ROAD TO ZERO WASTE PLAN

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Executive Summary

This is a report about a long-term strategic proposal for the $6.5 million worth of valuable resources that are thrown away every year in Fort Collins. In 1995, the Council adopted a dramatic new direction for the City to take to provide incentives to get away from the throwaway society and back to the values of American thriftiness and efficiency. A Pay-as-You-Throw Ordinance (PAYT) was added to the Municipal Code whereby trash haulers in Fort Collins must charge residential customers based on the volume of waste generated as well as provide curbside recycling at no extra charge. The system created a way for households to save money by reducing their trash bills, and proved to be a good fit for Fort Collins. Those incentives were improved a number of times through the past 18 years and the Council adopted a strategic goal in 1999 to divert 50% of all discarded resources from landfills by 2010.

The City has now achieved that 50% goal, or close to it (depending on what is counted).[1] It is time for the City to decide what the new goal will be to guide its efforts and those of the community over the next 10 to 20 years.

From May through October, 2013, an extensive planning process was conducted that included direct outreach to stakeholders, meetings with six of the City's Boards and Commissions, five "Community Conversations" attended by more than 250 residents and businesses, input from a Working Group representing a cross-section of community interests, and tours of many of the existing reuse, recycling, composting, digesting, and landfill facilities in the Fort Collins area.

Through this planning process, it became clear that:

> Fort Collins has made a significant culture change, particularly in the last five years. The idea of recycling is now embraced by most residents and businesses. When there are discussions between service providers and citizens now, the questions are not about whether they should recycle, but how to do it.
>
> Most residents and businesses participating in the planning process either strongly supported the next goal for Fort Collins to be a Zero Waste community, or accepted that as a worthy goal.

1 By 2012, the City of Fort Collins had calculated that the level of waste diversion was 42% for all residential and commercially generated waste. And, when the City includes the so-called industrial wastes (concrete and asphalt, aggregates and wood waste from construction and demolition (C&D) projects, organics from breweries, biosolids, and waste from City operations), a "Community Diversion rate" of 58% can be calculated for 2012.

There are many benefits that will result from pursuing Zero Waste, including:

- Reducing greenhouse gases that will address the urgency of climate change.2
- Providing local jobs, income and wealth creation from conserving and using resources locally rather than landfilling them.
- Helping businesses and residents be more sustainable and efficient.
- Promoting local food cultivation and consumption by putting valuable nutrients back into the soil.
- Saving energy and producing local clean energy.
- Providing "green" marketing edge for local businesses and Colorado State University (CSU).
- Protecting health of residents.
- Decreasing irrigation water use by applying compost to soils.
- Improving air quality and reducing mobile-source emissions by local use of resources.
- Reducing use of toxic products.
- Protecting and restoring habitat, biodiversity and open space through increased use of compost products and reducing the need for mining.

There are many City policies that already point the City in the direction of Zero Waste. The City and its Boards and

Commissions are already working to implement City Plan's vision of a truly sustainable city that values the Triple Bottom

Line and would be significantly supported by adopting the goal of Zero Waste.

This Plan provides a road map for the City, residents, businesses and visitors to get to Zero Waste. These services will be implemented primarily through collaboration and partnerships, encouraging innovations in the community much like the ClimateWise Program that focuses on education, partnerships and working together. The City's role is that of convener, catalyst and partner, particularly with haulers and processors who have already invested in this future. The Plan highlights four priorities that need to be implemented to get there:

Culture Change – Providing new rules and more incentives, using Community Based Social Marketing, social media, innovative technologies and software, and harnessing creative talents in art, music, advertising and social change to reinforce and expand the change that has already occurred.

Reduce and Reuse – Concentrating on helping residents and businesses to live and operate more efficiently and sustainably, creating more than 400 jobs in the process and helping those in need to get quality food and goods donated or at very low prices.

Compostable Organics Out of Landfills – Eliminating many of the fast-acting, climate changing gases that are emitted when organics rot in landfills, and returning those as nutrients to the soil for raising more food locally (after first donating all edible food to people in need).

Construction, Deconstruction and Demolition –Implementing new rules of the International Building Code developed by the City's Building Department.

There are three key types of facilities that will be needed in the

Fort Collins area to fully meet the proposed goals:

1.) Commercial composting facility – To process food scraps, food-soiled paper and all organic materials.

2.) Construction and demolition (C&D) materials recycling plant – To process mixed debris from building and demolition projects.

3.) Reuse warehouse – To support collection of a wide range of reusable products from a variety of sources, and enable different businesses and nonprofit organizations to obtain high quality materials to sell at very reasonable prices to residents and businesses in Fort Collins.

All of these could be located in a single location as a Resource Recovery Park, or they could be developed individually in different locations. These would be owned and operated by different entrepreneurs, or the City could help develop one or more of these facilities as a public/private partnership if needed.

The best locations for these facilities could be considered as part of the development of a regional Zero Waste Plan that at least includes Larimer County and the City of Loveland, and ideally includes all those jurisdictions that ship wastes into Larimer County and those jurisdictions that receive wastes from Larimer County.

2 "Rising global temperatures have been accompanied by changes in weather and climate including changes in rainfall, more floods, droughts, or intensity of rain, as well as more frequent and severe heat waves. 2012 was the hottest year on record for the contiguous United States and 2012 ranks as the warmest calendar year in the 124-year record for the Fort Collins, CO weather station at CSU. Health care costs associated with extreme weather events in the U.S. between 2006 and 2009 exceeded $14 billion. In the U.S., 2012 alone saw 11 weather disasters that cost a billion dollars or more. (NOAA)." Source: Fort Collins Climate Status Report 2012, page 5, http://www.fcgov.com/airquality/pdf/FC2012ClimateStatusReportLowRes.pdf

The capital costs for these facilities are estimated to be:

Composting - $7-9 million
C&D - $5-7 million
Reuse - $500,000
TOTAL $12.5 - $16.5 million

These investments, along with the rest of the policies and programs recommended in this Plan, would contribute significantly to recovering the $6.5 million value of materials from the Fort Collins community that is buried in regional landfills every year.

The alternative to these investments would be spending $20-$80 million on a new landfill once the Larimer County landfill closes in approximately 12 to 15 years.

Initial costs for the first several years after adopting the Zero Waste goal would likely be about $1.00 per household and business per month. The majority of this funding would be for programs to be conducted by the City to assist in culture change and reinvesting resources in the local economy. Additional costs would be incurred over the following 10 years through new rates charged for additional services (e.g., curbside composting) by service providers in the open competitive marketplace, in response to new rules and incentives adopted by the City, designed to provide clear direction and a level playing field for investments. The competitive marketplace will result in the most efficient implementation of programs.

For the City's future involvement in taking the new path to Zero Waste, proposals will be developed through bi-annual City budget processes. The "budgeting for outcomes" system provides the framework for evaluating the costs and benefits of specific policies and proposals as opportunities become feasible and timely.

By investing in three key facilities to support Zero Waste, adopting new policies and implementing innovative, culture changing programs, the community will dramatically decrease the need for a new landfill, shifting from today's focus on waste management to a system that optimizes the use of discarded materials as resources to help the local economy. Key policies and programs that are included in the Plan are:

Policies

- Provide recycling universally to all residents and businesses.
- Prohibit recyclable and hazardous materials from landfilling (as was done for electronic equipment and recyclable cardboard).
- Get compostable organics out of landfills.
- Reuse and recycle construction, remodeling & demolition debris.

Programs

- Promote, incentivize and reinforce a Zero Waste culture by making reuse, recycling and composting convenient at home, work or play and providing clear signs and instructions that make it easy to participate.
- Reinvest resources in local economy with technical assistance, grants and loans to entrepreneurs and service providers.
- Encourage manufacturers to take back difficult-to-recycle products and packaging or add fees to incentivize more sustainable products (e.g., fees on plastic bags).
- Promote "Reduce and Reuse" as a priority.
- Provide multi-family dwellings the same recycling services as single-family.
- Collect yard trimmings from all residents.
- Collect food scraps from all residents and businesses once composting facility available.
- Evaluate and pilot clean waste to energy systems for targeted waste streams.
- Cooperate regionally to develop programs and facilities.

As a road map, this Plan highlights that there are many ways to achieve Zero Waste by building on our success. Over time, the City will partner with service providers, residents and businesses to determine the most desirable and effective ways to get to a Zero Waste destination.

Entrepreneurs and service providers will be assisted in moving down this road to Zero Waste with the Council's adoption of clear goals for the community, and by the establishment of priorities to pursue for achieving Zero Waste.

This Plan recommends that Council adopt:

1. A new goal of Zero Waste by 2030, with the following interim goals:

   75% diversion by 2020

   90% diversion by 2025

2. A new goal for achieving per capita waste generation levels of 2.8 pounds/day by 2025.

Current Waste Diversion

One of the major purposes for preparing this Plan is to set new goals for the future of waste reduction and recycling in Fort Collins. In 1999, the City Council adopted a community waste diversion goal of 50% by 2010.

By 2012, the City of Fort Collins had calculated that the level of waste diversion was 42% for all residential and commercially generated waste. And, when the City includes the so-called industrial wastes (concrete and asphalt, aggregates and wood waste from construction and demolition (C&D) projects, organics from breweries, biosolids, and waste from City operations), a

"Community Diversion rate" of 58% can be calculated for 2012.[1]

Of the total materials recycled by residential and commercial recycling programs, residential programs (both curbside and all drop-off materials) recovered about 23% of the total amount of recyclables. Commercial programs recycled the remaining 77% of these materials.

The City's 1999 50% goal has been achieved, or close to it (depending on what is counted).[2] The City should celebrate this important accomplishment and the city's residents, businesses and service providers should all be commended for this achievement. However, there is still plenty of room for improvement.

Some major businesses in Fort Collins have reported that they have diverted over 90% of their discarded materials from landfills and incinerators, including:

- New Belgium Brewery
- Hewlett-Packard
- Woodward
- Anheuser-Busch
- Intel

Businesses that divert over 90% of their wastes from landfills, incinerators and the environment are considered Zero Waste Businesses, according to the principles of the Zero Waste International Alliance (ZWIA) at www.zwia.org/standards. There are thousands of businesses that have achieved Zero Waste all over the world, and hundreds of communities have adopted a Zero Waste goal. The remaining 10% of discarded material highlights that more work is still to be done, and ZWIA calls for businesses to continue to reduce wasting through a minimum of 1% or better per year of continuous improvement.

The Benefits of More Waste Diversion

It's clear that there is still much more that could be done to reduce wastefulness and increase reuse, recycling and composting. Large businesses are leading the way to higher waste diversion and Zero Waste in Fort Collins. Of particular significance is that the industrial diversion rate was 70%, which contributes significantly to the overall higher community diversion rate. The industrial diversion rate may be as high as it is because Zero Waste businesses are able to show that they save money, reduce their liabilities, reduce their greenhouse gases, and increase their efficiency and productivity. These are key drivers for large businesses to have embraced Zero Waste in recent years.

Of particular significance is that the largest percentage decrease of all climate change emissions between 2005 and 2012 in Fort Collins occurred in the waste sector, which reported a 66.7% drop.[3]

3 2012 Climate Status Report, page 8. http://www.fcgov.com/airquality/pdf/FC-2012ClimateStatusReportLowRes.pdf

The City of Fort Collins operates a "crushing facility" that recycles aggregate materials used in alley and road projects. This program also provides recycled materials for sale to the public, which can be used for a variety of projects like: road resurfacing, driveway and parking lot resurfacing.

1 Fort Collins Climate Action Plan 2011, page 18-19. http://www.fcgov.com/airquality/pdf/2011_CAPStatusReport_FINAL.pdf

2 The quality of data that is collected continues to improve from year to year, as well as the analysis of that data. However, as a result, it is difficult to get a clear trend of some of the detailed information from year to year. Data is now collected from a variety of required sources (e.g., all waste haulers) and many voluntary sources (e.g., collectors of scrap metals, yard trimmings, concrete, asphalt, e-waste and textiles). Additional reporting from haulers (e.g., separating multi-family residential from commercial) and other aspects of community waste diversion (e.g., reuse operations) is needed to track this information better.

Another benefit is extending the life of the Larimer County Landfill. Larimer County recently reported that there are only 12 to 15 years of remaining life at the landfill, at current rates of use. And each time there are major natural disasters in the area, such as catastrophic flooding that occurred in September 2013, more materials are placed in the County landfill. The more aggressive the waste reduction goals adopted by the City, the more the City and County will be able to extend the life of this landfill. A primary benefit is postponing the significant costs of building a new landfill in the future, which could cost up to $80 million.[4]

Much more could be done by residents and smaller businesses to achieve higher waste diversion. The success of major businesses shows what can be done when a significant commitment is made. By applying "Triple Bottom Line" principles to develop and prioritize implementation strategies, this Plan provides a road map to obtaining these benefits.

Throughout the course of the outreach for this Plan, a "Road to Zero Waste" theme emerged. A peer reviewed, internationally accepted definition of Zero Waste is: "Zero Waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health."[5]

The goal of Zero Waste is to focus on new initiatives for eliminating wasteful practices and economic inefficiencies and setting up expanded reuse systems, then recycling, composting, digesting and redesigning remaining discarded materials. Many residents and businesses in Fort Collins attending Community

Conversations meetings or City Boards, Commissions and stakeholder meetings expressed support for the idea of Zero Waste. What also became clear through extensive outreach is that there are many goals, objectives, values and principles that should be adopted to achieve the many benefits from more waste reduction and recycling that are reflected in this Plan.

There are many benefits to the community that could come from pursuing higher waste diversion goals and helping both businesses and residents be more sustainable and efficient, including:

- Local jobs and economic development from conserving and using resources locally rather than landfilling them
- Promoting local food and nutrients back to soil
- Protecting health of residents
- Saving energy and producing clean energy reducing, reusing and recycling materials and products conserves 3-5 times the amount of energy that could be produced by burning those materials.
- Once all materials are reduced or recovered, there are different technologies that could produce energy from remaining materials
- Decreasing local water use by using compost
- Improving local air quality and reducing mobile emissions through more local use of resources
- Reducing the use of toxic products
- Protecting and restoring habitat, biodiversity and open space through increased use of compost products and reducing the need for mining
- Providing "green" marketing edge for local businesses and Colorado State University.

4 For 180-acre site (same size of current operations) at $450,000 per acre.

5 Zero Waste International Alliance, Standards, www.zwia.org/standards.

Values and Principles

The following values and principles will contribute to achieving a Zero Waste economy. These will help guide the community's adoption and implementation of new policies, programs and facilities that are needed.

Choice and Diversity – Fort Collins' City Plan calls for identifying mutually beneficial actions to support multiple principles and policies, foster new relationships, leverage funding and maximize resources.[6] The diversity of materials that are found in Fort Collins' waste stream call for diverse solutions - there isn't only one solution for everything that is discarded.

Instead, Fort Collins will build upon its open competitive, market economy to foster more entrepreneurial investments in new programs, facilities and services that help the City meet its goals. This will also continue to provide residents and businesses with choices for how they discard or manage materials.

Universal Opportunities – A key goal requested by different stakeholders was that the City ensure equal opportunities are provided for all sectors to reduce waste and recycle more, including residents who live in multi-family dwellings, industries, commercial businesses, institutions, as well as visitors. More comprehensive and convenient access to reuse, recycling and composting services will provide these services more universally to all sectors. These services will be implemented primarily through collaboration and partnerships, encouraging innovations in the community much like the ClimateWise Program, focusing on education, partnerships and working together.

> Zero Waste refers to taking a systems approach to eliminating wasteful practices, setting up reuse systems, recycling and composting to maximize the highest and best use of resources that can then be reinvested in the local economy to create more income, wealth and jobs for residents.

New Rules and Incentives – The City's primary role in improving the local landscape for recycling and waste reduction activities is to adopt clear goals and to facilitate, educate and enforce the codes that are adopted.

Updating the codes and incentives in the City's ordinances will encourage more waste reduction, foster the collection of clean, source separated materials, and optimize the quality of materials recovered so that they can be invested in the local economy. These regulations can continue to build on the policies, incentives and approach that the City has adopted over the past 20 years.

6 http://www.fcgov.com/planfortcollins/

Goals and Objectives

The following goals and objectives are recommended for the

Fort Collins community to adopt as targets for the next 5 to

20 years (and beyond) in renewing its commitment to waste diversion and resource optimization. The resulting benefits are directly in keeping with the goals listed in Fort Collins' City Plan, including: reducing overall solid waste volumes; increasing waste diversion from landfills; developing greater economic value and uses for discarded materials; managing hazardous materials; and investing to meet the goals of the climate action plan and reduce greenhouse gas emissions.[7] These goals are proposed to serve as primary performance measures for tracking how well the plan is implemented over the course of time.

Goal: Zero Waste

The City increased its waste diversion rate from 24% in 1999 to 42-58% in 2012. Next, the City should adopt a new goal of:

• Zero Waste by 2030, with interim goals being:

75% diversion by 2020
90% diversion by 2025.

Goal: Reduce Per Capita Waste Disposal Rate

Establishing a goal for waste generation per Fort Collins citizen can be used to measure progress as the City grows in population and industrial activities at the same time. This is particularly important because of the amount of growth and new development projects currently underway in the community. This metric also provides a good way to see how Fort Collins is performing compared to other communities around the country (more communities are adopting this metric). The per capita waste metric was included as part of the Urban Environmental Accords,[8] which call for communities to reduce their per capita waste disposal to landfills and incinerators by 20% from current levels within seven years of adoption.

The current per capita waste disposal rate in Fort Collins is 5.12 pounds per capita per day, based on 2012's population of 148,700. New goals (even higher than those advocated by the Urban Environmental Accords) are recommended to:

- Reduce waste landfilled to 3.5 pounds per capita per day by 2020 (32% below 2012)
- Reduce waste landfilled to 2.8 pounds per capita per day by 2025 (57% below 2012).

7 http://www.fcgov.com/planfortcollins/

8 The United Nations Urban Environmental Accords are a series of goals adopted by over 100 cities around the world to achieve urban sustainability, promote healthy economies, advance social equity and protect the world's ecosystems. http://greencitiescalifornia.org/pages/urban-environmental-accords.html.

Objective: Add Value to Local Economy

Part of the message of Zero Waste is that many of the benefits that accrue are due to the value of the materials recovered.

The Commodities Analysis (see Table 1) shows the value of materials being discarded in Fort Collins based on 2013 markets. Over a third of the value is in reusables, from just 4% of the tons discarded and the value of recyclables increasing by 300% since 1992.[9] This highlights why it's important to track more than just tons diverted from landfill. By adopting new rules and incentives such as those proposed in this Plan, the community will recover value from materials that are currently being discarded. A key indicator will be the number of jobs created in new waste reduction and recycling services and infrastructure, primarily in the private sector and nonprofit organizations.

Table 1 - Commodities Analysis: Tons & Value of Materials Discarded in Fort Collins.[10]

Estimated Annual Lost Value of 139,060 tons of Fort Collins Discards Buried in Landfills				
Categories	%	Annual Tons	$/Ton	Annual Revenues Lost
1. Reusables	4%	5,600	$400	$2,240,000
2. Textiles	6%	8,300	$80	$ 664,000
3. Plastics	14%	19,500	$100	$1,950,000
4. Metals	4%	5,600	$80	$448,000
5. Glass	2%	2,800	$20	$56,000
6. Paper	25%	34,800	$20	$696,000
7. Food Waste	14%	19,500	$7	$136,500
8. Plant Debris	16%	22,200	$7	$155,400
9. Wood	5%	7,000	$8	$56,000
10. Soils	3%	4,200	$7	$29,400
11. Ceramics	6%	8,300	$4	$33,200
12. Chemicals	1%	1,400	$1	$1,400
	100%	139,100		$6,465,900

To evaluate how strong waste reduction and recycling policies and programs will add value to the local economy and the Triple Bottom Line, the Plan proposes that the City document the number of jobs reported to the City by all aspects of the reuse, recycling, composting and waste hauling, processing and manufacturing industries.

In addition, the City could qualitatively identify the benefits to residents and businesses (e.g., providing lower cost, high quality products to enable them to be more sustainable).[11] This will be particularly important for reuse and recycled product manufacturing, as they generate far more jobs than recycling collection, composting and landfilling. The CSU Regional Economics Institute should be engaged to help develop the best way to obtain this data, which could then be integrated into the Institute's projections of future employment in Fort Collins. It is estimated more than 400 direct jobs could potentially be created if 100% of the City's discarded materials were recovered and used to make new products.[12] Proposed goals based on actual tons landfilled are:

- Add 150 new jobs by 2020[13]
- Add 300 more new jobs by 2025.

Objective: Reduce Greenhouse Gas Emissions

Waste reduction and recycling contribute to the City's Climate

Action Plan and Colorado's statewide goal to reduce greenhouse gas emissions (80% below 2005 levels by 2050). Current estimates of greenhouse gas production from the existing system (using the U.S. Environmental Protection Agency WARM

Model)[14] show that the community could reduce greenhouse gases by 187,389 $MTCO_{2e}$ per year if it were to achieve a new

Zero Waste goal - the equivalent of removing emissions of 39,071 cars from Fort Collins roadways each year. Proposed goals based on actual tons of landfilled waste are:

- Reduce annual emissions 60,000 $MTCO_{2e}$ by 2020
- Reduce annual emissions 120,000 $MTCO_{2e}$ by 2025.

Because many of these greenhouse gas savings are from embodied energy in materials which are not reported as part of the community's GHG inventory, according to new national reporting protocols implemented in Fort Collins, the full reduction benefit will not be recognized in the community's GHG inventory.

9 Source: Jeffrey Morris, Sound Resource Management, http://www.zerowaste.com/pages/Recycling-Markets.htm and 10/31/13 email clarifications that $33 per ton was the price in 1992-93, compared to recent prices in the $103-$110 per ton range. These are all current dollars, not adjusted for inflation.

10 Sources: Composition Studies: Sloan Vasquez/Clements Environmental, January 2012 for Fort Collins, and Cascadia for Boulder March 2012; Market Estimates by Richard Anthony Associates June 2013.

11 This would be a pioneering effort. This has only been done on a very limited basis by other communities. In California, the Recycling Market Development Zones report to the State on the number of jobs created from their direct efforts (loans and technical assistance).

12 See Table 4 on page 20 for calculation.

13 Assumes that 1/3 of total 434 jobs would be generated by 2020 and 2/3 by 2025.

14 http://www.epa.gov/wastes/conserve/tools/warm/Warm_Form.html

Recommendations

Each of the recommendations is followed by language excerpted from City Plan, to highlight how these recommendations are consistent with policy already adopted by the City.

1. Culture Change

Accomplishing a new culture and awareness of Zero Waste will require a change in the culture of the community, not unlike the dramatic reversal of social norms for tobacco smoking that has occurred in recent decades. That change has already begun. For example, the 2012 Climate Status Report reported that 64% of people polled indicated that they know about the connection among methane, composting and climate change.

To reinforce this change that is underway, residents and businesses will expect the City to lead by example. A good way to provide leadership is to place recycling bins in tandem with all City-serviced public trash bins and ensure that comprehensive signage is posted about what to recycle. Once "all compostable" organics recycling services are readily available, the City should add composting bins in public areas where food is sold. The City could also assist venues and events with developing on-site composting or digestion systems until city-wide collection services are available.

The City should expand and strengthen programs to educate residents, businesses and visitors about how and where to reduce, reuse and recycle in Fort Collins. The City should also expand its efforts to work with schools to convey information and education about Zero Waste, such as the City's new Recycling Guidelines poster[15], which has clear pictures of what's accepted for recycling and what is not. Expand staffing or hire interns to contact all businesses to assist them in complying with new rules regarding recycling as they are adopted, as well as to work with Poudre School District to educate school children about waste reduction and Zero Waste. City staff should develop educational materials for all haulers to distribute to their customers on a regular basis to ensure consistent messages about how and what to recycle in Fort Collins (rather than putting responsibility on the haulers to create high-quality educational materials).The City should also develop decals that can be placed on containers throughout the City to provide clear, consistent messages about what can be recycled, using both graphics and multiple languages (especially for larger decals).

Work with ClimateWise and the City's Waste Reduction and Recycling Assistance Program (WRAP) to conduct outreach to businesses and multi-family complexes about how to reduce wasting and eliminate wasteful practices.

To accomplish culture change, the City needs a comprehensive, community-based social marketing program that will address:

Awareness – making sure everyone knows that Zero Waste is a priority in Fort Collins

Education – making sure residents, businesses and visitors know how to participate in local Zero Waste programs

Training – teaching employees in Zero Waste businesses and nonprofits how to work with residents, businesses and visitors to gain their support for local Zero Waste programs

Reinforcement and Compliance – continuously meeting with residents and businesses to highlight how Zero Waste policies and programs work, and helping them comply with adopted City ordinances that guide the implementation of programs. This approach elicits more positive responses than a heavy-handed enforcement program.

The City should work with nonprofit organizations and students to help event organizers to obtain volunteers on a regular basis; volunteers can assist in educating the public about where to discard different materials/products at venues and special events. For events at all City park venues with more than 1,000 attendees, the City should adopt requirements to meet Zero

Waste standards such as:

• Only allow exhibitors/vendors to give out products that are reusable, recyclable or compostable

• Require use of durable serving-ware (and dishwashing machines for the serving-ware) if food services are in one central location where deposits can be charged for durables to be returned

• Require recycling bins next to all trash bins and composting bins in areas where food is sold

• Use prominent and comprehensive signage above bins with graphics and narrative

• Encourage use of volunteers stationed at bins to assist attendees in making right choices in discarding their resources.

The City should issue a challenge to residents, businesses and institutions to join as partners in working towards Zero Waste, and recognize those who are leading the way to Zero Waste.

City Plan Consistency
"Principle ENV 13: The City will provide Fort Collins residents and the business community with information and education about waste management including waste reduction, diversion, and proper disposal."

15 http://www.fcgov.com/recycling/pdf/final-poster.pdf

2. Reinvest Resources in Local Economy

Part of the message of Zero Waste is that many of the benefits that accrue are due to the value of the materials recovered. The Commodities Analysis in Table 1 shows the value of materials being discarded in Fort Collins based on 2013 market prices. By adopting new rules and incentives such as those proposed in this Plan, the community will recover much of the value that is being discarded. A key indicator of that will be the number of jobs created in Zero Waste services and infrastructure.

The City should better identify the sources, and the potential highest and best uses of discarded materials, as well as the importance of creating demand for some of those uses. The City should take a more proactive approach to using these resources for improving the City's economic health, and reducing barriers to implementation of innovative projects.

Engage the City's economic health staff in using financial tools to help local value-added reuse, recycling and composting businesses that come forward to help the City meet its goals.

Reuse and manufacturing activities can create jobs using locally "sourced" materials while at the same time reducing transportation costs and reducing greenhouse gases associated with long-distance transportation. For example:

Wood – A mini-sawmill for manufacturing of wood flooring, cabinets and architectural details from locally deconstructed lumber.

Food – Improved food donation infrastructure for nutritious, good quality foods and produce, and, local composting and digestion facilities for expired food products.

Plastics – A local manufacturer that can use #3-7 plastic containers and other currently non-recyclable plastics.

Newspapers – A facility to make insulation from old newspapers.

Glass – Regional processing capacity to clean glass collected in single-stream recycling programs for reuse in making new glass containers, and a use for non-container glass such as windows.

Construction and demolition debris – A local recycling facility for sorting and recycling mixed "C&D".

Soils and gypsum – Use by local nurseries and/or blending soils targeted to different soil conditions and plant needs.

Consider adding more capacity to the future Integrated Recycling Facility (scheduled for construction in 2014) to collect more of the 12 market categories of materials in Fort Collins that need additional convenient drop-off opportunities and which are not otherwise provided by the private sector and local non-profits. Consider renaming it as the City's first Resource Recovery Park.

Work with Colorado State University and other local academic institutions to research and develop innovative technologies for reuse, recycling, and composting, behavioral science research, and unique local markets or uses for recycled products. Work with the Business Alliance for Local Living Economies[16] and Institute for Local Self-Reliance[17] to help local manufacturers with examples and resources.

The City should increase its commitment to purchase locally manufactured products that contain reused, recycled, or composted materials. Assist local manufacturers in being listed as suppliers with the Purchasing Department, especially for public works and urban redevelopment projects.

Work with social service organizations to train and refer individuals as prospective employees in reuse, recycling or composting operations. Pursue funding from U.S. Department of Labor to assist with this and work with community colleges to implement.

City Plan Consistency

Principle ENV 15: The City will recognize that discarded materials, such as recyclable commodities, reusable products, and organics, can be economic resources for the community.

Policy ENV 15.3: Establish Incentives for Waste Processors. Support the use of incentives (e.g., tax increment financing system or enterprise zones for resource recovery industries) to create sustainable means of repurposing, recycling, or composting as an economic alternative to Colorado's low-cost landfills.

Policy ENV 15.4: Enhance the Economy. Consider potential and existing recycling and waste recovery activities as opportunities to enhance local revenue generation and create jobs.

3. Universal Recycling

Update, expand, educate and effectively implement the City's Pay-As-You-Throw (PAYT) Ordinance, and consider renaming it the "Universal Recycling Ordinance".

Residential

Phase in a requirement over the next two years for all haulers to collect compostable yard trimmings and trash on a weekly basis from all customers.

Initially, weekly compostables collection will solely be for the collection of yard trimmings, for no less than six months of the year, starting by March or April 1. The City should encourage existing processors to work with local haulers to process materials collected.

Allow haulers to charge an additional fee to cover the costs of collecting glass of higher quality from curbside and/or through a system of drop-off containers around the City.

Require all haulers to offer every other week trash service for "dry" waste that excludes food or other "wet" debris — at a lower cost than weekly service — as an option once weekly compostables collection systems are in place that include food scraps and food-soiled paper. The universal collection of

16 http://bealocalist.org/

17 http://www.ilsr.org

compostables is likely to double the amount of materials that can be diverted from the residential sector.

Once this system is implemented, haulers will be able to provide more Zero Waste services with the same number of trucks as they use today. One truck could collect all compostables (including yard trimmings, food scraps and food soiled paper) on a weekly basis, and a second truck could alternate collection of "dry" rubbish one week, and recyclables the next week.[18]

Require haulers to deliver educational materials developed by the City to all their customers, in order to implement changes smoothly and provide a more consistent message to residents and businesses regarding what can be included in each collection container.

Multi-Family

Include all multi-family dwellings[19] under the Universal Recycling Ordinance within two years. Require haulers to provide in-apartment recyclables and compostables collection containers (could be reusable bags or rigid containers) and educational programs (including distribution of educational materials developed by the City). Multi-family dwellings that meet recycling standards detailed by the City should be publicly recognized annually by the City and provided some type of financial incentive by their hauler (financial incentives could be a donation to a homeowners association for a celebration or charity of their choice, or some reduction in fees charged for services the following year).

Commercial

Include all businesses under the Universal Recycling Ordinance within three years.

18 This approach was highlighted as an opportunity in a report funded by USEPA Region 9, Beyond Recycling, Composting Food Scraps and Soiled Paper, Peter Anderson and Gary Liss, 2009. http://www.beyondrecycling.org.

19 Including long-term care facilities, mobile home parks and any other residential facility

that is not currently classified as a single-family dwelling.

The City will expand its existing drop-off recycling services to include an Integrated Recycling Facility in 2014. However, the Road to Zero Waste Plan calls for expanding that facility to become a Resource Recovery Park by the end of 2015.

Haulers must provide at least an equal amount of recycling services as the amount of trash services they provide to their business and commercial customers. Haulers must provide at least one container for composting services for each business that generates more than five gallons per week of compostable materials (e.g., food scraps, food-soiled paper, and/or yard trimmings).

Allow haulers to offer shared locking recycling and composting containers for businesses to share where space is limited in designated locations. Allow haulers to place additional recycling and composting containers in no more than two parking spaces, if needed, with agreement of property owner, and amend land use codes if necessary to allow use of a parking space for extra recycling. Allow haulers more flexibility in setting rates to accommodate additional services proposed.

City Plan Consistency

Principle ENV 17: The City will act as a steward of the environment and public health by using its regulatory authority.

Policy ENV 17.1: Update Regulations. Regularly update codes to include effective environmental and resource conservation provisions to promote waste reduction, efficient resource use, and recycling.

4. Prohibited Materials

Section 15-414, Article XV of Chapter 15 of the City Municipal Code identifies materials that are prohibited from being placed in the community's waste stream. In addition to the materials currently prohibited (electronic equipment, recyclable cardboard and household hazardous materials), the City should phase out the landfilling of the following materials as soon as markets or uses for the materials are available within 20 miles of Fort Collins' City Hall, with capacity for the full residential sector:

- Conventional types of recyclables (e.g., paper, glass and plastic bottles, and metal cans)
- Yard trimmings
- Construction debris
- Demolition debris
- White goods (large household appliances)
- Food scraps and food-soiled paper

Disposal prohibitions for a new list of materials build on the successful implementation of prohibitions already adopted in Fort Collins for recyclable cardboard and electronic equipment. (This approach could follow the lead of the State of Massachusetts, which has used prohibitions from disposal and/ for a large variety of materials, including: asphalt pavement, brick and concrete; clean gypsum wallboard; ferrous and nonferrous metals; leaves and yard waste; treated and untreated wood; and whole tires.[20])

20 http://www.mass.gov/eea/agencies/massdep/recycle/solid/massachusetts-wastedisposal-bans.html.

City Plan Consistency

Principle ENV 17: The City will act as a steward of the environment and public health by using its regulatory authority.

Policy ENV 17.1: Update Regulations. Regularly update codes to include effective environmental and resource conservation provisions to promote waste reduction, efficient resource use, and recycling.

Policy ENV 17.2 :Manage Hazardous Materials and Waste Promote pollution prevention based management (and practice these measures in municipal operations) and commit to acting as a resource to assist the community in preventing pollution and minimizing hazardous chemical usage, motivating citizens to practice appropriate disposal techniques, and enforcing environmental regulations, including the City's ban of electronics in the waste stream.

5. Construction, Deconstruction and Demolition (C&D)

Expand International Building Code recycling requirements in Fort Collins from construction-only to also include remodeling, deconstruction, and demolition projects in all sectors that measure more than 2,500 square feet. For new buildings, additions and remodels, require a construction waste management plan acceptable to the Building Official that includes recycling of concrete and masonry, wood, metals and cardboard. The construction waste management plan should be required to be submitted at the time of application for a building permit. The construction waste management plan should be implemented and conspicuously posted on the construction site. Compliance should be certified by the hauler through receipts and signed affidavits. Substantive changes to the plan should be subject to prior approval by the City's Chief Building Official.

As additional recycling services are developed for mixed construction and demolition debris (C&D) recycling, expand Building Code recycling requirements to add more types of materials, and require the reuse or recycling of all mixed C&D materials.

Require contractors and builders to provide a deposit to the City to ensure that they will meet the City recycling goals at the outset of a project.[21] The City should define what a "qualified recycling facility" for C&D processing entails, to enable deposits to be refunded in full. The City then could allow contractors to use the established "recycling rate" for certified qualified recycling facilities rather than having to track every load individually through the facility to determine its residue rate If the building permit is submitted with material going to a certified qualified recycling facility, the permit will be reviewed within a specified number of days of submission, going to the "head of the line" in permit reviews.

The City should develop training programs for contractors, builders, and service providers on requirements, and opportunities for reuse, recycling, composting and deconstruction. On-line resources should be developed for builders and small businesses who may not be able to attend training programs.

The City should adopt new Building Code deconstruction goals that require a "soft strip" for deconstruction of all projects (to take out all items that are portable and detachable for which there are markets or uses within 20 miles of Fort Collins City Hall). Buildings or portions of buildings that are removed should be processed first to safely remove all asbestos and lead paint contaminants. Then all remaining products should be reused such as doors, windows, cabinets, and fixtures. After all reusables are taken out, remaining materials should be recycled from the building shell, including: concrete and masonry, wood, metals, and cardboard. Compliance should be certified by the hauler through receipts and signed affidavits.

At the time of application for a building permit, contractors should provide information to the Building Official to publicly notify interested deconstruction firms electronically and/ or through the local newspaper of all buildings slated to be demolished, to enable such deconstruction firms to pursue salvaging opportunities while final permits are being authorized. The City should promote existing deconstruction services and used building materials stores, and assist deconstruction companies and non-profits to store and grade materials from deconstruction projects.

Another recommendation is to support the City requiring fire sprinklers in all multi-family dwellings to prevent as much damage to such facilities as possible. Sprinklered properties have about 10% of the damage as those without sprinklers.[22]

Also, the City could assist industry to develop recycling facilities for construction, deconstruction and demolition materials locally that can meet City recycling goals, possibly through public/ private partnerships and/or economic development assistance.

City staff should also work with the City's Emergency Manager to create Disaster Preparedness Plans for Fort Collins that articulate strategies for how to recycle as much debris that results from disasters as possible, and sign memorandum of understandings with disaster response agencies. In addition, the City could work with neighboring communities affected by flooding in 2013 to obtain financial support from the Federal Emergency Management Agency (FEMA) for mixed C&D recycling facilities in the Front Range that will improve options to recycle disaster debris.

City Plan Consistency

Policy ENV 17.4: Construction Waste Reduction. Encourage activities that help divert debris from construction-related activities. Explore the feasibility of requiring any City-subsidized projects to employ reduction and solid waste diversion practices that reduce the volume of material sent from city construction sites to landfills for disposal.

21 In other communities that do this, the deposit is usually charged at the rate of the current tipping fee x the number of tons of C&D debris that are estimated in their plans to be generated. The current tipping fee in the Fort Collins area is $18/ton.

22 Michael Gebo, Fort Collins Chief Building Official.

6. Composting Organic Materials

Adopt a City goal to phase out the disposal of compostable organic materials in landfills by 2018.

Require all waste haulers to collect and compost yard trimmings weekly for at least six months per year from residents, businesses and institutions requesting that service. A negative check-off system should be used to verify if/when a hauler's customer specifically requests not to receive composting services (e.g., if they don't generate any yard trimmings because they xeriscape and/or have their own backyard composting).

Support the development of one or more composting facilities for all compostable organics (including food scraps and foodsoiled paper), using windrow, in-vessel, and/or anaerobic digestion technology that meets the U.S. Composting Council's Seal of Assurance for quality compost. Work with others interested in composting to help develop facilities, such as Colorado State University, Poudre School District, City of Loveland and Larimer County.

Encourage larger generators of compostables to consider developing small-scale composters on their own sites or nearby sites for multiple generators to share (like Earth Tubs currently serving some downtown restaurants).

Assist private businesses to develop a composting facility or compost transfer station within 20 miles of Fort Collins' City Hall using economic development tools; identify potential public and private sites, and facilitate commitment for the supply of organic materials necessary to operate a facility. If private businesses are not successful in this effort within two years (by 2016), consider developing a publicly sponsored facility.

Once a composting facility or transfer station that is permitted to collect or process all compostable organics is available within 20 miles of Fort Collins, require all waste haulers to collect and compost all compostable organics weekly, year-round from all residents, businesses and institutions.

The Earth Tub is an in-vessel composting system designed specifically for on-site composting of food scraps and other organic matter. Two "tubs" are set up for composting material from select restaurants and office buildings in Old Town Fort Collins. In addition, the City's horticulture center uses two tubs, and a larger scale "Earth Flow" system is used by Colorado State University to compost material from campus dining halls.

Until city-wide composting services are available for all compostables, develop more pilot programs to compost or digest all compostable organics, particularly with schools and institutions. For example, work with the Larimer County Food Bank to develop a composter on their site or nearby, together with other local food scrap generators, with "curing" of the compost done off-site in partnership with a larger composting operation. Also, provide use of city open space for gardening, farming and composting, partnering with the Food Bank, to provide opportunities for large scale community composting.

Explore the possibility of digesting discarded food scraps separately from wastewater solids at wastewater treatment plant. Encourage haulers to offer low-cost backyard and on-site composting bin sales to foster backyard and on-site composting.

City Plan Consistency

Policy ENV 14.2: Lower Greenhouse Gas Emissions. Recognize the critical role of successful solid waste diversion and recycling in significantly lowering greenhouse gas (GHG) emissions and place priority on employing strategies that will enable the community to meet its adopted goals for reducing GHG emissions and the risks of climate change.

Policy ENV 15.1: Encourage Composting Divert organic material from landfill disposal and put it to a beneficial secondary use as compost, which increases water conservation, adds nutritional value, and provides carbon dioxide storage capacity (carbon sink) when applied to soil, or for generating alternative sources of energy.

Principle SW 3: The City will encourage and support local food production to improve the availability and accessibility of healthy foods, and to provide other educational, economic, and social benefits.

7. Reduce & Reuse

In the hierarchy of waste diversion actions, the City should promote "reduce and reuse" as first-line actions, followed by "recycle, compost or redesign the rest". Encourage residents, businesses and institutions to eliminate wastefulness, to obtain the largest economic benefits of Zero Waste. Work with ClimateWise and the City's Waste Reduction and Recycling Assistance Program (WRAP) to use City financial incentives and technical assistance for businesses and multi-family complexes to reduce wasting and eliminate wasteful practices. The City organization should lead by example by evaluating its purchasing practices and developing guidelines that will highlight opportunities for all City departments to reduce wastes. Encourage other local institutional and corporate buyers to follow City source reduction purchasing practices.

Promote reusable shipping containers and returnable pallets as a top priority for businesses. Work with Colorado State University and apartments that have high turnover rates to provide a more robust program for reuse and recycling of furniture, appliances, floor coverings and equipment during move-ins and move-outs. Help develop a reuse warehouse, like a food bank system, working with local thrift stores (a central place that all thrift stores

would have equal access to for sorting through incoming products and for bulk sales to public). Promote reducing the wasting of food in cafeterias through trayless cafeterias and portion controls. Promote Federal Good Samaritan Law that eliminates liability for donations of food and address similar liability for thrift stores with "as is" waivers. Help local thrift stores prevent illegal dumping from occurring on their property through increased penalties and code enforcement.

Assist the Larimer County Food Bank in diverting a higher percentage of its existing food waste from the landfill with the addition of another truck and driver, food-safe tins and lids and staff time for donor relations. This would enable them to provide timely and regular donation pickup for new donors, especially from lower-volume donors such as farms, restaurants, manufacturers, and minimal processing facilities, Another way to help reduce wasting of food would be providing a truck to the Food Bank for mobile food pantry distributions twice a week and the other three days a week to help the Food Rescue program.

Require multi-family developments and neighborhood community centers to include a secure location for reusable items to be easily accessed for move-ins and move-outs, including used furniture, appliances, clothing and books. Promote "leave it behind" system for reusables for off-campus students and the community. Adopt a used clothing collection bin ordinance to ensure quality services are provided and bins don't become a nuisance or create a public safety issue.

Support "adaptive reuse" in International Building Code for residential and commercial construction, which encourages the remodeling or repurposing of buildings that are still functional.

City Plan Consistency

Principle ENV 14: The City will apply the US Environmental Protection Agency's integrated "hierarchy" of waste management to help protect all environmental resources including air, soil, and water using source reduction as the primary approach, followed in order by reuse, recycling/composting energy recovery using emerging pollution-free technology, and landfill disposal (where methane gas capture is employed) as a final resort.

8. Product Stewardship

Adopt fees on products or packaging sold in Fort Collins that are hard to reuse, recycle or compost. For example, enact a litter fee on single-use paper or plastic bags and fee or ban on expanded polystyrene take-out containers. Fees could be invested in a Recycling Education and Investment Fund (see recommendation #10 below).

Ask businesses that sell products in glass bottles along the Front Range, and local governments in the area, to help develop a commingled glass recycling sorting system to remove debris

from single-stream glass so it can be made into new glass products. Explore options for more collection of glass separately for reuse and/or recycling into glass bottles. Work with CSU to ban plastic bottled water on campus. Before any products are banned, develop a plan to ensure the public has clear options that are convenient for them. Work with larger "fast food" restaurants to use reusable plates, bowls, cups and flatware for dine-in customers instead of single-use products. Provide information about take-back programs on the City's website and set up a notification group like the Leaf Exchange for take-backs.

City Plan Consistency

Policy ENV 17.3: Encourage Producer Responsibility. Support state and federal efforts to establish producer responsibility systems, which encourage manufacturers to invest in ways to reduce the lifecycle impacts of their products or to create options for "taking back" items such as electronics, paint, and household cleaning items that impact public health and the environment.

9. Waste-to-Clean-Energy

Develop and adopt a Hierarchy of Highest and Best Use to assist in evaluation of technology proposals and use of particular feedstocks that would otherwise be sent to landfills for disposal. Prioritize what energy technologies and feedstocks the City would like to focus on in the next five years after adoption of a Hierarchy of Highest and Best Use. Encourage Colorado State University to research and pilot innovative technologies for different applications.

In 2013, the City started a pilot program of waste-to-energy working with Colorado State University; pulped food scraps from the university's cafeterias are taken to be "digested" at the Drake Water Reclamation Facility (DWRF). The digested food scraps generate methane gas in a controlled environment, which is then burned to generate energy that heats the plant during cold weather. The City should continue to work on new programs to digest food scraps from residents, businesses, and/or institutions, delivered via truck or sewers to the DWRF.

The City should continue to investigate diverse solutions for converting materials that contain embedded energy, with the recognition that it could be imprudent to commit resources (feedstocks) on a long-term basis to one single technology before more options can be pursued.

City Plan Consistency

Policy ENV 15.2: Generate Energy. After recyclable, compostable, and reusable marketable materials have been removed, utilize the remainder of the municipal solid waste (MSW) stream as a feedstock for energy production using newly emerging, ultra-low polluting transformation technology.

Policy ENV 15.5 :Systems-Based Approach. Apply a systems-based approach to managing materials that flow into the community (e.g., inventories, tracking systems), as well as their postconsumer destinations, in order to analyze opportunities for alternatives to landfill disposal.

10. Funding

Adopt recycling investment fees on waste hauling services or waste shipped for landfilling to generate revenue needed to fund new City initiatives. Initially require haulers to collect a City Recycling Education and Investment Fee of $1.00 per household or business per month. Part of the proceeds would go to the City for outreach and education materials and staffing, support for expanding the Integrated Recycling Facility into a Resource Recovery Park, as well as economic development grants and loans for reuse, recycling and composting investments.

Other proceeds could be used by haulers to help implement their programs. Over time, look at whether to increase the fee to fund other economic/business development for Zero Waste related projects. Focus investments on one-time costs, not operating expenses, as a waste-based fee will decrease over time and should only be used to assist in the transition to a Zero Waste economy, and not continue once the basic infrastructure has been established.

11. Regional Cooperation

Develop public/private and intergovernmental partnerships (Larimer County, City of Loveland, Colorado State University and Poudre School District) to help identify locations and develop needed facilities (e.g., composting, C&D debris recycling, additional Resource Recovery Parks). Encourage collaboration and not duplication of infrastructure. Identify what services are best done locally and what initiatives could leverage economies of scale on a larger regional basis.

Work with Larimer County and City of Loveland on regional options. Before a new landfill is built by the public, it will be critical to identify where materials will come from.

C&D facilities require an economy of scale and more collaboration on a larger regional basis than historically has been done. The City should explore which other communities along the Front Range are interested in developing this capacity (e.g., Boulder), and how to pursue it further, working through organizations like the Colorado Association for Recycling (CAFR).

The best locations for facilities identified in this Plan could be considered as part of the development of a regional Zero Waste Plan that at least includes Larimer County and the City of Loveland, and ideally includes all those jurisdictions that ship wastes into Larimer County and those jurisdictions that receive wastes from Larimer County.

City Plan Consistency

Policy ENV 15.3: Establish Incentives for Waste Processors. Support the use of incentives (e.g., tax increment financing system or enterprise zones for resource recovery industries) to create sustainable means of repurposing, recycling, or composting as an economic alternative to Colorado's low-cost landfills.

Policy ENV 16.2: Consider Financial Investment. Consider investments in energy generation or other kinds of facilities that are designed to collect and process materials that cannot be recycled or reused.

Diversion Potential

Diversion estimates were prepared to identify the waste reduction potential of each policy and program identified in this Plan. The diversion estimates are based on comparable policies and programs implemented in other jurisdictions, research, and educated estimates by Zero Waste Associates, the consulting firm for this Plan. Table 2 below shows the projected diversion rate, and summarizes the diversion potential for new proposed Zero Waste policies and programs.

Table 2 - Estimated Diversion Potential for Recommended Zero Waste Initiatives in Fort Collins.

Options	Diversion Tons	Percentage of Existing Tons Landfilled
1. Universal Recycling	35,000	25%
2. Designated Materials	9,000	6%
3. Construction & Demolition Debris	18,000	13%
4. Composting Organics	13,000	9%
5. Reduce & Reuse	5,000	4%
6. Waste-to-Energy	--	--
7. Culture Change	45,000	32%
8. Reinvest Resources in Local Economy	--	--
9. Product Stewardship	1,000	1%
10. Funding	--	--
11. Regional Cooperation	--	--
Total	125,000	90%

Based on this analysis, it is estimated the City could divert an additional 90 percent of the materials currently going to landfills (in 2013). The City is projected to achieve a total of 96 percent diversion, through continuation of existing programs and implementation of new policies and programs.

Table 3 - Existing Landfill Waste Generation and Projected Diversion from New Programs if Total Volumes Held constant.

	Current (2012)	New Programs	Total Projected
Diverted Tons	190,000	125,000	125,000
Disposal Tons	139,000		14,000
Total Tons Generated	329,000		329,000
Diversion Rate	58%		96%

The diversion rates are presented as a snapshot in time, assuming full implementation of all initiatives. More realistically, policies and programs will be developed over time accompanied by additional research, testing, and pilot programs before all new programs are fully implemented. Several initiatives will require new ordinances and regulations, which will require City Council action and time to implement. Other initiatives will require investment in new infrastructure.

Zero Waste is a design framework for reducing generation of waste and maximizing diversion, not a strict tonnage goal. By implementing the proposed policies and programs, the City will be striving towards Zero Waste, even though there will still be some residual wastes that will be disposed. Zero Waste is a process of continuous improvement.

Triple Bottom Line Impacts

Economic Impacts

To carry out this Plan, new staff or contractor resources will be needed to provide a variety of support functions and activities including: Zero Waste outreach; technical assistance to residential and commercial generators and City departments; technical assistance for creating composting infrastructure; and, development of new Zero Waste policy initiatives and programs.

Development of new programs will also require investment in new processing capacity for reuse, organics and C&D debris. The capital costs for these facilities are estimated to be:

Composting - $7-9 million

C&D - $5-7 million

Reuse - $500,000

TOTAL $12.5 - $16.5 million

These investments, along with the rest of the policies and programs recommended in this Plan, would contribute significantly to recovering more of the $6.5 million value of materials from the Fort Collins community that are buried in regional landfills every year.

The alternative to these investments would be spending $20-$80 million on a new landfill once the Larimer County landfill closes in approximately 12-15 years.

Initial costs for the first several years after adopting the Zero Waste goal would likely be about $1.00 per household and business per month for the Recycling Education and Reinvestment Fee. The majority of this funding would be for programs to be conducted by the City to assist in culture change and reinvesting resources in the local economy. Additional costs would be incurred over the following 10 years through new rates charged for additional services (e.g., curbside composting) by service providers in the open competitive marketplace, in response to new rules and incentives adopted by the City, designed to provide clear direction and a level playing field for investments. The competitive marketplace will result in the most efficient implementation of programs.

For the City's future involvement in taking the new path to Zero Waste, new proposals will be developed through bi-annual City budget processes. The "budgeting for outcomes" system provides the framework for evaluating the costs and benefits of specific policies and proposals as opportunities to introduce new measures become feasible and timely.

Environmental Impacts

Using data for tons of materials from Fort Collins that are taken to landfills for disposal in Table 1, the following highlights the amount of greenhouse gases (GHG) that are either emitted or eliminated by landfilling and/or recycling. The results are derived from the U.S. Environmental Protection Agency's Waste Reduction Model (WARM).[23] This analysis uses the assumption that the city will ultimately achieve Zero Waste, whereby 96% or more of the materials that are currently landfilled will be diverted through reduction strategies, reuse, recycling, composting, or waste conversion (to energy).

The WARM Model shows that by diverting nearly all of its waste (96% or more) from landfilling, Fort Collins could reduce greenhouse gases by 187,389 $MTCO_{2e}$ per year, the equivalent of removing emissions from 39,071 cars from Fort Collins roadways each year.

Implementing this Plan will result in reductions in annual greenhouse gas emissions that are equivalent to the elimination of:

- 39,071 passenger vehicles from the road;
- Consuming 436,137 barrels of oil;
- CO_2 emissions from the electricity use of 28,075 houses per year; or
- CO_2 emissions from the burning of coal from 806 rail cars per year.

Because many of these greenhouse gas savings are from embodied energy in materials which are not reported as part

23 WARM Model online: http://epa.gov/climatechange/wycd/waste/calculators/Warm_home.html

of the community's GHG inventory according to new national reporting protocols implemented in Fort Collins, the full reduction benefit will not be recognized in the community's GHG inventory.

Social Impacts

Reuse, recycling, composting, and source reduction offer direct, and substantial, development opportunities for communities. Discarded materials are a resource that can increase local revenues, create jobs, lead to the formation of new business, and stimulate the overall local economic base. On a per-ton basis, sorting and processing recyclables alone sustains eleven times more jobs than landfilling or incineration. However, reuse of products and making new products out of the old offer the largest economic pay-offs in the recycling loop. New recycling-based manufacturers and reuse of high value products employs more people at higher wages than sorting recyclables does. In order to compare jobs created through recycling with disposal-related jobs, the Institute for Local Self Reliance (ILSR) developed job-to-ton ratios for specific material streams based on direct interviews with operating facilities.[24]

Applying the ILSR job-to-ton ratios to Fort Collins' current volume and type of discards indicates that 434 direct jobs could potentially be created if 100% of the City's discarded materials were recovered and used to make new products (see Table 4). The potential could be higher depending on actual businesses recruited.

Table 4 - Job Potential in Fort Collins Based on Near-100% Recovery Rate of 139,000 Annual Tons of Reusables/Recyclables Currently Taken to Landfills for Disposal.

Categories of Recyclable Materials	Number of Potential Jobs
Reuse	42
Paper	96
Organics	4
Wood	8
Ceramics	2
Metals	38
Glass	16
Polymers	194
Textiles	34
Chemicals	N/A
Total	434

In addition to these economic health benefits, there are other social benefits that accrue from pursuing a Zero Waste approach. Many reduce and reuse programs in particular benefit those who are having a rough time making ends meet. Reuse programs can offer high quality goods at low prices that help peoples' finances.

24 ILSR, "Salvaging the Future: Waste-Based Production," http://www.ilsr.org

Waste reduction programs such as donating food to people is an important example of how these efforts contribute to those who need it.

The Larimer County Food Bank distributed 6.5 million meals and 8 million pounds of donated food and other products to the community in 2011.Their direct service pantry program, Food Share, was a source of food for nearly 80 Larimer County non-profit member agencies that serve the hungry, which saved these agencies nearly $2.2 million on food expenses in 2012. The Food Bank supports food pantries, kitchens, shelters and snack programs that serve low-income populations such as single-parent families, the working poor, older adults, youth, individuals in crises, childcare and residential programs, centers for the disabled, and homeless shelters.[25]

The latest "Map the Meal Gap Study" of Feeding America,[26] found that 14% of residents in Larimer County (1 in 7) were food insecure – they did not know where they will find their next meal.[27] Nationally, the rate is even higher – 16.1% (almost 1 in 6 people) that are food insecure – nearly 49 million people.

This clearly is a challenge and an opportunity for a community that embraces Zero Waste. Recent reports highlight that over 40% of all food in America is wasted:

> "Food is simply too good to waste. Even the most sustainably farmed food does us no good if the food is never eaten. Getting food to our tables eats up 10 percent of the total U.S. energy budget, uses 50 percent of U.S. land, and swallows 80 percent of freshwater consumed in the United States. Yet, 40 percent of food in the United States today goes uneaten. That is more than 20 pounds of food per person every month. Not only does this mean that Americans are throwing out the equivalent of $165 billion each year, but also 25 percent of all freshwater and huge amounts of unnecessary chemicals, energy, and land. Moreover, almost all of that uneaten food ends up rotting in landfills where it accounts for almost 25 percent of U.S. methane emissions."[28]

Very similar opportunities exist for other areas of reuse, from used building materials, to appliances, to clothes and books. As Fort Collins fulfills its commitment to the Triple Bottom Line, placing a higher priority on reducing and reusing will lead to many social benefits.

25 Source: Fact Sheet 2013, Food Bank for Larimer County, http://www.foodbanklarimer.org/AboutUs/Facts%20Figures.aspx

26 Feeding America is the largest hunger-relief organization in America. http://www.feedingamerica.org/.

27 Source: 'Food Insecurity' remains an issue in Larimer County, April 27, 2012, Northern Colorado Business Report, http://www.ncbr.com/article/20120427/NEWS/120429869

28 Source: "Wasted: How America Is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill," Natural Resources Defense Council, http://www.nrdc.org/food/wastedfood.asp

Implementation

This Plan provides a road map for the City, residents, businesses and visitors to get to Zero Waste. It highlights the priorities that need to be adopted to get there:

Culture Change – Providing new rules and more incentives, using Community Based Social Marketing, social media, innovative technologies and software, and harnessing creative talents in art, music, advertising and social change to reinforce and expand the change that has already occurred.

Reduce and Reuse – Concentrating on helping residents and businesses to live and operate more efficiently and sustainably, creating over 400 jobs in the process and helping those in need to get quality food and goods donated or at very low prices.

Compostable Organics Out of Landfills – Eliminating many of the fast-acting, climate changing gases that are emitted when organics rot in landfills, and returning those as nutrients to the soil for raising more food locally (after first donating all edible food to people in need).

Construction, Deconstruction and Demolition –

Implementing new rules of the International Building Code developed concurrently with this Plan by the City's Building Department.

Three key types of facilities that will be needed in the Fort Collins area to fully implement this plan are:

1. Commercial Composting Facility – To process food scraps, food-soiled paper and organic materials.

2. Construction and Demolition (C&D) Recycling Plant – To process mixed debris from building and demolition projects.

3. Reuse Warehouse – To support the collection of a wide range of reusable products from a variety of sources, and enable different businesses and nonprofit organizations to obtain high quality materials to sell at very reasonable prices to residents and businesses in Fort Collins.

All of these facilities could be located in a single location as a Resource Recovery Park, or they could be developed individually in different locations. They could be owned and operated by different entrepreneurs, and the City could help develop one or more of these facilities as a public/private partnership if needed.

Milestones and general timelines for implementing policies, programs and facilities are summarized here:

I. Culture change

- A. Adopt education & reinvestment fund (2014)
- B. Place more recycling bins in public areas over the next three years
- C. Apply community based social marketing starting in 2015
- D. Develop public events guidelines, brochures for haulers customers (2015)

II. Reinvest resources

- A. Establish Zero Waste grants and loans program (2014)
- B. Expand integrated recycling facility to serve as Resource Recovery Park (2015)

III. Universal recycling ordinance

- A. Add yard trimmings collection for single-family residents (2015)
- B. Provide recycling to all multi-family residents (2016)
- C. Provide recycling to all businesses (2019)

IV. Prohibit materials from landfill disposal

- A. Source separated C&D materials (2015)
- B. Yard trimmings (2016)
- C. Food scraps and food-soiled paper (2018)

V. Construction and demolition recycling

- A. Universal Building code amendments (2014)
- B. Help develop mixed C&D sorting facility in region (2017)

VI. Compost organics

- A. Help develop food scraps composting and digestion facilities (2016)

VII. Reduce and reuse

- A. City purchasing policies to reduce waste (2015)
- B. Reuse warehouse (2016)

VIII. Product stewardship

- A. Adopt restrictions on disposable shopping bags (2014)
- B. Develop glass sorting facility in region (2016)

IX. Waste-to-clean-energy

- A. Develop hierarchy of highest & best use (2015)
- B. Develop pilot programs for priority technologies (2017)

X. Regional cooperation

- A. Pursue alternatives through regional Zero Waste Plan (2014-15)

Many partnerships will be required to implement this Plan. Environmental Services staff will need to work with:

- Economic Health and Social Sustainability staff, entrepreneurs and nonprofit organizations to reinvest reusables, recyclables and compostables in the local economy and create jobs, income and wealth from these discarded materials and help those in need obtain quality goods at low costs.
- Planning and Building staff, contractors and developers to implement the C&D recommendations.
- A wide range of public and private interests to implement the organics recommendations.

By investing in the three key Zero Waste facilities, adopting new policies, and implementing innovative, culture changing programs, the community will dramatically decrease the need for its own landfill, shifting from today's focus on waste management to a system that optimizes the use of discarded materials as resources to help the local economy.

A major goal is to optimize the use of discarded materials as resources through reuse and recycling.

Table 5 - Fort Collins' Road to Zero Waste Implementation Timeline.

Zero Waste Milestones	2014	2015	2016	2017	2018	2019	2020
Culture Change							
- Adopt Education & Reinvestment Fund							
- Place recycling bins in public spaces							
- Place composting bins in public spaces							
- Community based social marketing							
- Develop public events guidelines							
- City develop PR materials for all haulers							
Reduce & Reuse							
- Maintain or help develop used building materials reuse services							
- City evaluate how to reduce waste in its purchasing							
- Develop Reuse Warehouse							
Universal Recycling Ordinance							
- Add yard waste to all single-family residents							
- Provide recycling to all multi-family dwelllings							
- Provide recycling to all businesses and institutions							
Reinvest Resources							
- Establish ZW Grants & Revolving Loans Program							
- Add recycled product manufacturers to City procurement lists							
- City purchase more reused, recycled or compost products							
- Expand Integrated Recycling Facility to be Resource Recovery Park							
- Work with CSU on research and development of innovative ZW technologies							
Prohibit Materials							
- Prohibit yard trimmings							
- Prohibit food scraps & food soiled paper							
- Prohibit source separated construction & demolition materials							
- Prohibit mixed construction & demolition materials							
C&D Recycling							
- Add remodeling and demolition goals to Building Code							
- Add "soft strip" of reusables to Building Code							
- Develop training program for contractors and developers							
- Help develop mixed C&D recycling facility							
Compost Organics							
- Adopt policy to phase-out organics							
- Develop food scraps composting and digestion facilities							
Waste-to-Clean-Energy							
- Develop Hierarchy of Highest & Best Use							
- Develop pilot programs for priority technologies							
Product Stewardship							
- Develop glass sorting facility in region							
- Adopt fee on paper and plastic bags							
Regional Cooperation							
- Pursue alternatives through Regional ZW Plan							

Appendix A - Existing System
Existing Services & Infrastructure

Fort Collins residents are served by three licensed waste and recycling haulers:

- Gallegos Sanitation, Inc.
- RAM Waste Systems
- Waste Management of Northern Colorado

The City requires haulers to provide unlimited recycling services every other week for each single-family and two-family residential trash customer as part of their basic trash collection service. Recyclables collected by these haulers in a "single stream" are delivered to the Recycling Center at the Larimer County Landfill. From there materials are transferred to the Waste Management Franklin Street Materials Recovery Facility in Denver to be sorted into separate material types and prepared properly for markets. The types of materials that are accepted under this program are noted in a Recycling Guide available on-line. Haulers must provide a large, lidded recycling cart upon request from customers who live in single-family homes or without a dumpster or shared trash container. Typically, recycling carts are available in 64-gallon or 96-gallon sizes. These large carts facilitate the collection of recyclables every other week, which increases the efficiency of collection and cuts in half the amount of traffic and emissions from recycling trucks in neighborhoods. Trash carts are provided in 32-gallon, 64-gallon or 96-gallon sizes.

There are also 12 licensed haulers that provide commercial and roll-off service.

The City has an excellent guide to recycling centers on-line that directs people to where they can recycle most materials that they generate at home or at work. The City also operates a drop-off Recycling Center at 1702 Riverside Ave. Materials collected at this drop-off site include:

- Corrugated cardboard
- Paperboard, phone books & low-grade paper
- Office paper, magazines & junk mail
- Commingled containers (bottles/cans/jars)
- Newspapers
- Glass bottles and jars
- Clothing, textiles and shoes
- Books, CDs, DVDs
- Fashion accessories

In addition, when a surplus of mulch is available, the City Forestry Department provides residents mulch that they can pick up for free at this site.

The Larimer County Recycling Center located at the County landfill provides another drop-off recycling opportunity several miles south of Fort Collins.

The City also operates a Crushing Facility for concrete and asphalt materials at 1308 Hoffman Mill Rd. The public is allowed to drop off their materials at no cost and the City crushes and grinds them into base rock for road construction. The City accepts: small concrete chunks (no rebar), clean, broken or milled asphalt, bricks, clean fill dirt, clean pit run (clean dirt & rock mixture); ceramic sinks, toilets, urinals and tubs (with all hardware and gaskets removed). The crushed and screened materials are used for City alley and road maintenance projects and it is sold to the public for a wide variety of uses.

In Fort Collins, recycling pick-up service is available to multifamily housing customers (apartment complexes, duplexes, condominiums, mobile home parks) by haulers for a fee. Any apartment, condominium, or townhouse complex is eligible for recycling pick-up service, but there must be space available for the container(s) and access for trucks. The City now offers financial incentives to multi-family complexes that start a recycling or composting program. As part of this new Waste Reduction and Recycling Assistance Program (WRAP), on-site assessments and education are also available at no charge. Incentives and assistance are also offered by the City to local businesses for starting new recycling programs.

Businesses are also assisted through the ClimateWise Program. This is a free, voluntary City program that provides technical environmental assessments, employee engagement and education, networking and public recognition. The goal of the ClimateWise program is to reduce greenhouse gas emissions by promoting waste reduction, energy savings, alternative transportation and water conservation. Over 350 businesses have joined this program.

There are two private drop-off locations for yard trimmings and leaves in Fort Collins: Hageman Earth Cycle and Doug Weitzel Inc.

The City has partnered with Colorado State University for a pilot of recycling food scraps from campus dining halls. Some of the food scraps are pulped and trucked to the Drake Water Reclamation Facility where they contribute to the generation of methane gas used to heat the plant. Other food scraps are taken to an Earth Flow composter on the CSU west campus where it is combined with animal manure to create a high quality compost.

The City promotes a Leaf Exchange and Worm Exchange (for vermicomposting). The Leaf Exchange helps match up people with leaves with people who want them for gardening and animal husbandry. The Worm Exchange matches enthusiasts and experts willing to exchange resources and information about vermicomposting.

Colorado law regards electronics as hazardous waste. Residents, businesses, schools and government entities are prohibited from landfilling monitors and televisions, CPUs, keyboards, printers, VCRs and other end-of-life electronic equipment. In Fort Collins there are many options for recycling household and commercial e-waste, including drop-off and pick-up services and special collection events held throughout the year.

The City is a partner with the City of Loveland and Larimer County on the Larimer County Landfill, which is located south of Fort Collins. As of January 2013, the County determined that this landfill has 15 years of remaining life at current rates of use. A privately owned landfill in nearby Weld County also receives waste from Fort Collins.

The Larimer County Landfill currently charges about $18/ton (charged on a volume basis). The County fees include revenues that are set aside in a reserve fund to develop a replacement landfill. It takes 6-7 years to site and develop a new landfill, and could cost $80 million or more to construct a facility comparable in size to the current operation. In Wyoming it costs $50-75/ton to dispose of trash. Casper, Wyoming costs $74/ton. A publicly owned landfill north of Fort Collins that could also serve one or more Wyoming communities might be more economically viable in the future than a landfill in the same general vicinity of the current Larimer County Landfill.

Alternatively, trash from Fort Collins could go to other existing landfills in Weld County, which have 100+ years of life left in several private facilities. Transporting materials to Weld County for all of Fort Collins would increase climate change impacts, producing more greenhouse gases with the longer haul distances. Without a public landfill operating in the area, the private landfill fees could also increase substantially. Although this may be of some concern, as the amount of materials being landfilled decreases over time, the unit cost for landfilling may become less and less of concern, as fewer tons will be going there.

Key Existing Policies

The City of Fort Collins has been very progressive in working to foster recycling through the adoption of new rules and incentives to harness the forces of the marketplace. As the City relies on an open competitive free market system, it has adopted several major policies for waste reduction.

Pay-As-You-Throw Ordinance – This ordinance details how City-licensed waste and recycling haulers must offer services to residents. Since 1995, the City has required the use of "Pay As You Throw" rates to provide incentives to single-family residents to recycle more. Residents get billed for the amount of waste services used, just like they pay for other utilities, like electricity, gas and water. As part of their subscription service, recycling must be provided at no additional charge.

Cardboard Disposal Ban – In March 2013, the City Council added a new definition to the City Code for "recyclable cardboard" and added to the City Code Section 12-22 that "no person shall place recyclable cardboard in refuse containers for collection, nor shall any person bury or otherwise dispose of recyclable cardboard in or on private or public property within the City. All recyclable cardboard must either be stored and presented or delivered to a licensed solid waste collector for recycling…or delivered directly to a qualified recycling facility appropriate for recyclable cardboard." Since adoption, City staff conducted extensive outreach to make the community aware of the requirements.

Electronic Disposal Ban – In February 2007, the City Council added to City Code Section 12-22 that "no person shall place recyclable cardboard in refuse containers for collection, nor shall any person bury or otherwise dispose of recyclable cardboard in or on private or public property within the City. All electronic equipment must either be stored and presented or delivered to a licensed solid waste collector for recycling…or delivered directly to a qualified recycling facility appropriate for electronic equipment."

Appendix B - Product & Materials Market Inventory

The following entities are in the business of accepting or collecting items for reuse, recycling or composting in Fort Collins.

Programs/Facilities

Reusable

- Appliances
- Electronics
- White goods
- Durable plastic products
- Usable textiles and fibers
- Mattresses
- Furniture
- Books
- Building materials
- Other reusables and repairables

Aragon Iron & Metal
516 N. Highway 287, Fort Collins l 970-484-2577
www.aragonironandmetal.com

ARC Thrift Store of Colorado
106 E. Foothills Pkwy., Fort Collins l 970-267-8870
www.arcthrift.com

Colorado Iron & Metal
903 E. Buckingham St., Fort Collins 970-482-7707
www.coloradoironmetal.com

Eco-Thrift
208 N. Howes St., Fort Collins l 970-484-4224
www.eco-thrift.com

Goodwill Industries
315 Pavilion Ln. (Harmony Rd. and JFK Pkwy.), Fort Collins l 970-223-1042 l www.goodwilldenver.org/pages/ft-collins

Habitat for Humanity ReStore
4001 S. Taft Hill Road, Fort Collins l 970-223-9909
www.habitatstore.org

Mary's Closet
101 N. Howes Street, Fort Collins l 970-482-4148
www.stjosephfc.org/marys-closet/

Repeat Boutique
239 Linden St., Fort Collins l 970-493-1039
www.resourceyard.org

RMB Recycling Center
1475 N. College Ave., Fort Collins l 970-484-5384
www.rmbrecycling.com

Salvation Army
3901 S. Mason St., Fort Collins l 970-207-4472
http://salvationarmyfortcollins.org/

Uncle Benny's Building Supplies
1815 S. County Road 13C, Loveland l 970-593-1667
www.unclebennysbuildingsupplies.com

Unique Repeats - Poudre Valley Hospital
1025 Pennock Place, Fort Collins l 970-495-8890

Volunteers in Public Schools (VIPS Closet)
1630 S. Stover Street, Fort Collins l 970-490-3208
www.psd.k12.co.us/department/partnership-and-volunteer-center

Paper

- Cardboard
- White ledger paper
- Newsprint
- Magazines/catalogs
- Other office paper
- Paperboard
- Other/composite paper

City of Fort Collins Recycling Drop-off Site
1702 Riverside Dr., Fort Collins (Located in back parking lot of Rivendell School.) l 970-221-6600
www.fcgov.com/recycling/dropoff.php

Gallegos Sanitation, Inc.
PO Box 1986, Fort Collins l 970-484-5556
www.gsiwaste.com

Professional Document Management (PDM)
5001 S. College Ave., Unit B, Fort Collins l 970-493-2455
www.pdmsecure.com/shred.html

The UPS Store
1001-A East Harmony Rd., l 970-223-6144
www.theupsstorenow.com

Volunteers in Public Schools (VIPS Closet)
1630 S. Stover Street, Fort Collins l 970-490-3208
www.psd.k12.co.us/department/partnership-and-volunteer-center

Waste Management of Northern Colorado
40950 Weld County Rd. 25, Ault l 970-674-2500
www.wm.com

Waste-Not Recycling
1065 Poplar St., Fort Collins l 970-669-9912
www.waste-not.com l recycle@waste-not.com

Plant Debris

- Leaves & grass
- Prunings
- Branches & stumps

Clean Air Compost
970-224-4732 | www.cleanaircompost.com

Doug Weitzel, Inc.
2630 W. Mulberry St., Fort Collins | 970-482-4983

Gallegos Sanitation, Inc.
PO Box 1986, Fort Collins | 970-484-5556
www.gsiwaste.com

Hageman Earth Cycle Inc.
3501 E. Prospect Ave., Fort Collins | 970-221-7173
www.hagemanearthcycle.com

Leaf Exchange Website
www.fcgov.com/recycling/leaf-exchange.php

Wood

- Untreated wood
- Treated wood

Clean Air Compost
970-224-4732 | www.cleanaircompost.com

Doug Weitzel, Inc.
2630 W. Mulberry St., Fort Collins | 970-482-4983

Gallegos Sanitation, Inc.
PO Box 1986, Fort Collins | 970-484-5556
www.gsiwaste.com

Hageman Earth Cycle Inc.
3501 E. Prospect Ave., Fort Collins | 970-221-7173
www.hagemanearthcycle.com

Aggregates & Ceramics

- Concrete
- Asphalt paving

City of Fort Collins Streets Department
1380 Hoffman Mill Rd., Fort Collins | 970-482-1249
www.fcgov.com/streets/crushing.php

Fort Collins Habitat for Humanity ReStore
4001 S. Taft Hill Rd., Fort Collins | 970-223-9909
www.habitatstore.org

Soils

City of Fort Collins Streets Department
1380 Hoffman Mill Rd., Fort Collins | 970-482-1249
www.fcgov.com/streets/crushing.php

Hageman Earth Cycle Inc.
3501 E. Prospect Ave., Fort Collins | 970-221-7173
www.hagemanearthcycle.com

Metals

- Auto bodies
- Aluminum cans
- Steel cans
- Other ferrous metals
- Other non-ferrous

Aragon Iron & Metal
516 N. Highway 287, Fort Collins
970-484-2577 | www.aragonironandmetal.com

City of Fort Collins Recycling Drop-off Site
1702 Riverside Dr., Fort Collins (Located in back parking lot of Rivendell School.) 970-221-6600
www.fcgov.com/recycling/dropoff.php

Colorado Iron & Metal
903 E. Buckingham St., Fort Collins | 970-482-7707
www.coloradoironmetal.com

Eco-Thrift
208 N. Howes St., Fort Collins | 970-484-4224
www.eco-thrift.com

Houska Automotive Services
899 Riverside Dr., Fort Collins Phone: 970-482-0156
www.houskaautomotive.com

RMB Recycling Center
1475 N. College Ave., Fort Collins | 970-484-5384
www.rmbrecycling

Glass

- Clear glass
- Green glass
- Mixed glass
- Brown glass
- Window glass
- Other glass

City of Fort Collins Recycling Drop-off Site
1702 Riverside Dr., Fort Collins (Located in back parking lot of Rivendell School.) 970-221-6600
www.fcgov.com/recycling/dropoff.php

Uncle Benny's Building Supplies
1815 S. County Road 13C, Loveland | 970-593-1667
www.unclebennysbuildingsupplies.com

Polymers/Plastics

- # 1 PET
- #2 HDPE
- #3 PVC
- #4 LDPE
- #5 PP
- # 6 PS
- #7 other labeled plastic
- Other plastics
- Asphalt Roofing
- Tires

All grocery stores and many other retailers in Fort Collins accept disposable plastic bags for recycling.

Avalanche Floor Coverings
205 Colland Dr., Fort Collins l 970-203-1000

Brinkers Interior Design
1418 E. Magnolia St., Fort Collins l 970-484-7200
Recycles residential carpet pad only.

Campus Mail
1205 W. Elizabeth St., Fort Collins l 970-224-3044
www.getcampusmail.com Accepts clean bubble wrap, air pillows, packing peanuts and packaging paper for reuse. NO molded, chunk styrofoam.

City of Fort Collins Recycling Drop-off Site
1702 Riverside Dr., Fort Collins (Located in back parking lot of Rivendell School.) l 970-221-6600
www.fcgov.com/recycling/dropoff.php
Recycles glass and plastic #1-7.

Colorado Pad Recycling
700-27th St., Greeley l 970-217-5657
5837 S. College Ave., Fort Collins l 970-226-6800
Recycles residential carpet pad only.

Dale's Carpet One
3608 Automation Way, Fort Collins l 970-223-3596
No rubber pads. Accepts residential carpet pad.

Leonard's Downtown Mail
305 W. Magnolia St., Fort Collins l 970-493-1514
www.ampc.org/store/442/
Accepts clean bubble wrap, air pillows, packing peanuts and packaging paper for reuse. NO molded, chunk styrofoam.

Mail Boxes, Etc.
1015 M South Taft Hill Rd, Fort Collins l 970-221-2133
Loose fill packing materials (packing peanuts).

Relay Mail
749 S. Lemay Ave., Fort Collins l 970-221-1153
www.relaymailandgifts.com
Accepts clean bubble wrap, air pillows , packaging peanuts and packing paper for reuse. NO molded, chunk styrofoam.

The UPS Store
1001-A East Harmony Rd., Fort Collins l 970-223-6144
www.theupsstorenow.com
Loose fill packing materials including styrofoam peanuts (no starch peanuts), clean bubblewrap and cardboard shipping boxes.

Waste-Not Recycling
1065 Poplar St., Loveland l 970-669-9912
www.waste-not.com

Chemicals

- Used motor oil
- Household Hazardous Wastes
- Batteries and CFL bulbs

Ace Hardware – Downtown
215 S. College Ave., Fort Collins l 970-224-4437
www.acehardware.com
Accepts all rechargeable batteries and CFLs.

Ace Hardware – Clay's
1001 E. Harmony Rd., Fort Collins l 970-223-9273

Aragon Iron & Metal
516 N. Highway 287, Fort Collins l 970-484-2577
www.aragonironandmetal.com Accepts batteries.

Batteries Plus
1107 W. Drake Road, Fort Collins l 970-206-0206
www.batteriesplus.com
Accepts all types of batteries.

Houska Automotive Services
899 Riverside Dr., Fort Collins l 970-482-0156
www.houskaautomotive.com
Accepts antifreeze, auto batteries, engine oil and scrap metal.

Home Depot - North Store
1251 E. Magnolia St., Fort Collins l 970-224-1239
www.homedepot.com Accepts any rechargeable batteries (including power tools), cell phones, iPods, MP3s, CFLs (residential only) for recycling, free of charge.

Home Depot - South Store
4502 John F. Kennedy Pkwy., Fort Collins l 970-206-0774
www.homedepot.com No fluorescent tubes

Habitat for Humanity ReStore
4001 S. Taft Hill Road, Fort Collins l 970-223-9909
www.habitatstore.org Accepts paint.

Interstate All Battery Center
300 Willow St., Fort Collins l 970-484-1307
www.interstatebatteries.com Accepts most types of alkalines, NiCd (nickel cadmium), Nimh (nickel metal hydride), Lithium ion and lead acid batteries.

Larimer County Landfill
5887 S. Taft Hill Rd., Fort Collins l 970-498-5760
www.larimer.org/solidwaste/motoroil
Accepts business and residential hazardous waste and automobile and truck batteries. Recycles refrigerators/freezers complete with freon removal and handling for a fee.

Lowes Home Improvement
4227 Corbett Dr., Fort Collins l 970-232-7910
Rechargeable batteries, cell phones, and compact fluorescent light bulbs (CFLs).

O'Reilly Auto Parts
4372 S. College Ave., Fort Collins l 970-223-5329
www.oreillyauto.com/site/c/home.oap Accept car batteries,used oil.

The Light Center
2725 S College Ave., Fort Collins l 970-226-3430
Offers free residential CFL recycling.

Appendix C – Detailed Waste and Recycling Data for Fort Collins' Municipal Solid Waste (Including Residential and Commercial Sources) and Industrial Waste in Tons

MSW stands for Municipal Solid Waste, which is composed of residential and commercial wastes, but excludes industrial waste. In Fort Collins, the following items are included in the industrial categories: spent brewery grain, commercial wood wastes, diatomaceous earth, biosolids, concrete, asphalt, clean fill dirt, and construction and demolition waste. The Community Diversion Rate referenced in this report is the sum of MSW and industrial materials.

Fort Collins' Waste & Recycling Composition as Defined by Municipal Solid Waste Versus Industrial									
Composition of Discards	2010 MSW	2011 MSW	2012 MSW	2010 Industrial	2011 Industrial	2012 Industrial	2010 Total	2011 Total	2012 Total
Total Landfill	93,994	87,136	82,993	48,432	45,363	56,067	142,427	132,499	139,060
Total Organics	22,866	32,547	10,423	9,159	13,307	18,342	32,026	45,854	28,765
Total Recycling	46,855	41,507	47,284	85,632	90,445	110,411	132,487	131,951	157,695
PAYT Source Reduction Tons	2,460	4,312	3,280				2,460	4,312	3,280
Total Disposed	166,176	165,502	143,980	143,224	149,114	184,820	309,399	314,616	328,800
Diversion Rate	42.6%	45.9%	41.0%	66.2%	69.6%	69.7%	53.2%	56.5%	57.3%
Diversion Rate w/ Source Reduction	43.4%	47.4%	42.4%				54.0%	57.9%	57.7%
Population							143,986	146,573	148,700
Landfill Pounds per Capita per Day							5.42	4.95	5.12

Fort Collins' Municipal Solid Waste Composition									
Composition of Discards	2010 Residential	2011 Residential	2012 Residential	2010 Commercial	2011 Commercial	2012 Commercial	2010 Total	2011 Total	2012 Total
Total Landfill	31,114	39,665	38,669	62,880	47,471	44,324	93,994	87,136	82,993
Total Organics	540	23,374	5,260	31,486	9,173	5,163	32,026	32,547	10,423
Total Recycling	9,339	8,822	10,738	37,516	32,685	36,546	46,855	41,507	47,284
PAYT Source Reduction Tons	2,460	4,312	3,280				2,460	4,312	3,280
Total Disposed	43,453	76,173	57,948	131,882	89,329	86,033	175,335	165,502	143,981
Diversion Rate	24.1%	44.8%	29.3%	52.3%	46.9%	48.5%			
Diversion Rate w/Source Reduction	28.4%	47.9%	33.3%						

Appendix D – Ideas from other Zero Waste Communities

Zero Waste Associates identified a variety of policy and program options from other Zero Waste communities to be considered as part of the Fort Collins Road to Zero Waste Plan.

Reduce Policy and Program Options

1. Encourage and support food donation programs at homes, schools, colleges, businesses and institutions.

2. Encourage and provide incentives for on-site, backyard and neighborhood composting, particularly at homes, schools, colleges, businesses and institutions with sufficient space.

3. Promote master composter training (e.g., part of CSU Extension Master Gardener program) to help educate the community on best practices.

4. Ban hard to recycle products (e.g., reusable and recyclable durable goods) and packaging from landfilling.

5. Adopt fees on products or packaging that are sold that are hard to reuse, recycle or compost. For example, enact a litter fee on paper and plastic bags and expanded polystyrene takeout containers.

6. Encourage or require businesses and institutions to take back designated products and packaging sold in Fort Collins that are toxic in their manufacture, use, or disposal, and/or are not currently reusable, recyclable or compostable locally.

7. Adopt requirements for local businesses to charge deposits like the automobile battery "core fee" to get back targeted hard to recycle products.

8. Continue to be a strong advocate for Extended Producer Responsibility (EPR) legislation and programs regionally, statewide and nationally (as supported in the Fort Collins City Plan). Continue to support the Colorado Product Stewardship Council of the Colorado Association for Recycling to assist in that effort, particularly to drive improvements in product design that are environmentally sustainable.

9. Reduce disposal diapers by promoting reusable and recyclable alternatives.

10. Work with other stakeholders statewide to develop a Center of Bad Design to identify opportunities to redesign products and packaging to reduce wasteful practices working with industry leaders.

Reuse Policy and Program Options

1. Work with restaurants, bars, hotels, cafeterias and other hospitality venues to expand current donations of edible food to food banks and donate other discarded food to animal feed. Assist food banks to expand equipment and services needed to meet this demand.

2. Promote reuse and repair with a web-based directory, other internet services (e.g., e-Bay, Craig's List and FreeCycle.org), garbage bill inserts, and cooperative advertisements in tourist literature.

3. Promote local antique and thrift stores, repair shops (e.g. appliances, autos, furniture) and local electronic equipment, furniture and appliance resellers including a brochure listing where these are located.

4. Actively promote free swap program for reusable household hazardous products at the Larimer County Landfill that enables the community to share these goods at no cost.

5. Promote deconstruction services and used building materials stores.

6. Adopt Ordinance requiring publication in the local newspaper of all buildings planning to be demolished to solicit participation of deconstruction firms to salvage whatever they can while final permits are obtained for remaining parts of the building to be demolished.

7. Use economic development tools to help develop value added reuse businesses, such as a mini-sawmill for manufacturing of wood flooring, cabinets and architectural details from deconstructed lumber and beetle-killed trees.

8. Encourage permitted haulers to collect clean, bagged textiles and shoes in the residential recycling collection program (perhaps once a month or as part of cleanup programs).

9. Work with major retailers of clothing in the area to establish "Bargain Basement" sections of their stores where premium used clothes could be sold that would be supplied by existing thrift stores, with the profits from sales split between them.

10. Encourage an "ecology of commerce" model for promoting the sale of reusables in Fort Collins. Encourage the marketing of used lumber, building materials, compost products and used appliances through major home repair, hardware stores and nurseries. Encourage the marketing of used furniture through furniture stores.

11. Provide startup funding for a network of repair and refurbishing businesses or nonprofits to upgrade materials and products that are collected through large-scale reuse programs to attain a higher price in retail activities.

12. Develop a reuse warehouse that could be leased out on a spot basis to reuse businesses and nonprofits. This could be done at the Resource Recovery Park proposed below, or another location.

13. Help form a Reuse Collaborative with businesses and nonprofits throughout the region to help in marketing products collected through reuse networks, and to help develop the above services.

14. Support historic preservation and those seeking to restore and reuse buildings, include "adaptive reuse" as a priority in City building standards for residential and commercial construction and encourage the remodeling or repurposing of buildings that are still functional.

15. Create incentives for reusable diaper services for both infant and adult diapers.

Recycling Policy and Program Options

1. Update, expand, educate and effectively implement the City's Pay-As-You-Throw Ordinance. Require weekly recyclables and compostables collection and that haulers offer every other week rubbish service as a lower cost option.

2. Expand City's Pay-As-You-Throw Ordinance to include all multi-family dwellings.

3. Require all businesses and institutions to keep recyclable materials separate from garbage.

4. Require that all major construction, remodeling and demolition projects in the city recover 75% of all materials discarded.

5. Develop public/private and/or intergovernmental partnerships to support the Integrated Recycling Facility and Larimer County Landfill collection and handling of targeted hard to recycle products and household hazardous products.

6. Develop a dismantling facility to process non-recyclable and repairable durable goods into recyclables.

7. Expand the Integrated Recycling Facility into a full Resource Recovery Park.

8. Develop a Resource Recovery Park with Larimer County.

9. Develop a process at landfills to pre-treat mixed discards before landfilling to recover more materials for recycling and stabilize the organic fraction prior to landfilling. Require all materials go through processing before landfilling and consider as part of the costs of landfilling in setting tipping fees.

Composting Policy and Program Options

1. Adopt a City goal to phase out compostable organics going to landfill by 2018.

2. Continue to support statewide legislation to expand composting and digestion programs statewide as included in Fort Collins City Plan.

3. Develop more pilot programs to compost or digest all compostable organics (including food scraps and food-soiled paper), particularly with schools and institutions.

4. Once an appropriately permitted composting facility is available in reasonable proximity to Fort Collins, require all haulers to collect all compostable organics (including food scraps and food-soiled paper) weekly year-round from residents, businesses and institutions requesting that service, for a fee that is at least 25% less than garbage collection service.

5. Ban food scraps and food-soiled paper from being disposed of as garbage.

6. Require all businesses and institutions to keep compostable materials separate from garbage. Encourage sharing of containers by multiple businesses in Old Town and other locations that have space constraints.

7. Require that all businesses and institutions that generate more than 1 cubic yard of compostable organics per week to compost, digest or recycle those materials.

8. Require haulers and facility operators to offer services needed to compost, digest or recycle materials generated by businesses and institutions.

9. Develop composting facility for all compostable organics using windrow, in-vessel, or anaerobic digestion technologies.

Waste-to-Energy Policy and Program Options

1. Identify different discarded materials in the region that could generate energy (e.g., agricultural, forestry, horticultural, industrial, commercial, institutional).

2. Develop and adopt an Hierarchy of Highest and Best Use to assist in the evaluation of technology proposals that come to the City.

3. Prioritize what energy technologies and feedstocks the City would like to focus on in next 5 years and for which sectors 4. Explore with the wastewater treatment plant their interest in digesting food scraps from residents, businesses, and institutions, either delivered via wastewater system or by truck.

5. Work with Colorado State University to pilot test innovative technologies with different feedstocks.

6. Encourage and support high solids digester to handle industrial putrescibles (e.g., meat packing residuals).

7. Encourage and support other small-scale pilot programs developed by businesses and institutions using different innovative technologies and feedstocks.

Green Business, Green Buildings and Jobs

1. Expand use of Uniform Building waste prevention and recycling standards for all major projects in the City. Include in the updating of the Uniform Building Code in Fort Collins that is underway recycling goals for all construction, demolition and remodeling projects to divert at least 75% of materials by going to facilities certified by City. Work to include in Uniform Building Code deconstruction goals that require a "soft strip" of all deconstruction projects (to take out all items that are portable and detachable) and to phase in a requirement to recover materials from the building shell.

2. Require that adequate space be provided in trash enclosure areas of new and significantly remodeled buildings to accommodate recycling and composting containers.

3. Help businesses that adopt and implement Zero Waste goals to be recognized through certification programs.

4. Work with road construction agencies to use more compost products on roadside landscaping projects and to add alternative recycled materials to roadway construction.

5. Implement existing waste reduction and recycling purchasing goals and add an Environmentally Preferable Purchasing Policy and Precautionary Principle for City purchases and work with each City department to help identify products and service specifications that should be revised.

6. Purchase locally manufactured reused, recycled and compost products as a priority for City facilities and services. Assist local manufacturers to get on bidders lists for City Purchasing, Public Works, Urban Renewal Authority and Downtown Development Authority redevelopment projects.

7. Encourage and support businesses to develop innovative recycled products.

Culture Change (Outreach and Incentives) Policy and Program Options

1. Adopt Zero Waste goal for venues and special events that require permits from the City and use incentives and technical assistance to help them implement Zero Waste goals. Lead by example by placing recycling bins at all City-serviced public trash bins and include comprehensive signage. Add composting bins in areas where food is sold once compostable organics services are readily available.

2. Continue programs on an on-going basis to educate residents, businesses and visitors about how and where to reduce, reuse and recycle in Fort Collins. Hire staff or interns to contact all businesses to assist them to comply with new recycling and composting rules.

3. Continue to work with all haulers to include uniform messages about what is acceptable to include in recycling and composting programs in their outreach materials and websites.

4. City agencies continue to lead by example to implement all actions asked or required of residents and businesses.

5. Maintain linear residential Pay-As-You-Throw rate structure. Phase in charging fees for recycling and composting service for residential customers over 5 years.

6. Require haulers to charge a fee for recycling and/or composting service for commercial customers that is no more than 50% of the garbage service fee.

7. Require all haulers to offer customers (single family, multifamily and commercial) 90 gallons of recycling and 90 gallons of comprehensive organics included in their collection services for one fee (based on the size of the trash container). Generators who require more recycling or organics pay the equivalent of 20% less than the equivalent amount of trash collection.

8. Continue to support increase of local, regional and state landfill fees and surcharges as included in the City's Legislative Plan to help fund needed reuse, recycling, composting or digestion programs and other infrastructure.

9. Increase Larimer County landfill disposal fees for mixed discards after new reuse, recycling and composting services are developed on site or nearby.

10. If Resource Recovery Park is built by Larimer County, charge fees comparable to or lower than today's fees for reuse, recycling and composting services, and make up any needed revenues beyond that in higher fees for landfilling mixed discards.

11. Adopt recycling investment fees on hauling services to generate revenue needed to fund new City initiatives.

12. Work to eliminate subsidies for wasting that compete with recycling.

13. Undertake social marketing initiatives to encourage all generators fully participate in waste prevention, recycling and composting programs.

14. Work with schools, institutions and faith organizations to model Zero Waste programs and behaviors for their constituencies.

15. Provide technical assistance, tools and resources to all generators to remove barriers to participations.

16. Partner with non-governmental organizations and non-profits to provide small scale grants and support to community organizations, housing authorities, and economically or socially disadvantaged neighborhoods and multiunit buildings to encourage participation in new programs.

17. Phase in mandatory recycling and composting for all generators.

Appendix E - Public Involvement in Road to Zero Waste Plan

The consulting firm Zero Waste Associates (ZWA) was contracted in 2013 to help develop new goals for Fort Collins and a plan for how to reach them. Drawing on experience from working with other U.S. cities as well as international clients, ZWA followed a "Road to Zero Waste" theme that helped inspire and stimulate thinking "outside the box."

City staff applied a comprehensive process to involve the public in discussions about new goals for the Fort Collins community, and to obtain public input.

Community Conversations

Five open house events were held on focus areas of the plan that featured presentations by ZWA, which were then followed by vigorous discussions with the audience.

1. Reduce and Reuse (June 11)
2. Recycling (June 12)
3. Composting (July 16)
4. Waste to Clean Energy (July 17)
5. Core Concepts - Road to Zero Waste Plan (October 15)

More than 250 people attended at least one Community Conversation over the six-month outreach and involvement period. Extensive flip-chart notes were transcribed from each of the meetings to document comments; attendees were also invited to fill out comment cards. Each of the five Community Conversations were videotaped and frequently rebroadcast on the City's cable television channel 14 throughout the summer and fall of 2013.

Staff posted invitations to Twitter and Facebook for the Community Conversations (2,300 views on Facebook), distributed posters, and placed ads in the Coloradoan, Northern Colorado Business Report, CSU Life and the Collegian. Articles in CityNews and press releases to the media kept the community informed about the planning process. The Fort Collins Coloradoan wrote two articles about the Road to Zero Waste project.

Dedicated Website

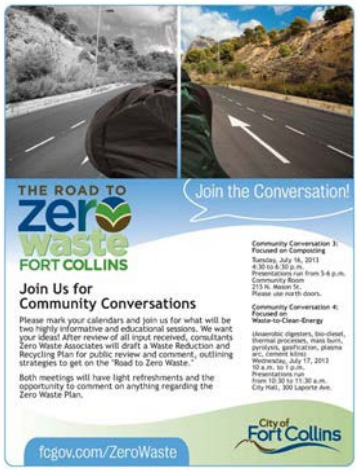
The City created a website (www.fcgov.com/zerowaste) where information was available about the planning process and updates were posted as ideas began to take shape for new approaches for the City to apply to waste reduction and recycling. The website provided links to the Community Conversations videotapes as well as online comment forms.

Presentations to City Boards and Commissions

City staff and consultants met with key boards to discuss the Road to Zero Waste project, including the Natural Resources Advisory Board (twice), Air Quality Advisory Board, Energy Board, Economic Advisory Commission, and the Council Futures Committee.

Stakeholder Meetings

Numerous interviews with stakeholders and site visits were conducted, including: Fort Collins' licensed residential waste haulers; Clean Air Composting; ClimateWise Partners; Chamber of Commerce Legislative Affairs and Environmental Committees; Northern Colorado Rental Housing Association; Larimer County Food Bank; Fort Collins Sustainability Group; Fort Collins Sustainable Living Association; Colorado State University, including student Eco Leaders, the Live Green Team, and the Sustainability, Energy and Environmental Advisory Committee; the Fort Collins Board of Realtors; North College Business Association; Poudre School District; Larimer County Public Works staff; City of Loveland staff; Drake Wastewater Treatment Plant staff; the City's Chief Building Official; and City Sustainability Services staff.



As a special training opportunity, ZWA held a workshop in October for ClimateWise partners to discuss innovations in the business sector for reducing waste.

The consulting team also toured many reuse, recycling, composting, waste-to-energy and landfill facilities in the area, including: Larimer County Landfill and Material Recovery Facility and Household Hazardous Waste Facility; Waste Management of Northern Colorado Landfill; Drake Water Reclamation Facility; the CSU Earth Flow composting operation, CSU's surplus property reuse operation, and several "tray-less" cafeterias on the campus; the City Earth Tub composting pilot project; A-1 Organics Composting in Eaton; Hageman's Earth Cycle Composting; Rocky Mountain Battery and Recycling; Fort Collins ReSource store (architectural salvage and reuse); Waste-Not Recycling; Uncle Benny's Building Supplies; Habitat for Humanity; Colorado Iron and Metal; Loveland's recycling drop-off center; the City's Recycling Drop-off Center at Rivendell School; and the Streets Department's Hoffman Mill Road Crushing Facility.

Road to Zero Waste Working Group

The City invited an informal Working Group to provide input throughout the process. The group, representing a cross-section of different stakeholders, invested many hours in thoughtful discussion to help familiarize the consultants with conditions that are unique to Colorado's landfill and recycling infrastructure along the Northern Front Range, and other local issues to consider when recommending new directions and strategies. The

City of Fort Collins is very grateful for the knowledgeable input contributed by the following colleagues, business associates, and citizens who participated on the Working Group:

- Marty Garvin, Colorado Iron and Metal
- Art Gallegos and Matt Gallegos, Gallegos Sanitation, Inc.
- Dean Hoag, Rocky Mt. Battery and Recycling
- Robert Mann, Natural Resources Advisory Board
- Tyler Bandemer, City of Loveland
- Stephen Gillette, Larimer County Solid Waste Department
- Stacey Baumgarn, CSU Facilities Management
- Mary Smith, interested member of the community

Appendix G – Citizen Comments

June 11, 2013 Community Conversation – Reduce, Reuse– comment from cards at meeting	
John Anderson	The economic model is what got us into this environmental mess – that is the problem.
Stacey Baumgarn	Perhaps we should just be collecting questions, comments, feedback, and not try to answer/respond to each on the spot. It seems more defensive and less than a "listening" session. To the degree we are responding, we are NOT listening and planning. Not sure how to do this – Diversion/Reuse idea/suggestion: CSU residence halls and surplus do an annual "leave it behind" project/program. Can the City help or create a "leave it behind" for off-campus students or any community member? Isn't August 1 a huge fruit basket upset of leases and moving, etc. Ask me for more information. Thanks. CSU Center for Public Deliberation (as facilitators). How does reuse create so many jobs? As recycling industry creates new jobs, does it drive all costs (or products) up? If so, does this create some resistance?
Caitlan May	City requires waste companies to provide free recycling to all residential properties but doesn't for apartment/condo/commercial businesses. The reason I have been told is due to lack of responsibility to recycle proper items. How does the City plan to address the issue and to get these organizations and groups engaged in recycling? If this truly is the reason, what studies have been done that show the increase of waste in recycling containers in apartment/condos and businesses? I would like to see the City require waste companies to provide recycling services as a free or mandatory program to all residential and commercial businesses. Public usage areas should have a recycling container next to all trash bins and the signage needs to be clear and precise so it is easy to know what to recycle.
Becca Walkinshaw	Community-wide signage (haulers, schools, city, county) same guidelines - look, symbols, etc. This helps people to better understand. Also, yard waste is low-hanging fruit to look at - very minimal portion of our community recycles yard waste. They say they don't create enough for a cart or don't want to pay additional costs. In Fort Collins we have tipping fees for wood - about the same cost or more to recycle. Since Fort Collins implemented green building codes, higher contamination happening with wood, so contamination fees are frustrating customers. Education - in schools at early age on 3 R's super important - Start at early age so recycling becomes second nature for kids and they expect such systems in the future.
Kurt Buss – City of Loveland	Thanks for keeping the conversation going. Great gathering.
Nancy Agnew	Need to help people think out of the box to repurpose - have more drop off points.
Kendal Gustafson	Deconstruction plan needs to be mandated for all construction jobs. If they have to make a plan they will realize that diverting material will save them money.
Jack Herrick	Renew Hughes Stadium - Great meeting - Look forward to future sessions.
Kelsey Carkeek	Have you considered having a forum run through the Center of Public Deliberation (CPD) run by Martin Carcasson at CSU? I am a part of the CPD and we are always looking to help out with forums in the community. I also think banning plastic bags would be VERY easy to do in this community. As a student seeing the perspectives of CSU and Fort Collins as a whole, there are so many people who would work with the City to ban plastic bags. The biggest way to get this all done is communication and marketing. Americans want to do go and care BUT they are too LAZY to drop trash off at three locations instead of one. If there were people offering to pick up things that don't belong in the landfill, people would jump on board.
Tony Cooper	Ban particle board - Big problem is planned obsolescence and consumerist society.
Vara Vissa	Governmental problems - traffic to landfill - too many trucks - top soil being dug up to cover trash (50% of which is divertible - This should be stopped.
Michael Abramovich	Many aged in our senior apartments have difficulties walking to a collection facility.
Anika	Consider 100% resource recovery
June 11, 2013 – on line comments	
Sally Dowiatt	Through composting, recycling and reusing plastic bags, our family of 4 (and now 2) doesn't have trash service

	because we have so little trash (about 6 small barrels a year). It would be nice to have an option for a trash service that just picks up recycling once a month, or a neighborhood dumpster or recycling bin.
Brian Maltais	The biggest single factor to producing less waste is simply to consume less. Though residents consuming less may be contradictory to a municipality's desire for constant economic growth, the idea of "don't buy it if you don't need it" should be encouraged. The strategy of living lean and efficient should be glorified in lieu of "keeping up with the Jones'" and amassing a garage full of toys. Also, perhaps some kind of partnership between the City of Fort Collins and the Habitat for Humanity Resource Centers could raise awareness of the option to donate refuse building materials instead of disposal in landfills, while also encouraging people to use re-purposed materials instead of purchasing new materials from hardware stores. Furthermore, tons of branches and woody yard waste needlessly ends up in landfills, when they can be recycled into mulch and wood chips. Awareness could be raised for recycling options such as Hageman's earth Cycle.
Coleen Barricklow	Let me start by saying I am the owner of Green Logic which focuses exclusively on education and access to products that reduce environmental footprint of daily living and I commend the city on undertaking an effort to go zero waste. I am in a position of seeing, hearing and knowing too much when it comes to this subject and have many ideas and inputs that might be valuable here. For example last year I spent weeks putting together pricing structure and tracking down biodegradable and recyclable food service options for New West Fest vendors only to be told in the end that it was too much effort and that vendors were complaining about pricing of products in comparison to the dirt cheap Styrofoam goods that they are used to using. That was particularly frustrating Because most of the vendors and many visitors to NWF come from out of town but the huge volume of waste produced remains in our landfill forever. This is just one of many events that the city in part hosts. In my opinion one of the biggest obstacles to a zero waste program is the use of disposable Styrofoam products that is so prevalent here. Being a business owner I fully understand and appreciate the bottom line but when we step back and look at the larger picture the cost of building a new landfill and the appreciate the bottom line but when we step back and look at the larger picture the cost of building a new landfill and the environmental impact Styrofoam has, its cost is much greater. Disposable Styrofoam to go containers and cups often have a very short life span before heading to the landfill, where by volume they account for a tremendous amount space used. It also is a toxic material that takes hundreds of years to break down and is a huge problem for contamination of water, soil and animal diets. Over 180 cities across the country have implemented Styrofoam to-go ware bans some as far back as the 1980's. Even fast food chains have been aware of the environmental impact of Styrofoam for decades and utilize cardboard and paper instead, which at least will biodegrade in landfills. Banning Styrofoam in Fort Collins should be one of the first things you guys are looking at. Although I am sure businesses will grumble and complain, I think the vast number of their customers will appreciate the effort, as well as not having to eat food from toxic containers. Businesses that we have worked with in the past have had excellent success by explaining to the customers why they are switching and implementing minimal charges for to go containers to cover the added cost. This has a secondary effect of discouraging mindless use of to-go ware in general. Over the years we have worked with many of the cities different departments to switch to biodegradable options for events and everyday use. It has always been frustrating to me that the city doesn't have a way to mandate all departments to use environmentally friendly options and then bulk buy for them. If the city were to bulk buy and distribute to the various departments under its management the pricing on this stuff comes way down. A cooperative for businesses to bulk buy together could be an excellent way to reduce cost as well. Unfortunately that is usually the driving factor for most. Some food
June 17, 2013 – on line comments	
Kathy	The recycling center on Riverside is busy night and day. It is a great convenience that this facility is accessible at all hours. I would like to see this facility expanded to have extra bins that could accept more pre-landfill waste - maybe wood or metals for example. Based on the traffic at this location it is obvious to me that people generally want to do their part in our goal of zero waste. The easier and more convenient you can make it for them to do their part the better chance we will all have of achieving this goal. More frequent e-waste collections around town would also be very helpful. Again, people want to do the right thing but it has to be easy and convenient - at least to get started. Once started, it becomes painful for them to do anything else but recycle what they know they can!
Leslie Aaeng	As a fifth grade teacher, I am interested to know if your group is planning educational programs or compiling

	leveled materials for kids in PSD to help with you efforts. As a huge recycler, I know how important it has been to start at the "bottom" as we have instilled this in our own kids. (and yes, I would help!)
Pat Young	Any business that sells water bottles/soda cans should be required to recycle them. Also, businesses and people who are moving pay big bucks for packing materials and residents throw them away. Maybe the city could sponsor a once-a-month trading event.
Lynne Barnes	I'm curious about the Coloradoan article that says we can't put glass into curbside bins?? or shredded paper? This is the first I've heard of this rule....the city and garbage collectors need to do a much better job of correctly informing the public...we all want to help but need information!! We've been told for several years now to throw it all.....bottles, plastic, newspaper, recyclable paper...into the same container. Help!
June 22, 2013 – on-line comments	
Lauren Ogden	I was out of town during your community presentations/meetings June 11 and 12. So I hope you don't mind me taking the liberty of emailing you because I want to have a bit of input. I am all in favor of aiming high, and if zero waste is possible, we should go for it. However at this point Fort Collins is still way behind with the yard waste situation. Many towns and cities have free municipal composting centers. I have to haul my yard waste to Hageman's or Weitzel's and pay, and fill my truck to make it worth the trip. I have half an acre of gardens and found that composting on site did not work here, due to several factors: the large size of the garden, proximity of neighbors, the amount of waste it creates at certain times of the year, and problems with raccoons and skunks. My trash collector, Gallegos, offers a $10 per month bin during the growing season for yard waste. The bin is way too small to serve my purposes, and most of my waste is created in Feb and March when they don't offer this service at all and I am cutting the old season's growth back to prepare the garden for spring. I wind up putting mainly yard waste into my 90 gal trash can many weeks of the year when I'm not making enough to fill my truck, this is not ideal but right now it's my best option. I have a 90 gal recycling bin that I use religiously, and I create very little household waste and could easily go to the smallest trash bin size, but it is not efficient at this point to give up the flexibility of putting extra yard waste into the trash because my other options require filling a truck, and cost me extra time and money (and create pollution by my having to drive). I am sure there are some ways to solve this as you move forward with plans for zero waste. I just wanted the voice of gardeners to be heard. Serious gardeners can't fit all their waste into a compost tumbler by the side of the garage, that's a joke. This waste could stay out of the landfill and make great compost for people to use if we had a community place for such a thing.
July 15, 2013 – on-line comment	
Patty Watson	Please keep in mind that not ALL people are zealous recyclers. Some choose not to recycle at all. Personal choice, as it should be. STOP making so darn many laws about everything that controls our lives.
July 16, 2013 – Community Conversations – Composting – comments from cards at meeting	
Janice Oldemeyer	As we develop outlets and solutions working towards zero waste, we should ensure we consider where things are recycled and how (in an environmentally sustainable manner). While some things may need to go to China, what can and should be kept local? Implemented market development programs ease permitting, create local jobs.
Mike Pruznick	Why is Economic Office/Board not here? Education of chemistry of landfill vs. compost (all types of technologies in both processes) – TBL not a balance 3-leg stool – Murphy center - "is it fiscally viable"; type 4 recycle, - "only those economically viable", Hendee Energy Board July TBL and Maslow's should be priority. – Does it honor human rights? If no, stop. Does it honor environmental protection? If no, stop. Is it economically viable? If yes, ?? If no, government does it directly or via business assistance package.
Addy Elliott	Please consider compostable plastics as a source and/or contaminant.
Liz Pruessner	We don't have existing composting services. Existing waste/trash haulers pricing structure does not incentivize composting or reducing waste stream enough. People want to do what is easiest – mostly – except for those who are already incentivized. I think the City needs to keep pushing on the throttle to keep this issue working. More education and outreach and work to provide opportunities or pilot projects to help demonstrate that this can work in Fort Collins.
Michael Baute	I'm interested in partnering with composting initiatives as a CSA pickup/drop-off location.
Erin Nuckols	Encourage 1:1:1 ratio (compost, recycling, trash) containers; cost – to encourage diversion; community-based social marketing; end-user education and engagement.
Anonymous	Recently I drove by the landfill after the 4th of July and was horrified by the line of trucks packed up along Taft Hill Road with furniture, perfectly good mattresses and other items that could be reused. We need to disincentivize at the landfill and infuse education into the businesses and citizenry so that composting/recycling is done correctly.

	Climate Wise can help with connections, too. Need to change composting regulation and look at close community composting for the region.
Bob Mann	Possibility of City partnering with Hageman's, even if just a transfer facility, to create a local/regional composting facility? Whether or not a Class 1 facility.
Tim Warfield	need more detail
July 16, 2013 – Conversation at Chamber of Commerce – Comments on Cards at meeting	
Sean Dougherty	I think good info came out, but cost is still a big piece to this. Also, we should set a goal that is attainable, not 100%.
Greg Woods	Upfront costs to businesses (and residences) for change in policy and implementation; Regional solution for recycling facility? And who pays for it?
Bob Yost	Help us create an efficient transfer option in Fort Collins to collect clean food waste to compost or digest. Digestive project will need a large volume.
July 17, 2013 – Community Conversations – Waste to Energy – Comments on Cards at meeting	
Stacy Baumgarn	Perhaps we should just be collecting questions, comments, feedback, and not try to answer/respond to each on the spot. It seems more defensive and less a "listening" session. To the degree we are responding, we are NOT listening and planning. Not sure how to do this. Diversion/reuse idea/suggestion: CSU residence halls and surplus do an annual "Leave it behind" project/program. Can the City help or create a "Leave it Behind" for off-campus students or any community member. Isn't August 1, a huge fruit basket upset of leases and moving, etc. Ask me for more information. How do we help citizens understand the COSTS? I live in a building where I pay an HOA fee. I do not get an electric bill so I am not considered a "customer." I do not pay a trash/recycle bill, so I am not considered a "customer". But I am a citizen and you need me to be engaged (to help, participate, contribute, etc.) – Highest and best use – needs to be location (Fort Collins) specific. Given our "waste" stream, given our weather, our availability of water, etc. "best practices" must be "localized" – Why don't we call it a resource recovery plan instead of a zero waste plan – Change it to focus from waste to resource.
Caitlan May	City requires waste companies to provide free recycling to all residential properties, but don't' for apartment/condo/commercial businesses. The reason I have been told is due to lack of responsibility to recycle proper items. How does the City plan to address the issue and to get these organizations and groups engaged in recycling? If this truly is the reason, what studies have been done that show the increase of waste in recycling containers in apartment/condos/businesses. I would like to see the city require waste companies provide recycling services as a free or mandatory program to all residential and commercial businesses. Public usage areas should have a recycling container next to all trash bins and the signage needs to be clear and precise so it is easy to know what to recycle.
Jenny Duer	One thing I would like to see is more of a community outcry for reuse. I feel as though there needs to be some discussion with the health department to allow restaurants and such to accept reuse containers for leftovers, take out, etc. brought from home.
Phil Friedman	The discussion and comments show both the challenges and opportunities to increase recycling rates. Major issues I think I see: education; contamination; options and availability in public places; bringing recycling to more businesses; creating a cradle-to-grave local model.
Dan Garvin	Almost 600 tons of metal at landfill is way off! – Probably more like 100 tons or less. Until tip fees are raised, recycling rates won't go up. Exporting recyclables is good for the economy.
Jenny Geiger	Great forum. Seems like we as a community need to walk before we run. People don't even know what is recyclable and that there is residential pay-as-you-throw service available. So it's a big jump to zero waste. But keep moving in that direction.
Mark Houdashelt	Has any polling been done to try to determine why people do or do not recycle and what might change their behavior?
Maureen McCarthy, Larimer County	I would like to be involved in some way and kept in the loop - Thanks
Mike Preznick	Better advance notice – Sample plans should be on line – good opportunities for further public input – Bag fee that was prepared gave money to business, not a fee – Interested in working group.
Jeff Schmid	I feel there is a lack of education as to the effect of dull blades in kitchen processing equipment on food wastes. We have done a number of formal and informal studies in this area and would love an opportunity to share with

	you our findings and to help educate the general public as well as restaurateurs about these effects. Always Sharp services kitchens state wide and has a number of examples of reduction in food waste, but probably the most profound comes from CSU (we service all their kitchens) where in just one of their kitchens we were able to reduce the amount of compostable waste that went into the trash from around 60 gallons a day to around 10! I don't know what percentage of food waste in the landfills comes from restaurants and commercial kitchens, but my guess it is significant. We are proud of the amount of food we have kept out of the landfills to date, but know a lot more could be done and we want to help. Obviously, reusing and recycling are extremely important, but as stated in the forum, reduction is even better. With the City striving for "zero waste" there is obviously going to be the need for significant education to the public and the area of food waste is one piece of the pie that we would love stay in the conversation and help with that education. Thank you so much for your efforts and dedication to our wonderful city.
Becca Walkinshaw	Big thinking. PSD implements a zero waste curriculum in all schools with real life experiences; thoughtful lessons; a variety of speakers. This can be funded by city or school? RFP for education provide3r – involve students at all school levels on purchasing decisions for district. District sets zero waste goals as well. Community drives for 12 sort/sites that come to community, like an E-waste drive. 12 sorts are set up and community pays nominal fee or gets rebate to drop off. City staff acts as liaison for such a program. Increase organics recycling in the City, which residents highly demand. Need local market to sell back 100 pickups – City/schools/municipal, etc.
August 12, 2013 – on line comment	
Lois Winegarner	Lived here since 1979 and have witnessed the developers gobbling up the area with out of control growth which has caused the immense amounts of trash of all kinds filling our landfill - we pay 20 a month for Clean Air to come and pick up our yard waste and food waste too bad the city does not provide this service and make compost for city home owners to use on their gardens. As well as community gardens. More and more cities across the country are gathering household food waste and yard waste let's get with the future before we have no future for our grandchildren's grandchildren!
August 19, 2013 – on line comments	
Arlene Archer	I would to see the city provide dumpsters for yard waste, like they already do for other types of recycling. This would allow us to drop off our own waste. My yard waste currently goes into the trash for the landfill because that is normally all of the trash I have so I am not willing to pay more for curbside waste pickup. Thank you.
Mark Creery	Creating a commercial compost facility for all food waste and compostable materials and providing residents with compost drop-off points would be a great step forward in reducing landfill waste and provide a valuable resource for residents' gardening needs.
October 14, 2013 – on line comments	
Mike Anderson	In your report, under Reduce Greenhouse Gas Emissions, you say reduce annual emissions 60,000 by 2020; then you say reduce 120,000 by 2020? Which is it? On page 17 you say costs per household and businesses were estimated in another document. I can't locate that document on your website. All your goals are quire desirable, but we need to know if we can afford them. It would have been nice if you had included the costs in the report.
October 15, 2013 – Community Conversation – Core Concepts – Comments from cards	
Ana Arias	What about including mobile home parks along with multi-family under the Universal Recycling Ordinance with 2 years, with full Pay-as-You-Throw benefits and recycling opportunities?
Randy Van Winkle	What about CHARM center – Porcelain, EPS, etc. Explore all opportunities for education – get a listing of recycle/reuse business models that are successful and promote to entrepreneurs
Ariana Friedlander	I didn't hear much from people that are opposed to this effort. I'm curious what their concerns are and how we'll address them. I still think that the message around this is too complicated. We need a succinct explanation as to why this is a worthwhile effort and that needs to be shared at the intro and conclusion. Also, awareness/education efforts should be engaging and target specific customer segments. A one-size-fits-all approach won't get us there. I agree that the relationship of private industry needs to be managed closely and with consideration for win-win-solutions. I think we need to look at how we manage these conversations.
Taylor Ramos	Fort Collins is full of people who care for the environment and for future generations. However, a lot of people are not concerned for the future. Need incentives. Also, I think it would help to make a management plan for each individual goal. Simplify the plan and don't clump a bunch of goals together with one big management plan. It seems unrealistic. It may also be helpful to make your core concepts (objectives) measurable and make this plan adaptable.
Maureen McCarthy	M comments already been recorded but would like to say again that I'd love to be involved. Thanks.

Stacey Baumgarn	Are job estimates realistic given our estimated volumes available? Will the plan have numerous appendices? I would like to see the comparative cost of trash and recycling in the neighboring communities and comparisons of area/neighboring landfills. When Fort Collins went to single stream recycling and Pay-as-You-Throw, did recycling rates (diversion) go up? Do we know how much? And do we have any data on contamination rates? How are we doing? Are we recycling more or is there more contamination as more un-informed participants are at play? When we make a change (in the past or future changes in this plan); can we measure and verify our results?
Mike Pruznick	Include a statement that City should look into how to include fracking waste products in net zero. Prohibit too strong, phase in prohibition at 10% per year. 20 mile limit – 50% - Loveland 75%; within city 100%, discourage driving. Remove development from flood plains. Phase in composting. Measure CSU move in/out waste. Phone in "events" – 1,000 = 50% compliance; 5,000 = 75%; 10,000 = 100%. Include residential gas emissions as waste and enable economic tools to better fund residential solar/wind. Careful with single use, many people have found ways to recycle that you are not measuring. What is energy cost of driving 150,000 reuse bags in my car 24/7 vs. just to or from store? Watch the fees "my expense sheet" – can only handle so much overhead. Roman Empire and Soviet Union fell apart because infrastructure couldn't be supported by tax base. Overhead killed US Steel industry and caused California to suffer greatly during the "Great Recession" – Need lower overhead solutions. Reorder core concepts – Put culture change @ #1; reduce/reuse @ #2; Product stewardship #3, Econ last. Page 17 – TBL – reorder social (constant with culture change at top), Environmental, Economic. Consider options to "store" non-recyclables for future recycling since mining landfill difficult. People who opt-out should not pay for service they don't need (clippings with gardener). Don't stifle the innovator. Don't force A to a B for 100% compliance.
October 22 – on line comments	
Bill Shattuck	We moved here from Thousand Oaks, CA, 6 years ago and FC trash service is still behind from where we moved from. We used to have trash, recycling and green waste pick up. Here there is no regular green waste, plastic bags dot the street and many in my neighborhood don't set any trash out. How can you get to zero waste when you allow people to not recycle and not have a green waste pickup? FC is behind the times.
Don Tiller	The EPA report on municipal solid waste generation, recycling and disposal in the US – Facts and Figures for (see table 5 on page 12) shows the benefit of recycling in terms of # of cars taken off the road. Expanding your table 1 listing the tons and value of materials discarded – here's an update showing the # cars that recycling represents. I only included those categories that were listed on in the EPA table, in order of impact: Paper 34,800 tons = same as 21,230 cars removed from roads per year Putrescibles 19,500 tons = same as 3,200 cars removed from roads per year Metals 5,600 tons = same as 3,130 cars removed from roads per year Wood 7,000 tons = same as 2,940 cars removed from roads per year Textiles 5,600 tons = same as 2,800 cars removed from roads per year Plant debris 22,200 tons = same as 195 cars removed from roads per year Glass 2,800 tons = same as 185 cars removed from roads per year This totals to over 33,000 cars per year. Seems like a large number. You should check my figures, but if this is correct it provides a meaningful way to evaluate the opportunity to reduce impact on our environment for the various categories. I was surprised to learn that US wide, the current textile recycling volumes represents the equivalent of 1 million fewer cars on the road each year. Assuming the estimate that only 15% of textiles are recycled in the US, the 85% that is not recovered represents an opportunity to remove the equivalent of another 11 million cars each year. Below is some feedback on the plan. It's a mix of personal opinion and things I see in the thrift/re-use industry. Section 2. Prohibited Materials section: I understand the reasoning behind adding to the prohibited materials list and I know other municipalities have used this approach to reduce landfill waste. My preference is to use this approach for hazardous materials (protect the public) but to look for other options rather than regulation for the non-hazardous waste diversion. Find ways to encourage recycling businesses to create offerings that consumers would want to take advantage of. For example, I didn't realize that cardboard was a prohibited item. Given how convenient it is to recycle the cardboard through Waste Management's recycling container, the convenience, not the prohibition, is why I don't put cardboard in our trash container. As an option to prohibitions on the consumer, create incentives for the trash haulers.

	5. Reduce & Reuse. I don't believe a Reuse Warehouse allowing thrifts to have equal access to incoming products and providing bulk sales to the public is feasible. I think collection and reuse is better left to private industry. Each thrift has their own collection process. Trying to centralize that for a city would be a massive undertaking and would require significant city staffing to operate and properly administrate. If the city wanted to promote a program similar to the local food bank (or even expand the food bank to include clothing) that could be a beneficial service to those in need. I fully support eliminating liability for donation of food for disaster responses. I volunteered at Timberline Church as part of the flood relief and was frustrated that we had to turn away food that I know was edible and usable. I also support efforts by the city to prevent illegal dumping from occurring at donation collection sites such as thrift stores and non-profits like the Habitat ReStore. 7. Culture Change. I like the idea of the city placing recycling containers next to trash containers, particularly for compostable organics. While you might not collect a significant % of the compostable organics, I think the containers will serve as great educational and awareness tools. Including recycling at community events is a great way to increase awareness. I like educational materials on recycling containers, I'm not as supportive of the city creating brochures for the trash haulers to hand out. I don't know about you but I get so many brochures, door hangers, junk mail etc. that it all goes directly to the landfill through my trash collector. The cost is also a factor. 9. Product Stewardship. I really oppose the fee approach. I don't have a problem with fee based systems to mitigate cost impacts (e.g., tax on cars to reflect cost to maintain roads) but this would feel more like a punitive tax. There must be better ways to accomplish the same end result. 10. Funding. This is a tough one. On one hand to launch a program like this funding is required. On the other hand, I don't like the idea of raising taxes before examining the current funding available to determine where this fits relative to the other city initiatives. Two other ideas specific to the used clothing I'd suggest: • Add a requirement in the land use code to require multifamily developments to include a facility for recycling items that are not good candidates for single stream curbside recycling. I think you could also extend this requirement to neighborhood community centers (e.g., HOA pools). Two examples of items are used clothing and books, which would be contaminated if included in curbside recycling and probably wouldn't represent sufficient volume to put curbside containers in place to prevent the contamination. • Adopt a used clothing collection bin ordinance to protect the community from unscrupulous collection bin companies that (1) don't service their bins to prevent the bins from becoming an nuisance, (2) don't request permission from the property owner prior to placing a bin, (3) don't clearly identify who is benefitting from clothing left in the bin, and (4) place their bins in areas creating public safety issues (intersection visibility, parking spaces, public sidewalks, etc.). I think the draft ordinance that I gave you would be a great starting point.
John Burgeson	Please drop references to "pseud-o-science" e.g., GHG, climate change, etc. I am not a "denier"/"flat earther"/etc. A question: what earth temperature are you shooting for? The Plan is in many respects, just restatement of old/earlier MSW management hierarchies from EPA. I see no economics/full cost accounting of any plan alternatives, same for existing commercial composting operations and the existing county landfill separation/landfilling. (residential/dairies/cattle feeders/etc.). No linkage of MSW waste stream (County) and sludge (City); most viable compost system (if any) would be undigested sludges with shredded MSW. Many people/studies indicate that food waste is due largely to portion sizes served; how to manage/control? Overall, the Plan is short on substance (particularly costs/revenues/subsidies), full cost accounting. It represents another regulated/controlled government (tax payer) funded program with little else to claim, except to say "it can be done".
Errin Henggeler	Currently Drake Water Reclamation Facility flares methane gas that it is generated, as we are unable to use all of it now, so why I like this idea it would need to include some capital improvements at the plant to achieve a plant that can use all the methane that is produced.

	I am also reading a lot of references to increase composting – as an area we need to get better at regional cooperation – we cannot do this without Larimer County's help.
October 28, 2013 – on line comments	
Barbara Nordstrom	I recently moved to Fort Collins. I broke down my boxes and took them to the Riverside recycling drop-off. I was disappointed to find I could not put my boxes in the bin as one must climb stairs while carrying the boxes. I am disabled and was not able to climb the stairs and deposit my boxes. No one was in the vicinity to help. I suggest the recycle drop-off be more handicap accessible. A bin that can be accessed from the ground or a helpful person at the site could be low-cost and effective solutions to this problem. Recycling should be handicap accessible.
John Crystal	Very disappointed in the Zero Waste "study". It starts with a conclusion and provides no discussion of alternatives nor cost/benefit analysis. Basically it's a "Sales brochure". A few random points: - Landfill, recycle/reuse, incineration are all options used in this country and in other countries. Where's the quantitative assessment what mix of alternatives would be best for FC? After all we want to try to keep this city an affordable place to live don't we? - Not so many years ago there were horror stories in the local paper that insufficient quantities of materials were going to the landfill - layoffs were imminent. At the same time, the bottom had dropped out of the recycling market and materials were "piling up". What's the contingency plan should those conditions recur? - - As pointed out in the Coloradoan, there is rarely a "free lunch" in this world. As is, this brochure is at least deceiving, at most, deceitful.
Patrick	Question about the 2 truck system with alternating weekly pickup of for yard waste & recycling and a 2nd truck picking up food/organic waste weekly. Why can't the food/organic be picked up with the yard waste since they both be composted. This would cut the number of trucks needed in half.
Additional comments by John Haudashelt	Overall, the "On the Road to Zero Waste" draft core concepts report is a very comprehensive and ambitious plan which I fully support. However: • Is the ultimate objective to reduce landfill waste to a specific percentage of overall waste, to a specific tonnage of waste, or to an amount per capita? The first and last are goals relatively independent of population growth, but they are not consistent with one another. Moving from a 58% diversion rate in 2012 to a 90% rate in 2025 implies going from 5.12 tons per capita to 0.88 tons per capita, but the per capita goal for 2025 is only 2.2 tons. On the other hand, the overall tonnage goal is population-dependent in that it becomes more difficult to achieve as population grows, so it can only be made consistent with the other two goals if population growth is known. Still, if Fort Collins achieves exactly 2.2 tons of landfill waste per capita in 2025, it will only meet the total landfill waste goal (55000 tons) if the population for Fort Collins is lower in 2025 than it was in 2012. This is highly unlikely, so the tonnage goal also appears to be inconsistent with the other two for any reasonable scenario for population growth in Fort Collins. • In the section on "Benefits of More Waste Diversion," there is an implication that one of the benefits of extending the life of the Larimer County landfill is lower tipping fees. My impression is that lower fees would encourage more waste going to the landfill, so I'm not sure this is a benefit. • Explicitly include requirements for acquisition and reporting of waste data. • If it doesn't already exist, work with CSU to set up a program in deconstruction (a la the Center on Sustainable Communities at Iowa Central Community College). • Front Range Community College recently acquired funds to be used to train students in industrial manufacturing disciplines – part of these funds should be devoted to training students in manufacturing related to waste reuse/recycling to establish and work in these industries in the city. • A private company has contracted with the Larimer County landfill to collect its landfill gas and use it to produce electricity. However, after constructing the collection system, it was discovered that the quantity of LFG was much less than expected and made the original plan for generating electricity economically unattractive. Thus, the LFG is currently collected and flared. The zero waste plan should either include a beneficial use for this gas (e.g., biofuel for local buses, small scale electricity production), or some organics need to continue to be sent to the landfill to increase the quantity of LFG produced to make the original power project viable (adding moisture to the landfill and/or stirring the leachate to accelerate LFG production may be other options). • Establish a WasteWise program (similar to ClimateWise) for early movers in waste diversion. Other potential additions to the plan: • A specific tire disposal program • A cellulosic ethanol plant (this is a really provocative and aggressive suggestion and may not be feasible, but a plant recently began operation in Florida, and a similar plant in Fort Collins would put this region at the forefront of the biofuels industry) • A producer responsibility program for packaging and recycling goods at the end of their useful lifetimes.

Susan Kelly, Food Bank	On behalf of everyone at the Food Bank, I wanted to express our thanks at being invited to join in the City's zero waste plan conversation last week. We are impressed with the City's commitment to bringing Fort Collins to zero waste and we know that we can be an important partner in realizing this goal. These are the three areas that the Food Bank could play a significant role as a partner with the city in achieving our community's zero-waste goals: Increasing City-wide Food Rescue – In Fort Collins, the Food Bank currently operates 3 food rescue trucks and 3 food rescue drivers focusing our time primarily on grocery retail, farms, processors, food service operations, distributors and manufacturers. The Food Bank could assist our community in diverting a higher percentage of its existing food waste from the landfill with the addition of another truck and driver who could provide timely and regular donation pickup for new donors, especially increasing our capacity to rescue food from lower-volume donors more often, which is currently cost prohibitive for us. Potential sites to grow our existing food rescue program are farms, restaurants, manufacturers, and minimal processing facilities. Besides a truck, associated fleet management costs and Driver at 1.0 FTE, other costs involved with adding new food rescue locations include food-safe tins and lids and staff time for donor relations. Another option would be a double duty truck that did mobile food pantry distributions twice a week, the other 3 days it could join the Food Rescue program, presumably providing the opportunity to seek more diverse funding options. A truck can run anywhere between $140,000 - $250,000 depending on the size and type. Additional costs (driver, supplies) would run approx. $40,000/yr. Decreasing Food Bank Food Waste – Due to the nature and perishability of the donated food we receive, we have a need to divert our own food waste. Right now we are paying a private company for an 8 yard dumpster to be picked up 6 days/week. We are also paying A1 Organics $168/month to pick up 3 compost bins/week. In order to divert more of our own waste from the landfill, we would like to see an 8 yard compost bin picked up 6 days/week that we could put all soiled cardboard and organics in. An affordable, local composting option is needed. Partnering with another organization with a large composter would be another option. Food Bank/Incubator Farm – In addition to rescue, another avenue for the City and the food Bank to partner is on the use of city open space for gardening, farming and composting. Currently CSU is partnering on a feasibility study. A food bank farm/ incubator farm could provide opportunities for large scale community composting and utilizing that waste to ultimately feed people again by growing vegetables.
New Belgian Brewing staff comments	Current Waste Diversion • Benefits of More Waste Diversion o The first paragraph of page 4 talks about the potential of the Larimer county landfill closing. I think this could be expanded more with more dire explanation of the pitfalls of the landfill closing. More explanation can be given about the fact a new landfill will be far away from town, resulting in much higher tipping fees, increasing residential trash costs. A quick explanation of tipping fees across the state and across the nation. Environmental impact of closing down a landfill and taking land to create a new one. o Lower down the page, there is text saying 'eliminating wasteful practices'. This is always the cornerstone of zero waste plans, and I am not sure it is hit on enough on exactly how we can eliminate these practices. Further in the document on page 11, reduce and reuse is touched on, but not to a great enough extent. ▪ The end note on page 3 gives a good definition of zero waste that I think should be included in full text. This is at the core of the program and should be clearly presented to people so they can get a handle on what's trying to be accomplished. Goals and Objectives • Reduce tons to landfill o The amount of trash going to landfill looks ambitious given the increased population trends for northern Colorado. But, after looking through the document and seeing where these gains can be made, it does seem possible. Great goal. • Add value to local economy o How are the jobs being paid for, just through the city. There is a statement later on about a recycling fee the hauler will collect and give to the city to support jobs, but how else are the jobs being funded. o Overall, what is the cost to the tax payer/city resident for this zero waste program? Values and Principles • Universal Opportunities o 'More comprehensive and convenient access to reuse, recycling and composting services will provide these services more universally to all sectors, including those who self-haul materials'. This statement is huge, and very glad it is called out, maybe even bold it. The commitment of the city to increase these services will be a huge indicator of how successful the plan will be.

Recycling all items needs to be easy. The more options and locations to do this the better.

Recommendations

- Universal recycling
  - I love the idea of 'Universal Recycling Ordinance'. It focuses on recycling as the main aspect, not trash. Very nice.
  - I love the idea of having compostable yard trimming service freely available to residents (currently charged, so not many people use it) and the option for a compost service. However, it sounds like the trash hauler is burdened with a lot of new requirements. I can see all services relating to trash hauling increase because of these new requirements. Is this the case, and should this be stated?
- Prohibited Materials
  - 'Haulers may offer a premium service and charge an additional fee to cover the costs of collecting glass of higher quality'. I don't see many people opting for this higher premium service to pay more to recycle glass. However, what it hopefully does is opens people eyes to the fact that glass needs to be separated and recycled separately. Again, more containers need to be situated around the city to collect glass to make it easier on people.
  - Under conventional recyclables, does this include glass bottles only or plastic as well?
- C&D
  - 'Qualified recycling facility' – is there a list of the qualified recycling facilities? If so, there should be a link in this section to this list of all the facilities and what they accept.
  - 'head of the line in permit review' – this needs to be spelled out in much more detail. I work a lot in the permitting realm, and just saying the permit review will be expedited isn't enough. There needs to be hard dates provided. Something along the lines of, 'If the building permit is submitted with material going to a certified qualified recycling facility, permit will be reviewed within 15 days of submission.'
  - I like the idea of the companies putting down a deposit to meet the City's requirement that may be refunded when the goals are met.
- Composting organic materials
  - 'support the development of one or more composting facilities' – what does 'support' entail. Tax incentives/breaks, quick permit review? Will tax money be used for support? Will this development be a private facility or a city ran facility?
  - Facility within 20 miles can still be quite the distance, which again leads to increase in transportation costs by the hauler, which leads to increase cost on the resident.
  - What is the incentive for residents to start composting? If they are getting charged to have it picked up every week, I don't see why many people wouldn't opt out to receiving this service. It would become a commodity if everyone participated, but would residents receive any of this revenue?
- Waste to Clean Energy
  - New technology, very good. Investigating new technology, all good items.
- Cultural Change
  - All good items listed under this section
  - 'Require all venues and events with over 1,000 attendees to meet Zero Waste standards'. I think this could be dropped to even 500 attendees. The items listed in this section do not appear to be that difficult for an event to fulfill, and are all items that the event can promote.
  - I think the addition of some type of public forum to occur monthly would be beneficial. This would allow the city to get feedback on their practices, gain new ideas, and allow the public to feel more involved in this movement, which in turn would result in willing compliance from the community.
  - Documents should also be emailed and posted online to update residents on how the city is doing. Seeing that the program is making a difference will be reinforcement in itself.
- Product Stewardship
  - Fee for takeout containers, ban plastic containers on campus, both great ideas. Would like to see more of these items enacted.
- Funding
  - Big question for his entire document is where the funding is coming from. 'haulers collect a city recycling education and investment fee' – how much will this fee be? How will the hauler recoup some of its cost? Will they implement a recycling fee also?
- Diversion Potential
  - Zero Waste Associates is called out for the first time. I think this company should be called out

	earlier in the document so people know that all these changes are not just coming from the city, but that they are supported through this third party company. Triple Bottom Line Impacts • Economic Impacts o It is stated 'The estimate costs for the programs were developed in another document'. There needs to be a reference to this document so everyone knows where the money is coming from.
Vara Vissa	I.) The working relationship between the City's zero waste plan and the county landfill(s) is not clear. 2.) Clearly the waste, whatever it is has to go somewhere: in any of the landfills that currently exist. In this regard, what are the zero waste plans for the landfills: is there any more authority, interest or will to sort /prevent recoverable waste from going up the hill? 3.) The time lines of landfill life has shifted and this is disconcerting. 4.) The destruction of the landscape, the top soil, the tall and wide and far blowing dust storms that are now a regular feature. The steady stream of vehicles on the western horizon is continuously and perhaps for many years to come continue this visually, environmentally destructive process. For what? Is there now going to be more innovative, more aggressive, more careful separation and acceptance of waste for burial? Will zero waste rules apply to the landfill? 5.) Schools are teaching children recycling and composting: they have no real education about this: it is a successful campaign: fabulous nutritious, white house recommended lunches get dumped uneaten, unnecessary use of paper cartons and juice boxes. I have intimate view of several school cafeterias. Hope to see some changes in our behaviors and resources. Looking forward to a waste free way of living.
Mark Creery	I strongly believe the City needs to ban leaves from the waste stream and provide city-wide leaf pick-up and free drop-off areas using tax money. At the moment there is no incentive for people to pay money to dispose of leaves responsibly so by forcing people to pay through taxes it will lead to better behavior. The City could then compost the leaves and use or sell the compost back to the public at a discounted rate. Seeing leaves go in the garbage seems very wrong and garden waste should be one of the first problems you fix to get to your goal of zero waste.