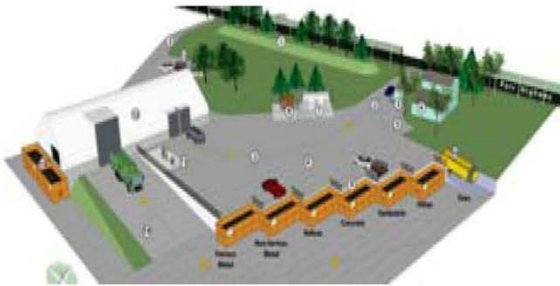




# Draft **Waste Less:** City of Ann Arbor Solid Waste Resource Plan Update 2013-2017



The Waste Less: Solid Waste Resource Plan Update Advisory Group convened in late 2011 and began monthly meetings in January 2012 to draft the city's Solid Waste Resource Plan Update. This committee included a broad spectrum of community members such as representatives from the residential and business sector, the University of Michigan and Washtenaw County, local elected officials, and city partners.

**WASTE LESS: SOLID WASTE RESOURCE PLAN UPDATE ADVISORY GROUP**

City Councilmember Sabra Briere

Environmental Commissioner David Stead

Washtenaw County Environmental Supervisor Jeff Krcmarik

University of Michigan Recycling Coordinator Alison Richardson

Residential Representatives

- Barbara Lucas
- Jenny Oorbeck
- Chris Riggs

Multi-family Residential Representative Sheryl Korsnes

Business Representatives

- Nancy Rucker (Zingerman's Deli)
- Doug McClure (Conlin, McKenney, & Philbrick)

Representatives from City partnerships (non-voting)

- Patrick Greve (Waste Management)
- Kendra Pyle (Recycle Ann Arbor)

City of Ann Arbor Staff (non-voting)

- Tom McMurtrie (Solid Waste Coordinator)
- Nancy Stone (Public Services Communications Liaison)
- Nicole Berg, Katie Dennis, Carina Easley-Appleyard (interns)

**SOLID WASTE RESOURCE PLAN UPDATE WORKING GROUP:**

- City Councilmember Sabra Briere
- Environmental Commissioner David Stead
- City staff Tom McMurtrie, Nancy Stone, Matt Naud, and interns Nicole Berg, Katie Dennis, Carina Easley-Appleyard (non-voting)

**SUB-COMMITTEES CONVENED DURING THE PLANNING PROCESS:**

- Organics
- Drop-Off Station
- Climate Action Plan

# WASTE LESS: CITY OF ANN ARBOR SOLID WASTE RESOURCE PLAN UPDATE 2013 – 2017

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- P. Using compost carts for temporary winter vegetative waste storage 2012
- Q. State of Recycling in Michigan 2011: A Way Forward, Michigan Recycling Coalition
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## GLOSSARY

### PUBLIC ENGAGEMENT SUMMARY (Separate attachment)

1. Residential Survey Results for Waste Less: Solid Waste Resource Plan Update
2. Public engagement sessions and input summaries
3. 2012 Residential Waste Sort summaries

SOLID WASTE CODE AND REGULATIONS (Separate attachments) also posted at [www.a2gov.org/recycle](http://www.a2gov.org/recycle)

## I. EXECUTIVE SUMMARY

Ann Arbor has made significant improvements in its solid waste collection system since the last solid waste plan update was approved in 2002. The collection cart, introduced to residents for refuse collection in 2005, provided a convenient collection system with a hinged lid, large capacity, and wheels for transporting. In addition to being more convenient for most residents, the cart also improved efficiencies and reduced injuries for the solid waste drivers.

The same cart collection system was brought to recycling in 2010 with the introduction of single stream recycling. This new system made recycling more convenient for residents and businesses by eliminating the sorting requirements and providing large collection carts. It also increased the types of materials that can be recycled.

Other changes in solid waste included the development of a set of recommendations from the commercial recycling committee. Within this set were recommendations for the implementation of a commercial solid waste franchise (started in 2009), expansion of commercial recycling services, and passage of a mandatory commercial recycling ordinance (effective 2011).

Looking forward, the planning committee decided to add the term “Resource” to the Solid Waste Plan name, to help the public recognize that solid waste should be recognized as a resource, as recognized by the City’s sustainability framework.

The new Waste Less: Solid Waste Resource Plan identifies ways for the community to move towards the Zero Waste goal that was adopted by the City’s Environmental Commission in 2007. Proposals in this five-year plan within a zero-waste framework, and include:

- Increase single family diversion rates\* from 50% to 60% by 2017
- Increase total citywide diversion rates\* from 31% to 40% by 2017
- Pilot expanded food waste composting to include all plate scrapings, and if successful, pilot providing year-round weekly compost collection and bi-weekly refuse collection for single-family residential routes
- Expand food waste composting to include all plate scrapings
- Increase apartment recycling rates
- Re-locate and upgrade the existing Drop-Off Station
- Expand zero waste educational efforts for residents, schools, parks, businesses, and special events
- Implement the 2008 citywide commercial recycling plan with mandated recycling at all City nonresidential locations
- Involve stakeholders to review and implement measures to increase waste reduction, recycling and composting such as promoting refillable water bottle stations, standardizing carryout food packaging for composting or recycling, managing construction and demolition waste, and implementing a single-use bag fee.

*\* Diversion definition: A combination of municipally-collected or contracted recycling and compost collection divided by the total solid waste collected (recycling + compost + trash); i.e., the amount of material that is not being sent to the landfill. Ann Arbor’s citywide diversion rate includes 52% apartment locations and over 3000 business and other nonresidential locations. Ann Arbor’s solid waste measurements do not include 4+% diversion from Michigan’s returnable deposit law or materials collected outside the weighed trucks, such as taken to the Drop-Off Station or materials composted at-home, etc Please note: a formula is used to pro-rate the percentages of single-family, apartment, and businesses on some recycling collection routes.*

Recognizing that Ann Arbor's solid waste disposal decisions have a significant impact on sustainability and climate change, this new plan is drafted using a set of sustainability goals that has been developed for all the City's environmentally-related plans.

The guiding principles for Ann Arbor's solid waste program focus on providing services that are cost-efficient, customer-friendly, and environmentally-responsible. Where advantageous to these principles, the City will pursue partnerships and markets that will lead toward a zero waste goal.

## II. HOW ARE WE DOING?

**Public feedback on solid waste services has been positive. In a comprehensive 2008 survey that obtained feedback from 931 residents about all city services, solid waste received the following comments:**

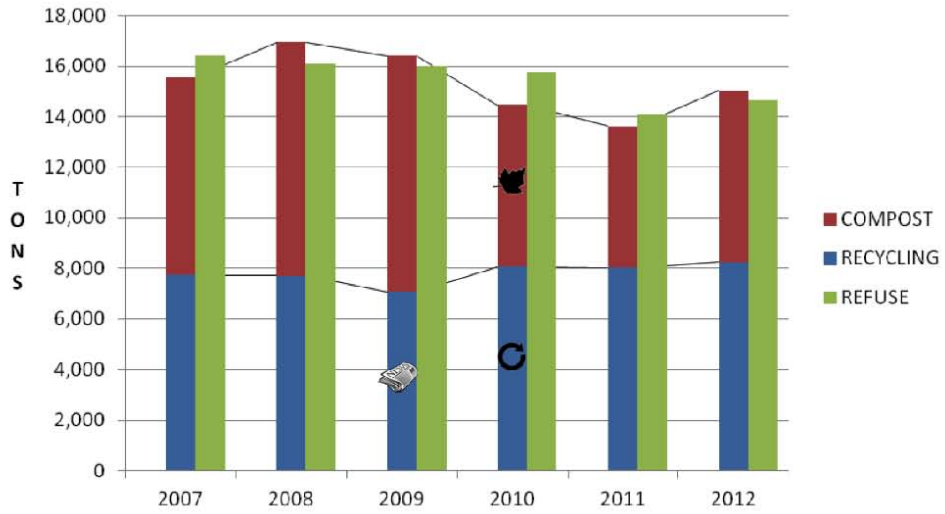
- 96% rated the recycling program as essential, very or somewhat important
- 92% rated garbage collection as excellent or good
- 89% rated recycling collection as excellent or good




**In a 2011 survey, residents said the following about the new single stream recycling program:**

- 67.9% recycled great amounts with single stream than before
- 73.9% increased the variety of materials they recycled
- 64.0% put out their recycling the same amount of times (thanks to the larger container)

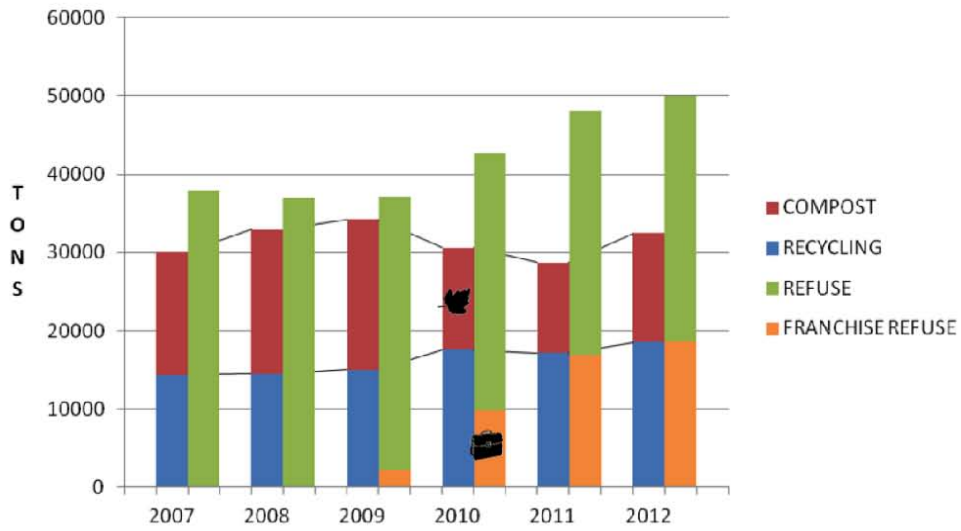
*The following pages show the solid waste tonnages that have been collected in Ann Arbor over the past six years, both for the single family programs as well as all city programs. Information has also been included on events that have influenced tonnages.*



## SINGLE FAMILY SOLID WASTE



	2009: Ann Arbor News ends publication
	2010: Fall leaf collection transitioned to curbside cart system
	2010: Single stream recycling introduced

## TOTAL ANN ARBOR SOLID WASTE (incl UM)

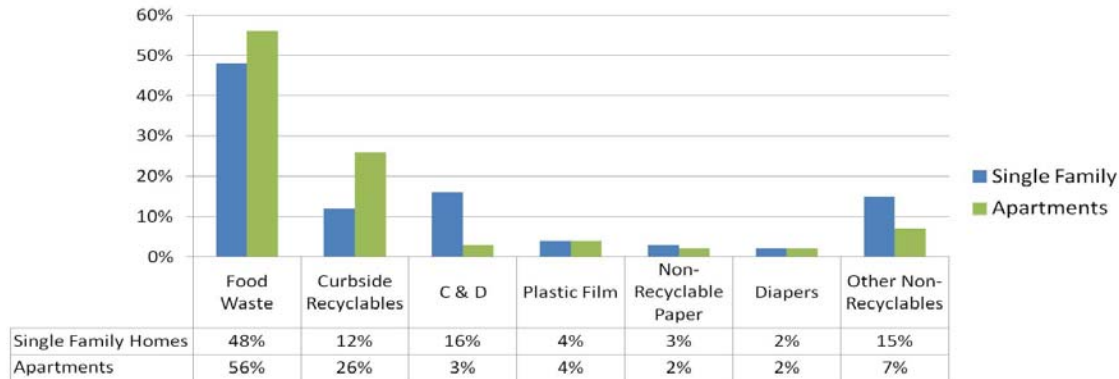


	2009: Commercial refuse franchise with Waste Management began
	2010: Fall leaf collection transitioned to curbside cart system



## WHAT'S IN OUR GARGAGE TRUCKS?

### What do we throw "away"?



### 2012 Waste Sort Summary (see Appendix for full report)

In the Fall 2012, the City of Ann Arbor conducted residential waste sorts of both refuse and recyclables from approximately 96 randomly-selected single-family homes and 96 apartment units.

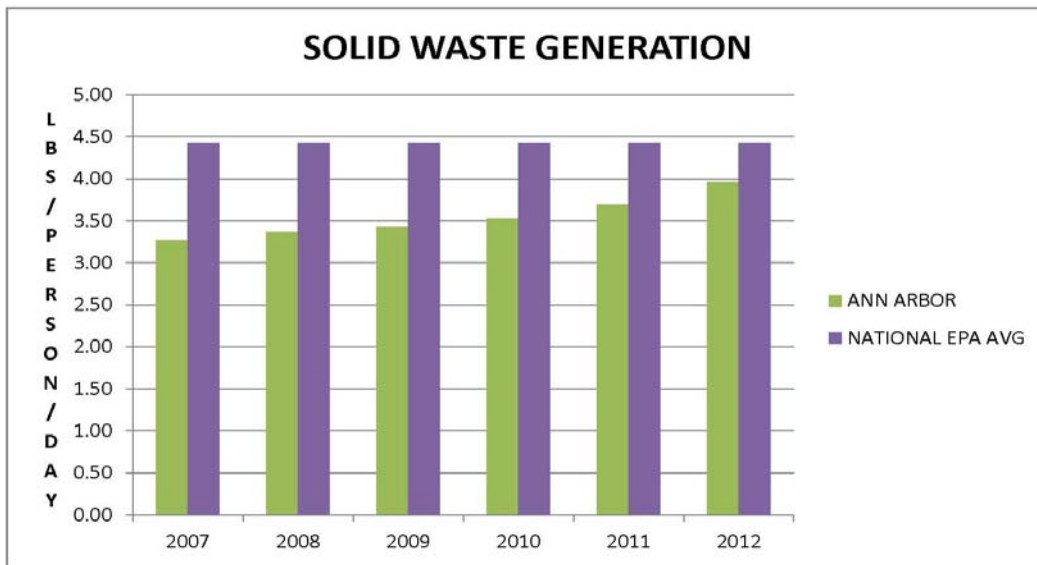
The resulting data reflected national trends in waste composition as reported by the U.S. Environmental Protection Agency, with food waste (including food-soiled paper, plastics, and containers) comprising about half of the residential refuse by weight. It should be noted that the food waste is likely overstated in the Ann Arbor waste sort, since the food waste was often mixed in with packaging (glass, plastic, etc.) and other materials.

The sorts also found that nearly a quarter of recyclable materials from apartments were being thrown away, indicating a need to increase recycling participation from that sector. Heavy construction materials (shingles, lumber, scrap metal, etc.) made up over 15% of the single-family refuse, compared to 3% found inside the multi-family refuse dumpsters. Plastic film (plastic bags, food wrappings, shrink wrap, etc.) was 4% and non-recyclable papers, primarily paper toweling and tissues made up 2-3% of the refuse in both sorts.

Preliminary key insights from the waste sort data are to look for ways to expand Ann Arbor's compost programs to accept a wider range of food waste and packaging; increase recycling participation, especially from apartment dwellers; implement the City's proposed Construction waste (C&D) recovery component of the 2008 Commercial Recycling Implementation Plan; explore strategies to reduce plastic film and non-recyclable paper waste; and continue to work on making it easier to responsibly dispose of hard-to-recycle items such as CFLs and electronics.

## PER-CAPITA SOLID WASTE GENERATION

The following graph shows total solid waste generated in Ann Arbor divided per person per day. This total includes refuse plus recycling plus compost. This total is slightly lower than national EPA averages, which are also shown on the chart.



## SOLID WASTE FUND HISTORY & PROJECTIONS

Following is a chart showing actual expenditures for the solid waste enterprise fund from fiscal years 2010 through 2012, as well as projections from 2013 to 2015. While the fund has historically maintained a positive balance, the projections show a tightening financial picture, with expenses in fiscal years 14 and 15 equaling revenues. Projections in the three years beyond (not shown in this chart) show slight deficits.

***This tightening financial picture will require careful consideration of the financial impact of any new programs that are proposed. This should include recommendations for funding any net additional costs.***

For example, the plan suggests that the expansion of the food waste program to year-round collection including meats and oils would be accompanied by a move to biweekly curbside refuse collection. This would allow the cost savings from the biweekly refuse collection to pay for the expansion of the food waste collection program. This is an approach that is being used by a growing number of cities, including Portland Oregon.

Other programs could be paid for through increased efficiencies. For example, the expansion of the “away from home” recycling, including recycling in parks and throughout downtown, could be accomplished with recycling containers serviced by automated recycling trucks, which are significantly more efficient.

Another approach to reduce costs is through the development of partnerships. One area where this is proposed is the development of the new drop off station, where regional partnerships could help in construction and operation. This is important particularly in light of the fact that about half of the users at the existing drop off station are from outside the city.

## Solid Waste Fund

### PRIMARY SERVICES

- Collection of Solid Waste
- Residential and Commercial Recycling (Material Recovery)
- Compost Collection
- Landfill Maintenance

### FINANCIAL SUMMARY

	Actual			Projected		
	FY2010 (\$ Mil.)	FY2011 (\$ Mil.)	FY2012 (\$ Mil.)	FY2013 (\$ Mil.)	FY2014 (\$ Mil.)	FY2015 (\$ Mil.)
<i>Revenue:</i>						
Solid Waste Millage	\$ 11.7	\$ 11.2	\$ 11.0	\$ 11.2	\$ 11.4	\$ 11.6
Recycling Processing Credit	0.3	1.2	1.4	0.6	0.6	0.6
Waste Collection - Commercial	0.9	1.5	1.9	1.8	1.8	1.8
All Other	0.6	0.6	0.9	0.5	0.6	0.5
<b>Total Revenue</b>	<b>\$ 13.5</b>	<b>\$ 14.5</b>	<b>\$ 15.2</b>	<b>\$ 14.2</b>	<b>\$ 14.4</b>	<b>\$ 14.6</b>
<i>Expense:</i>						
Waste	\$ 4.0	\$ 4.5	\$ 4.7	\$ 6.0	\$ 6.4	\$ 6.5
Material Recovery	3.5	3.4	3.3	3.6	3.8	3.8
Compost	1.6	1.7	1.0	1.0	1.1	1.1
Depreciation	1.0	0.8	0.7	0.8	0.8	0.8
All Other	2.4	3.7	2.2	2.4	2.4	2.4
<b>Total Expense</b>	<b>\$ 12.6</b>	<b>\$ 14.1</b>	<b>\$ 11.9</b>	<b>\$ 13.8</b>	<b>\$ 14.4</b>	<b>\$ 14.6</b>
<b>Net</b>	<b>\$ 0.9</b>	<b>\$ 0.3</b>	<b>\$ 3.2</b>	<b>\$ 0.4</b>	<b>\$ -</b>	<b>\$ -</b>
<i>Memo:</i>						
Non-recurring - recycling credit higher than anticipated	\$ 0.3	\$ 0.8	\$ 0.6			
Non-recurring - purchase of carts in FY11, gain on equipment sale/depr less than planned in FY12	-	(1.5)	1.4			
Non-recurring - labor savings			0.3			
<b>Recurring Net</b>	<b>\$ 0.6</b>	<b>\$ 1.1</b>	<b>\$ 1.0</b>			
Unrestricted Fund balance (net assets)	\$ 8.6	\$ 8.5	\$ 12.3	\$ 12.6	\$ 12.6	\$ 12.6

### Observations:

- FY13 includes early replacement of 2 recycle trucks
- Recurring operations are break-even
- Restoration of Street Leaf Collection would increase annual costs by \$285,000
- Restoration of Street Leaf Collection would also incur a one-time cost of \$395,000
- Restoration of Christmas Tree Collection would increase annual costs by \$26,000

### OPERATIONS

- Additional Commercial Recycling Route required but projected revenues do not support
- Desire to expand the food waste program but revenues do not currently support
- Desire to expand multi-families utilization of existing recycling program

<b>FUND BALANCE (Net Assets)</b>	<u>FY 2012</u>
	(\$ Mils.)
<b>6/30/12 - Total Fund Balance (Net Assets)</b>	<b>\$ 28.3</b>
Less:	
Restricted - Capital Assets	(15.5)
Restricted - Capital Repair & Replacement Fund	(0.3)
Restricted - Landfill reserve	<u>(0.2)</u>
Unrestricted at June 30, 2012	12.2
Obligated - but not yet spent:	
- Landfill Ground Water Pre-Treatment	(1.0)
- Single Stream Recycling	<u>(0.7)</u>
<b>Subtotal Available Fund Balance</b>	<b>\$ 10.5</b>
Less: Minimum Balance Requirement-25% of Oper Exp	<u>(1.9)</u>
<b>Available Fund Balance</b>	<b><u>\$ 8.6</u></b>
<u>Known Risks</u>	
• Landfill - Liability for site maintenance (MDEQ)	TBD (30 years est. \$5.3 mil.)
• Landfill - entrance improvements	0.4
• Landfill - remediation action plan	0.2
• Landfill Methane gas recovery project	0.2
• Drop-off station replacement	\$0 - \$4.9 Mil. Depending on Solution
• Impact of implementing GASB 68	\$3.5-\$4.5 Mil

### III. SOLID WASTE TIMELINE HIGHLIGHTS

2013

- *Waste Less: City of Ann Arbor Solid Waste Resource Management Plan Update 2013-2017* reviewed by the Environmental Commission and City Council

2012

- Solid Waste Plan Update Advisory Committee met regularly to review and revise plan, along with subcommittees on Organics, Metrics, and the Drop-Off Station. *See Appendix C for Advisory Committee timeline.*
- Contract with Recyclebank Rewards single-family residential program is discontinued

2011

- WeCare Organics contracted to operate municipal compost site

2010

- Single-stream recycling starts in July 2010 along with MRF upgrade, distribution of recycling carts and use of hybrid automated recycling trucks
- Recyclebank Rewards single-family residential program starts Sept.
- Fall leaf collection – transitioned from twice/year bulk street leaf pickup to weekly curbside Compostable collection. Fewer leaves collected overall as more residents choose to manage leaves on-site by mulching, composting



2009

- Commercial refuse franchise with Waste Management started, resulting in an additional 1000 nonresidential customers added to the city’s solid waste tracking (Housing bubble collapse potentially affects local spending/waste generation)
- (Daily Ann Arbor News stops publication and is replaced with biweekly, smaller Ann Arbor News with significant loss of newsprint to recycle )



2009

- Vegetative food waste added to seasonal compost collection

2008

- Optional compost carts are offered for-sale for automated collection
- Commercial Recycling Implementation Plan approved by City Council
- (Emerald Ash Borer infestation disseminates approx 11% of the city’s trees)



2006

- Commercial Recycling Advisory Committee releases recommendations to increase waste recovery in the city’s nonresidential sector and works on an Implementation Plan throughout 2007

2004

- Drop-Off Station Preliminary Capital Project Proposal developed

2003

- Automated curbside refuse collection introduced with refuse carts and trucks

2002

- Solid Waste Enterprise Fund created for ongoing asset management

1988

- *Solid Waste Management Plan Update 2002-2007* approved by City Council

- Initial *Solid Waste Management Plan* adopted by City Council

## IV. WASTE LESS: SOLID WASTE RESOURCE PLAN GOALS, TARGETS, AND ACTIONS 2013-2017



The following City Plan format is being used by all City of Ann Arbor planning documents starting in 2012 in order to provide consistency and alignment to citywide sustainability goals. Note that some categories within the document may not be immediately relevant for solid waste programs.

Ann Arbor's sustainability framework project started in January 2011 with the goal of creating one unified vision of sustainability for the city. The framework integrates over 200 sustainability goals from across city plans into an overarching set of 16 sustainability goals. Ann Arbor's sustainability framework builds on goals developed through a variety of public processes - from city plans, council resolutions, and the council-approved ten environmental goals. Ann Arbor's sustainability framework was developed with input from city staff, city commissioners, and community members and it includes the three key aspects of sustainability – environment, economy, and equity. The sustainability goals are organized into four theme areas: resource management; climate and energy; community; land use and access. *(Also see Appendix A)*

### RESOURCE MANAGEMENT

**Responsible Resource Use** - Produce zero waste and optimize the use and reuse of resources in our community.

Zero Waste is the application of an established and defined framework of waste management options that recognizes waste products as resources and facilitates the most environmentally-beneficial methods of waste prevention and processing. Zero Waste ultimately seeks the highest possible environmental option for management of all resources, to prevent and reduce waste materials to air, water, and land, emphasizing a closed-loop system of production and consumption.

**Target: Increase waste diversion\* rates from 50% to 60% for single family residents by 2017.**

**Target: Increase citywide waste diversion rates up from current 31% to 40% by 2017.**

**ACTION:** Implement a waste strategy built around the concept of Zero Waste that establishes waste as a resource and seeks to prevent, recycle, and recover waste at each stage of products' lifecycles, with emphasis on the most environmentally-sound options.

**ACTION:** Evaluate requirements for manufacturers to produce and market less toxic and more durable, repairable, reusable, recyclable and compostable products, and to be responsible for end-of-life disposal. *(See Zero Waste information in Appendix K.)*

\* Diversion definition: A combination of municipally-collected or contracted recycling and compost collection divided by the total solid waste collected (recycling + compost + trash); i.e., the amount of material that is not being sent to the landfill. Ann Arbor's citywide diversion rate includes 52% apartment locations and over 3000 business and other nonresidential locations. Ann Arbor's solid waste measurements do not include 4+% diversion from Michigan's returnable deposit law or materials collected outside the weighed trucks, such as taken to the Drop-Off



## WASTE REDUCTION AND REUSE ACTIONS

Pursue a long-term, citywide goal of Zero Waste as the most economically-efficient and environmentally-sustainable resource management strategy.

**ACTION:** Consider biweekly curbside refuse collection in coordination with composting of all food waste collected weekly year-round. Expansion of food waste collection would reduce the need for curbside refuse collection. Savings from biweekly curbside refuse collection could be used to pay for expansion of food waste collection.

**ACTION:** Support development of a bag fee on single-use retail bags, citywide, by June 2014.

**ACTION:** Continue to evaluate and provide recommendations for waste reduction incentives such as Pay-as-You-Throw.

**ACTION:** Conduct a waste sort of Ann Arbor's curbside and multi-family sectors every 3-5 years for the annual report. Include a commercial sector waste sort following the citywide implementation of mandatory recycling.

**ACTION:** Advocate use of recycled-content materials in products, such as yard waste bags.

**ACTION:** Require all City-sponsored events to be zero waste compliant by July 2014. Require all events that require a City permit to submit a zero waste checklist by July 2016. The Committee notes that food-related waste management programs will need to be more fully developed in order to achieve this desired outcome.

**ACTION:** Develop and provide online tools and print materials for residents, businesses, and events to take steps towards zero waste.

**ACTION:** Support relevant Product Stewardship initiatives at the County and State level. *(Also see the Michigan Recycling Coalition's paper in Appendix Q.)*

**ACTION:** Work with Community Standards to distribute reuse resources along with cleanup requirement tags.

**ACTION:** Support community reuse opportunities and encourage development of a more coordinated community reuse network, including development of more repair opportunities to extend the life of items.

**ACTION:** Support maintenance and distribution of Washtenaw County's "Trash to Treasures" resource list.

**ACTION:** Continue to provide online and print recognition for City reuse opportunities.

**ACTION:** Implement a biannual "community freebie" day for residents to set free items (such as furniture) on the curb for reuse by July 2014. Residents would be responsible for removing surplus materials and disposing of these responsibly at the end of the time period.



## ORGANICS ACTIONS

Ann Arbor collects yard wastes, fruit and vegetable scraps, paper napkins, paper plates/cups and hand towels from all curbside-serviced residents and interested multi-family locations and commercial locations from April through mid-December. Ann Arbor's municipal Compost Center is operated by WeCare Organics, LLC. The City conducted a previous Commercial Recycling Plan review process (from 2006-2008) with several recommendations for expanding commercial organics management. (*See Appendix L.*)

**ACTION:** Research options to collect and process all food waste produced within the city, including but not limited to biodigesters. Include a review of options to potentially manage diapers and pet waste. Conduct a feasibility study of the ability of the City's compost facility, operated by WeCare Organics, to handle full-scale food waste composting. Complete feasibility study by January 2014.

**ACTION:** Implement full scale food waste composting for single family locations first, then determine how to collect from businesses and multi-family dwellings.

**ACTION:** Pilot a consumer food waste reduction education program by July 2013.

**ACTION:** Provide home-delivered compost carts for \$25, once per year. Each compost cart placed in service is estimated to collect enough compost to save the City \$36 in tip fees over its 15-year life.

**ACTION:** Sell small kitchen food scrap collectors to Ann Arbor residents at subsidized rates.

**ACTION:** Explore the option of increasing City compost collection from seasonal (April to Mid-December) to year-round.

**ACTION:** Encourage compost cart owners to temporarily store vegetative food and compostable paper waste over the winter for spring collection. (*See Appendix P.*)

**ACTION:** Support compost education through community programs including the Michigan Master Composter program.

**ACTION:** Cooperate with the Michigan Food Council efforts as coordinated through Washtenaw County, especially on the food waste and packaging subcommittee.

## DROP-OFF STATION (DOS) ACTIONS

The current Drop-Off Station location on E. Ellsworth was built on a portion of unstable closed landfill. Although not posing a need for immediate relocation, over the next five years it is appropriate to review the function and location of this facility. (*See Appendix G.*)

**ACTION:** Prepare a report evaluating Drop-Off Station recommendations and assessing its role as a regional facility and opportunities to expand collected materials by June, 2014.

**ACTION:** Develop funding and cost sharing partnerships with neighboring communities, University of Michigan, and others to support the development of a new Drop-Off Station. Complete work on the funding and cost sharing partnerships by 2014.

## RESIDENTIAL AND CITYWIDE RECYCLING ACTIONS

**ACTION:** Expand types of materials collected in the City recycling program as markets and processing abilities develop.

**ACTION:** Increase recycling participation through pilots, such as introducing a recycling incentive program for multi-family dwellings. Develop a plan for achieving this goal by January 2014.

**ACTION:** Increase multi-family educational opportunities in cooperation with multi-family management companies by piloting an on-site “recycling coordinator” to provide education and outreach information in-person using print materials and online tools.

**ACTION:** Expand away-from-home recycling opportunities. Continue to expand recycling opportunities at local parks, recreation facilities, and special events. Continue to expand recycling opportunities at Ann Arbor schools, e.g., lunchroom collections.

**ACTION:** Support statewide initiatives with Michigan Recycling Coalition that further the City’s solid waste resource plan. (*See Appendices Q, R.*)

## COMMERCIAL RECYCLING ACTIONS

The City conducted a previous Commercial Recycling Plan review process (from 2006-2008) with several recommendations. (*See Appendix L.*)

**ACTION:** Have all business locations recycling by December 30, 2014.

**ACTION:** Expand dumpster-based recycling for large generators.

**ACTION:** Develop and enact a construction and demolition (C&D) recycling ordinance and expand C&D awareness efforts to increase building materials diversion.

**ACTION:** Pilot a voluntary Custodian Certification program in order to foster and maintain quality recycling participation from businesses with subcontracted custodian services. After pilot, review if a custodian training program should be mandatory within the City of Ann Arbor.

**ACTION:** Require hotels to post recycling guidelines for guests and provide recycling collection service in each room. City will provide optional information card.

**ACTION:** Require the proper recycling of fats/oils/greases in the commercial sector.

### **Clean Air and Water** - *Eliminate pollutants in our air and water systems.*

**ACTION:** Continue to monitor Ann Arbor’s closed landfill gas/methane containment, extraction and electricity generation operations to maintain effectiveness. Evaluate technologies for managing landfill gases in the future.

**ACTION:** Continue to monitor landfill area groundwater test samples and effectiveness of on-site remediation efforts (e.g., slurry wall structures, purge wells, and pumps). Periodically evaluate 1,4 Dioxane groundwater remediation technologies for potential application to the Ann Arbor closed landfill site.

**Healthy Ecosystems** - *Conserve, protect, enhance, and restore our aquatic and terrestrial ecosystems.*

**ACTION:** Support zero waste efforts to minimize solid waste going to landfills

**Local Food** - *Conserve, protect, enhance, and restore our local agriculture and aquaculture resources.*

**ACTION:** Support the developing statewide Food Policy directions and Washtenaw County's Food Policy efforts to reduce food waste and food packaging waste.

### **SOLID WASTE CODE AND REGULATION ACTIONS**

Pursue amending the current Chapter 26 Solid Waste City Code and related Regulations in order to coordinate with waste diversion goals and safe solid waste disposal.

**ACTION:** Develop appropriate regulations regarding changes in organics that are accepted as part of the compost collection program.

**ACTION:** Develop appropriate regulations regarding placement and standards for home composting.

**ACTION:** Pursue ordinance language requiring fully recyclable or compostable packaging or reusable durable containers for takeout food service, as currently being piloted by the University of Michigan. This will insure that correct packaging is purchased by businesses to be used and properly handled by residents before being processed in the City's existing solid waste diversion programs. Coordinate these efforts with Washtenaw County's Food Policy Council's subcommittee on Food and Food Packaging Waste.

## **CLIMATE AND ENERGY**

**Sustainable Energy** - *Improve access to and increase use of renewable energy by all members of our community.*

**ACTION:** Evaluate evolving technologies in residual solid waste diversion such as Refuse-Derived Fuel (RDF) and/or ReEngineered Feedstock (ReEF) as solid waste diversion options to provide fuel stocks that can reduce emissions and boost efficiency.

**ACTION:** Investigate options for expanding alternative fuel use for collection trucks (natural gas trucks, biodiesel) and/or expansion of hybrid fuel collection trucks.

**ACTION:** Explore composting biosolids (sludge) from the City of Ann Arbor's Wastewater Treatment Plant.

**ACTION:** Explore expansion of opportunities to use the captured landfill gasses, including methane, for additional energy applications. Explore on-site turbine opportunities for wind-energy generation.

**Energy Conservation** – Reduce energy consumption and eliminate net greenhouse gas emissions in our community.

Opportunities may be available to increase efficiencies and productivity within solid waste collection through new technologies, adjusting to most appropriate collection container options, and varying collection methods. Using less energy in waste collection will help reduce citywide greenhouse gas emissions.

**ACTION:** Evaluate collection frequencies and routing for all Solid Waste programs.

**ACTION:** Expand Global Positioning Systems (GPS) and Automated Vehicle Locator (AVL) options for solid waste vehicles to improve response to customer service requests and routing efficiencies.

**ACTION:** Pilot the potential for modified collection cart placement as a way to increase collection efficiencies. Examples of modified collection cart placement could include: All nearby residents place carts in one central location; all carts go on one side of the street only; promote placing carts at curb only when full; and/or eliminate parking on specific neighborhood streets during trash pickup days.

**Sustainable Buildings** – Reduce new and existing buildings' energy use, carbon impact and construction waste, while respecting community context

**ACTION:** Consider sustainable criteria in the design of a new Drop-Off Station if and when constructed. (See Appendix G.)

## COMMUNITY

**Engaged Community** - Ensure our community is strongly connected through outreach, opportunities for engagement, and stewardship of community resources.

**ACTION:** Conduct a waste audit of selected single-family and multi-family dwellings and commercial locations every few years (March or October are ideal months to target).

**ACTION:** Conduct a literature review of Best Management Practices (BMP) and survey a sample of successful communities to identify a set of effective community waste reduction strategies. At the beginning of each two year budget cycle, develop list of options to be reviewed and included, as appropriate, in subsequent City budget planning processes.

**ACTION:** Create an Annual Report to highlight key accomplishments. Maintain an online template that tracks recycling, composting, and refuse tonnages in order to track the community's efforts to divert waste.

**ACTION:** Develop solid waste education materials, such as recycling guidelines, in multiple languages (*e.g.*, Spanish, Chinese, Korean, Japanese, Arabic, etc.) by July 2014.

**ACTION:** Evaluate new technologies to expand outreach to the public through new technologies, including social media, webinars, and phone apps.

**ACTION:** Pilot a residential certification/rewards program similar to the RiverSafe Homes provided by Washtenaw County’s Water Resources Office.

**ACTION:** Host a contest to identify and honor Ann Arbor’s waste reduction champion individuals, families, or neighborhoods.

**ACTION:** Expand the number of State-certified Michigan Green Schools annually re-certified in Ann Arbor each year. (State of Michigan website: <http://www.michigangreenschools.us/> and the Washtenaw/Livingston Counties website: <http://www.lawmasc.net/greenschools.htm>.)

**ACTION:** Share local best practices such as promoting refillable beverage containers for all school students and effective waste reduction programs for lunchrooms, events, etc.

***Economic Vitality*** –Develop a prosperous, resilient economy that provides opportunity by creating jobs, retaining and attracting talent, supporting a diversity of businesses across all sectors, and rewarding investment in our community.

**ACTION:** Support the Michigan Recycling Coalition’s outline for building a statewide waste reduction economy as outlined in the *State of Recycling in Michigan 2011: A Way Forward*, (See Appendix Q).

**ACTION:** As part of the two-year budget process, evaluate the city’s overall solid waste staffing and support for adequate service delivery including management, education, and field operations. Provide necessary staffing to manage the Solid Waste Enterprise Fund.

***Safe Community*** - Minimize risk to public health and property from manmade and natural hazards.

## **SAFE WASTE DISPOSAL ACTIONS**

Proper procedures for waste disposal contributes significantly to community safety.

**ACTION:** Develop and/or publicize opportunities for proper disposal of HHW from Small Quantity Generators (SQGs) in cooperation with Washtenaw County.

**ACTION:** Explore requirements and program options for fluorescent bulb recycling.

## **LAND USE AND ACCESS**

***Transportation Options*** - Establish a physical and cultural environment that supports and encourages safe, comfortable, and efficient ways for pedestrians, bicyclists, and transit users to travel throughout the city and region.

**ACTION:** Ensure accessibility to Drop-Off Station by alternate transportation

***Sustainable Systems*** - Plan for and manage constructed and natural infrastructure systems to meet the current and future needs of our community.

Throughout the development of the 2013 Waste Less: Solid Waste Resource Plan Update, City staff worked with the Climate Action Plan working group to coordinate goals as appropriate. Efforts

were also made to coordinate with the broad-based Ann Arbor Sustainability Framework, which is being developed as a unifying system for improving sustainability in all City units.

**ACTION:** Coordinate Waste Less: Solid Waste Resource Plan goals, strategies and implementation with the City of Ann Arbor's Climate Action Plan. (*See Appendix H.*)

*End of Waste Less: City of Ann Arbor Solid Waste Resource Plan Update 2013-2017.*

Please also see separate APPENDIX pages.

DRAFT