four unit buildings)**

Garbage is collected weekly and residents may choose two levels of service, curbside or back yard and one of several container sizes, 20, 35, 64 and 96 gallon. Different rate plans apply to each of the available options.

Recycling and food/yard waste service is provided for all single-family households. Two levels of service are available a curbside service and a premium back yard service.

Recycling is included in the solid waste fee to the resident. The size and level of service for the garbage container sets the fee. The basic fee structure is in the table below.

<b>Garbage Fees for Home Use (single-family up to 4 units)</b>		
<b>Recycling and Yard waste are included in the price</b>		
<b>Service Level –</b>	<b>Cost per Month</b>	
	<b>Contractor Cans</b>	<b>Customer Cans</b>
<b>Curbside Service</b>		
20 gallon	\$20.85	
64 gallon	\$61.01	
96 gallon	\$94.00	
<b>Back yard service</b>		
20 gallon	\$37.405	\$33.72
35 gallon	\$44.53	\$40.85
64 gallon	\$77.56	\$73.88
96 gallon	\$110.55	\$106.87

**Note: Recycling is free for residents.**

**3.2 Multi-Family**

Multi-family complexes are defined as having five or more units and receive garbage, recycling and yard/food waste collection service. State Law (Assembly Bill 341) requires recycling services in any multi-family dwelling over 5 units. Service is provided by contracted provided and recycling service must be set-up by the owner of the property.

**3.2.1 Recycling (multi-family)**

Recycling is available for multifamily dwellings (apartments, condominiums, co-ops, fraternities, and sororities). The services available are the same items as listed above under the single-family programs Assistance provided by the City includes, educational materials which are readily available for residents of multi-family dwellings including fliers, DVD’s, container labels.

### **3.2.2 Food and Yard Waste (multi-family)**

Alameda County Waste Management Authority enacted a ban on disposal of plant debris in county landfills (Landfill Ban) effective January 1, 2010. Plant debris cannot be disposed of in regular garbage containers and must be segregated and handled through separate yard trimmings organics collection. The ban applies to individuals, businesses and multi-family residences in Alameda County

Food and yard waste collection services are available for apartments and condominiums. The materials accepted are the same as the list of items that are outlined under single-family.

Assistance provided by the City includes educational materials for residents of multi-family dwellings including fliers, DVD's, container labels.

### **3.2.3 Garbage (multi-family)**

Dumpster and recycling service is provided on a fee basis under the hauler franchise agreement managed by the WMA.

## **4.0 Business/Commercial**

A business must choose a licensed franchise hauler for the handling of solid waste. The recycling collection system however operates on the free market system and firms contract for their own services. The City of Oakland and Alameda County both provide resources to guide businesses in recycling program development.

Oakland does provide a Small Business recycling Program as a component of the residential services recycling contract. The City also used the partnership with Alameda County to provide technical assistance.

In January 2007 the City adopted a Polystyrene Ban/Green Packaging Ordinance. The ordinance requires that food vendors change from polystyrene foam to biodegradable/compostable materials (as cost must be the same or less than disposable food service ware). The program gives residents the ability to process the materials in the City's food waste program.

Alameda County Waste Management Authority enacted a ban on disposal of plant debris in county landfills (Landfill Ban) effective January 1, 2010. Plant debris cannot be disposed of in regular garbage containers and must be segregated and handled through separate yard trimmings organics collection. The ban applies to individuals, businesses and multi-family residences in Alameda County. The commercial markets for commercial recycling collection are open market systems, there is a fee charged for the services. Several companies compete to provide recycling services to the commercial sector, as opposed to garbage collection that is a franchise service.

The City actively promotes food scraps recycling to commercial customers

The City Solid waste Ordinances and the Waste Management of Alameda County's (WMA) exclusive agreement for providing solid waste services in the City of Oakland state:

Pursuant to Section 8.28.060 of the Oakland Municipal Code (excerpt following) and WMA's exclusive solid waste agreement with the City of Oakland, WMA has the exclusive right and duty to collect,

transport, and dispose of all residential and commercial solid waste in the City of Oakland. The only exceptions to WMAC's exclusive agreement are:

- The collection of waste resulting from gardening or landscaping work, or construction or demolition work; provided that the service is performed by the same contractor or directly loaded into a fixed body vehicle and hauled directly to a permitted transfer station or disposal facility.
- Source separated recyclable materials, which are, in fact, recycled; provided that
- Loads of mixed paper may contain no more than 10 percent by weight of non-recyclable material, and
- Loads of commingled recyclables other than mixed paper may not contain more than 5 percent by weight of non-recyclable materials.
- Animal waste and by-products of sewage treatment.
- Solid waste which is collected by City of Oakland crews.
- Solid waste hauled directly to a permitted transfer station or disposal facility by a person who is also the generator of the solid waste; and
- Recyclable materials that are donated to a youth, civic or charitable organization.

All other solid waste is required to be collected and disposed of by WMAC, the City's exclusive solid waste service provider.

## **5.0 Schools**

Public schools are responsible for contracting their own solid waste and recycling services using the franchised garbage collection provider and a contracted recycling provider.

The [irecycle@school](mailto:irecycle@school) program is open to all public schools in Alameda County and some charter schools. The program provides free technical assistance, teacher training and education resources (including a teaching kit on the 4Rs) to assist in designing and/or enhancing a district-wide recycling program. Public schools can also request a free 45-minute assembly during which students will learn how to reduce their carbon footprint by food scrap recycling and reducing consumption. An initiative that is specific to fifth grade classrooms is the 4Rs Student Action Project, which engages students in addressing real environmental issues at their school and in their community.

The Service-Learning Waste Reduction Project (SLWRP) is a partnership between StopWaste.Org's [irecycle@school](mailto:irecycle@school) program, the Alameda County Office of Education and middle and high schools in Alameda County. SLWRP seeks to empower students by increasing their waste reduction knowledge through engaging active learning experiences. A team of teachers (typically about five from each school) receive support and training from ACOE and StopWaste.Org to develop in-class lessons as well as practical school-wide waste reduction strategies on campus.

Field trips to the award-winning [irecycle@school](mailto:irecycle@school) Education Center offer fourth grade students an opportunity to learn first-hand what happens to their recyclables, garbage and green waste at a working material recovery facility and transfer station. Field trips to the [irecycle@school](mailto:irecycle@school) Education Center provide real-life application of concepts taught in the classroom in the areas of physical science, life science and investigation/experimentation.

## **6.0 Construction & Demolition (C&D) Waste**

Alameda County provides a C&D recycling ordinance template to all of the member communities. In 2000 the City adopted a C&D recycling ordinance which requires building permit applicants to divert at least 65% of their waste from landfills. The program also helps with grants, loans, business plans and market development.

The City of Oakland requires projects subjected to the C&D recycling ordinance, recycle 100% of all asphalt & concrete materials and 65% of all other materials. Affected projects include, all new construction, all demolition (excluding single family and duplex) and additions or alterations with construction valuation exceeding \$50,000 (excluding single family and duplex).

## **7.0 Event Recycling**

In September 2004, AB 2176\* was signed into law to make recycling available and convenient to the public attending large venues and events, while promoting planning for recycling at those locations during design and operation. The law requires that local cities and counties report on progress with waste reduction and recycling at the top 10% of large venues and special events in their annual solid waste and recycling reporting to the State. The City of Oakland provides educational materials for event recycling. Large events are required to submit waste management/recycling plans every two years

## **8.0 Facilities**

Disposal, treatment and processing facilities are provided by the WMA or under contract with the private sector.

### **8.1 Disposal**

Facilities are provided by the private sector and under contract through the WMA.

### **8.2 Recycling Processing**

Facilities are provided by the private sector and under contract through the WMA.

## **Sources**

Documents available through the profiled government's websites (e.g., Solid Waste Management Plan)

<http://stopwaste.org>

Some text may have been taken directly from these documents and Mecklenburg County wishes to give full credit to the web and document authors.



## Appendix A

### Full Text of Oakland, CA, Zero Waste Resolution - passed March 2006

RESOLUTION ADOPTING A ZERO WASTE GOAL BY 2020 FOR THE CITY OF OAKLAND AND DIRECTING THE PUBLIC WORKS AGENCY, IN CONCERT WITH THE MAYOR'S OFFICE, TO DEVELOP A ZERO WASTE STRATEGIC PLAN TO ACHIEVE THE CITY'S ZERO WASTE GOAL

WHEREAS, the California Integrated Waste Management Act of 1989 (AB 939) required that all California jurisdictions achieve a landfill diversion rate of 50% by the year 2000, and reduce, reuse, recycle, and compost all discarded materials to the maximum extent feasible before any landfilling or other destructive disposal method is used; and

WHEREAS, in 1990 Alameda County's voters passed ballot Measure D (The Alameda County Waste Reduction and Recycling Initiative Charter Amendment), setting a requirement for the County to reduce land filling by 75% by 2010; and

WHEREAS, in 1990 the City Council adopted Resolution #66253 C.M.S establishing solid waste reduction goals, including returning discarded materials to the local economy through reuse and recycling; applying the waste management hierarchy in priority order (reduce, reuse, recycle and compost) to the maximum extent; and promoting recycling market development; and

WHEREAS, in 2002 the City Council adopted Resolution #77500 C.M.S. establishing the goal of 75% reduction of waste disposal landfills by 2010 for the City of Oakland in alliance with the countywide 75% waste reduction requirement; and

WHEREAS, in 2001 the California Integrated Waste Management Board set a goal of Zero Waste in its strategic plan for the state; and cities, councils, counties, and states worldwide have adopted a goal of achieving zero waste, including the counties of San Francisco, Santa Cruz, San Luis Obispo and Del Norte in California; the cities of Palo Alto and Berkeley in California, Seattle in Washington, Toronto in Canada, and Canberra in Australia; and the state of New South Wales in Australia; and 45% of New Zealand's local government councils; and

WHEREAS, strategies to reach zero waste can help to promote the over-arching goal of each generation leaving less and less of an ecological footprint on the earth thus allowing more and more of nature to restore; and

WHEREAS, Zero Waste principles promote the highest and best use of materials to eliminate waste and pollution, emphasizing a closed-loop system of production and consumption, moving in logical increments toward the goal of zero waste through the core principles of:

- Improving 'downstream' reuse/recycling of end-of-life products and materials to ensure their highest and best use;
- Pursuing 'upstream' re-design strategies to reduce the volume and toxicity of discarded products and materials, and promote low-impact or reduced consumption lifestyles;
- Fostering and supporting use of discarded products and materials to stimulate and drive local economic and workforce development; and

WHEREAS, in 1992 the City Council adopted Resolution #68780 C.M.S. authorizing establishment of a City staff supported Recycling Market Development Zone; and recycling continues to be a significant local industry, whose long-term viability is a key component to Oakland's current and future waste reduction achievements, economic development, and workforce development of 'green collar' jobs; and

WHEREAS, in 1998 the City Council adopted the Sustainable Development Initiative (Resolution #74678 C.M.S) embracing the concept of meeting people's current economic, social, cultural, and environmental needs in ways that enhance the ability of future generations to meet their needs; and

WHEREAS, Oakland's FY 2005-07 Mayor and City Council Goals include: Develop A Sustainable City through maximizing socially and environmentally sustainable economic growth, including conserving natural resources; and

WHEREAS, in alliance with the Oakland's Sustainable Development Initiative and Sustainable City goal, in June 2005 Oakland Mayor Jerry Brown joined mayors of 50 of the world's largest and most visionary cities as an original signer of the United Nations World Environment Day Urban Environmental Accords, pledging that Oakland would implement 21 action steps toward sustainable cities in the areas of energy, waste reduction, urban design, transportation, environmental health, and water including: Establish a policy to achieve zero waste; and

WHEREAS, adopting a goal of zero waste disposal and pursuing Zero Waste principles is consistent with, and an explicit validation of Oakland's Sustainable Development Initiative and Sustainable City Goal;

Now, therefore be it

RESOLVED, that the Mayor and City Council hereby adopt a Zero Waste Goal by 2020 for the City of Oakland and direct the Public Works Agency, in concert with the Mayor's Office, to develop a Zero Waste Strategic Plan to achieve the City's Zero Waste Goal; and be it

FURTHER RESOLVED, that Public Works Agency, in conjunction with the Mayor's Office, will convene a Zero Waste working group to develop a Zero Waste Strategic Plan that will provide guidance in the planning and decision-making process to achieve the City's Zero Waste Goal; and be it

FURTHER RESOLVED, Oakland will assume a leadership role, partnering with other Zero Waste local, regional and international communities and sustainability advocates to actively pursue and advocate for strategies and incentives to advance Zero Waste principles for materials management, system re-design, highest and best use of discarded products and materials, and a closed-loop sustainable production and consumption society.

## **Orange County/Orlando, Florida Waste Reduction Programs**

**Population served by program: 1,145,956 (per 2010 census)      Disposal rate per ton: class I residential waste tip fee is \$37.10/ton**

### **Description of Government Profiled**

Orange County provides disposal capacity for the entire county with one landfill and 2 transfer stations. Orange County provides Garbage, Yard Waste and Recycling collection services for residents in unincorporated areas. It administers residential garbage and recycling collection for 198,168 homes.

In the Orange County Recycling Section, 7 positions are budgeted, 6 of these are filled (1 to remain vacant for the time being). The current Personnel & Operating Budget is \$840,260.

### **Disposal**

Waste is disposed at the Orange County Landfill. The Porter Transfer Station and the McLeod Transfer Station are utilized to transfer waste by truck to the landfill. The transfer stations are located 23.5 miles and 20 miles away from the landfill.

### **Residential**

#### **Single Family curbside program description:**

#### **Recycling**

Recycling is collected curbside weekly in two separate containers. Recycling is required by county code.

**Bin 1** (18 gallons): Pasteboard (i.e., cereal boxes, empty paper towel and toilet paper rolls, and shoe boxes), Newspapers, Magazines, Brown paper grocery bags, Corrugated cardboard (flattened and cut down to no larger than 3 ft. by 3 ft.), Catalogs, Telephone books, Junk mail, Office paper

**Bin 2** (18 gallons): Empty aerosol cans, Aluminum and tin cans, Glass bottles and jars, All drink boxes and milk/juice cartons, All plastic containers with the #1-PETE or #2-HDPE symbol on the bottom, Plastic bottles #3 - #7 with a neck

#### **Yard Waste**

Yard waste is collected weekly and is limited to 3 cubic yards per week for unincorporated Orange County residents. Orlando residents have weekly collection with a limit of 4 cubic yards. No container is provided. Yard waste collection is for all vegetative landscaping material, grass, tree, and shrub trimmings.

#### **Food Waste**

None

#### **Garbage**

Garbage is collected 2 times a week in 50 gallon or smaller containers. City of Orlando provides containers for collection.

#### **Multi-Family Recycling Program**

Currently there is no Multi-Family Recycling Program.

#### **Recycling Drop-Off Program**

The City of Orlando offers **10 locations to drop off recyclables**. The drop off centers offer single stream collection of everything that is collected in the curbside bins.

### **Bulky Waste Collection**

Orange County collects bulky items once per week with a 3 cubic yard per week limit. Orlando allows one bulky item to be collected per week. Appliances and tires are recycled.

### **Household Hazardous Waste**

Household Hazardous waste is collected at 2 facilities, the Orange County Landfill (Monday – Saturday) and the L.B. McLeod Rd Transfer Station (Wednesday & Saturday). The County also hosts four community collection events each year for household hazardous and electronic waste.

### **Participation Rates**

The average rate of participation for Orange County residents is 20 pounds per household per month. Orange County collected over 613,000 tons of recyclables from county and agreement city residential homes since the start of the program in 1990.

Mandatory recycling for residential premises has been in place for over 20 years. It is part of the residential hauler contract and there is a budget and staff for the program. Additionally, there are interlocal agreements with several cities who utilize their Recycled Materials Processing Facility. The ordinance was critical part of getting the program established and funded; however, it does not play a critical role at this time.

### **Business/Commercial**

Any property that does not fall under the mandatory refuse program (which is single-family homes and residential units up to 4 under one roof) is considered commercial.

Under Orange County code commercial recycling is mandatory; however, for the last five years there has not been a dedicated budget or staff for commercial recycling education or enforcement.

The mandatory ordinances for business/ commercial are the same as the residential ordinances. The materials required to be recycled are the same.

The only requirement for yard waste is that it cannot be mixed with garbage. Sludge is only accepted under separate agreement with Orange County.

Education and recognition are more effective than enforcement when it comes to encouraging recycling.

### **Organics (Yard Waste, Food Waste)**

Under county code, yard waste cannot be mixed with Class I waste. Residential and commercial yard waste is collected separately and material delivered to the county landfill is composted.

County code, education and collection contracts are the most effective measures to deal with yard waste. In Fiscal Year '09 – '10 the county landfill received 823,820 tons of waste, including 76,940 tons of yard waste for composting.

## **Schools**

The public school system has their own recycling coordinator and contracts. Orange County supports all school programs by offering presentations and tours to public and private schools. Over the last few years they also have had school contests to focus on recycling education and awareness.

## **Construction/Demolition**

The goals for C&D waste reduction are to process wood, concrete, metals and soils for recycling where feasible and meet state recycling goals. The Solid Waste Division is also working with the Environmental Protection Division on a Solid Waste Integrated Resource Plan on C & D waste generated within or transported into the County. This project is funded by a Department of Energy Block Grant and will further develop goals and objectives for management of this waste stream.

Since they accept Class III materials, it is more challenging to separate some of the C & D waste out of the incoming waste stream. Additionally, with the large decline of construction activity, the quantity of recyclable material is down significantly.

## **State Regulations**

House Bill 7243 was passed in 2010 with new statewide and county recycling goals; however, when the new governor came into office in January 2011 he suspended all rule making so that process has been halted at this time. Under this bill, the recycling rate goals are 40% by December 31, 2012; 50% by December 31, 2014; 60% by December 31, 2016; 70% by December 31, 2018 and 75% by December 31, 2020.

## **Key program elements identified from Local Govt. website**

Program elements ranked from most effective (1) to least.

  1   Weekly Curbside Recycling

  4   Mandatory residential recycling by county code

  3   Recycling Drop Centers

  2   Recycling Outreach and Education

## **Sources**

<http://www.ocflrecycles.net/>

<http://orangecountyfl.net/>

Interview with representative from Orange County, Florida Solid Waste in 2011

Some text may have been taken directly from documents available through the profiled government's websites and Mecklenburg County wishes to give full credit to the web and document authors.

## **Orange County/ Chapel Hill, North Carolina Solid Waste Management Department**

**Population served by program: 133,100**

### **1.0 Description of Government profiled**

Orange County's Solid Waste Management Department (OCSWM) serves the Towns of Carrboro, Chapel Hill and Hillsborough as well as the unincorporated rural area with comprehensive recycling services and provides landfill, yard waste and all related integrated waste management services. Orange Community Recycling is the division of the Solid Waste Management Department concerned with waste reduction and recycling. Education and Outreach functions are carried out under the Department's administrative branch while recycling operations are carried out under the Landfill- Recycling Operations Division.

Recycling Operations manages the urban curbside, rural curbside, multifamily (apartment) sites, hazardous waste collections, commercial recycling, 24-hour recycling drop-off sites and Orange County Solid Waste Convenience Centers. Recycling Operations is also responsible for collection, processing and marketing of cans, bottles and paper from all of the departments' recycling programs. Twenty one waste employees work in waste reduction and the total annual budget is \$4,281,198.

The Solid Waste Advisory Board (SWAB) is a multi-jurisdictional advisory board that recommends programs, policies, changes in services, and other matters related to the operation of the Orange County Solid Waste System. SWAB investigates new technologies and furthers such missions and goals for the System as the County may adopt. It suggests amendments to the Solid Waste Management Plan and provides recommendations concerning any proposal for a change to rates, fees and charges; and provides advice to the County Manager for use in developing the annual budget for the System. This Board consists of two members each from Orange County, Town of Carrboro, Town of Chapel Hill and the Town of Hillsborough, whose members are appointed by their respective jurisdiction.

### **2.0 Overall Recycling/Waste Reduction Goals of Local Government.**

The waste reduction goal is 61%. This has been endorsed by all three Towns and the County and has been the goal since 1997. The Solid Waste Plan Work Group was formed in 2005 to develop an integrated comprehensive solid waste plan for Orange County with the goal of meeting the County's 61% per person waste reduction goal. The Work Group consists of an elected official from each jurisdiction, Carrboro, Chapel Hill, Hillsborough, and Orange County, solid waste staff from each jurisdiction and the full membership of the County's Solid Waste Advisory Board. The Work Group meets several times a year to develop recommendations to the Board of Orange County Commissioners on various aspects of the plan.

### **Regulations to Help Reach Goals**

NCGS § 153A-102 (Commissioners to set fees) enables Counties to charge fees for services permitted or required by law. The Waste Reduction, Reuse and Recycling Fee (now known as the 3-R Fee) is used to finance reuse, recycling and waste reduction activities conducted by Orange County. This fee is not a solid waste fee. Thus it is applied to all properties whether those properties use County facilities for disposal or not. The 3-R Fee (waste reduction, reuse and recycling fee) provides the vast majority of the funds used by Orange County to pay for the costs of these efforts, with the remaining funds coming from revenue from the sales of

recyclable materials plus a subsidy from the Solid Waste enterprise fund with this money coming from landfill tip-fee revenue.

Orange County utilizes lined landfill for MSW and unlined landfill for C&D and LCID. (Sludges are not accepted.) Some waste is privately hauled out of the County to a variety of privately owned transfer stations, mostly in Durham. Some of it is also hauled directly to Person County landfill. Private Transfers are accomplished by transferring materials from garbage trucks to tractor trailers at transfer stations. From there, they go to Sampson County NC, Brunswick VA or Montgomery County NC.

State laws and local ordinances prohibit the Towns from burying certain items in the landfill. These items are:

- Yard waste (including yard waste mixed with household refuse)
- Recyclable corrugated cardboard
- Building materials (clean wood)
- Appliances (the reimbursement from the state for white goods no longer quite covers costs)
- Tires
- Motor oil
- Liquids
- Auto and boat batteries
- Household hazardous waste
- Aluminum cans (including cans mixed with household refuse)
- Plastic bottles

Cardboard, scrap metal and clean wood waste are enforced heavily at their generation point by Town inspectors and by inspection of incoming loads to the landfill. Penalties for non compliance are mostly enforced on haulers.

The County also provides a spot at the landfill to recycle oyster shells, so restaurants and other private oyster eaters can comply. The County does not provide heavy enforcement of the bans on aluminum cans or plastic bottles, but they do provide many recycling opportunities for those items throughout the community.

### **3.0 Single Family Residential**

#### **Recycling**

Residents of the towns of Carrboro, Chapel Hill, and Hillsborough in single family homes or duplexes qualify for once weekly curbside collection of recycling. This is provided using two bins. The first one is for mixed paper to include junk mail, office and school paper, paper bags, paper egg cartons, food boxes, juice and milk gable-top cartons, paper towel tubes and other single-layer cardboard and shredded paper (in a bag with a maximum of two bags); phone books, magazines and catalogs; and newspapers. The second one is for plastic bottles, metal cans, aluminum foil and trays, aerosol spray cans and glass bottles and jars. Corrugated cardboard should be stacked between, under or inside the recycling bins (empty pizza boxes are Ok).

Approximately 18,500 homes from the three towns participate in the program contributing 3,767 tons of materials. 100% of all homes are covered. The service is financed by the 3-R fee, an annual fee on residents' tax bill of \$52 per year plus \$37 for basic recycling services such as drop-off, household hazardous waste and education.

Rural recycling pick-up to residents within the County, but outside of municipal boundaries is provided on a biweekly basis to about 12,500 homes, which contribute 1,866 tons of materials. Approximately 70% of the



area is covered. The service still utilizes a two-bin system as described above with annual 3-R fees of \$38 per year for recycling and \$37 for basic recycling services.

### **Yard Waste and Composting**

Yard waste collection, including brush, limbs, leaves, grass clippings and other yard or garden wastes, varies from town to town. Chapel Hill provides weekly curbside collection of yard waste from residences. Loose leaves should be placed in a yard waste roll cart, other rigid container, or paper yard waste bags. Plastic bags will not be collected. Yard waste roll carts are available from the Public Works Department at a cost of \$47 per cart. Yard waste or brush may also be bundled (up to 60 pounds and up to 4 feet long in each bundle) or put in loose piles of up to 3 cubic yards at one time. Christmas trees are also accepted as part of the regular yard waste schedule. There is no rural yard waste collection. Yard waste that is not mixed with other material is chipped into mulch and offered for sale at the landfill.

While food waste is not currently collected, the County does encourage composting. Outdoor Compost Bins are available for sale at the Orange County Solid Waste Management office for a cost of \$50. There are also two outdoor composting demonstration sites located in the County. OCSWM provides periodic composting education classes using these sites, but they are for public educational use as well.

### **Garbage**

Garbage is collected weekly by the Towns. Chapel Hill provides 68-gallon carts (free of charge) to residents and uses a semi-automated system. Chapel Hill also allows residents to use their own cans up to a maximum size of 32 gallons and 60 pounds.

## **4.0 Multi-Family Residential**

### **Recycling**

Recycling sites are located at over 95% of multifamily complexes (apartments, town homes, and condominiums) in Carrboro, Chapel Hill and Hillsborough and contribute 1,242 tons of materials from 15,000 units. Residents must sort materials into the appropriate 95 gallon wheeled cart. The first cart takes bottles, cans, jars, aluminum foil and aerosol cans. The second cart takes all mixed paper including junk mail, office paper, paper bags, food boxes, milk and juice gable-top cartons, paper tubes, shredded paper (in a paper bag), magazines, catalogs, newspapers and phone books. Typically, there are separate corrugated cardboard recycling dumpsters at each complex, which are privately collected. (Pizza boxes should be placed in the trash.) The timing of recycling pick-up varies. It uses a semi-automated system and is done weekly at most sites, but some are serviced twice a week, and some only once every two weeks. The annual 3-R fee for Multifamily is \$19 per unit plus the \$37 basic fee. Yard waste is collected through private providers, and there is no food waste service available to multi-family residences.

### **Garbage**

Garbage service for multi-family residences is also collected by the Towns. In Chapel Hill, Multi-family units receive one 8-yard container at 1x/week per 25 units for free; charges apply thereafter. Up to seven containers collected one time a week has a fee of \$250. There is a \$36 additional fee for each extra container.

## **5.0 Drop-off Programs**

There are five 24-hour recycling drop-off sites in the County – three in Chapel Hill, one in Hillsborough and one in Carrboro. These are unmanned and collect recycling only, collecting 5,100 tons of cans, bottles, paper, cardboard and rigid plastics.

There are also five solid waste convenience centers, which are staffed and generally located in rural areas. These were established in 1993 and are typically open Tuesdays and Friday through Sunday. Two of the centers are also open on Mondays. The convenience centers accept recycling, yard waste, electronics, waste oil, filters, construction and demolition (C&D) materials, tires, white goods, scrap metal, batteries and antifreeze. These centers also have Salvage Sheds where reusable items in good condition can be taken, including over-sized rigid plastics such as plastic playground slides, kiddie pools or large plastic drums. The salvage sheds do not accept clothing, carpet, construction materials, yard sale remnants, broken or upholstered furniture, mattresses or trash items. Business waste is also not accepted. Loads are limited to one pick-up truck per day or weekend period.

All drop-off centers are free for residents, as they are supported by the annual Convenience Center (CC) fee. The CC Fee was established as part of the FY 2011-12 budget as a means of placing the convenience centers on a firmer financial footing. The centers will now be partly funded by the users in a manner based on their estimated proportional use level. Rural single family residences are the most likely users of the sites, so they will pay \$10 per year. Urban single family households, the second most likely users, will pay \$5 per year. Apartments, being the least likely users will, pay \$2 per year towards funding the convenience centers. Only County residents are eligible to use the convenience centers, not businesses, not for profits or other non-residential entities. Therefore, only improved residential properties in Orange County will receive a CC fee; unlike the 3-R Fee for recycling that is charged to all improved properties in the County, including residential, commercial and non-profits.

## **6.0 Bulky Waste collection**

Bulk waste collection is provided by the Towns as part of their garbage services. In Chapel Hill, residents can call the Public Works Department to request pick-up for disposal of large household items that can't be handled as part of the weekly trash pickup, including electronic equipment. The pickup service fee is \$15 for up to three items, and \$5 for each additional item. White goods, computers and scrap metal are all recycled at the landfill. There is some other informal scavenging of other usable materials.

## **7.0 Household Hazardous Waste**

Orange County Solid Waste Management collects household hazardous waste (HHW) six days per week, Monday through Saturday, at the Orange County Landfill in Chapel Hill. Last year, Orange County citizens recycled 402 tons of hazardous waste, antifreeze, motor oil, oil filters, latex paint, batteries, and electronics. The Household Hazardous Waste site will collect fluorescent bulbs of all types; lawn, garden, and pool chemicals; household cleaners and chemicals; all batteries (also accepted at Solid Waste Convenience Centers); paint; sealant; solvents; aerosol cans (if aerosol spray cans are completely empty they can be recycled with residential or dropoff recycling); automotive chemicals; fluorescent light bulbs, including tubes and compact fluorescent ("twirly") lights; thermostats and thermometers containing mercury; tanks from compressed gasses; anti-freeze and other automotive fluids (antifreeze and used motor oil are also accepted at Solid Waste Convenience Centers); used cooking oil; or any other items from the home that may be toxic, flammable, caustic, or otherwise hazardous.

## **8.0 Results**

In the towns, it is estimated that there is an 85% participation rate in the recycling program with 400 lbs per household per year being recycled on average. Including the estimated 215 lbs per household per year that is estimated to come from the drop-off centers, that is a total of 615 lbs per household per year.

In the rural areas, it is estimated that there is a 60% participation rate in the recycling program with 300 lbs per household per year being recycling on average. Including the estimated 350 lbs per household per year that is estimated to come from the convenience centers, that is a total of 650 lbs per household per year. (It is difficult to estimate how the use of the unstaffed recycling sites would affect these rates.)

## **9.0 Business/Commercial**

The County provides recycling free of charge for all beverage containers and other recyclable materials including aluminum cans, steel cans, empty aerosol cans, aluminum foil and trays, glass bottles and jars, all plastic bottles and all paper except corrugated cardboard through their commercial recycling program. They collect over 55 tons per month of commingled containers and paper from over 150 bars, restaurants and other businesses in Orange County. This comes from approximately 330 non-residential businesses at 210 locations. (Many others use private recycling companies.) The County provides the carts and collection services, and collection frequency is generally weekly or more often depending on need. The commercial recycling program's primary focus is to serve those County businesses with On-Premises ABC permits (this is how the program got started in 1992), but if a business is on or adjacent to one of their recycling routes, it may also be eligible for service. The program collects mostly cans and bottles (900 tpy).

The County advertises the businesses' participation in their programs twice yearly in a local weekly magazine. They also send all participating businesses an annual letter with copy of the ad and a notation about their tonnage and how that sector is doing. E.g. Last year the businesses on the program recycled 800 tons and 700 of those were bottles and cans, while 100 was paper. The County also reaches out to businesses through the Downtown Chapel Hill business association and offers of waste audits independently and through the Chambers of Commerce.

### **Commercial Food Waste**

Orange County Solid Waste Management operates an Organics Recycling Program that diverts nearly 2,500 tons of food waste and other compostable organic material from landfill-based disposal each year. Collection and composting service is performed by their contractor, Brooks Contracting. This program accepts source separated organic materials such as kitchen and produce department prep waste, post-consumer plate waste and other compostable organic materials from local restaurants, grocery stores and food service establishments for composting. It currently services 30 businesses. The finished compost is available to purchase locally at the Orange County Landfill and Southern States in Carrboro.

The key to the success of the program is that the County targets only larger producers of organics willing to source-separate e.g. some grocery stores, restaurants, homeless shelters or private retirement communities (they used to service UNC but now UNC provides their own service). There is a two tons per month minimum generation rate. Also, they provide collection at no cost to the generator. Overall, Orange County collects approximately 2,100 tons per year of food and related materials with a high level of compliance and low contamination rate. This is accomplished through constant monitoring and feedback from the collector directly to the generator, or through the County if there are problems.

Orange County pays a private contractor \$80 per ton to take organics to their facility 35 miles away, where it is compost and sold. The County also buys finished compost in bulk for resale to the public.

## **10.0 Schools**

Orange County Solid Waste took over recycling at the County school system in FY 2009-10 from a private contractor. This caused the price of service to drop and collection services to improve. The schools utilize the same two-stream cart system discussed in the Residential and Commercial sections. By providing the service themselves, the County can obtain better data collection and accomplish improved outreach and education.

In FY 11-12 Orange County will also take over the City school system's recycling, and it will remain a single stream service, as it was with their private hauler. However, the County can provide the service at a cheaper rate than the private hauler could. This close relationship that is developing between the County and the schools is expected to greatly improve recycling services.

There is also a pilot composting program from cafeteria prep waste in one elementary school, one middle school and one high school.

## **11.0 Construction and Demolition**

### **Ordinance**

Orange County's reduction goals for C&D are embedded within the overall waste reduction goal of 61% waste reduction per capita. However, the County does have an ordinance that specifically requires the recycling of certain C&D materials: corrugated cardboard, clean wood (that is wood that has not been painted or treated) and scrap metal. (They also intend to add shingle recycling later this year.) The ordinance further states that construction and demolition projects must have a waste management plan in place, waste haulers must be licensed and that these requirements will be enforced. To ensure that their goals are achieved and the ordinance is enforced, haulers' are licensed based on their compliance with the bans.

There is also an "ordinance area" at the landfill to accept source separated clean materials for recycling. There is no charge for scrap metal or cardboard, and an \$18 charge for clean wood. (The wood is ground & sold for boiler fuel.) All incoming C&D loads are inspected at the landfill and those with significant amounts of regulated materials i.e.: cardboard, wood or scrap metal, can either remove it, or are charged a double tipping fee.

Tonnage has declined from 30,000 tons per year to 7,500 tons per year since the ordinance was passed. Some of this can be attributed to the recession, and many also choose to use a more distant sorting and disposal facilities, rather than source separate and use the nearby Orange County landfill. This is true even when hauling distance differential is one mile versus 35 miles.

The complaints builders have about the source separation requirements are that:

1. There is no space on site for multiple containers or
2. The workers can't sort materials properly

### **Enforcement**

The County has tied-in the solid waste plan to the permitting process to ensure that builders are aware of the requirements to divert these materials and that they state how they will comply. Builders can also use a sorting facility if they do not want to source separate, but they must prove via a hauler compliance permit that

materials went to a certified facility. The County inspects and licenses facilities that accept mixed materials to ensure they are properly separating the regulated materials. This solid waste plan and permit process also enables the County to ensure new construction leaves enough space for recycling areas at new or redeveloped properties. It is mandatory to have space for recycling storage outside of buildings, but there is no requirement for inside storage.

The ordinance should apply to all regulated materials, regardless of sector of origin, but it is more policed from construction & demolition upstream of the landfill. It is enforced on all sectors of waste coming to either the C&D or MSW landfill. However, the wood requirement is a bit more relaxed on demo projects rather than new construction because so often wood is attached to other demo.

The keys to success for these efforts are education of builders, coupled with mandatory separation requirements. It is still a work in progress. In response to the County's initial requirements, a lot of C&D went elsewhere. They dropped from a four year average of about 30,000 tons before the ordinance in 2002 to a five year pre-recession average of about 15,000 tons. The County had only projected a 25% loss of tonnage, not 50%. They did collect an average of about 750 tons scrap metal, and 1,500 tons of clean wood annually, making up some of that loss in tonnage, but they definitely "drove" some tonnage away, most likely to sorting facilities that made about 30% diversion rates without counting large amounts of rubble.

### **Event Recycling:**

Orange County Solid Waste Management provides extensive recycling services and sometimes compostables diversion at most major public festivals. They also offer bins and carts to other smaller quasi-public events that want to do their own diversion, which the County then collects. At their last three public events, diversion rates were 88% -95% when comparing recycling + compost to waste. Some events collect only cans and bottles and the County deploys "roving recyclers" to collect from bins throughout festival grounds and consolidate and even pick the recyclables out of the garbage (strictly voluntary). They also lend bins, etc. for other events like weddings or big parties.

### **Lessons Learned**

Every five years since 1990, Orange County has conducted a waste characterization on all three streams – commercial, residential and multifamily. These have been invaluable in pinpointing where to make additional efforts. The data was also instrumental in driving the landfill ban on corrugated cardboard, first put in place in 1996 for non-residential cardboard. (Some haulers tried to sneak it out in dumpsters that they took elsewhere, others doubled the services they provided by providing a second dumpster for cardboard.)

Overall, the public education and outreach are key to what Orange County wants to get people to do voluntarily. Most seem to go along with this and do recycling properly. They do hand out "oops" tags when the recycling is done improperly and run monthly articles in local newspapers and monthly radio show on solid waste. They also run paid advertising in print and online editions of all five local daily, weekly and semi-weekly papers.

### Summary Table of program data from FY 10-11

<b>Program Totals</b>	
Urban Curbside	3,766
Rural Curbside	1,868
Multifamily	1,242
Commercial	988
Gov. Bldgs	131
Orange County Schools	66
Food/Animal Bedding	2,101
TRIP toxics HHW, electronics, oil, antifreeze, batteries	742
DROP F SITES & Govt. Bldgs	5,345

### Sources

Phone interview with Solid Waste Planner for Orange County, NC on September 2, 2011

Documents available through the profiled government's websites (e.g., Solid Waste Management Plan) including:

<http://townofchapelhill.org/index.aspx?page=1>

<http://www.co.orange.nc.us/recycling/community.asp>

Some text may have been taken directly from these documents and Mecklenburg County wishes to give full credit to the web and document authors.

**Portland, Oregon**  
**Bureau of Planning and Sustainability**

**Population served by program: Approximately 583,776 (per 2010 census)**

**1.0 Description of Government profiled:**

The City of Portland, Oregon's recycling and waste reduction programs are part of the Bureau of Planning and Sustainability (BPS), a City Department. The City of Portland does not collect garbage or recyclables/compostables itself, but rather sets administrative rules/regulations that permitted haulers must abide by. There are currently more than 50 private haulers operating in the area. Metro is the regional government entity responsible for a tri-county area (they manage transfer stations, permit recycling/composting facilities, and set regional standards and goals). Portland's own programs may exceed standards set by Metro, but may not fall below.

The City has 22 full-time employees assigned to the solid waste and recycling program in BPS, divided into the following categories: management, communications, customer and regulatory services, program development and planning, public education and outreach, events and Master Recycler program.

The staff work on franchising and rate setting for single family residential waste collection; permitting of commercial (including multi-family) waste collection; mandatory business recycling requirements; educating businesses and citizens on recycling, waste prevention and buying recycled-content products; providing businesses with containers and stickers; enforcing prohibitions against illegal dumping; and participating in regional planning activities. The City also provides a hotline and email for residents and businesses to ask questions about haulers, recyclers, rules and regulations and assistance with their recycling programs, and extensive information about the residential and commercial components of the program is available online. The total waste reduction budget is \$5.6 million.

**2.0 Overall Recycling/Waste Reduction Goals of Local Government.**

Based on the City's 2008 SWMP update, their waste management goals are:

- Zero growth in the waste stream.
- Increase recycling rate to 75 percent by 2015.
- Make the whole system more sustainable: safer for garbage haulers and neighborhoods.
- Reduce toxics and greenhouse gases.

The City has not yet developed metrics for all of its goals. The key measurement tool is the recycling rate. The recycling rate calculations are based on methodology used by the state DEQ, including DEQ's assignment of credits for waste prevention, reuse and home composting. The City's pre-plan recycling rate of 63 percent forms the baseline for evaluating progress toward reaching the City's goal of 75 percent recycling by 2015. The current overall recycling rate is 67 percent. All permitted waste/recycling/organics haulers are required to take materials to respective Metro approved facilities and report tonnages quarterly to the BPS (per their administrative rules/regulations). The disposal rate per ton is \$89.53. Reaching the new recycling goal will require improved recycling efforts in all target sectors: residential, commercial and construction waste.

In June 2009, Oregon Department of Environmental Quality began field work on a year-long statewide waste composition study, with assistance from Metro, Marion County, Lane County, the City of Eugene, and the City of Portland. Field work for the study was conducted by Sky Valley Associates, and involved

collecting and sorting 999 samples of solid waste weighing on average more than 200 pounds each, collected at 58 landfills, transfer stations, and mixed solid waste processing facilities throughout an entire calendar year. These samples were sorted into 130 material categories, and all beverage containers in the samples were also counted both by beverage type and by container material type. Results from the waste composition study have been compiled, but the final report has not yet been completed. However, the results are already helping to inform BPS program planning.

The City's Plan implementation was divided into two phases (2008-09 and 2009-2015). The description below reflects where they currently are under phase II implementation with special notations for future plans as provided by BPS.

## **2.0 Single Family Residential**

The residential program includes all single-family through four-plex dwellings. Residential customers are serviced by 21 franchised haulers. These haulers have exclusive service areas, and rates are set by the City. BPS provides residential haulers with several tools to educate customers on proper set out of recyclables at the curb. The curbside program utilizes a PAYT volume based rate schedule, reviewed and set annually by City Council. While Oregon state law requires communities of more than 4,000 to have a curbside recycling program (1983 Opportunity to Recycle Act, there is no requirement that residents participate. However, it is estimated that more than 80% of residential customers in Portland recycle.

Each resident receives a 60-68 gallon blue recycling roll-cart and 13.5 – 16 gallon yellow bin that are picked up every week. An additional \$3 fee is applied for extra cans, bags, or bundles. The *Curbsider* newsletter is sent to all residents two times each year to inform them about recycling, waste prevention, reuse and other bureau related issues and activities. The City also contracts with Portland State University's Community Environmental Services to provide an annual waste single family weight study.

Recycling items collected curbside:

- Newspaper, magazines, catalogs, phone books, corrugated cardboard, milk cartons, drink boxes, scrap and shredded paper;
- Plastic tubs and bottles (tubs include rigid plant pots and 5-gall or smaller buckets);
- Metal cans (aluminum, tin and steel);
- Aerosol cans (must be empty);
- Aluminum foil (food removed);
- Scrap metal (smaller than 30 inches and less than 30 lbs.);
- Motor oil (in clear plastic bottle with screw-on-lid); and
- Glass bottles and jars are placed in yellow bin

### **Pilot: Residential Food Waste Program + Garbage/Recycling Collection Frequency Changes**

From May 2010 through October 2011, 2,000 Portland households in four geographically diverse neighborhoods participated in the Food Scrap Curbside Collection pilot. The pilot increased the collection of yard debris to weekly and added the collection of food scraps weekly. Recycling collection continued on a weekly basis for half of the participants, and every-other-week recycling collection was tested with the other half of the participants. Garbage collection moved from weekly to every-other-week collection. Data and resident feedback from this pilot was collected, analyzed and showed that the program works. All of this input was used to develop the city-wide rollout which launched October 31, 2011.

The current curbside collection program includes:

- Garbage collected every-other-week



- Recycling collected weekly
- Food scraps and yard debris collected weekly

**Results:**

Lbs/household:            Solid Waste: 1247 lb    Recycling: 656 lb            Yard Debris: 523 lb  
 The current residential recycling rate is 51 percent.

**4.0 Multi-Family**

Multifamily properties include apartments, condominiums, mobile home parks and moorages with five units or more. Collection for multi-family properties is provided in an open, competitive market (approximately 50 haulers, plus 20+ independent recyclers), as is commercial collection. Property owners/managers are required to provide garbage and recycling service adequate for the number of households. The centrally located collection area must have a two-sort recycling system for glass and commingled paper, plastic and metal.

Other requirements include:

- Recycling stations must be as convenient as trash.
- Recycling information must be provided to new residents within 30 days of move in and on an annual basis thereafter.
- Offering recycling is the law in Portland.
- The City provides technical assistance including free posters, refrigerator magnets and large durable signs to assist MF residents in understanding how to recycle. Staff will hand deliver materials and speak to residents one-on-one.
- Garbage and recycling companies will send an annual Spring-time reminder to order materials. The City also offers a regional Property Manager's Guide for Successful Multifamily Recycling.

The multifamily program has been redesigned in recent years to provide an easy and consistent recycling system for all multifamily dwellers in the City. A variety of free tools and resources are available to property managers and owners. The City also contracts with Portland State University's Community Environmental Services to provide set up and outreach for multifamily recycling.

**5.0 Bulk Items**

One of the best options for getting rid of bulky waste is Portland's neighborhood association sponsored cleanup events where bulky items can be delivered for recycling, reuse or disposal: <http://www.oregonmetro.gov/index.cfm/go/by.web/id=16383>. Metro provides disposal voucher for these events, so most materials accepted at these events are delivered to Metro's transfer stations for disposal, reuse or recycling: <http://www.oregonmetro.gov/garbage>. Metro emphasizes reuse and recycling for neighborhood collection events. Also the cap on disposal vouchers and potential for increased profits from these events is an incentive for neighborhoods to divert these materials from disposal.

Appliances have a high recovery value if the casings are metal (most ranges, washers, dryers and refrigerators; some dishwashers have more plastic and are consequently disposed). There is a state law banning disposal of these so-called "white goods" so most are recycled. (See materials banned for disposal in the state of Oregon: <http://www.deq.state.or.us/lq/sw/disposal/landfillbans.htm>).

Furniture that is still useable (no damage, stains, tears, broken parts) can be donated to nonprofits that accept furniture. Sometimes these organizations (ARC, Community Warehouse, etc.) are invited to

participate in cleanup events hosted by neighborhoods. Some also do pickup upon request if they have need of home furnishings in good condition. Others accept drop-off of useable furnishings (Goodwill, Salvation Army, etc.)

Metro's Recycling Information hotline has options for pickup and drop off of these materials for recycling and reuse (or proper disposal in the case of tires that can't be recycled or furniture that is damaged): [www.oregonmetro.gov/findrecycler](http://www.oregonmetro.gov/findrecycler).

## **6.0 Household Hazardous Waste**

In addition to landfill bans on appliances and tires, it is illegal to dispose of motor oil, lead acid (mostly auto) batteries, electronics (computers, televisions and monitors) and medical sharps in Oregon. Tires are accepted separately at the transfer stations and are either delivered to local recyclers (RB Rubber or Tire Disposal and Recycling) or shredded and combined with solid waste sent to the landfill. Whole tires "float" in landfills and consequently cannot be disposed without processing.

Motor oil can be recycled curbside in the City of Portland. For multi-family residents that have used motor oil, there are several locations that accept motor oil for free for recycling, including Metro's transfer stations.

Batteries are accepted for recycling at Metro's household hazardous waste facilities and at neighborhood collection events: [www.oregonmetro.gov/hhw](http://www.oregonmetro.gov/hhw). Retailers that sell auto batteries take old ones back for recycling. Auto batteries can also be dropped off for recycling at Metro transfer stations. Rechargeable batteries are accepted for recycling by Metro's hazardous waste program, and also by dozens of Portland-area retailers. Metro Recycling Information has a listing of these locations as does the Rechargeable Battery Recycling Corporation: <http://www.call2recycle.org/>. Regular alkaline batteries that are manufactured domestically no longer contain hazardous materials and can be disposed of as garbage, however Metro does accept them through their hazardous waste program even though recovery value for them is marginal at best.

Metro's hazardous waste program accepts fluorescent lamps, either tubes or compact fluorescent bulbs (CFLs) for recycling, and CFLs are accepted by some retailers (Ikea, Home Depot, etc.) at Metro's neighborhood hazardous waste collection events. There is no prohibition on residential disposal of these in Oregon. They are covered by federal Universal Waste Rules (<http://www.epa.gov/osw/hazard/wastetypes/universal/lamps/>) so they cannot be disposed of in volumes of more than 20 at a time by businesses or larger generators and must be recycled.

Drop-off locations are provided by Metro for household appliances and electronics, hazardous and medical waste.

## **7.0 Business/Commercial**

"Business" is defined as any commercial entity, including industrial and institutional, non profit organizations and government facilities, but not including multifamily complexes or commercial entities which occupy less than 50 percent of the floor area of a residence.

As previously mentioned, commercial collection is provided in an open, competitive market (approximately 50 haulers, plus 20+ independent recyclers). All businesses must separate recyclable materials (paper and containers) from mixed waste and set out these materials for recycling collection. Businesses failing to recycle all paper and containers are given the opportunity to demonstrate to BPS

why they are unable to meet the requirement. BPS shall work with businesses and multifamily complexes to address their limitations and increase recycling to the maximum extent practicable. The City provides technical assistance, resources and recognition to businesses in the City. The City's business recognition program provides certification for businesses and publicizes the accomplishments of participants.

### **Commercial Food Waste**

Food scrap generating businesses are required to separate all food scraps and food soiled paper from mixed waste and set out for collection (e.g. compost, animal feed, or where possible, human consumption). BPS determines which businesses are subject to this requirement based on estimates of the amount of food scraps generated. The City has identified its largest food scrap generators, and the generators have been grouped into three tiers based on the estimated weight of material generated. All tiers will be contacted by City staff to notify them of the food scrap diversion requirement. The City also provides fact sheets, posters, and training materials on the program.

The Portland Composts! program continues in its sixth year of commercial food waste collection and will launch mandatory commercial collection with attention to large food producing businesses.

Restaurants, grocery stores and other retail vendors are prohibited from using polystyrene foam (PSF) containers for take-out food. Grocery stores and large retail stores with pharmacies are also prohibited from distributing single-use plastic bags to customers at point of sale.

### **Results**

Results are measured by quarterly reports issued by permitted haulers in terms of total tons delivered to disposal, recycling, and organics processing facilities. The current business recycling rate is 64%.

## **8.0 Schools**

Public Schools have their own sustainability efforts. BPS does not offer programs, but provides financial support to Oregon Green Schools.

## **9.0 Construction/Demolition**

For all building projects within the City where the total job cost (including both demolition and construction phases) exceeds \$50,000, the general contractor shall ensure that 75 percent of the solid waste produced on the job site is recycled. In addition, the following materials must be recycled and diverted from the landfill:

- Rubble (concrete/asphalt)
- Land Clearing Debris
- Corrugated Cardboard
- Metal
- Wood

The general contractor is responsible for ensuring recycling at the job site, including recycling by sub-contractors, and for completing a Pre-Construction Recycling Plan Form. Where no general contractor has been named on the permit application, the property owner is considered the responsible party. A Green Building Hotline phone number is also provided for related questions.

A phone number is provided to assist with identifying recycling options of most job site materials (the number is for the Metro Recycling Information Center).

In cases where a construction project refuses to meet City requirements, a penalty of up to \$500 may be imposed.

The City of Portland works with the Oregon DEQ to obtain ongoing C&D-specific recovery rates for the region and Portland in order to establish a benchmark and measure future success.

### 10.0 Event Recycling

Event recycling is voluntary in Portland. The City contracts with Portland State University’s Community Environmental Services to provide a variety of support services including coordination of technical assistance and equipment for public event recycling and food scrap collection. The BPS provides guidance documents on food waste composting and recycling and loans out clear-stream event recycling containers. The City also provides assistance for event recycling at all major events at Portland’s downtown Waterfront Park and other community events as requested.

### 11.0 Portland Recycles! Small Grants Program

Portland Recycles! offered \$25,000 in small grants for waste prevention and recycling in 2009 and 2010. Grant amounts ranged from \$500 to \$2,500. The program was funded as part of an initiative of the Portland Recycles! Plan for outreach and education around increased waste prevention and recycling in the Portland community.

The program goal was to offer grant money to neighborhood, community and nonprofit organizations for projects or items that help them overcome barriers to waste prevention and increase recycling while educating the community.

<b>Key Program Elements Identified from a Local Govt. Website</b>	
High	Weekly residential curbside recycling – (blue roll cart + yellow for glass).
High	Pilot residential curbside yard waste and food waste collection (rolling out city-wide in fall 2011)
Low	Drop-off centers operated by Regional Authority called Metro.
High	Mandatory Business & multi-family recycling requirements..
High	Food waste composting requirement for select food waste generating commercial establishments. *To be implemented in early 2012
High	C&D – 75% recycling requirement + recycling plan submittal (for projects exceeding \$50,000)
Low	Styrofoam ban for restaurants, grocery stores and other retail vendors.
Low	Event recycling/composting support.
Low	Small grants program
High	Other: Oregon Bottle Bill

## Sources

Documents available through the profiled government's websites (e.g., Solid Waste Management Plan):  
[www.portlandonline.com/bps/index.cfm](http://www.portlandonline.com/bps/index.cfm)

Some text may have been taken directly from these documents and Mecklenburg County wishes to give full credit to the web and document authors.

Preliminary document was reviewed by Solid Waste & Recycling staff for the City of Portland, Oregon

# San Francisco, California Waste Diversion Programs

**Population served by program: 805,235 (per 2010 Census)**

## **1.0 Description of Government Profiled**

The City and County of San Francisco operate within a singular governing structure. Waste Diversion programs are implemented through San Francisco's Department of the Environment (SF Environment) and often in conjunction with *Recology*: San Francisco's only permitted hauler and processor of putrescible waste.

San Francisco has a tremendously successful waste diversion program. In 2008, the City and County of San Francisco achieved a Landfill diversion rate of 77%, which translates to approximately 1.6 million tons of refuse that were recycled, composted, or reused. In 2010, San Francisco sent 400,000 tons of refuse to the landfill. This number is approximately half of what San Francisco disposed of in 2000, and is 15% less than its 2009 totals.

Waste diversion programs in San Francisco utilize a "carrot and stick" approach. The "carrot" represents extensive public outreach and educational campaigns, establishing incentives to drive participation, and creating programs that are both easy and convenient to the end user. The "stick" represents the policy measures which require participation and punish non-compliance.

## **1.2 Description of Notable Component**

### **1.2.1 Waste Collection**

*Recology* provides a three-stream collection system for all sectors in San Francisco. The collection system utilizes blue bins for comingled recyclables, green bins for compostable materials (food scraps of all kinds, food soiled paper, and plants), and black bins for landfill waste. *Recology's* commitment to waste reduction is remarkable and should be seen as a critical component of San Francisco's waste diversion programs.

### **1.2.2 Community Outreach**

A primary component behind the success of San Francisco's waste diversion programs is intensive public outreach provided by San Francisco's *Department of the Environment* and *Recology*. Funded through garbage rates, this outreach is focused on "why recycle and compost" rather than "how to recycle and compost". It is believed that if you can get customers to truly understand the benefits of recycling and composting, they will want to participate, and in turn will naturally seek out the "how to" component. To accommodate a multilingual populace, pictograms, multilingual signage, websites, presentations to community groups and individualized conversations are utilized.

### **1.2.3 Food Waste Collection Program**

Food Waste accounts for more than 50 % of San Francisco's organic waste. San Francisco's close proximity to a major agricultural region provides a viable end use market for the compost produced at *Recology's* compost facilities. Derived from the most diverse feedstock in the U.S., (attributable to the City having the highest concentration of restaurants in the country) this compost is used to support carbon sequestering cover crops in the regions 200+ vineyards. In 2009, *Recology* estimated that its

compost programs had returned 18,400 metric tons of carbon dioxide to the soil, supporting San Francisco’s goal of reducing greenhouse gasses. Today, Recology collects approximately 600 tons per day of organics in San Francisco from both the residential and commercial sectors (220,000 tons annually).

#### **1.2.4 The Mandatory Recycling and Composting**

In 2009, San Francisco passed the *Mandatory Recycling and Composting Ordinance*, requiring every property in the City to recycle and Compost. This was the first law of its kind in North America. Since its inception, it has become a major driver in increasing waste diversion in San Francisco. This Ordinance is enforced by three agencies: Public works (writes fines for contamination) public health (can put liens on properties for non-payment of service accounts, and SF Environment (outreach and education).

## **2.0 Overall Recycling/Waste Reduction Goals of Local Government**

Resolution No. 679-02 set forth a goal to achieve a landfill diversion rate of 75% by 2010 and to Zero Waste by 2020. The Department of the Environment Strategic Plan 2010-2012 specifies the following:

To achieve a 75% diversion rate, 3 objectives were established:

- Objective 1 A: Increase residential diversion to 55%
- Objective 1 B: Increase commercial diversion to 80%
- Objective 1 C: Increase city government diversion to 85%

To advance towards Zero Waste, 2 objectives were established:

- Objective 2 A: Require diversion program participation in all sectors
- Objective 2 B: Reduce use and encourage re-engineering of disposable products, increase reuse, recyclability, compostability and recycled content of selected categories, and secure producer participation or funding for recovery

SF Environment has recently adjusted how they set waste diversion goals and measure results. Rather than using a percentage rate (i.e. 85% diversion rate by 2012), they now measure diversion rates in tons. Listed below are San Francisco’s 2012 goals for the Residential, Commercial, and Government sectors:

Residential Goal:	15,000 Tons
Commercial Goal:	25,000 Tons
Government Goal:	4,000 Tons

## **2.1 Driving Factors**

- In 1989, the Integrated Waste Management Act required cities and counties to divert 25% of waste by 1995 and 50% by 2000 (base year 1990).
- In 2009, San Francisco’s contracted space allotment at the Altamont Landfill was expected to reach capacity by 2013.
- San Francisco Environmental Code Chapter 1: The Precautionary Principle : A belief that when an activity raises threats of harm to human health or the environment, precautionary measures should be taken based on the close evaluation of available alternatives using the best available science and input from the public. This principle is incorporated within all governmental decision

making. In accordance with this principle, the City and County of San Francisco has determined that the diversion of recyclable or compostable materials from landfills for beneficial use is a deterrent to unsafe and wasteful practices.

## 2.2 Waste Haulers

*Recology* provides collection, recycling, composting, and disposal services to all sectors. *Recology* has three operating companies:

- *Recology San Francisco*: Operates the transfer station and recycling complex at 501 Tunnel Avenue and Recycling Central on Pier 96.
- *Recology Sunset Scavenger*: Primarily provides collection services for the residential districts of San Francisco. Picks up commercial waste in designated locations.
- *Recology Golden State*: Primarily provides collection services in North Beach, South of Market, the Marina, and the Financial District.

*Recology* provides **20 separate and distinct recycling programs** in San Francisco.

1. **PERFECTLY GOOD (REUSE PROGRAM)**: *Recology* pulls items in good condition from loads brought to the transfer station by small contractors and self-haulers and send them to a repair facility where they are reconditioned and then delivered to thrift stores.
2. **COMMINGLED RECYCLING**: Curbside collection
3. **COMPOST COLLECTION**: Curbside collection
4. **RECYCLEMYJUNK.COM (BULKY ITEMS)**: Special collections for bulky items
5. **CONSTRUCTION AND DEMOLITION DEBRIS RECYCLING**:
6. **MATTRESS RECYCLING**: Mattresses from residents, hotels, and designated collection trucks are loaded into trailers at the transfer station and transported to a local company specializing in mattress recycling.
7. **CLEAN TEAM SATURDAYS**: These special events in each of the city's 11 districts allow residents to drop off items too big to fit in the regular bins.
8. **E-WASTE RECYCLING**: Most electronic waste is banned from landfill in California. Fluorescent tubes, monitors, TVs, computers, and other electronics are collected from drop-off locations, curbside collection appointments, and the transfer station then shipped to facilities specializing in recycling specific types of e-waste.
9. **SELF-HAUL RECYCLING**: *Recology* operates a special sorting line to recycle wood, metal, rigid plastic and other construction and demolition materials brought to the transfer station by small contractors and people completing big cleaning projects.
10. **HOUSEHOLD BATTERY RECYCLING**: Customers place batteries in zip-lock bags and place them on top of their (black) landfill bins. Collectors at the transfer station put the batteries into containers that are shipped to facilities specializing in battery recycling.
11. **PAINT, MOTOR OIL, HOUSEHOLD CLEANING, GARDENING PRODUCTS**: San Francisco residents can take such items to the Household Hazardous Waste Collection Facility or even make an appointment for a special pickup. All material collected through this program is identified and sorted by type and most of it is reused or recycled.
12. **COMMERCIAL WOOD, SCRAP METAL, AND LARGE PLASTIC RECYCLING**: Broken pallets from warehouses, wood scraps from cabinetmakers, and car doors and bumpers from auto shops are collected, sorted, and recycled.
13. **SUSTAINABLE CRUSHING**: Recycles concrete, bricks, and asphalt rubble from large construction, road replacement, and earthquake retrofit projects in the Bay Area.



14. **SPECIAL EVENT RECYCLING**
15. **TOILET RECYCLING:** Old toilets are pulled from the waste stream and transferred to a company specializing in porcelain recycling. Toilet seats and toilet lids made out of ridged plastic are removed prior to shipment so that they can be recycled.
16. **TIRE RECYCLING:** Used tires are handled separately at the transfer station and then taken to a company that shreds and recycles the rubber.
17. **BUY-BACK CENTERS:** Recology operates buy-back centers for customers who want to bring in bottles and cans for deposit redemption.
18. **WINDOW GLASS RECYCLING:** Glass from window shops and commercial customers is collected.
19. **CHRISTMAS TREE RECYCLING:** Trees are collected separately from other material the first two weeks of January. They are chipped, and used as boiler fuel at waste to energy facilities.
20. **STYROFOAM DROP-OFF:** Residents and businesses can drop off Styrofoam at the transfer station for recycling. Recology San Francisco operates a special densifier that condenses loose pieces of Styrofoam into ingots, which are recycled into base boards and moldings.

### **2.2.1 Notable Requirements for Refuse Collectors, Transfer Stations, and Processing Facilities**

- Collectors must provide designated containers for the source-separation of recyclables, compostables and trash.
- The collector must keep records of improper container use by a customer and notify customers about improper use.
- Upon request, a collector must submit an annual report to the Director of the Environment which discloses total refuse collected (segregated by material type) and the location it was delivered to.
- Processing facilities cannot receive trash from the city unless they provide audit reports, upon request, to the DOE which quantifies refuse content delivered from collection vehicles (per load).

No person can deliver recyclables or compostables to the San Francisco transfer station or landfill for the purpose of landfilling. A transfer station must provide audit reports to the director quantifies refuse content delivered from collection vehicles (per load).

## **3.0 Residential Waste Management**

### **3.1 Single-Family Homes**

#### **3.1.1 Collection System**

Single family residents utilize a 32-gallon blue, green, and black bin and receive weekly collection services. Larger 64-gallon or 96-gallon recycling and composting bins can be requested at no additional charge. At this time there is no residential fee associated with the collection of recycling and composting

Larger black bins are available to customers for an increased cost. These rates are set by the Independent Rate Board. Customers that produce less than 32 gallons/week of refuse can obtain a 20 gallon “mini-can” for a discount of approximately \$5 per month.

### 3.1.2 Recycling

Items that are accepted within the Recycling System:

- Aluminum cans , aluminum foil and trays (ball foil up to softball size) , caps and lids from bottles, jars and steel (tin) cans, paint cans (must be empty or dry), spray cans (must be empty), Steel (tin) cans
- Plastic bottles (leave caps on) , plastic buckets (metal handle ok), plastic coffee cup lids, plastic containers and clamshells, cups and plates (plastic only, no styrofoam), plastic flower pots and trays, plastic toys (no electronics, metal or batteries), plastic tubs and lids
- Bags (paper only, no plastic), cardboard (non-waxed), cereal boxes (remove plastic liner), computer and office paper , egg cartons, envelopes (windows okay), junk mail and magazines, newspapers, packing or craft paper, phonebooks, sticky notes, shredded paper (place in sealed paper bag and label "Shredded Paper"), wrapping paper (non-metallic)
- Glass bottles and jars only (metal caps and lids too)

### 3.1.3 Food and Yard Waste

#### Acceptable Green Waste Materials

##### Food Scraps

- Bread, grains and pasta, coffee grounds, dairy, eggshells and eggs, fruit (pitts too), leftovers and spoiled food, meat (including bones), seafood (including shellfish), tea and tea bags, vegetables

##### Plants

- Branches and brush, flowers and floral trimmings, grasses and weeds, leaves, tree trimmings

##### Food Spoiled Paper

- Coffee filters, greasy pizza boxes, paper cups and plates, paper ice cream containers (metal or plastic rim is ok), paper bags, napkins, tissues and towels, paper take-out boxes and containers (metal handle OK), tissues, waxy paper milk and juice cartons (no foil liner, plastic spout OK)

##### Other

- Cotton balls and cotton swabs, hair, fur, feathers (non-synthetic), plastic and cutlery clearly labeled "Compostable", vegetable wood crates (metal wire is OK), waxed cardboard and paper, wood, and wooden chop sticks

##### Yard Waste

- Yard waste is accepted within the residential composting program

### 3.1.4 Rates

San Francisco employs a variable rate fee system (Pay-As-You-Throw). As of July 2010, the monthly rate for weekly collection of a residential 32-gallon black trash bin is set at \$27.55. Larger black trash bins are available to customers; however, their collection rate is doubled for a 64-gallon black bin, and tripled for a 96-gallon black trash bin. These rates are set by the Independent Rate Board and will remain constant through June 30, 2012. The Independent Rate Board is an apolitical entity.

### 3.1.5 Policies and Results

The residential sector represents approximately 22% of San Francisco's waste stream. Rather than charge a franchise fee, the City requests Recology to provide millions in in-kind services.

San Francisco has implemented a pay-as-you-throw refuse collection system for the residential sector and a *Mandatory Recycling and Composting Ordinance*.

Waste collectors must keep records of improper container use by a customer. After two notifications, the collector can refuse to service the container and must provide written instructions on how to correct the problem.

Results: Roughly 60% of Residential waste is diverted through the source separation of composting and recycling.

## **4.0 Multi-Family**

Multifamily complexes are defined as having 6 or more units. Approximately 70% of San Francisco's residents live in apartment buildings. These buildings receive garbage, recycling, and composting service. According to SF Environment, creating a successful waste diversion program in multifamily units is dependent on gaining buy-in from the building owner. Once the owner realizes that they can qualify for a discount by getting tenants to further participate in recycling and composting, many owners embrace the recycling program.

### **4.1 Recycling (Multi-Family)**

Multifamily buildings can recycle the same materials as single family residents. Multifamily units are subject to a "uniform residential rate," set by the city, which applies residential rates to multifamily units. Multifamily buildings typically receive 64-gallon bins; however, different sized bins can be requested by the building owner. SF Environment offers property managers and/or building owners free waste assessments to determine how to increase recycling, add composting, and reduce waste.

### **4.2 Food and Yard Waste (multi-family)**

The same materials are accepted as in the residential program. All renters are entitled to receive recycling and composting service. *Recology* offers free kitchen pails for all residents and tenants.

### **4.3 Garbage (multi-family)**

Dumpster service is provided on a fee basis (pay-as-you-throw). For smaller generators interested in reducing disposal costs, a 16-gallon-per-unit service level is available.

### **4.4 Requirements (Multi-Family)**

Subject to the *Mandatory Recycling and Composting Ordinance*

All owners and managers or multifamily properties must provide:

- Adequate refuse collection service (Recycling, Composting, and Trash)
- Collection bins that are color coded, labeled and conveniently located for the tenants
- Annual training to their tenants, employees, and janitors to ensure the collection system is properly used

## 4.5 Results

- In 2005, 95% of Apartment buildings had recycling service. Today, nearly all apartment buildings have recycling service.
- As of 2010, approximately 75% of apartment buildings have composting service.
- Approximately 6,000 apartment buildings (roughly 2/3 of all multifamily housing) participate in the San Francisco's compost collection program.

## 5.0 Business/Commercial

The commercial sector generates approximately 70% of San Francisco's waste stream. To meet the commercial sector's waste diversion goal of 80% established within the Department of the Environment Strategic Plan 2010-2012, focus has been put on:

- Extensive outreach
- Promoting source reduction, reuse, and purchasing recyclable/compostable goods through SF's *Green Business Program*
- Providing direct assistance
- Making presentation at merchant associations and property management companies
- Conducting business corridor compliance sweeps
- Targeting large material generators and multi-tenant properties,
- Work with owners/managers, service providers, and unions to start waste reduction programs
- Ensuring compliance with the Food Service Waste Reduction Ordinance
- The continued implementation of the C&D Recovery Ordinance, with a goal of diverting an additional 10,000 tons/year
- A *commercial compliance tool kit* is available to commercial entities. This tool kit consists of separation requirements, sample tenant memos, videos, training, and signage

### 5.1 Business/Commercial Recycling and Yard/food Waste

Identical items can be recycled and composted in the commercial recycling and composting program as in the residential program. Businesses are subject to the *Mandatory Recycling and Composting Ordinance*.

*Recology* implements a uniform commercial rate structure in which businesses pay for collection service on all containers (black bin, blue bin, and green bin) and receive a monthly recycling discount based on their participation in recycling and compost programs. Many businesses qualify for discounts of over 50%.

### 5.2 Business/Commercial Garbage

To help commercial customers better understand the rate structure and how best to manage their refuse costs, *Recology* created a "rate calculator".

### 5.3 Business/Commercial Policies and Results

#### Mandatory Recycling and Composting

All owners and managers of commercial properties, food vendors, and events must:

- Provide adequate refuse collection service
- Provide containers for refuse collection
- Ensure that refuse collection containers are both properly labeled and conveniently placed for use by tenants, employees, contractors, and customers of the property
- Provide annual training to tenants, employees, contractors, and customers on how to source separate recyclables, compostables and trash

The *Food Service Waste Reduction Ordinance* prohibits the use of polystyrene food service ware containers. Instead, food vendors must use biodegradable/compostable or recyclable disposable food service ware approved within the City Administrator’s annual list of suitable alternatives.

### San Francisco Green Business Program

The mission of the program is to help San Francisco businesses operate in an environmentally responsible manner and recognizes them for their efforts. The program is free, and offers hands-on support, training, and technical assistance from environmental experts.

#### Results:

According to SF Environment and *Recology*, the number of commercial accounts subscribing to composting has doubled (3,500 to 7,200) since mandatory recycling and composting measures have been put in place. Further, approximately 95% of restaurants and 90% of office buildings are actively composting. This is equal to nearly half of all commercial accounts (*BioCycle*, July 2011 pg. 30).

## **6.0 Schools**

Public schools in San Francisco are excluded from City and County waste reduction mandates because they are considered to be State entities. However, 80% of all public schools in San Francisco use the three-cart system. The San Francisco Unified School District (SFUSD) negotiates their contract and level of service with *Recology*, and meets with them at least quarterly. Although recycling and composting at public schools is not mandatory, the SFUSD can save a lot of money on their garbage rates if the schools divert waste. Private schools must participate in the three-cart system, with each school negotiating their own contracts and level of service with *Recology*.

### **6.1 Environmental Education Program**

Run by *SF Environment*, this free program works to promote positive behavioral change in students. The program promotes environmental stewardship through: establishing school recycling and composting programs and/or increasing composting and recycling rates at schools; teaching litter prevention; and teaching water conservation and water pollution prevention. The program achieves this by offering school wide assemblies, interactive classroom presentations, field trips, teacher training workshops, educational materials, and technical assistance. To aid in their educational efforts, SF Environment created the programs mascot: *Phoebe the Phoenix*.

To increase waste diversion at city schools, the program has two objectives:

**Objective A:** Implement and Improve the *Food to Flowers!* lunchroom composting and recycling program.

**Objective B:** Provide Students with opportunities to learn more about waste diversion.

## 6.2 Results

Approximately 80% of San Franciscan Schools participate in this program. Participating schools aim to divert at least 50% of waste. It typically takes one month to set up the program. Principal engagement is critical for the program's success. Schools and custodians at schools achieving a 50% diversion rate are given a one-time monetary stipend

## 7.0 Construction & Demolition (C&D) Waste

C&D Waste is categorized as part of the commercial waste sector. There is an open market for the hauling, reuse, recycling, and processing of C&D materials.

### 7.1 Rules and Regulations

#### Construction and Demolition Debris Recovery Ordinance (Ordinance No. 27-06)

This Ordinance mandates the recycling of construction and demolition (C&D) debris. The ordinance applies to all construction projects and requires the building permit holder or the property owner to ensure that all C&D materials removed from the project are properly recycled. C&D materials are prohibited from being placed in the trash or sent to a landfill.

No person, other than the owner of the property where the construction and demolition debris was generated, may transport and no person may process construction and demolition debris unless that person has a registration from the Department as provided in the Ordinance. All construction and demolition debris, regardless of transport or volume, must be processed at a registered facility.

A registered facility must meet an overall minimum recovery rate of 65 percent for construction and demolition debris (based on the most recent month), which may include materials used as ADC or bio-mass conversion, provided that the facility can demonstrate that the use as ADC or bio-mass conversion is the highest and best use. The recovery rate will be determined by the total quantity of materials delivered to established recycling and composting markets divided by the total quantity received by the registered facility. Highest and best use for ADC does not include ADC which is generated by intentional crushing or grinding of construction and demolition debris that has not been processed to remove wood, metal, wallboard, glass and other materials for which markets or uses other than ADC are available.

The Building Code further reinforces this by stating that: "all construction and demolition debris in amounts of one cubic yard or greater generated in the course of a construction or demolition project must be transported off the site by a registered transporter, unless transported by the owner of the site, and handled, processed and otherwise managed by a registered facility for recovery of the materials."

#### Demolition Debris Recovery Plan:

Applicable to individuals conducting full demolition of an existing structure, this plan must be submitted to and approved by SF Environment in order for the San Francisco Department of Building Inspection to issue a full demolition permit. This plan must provide for a minimum of 65% diversion from landfill of C&D debris. The plan must identify the projected quantity of demolition materials, the designated transporter(s) and the designated facility(s) that will process or recycle or reuse those materials.

### City Government Construction Recycled Content Ordinance (Ordinance No. 53-07)

This Ordinance specifies that recycled content materials should be used to the maximum extent feasible for public works projects or improvements.

### Environmental Code SEC. 705.5. City Buildings; Storage of Recyclables

City departments undertaking a new construction project of specified criteria must ensure that adequate, accessible, and convenient recycling areas are included within the project.

### Environmental Code SEC. 706. Construction and Demolition Debris Management

Construction/demolition/renovation projects at City facilities with a total projected cost  $\geq$  \$90,000 must include a written *Construction and Demolition Debris Management Plan*.

### Administrative bulletin 088 and Building Code Chapter 13, Section 1304C

Requires that any new construction or expansion of commercial or multifamily property to provide adequate space for recyclables and compostables.

Disaster Debris Recycling Resolution - City Departments must maximize reuse and recycling of debris in the event of a disaster.

## **7.2 Registered Facilities**

There are 12 registered facilities in the San Francisco Region.

Two facilities are located inside the city limits of San Francisco. There are 10 additional facilities located in the region.

## **7.3 Results**

Since 2008, San Francisco has experienced a dramatic decline in the quantity of waste materials generated by C&D activity; however, this sharp decline is congruent with the sharp economic downturn experienced by the US economy during the same time period. The true diversion rate for C&D waste generated in San Francisco is difficult to calculate due to the lack of tracking mechanism for private sector source-separated C&D waste materials, nor are there mechanisms for tracking C&D jobs not considered to be “full demolition”.

## **8.0 Event Recycling**

SF Environment offers free recycling workshops for event organizers and producers and has published educational materials such as a “Zero Waste Checklist for Events”. Free signage and posters are also provided.

Events are required to provide adequate collection of recycling, composting, and trash. These containers must be properly labeled and conveniently placed. Event organizers are required to educate employees and contractors, including janitors, on how to separate materials

### San Francisco Special Events Ordinance

Requires that events dispensing beverages or the generating large amounts of refuse must submit a recycling plan outlining how recyclable and compostable materials will be collected and properly disposed of.

## **9.0 Waste Prevention (Source Reduction)**

San Francisco offers various programs designed prevent waste.

### Stopping Junk Mail:

- *Junk Mail Reduction Kit*: A free guidebook for both the business and the residential sectors which informs the user how to reduce the amount of junk mail he or she receives.
- *Do Not Mail Registry*: Encourages residents to sign up for the “Do Not Mail Registry”. Provides direct link to the Do Not Mail Registry website.

### Bring Your Own Bag Campaign

Encourages residents to bring their own reusable bag when shopping. The City of San Francisco has also distributed thousands of SFE-branded canvas bags made from scrap cloth.

### San Francisco Recycling Workshops

Held at City Hall, these workshops are free and open to the public

### Donate your Unwanted Items:

San Francisco provides links on their websites to eight innovative resources for donating items for reuse, locating used things for free or cheap, and renting stuff out. These include [Craigslist](#) , [Goodwill](#), [Freecycle](#) , [Rentalic](#) , [SCRAP](#) , [Building Resources](#) , [Food Runners](#), and the [San Francisco Food Bank](#)

### Zero Waste Grants

SF Environment provides up to \$600,000 annually in zero waste grants to nonprofit organizations to support the innovative reuse, recycling, composting, market development, and education that will cost-effectively increase waste diversion in San Francisco

### Environmental Code Chapter 21: Yellow Pages Distribution Pilot Program:

A pilot program focused on reducing unsolicited commercial phone directories delivered to private residents and businesses in San Francisco. This program is designed to channel the distribution of directories to individuals who actually want it. This “channeling” will be primarily accomplished through the use of a public outreach program.

### "Gigantic 3" Neighborhood Collection Days

One Saturday per year, this staffed event brings three large containers to residential neighborhoods for the purpose of collecting recycling, composting, and bulky items. The program collects donations for Goodwill, used motor oil and filters, fluorescent bulbs and tubes, and household batteries.

### Ecofinderrr and Ecofinderrr for iPhone

Developed by SF Environment, Ecofinderrr is an interactive web-based application which helps residence of San Francisco find out where and how to properly recycle and dispose of a vast multitude of items. This tool is now available via a free iPhone App.



### Recology's Artist in Residence Program

Implemented in 1990, this program is designed to encourage the resources conservation and to make people think of discarded materials in new ways. This program provides Artist with access to discarded materials, studio space at *Recology's* Recycling Center, and a stipend. Six artists per year participate in the program. These Artists occasionally speak to tour groups about their experiences working with the discarded materials. At the conclusion of their residency, *Recology* hosts a two-day public exhibition and reception for the artists.

### **Producer Responsibility**

#### Extended Producer Responsibility Resolution

The Board of Supervisors urged state representatives to pursue statewide extended producer responsibility legislation targeted at universal waste, with eventual emphasis on other categories of harmful waste. The Resolution recommends that the Department of the Environment develop producer responsibility policies.

#### Plastic Beverage Bottle Resolution

There is a resolution which urges the Mayor and Board of Supervisors to instruct City Departments to only purchase plastic bottles with recycled content.

#### Coca-Cola Recycled Plastics Resolution

Urged Coca-Cola to use recycled plastic in their bottles and reintroduce refillable bottles in the U.S. A similar resolution was later passed for Pepsi and Cadbury Schweppes.

#### Catalog Resource Conservation

Urges the catalog industry to reduce paper use and increase postconsumer recycled content.

#### Computer and Electronics Recycling Resolution

Advocates state legislation requiring computer and electronic manufacturers to take responsibility for reuse and recycling of their products.

#### Bag Recycling Resolution

Supports mandating the recycling of plastic bags at grocery stores and opposes any state preemption of local fees and other requirements to promote waste reduction.

#### Checkout Bag Fee Resolution

Urges the mayor and Board of Supervisors to adopt an ordinance requiring a fee on supermarket checkout bags

## **10.0 City Government Recycling**

To meet the City Governments waste diversion goal of 85% established within the Department of the Environment Strategic Plan 2010-2012, focus has been put on:

- Facilitating compliance with Executive Directive 08-02
- Working with IT managers and DT to purchase second generation multifunctional devices
- Institutionalizing paperless paystubs and the electronic distribution of forms
- Installing electric hand driers

- Increase reuse and recycling of office furniture, equipment, and supplies by managing and promoting the San Francisco's *Virtual Warehouse*
- Facilitate compliance with the Precautionary Purchasing Ordinance and Extended Producer Responsibility Resolution
- Expanding diversion by 10,000 tons by:
  - Facilitating compliance with the Resource Conservation, C&D debris and other ordinances
  - Making recommendations and improving programs
  - Expanding recycling and composting at 50 priority locations
  - Assisting 20 departments in reducing cost by a total of \$400,000
  - Training 75 recycling coordinators annually
  - Giving presentations on Zero Waste principles and procedures to 1,200 city employees
  - Ensuring all departments complete the yearly waste diversion questionnaire and providing feedback to 15 key department Directors or upper managers each year

#### Environmentally Preferable Purchasing Ordinance

- The intent of this Ordinance is to reduce negative impacts to human health and the environment through the development of specifications for City Purchases.
- City employees must purchase certain items from the "Approved Alternatives List" which was developed, maintained, and approved by the Director of the Environment.

#### Executive Directive 08-02

- The City Government must use 100 % post-consumer content printer and letterhead paper.
- Paper purchases must be reduced by an average of 20 % over the 2004 level by the end of 2009.
- Requires City Departments to only purchase products found within The Department of the Environment's "SF Approved" list.

#### Resource Conservation Ordinance

##### **Waste Reduction by City Departments**

- Departments must maximize purchases of recycled products and maximize waste diversion.
- Department heads must provide the Director of the Environment with a written commitment to this cause. All assessments, plans and reports must be submitted to the director electronically.
- Each Department must designate a person whom is responsible for compliance with the provisions of this Ordinance.

##### **Waste Assessments**

Each City department must conduct an annual waste assessment of their waste stream and submit the results to the director.

##### **Resource Conservation Plans**

City Departments must develop and implement a Resource Conservation Plan. This plan must be submitted to the Director for approval.

## **Janitorial Contracts**

Contracts for janitorial services must include a provision obligating the janitorial contractor to consolidate recyclable materials from individual City offices to a designated space for pickup.

## **Purchase and Use of Printing and Writing Paper Products**

- Unless specified, all forms must be printed double sided.
- Pre-printed materials intended for distribution must include a recycled content logo and the percentage of post-consumer material in the paper.
- Bids, reports, RFP's, and quotations submitted to a Department must meet these requirements.
- All contracts must incorporate these standards.

## **Annual Reports**

City Departments must report their solid waste diversion information on an annual basis.

## **SEC. 511 Guidelines**

The Director acts as a clearinghouse of information on recycled product availability, performance, and post-consumer material content and shall assist City Departments in meeting compliance.

Mayor's Executive Order on Bottled Water - Prohibits San Francisco city departments from using public funds to purchase bottled water.

Plastic Beverage Bottle Resolution – Directs city departments to provide recycling receptacles for beverage containers

Green Building Ordinance – Requires city construction to manage debris and provide adequate recycling storage space in buildings.

## **City and County of San Francisco Virtual Warehouse**

Created by *SF Environment*, this program establishes an online materials exchange system for a wide variety of surplus items among San Francisco City Departments. Such items include office furniture, equipment, office supplies, and computers. Program goals include:

- Meet San Francisco's zero waste goals
- Comply with the Resource Conservation Ordinance for SF City Departments
- Prevent valuable items from being sent to the landfill, which conserves precious natural resources
- Save the City money on purchasing and disposal costs

## **10.1 RESULTS**

San Francisco is now diverting over 85% of its waste generated in the Governmental Sector.

(Resource Recycling, August 2011, pg. 27)

## 11.0 Hazardous Waste

### 11.1 Residential Hazardous Waste

#### Household Hazardous Waste Pick-Up Program: Single Family Residence

- *Recology San Francisco* offers a free pick-up service for household hazardous waste
- The service will not pick-up unknown or unlabeled wastes.

#### Household Hazardous Waste Pick-Up Program: Multiple Unit Building

- Residents in each unit must schedule their own pickup appointments

#### Toxic Product Neighborhood Drop-Off Centers

- Free to SF residents
- Located at dozens of locations throughout the City, typically behind sponsoring businesses.
- These centers accept the following items:
  - batteries
  - fluorescent tubes & CFL bulbs
  - latex paint
  - small, empty propane tanks
  - used motor oil

**\*\*ALL WALGREENS STORES IN SF ACCEPT HOUSEHOLD BATTERIES FOR RECYCLING.**

#### Household Hazardous Waste Drop Off Center

- Limits: 15 gallons/day (or 125 lbs of solid waste per day) limit for paint, oil, and other household chemicals.
- The center does not take empty containers and are available only to residents of San Francisco.

#### **Acceptable Household Hazardous Waste**

- Latex Paint
- Fluorescent Tubes and Bulbs
- Household Batteries
- Oil Paint and Other Finishes
- Solvents and Thinners
- Used Motor Oil and Auto Products
- Fuels (small tanks)
- Road Flares
- Cleaning Solutions Pesticides and Other Garden Chemicals Roofing Tar and Adhesives Lithium Batteries, Photo-Chemicals Aerosols
- Asbestos
- Used Cooking Oil
- Mercury-containing Thermometers

#### **Paint Recycling Program**

Operated at the San Francisco Recycling Center Household Hazardous Waste Facility, this program takes left-over latex paint collected through the household hazardous waste collection program, reprocesses it, and then fills 5 gallon containers that can be used by San Francisco's residents free of charge. Paint not claimed by San Francisco residents is then shipped to less affluent parts of the world.

#### **Expired Medications**

- San Francisco Mail-In Pilot Program
  - Provides pre-paid envelopes in which San Francisco residents can mail their expired medications to the proper disposal facility. Envelopes hold liquid and solid medicine.

## 11.2 Commercial Hazardous Waste

### “Very Small Quantity Generator” (VSQG) Drop Off Program

- VSQG’s: Businesses that generate less than 220 lbs (27 gallons) of hazardous waste/month
- VSQG’s make an appointment to transport their waste to the San Francisco Household Hazardous Waste Facility (operated by SF Recycling & Disposal, Inc.). Specified fees apply.
- VSQG Drop-off Days are held two Wednesday’s per month. Limits apply.

## 12.0 Electronic & Universal Waste Recycling

The State of California prohibits placing electronic waste, fluorescent tubes, consumer batteries and mercury thermostats into trash.

### Electronic Waste

Customers at *Recology San Francisco* (the dump) can dispose of up to 30 electronic items per month for free if they are delivered without any other type of garbage. Fees apply for customers exceeding 30 items.

### Consumer Batteries

- Household batteries can be dropped off at all Walgreens and many other locations in San Francisco.
- Households or businesses can bring up to 5 gallons of batteries (70 pounds) per month for free to the public disposal area at the SF Dump. Fees apply for customers exceeding 5 gallons.
- Residents can put batteries in Ziploc bags and put the bag on top of their waste container. *Recology’s* drivers put this bag in a 5 gallon bucket attached to the truck. The batteries are then taken to the transfer station and shipped to a contracted processor for recycling.

### Fluorescent Lamps (tubes and bulbs)

- Free disposal of fluorescent lamps is available at City operated neighborhood drop-off sites.
- Up to 30 lamps per month (fluorescent tubes and CFL’s only) are accepted at the Public Disposal Area at *Recology San Francisco* for free. Fees apply for customers in excess of 30 lamps.
- Businesses can recycle up to 30 fluorescent lamps per month at the Public Disposal area of San Francisco Recycling and Disposal facility for free. This facility also accepts specialty light bulbs.

## 13.0 Facilities

### 13.1 Landfills

#### Altamont Landfill & Resource Recovery

The Altamont Landfill is located approximately 42 miles away from San Francisco. This landfill will be used until 2015.

#### Ostrom Road Landfill

The Ostrom Road Landfill is owned and operated by *Recology*. Located over 120 miles to the north of San Francisco, the landfill will begin accepting waste from San Francisco in 2015. To cut down on the

monetary cost and environmental impact of transporting waste to this facility, waste will be shipped via rail. This landfill utilizes methane capture technology for the production of electricity.

## 13.2 Recycling

### Recycling Central at Pier 96

The Recycle Central plant is a semi-automated recycling center that processes commingled recyclables from the residential, commercial, and multifamily sectors of San Francisco. The plant covers 185,000 square feet and processes approximately 750 tons of commingled recycling a day (glass and plastic bottles, tubs and lids, non-ferrous metals including aluminum and tin cans and paper and cardboard). Recycling Central is the largest shipper of waste paper on the west coast. In 2007, *Recology* installed solar panels on the roof of the facility, offsetting approximately 30 percent of the facility's electricity needs.

## 13.3 Transfer Station and Recycling Center

### Recology San Francisco Solid Waste Transfer and Recycling Center

(501 Tunnel Avenue, San Francisco)

Located on a 44 acre plot of land, this complex consists of several buildings housing various operations:

#### "The Pit"

All black bin materials (materials going to the landfill) are dumped in "the pit", a concrete lined area inside the transfer station. Materials dumped in the pit are compacted via bulldozers and then top loaded with a crane into 18 wheel trucks for transport to the Altamont Landfill (58 miles East of San Francisco).

#### Household Hazardous Waste Facility

Household hazardous waste service is only available to San Francisco residents. In addition to receiving household hazardous waste (used oil, cleaning products, garden products including pesticides), this facility operates a **paint recycling program**.

#### Electronic and Universal Waste Recycling

Residents can also bring electronic and universal waste to the transfer station or schedule a special pick-up through *Recology's* collection program.

#### Organics Annex Building

(501 Tunnel Avenue, San Francisco, CA)

Organic materials (food scraps and plants) collected from San Francisco's green bin program are brought to the Organic Annex Building. Once the collection trucks dump the organic materials onto the tipping floor, the organics are top loaded into 18 wheeled transfer trucks. Next, the organics are loaded in "long haul" trucks which deliver these materials to area composting facilities.

## 13.4 C&D Recycling.

### Integrated Materials Recovery Facility (iMRF)

*Recology San Francisco's* C&D facility is housed in a 46,000-square-foot building and is permitted to process mixed C&D debris generated in San Francisco. Costing 14.4 million dollars, the facility has a theoretical maximum throughput of 1,200 tons/day (based upon a 16 hour/day operation).

Being an enclosed processing facility, operators must implement numerous technologies to maintain air-quality. The majority of materials processed at the facility are derived from residential remodeling and new construction. The facility also receives materials from manufacturing and industrial businesses which generate large amounts of metal and/or wood waste. The tipping fee for C&D waste is the same as the refuse tipping fee.

Unprocessed material is initially screened to remove fines. This material is then used as alternative daily cover in landfills.

All materials removed during the sorting process require tipping fee payments at secondary recycling or processing facilities (excluding metals and minor quantities of paper and beverage containers). These tipping fees help cover the operational costs for facilities that receive wood, fines, inerts, concrete and tires.

All wood is sorted by hand. As of 2004, only unpainted wood was being sorted. Approximately 80 percent of the sorted wood is sent to a contracted wood processor to be sold on the biomass market. Approximately 20 percent of the processed wood waste goes to the Jepson Prairie Organics composting operation.

(Source: [http://www.recology.com/press\\_room/articles/pdf/biocyte0204.pdf](http://www.recology.com/press_room/articles/pdf/biocyte0204.pdf))

## 13.5 Composting Facilities:

### Jepson Prairie Organics

Located two miles east of Vacaville, California Operated by Jepson Prairie Organics, a subsidiary of *Recology*, this facility processes approximately 11,000 tons per month of mixed organics.

Jepson Prairie Organics utilizes two primary feedstock's: Food Scraps and Yard Trimmings. The two feedstock's are fed into an industrialized grinder that utilizes fully electric preprocessing equipment, eliminating the consumption of diesel fuel. The facility employs reversed aerated static pile technology. The JPO processes approximately 150 tons of organic material for anaerobic digestion.

### *Recology Grover Environmental Products (RGEP),*

Owned by *Recology*, RGEP has two facilities: A 23-acre site in Modesto, CA that produces ornamental mulches from recycled wood, and a 216-acre composting facility in Vernalis, CA that produces compost from yard trimmings and food scraps.

## **South Valley Organics, Inc.**

Located in Gilroy, California, The site utilizes the "Ag-Bag" composting system. This site composts yard waste and food scraps collected from South Bay homes and food scraps from San Francisco restaurants and households. South Valley Organics processes 40,000 tons of organics annually

## **Resources**

San Francisco Department of Environment

<http://www.sfenvironment.org/>

SF Environment Program Information

[http://www.sfenvironment.org/our\\_programs/program\\_info.html?ssi=3](http://www.sfenvironment.org/our_programs/program_info.html?ssi=3)

SF Environment Precautionary Principle

[http://www.sfenvironment.org/our\\_policies/overview.html?ssi=14](http://www.sfenvironment.org/our_policies/overview.html?ssi=14)

SF Environment C&D Waste

<http://www.sfenvironment.org/>

SF Environment Virtual Warehouse

<http://www.sfenvironment.org/archive/4865/25129.htm>

SF Environment Event Recycling

[http://www.sfenvironment.org/our\\_programs/topics.html?ssi=3&ti=86](http://www.sfenvironment.org/our_programs/topics.html?ssi=3&ti=86)

[http://www.sfenvironment.org/downloads/library/event\\_recycling\\_checklistupdated\\_2008.pdf](http://www.sfenvironment.org/downloads/library/event_recycling_checklistupdated_2008.pdf)

[http://www.sfenvironment.org/downloads/library/eventrecyclingandcomposting\\_consultants\\_122009.pdf](http://www.sfenvironment.org/downloads/library/eventrecyclingandcomposting_consultants_122009.pdf)

SF Environment Strategic Plan

<http://www.sfenvironment.org/search/index.php?cx=017050556611498700933%3Ax-oldn7vxzk&cof=FORID%3A11%3BNB%3A1&ie=UTF8&q=SF+Environment+strategic+plan&sa.x=0&sa.y=0&sa=Search&siteurl=www.sfenvironment.org%252F>

SF Environment Waste Reduction

<http://stopjunkmail.org/sample/kit.pdf>

[http://www.sfenvironment.org/our\\_programs/program\\_info.html?ssi=3](http://www.sfenvironment.org/our_programs/program_info.html?ssi=3)

[http://www.sfenvironment.org/our\\_sfenvironment/press\\_releases.html?topic=details&ni=725](http://www.sfenvironment.org/our_sfenvironment/press_releases.html?topic=details&ni=725)

[http://www.sfenvironment.org/our\\_programs/interests.html?ssi=3&ti=7&ii=11](http://www.sfenvironment.org/our_programs/interests.html?ssi=3&ti=7&ii=11)

<http://www.sfenvironment.org/ecofinder/>

[http://www.sfenvironment.org/our\\_programs/interests.html?ssi=5&ti=11&ii=103](http://www.sfenvironment.org/our_programs/interests.html?ssi=5&ti=11&ii=103)

SF Environment Producer Responsibility

[http://www.sfenvironment.org/our\\_programs/program\\_info.html?ssi=3](http://www.sfenvironment.org/our_programs/program_info.html?ssi=3)

Recology

<http://www.recology.com/index.htm>

[http://www.recologysf.com/real\\_value/index.htm](http://www.recologysf.com/real_value/index.htm)



<http://www.recologysf.com/residentialCompost.htm>

Recology Rates

<http://sunsetscavenger.com/residentialRates.htm>

Recology Rate Calculator

<http://sunsetscavenger.com/commercialRates.htm>

Recology Artist in Residents Program

<http://www.recologysf.com/AIR/index.htm>

Recology Hazardous Waste

<http://sunsetscavenger.com/hazardousWastecility.htm>

[http://www.recology.com/press\\_room/articles/pdf/color\\_your\\_world.pdf](http://www.recology.com/press_room/articles/pdf/color_your_world.pdf)

<http://sunsetscavenger.com/hazardousWasteBusiness.htm>

Recology Electronic Waste

<http://sunsetscavenger.com/universalWaste.htm>

Recology Facilities

<http://www.ostromroad.com/>

<http://www.recyclecentral.com/>

[http://www.recology.com/press\\_room/media\\_kit.php?kit=annex](http://www.recology.com/press_room/media_kit.php?kit=annex)

<http://www.recology.com/companies.htm>

<http://www.thecompoststore.com/facilities.htm>

<http://altamontlandfill.wm.com/index.jsp>

### **Publications:**

Dan Sullivan. "Zero Waste on San Francisco's Horizon". *BioCycle* July 2011: 28-32.

Julie Bryant, Kevin Drew, Robert Haley, Jack Macy. "The Story of Zero Waste".  
*Resource Recycling* August 2011: 26-30.

### **Personal Interviews**

Zero Waste Residential and Special Projects Associate at SF Department of Environment. Personal Interview: September 8, 2011.

Environmental Education Manager at San Francisco Department of the Environment: Personal Interview: September 21, 2011.

Project Manager at *Recology, Inc. - Golden Gate & Sunset Scavenger*. Personal Interview: September 2, 2011 and September 21, 2011.

Construction & Demolition Zero Waste Coordinator at SF Department of Environment. Personal Interview: September 22, 2011.

Some text may have been taken directly from documents available through the profiled government's websites and Mecklenburg County wishes to give full credit to the web and document authors.

**City of San Jose, California**  
**Environmental Services Department**

**Population served by program: 945,942 (2010 Census)**

**1.0 Description of Government Profiled**

The City of San Jose is the third largest city in the state of California and is the county seat of Santa Clara County. It is the urban center of the Silicon Valley and is located southeast of the San Francisco Bay. San Jose is chartered by the State for home rule and is governed under a council/manager form of government.

Solid waste services in the City of San Jose are provided by the Environmental Services Department (ESD), which additionally provides stormwater, potable water, wastewater services. Within ESD there is a separate Integrated Waste Management Fund which funds the solid waste and recycling service. For FY 2011 the operating budget for this Fund was approximately \$117 Million. The source of most of the funding for the Integrated Waste Management Fund, approximately \$100 Million, is service charges assessed single and multi-family dwellings for trash and recyclable collection services. About \$3.5 Million in revenue additionally derives from State collected recycling fees.

Almost all of the solid waste and recycling services are provided by contracted service providers. The City solid waste staff only numbers 28 full-time positions, most of which are professional, administrative, or contract monitoring functions. The bulk of the budgeted expenditures are payments to contractors.

**2.0 Overall Recycling/Waste Reduction Goals of Local Government**

The California Integrated Waste Management Act of 1989 (AB 939) set waste diversion goals for all local governments as well as requiring the development and implementation of programs for reaching those goals. The AB 939 requirements were to divert 25 percent of solid waste by 1995, 50 percent by 2000 and every year thereafter.

In 2007, the City of San Jose set an aggregate goal of 75% waste diversion from the landfill by 2013 and zero waste by 2022. In a 2008 Memorandum, the City further defined “zero waste” as promoting the highest and best use of materials to eliminate waste and pollution, with an ultimate goal of reducing waste generation by more than 90%. Within the overall waste diversion goals the City indicates the following progress towards achieving these goals by these individual segments of the waste stream:

**Commercial Recycling Rate**

- 36% Commercial (inclusive of C&D)
- 84% Municipal facilities
- 80% Special events

### **Residential Recycling Rate**

- 60%

### **Citywide Recycling Rate**

- 70%

### **C&D Recycling Rate**

San Jose is unable to provide a C&D recycling rate, because many franchised haulers serve San Jose businesses and they are not required to report such diversion numbers if such waste is already source separated. Therefore, they can only state that they have a 36% commercial recycling rate, inclusive of the C&D recycling rate.

### **Overall Goals**

The stated solid waste reduction objective of the City of San José is to divert as much of the municipal solid waste from disposal at landfills as is technically and economically feasible. Solid waste diversion is a high City priority. Individual objectives within this priority include:

- Maximize recycling and minimize Residential Solid Waste;
- Maximize collection and recycling of Yard Trimmings;
- Improve Residential Street Sweeping Services;
- Improve removal and maximize recycling of Large Items;
- Maximize resident participation in recycling efforts;
- Maximize the highest and best use of Recyclable Materials;
- Minimize public health and occupational hazards as well as environmental impacts related to solid waste management; and
- Maximize consistency of services

## **3.0 Residential Waste Management**

The City of San Jose provides waste, recyclable, and yard waste collection services to most single family dwellings (SFD) and multi-family dwellings (MFD) in the City. All collection services are performed by contracted private waste and recyclable management firms. The residential program charges volume based rates for waste collection, “pay-as-you-throw”, and the City has named its residential program Recycle Plus. There are several private service providers in different collection zones. Garden City Sanitation and GreenTeam provide garbage collection; California Waste Systems and GreenTeam provide recyclable collection; and Green Waste Recovery collect yard trimmings.

### **3.1 Single-Family Dwellings (SFD)**

#### **Recycling**

San Jose's recyclables are collected in two different approaches by the two private firms that provide the service. About three-quarters of the SFD's are provided service by California Waste Solutions using automated trucks which lift carts and bins with mechanical arms or lifters. In the small collection area, GreenTeam provides both waste and recyclable collection service to about a quarter of the SFD's and all

of the MFD's in both collection areas. GreenTeam employs a dual compartment, split-body collection vehicle, collecting both waste and recyclables in a single pass.

Recycling items collected at curbside in both service areas include:

- Cans & Cartons
- Glass
- Plastics, 1-7
- Paper & Cardboard
- Scrap Metals; small metal appliances, metal lids and caps from glass bottles, paint cans, metal pots and pans
- Textiles; clean cotton, polyester, rayon and wool fabrics, blankets and sheets, clothes
- Used motor oil, using City-issued oil jugs and filter bags

Collection of recyclables is unlimited in quantity. Recycling cart lids must be closed when set out at the curbside for collection. Extra recyclables may be placed in paper bags or clear plastic bags on the curb near the recycling cart.

### **Processing of Recyclables**

Both of the residential recyclable collection firms are responsible for the end management of the recyclables they collect. Both California Waste System and GreenTeam operate their own materials recovery facilities to process the collected materials.

### **Yard Trimmings**

Yard trimmings represent about 30 percent of the City's residential waste stream. By separating the trimmings from the garbage, the City not only avoids dumping nearly an additional 130,000 tons per year or more into its landfills, but makes a valuable product for improving soils. Yard trimmings are collected weekly in all SFD and MFD collection zones by Green Waste Recovery. Yard waste is collected both loose and in roll-out carts, the carts being optional and with an additional charge.

Green Waste Recovery transports the collected yard trimmings to its own materials recovery facility that processes both recyclables and yard trimmings. The yard trimmings are recycled into high-quality soil amendments, compost, mulch, or wood chips. Some of compost is used in City parks and community gardens while the balance is sold for agricultural use, and to local nurseries and soil yards.

### **Garbage**

The City of San Jose provides mandatory weekly garbage collection to SFD's and MFD's through private contractors. Payments for the service are made by the residents to the City of San Jose and reflect a volume based rate structure that incentivizes waste minimization. This "pay-as-you-throw" garbage system varies the rate paid based upon the size of the garbage cart. Recycling is unlimited at no additional charge. The thought being, by recycling as much as you can, you will be able to use the smaller garbage cart sizes, which cost less.

On-premise collection is provided to owners who decide they would like to pay more and receive on-premises service where the driver goes on premise, empties carts and returns them to their original location. No renewal is needed, but notification is required to discontinue this special rate.

If residents occasionally have more garbage than will fit in their garbage cart, they may apply Extra Garbage Stickers. Extra garbage stickers are placed on a 32-gallon trash bag, and placed on the curb next to garbage carts on collection day. Extra Garbage Stickers are sold for \$6.25 at all libraries, Save Mart, Lucky, and Safeway stores in San José. The complete residential garbage rate structure is shown in the following table:

<b>Collection Service</b>	<b>Monthly Rate</b>
<b>Garbage</b>	
20-gallon cart	\$28.23
32-gallon cart	\$29.95
64-gallon cart	\$59.90
96-gallon cart	\$89.85
Extra Garbage Sticker	\$6.25 each
<b>Recycling</b>	
Any size cart (32-, 64-, 96-gallon)	Included with garbage fee
<b>Yard Trimmings</b>	
Subscription cart (optional) Any size cart (32-, 64-, 96-gallon)	\$4.35/month
Loose in the street	Included with garbage fee
<b>Large Items (e.g., tires, furniture)</b>	
Up to 3 large items	\$25.00
<b>On-Premise Collection</b>	
20-gallon cart	\$89.23
32-gallon cart	\$90.95
64-gallon cart	\$120.90
96-gallon cart	\$150.85

### **Bulky or Large Item Collection**

The City provides curbside collection of “bulky” items, such as mattresses, sofas, refrigerators, or tires at the curb for the fee described in the table above.

### **3.2 Multi-Family Dwellings (MFD)**

Green Team of San José provides recycling and garbage collection service to all apartment and condominium complexes in San José. The monthly service fee is based on:

- The frequency of collection.
- The number and sizes of all the garbage dumpsters in use at the complex.
- The distances and numbers of containers (garbage or recycling) that need to be pushed by the driver into an accessible position for collection.

Garbage rates include once a week collection of recycling bins or carts. The more the resident recycles, the more successful they can be at controlling garbage service fees. Recycling is easy and helps save resources. All recyclables go together into the same bin. Apartment dwellers can recycle the same items as single family homes.

### **3.3 Household Hazardous Waste**

Residents and small businesses may dispose of household hazardous waste materials at local Household Hazardous Waste (HHW) facilities. This service is provided by Santa Clara County through the Santa Clara County Household Hazardous Waste Program. Residents may make an appointment to drop off their materials. The County and 14 cities participate in the countywide program and share costs based on the number of households served from each jurisdiction. Participating jurisdictions include: Campbell, Cupertino, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Morgan Hill, Monte Sereno, Mountain View, San Jose, Santa Clara, Saratoga and Sunnyvale. The City of Palo Alto (650) 496-6980 operates a separate HHW Program for their residents only. This program addresses the proper disposal of household hazardous waste, household sharps and prescription drugs, pesticide disposal and recycling, used motor oil and filter recycling, mercury education, florescent bulbs, and batteries.

### **4.0 Business/Commercial**

The City of San Jose requires businesses to have waste collected at least weekly and by a private hauler franchised by the City. The current franchise system is non-exclusive, meaning there are multiple haulers which provide business waste and recyclable collection. Franchised haulers pay a franchise fee to the City. Currently, the recycling rate of the commercial sector is 22 percent. In order to improve service and increase recycling in the business sector, the City is in the process of transitioning from a non-exclusive franchise system of multiple haulers to an exclusive franchise system with a single hauler. In April 2011, the San José City Council voted to negotiate exclusive 15-year agreements with Allied Waste and Zero Waste Energy Development (ZWED, a GreenWaste Recovery company) to collect and process waste from all businesses citywide. A summary of the differences between the current non-exclusive franchise and exclusive franchise systems is shown in the following table:

## Overview of Commercial Hauler Franchising

Proposed	Current
<p>One citywide hauler – Allied</p> <p>One citywide organics processor- ZWED</p>	<p>Multiple (~25) companies authorized to collect recycling and garbage from more than 10,000 commercial customers. Each company chooses where to take organics material contributing to a large carbon footprint.</p>
<b>Customer Benefits</b>	
<p>Consistent &amp; equitable service rates citywide</p>	<p>Inconsistent rates, even for neighboring companies with identical service levels</p>
<p>Customer service standards and incentives</p> <ul style="list-style-type: none"> <li>• On-going technical assistance</li> <li>• Greater accountability from service provider</li> </ul>	<p>Varying levels of satisfaction with customer service</p>
<p>More standard service options that can be customized:</p> <ul style="list-style-type: none"> <li>• Allied One-Bin Plus system allows businesses to place all materials in one container, including organics/food waste</li> </ul>	<p>Input from businesses mentioned that ease, convenience and space contributed to low recycling rates</p>
<p>Customer account access on-line for bill management and service changes</p>	<p>Varies by provider</p>
<b>Environmental Benefits</b>	
<p>Potential to recycle at least 75 percent of waste currently going to landfills</p>	<p>A waste characterization study shows that 80 percent of business waste could be recycled or composted</p>
<p>Reduced Operational Noise and Pollution</p> <ul style="list-style-type: none"> <li>• More efficient truck routes</li> <li>• Compressed Natural Gas (CNG) trucks are quieter</li> <li>• Plastic bins, as opposed to metal, are quieter</li> </ul>	<p>Noise and traffic complaints from multiple collection trucks driving overlapping routes</p>

## 5.0 Construction & Demolition (C&D) Waste

About 30% of the waste that goes to landfills is construction and demolition (C&D) debris. San Jose believes that more than 100,000 tons of this material can be recovered for other uses each year.

The City of San José's Construction & Demolition Diversion Deposit Program (CDDD) is an incentive program to encourage the recovery of debris from construction and demolition projects. The City collects a deposit that is fully refundable with proper documentation that the C&D debris has been diverted from burial in the landfill. The steps are as follows:

### 1. Pay Deposit

When the applicant applies for a project permit, the City assesses a deposit based on the square footage and type of project undertaken.

### 2. Recover/Recycle C&D Debris

Before starting the demolition, construction, or remodeling project, determine which of the three approved options will be used to recycle waste materials:

- A. Materials can be taken to a CDDD-Certified Facility for recovery/recycling.
- B. Materials can be re-used or donated.
- C. A combination approach: some materials can be taken to a CDDD-Certified Facility for recovery/recycling and other materials can be re-used or donated.

### 3. Apply For a CDDD Refund

The CDDD Deposit and Refund is calculated based upon the following table:

Building Segment	Deposit per Sq. Ft.	Minimum Valuation	Maximum Sq. Ft. Subject to Deposit
Residential new construction	\$0.20	\$115,000	125,000 detached 100,000 attached
Non-residential new construction	\$0.10	\$135,000	25,000 commercial 75,000 industrial
Residential alterations	\$1.16	\$2,000	None
Non-residential alterations	\$0.35	\$5,000	None
Residential demolition	\$0.35	\$5,000	None
Non-residential demolition	\$0.10	None	None
<b>Flat Rate</b>			
Roof project with tear-off	None	None	None



## **6.0 Event Recycling**

### **Reporting Requirements**

California Assembly Bill 2176 requires operators of large venues and events with greater than 2,000 attendees to provide a report to the City upon request with “documentation of waste reduction, reuse, recycling, and diversion programs, if any, implemented at the large venue or large event, and the type and weight of materials diverted and disposed at that large venue or large event.” The City of San José has gone a step further than AB 2176, by defining a large event as an event that serves more than 1,000 individuals, rather than 2,000 individuals. A [Material Diversion Report form](#) can be provided to help events submit information to meet these state requirements.

### **Green Event Workshops**

The City offers free workshops on how to green an event. There is a choice of three event certification levels that demonstrate commitment to green practices and rewards that achievement: Going Green Certification, Green Event Certification, and Zero Waste Event Certification. Events held on public property (City-owned street, park, facility or site, etc.), with a daily attendance of at least 1,000 attendees that is open to the general public are eligible for Green Event Certification. Event organizers that participate in the [Green Event Grant](#) automatically participate in this Green Event Certification, thus they will not complete a separate application.

### **Green Event Grant**

The Green Event Grant was created to help off-set potential increased costs for events that seek to reduce their impact on the environment through separate collection of recyclable and compostable materials. The program was implemented in January 2010 by approval of the City of San José’s City Council. The intent of the Green Event Grant is to provide financial assistance in order to increase the number of San José events that divert waste from the landfill, thus helping move the City closer to its Green Vision Goal of 100% [waste diversion \(Zero Waste\)](#) by 2022.

### **Material/Hauler Service Providers**

Events that generate recycling, compost, and waste in San José must make arrangements for materials to be safely stored and removed from the event. In San José, only franchised haulers, or service providers, can provide material collection service for businesses and events. Event teams may also collect and “self-haul” materials to a permitted CA Redemption Center, composting facility or landfill.


### **Eco-Station Loan**

The Eco-Station Loan program is available to any event located in San José to increase access to recycling and compost collection at events. An eco-station, or resource recovery station, is a color-coded collection system that replaces the use of single trash cans at an event (blue for glass, metal, and plastic recycling; green for compostable materials; and black for trash). Eco-stations come with corresponding color-coded signs, lids and bags.

### **Plastic Cup Policy**

The City of San Jose requires all events with more than 1,000 attendees must:

- Ban polystyrene foam use by food vendors;

- Use recyclable  (PET) plastic recyclable beverage containers for cups 7 ounces or greater and paper cups for less than 7 ounces; and
- Collect, at minimum, plastics, glass, metals, and cardboard for recycling.

## 7.0 Schools

San Jose provides many resources to encourage students and school staff to recycle everything that cannot be reused. These components include the following:

- Paper, aluminum, plastic, bottles and cans, can be recycled through a local hauler.
- (E-waste) can also be recycled. E-waste refers to electronic products at the end of their useful life such as computers, televisions, VCRs, stereos, copiers, and fax machines.

The City of San José Go Green Schools Program works with schools to help them implement a recycling program. The following resources are offered:

- Collection service for bottles, cans, aluminum, glass, plastic & paper. The school contracts with a local hauler.
- The San Jose Conservation Corps will work with south Bay Area schools to pick up the bottles, cans, and paper schools collect for recycling at no charge to the schools. They will also pick up small electronic items for recycling.
- Yes-U-Can Recycling provided free collection of paper, bottles, and cans from local schools with a percentage of the redemption funds returned to the school.

## 8.0 Waste Prevention (Source Reduction)

The City of San Jose offers a numbers of programs targeted toward source reduction of waste. Among these programs are:

### Home Composting

San Jose has organics programs that address composting, worm composting, and grasscycling. Classes for composting and master composting are provided through partnerships. San José has teamed with the Bay-Friendly Landscaping and Gardening Coalition to present a series of workshops that offer techniques to create a sustainable, healthy, and beautiful garden. Workshops and classes are hosted by the Santa Clara County Recycling & Waste Reduction Commission and the Guadalupe River Park Conservancy.

### Plastic Bag Ban

San José is the largest City in the state to ban plastic carryout bags. The ordinance will go into effect on January 1, 2012, and:

- Grocery stores, pharmacies, small and large retailers will no longer be allowed to provide plastic carryout bags at checkout;

- Stores may still provide paper bags made of 40% post-consumer recycled material and charge a minimum of 10 cents for each bag. After the initial two years, the store charge will increase to a minimum of 25 cents for paper bags. The charge will be retained by the store;
- Customers purchasing food with WIC and CalFresh “food stamps” may be provided a recycled content paper bag at no cost for the first two years of the ban.

## 9.0 Zero Waste Planning

In 2007, the City of San Jose developed its Green Vision for the future. One of the goals of the Green Vision is to divert 100% of the solid waste from the landfill and convert waste to energy. The Zero Waste Strategic Plan developed by the City is a roadmap for achieving the Green Vision Goal and includes analysis of the San José’s current waste stream, and descriptions of the policies, programs and facilities that will be needed to bring the City to zero waste.

## 10.0 Solid Waste Disposal

In 1985, the City entered into a 30-year agreement for the disposal of up to 475,000 tons of solid waste per year at Newby Island Landfill. Current tipping fees are:

- Disposal Rate per Ton (Residential):
  - \$42.46/\$46.46/ ton Unbaled/ Baled
  - \$21.47/ ton Bulky item collection
  - \$5.23/ ton Street sweeping
- Disposal Rate per Ton (Commercial):
  - ~\$50

## 11.0 Key Program Elements

The following were identified as key program elements by the City of San Jose as being most influential in achieving their waste reduction goals:

- Residential programs
  - Volume based rates for garbage “Pay-as-You-Throw”
  - Unlimited curbside recyclable collection
  - Broad range of acceptable recyclable materials
  - Collection of yard trimmings
  - Back end sort of multi-family collections
  - Backyard composting/source reduction activities
  - Collection of HHW/special/electronic waste
- Commercial collection with a private hauler under exclusive franchise
- Construction and Demolition Waste Diversion Program
- Municipal waste recycling program
- Special Event recycling program

## **Reference Sources**

### **City of San Jose**

Personal Interview with AICP, LEED AP, Residential Services Supervisor  
Integrated Waste Management Division, City of San Jose Environmental Services

### **Internet Web Sites**

City of San Jose, Environmental Services Department, Recycling & Garbage

<http://www.sjrecycles.org/>

City of San Jose, City Manager's Office, Annual Operating Budget

<http://www.sanjoseca.gov/budget/FY1112/AdoptedOperating20112012.asp>

City of San Jose, Environmental Services Department, Zero Waste Plan

<http://www.sjrecycles.org/zerowaste.asp>

CalRecycle, Local Government Enforcement

<http://www.calrecycle.ca.gov/LGCentral/Enforcement/>

Some text may have been taken directly from documents available through the profiled government's websites, and Mecklenburg County wishes to give full credit to the web and document authors.

**Seattle, Washington  
Waste Reduction Programs  
Seattle Public Utilities**

**Population served by program: 608,660 (per 2010 census). Disposal rate \$40/ton for rail-haul & disposal.**

**1.0 Description of Government Profiled**

Seattle Public Utilities (SPU) operates the City's solid waste management and waste diversion programs.

SPU's waste diversion team consists of approximately 10 employees, subdivided into the following areas of responsibility: commercial, multi-family, waste reduction, home organics, C&D. SPU's waste reduction budget is about \$2 million non-labor (about \$3M counting labor), but not counting the cost of curbside recycling & organics collection and processing.

**2.0 Overall Recycling/Waste Reduction Goals of Local Government**

Seattle has established a goal to divert 60% of its waste from landfill disposal

[http://www.seattle.gov/util/About\\_SPU/Garbage\\_System/Reports/SPU01\\_002548.asp](http://www.seattle.gov/util/About_SPU/Garbage_System/Reports/SPU01_002548.asp)

Seattle City Council Resolution 30990 set Seattle's goal to reach 60% recycling of municipal solid waste (MSW) by the year 2012, and 70% by 2025. Another solid waste goal set by Resolution 30990, to reduce total MSW tons disposed by one percent each year.

Seattle's recycling rate is the percentage of municipal solid waste (MSW) diverted from the landfill by reuse, recycling and composting. In 2010, Seattle recycled 53.7% of its MSW.

The MSW recycling goal excludes construction and demolition (C&D) material. Seattle does not currently have a C&D recycling goal, but expect to set a C&D goal during the solid waste management plan update currently underway. C&D tons disposed and recycled are counted separately in the C&D stream.

The MSW goal also excludes other special wastes. Moderate Risk Waste (MRW) includes household hazardous waste (HHW) like garden pesticides, and small quantity generator waste (SQGW) like solvents used at a small business. Further, the recycling goal does not include other special categories of waste such as: biomedical wastes, biosolids, asbestos, petroleum contaminated soils, and Dangerous Waste (generally industrial), which state regulations exclude from MSW.

**3.0 Residential Waste Management**

**3.1 Single-Family Homes (includes duplexes up to quadraplexes)**

**3.1.1 Recycling**

Each resident receives a 60 gallon comingled recycling cart that is picked up every other week on the same day as garbage.

Recycling items collected curbside includes:

- Newspaper, magazines, phone books, mixed paper, empty paper bags, corrugated cardboard, Milk cartons, drink boxes, Scrap paper;
- all coated papers such as hot drink cups
- Plastic tubs and bottles (tubs include rigid plant pots and 5-gallon or smaller buckets);
- Plastic food containers (including clamshells except Styrofoam), deli trays, cold drink cups
- Plastic bags (bagged)
- Lids (3 in. or wider)
- Metal cans (aluminum, tin and steel)
- Aluminum foil (food removed)
- Scrap metal (smaller than 2'x2'x2')
- Glass bottles and jars
- Motor oil (in clear plastic bottle with screw-on-lid, limit 2 gallons per collection day)

Electronics and appliances are picked up curbside and recycled safely upon request for a fee (\$20 per electronic item, \$30 per appliance, \$38 per appliance containing CFC's).

Residents also have the option to drop off a more limited range of electronics at no cost at private sites authorized by E-Cycle Washington.

### **3.1.2 Food and Yard Waste**

Food and yard waste service is required for all single-family households. You can opt out if you [compost at home](#). Yard debris - such as leaves, grass, and plant trimmings- are not allowed in the garbage can. Food and yard waste is collected weekly, on the same day as garbage.

Acceptable items for the food/yard waste container include:

- Meat, fish and chicken, bones, shells
- Coffee grounds and filters, tea bags
- Fruits and vegetables
- Pasta, bread, grains and rice
- Eggshells, nutshells
- Coffee grounds filters and tea bags
- Dairy products - milk, butter, cheese
- Food-soiled paper including pizza boxes
- Paper towels napkins - kitchen only
- Paper plates - uncoated only
- Shredded paper
- Paper bags (uncoated) with food scraps
- [Compostable bags](#) and [Approved compostable tableware \(pdf\)](#)
- Leaves, branches, twigs - up to 4 inches in diameter and 4 feet in length
- Plant and tree trimmings, grass
- House plants - no pots
- Small amounts of sod - less than 60 pounds
- Holiday trees - no tinsel, ornaments, flocking; no longer than 6 feet long and 4 inches in diameter
- Bundles up to 4 feet long and 2 feet in diameter, tied with natural twine

### 3.1.3 Single-family Garbage (up to quadraplex)

Garbage is collected weekly and residents may choose container size (different rate plans are available).

### 3.1.4 Policies and Results

City ordinance bans placement of any recyclables or yard waste into residential garbage containers (single or multi-family). Garbage containers that contain more than 10 percent of recyclables will not be emptied and the resident is left with an explanatory note asking them to remove the recyclables from the garbage container.

Recycling and Yard/food waste service is required for all single-family households. Residents may opt out of the yard/food waste service if they compost these items at home. The City is planning to add food waste to the list of materials not allowed in the garbage container beginning in perhaps 2014. The City is also evaluating a move to every other week garbage collection.

Recycling is free to the resident. Yard/food containers are subscribed to at a fee. The fee for yard/food waste is cheaper than for garbage and provides the resident with a cost incentive to divert yard and food waste.

#### Garbage Vs. Yard/Food Waste Container Fees for Home Use (single-family up to quadraplex)

Garbage		Yard and Food Waste	
Service Level – weekly	Cost per Month	Service level – weekly	Cost per Month
12 gallon	\$16.55	13 gallon	\$4.35
20 gallon	\$20.30		
32 gallon	\$26.40	32 gallon	\$6.50
64 gallon	\$52.80		
96 gallon	\$79.20	96 gallon	\$8.35

**Note: Recycling is free for residents.**

### Results 2010

Average Pounds per Household per Month

Single-family households on average recycled 66.1 pounds per month in 2010 (based on 153,737 households). Single-family households in total achieved a 70.3% recycling rate.

Source:

[http://www.seattle.gov/util/groups/public/@spu/@recycle/documents/webcontent/01\\_012981.pdf](http://www.seattle.gov/util/groups/public/@spu/@recycle/documents/webcontent/01_012981.pdf)

### 3.2 Multi-Family

Multi-family complexes are defined as having more than 4 units and receive garbage, recycling and yard/food waste collection service.

#### 3.2.1 Recycling (multi-family)

Free recycling is available for apartments, condominiums, co-ops, fraternities, sororities and house-boats. The same items as listed above under single-family apply to multi-family. Assistance provided by the City includes:

- Educational materials are available for residents of multi-family dwellings including fliers, DVD's, container labels.
- Free on-site food waste collection training upon request

### **3.2.2 Food and Yard Waste (multi-family)**

SPU offers weekly food and yard waste collection services for apartments and condominiums. The same list of items is accepted as outlined under single-family.

### **3.2.3 Garbage (multi-family)**

Dumpster service is provided on a fee basis.

### **3.2.4 Policies and Results (multi-family)**

By law, apartment and condominium properties must provide food waste collection for residents by September 1, 2011. Property owners can select from several SPU service and cart options. If they also sign up as a Friend of Recycling and Composting (FORC) steward, the property receives a one-time \$100 credit on its utility bill. A FORC educates residents and monitors containers for greater recycling and food waste collection success at the property. During 2011, free [FORC trainings \(pdf\)](#) include distribution of free kitchen carry-out buckets for property units attending FORCS.

City ordinance bans recyclable paper, cardboard, glass and plastic bottles, and aluminum and tin cans from garbage containers. If garbage dumpsters contain more than 10 percent recyclables, the garbage is still collected but a warning notice is mailed to the garbage account customer. After two warning notices have been mailed, a charge of \$50 is added to the utility bill. If the recycling dumpster is contaminated with garbage, it is charged at the higher garbage rate.

#### **Results 2010**

Average Pounds per Household per Month

Multi-family households, on average, recycled 29.6 pounds per month ( based on 118,972 households).

Multi-family households in total achieved a 29.6% recycling rate.

Source:

[http://www.seattle.gov/util/groups/public/@spu/@recycle/documents/webcontent/01\\_012981.pdf](http://www.seattle.gov/util/groups/public/@spu/@recycle/documents/webcontent/01_012981.pdf)

## **4.0 Business/Commercial**

Seattle defines business/commercial as those wastes collected as MSW except single or multi-family wastes.

### **4.1 Business/Commercial Recycling**

A business can choose any recycling company to collect its recycling. The City provides a business waste line and web links to other resources.

#### **Free limited-service cart recycling**

If a business has a City of Seattle commercial garbage account, they are eligible for free cart recycling service. The service is limited to two (2) recycling carts, collected every other week.

Seattle businesses can also request recycling service from any private recycling company.

#### **Self-haul recycling**

If a business doesn't need regular recycling service, they may take accepted materials to the [Recycling and](#)



[Disposal Stations](#). There is no charge for recycling traditional items like glass, metal and plastic. The transfer stations also recycle building materials, vehicle batteries, used motor oil and tires; fees may apply.

#### **4.1.1 Resource Venture**

Resource Venture is a contracted service of Seattle Public Utilities. Resource Venture provides free environmental consulting services to help Seattle-area businesses. Their website offers guidance documents and other information to assist businesses in diverting waste from landfills.

#### **4.2 Business/Commercial Yard/food waste**

Commercial compost collection costs about 32% below garbage collection prices. It diverts yard debris and food scraps from the landfill by turning them into compost for local parks and gardens. The City of Seattle provides fee based services. There is also a private service provider in Seattle that collects food scraps for composting at a rate lower than that which the City charges for food waste service. This collects the bulk of the commercial sector food waste tonnage.

The Resource Venture, a free resource provided by Seattle Public Utilities, is also available to business on yard and food waste topics.

#### **4.3 Business/Commercial Garbage**

The two contracted garbage haulers for Seattle are CleanScapes and Waste Management. (see “Disposal” section for information on where the collected waste goes).

#### **4.4 Business/Commercial Policies and Results**

City ordinance bans paper, cardboard and yard debris from garbage. Garbage containers filled with more than 10 percent of recyclable paper or yard waste will be tagged. After two warnings, businesses are charged \$50 for each violation.

In 2009, the City banned use of expanded polystyrene (Styrofoam) food service containers and required that all single-use food service packaging be either recyclable or compostable (as defined under their guidelines).

By July 1, 2010, all food service products designed for one-time-use must be replaced with one-time use products that are either compostable or recyclable.

In addition, 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 to a recycling or composting facility for processing.

Fees for City-provided yard/food waste collection are approximately 32% below garbage prices.

#### **The commercial sector has achieved a 54.9% recycling rate as of 2010.**

Commercial paper recycling altogether grew 29%, or about 24,700 tons. Markets for paper were very strong in 2010, particularly for cardboard where the average price increased 31% compared to 2009. Commercial food waste diversion increased by more than 3,000 tons--to a total of 44,000 tons. In addition to kitchen scraps and food leftovers, this figure includes fats, grease and oils collected for rendering, and cooking oil and grease picked up for the manufacture of biodiesel.

Business food waste customers are increasing: 584 in 2007, 1,090 in 2008, and 1,350 in 2009, with another 469 in 2010 for a total of 1,819. Private food waste collection companies produced most of these new customers. Half the city’s restaurants now have organics collection service, according to SPU.

Council passed Ordinance 123307 in May 2010. The ordinance makes clear that quick-serve restaurants and food courts are responsible for providing discard bins for compostables and recyclables in the areas where customers are served. They are also responsible for ensuring that the collected materials go to a proper processor.

In 2010, SPU continued the **commercial enforcement** strategy modified in 2008. SPU's inspector checks garbage loads for recyclables at the transfer stations and works back to the source of the material.

Recommended actions to increase this sector's recycling are in the draft Seattle Solid Waste Management Plan revision. They include:

Increasing enforcement of the ban on disposing recyclables in the garbage, continuing food education and enforcement efforts regarding sorting requirements for compostables, food service recyclables, plastic film recycling, and banning the disposal of organics.

## 5.0 Schools

### School Recycling & Waste Reduction Grants

Seattle Public Utilities offers grants to implement or expand food waste composting, recycling and waste reduction programs in K-12 public and private schools in Seattle.

**Public Schools:** For 2011-12, SPU is working directly with the Seattle Public School District to increase composting and recycling in public schools. The School District will provide schools with compost collection service, compostable bags, waste bins, outreach materials, and other supplies and support for implementing, stabilizing, and improving compost and recycling programs.

**Private Schools:** SPU is offering up to \$3,000 in support for private school recycling and waste reduction programs in the form of supplies and compost collection service. There is a total fund of up to \$25,000 available for 2011 grants. Applications will be accepted on a continuing basis through December 31, 2011.

## 6.0 Construction & Demolition (C&D) Waste

The city currently has no official diversion goal, but the new solid waste management plan will recommend 70% diversion.

C&D materials are collected by a firm under contract with the city, or are self hauled to private facilities.

SPU has been working to develop a methodology for calculating a C&D recycling rate—a key step for C&D program planning. A 2007 study set the groundwork for the methodology. Because of this progress, SPU is developing C&D program plans and recycling goals to be included in Seattle's Solid Waste Management Plan (revisions currently underway).

The hierarchy of C&D materials that SPU tracks includes:

**Recycling-** Wastes separated for recycling or reuse.

**Beneficial Use-** not recycled or reused, but used for some other purpose like industrial boiler fuel. Counted as disposal in the recycling rate, and counted as diverted in the diversion rate.

**Alternative Daily Cover (ADC) and Industrial Waste Stabilizer (IWS)** –ADC covers the active face of a landfill

instead of soil. IWS provides structure in specialized landfills. It is counted as disposal in the recycling rate.  
**Disposal** – material permanently placed in a landfill.

### **2010 Recycling rate of 61.4% and a waste diversion rate of 65.6% (beneficial use makes up difference).**

**Joint Planning Committee:** Since 2007, SPU and the Department of Planning and Development (DPD) have been working together to address the C&D action items called for in Seattle City Council Resolution 30990. In 2010, the committee recommended a package of programs to enhance the level of C&D recycling.

The proposals included:

- Banning the disposal of asphalt paving, bricks and concrete (ABC)
- Certifying construction and demolition recycling facilities
- Requiring DPD applicants to recycle and report on a minimum amount of waste before getting their Certificate of Occupancy

**New Disposal Ban on Asphalt Paving, Bricks and Concrete (ABC):** In early 2010, the City Council approved an ordinance that bans the disposal of ABC from job site containers and from disposal at private and public transfer stations. This ban takes effect January 1, 2012 with active enforcement beginning 2013. SPU will educate contractors about the ban in 2012.

**New C&D Program Evaluation:** SPU evaluated program options for C&D based on the 2010 stakeholder input and SPU's Recycling Potential Assessment (RPA) model. The RPA is an econometric model that estimates how much material might be recovered by new programs and combinations of programs. All of the new programs included some level of facility certification. The recommended package is in the draft Solid Waste Management Plan revision. SPU will conduct a series of workshops and presentations around these C&D proposals along with the general stakeholder plan review.

The recommended package is mainly a sequence of disposal bans on certain C&D materials that have adequate end markets now or are likely to in the immediate future. These include:  
Metal, cardboard carpet clean wood, gypsum plastic film and tear-off asphalt roofing shingles.

**Deconstruction activities** have also been a joint effort with DPD. Deconstruction, or building salvage, involves carefully taking a structure apart, saving building materials for reuse. Activities include:

Continuing pilot deconstruction projects that started in 2010, with three single family homes, and includes collecting data on salvage and recycling collected from those houses. Permit changes that started in 2009 allow builders to obtain a deconstruction permit, allowing them to begin deconstruction before the building permit is issued. This resulted in 10 single family homes deconstructed with salvage by the end of 2010.

A preliminary investigation of a grading system for salvaged dimension lumber is being done to improve marketability of these materials. A 2009 study on deconstruction options identified dimension lumber as the highest value material available for salvage.

## **7.0 Event Recycling**

Washington State Law requires beverage vendors at official gatherings and events to provide recycling for single-serving plastic, glass and aluminum containers. Event organizers are also responsible for monitoring and servicing recycling bins during events, and having the recycled items hauled to a Recycling & Disposal Station.

Seattle's Food Packaging Law ([Seattle Municipal Code 21.36.086](#)) requires food service businesses, including food and beverage vendors at events, to use compostable or recyclable food packaging in place of disposables.

The following items must be collected: plastic bottles, aluminum cans, glass bottles, and cardboard. Other recyclables include newspaper, and paper event programs/schedules.

Typically all food packaging including plates, bowls, trays and tubs used to serve food must be collected for compostables collection or recycling. Packaging containing food should be made of compostable material. The City provides a link to an approved list of packaging options [approved packaging options](#) at Cedar Grove Composting website.

The City provides a list of vendors that provide event bins for sale, bin rental and services for recyclables and compostables. (The SPU does not endorse any specific product or service provider.) In addition, the City provides guidance documents, flyers and other resources.

## **8.0 Waste Prevention (Source Reduction)**

Seattle offers tips for waste reduction for residents and businesses on their website. In addition, Resource Venture, a service of Seattle Public Utilities, offers additional tips and assistance on their website. These include pages and links addressing:

- Food donation programs
- Paper smart offices
- Paper calculators
- Take it Back Network
- RBRC program recycles rechargeable batteries and cell phones
- Construction site waste, deconstruction specs and tips on recycling
- The Green Hotel Association
- Green hospital

### **Product Stewardship and Market Development**

In 2010, the Seattle City Council passed legislation aimed at reducing the delivery of unwanted "yellow page" phone books. In May 2011, SPU launched an internet database, which allows people to opt-out of receiving yellow pages and junk mail. By the end of May 2011, nearly 30,000 households and businesses signed up and opted out of more than 185,400 yellow pages deliveries. This represents more than 150 tons of paper waste prevention.

SPU supports the Northwest Product Stewardship Council (NWPSC). Examples of 2010 support and accomplishments build on prior year work and include: city support for state product stewardship of legislation addressing mercury-containing lighting (fluorescent bulbs and tubes) and medicines.

Participation in policy development for state-level product stewardship legislation, covering: paint; producer-paid secure medicine return; printed paper and packaging; and possible changes to existing law that would add additional electronic products to the E-Cycle Washington program. Study possible City of Seattle product stewardship regulation for waste prevention and recycling of problem products in MSW and C&D waste.

SPU continues to encourage the use of **reusable shopping bags** as one of its waste reduction efforts following voter rejection of a “green fee” on disposable shopping bags in 2009. The bags handed out through city programs are targeted mainly to low-income residents.

### **Organics Prevention**

**Backyard composting** remains the least expensive way to remove organics from the waste stream. SPU released the 2010 Home Organics Waste Management Survey based on data collected in 2009. The survey indicates that home composting dropped from 41% to 30%, with an increase in use of curbside organics collection (82% to 85%).

The driver behind this change is the 2009 requirement that all single family customers subscribe to curbside organics service or participate in backyard composting. Residents are likely switching to the curbside program due to the convenience of putting the material at the curb compared with composting it in their backyards. This has increased total organics diversion but SPU will continue to promote backyard composting since that has the lowest environmental impact and lowest cost.

The investments made by the **edible food waste** recovery program and Lean Path technical assistance to commercial kitchens programs continued to provide benefits in 2010, even though the Lean Path program ended in 2009. SPU received reports of continuing food waste prevention by Swedish Hospital (extended to all four campuses), Seattle University, and Northwest Hospital. Altogether, they reported 33 tons of prevented food waste, up from the 21 tons reported in 2009. A highlight of this effort is the institutional change that continues without SPU funding.

### **Other Waste Prevention Actions**

SPU estimates 106 tons of reusable clothing and household items were diverted to reuse in 2010, up from 75 tons in 2009. Beginning in May 2008 a **reusable materials diversion** program was launched at the city’s North Recycling & Disposal Station. This program, which focuses on building material salvage but also diverts other items, is a partnership with private companies who collect and resell the materials. In addition to the building materials, other reusable materials diverted from self-haul customers prior to disposal include furniture, bicycles, tools and other materials. The program expanded to the South Recycling and Disposal Station in January 2009. The tons diverted by this program are reported by the private companies and thus counted in the commercial sector.

Paper usage: The city reduced use by 122 tons in 2010, up from 99 tons in 2009 (a 36% reduction from our 2004 baseline). We expect the city department switch to paperless paystubs will yield another jump in results in 2011. The reduced paper consumption, plus continued use of 100% post-consumer recycled paper, eliminates about 400 tons of carbon dioxide (CO<sub>2</sub>) equivalents (greenhouse gases). The city paper reduction committee continued to work on measures for additional savings: reducing default margins in Microsoft Word documents, and increasing the number of and access to multifunction printers.

Resource Venture (as noted in the Commercial sector discussion) continues to provide **advice on waste reduction and recycling for commercial accounts**, including PaperCuts.

The **Waste Prevention and Recycling Community Matching Fund** was suspended 2010 due to budget cuts. The program was restored for 2011 and supports increased organics diversion in schools.

While most **green building** activities relate to construction and demolition debris (C&D), SPU also supports a broader range of efforts, mostly by partnering in programs with DPD and King County. For instance, in cooperation with DPD, SPU offers a broad array of technical assistance programs for the building industry

and do-it-yourself residential remodelers. In 2009, SPU started working with the SHA on the Yesler-Terrace large-scale redevelopment. SPU is tracking plans for organics management, and deconstruction and salvage during construction.

The **Green Purchasing** program includes activities furthering the city's commitment to environmentally preferable purchasing, including environmental best practices, climate initiatives, toxin reduction, and other environmentally sustainable considerations in acquisition of city goods and services. Highlights of ongoing green purchasing initiatives include:

Green Office Fair Vendor education days  
Green purchasing speaking engagements  
Green servers – that reduce cooling needs  
Large scale printing – requiring 100% recycled paper  
Bio-based lubricants  
EPEAT for imaging equipment  
Office Depot “green” criteria  
Green Seal standard update – for janitorial products  
Green Fleets Initiative  
Paperless utility billing  
Green Seal application  
Social responsibility – an integrated, complementary strategy for green and social responsible purchasing

See [http://www.seattle.gov/util/groups/public/@spu/@garbage/documents/webcontent/01\\_013797.pdf](http://www.seattle.gov/util/groups/public/@spu/@garbage/documents/webcontent/01_013797.pdf) page 20 for more details.

## **9.0 Facilities**

### **9.1 Disposal**

The City of Seattle operates two transfer stations, the North and South Recycling and Disposal Stations.

All Seattle's MSW that is not recycled or composted by law is under city control (flow control). The City of Seattle has arranged for and committed to transporting this waste via train to the Columbia Ridge Landfill as specified in Seattle's long-haul and disposal contract (approximately 300 miles away).

Garbage: (269,128 tons inbound to transfer stations)

#### **Processing and Disposal are Contracted Services**

The City of Seattle contracts with private service providers for recycling processing, organics composting, and landfill long-haul and disposal. Any programmatic changes would be made through those contracts. Public Health - Seattle and King County regulates recycling and composting processing facilities and issues the required solid waste permits.

The landfill with which Seattle currently contracts, projects that it will be able to receive material beyond the current contract's guaranteed 2028 end date. Rail-haul capacity has not been an issue. The contract provides for alternate transportation if rail lines become unavailable for a time. Other private landfills east of the Cascades project ample capacity for decades, according to the Washington State Department of Ecology.

### **9.2 Recycling Processing**

Recycling capacity in the Seattle area is not considered an issue for the planning period. Seattle's current contract is guaranteed through 2019. Furthermore, the Washington State Department of Ecology currently lists more than 280 recycling facilities in King, Pierce and Snohomish counties. At least three of these are large facilities that process mixed recycling and are within 20 miles of Seattle. The many other private recyclers that handle limited ranges of materials are expected to enjoy continued presence in the local market.

### 9.3 Composting

Current capacity is adequate. However, statewide there is concern about future capacity as more cities and counties divert more organics. Some believe that the present regional organics processing system cannot handle peak summer organics without creating odor problems. Seattle's provider is the only large-scale firm in the local area taking mixed yard and food waste, with two locations within 25 miles of the city. Our current contract is guaranteed through 2013 with renewal options through 2015.

Organics are transferred to "Cedar Grove Sites"  
47,879 tons inbound to transfer stations

For more information, see

[http://www.seattle.gov/util/groups/public/@spu/@garbage/documents/webcontent/02\\_015206.pdf](http://www.seattle.gov/util/groups/public/@spu/@garbage/documents/webcontent/02_015206.pdf)

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### Additional Questions answered by the City of Seattle

#### **What happens to bulky waste collection items?**

Furniture is taken by our contracted bulky item collector to transfer station for disposal, white goods taken to our reprocessor to remove Hg switches, CFC's, etc, then to scrap metal market, and used tires we don't usually see this as curb bulky items, but rather at our transfer station where they are separated and sent to a tire reprocessor and thence to ultimate end markets of tire crumb and fuel?

#### **How are the following materials managed?**

**Used oil** - very little collected at curbside, taken at transfer stations and many private take-back sites for reprocessing

**Fluorescent light tubes, CFL's**- both taken at our hazardous waste sheds, there is some private take back of CFLs.

**Auto batteries** taken at transfer stations, small home use batteries taken at transfer stations, but residentially generated batteries are allowed in garbage.

#### **Are there State regulations that require Washington communities to provide certain programs, or meet certain recycling or waste reduction goals? Please explain.**

No – there are planning requirements, but no service requirements.

#### **Has a waste characterization been performed on your commercial waste stream? Has it been helpful in planning programs?**

We sample residential, commercial, C&D, and self-haul waste streams on a 3-4 year cycle. These are critical in tracking where we need to be focusing outreach and new programs.

### **Waste reduction program elements identified and ranked by Seattle SPU representative**

The city was asked to list and rank their waste reduction program elements from that we missed? Please add them to the list below. Please rank the list below from most effective waste diversion program (1), to least effective?

- |                 |  |
|-----------------|--|
| <u>2</u>        | Weekly residential curbside recycling – (blue roll cart + yellow for glass).                         |
| <u>13</u>       | Pilot residential curbside yard waste and food waste collection (rolling out city-wide in fall 2011) |
| <u>1</u>        | Curbside food waste + yardwaste collection   |
| <u>3</u>        | Transfer station yardwaste collection for composting   |
| <u>4</u>        | Pay as you throw   |
| <u>12</u>       | Drop-off centers operated by Regional Authority called Metro.  |
| <u>5</u>        | Residential ban on disposal of yard waste and recyclables  |
| <u>6</u>        | Mandatory Business & multi-family recycling requirements (75% recycling requirement).                |
| <u>7</u>        | Food waste composting requirement for select food waste generating commercial establishments.        |
| <u>9</u>        | C&D – 75% recycling requirement + recycling plan submittal (for projects exceeding \$50,000)         |
| <u>8</u>        | Bans on disposal of recyclable items in C&D stream   |
| <u>14</u>       | Styrofoam ban for restaurants, grocery stores and other retail vendors.                              |
| <u>11</u>       | Event recycling/composting support.  |
| <u>10</u>       | Seattle is evaluating changing residential garbage collection to every other week.                   |
| <u>        </u> | Other:   |

### **Sources**

Documents available through the profiled government's websites (e.g., Solid Waste Management Plan) including:

[http://www.seattle.gov/util/About\\_SPU/Garbage\\_System/Reports/SPU01\\_002548.asp](http://www.seattle.gov/util/About_SPU/Garbage_System/Reports/SPU01_002548.asp)

[http://www.seattle.gov/util/groups/public/@spu/@recycle/documents/webcontent/01\\_012981.pdf](http://www.seattle.gov/util/groups/public/@spu/@recycle/documents/webcontent/01_012981.pdf)

[http://www.seattle.gov/util/groups/public/@spu/@garbage/documents/webcontent/02\\_015206.pdf](http://www.seattle.gov/util/groups/public/@spu/@garbage/documents/webcontent/02_015206.pdf)

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# Toronto, Ontario, Canada

## Solid Waste Management Services

**Population Served by program: Approximately 2,600,000**

### 1.0 Description of Government Profiled

Toronto is Canada's largest city and sixth largest government. The City of Toronto is responsible for the collection, transfer, processing, marketing (of recyclables), management, and final disposal of all waste and recycling generated within its borders, which is handled by Solid Waste Management Services. This Division is separated into four sections: Collections Operations, Transfer and Disposal Operations, New Infrastructure Development and Contracted Services, and Policy and Planning. Together, these sections oversee and manage: 13 maintenance and operating yards, one composting facility, seven transfer stations and household hazardous waste depots, two materials recovery facilities, and Green Lane Landfill. There are currently 1,341 employees working for the Division (including collection staff), and the Operating Budget is \$284,205,900, with \$3.1 million dedicated to Communications.

The Province of Ontario, through the *Waste Diversion Act* and the *Environmental Protection Act*, has established minimum municipal recycling program requirements, industry-led stewardship programs for designated materials (blue box recycling, hazardous waste, tires, and electronics), as well as guidelines for the operation of optional waste diversion programs (e.g. organics collection, drop-off depots).

Ontario's waste regulation link

<http://www.on.ec.gc.ca/epb/fpd/cpb/3009-e.html>

Canadian recycling link

<http://www.nrcan.gc.ca/mms-smm/busi-indu/rec-rec-eng.htm>

### 2.0 Overall Recycling/Waste Reduction Goals of Local Government

The City of Toronto has a goal to divert 70% of its waste from landfill disposal. This was established by City Council in December 2007 by PW11-13, with an initial goal of reaching this rate by 2010. The actual diversion rate is measured yearly based on the quantitative methodology of the provincial Generally Accepted Principles (GAP) for municipal waste measurement reporting. The City does not complete a commercial waste audit in the same way that they do residential, so that information is not available.

### 3.0 Single Family Residential Waste Management

#### Recycling

Recycling is mandatory for all City of Toronto residents. The City provides single stream curbside recycling service to single-family houses (both day and night time collection), semis, duplexes, rowhouses, and most small apartment buildings (less than nine units) in blue bins. Residents can choose between containers that are 75 Litres, 120 L, 240 L, or 360 L. They also have the option to request an additional bin at no cost if they are consistently overfilling the 360 L bin. This service is provided bi-weekly free of charge and includes the following items:

- Plastic bottles and jugs (lids on)
- Milk/juice cartons and boxes (put plastic tops and straws in garbage)

- Glass bottles and jars (put lids in garbage)
- Aluminum cans
- Plastic food jars, tubs, and lids (e.g. margarine, yogurt, ice cream, sour cream containers)
- Metal cans (place lid inside can and pinch closed)
- Cardboard cans (e.g. frozen juice, refrigerated dough, chips, nuts, powdered drink mix – put plastic pull-off strips in garbage; place metal ends inside cardboard can and pinch closed)
- Aluminum trays, pie plates, and roasting pans
- Aerosol cans (empty; put caps in garbage)
- Metal paint cans & lids (separate lids from cans)
- Food and protective packaging (e.g. drinking cups, egg cartons, meat trays, takeout food containers, electronics packaging)
- Plastic retail shopping bags without drawstrings, metal detailing or hard plastic handles (remove receipts: place all plastic bags in one retail or grocery plastic bag and tie handles together)
- Bags, rolls, junk mail, writing/computer paper, envelopes, window envelopes
- Shredded paper (put in clear plastic bag and tie closed)
- Gift wrap, cards (no ribbons, bows, foil wrap)
- Newspapers, flyers, telephone directories, magazines, catalogues, soft/ hardcover books (remove plastic covers, liners, over-wrap and put in garbage)
- Boxboard boxes (e.g. cereal, tissue, detergent, egg cartons – flatten; remove liners, plastic windows and put in garbage)
- Corrugated cardboard (clean, unwaxed, flattened; pizza boxes must be empty; remove plastic over-wrap from pop/water cases and put in garbage)

### **Electronic Waste**

Some e-waste is also picked up curbside. Starting April 1, 2009, the City of Toronto, and other Ontario municipalities, began receiving funding from Ontario Electronic Stewardship (OES) for electronics collections. Ontario Electronic Stewardship (OES) is the Industry Funding Organization that oversees the stewardship program for what we refer to as electronic waste or E-waste. All single family homes receive a green e-waste bag to assist residents in disposing of small electrical and electronics equipment such as telephones and accessories, mouse(s), cell phones, radios, cameras, MP3 players, video recorders, and computer cables. Residents in low rise apartments and condos that receive curbside collection will receive E-waste bags only if they have been ordered by the property manager or superintendent. Larger electronic items can also be placed next to garbage bins for curbside pickup.

### **Food and Yard Waste**

Food waste is placed in separate green containers and picked up weekly at curbside through a mandatory composting program. Residents can receive both an indoor container approximately 7.5 inches in size and an outside container that materials are transferred to, which is 26 inches in size. The organic material is made into compost for farmlands and parks.

The following items are accepted:

- Fruits, vegetable scraps
- Meat, shellfish, fish products
- Pasta, bread, cereal
- Dairy products, egg shells
- Coffee grounds, filters, tea bags
- Soiled paper towels, tissues

- Soiled paper food packaging: fast food paper packaging, ice cream boxes, muffin paper, flour, and sugar bags
- Paper plates
- Candies, cookies, cake
- Baking ingredients, herbs, spices
- Household plants, including soil
- Diapers, sanitary products
- Animal waste, bedding (e.g. from bird/hamster cages), kitty litter
- Pet food

Yard waste is collected bi-weekly on a seasonal schedule ranging from mid-March through December and including January for Christmas trees. All yard waste is accepted except for grass clippings. Residents simply place their yard waste in either Kraft paper bags or any rigid open top container that has handles and a capacity of not less than 20 litres or more than 125 litres and leave it at the curb.

### **Bulky Items**

Residents can also leave oversized and metal items next to their garbage bins for free regular pick-up without any scheduling requirements. These items are taken to the City's Reuse Facility where staff organizes like-materials for shipment to their associated recyclers (if markets exist).

### **Garbage**

Garbage is also picked up bi-weekly. Residents have the option of four different container sizes: 75 Litres, 120 L, 204 L, or 360 L. A volume based rate is charged for garbage collection according to bin size:

- Small Garbage Bin = 1 bag (\$2.84 credit)
- Medium Garbage Bin = 1 ½ bags (\$47.93/yr.)
- Large Garbage Bin = 3 bags (\$145.31/yr.)
- Extra-Large Garbage Bin = 4 ½ bags (\$204.36/yr.)

This fee is applied to residents' utility bills and spread out throughout the year.

## **4.0 Multi-Family Residential Waste Management**

### **Recycling**

Toronto provides weekly collection of recycling for multi-family residential buildings, and all multi-unit buildings that receive municipal garbage collection are required to participate in the City's recycling program. This affects dwellings with nine units or more and generally includes apartments, condos, and some types of townhouses. The same recycling items noted in the Single Family section are also accepted from multi-family residences. However, it is not a curbside service. Recycling items are placed in a 340-litre plastic bin equipped with wheels or a fully covered, watertight container with a capacity greater than 0.75 cubic metres and less than 4.6 cubic metres. As with single family residential, there is no cost for this service. To increase participation rates, the City provides free in-unit recycling containers to owners and managers to give to residents, which they can then use to collect recyclables before bringing them to the designated recycling area in their building.

## **Electronic Waste**

In an effort to increase recycling of electronic waste in multi-family buildings, Toronto provides free electronic waste containers (E-boxes) for use in a centralized area of the building that is accessible to residents. The E-box should be used to collect small electronic items, such as: cell phones, pagers, radios, cameras, video recorders, computer cables, and accessories. Portable and laptop computers, keyboards, VCRs, and DVD players may also be put in the E-boxes, as long as the total weight of the box does not exceed 20kg.

## **Food and Yard Waste**

Yard waste collection service is not currently provided to multi-family residential buildings, but it can be taken to a Drop-Off Depot for a fee. Food waste collection is provided on a weekly basis, accepting the same list of items noted in the single family residential section. Participation is mandatory for any building utilizing Toronto's municipal garbage collection services. Food waste should be placed in a 132-litre plastic bin equipped with wheels or a fully covered, watertight container with a capacity greater than 0.75 cubic metre and less than 2.3 cubic metres. To encourage participation, Toronto provides free in-unit "kitchen catchers" that property owners or managers can provide to residents.

## **Bulky Items**

Building owners or property managers can place large, bulky items near their garbage bins for pick-up at no additional charge. Again, these items are taken to the City's Reuse Facility where staff organizes like-materials for shipment to their associated recyclers (if markets exist).

## **Garbage**

Garbage is collected from multi-family dwellings up to two times per week. Bulk customers must use a properly covered watertight container with a capacity greater than 0.75 cubic metres and less than 4.6 cubic metres, which has a maximum weight of 1,500 kilograms when full. This service is provided for a fee, with costs increasing based on the amount of waste and/or bins used. Fees for excess compacted waste are \$26.55 per cubic yard and for uncompacted waste it is \$13.27 per cubic yard.

## **5.0 Results**

Blue Bin Program: In 2010, Toronto residents recycled 147,236 tonnes of recyclables through the Blue Bin program. The Blue Bin program has a 94% participation rate.

Green Bin Program: In 2010, the Green Bin program diverted (collected minus processing residue, moisture loss, etc.) approximately 92,715 tonnes of organic waste from landfill. On average, each single-family home on the Green Bin Program sets out approximately 200 kilograms of Green Bin organic waste for collection annually. The Green Bin Program has an 87% participation rate.

Overall: In 2010, 47% of Toronto's residential waste was diverted from landfill thanks to the Blue Bin, Green Bin, Yard Waste, and other diversion programs as well as the volume based rate structure for waste. This means 380,890 tonnes of garbage was not shipped to landfill. The City's diversion rate factors in the diversion tonnage achieved by both single-family homes and multi-residential buildings. In 2010, single-family homes had a diversion rate of 63% and multi-residential buildings achieved a rate of 18%.

## **6.0 Drop-Off Centers and Household Hazardous Waste**

The City of Toronto operates seven Drop-off Depots, which collect waste, yard waste, recyclables, household hazardous waste (including fluorescent light tubes, CFLs, auto and home use batteries, and automotive fluids), certain electronics (e.g. computers and their components, TVs, stereos, fax machines, etc), drywall, tires, and scrap metal. However, not all locations collect all materials. At the Reuse Centres located at Drop-Off Depots, residents can donate useable but unwanted household hazardous waste (such as paint), which are then sorted and set out for other interested parties to pick up free-of-charge.

There are two other ways to dispose of household hazardous wastes besides the Drop-Off Depots. The Toxic Taxi provides free pick-up of between 10 and 50 litres of household hazardous waste materials from Toronto residents once an appointment has been booked through 311. Toronto also holds 45 mobile Environment Days events annually. These provide an opportunity for residents to dispose of their unused and unwanted household items.

## **7.0 Disposal**

Currently, all residual waste goes to Toronto's municipally owned landfill. (Landfill fees are \$100 plus per ton.) The waste first goes through one of the City's seven Transfer Stations. Then, using transport trailers, it is taken to the landfill approximately 200 km away. The City is also exploring the feasibility of using Mechanical Biological Treatment to reduce the volume of residual waste. A copy of their Transfer Station Information Package (fees) can be viewed at:

[http://www.toronto.ca/garbage/pdf/transfer\\_information\\_package.pdf](http://www.toronto.ca/garbage/pdf/transfer_information_package.pdf).

## **9.0 Business/Commercial**

### **Recycling**

Businesses that register with the City (and are approved) for the Yellow Bag Program for garbage pick-up are entitled to free recycling and organics collection. The same materials accepted from residential customers for recycling purposes are also accepted from business customers. Generally commercial establishments of less than 4 floors and less than 500 square meters ground floor space, qualify for the Yellow Bag program.

For most businesses, recyclable tin, glass, plastics, and paper will be collected in recycling totes or clear bags. Some businesses, such as bars and large restaurants that generate significant quantities of recyclable tin, glass, and plastic each day, may need to purchase a 95-gallon wheeled cart from the City to participate. The 95-gallon wheeled carts may be purchased at a cost of \$96.05, taxes included. Corrugated cardboard must be bundled for separate cardboard collection, and bundles must be no larger than 75cm by 75cm by 30cm.

Organics will be collected in special 35-gallon carts, which may be purchased from the City. (As a rough guideline, the 35-gallon cart will hold about 3 typical garbage bags or produce boxes of organic waste.) The cost of each 35-gallon cart is \$62.15, taxes included. For some businesses (e.g. florists that do not produce wet, heavy organic waste) 65-gallon carts may be available. The cost of each 65-gallon cart is \$73.45, taxes included.

## **Garbage**

The recycling and organics services are provided for free, but there is a fee for garbage collection for businesses. Once a week garbage collection is \$806.00 per year per 95 gallon garbage bin or individual yellow bags for commercial collection are sold at retailers for \$3.10 each. Large organics generators, primarily restaurants and green grocers who need additional collection of organics, can apply for two, five, or six collections per week for a fee. The City does not collect garbage or recycling from industrial locations. Toronto has an "all or nothing" policy for its collection program. If a business is approved for City collection, and utilizes the services, they must recycle in order to receive waste collection. (Yard waste is not collected.) Offering free organics and recycling collection provides a good financial incentive to the City's commercial customers to ensure that material does not end up in the waste stream. However, large furniture and appliances are not collected from commercial locations as per City Bylaws. Businesses must make separate arrangements for the removal of bulky items.

## **9.1 Results**

The materials collected and diverted through the Yellow Bag Program are not reflected in the City's annual residential diversion rate. However, the following quantities were collected in 2010: 5,000 tonnes of waste, 12,000 tonnes of recyclables, and nearly 9,500 tonnes of organics.

## **10.0 Organics**

To reduce the "yuck factor", residents and businesses are encouraged to place their organics (food waste, not yard waste) in plastic bags for collection. If program participants were not allowed to use plastic bags, there's concern that participation levels could be negatively impacted and therefore reduce the City's residential waste diversion rate. The plastic bags are removed during processing of the organics stream. Residents may use any plastic bag for collection.

The following tonnes of organics were collected in 2010:

- Single-family homes: 105,178
- Multi-family dwellings: 3,899
- Commercial: 9,423

## **11.0 Schools**

The City provides garbage (for a fee) and recycling (free) collection services to public and private schools in Toronto. The fee is based on the size and quantity of bins chosen (either per garbage bag, 90 Gallon cart, and/or 2 cubic yard – 12 cubic yard bins). In 2010, approximately 14,551 tonnes of garbage and 13,017 tonnes of recyclables were collected from all schools, resulting in a school diversion rate of 47%.

In 2003, City Council established the City of Toronto's first-ever Waste Diversion Team (WDT), comprising representatives of City Agencies, Boards, Commissions, and Divisions (ABCDs). The two School Boards were also later invited to join the team.

City Council's directives were that each organization was tasked to:

- Divert 100% of its waste by 2010 (since changed to 70%)
- Create a roadmap to show how it would reach this target
- Audit or track waste annually and report annually on its progress

In six years, the 22 WDT participants diverted approximately 300,000 tons of recyclables from garbage collection, increasing their collective waste diversion rate from 39% in 2004 to 67% in 2010.

## **12.0 Construction/Demolition**

The city of Toronto currently does not have a construction & demolition diversion program. Renovation waste (including construction and demolition debris) such as drywall, doors, lumber, counters, cabinets, and roof shingles are not collected curbside, but can be taken to a Drop-Off Depot for a fee. Staff is also investigating the potential to divert residential construction and demolition waste, and in particular residential roofing shingles. Since this material is not currently separated from other waste, there is not a good measure of the impact this could have. The only related figure available is that in 2010, 815 tonnes of drywall were dropped off at Depots.

## **13.0 Event Recycling**

Solid Waste Management Services is committed to assisting event organizers in diverting waste at special events. However, litter and garbage is the responsibility of the event organizer. The Department provides:

- Blue Bin and Green Bin recycling services at no cost
- Pre-event meeting to determine event waste management needs
- Recycling and organic totes, and recycle roll-off bin
- Recommendations to event waste diversion plan
- Nightly curbside collection of properly packaged cardboard boxes, recycling, and organic waste
- Post-event follow-up meeting to discuss how to make improvements for next year's event

Organizers are required to submit a Waste Management Plan to staff prior to the event. A road closure permit will not be issued until the plan has been approved. Should the applicant/permit holder fail to remove any garbage, litter, or debris from a street event, the City will remove it at the applicant's expense.

Refer to the Special Events Waste Diversion Handbook for additional information,

[http://www.toronto.ca/special\\_events/pdf/waste\\_diversion\\_handbook.pdf](http://www.toronto.ca/special_events/pdf/waste_diversion_handbook.pdf).

## **14.0 Litter**

Toronto is replacing their older litter bins with new models that have three compartments to accept garbage, recyclable paper, and containers such as soft drink cans and bottles. They also include cigarette butt receptacles. This is part of the City's coordinated street furniture program. If residents observe overflowing litter bins or loose litter, they can report them to 311.

Public Realm Section - Beautiful Streets programs actively bring together residents' vision, community volunteers, contributions from organizations and businesses, and City expertise to enhance and renew public spaces in Toronto's neighborhoods and streets. They actively contribute to numerous cleaning and beautification initiatives within the City and implement three types of community projects: community gardens, neighborhood murals, or projects to improve a public space.

## **15.0 Regulations**

The *Ontario Environmental Protection Act* stipulates that a municipality must have a curbside recycling collection program if its population is over 5,000 and that it must collect a minimum of 5 specific materials.

## Sources

Documents available through the profiled government's websites (e.g., Solid Waste Management Plan) including:

Ontario's waste regulation link

<http://www.on.ec.gc.ca/epb/fpd/cpb/3009-e.html>

Canadian recycling link

<http://www.nrcan.gc.ca/mms-smm/busi-indu/rec-rec-eng.htm>

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## **Metro Vancouver, British Columbia, Canada Solid Waste and Recycling Programs**

**Population served by program: 2.3 million. Disposal rate per metric tonne: \$97/metric tonne (going up to \$109/metric tonne in January 2012)**

### **1.0 Description of Government Profiled**

Metro Vancouver is a federation of 21 member municipalities, one Electoral Area and one treaty First Nation in the lower mainland of British Columbia Canada. Approximately 2.3 million people live and work in the Metro Vancouver region.

Solid waste in this region is categorized into three sectors: Residential; Light-Industrial, Commercial and Institutional (ICI); and Demolition, Landclearing and Construction (DLC).

Metro Vancouver: Plans and regulates the overall recycling and solid waste services for all three sectors, and operates the transfer and disposal system for residential and ICI wastes.

Member municipalities: Provide most of the collection of waste and recyclables from single family residences. In a few cases, municipalities also provide recycling services to multi-family residences and some ICI business, but this is mostly done by the private sector.

The private sector: Provides most of the collection of waste and recyclables from multi-family residences, ICI businesses, and the DLC sector. The private sector also provides virtually all of the processing of recyclables, and virtually all the disposal of DLC wastes in this region. The private sector also manages Extended Producer Responsibility (EPR) or "Take-Back" programs for many products (e.g. beverage containers, paints, pesticides, solvents, electronics, small appliances, tires, batteries, motor oils, pharmaceuticals) in the province of British Columbia.

Metro Vancouver's solid waste planning and management team includes about 60 employees subdivided into the following areas of responsibility:

- contract management for transfer stations and disposal facilities;
- regulation and enforcement of public and private transfer stations, recycling processors and brokers, compost and disposal facilities;
- policy, planning and analysis of both existing and future regional solid waste system programs and infrastructure including disposal and diversion; and,
- communication and education of regional waste diversion initiatives.

Each of the municipalities has their own employees responsible for solid waste and recycling collection. Some municipalities have their own employees doing curbside collections while others contract this service out. The employees involved in all solid waste operations, planning, enforcement and communications at the municipal level is estimated to number in the hundreds. The private sector in this region naturally has its own employees working in waste and recycling, the exact number is not known but is estimated to be in the thousands.

Metro Vancouver has an Integrated Solid Waste and Resource Management Plan (ISWRMP) which estimates that net expenditures associated with all municipal, regional and private recycling activities is currently about \$190 million annually. The ISWRMP anticipates an additional \$80 million (total of \$270 million) annual expenditure by 2015 because of the increase in the amount of waste that is expected to be recycled.

## **1.1 Provincial Regulations for Municipal Solid Waste Management**

British Columbia's Ministry of Environment requires that all Regional Districts (of which Metro Vancouver is one) prepare and submit a solid waste management plan. Detailed guidelines about how to prepare a plan that will be approved by the provincial government are provided on their website: <http://www.env.gov.bc.ca/epd/mun-waste/waste-solid/sw-mgmt-plan/>

The Ministry of Environment's Recycling Regulation requires that producers of several specific material categories are held responsible for the end-of-life management of their products. This concept, commonly known as "Take-Back" or product stewardship programs, is also referred to as Extended Producer Responsibility (EPR). The regulation is designed to make industry fully responsible for the management of goods throughout their life cycles.

Items that are managed through "Take-Back" (EPR) programs are banned from Metro Vancouver disposal facilities and are diverted before they enter Metro Vancouver's recycling and solid waste management system. However, the percentage of materials diverted from the system through "Take-Back" programs is dependent upon the number of materials or products targeted through the programs, how many exemptions are allowed, and, ultimately, how many consumers use the programs. The intention is that the regulation applies to all materials of a certain type, regardless of the waste sector it is generated in (i.e., residential, institutional/commercial/light-industrial, or demolition/landclearing/construction).

The Recycling Regulation currently includes materials such as beverage containers, paint, used oil, electronics/electrical products, batteries, light bulbs, tires, pharmaceuticals, solvents and flammables, pesticides, and others.

Recent additions to the regulation include packaging and printed paper and large appliances. These programs have not yet been developed by industry however they are required to develop them over the next couple of years. EPR for packaging and printed papers will be extremely important, as these make up almost all of the materials currently collected for recycling from single-family homes by local municipal governments.

The Recycling Regulation can be viewed in full by following this link:  
<http://www.env.gov.bc.ca/epd/codes/recycling/index.htm>

## **2.0 Overall Recycling/Waste Reduction Goals of Regional Government.**

Metro Vancouver's goal as stated in their recently approved ISWRMP is to improve reduction, reuse and recycling efforts so that by 2015, a minimum of 70% of waste is kept out of disposal (landfill or waste-to-energy). They also have a stated aspirational goal to divert 80 % of waste by 2020 if markets can sustainably absorb the added materials.

Metro Vancouver also has a goal of reducing the quantity of waste generated (disposed AND recycled) per capita by 10 % by 2020.

The region's new waste management plan sets the following targets for residents:

- Increasing recycling rates for apartments and condos from 14% (current) to 30%
- Increasing recycling rates for houses from 44% (current) to 65%

Metro Vancouver's overall current recycling rate is 55%.

### **3.0 Residential Waste Management**

#### **3.1 Single-Family Homes (homes for which curbside collection is provided)**

##### **3.1.1 Recycling**

All single family residential recycling collection responsibilities are under the jurisdiction of municipal governments within the Metro Vancouver region. Metro Vancouver provides recycling drop-off at 5 of its 6 transfer stations and at the public landfill. Some municipalities also have their own recycling drop-off depots.

The following materials are banned from disposal facilities: OCC, recyclable paper, glass and metal containers, plastics (#1, 2, 4 & 5), yard waste, and beverage containers. There is also a long list of materials that are prohibited from disposal due to their hazardous, toxic, or operationally problematic properties. Metro Vancouver imposes material bans at public disposal facilities once alternative recycling, recovery or disposal services for banned materials are in place or once the market can demonstrate its ability to accept the diverted material. Municipalities provide collection or drop-off services for materials that are not part of provincially regulated EPR programs.

Metro Vancouver has a website database of residential recycling information by material type and by location: [www.metrovancouverrecycles.org](http://www.metrovancouverrecycles.org)

##### **3.1.2 Food Scraps and Yard Trimmings**

As with curbside recycling collection, single family residential yard trimmings and food scraps collection is a service provided at the discretion of each municipality. Almost all municipalities provide yard trimmings collection to single family homes. Currently, food scraps can be placed in yard trimmings containers in 10 municipalities in the region. Most of the material is taken to a private compost facility in Richmond, BC.

Metro Vancouver provides public education for composting in single-family homes through guidance documents on backyard composting, worm composting, natural lawn care, water-wise gardening, and dog waste composting. In addition, many municipalities provide hands-on workshops to promote backyard composting in their specific municipality. Many also sell backyard or worm composters directly to residents at cost.

Metro Vancouver hopes to introduce a 2012 ban on the disposal of food scraps from single family residences, if most municipalities have implemented food scraps collection.

##### **3.1.3 Single-family Garbage**

Curbside garbage collection from single family residences is a service provided at the discretion of individual municipalities within the Metro Vancouver region. All but one municipality provide curbside collection of single-family residential garbage. Residents are also permitted to drop off garbage for a fee at Metro Vancouver's 6 transfer stations.

##### **3.1.4 Policies and Results**

Metro Vancouver hopes to introduce a 2012 ban on disposal of food scraps from single family residences.

The current recycling rate for single-family homes is about 44%.

### **3.2 Multi-Family**

#### **3.2.1 Recycling (multi-family)**

The following materials are banned from disposal facilities: OCC, recyclable paper, glass and metal containers, plastics (1, 2, 4 & 5), yard waste, and beverage containers. Most multi-family buildings receive recyclables collection services through the municipality. Other multi-family buildings must arrange to have recyclables picked up by private sector haulers to comply with the ban. Metro Vancouver provides recycling drop-off at 5 of its 6 transfer stations and at the public landfill. Some municipalities also have their own recycling drop-off depots.

Metro Vancouver has a website database of residential recycling information by material type and by location: [www.metrovancouverrecycles.org](http://www.metrovancouverrecycles.org)

#### **3.2.2 Food Scraps and Yard Trimmings (multi-family)**

Yard waste collection is provided to some multi-family residences by some municipalities, but most multi-family residences do not generate this type of waste, or have private landscaping companies that maintain their properties and remove the yard trimmings as part of their contracts.

Metro Vancouver promotes the reduction of food scraps first and the use of worm composting bins for multi-family complexes. A few municipalities are in the process of implementing food scraps collection from their multi-family complexes, however most municipalities leave this to the private sector.

Metro Vancouver hopes to introduce a 2015 ban on disposal of food scraps from multi-family residences.

#### **3.2.3 Garbage (multi-family)**

In most cases, garbage collection service is provided by private contractors for multi-family buildings. Building owners or strata corporations are individually responsible for hiring a contractor to collect their garbage. Residents are also permitted to drop-off garbage for a fee at Metro Vancouver's 6 transfer stations.

### **4.0 Business/Commercial**

The business or ICI sector in Metro Vancouver is defined as Light-Industrial, Commercial and Institutional.

#### **4.1 Business/Commercial Recycling**

The region's new Integrated Solid Waste and Resource Management Plan (ISWRMP) sets the following targets for businesses:

Institutional, commercial and light-industrial, 70% of waste is kept out of the landfill (this category includes commercial businesses, schools, hospitals, producers etc)

The following materials are banned from disposal facilities: OCC, recyclable paper, glass and metal containers, plastics (1, 2, 4 & 5), yard waste, and beverage containers.

MetroVancouver has a website database of businesses recycling information by material type and by location: [www.metrovancouverrecycles.org](http://www.metrovancouverrecycles.org)

In addition, Metro Vancouver offers web-based guidance documents for business sustainability initiatives (Smart Steps and Build Smart Programs). Waste assessments are also offered.

Waste monitoring programs performed on ICI waste provided valuable information for the development of the new ISWRMP. The information was used to assess the effectiveness of existing waste diversion initiatives, and to plan new ones by targeting prominent waste types.

#### **4.2 Business/Commercial Yard Trimmings/food scraps**

Metro Vancouver hopes to introduce a 2015 ban on the disposal of food scraps from commercial, industrial and institutional sources.

#### **4.3 Business/Commercial Garbage**

Commercial waste collection is provided largely by the private sector, but the same recyclable material disposal bans apply.

### **5.0 Schools**

Metro Vancouver has a robust educational effort apart from the solid waste division but incorporates their objectives.

Programs of note: A collection program where home computers are taken to schools for reuse and a sustainable schools “best practices guidance document” that focuses on waste reduction.

### **6.0 Demolition, Land Clearing and Construction Waste**

Metro Vancouver offers a comprehensive website on sustainable building initiatives including a DLC waste management toolkit and model specifications for Construction Waste Management and Disposal; and Removal and Salvage of Construction Materials.

Disposal and recycling services for the DLC sector are exclusively handled by private haulers, processors and disposal sites. DLC processors and disposal sites in the region are licensed by Metro Vancouver. The region’s new Integrated Solid Waste and Resource Management Plan set the following targets for businesses by 2015:

- Mandatory recycling on construction and demolition sites
- Clean wood waste will be banned from disposal
- All wood waste will be banned from disposal

There are at least two privately operated mixed DLC processing facilities in the Vancouver area processing about 200,000 tons per year. The DLC sector has a diversion rate of about 80%.

### **7.0 Event Recycling**

Metro Vancouver provides the public with guides and various resources such as down-loadable signs for recycling at special events.

## **8.0 Waste Prevention (Source Reduction)**

Metro Vancouver offers many resources and challenges to residents to reduce waste generated. Metro Vancouver provides a large number of educational tools including media campaigns, copyright free art work and videos. Metro Vancouver has also helped develop interactive waste reduction websites such as:

[www.metrovancouverrecycles.org](http://www.metrovancouverrecycles.org)

[www.3rs.ca](http://www.3rs.ca)

Metro Vancouver also promotes the red dot program <http://www.reddotcampaign.ca> whereby residents can place a red dot on their mailbox and the postal service will not deliver advertising and junk mail.

## **9.0 Facilities**

### **9.1 Disposal Facilities**

The Metro Vancouver disposal system includes:

- 6 transfer stations owned by Metro Vancouver, operated by contractors;
- 1 transfer station owned and operated by the City of Vancouver;
- 1 Waste to Energy facility owned by Metro Vancouver, operated by contractor;
- 1 local landfill owned and operated by the City of Vancouver; and
- 1 out of region landfill owned and operated by a private contractor.

In order to minimize the region's reliance on long haul disposal, Metro Vancouver's new Integrated Solid Waste and Resource Management Plan (ISWRMP) includes the implementation of new waste-to-energy capacity. The construction of a new facility would require the completion of a comprehensive consultation program and final approval by the Province of British Columbia. The process for the implementation of such a facility has just begun and is expected to take several years to complete.

Metro Vancouver's ISWRMP also calls for long term landfilling capacity for unrecycled waste from homes and business, and the residue from the waste-to-energy facility(s), and for sufficient long term disposal capacity for demolition/ construction waste.

### **9.2 Recycling Processing Facilities**

All recycling processing is done by the private sector.

### **9.3 Composting Facilities**

A 10-year contract was secured with a private composting facility in 2009 which provided an additional 50,000 tonnes per year of capacity for mixed organics (food, yard, soiled papers). Municipalities are using that facility and others in the region to process their organics.

Several new organics biofuel facilities are under development. Metro Vancouver's role is to establish a regulatory and economic climate that will encourage organic waste diversion. The development of new organics processing facilities is left to the private sector and to any individual municipalities that wish to do so. For example, the City of Vancouver has its own yard trimmings composting operation on the site of its landfill, and the City of Surrey is planning to establish its own biofuel facility in that municipality. There are two known private biofuel facilities underway in the region, one committed and actively under construction (Harvest Power) and the other in the very early planning stages (Earth Renu).

## **10.0 Most Effective Metro Vancouver Waste Diversion Programs**

Metro Vancouver identified their most effective waste diversion program elements as follows (in order of importance):

1. Material disposal bans on readily recyclable materials
2. Developing programs for diverting organics (food, yard, soiled papers)
3. Provincial Extended Producer Responsibility programs which are among the most far reaching in North America

### **Sources**

[www.metrovancouverrecycles.org](http://www.metrovancouverrecycles.org)

Metro Vancouver's website or documents found on Metro's website such as their recently approved Integrated Solid Waste and Resource Management Plan.

Some text may have been taken directly from these documents and Mecklenburg County wishes to give full credit to the web and document authors.

Urban Wood Waste Recyclers [www.uwwr.com](http://www.uwwr.com)

Review and comments were provided by the Senior Engineer for the Metro Vancouver Solid Waste Dept.

## **Wake County, North Carolina Solid Waste Management Division**

**Pop. Served by program: 900,993 (2010 census)**

### **Form of Local Government**

Wake County currently has 15 full time County employees and a \$28.8 million annual operating budget. Wake County currently utilizes one municipal solid waste (MSW) landfill, one transfer Station and 11 Convenience Centers. The MSW landfill is approximately 25 miles away. Solid Waste Management is a division of the Environmental Services department. It provides various services to generators from both the municipalities and the unincorporated areas of the County.

The County is the only public agency that provides disposal facilities for the solid waste generated within the County. This includes maintenance, monitoring and closure activities.

### **General Operations**

Residents of unincorporated Wake County do not have a curbside recycling program, yard waste collection program, food waste program, or garbage collection program. Recycling is not mandatory and PAYT is not a viable option for this community. There are 11 Convenience Centers, open 7 days per week to County residents. Acceptable Materials include the following: household trash, C&D, OCC, single stream recyclables (aluminum, glass, plastics, paper), phone books, scrap metal, oyster shells, furniture, clothing, books, computer equipment & electronics (at select sites).

There are two Multi-Material Recycling Facilities, open 6 days per week to County residents and businesses. Acceptable materials include the following: batteries, cardboard, CDs/DVD/VHS tapes, cell phones, cooking oil, motor oil, electronics, computer equipment, TVs, scrap metal, toys, tires, single stream recyclables.

Bulky waste is accepted from residents at Convenience Centers for disposal only.

There are also two Household Hazardous Waste drop off facilities, open 6 days per week to County residents only. All Wake County recyclables are handled by an outside company. Wake County does not own/manage a MRF.

### **Goals**

The Wake County Solid Waste Management Plan offers a number of qualitative goals for the County and its municipal partners. Quantitatively, the Plan offers two numeric goal statements

- “Reduce, reuse, and recycle MSW to the maximum extent practicable in all participating jurisdictions, with the overall objective of achieving the State’s waste reduction goal of 40percent as measured against the baseline year of FY 1988-89.”
- “The jurisdictions in Wake County have previously established a collective goal of 20 percent waste reduction for all solid waste. They continue to support that goal to be achieved by the end of the 2009-2019 planning period.”

### **Residential Recycling**

Wake County does not provide any curbside service. It does, however, provide drop-off recycling for a variety of reusable/recyclable materials as well as management options for household hazardous waste.



The County operates 11 convenience centers and two multi-material recycling facilities. The multi-material recycling locations also house the household hazardous drop-off operation.

The table below shows what can be recycled/reused and where.

**R = RECYCLED**

**Re = REUSED**

**D = DISPOSED**

	<u>Convenience Centers</u> Open 7 days/week 7 a.m.–7 p.m.	<u>Multi-Material Recycling Facilities</u> Mon.–Sat. 8 a.m.–4 p.m.	<u>Household Hazardous Waste Facilities</u> Mon.–Sat. 8 a.m.–4 p.m.
<b>Aluminum</b> Cans, Foil, Pie Pans with no food residue	R		
<b>Appliances</b> A/C Units, Refrigerator, Washer/Dryer, Water Heater, etc.	R (Sites 1 & 11 ONLY)	R	
<b>Baby Strollers</b> (must be in good condition & include all attachments)		Re	
<b>Batteries</b> Lead Acid, Vehicle	R (Site 11 ONLY)	R	R
<b>Books</b> Textbooks, Hard Cover, Soft Cover, etc	Re		
<b>Car Seats</b> (must be in good condition & include all attachments)		Re	
<b>Cardboard</b>	R	R	
<b>Cartons</b> Aseptic & Gable Top: Juice, Milk, Soup Cartons	R	R	
<b>CD's / DVD's/ VHS tapes</b>		Re	
<b>Cell Phones</b>		Re	
<b>Chemicals</b> Cleaners, Herbicides, Pesticides, Poison, etc.			D
<b>Chipboard</b> Cereal, Snack, Shoe Boxes, etc.	R	R	
<b>Clothing</b>	Re		
<b>Computer Equipment</b> CPUs, Monitors, Laptops, Peripherals, Printers, etc.	R (Sites 1, 4, 11 ONLY)	R	
<b>Electronic Equipment</b> TVs, VCR/DVD Player, Stereos, Phones, Copiers, etc.	R (Sites 1, 4, 11 ONLY)	R	
<b>Furniture</b> Must be less than 8 feet long	D		
<b>Garbage</b>	D		

<b>Glass</b> Bottles, Jars: Clear, Brown & Green	R		
<b>Hazardous Waste</b> Auto Fluids, Paint, Stains, Solvents, etc.			D
<b>Motor Oil</b>		R	R
<b>Oyster Shells</b>	Re		
<b>Paper</b> Catalogs, Mail, Magazines, Newspaper, Office Paper, etc.	R		
<b>Plastic</b> Bottles & Containers (#1–#7) No Styrofoam No Bags	R		
<b>Scrap Metal</b> Bicycles, Grills, Mowers, Pipes, Swing Sets, etc.	R	R	
<b>Shoes</b>	R		
<b>Steel Food Cans</b>	R		
<b>Telephone Books</b>	R	R	
<b>Tires</b>	R (Site 11 ONLY)	R	
<b>Toys</b> (Good, Usable Condition, No Broken Toys)		Re	

### **Business/Commercial Recycling**

Commercial businesses are defined in Wake County as Commercial, Industrial, or Institutional operations. With these businesses Wake County provides waste reduction/recycling technical assistance (as requested). Wake County offers commercial waste reduction grants (annually) to organizations looking to increase their involvement in waste prevention efforts and decrease the amount of waste sent to landfills. Up to \$10,000 is available for innovative commercial waste reduction projects. There are two drop off locations (Multi-material recycling facilities) open to businesses within Wake County.

### **Organics (Yard Waste, Food Waste)**

Wake County does not provide any yard waste or food waste composting options. However, residents are encouraged to follow the directions on Wake’s website to start and maintain a back yard composting bin. In addition, residents and businesses may use the “trash takers” webpage to identify private facilities that accept yard waste.

### **Schools**

Wake County has a very successful school recycling program. Their program is called Feed the Bin (FTB). The program is available to all Wake County public schools and charter schools. The program provides mixed paper recycling collection and educational resources for students and teachers. The educational component of the program includes teacher workshops, presentations, and curriculum. Since the program’s inception in 2004, the FTB program has diverted more than 8 million pounds of paper. A 2008 waste composition study determined that only 13% of paper is still being disposed of by FTB schools. To keep schools informed of their recycling efforts, paper recycling data for each school is updated monthly and posted on the FTB website. Students have also become more active in the program. In a recent survey

conducted by FTB, 95% of schools responding indicated that a student group was involved in the collection of recyclables.

**Construction/Demolition**

A 1999 study showed that nearly 22 percent of the waste stream entering Wake County's landfill consisted of construction and demolition (C&D) debris. To encourage material separation and recycling Wake County Solid Waste Facilities do not accept C&D debris. Any loads that consist of more than 10% C&D debris are subject to double tip fee. There are no ordinances that drive this program. There are several private C&D landfills within Wake County where these materials are accepted without penalty.

**Disposal**

**South Wake Landfill**

The South Wake Landfill will provide solid waste disposal to Wake County residents for 25 years. This includes a new long-term Interlocal Agreement (ILA) with municipalities and a Landfill Services contract with Waste Industries, Inc., for the construction and operation of the landfill.

<http://www.wakegov.com/recycling/southwake/default.htm>

**East Wake Transfer Station**

To facilitate delivery of waste from the northern and eastern parts of Wake County, the City of Raleigh constructed the East Wake Transfer Station (EWTS), which became operational shortly after the opening of the SWLF. Wake County has entered into an inter-local agreement with the City to manage the facility.

<http://www.wakegov.com/locations/solidwaste/ewakexfer.htm>

<b>Tipping Fee Structure (cost per ton)</b>	<b>South Wake Landfill</b>	<b>East Wake Transfer Station</b>	<b>Additional Comments</b>
<b>Municipal Solid Waste (MSW)</b>	\$30/ton	\$36/ton	Effective July 1, 2008, the State of NC will require a \$2/ton excise tax on every ton received at the landfill.
<b>Corrugated Cardboard (OCC) Surcharge</b>	\$60/ton	\$60/ton	Surcharge applies to MSW loads that have 10% or more corrugated cardboard.

**Event Recycling**

There are no efforts from Wake County Government to reduce special event waste.

**Ordinances and Regulations**

<http://www.amlegal.com/library/nc/wakecounty.shtml>

- o Wake County Solid Waste Ordinance (Title V, Chapter 50, § 50.01)
- o Wake County Littering Ordinance (§ 50.19)
- o Recyclable Corrugated Cardboard Surcharge Program (§ 50.17)

## Sources

Personal interview, with Wake County Environmental Program Coordinator, in 2011

Documents available through the profiled government's websites (e.g., Solid Waste Management Plan) including:

<http://www.wakegov.com/recycling/default.htm>

Some text may have been taken directly from these documents and Mecklenburg County wishes to give full credit to the web and document authors.