DECEMBER 2010

boulder county **zero**waste **action plan**

As directed by Boulder County's 2005 Zero Waste Resolution, this plan sets forth a vision for attaining Zero Waste "or darn near" throughout Boulder County, including unincorporated area as well as municipalities, by 2025.

acknowledgements

Since passage of the Zero Waste Resolution in 2005, elements of this plan have been inspired and defined by the Boulder County Resource Conservation Advisory Board (RCAB), Boulder County staff and consultants, and workers in the private resource management sector. Apologies to all who have been inadvertently omitted from the following lists.

RCAB members over the course of this plan's development include:

Kerry Bensman, *Lafayette representative*

Jack DeBell, *CU Recycling Services*

Angelique Espinoza, *Boulder representative*

David (Juri) Freeman, *Member at Large*

Shirley Garcia, *Broomfied representative*

Barbara Halpin, *Boulder County representative*

Brian Hanson, *Longmont representative*

Gary Horton, *Member at Large*

Bridget Johnson, *Jamestown representative*

Kristine Johnson, *Member at Large*

Roger Lange, *Longmont representative*

Sonya Lewis, *Member at Large*

Ann Livingston, B*oulder County representative*

Eric Lombardi, *Eco-Cycle*

Shari Malloy, *Member at Large*

Lisa Morzell, *Boulder representative*

Lisa Nibarger, *Superior representative*

Mark Persichetti, *Louisville representative*

Richard Polk, *Boulder representative*

Omar Postigo-Martell, *Lyons representative*

Jay Ruggeri, *Lafayette representative*

Lisa Skumatz, *Member at Large*

David Strungis, *Lafayette representative*

Tim Underwood, *Nederland representative*

Members of the ad hoc Zero Waste Technical Committee and others who have helped:

Kai Abelkis, *Boulder Community Hospital*

Laurie Batchelder Adams, *LBA Associates, Inc.*

Marna Hibbert, *City of Boulder*

Charles Kamenides, *City of Longmont*

Marty Matsch, *Eco-Cycle*

Shireen Miller, *City of Boulder*

Anne Peters, *Gracestone Inc.*

Seth Portner, *Center for Resource Conservation*

Doug Short, *City of Lafayette*

Elizabeth Vasatka, *City of Boulder*

Mary Wolfe, *MRW and Associates*

In addition to the RCAB representatives listed above, Boulder County staff members who have contributed to this plan's completion include:

Jennifer Bohn, *Resource Conservation Division*

Jeff Callahan, *Resource Conservation Division*

Hilary Collins, *Resource Conservation Division*

Erin Dodge, *Public Health*

Gale Elstun, *Resource Conservation Division*

Lisa Friend, *Commissioners' Office*

Scott Golden, *Parks and Open Space*

Bill Hayes, *Public Health*

Eric Heyboer, *Resource Conservation Division*

Stacy Lambright, *Resource Conservation Division*

Ryan Ludlow, *Land Use*

Pam Milmoe, *Public Health*

Doug G. Parker, *Land Use*

Dan Rowland, *Commissioners' Office*

Darla Tiernan, *Resource Conservation Division*

table of contents

INTRODUCTION

What is Zero Waste? ..... page 6
Why Does Zero Waste Matter? ..... page 7
Where We Are ..... page 8
How Do We Reach Zero Waste (and How Close Are We)? ..... page 8

NEXT STEPS

Initial Goals ..... page 9

BACKGROUND

Baseline Measures ..... page 10
Success To Date ..... page 11

RECOMMENDATIONS ..... page 12

Short-Term Steps

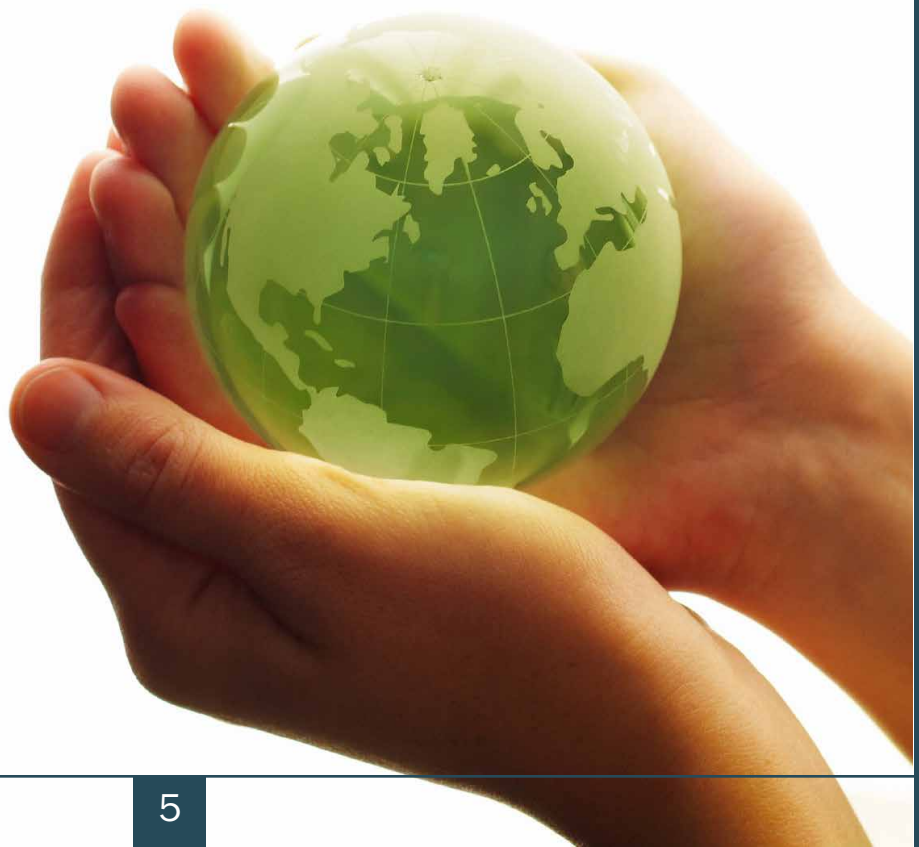
Support capacity for construction and demolition transfer, sorting and possible processing..... 13
Require construction and demolition project recycling and reuse..... 14
Clean, damaged dimensional lumber should be included in slash management programs..... 15
Support capacity for additional composting..... 16
Provide curbside collection of compostable materials..... 17
Total at-home composting program..... 18
Support opportunities for tree-limb management 19
Volume based residential collection and embedded recycling 20
Increase electronics collection 21
Offer metal recycling at additional locations 22
Support commercial food composting 23
Commercial volume-based collection with enhanced recycling programs 24
Provide free waste audits for businesses..... 25
Land Use Code updates – improve commercial and multifamily recycling requirements..... 26
Municipal contact and advocate 27
Develop “Zero Waste” branding and initiate comprehensive education program 28
Determine Zero Waste funding mechanism..... 29

Mid-Term Steps

Require trees and slash from grubbing and landscaping to be diverted from landfill 30
Support ban on yard materials going to landfill 31
Support ban on food scraps going to landfill 32
Support ban on recyclables going to landfill 33
Support multifamily compost collection system 34
Single-stream multifamily collection countywide 35
Secure advanced disposal fees on priority items....36
Provide zero waste building planning assistance 37
Require Zero Waste planning for large events on public property 38
Promote markets for county-generated recyclables and compost 30
Support product stewardship initiatives, including extended producer responsibility at the state and local level....40

APPENDIX

Timeline 42
Recommendations Spreadsheet 44
Resource Management Opportunities....46
Preliminary recommendations not detailed in current Plan 48
Zero Waste Resolution, 2005....50
Partners for a Clean Environment (PACE) Zero Waste Plan....52
Job Creation Metrics....52
Collaboration 54
Public Feedback and Responses....56



What is Zero Waste?

Zero Waste means more than an empty wastebasket at the end of the day – it's a less toxic home, more reuse and recycling jobs in Boulder County, fewer greenhouse gas emissions, healthier soil built with local compost and more.

The Zero Waste philosophy begins with mining and harvesting. It continues to consider every aspect of resource management in our home and business lives. As a new design principle for the century, Zero Waste encompasses manufacturing, purchasing, reuse, recycling and composting of all the materials we use, with safe disposal as a last resort.

In Boulder County, Zero Waste practices include:

- Taking advantage of convenient recycling and composting opportunities at home and at work.
- Making smart purchases, including products with less packaging, fewer harmful components, locally grown or manufactured products, and materials made with the highest possible recycled content.
- Using materials effectively, including reuse, repair and careful maintenance of the products we buy.
- Taking the next steps to eliminate all waste, such as
  - Designing products and packaging with reuse and recycling in mind.
  - Ending subsidies for waste.
  - Closing the gap between landfill prices and the true, long-term costs of landfill disposal.
  - Encouraging manufacturers to take responsibility for the entire lifecycle of their products and packaging: reuse and recycling as well as production and marketing.

Why Does Zero Waste Matter?

Boulder County residents and businesses have a commitment to smart resource management – but we still purchase hazardous products, and we throw away an estimated 250,000 tons of "garbage" each year.

Our "garbage" includes an estimated 5,200 or more tons of paper and cardboard that could be used to make new products, an estimated 5,100 tons of building materials such as hardware, wood flooring and asphalt shingles that could be used locally in new construction and road-building, and an estimated 25,000 tons of food and yard debris that create methane – a potent greenhouse gas – when they're buried in landfills.

Unfortunately, much of this material is discarded, when it could instead be used in Boulder County to create jobs, produce new materials and enrich soil for growing food. To stop this trend, Boulder County government, alone, recycled more than 250 tons of material and composted almost 20 tons last year. County staff estimate through this program in County buildings, saving:

- **1,031,540 gallons of water** (enough to meet the demand of all 1,516 Nederland residents for 9 days)
- **696,649 kWh of electricity** (enough to power 81 Colorado homes for an entire year)
- **1,900 cubic yards of landfill space** (enough to fill 95 garbage trucks)
- **673 tons of carbon dioxide equivalent emissions** (enough to offset nearly a third of the carbon dioxide generated by the County's gasoline-powered fleet of vehicles)

Boulder County is committed to being a model organization for waste diversion, but these governmental efforts alone represent just one percent of the county's total waste stream. With this plan, the Zero Waste benefits Boulder Count government has seen can be magnified 100-fold, and shared by local communities, businesses and homes.

Local governments and many businesses are providing leadership in Zero Waste. Those who are "setting an example" include:

- More than 50 local businesses that provide recycling, reuse and composting services
- Close to 300 business members of PACE, the Partners for a Clean Environment, and 100 business participants in Eco-Cycle's "Zero Waste Community Partner" program
- Cities of Boulder, Lafayette, Louisville and Longmont – curbside recycling, Zero Waste Resolutions (Boulder and Longmont), and curbside composting (Boulder and Louisville)
- Boulder County residents have already shown their commitment to environmental progress and leadership in many areas; reaching Zero Waste is the obvious next opportunity.

In addition to the obvious benefit of saving resources, Zero Waste offers many other benefits as well:

- Smart purchasing choices, repair and reuse help homes and businesses save money.
- Reduced use of harmful products protects community health and safety.
- Conserving resources contributes to long-term economic stability in Colorado and nationwide.
- Local economies are stronger when recycling, composting, reuse and repair jobs are created and sustained.
- When recycled and composted materials are used locally, everyone benefits from lower transportation and purchase costs.

Using resources in a practical way is common sense, of course, which is why so many individuals, businesses and communities are recycling, composting, making smarter purchases, and saving money along the way. Many people and corporations feel a sense of pride and ethical satisfaction, too, knowing they've made the right choices when it comes to purchasing and resource conservation. Some use their "Green" practices as a marketing tool.

Where We Are

The goal of the county's "Zero Waste Resolution" is a 50-percent or better reduction in Boulder County waste by 2010 and a threshold of Zero Waste "or darn near" by 2025. A copy of the resolution is included in the Appendix to this plan and is also available for review at http://www.bouldercounty.org/doc/publichealth/susreszerowaste.pdf. As of 2009, the County had an estimated diversion rate of about 35 percent through reuse, recycling and composting programs. The 35-percent diversion level is short of the 50-percent target, although Boulder County government and some businesses achieved the 2010 diversion goal ahead of schedule.

Elsewhere in Boulder County, we are seeing the difference that a "Zero Waste" perspective can make:

- Smaller garbage cans at home and work
- Asphalt shingles in road paving projects
- Wood chips used for mulch and fuel
- Businesses recycling more materials
- Reduced use of hazardous products
- More jobs turning what once was "waste" into new products

How Do We Reach Zero Waste (and How Close Are We)?

The purpose of this Plan is to organize and prioritize dozens of recommendations for reaching Zero Waste that have been compiled by resource management experts and stakeholders in the community, including the County's Resource Conservation Advisory Board. As detailed below, the most effective of these recommendations are estimated to build on existing successes and bring the whole County – unincorporated areas and municipalities together – beyond the 50-percent diversion goal within the next few years.

If all the recommendations in this plan are implemented, Boulder County will have achieved the "darn near" part of its diversion goals within the next decade: An estimated 75% drop from the waste we created in 2005. When this plan is revised in future years, Boulder County residents and businesses will design the final steps that will then be needed to achieve the 2025 Zero Waste goal.

So far, this Plan has touched on the reasons to strive for Zero Waste and general methods to reach that goal. The remainder of the plan contains details about the resource management foundation on which local residents and businesses can build, success thus far, and recommendations to support and sustain the Zero Waste effort.

Boulder County's Zero Waste Resolution requires this plan to recommend short-term, mid-term and long-term steps to achieve Zero Waste and to analyze associated environmental, operational, community and budgetary concerns. Those considerations are analyzed for short-term and mid-term goals; detailed analysis of long-term goals is not presented in this plan.

In general, programs are grouped by their impacts on the commercial sector or the residential sector, as progress in each area can be easily measured by local government and business experts. Evaluation of this initiative's success will be ongoing, and the recommendations and measures will be updated as the community moves forward.

Initial Goals

By 2015 or sooner, Boulder County anticipates diverting close to 15% more from the residential sector and another 3% from businesses and other commercial enterprises. Specific objectives are listed below; details about each recommendation can be found beginning on page 15.

Short-Term Steps to be Implemented by 2015 or Sooner: An additional 17.96% diversion

Short-Term Residential Sector and Policy Steps – increase diversion by 15.06%

- Support capacity for construction and demolition transfer, sorting and possible processing
- Support capacity for additional composting
- 3.6% Require construction and demolition project recycling and reuse
- 2.6% Provide curbside collection of compostable materials
- 2.3% Clean, damaged dimensional lumber should be included in slash management programs
- 1.8% Residential volume-based garbage collection and embedded recycling
- 1.5% Municipal contact and advocate
- 1.4% Total at-home composting program
- 1.3% Develop "Zero Waste" branding and initiate comprehensive education program
- 0.21% Increase electronics collection
- 0.2% Support opportunities for tree limb management
- 0.1% Determine Zero Waste funding mechanism
- 0.05% Offer metal recycling at additional locations

Commercial Sector Short-Term Steps – increase diversion by 2.9%

- 2.2% Commercial volume-based collection with enhanced recycling programs
- 0.6% Support commercial food composting
- 0.1% Provide free waste audits for businesses
- Land-Use Code Updates - improve commercial and multifamily recycling requirements

Mid-Term Steps to be Implemented by 2018 or Sooner: An additional 21.8% diversion
Mid-Term Residential Sector and Policy Steps – increase diversion by 21.3%

- 10.7% Support ban on recyclables going to landfill
- 6.6% Support ban on yard waste going to landfill
- 2.9% Require trees and slash from grubbing and landscaping to be diverted from landfill
- 0.8% Support ban on food waste going to landfill
- 0.3% Secure Advanced Disposal Fees on priority items
- Require Zero Waste planning for large events on public property
- Promote markets for county-generated recyclables and compost
- Support product stewardship initiatives, including extended producer responsibility at the state and local level

Commercial Sector Mid-Term Steps – increase diversion by .5%

- Support multifamily compost collection system
- 0.3% Single-stream multifamily collection countywide
- 0.2% Provide zero waste building planning assistance

Where Did We Come From?

BASELINE MEASURES: In order to attain Boulder County's goal of approaching Zero Waste by 2025, it's crucial that progress be measured through an ongoing process.

Until recently, no measures were in place for tracking county-wide diversion. This is because each jurisdiction manages materials diversion uniquely, with measures ranging from the city of Boulder's waste-hauler ordinance to services provided by the County for its mountain communities. One goal of this plan is to streamline reporting systems throughout the county to help keep track of local success.

Fortunately, local communities are already committed to increasing the diversion of discards into recyclable or compostable components, and many are tracking progress by various means. Boulder County staff and consultants, with input from the "Resource Conservation Advisory Board" used a variety of sources to determine a 2009 residential recycling rate of 35%. Some of the baselines and progress measures used include:

- Boulder County government operations waste generation and reduction: 60%
- Estimated Boulder County Unincorporated Area waste generation and reduction: 26%
- Waste generation and reduction among County municipalities including:
  - City of Boulder: 51% residential diversion
  - Lafayette: 27% residential diversion
  - Louisville: 40% residential diversion
  - Longmont: 24% residential diversion
  - Superior: 22% residential diversion

In the future, two important measuring steps will allow Boulder County to better track progress towards the 2025 goal of "Zero Waste or Darn Near." They include new reporting regulations for garbage and recycling collectors and a comprehensive audit of Boulder County waste, both detailed below:

Hauler Ordinance

Since 2008, garbage and recycling collectors in unincorporated Boulder County have been required to report the weight of garbage, compost and recycling they collect in-county each year. Information from individual companies is kept confidential but, in aggregate, the data show an 8% increase in diversion for the unincorporated county since Pay as You Throw and compost collection programs have expanded.

Unincorporated Boulder County Collection Records

2008	2009
• 2008 garbage disposed: 29,258 tons	• 2009 garbage disposed: 37,381 tons
• 2008 recycling processed: 3,891 tons	• 2009 recycling processed: 8,771 tons
• 2008 materials composted: 1,571 tons	• 2009 materials composted: 2,903 tons

These diversion records will help Boulder County track its progress towards Zero Waste into the future.

Similar reporting regulations have been put in place by the city of Boulder to help track garbage, composting and recycling progress. The city of Longmont maintains its own garbage and recycling collection service and keeps similar data. Records for 2009 show an average countywide diversion rate of close to 35%.

Waste Composition Study

In order to determine what types of recyclables and compostable materials are still going to disposal, Boulder County contractors are sorting trash this summer and early fall, weighing discards to determine where the recommendations of this plan will be most effective. A similar study is being conducted in Boulder County offices. Though the County's internal diversion rate is relatively high at 60%, the waste study will help determine what's still going to disposal and how it can be diverted.

If the waste study shows certain County departments tend to put their lunchroom waste in the garbage rather than in the compost, for instance, employees will get extra education about how to use the compost system. Departments that generate a lot of paper will be encouraged to route more electronic documents and reduce printing – or at least print on both sides of paper to save resources.

Success to Date

Boulder County and its communities have already implemented a number of waste prevention and recycling measures that contribute to the current 35% countywide diversion rate.

Programs are referenced in this document's recommendation analyses. The most effective include:

- Pay As You Throw collection programs in the cities of Boulder, Lafayette, Louisville, Longmont and Superior, as well as parts of unincorporated Boulder County,
- Private programs run by businesses such as Eco-Cycle, Western Disposal and various scrap and reuse programs out of Denver,
- University of Colorado initiatives to reduce paper and achieve Zero Waste, and
- Boulder County's own in-house recycling program, which has reached a 60 percent diversion rate as of 2009 and reduced the County government's garbage costs by 25 percent.

How do we get to Zero Waste?

As the baselines and successes above show, Boulder County agencies, businesses and residents can build from a strong infrastructure to achieve Zero Waste by 2025. Every community still has work to do, however.

Boulder County staff, consultants, and the Resource Conservation Advisory Board have considered a wide range of program recommendations to increase diversion. In accordance with the "Zero Waste Resolution," this plan identifies short, mid- and long-term steps.

By 2015, an estimated 17.96% more of the Boulder County materials stream can be diverted to new uses. Effective use of current recycling and composting programs will provide the extra boost to push Boulder County's average diversion rate over the 50% goal in the short-term.

In fact, if all the recommendations in this Plan were to be adopted by 2020, Boulder County's diversion rate would increase to an estimated 75%. Recommendations, and the additional amount of resources they're expected to divert, are detailed beginning on the next page:

During development of this plan, the residents and Resource Conservation Advisory Board of Boulder County also suggested a number of other programs that could help the community's movement towards Zero Waste.

Additional programs include, but are not limited to, initiatives to divert the following materials from disposal:

- Clothing
- Appliances
- Plastic Bags
- Bicycles
- Pet Waste

Reasons for relegating these suggestions to the next planning phase are detailed in the Appendix. In the short-term, however, Boulder County will support private- and non-profit sector initiatives to effectively manage these additional materials, as resources allow.

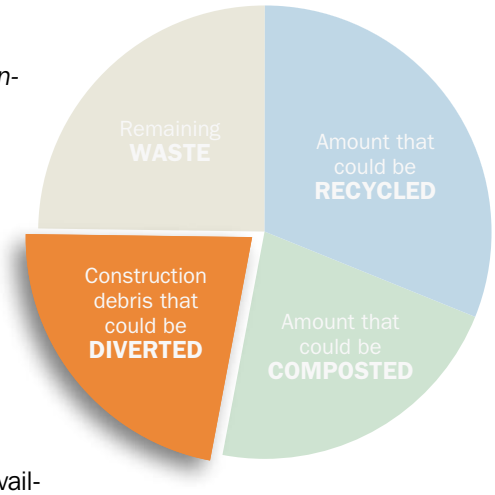
Where do these numbers come from?

The majority of diversion estimates, costs estimates and greenhouse gas reduction estimates included in this plan's recommendations were compiled by Skumatz Economic Research Associates Inc. (SERA) of Superior, Colorado.

SERA maintains a database of information collected from communities across the U.S. and abroad and draw from that data – as well as local statistics – to create the estimates cited in this plan.

Support capacity for construction and demolition transfer, sorting and possible processing

Short-Term Residential Construction and Demolition



SUMMARY: *Though drop-off sites for reusable building materials, metal, asphalt shingles, clean wood and aggregates have been established in Boulder County, no convenient centralized drop-off facility nor processing location has been established for construction and demolition materials (C&D).*

In many communities, a centralized C&D drop-off and construction / demolition processing facility provides an affordable and environmentally preferable alternative to disposal. This recommendation was put forth by staff to support other construction and demolition diversion strategies in this plan. It is supported by the 2009 "Construction & Demolition Waste Diversion" study that suggested the following "low-technology" system: "a centrally-located site that provides space for short-term accumulation of source-separated recyclables from C&D projects."

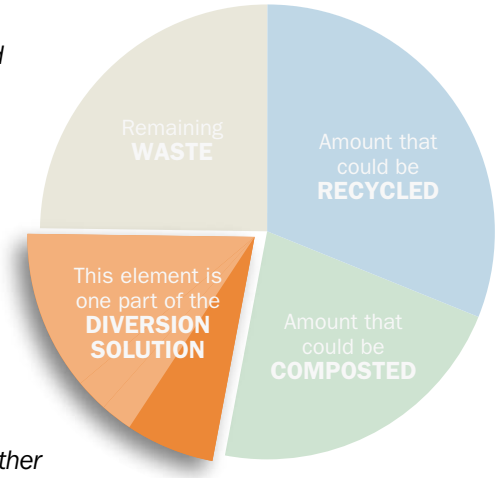
- **Annual tonnage diverted:** 150,000 tons of C&D material are estimated to be available in the County. Not all tonnage would be diverted; specific amounts are estimated under other recommendations.
- **Additional diversion percentage:** Diversion estimates are measured under other recommendations.
- **Government costs:** To be determined. Boulder County is seeking a grant that would help sponsor a study of these costs. Industrial storm-water runoff measures would need to be included in capital and operations costs.
- **Generator costs:** Undetermined. Generators would be charged on a volume-based or per-ton basis. Current C&D disposal charges range from free to $80 per ton in and around Boulder County, depending on material.
- **Job creation estimate:** 14 possible jobs are accounted for in other recommendation categories.
- **Carbon reduction:** Reduction estimates are measured under other recommendations.
- **Educational Value to the Community:** Because the general public will receive education about the value of construction and demolition reuse and recycling through other initiatives, this recommendation would provide most of its educational value to contractors determining their most effective diversion options.
- **Operational Feasibility:** Scale-up of an existing facility would likely be more time-efficient and less costly than siting a new facility. Boulder County would have more operational control over a county-developed site with contracted operations.
- **Implementation strategy:** Secure funding source. Study "waste shed" requirements, site options and capitalization costs for a C&D facility. Begin necessary permitting and construction work. Determine budget and operations needs. Open and promote facility. Evaluate use and adjust as necessary.

MEASURES OF SUCCESS: In-county transfer, storage and / or processing of 150,000 or more tons of material each year at the estimated costs or lower.

TIMELINE: Three to five years

Require construction and demolition project recycling and reuse

Short-Term Residential Construction & Demolition



SUMMARY: *Currently the Boulder County "BuildSmart" building code for unincorporated areas requires new construction projects to recycle cardboard, concrete, scrap metal and clean wood. Any deconstruction must include the salvage of all reusable cabinets, doors, windows, flooring, and fixtures and the reuse or recycling of clean lumber and wood sheathing.*

Similarly, the City of Boulder "Green Points" program requires applicants for new construction permits to demonstrate that a minimum of 50% of construction scraps are recycled. Deconstruction permits require at least 65% of material, by weight, be diverted from disposal. The Longmont "Green Points" program awards points for recycling and for choosing resource-efficient building techniques. The Town of Superior "Green Building Program" also promotes waste reduction efforts

This strategy recommends coordination, confirmation and extension of these policies to other jurisdictions, requiring diversion of the following materials as part of demolition, remodeling and any new construction that requires a permit: corrugated cardboard, concrete, metals, mercury devices, wood, aggregates, and demolition products including reusable cabinets, doors, windows, flooring, fixtures, carpet, carpet pad, ceiling tiles, porcelain and roofing shingles, and the reuse or recycling of clean lumber and wood sheathing, reusable building materials and more.

- **Annual tonnage diverted:** 12,570
- **Additional diversion percentage:** 3.6%
- **Government costs:** undetermined staff time for permitting, inspection and confirmation of diversion
- **Generator costs:** varies by material; estimated average $8 per ton or less
- **Job creation estimate:** 10 jobs
- **Carbon reduction:** 9,400 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** This project offers an opportunity to educate the construction community about the cost-savings and environmental benefits associated with reuse and recycling.
- **Operational Feasibility:** Often, the savings from recycling and deconstruction provide market incentive for builders to divert materials. For those instances where recycling costs are higher than the costs of disposal, only a requirement to recycle is likely to encourage the construction industry to more aggressively recycle and reuse construction materials. The latter case could be tied to permitting requirements.
- **Implementation Strategy:** Coordinate requirements and enforcement / measurement strategies between Boulder County and the cities of Boulder and Longmont. Encourage the Consortium of Cities to support adoption of similar measures in other communities.

MEASURES OF SUCCESS: Documented annual reuse / recycling of 12,570 tons or more from the construction industry.

TIMELINE: One to two years.

Clean damaged dimensional lumber should be included in slash management programs

Short-Term Residential Construction & Demolition

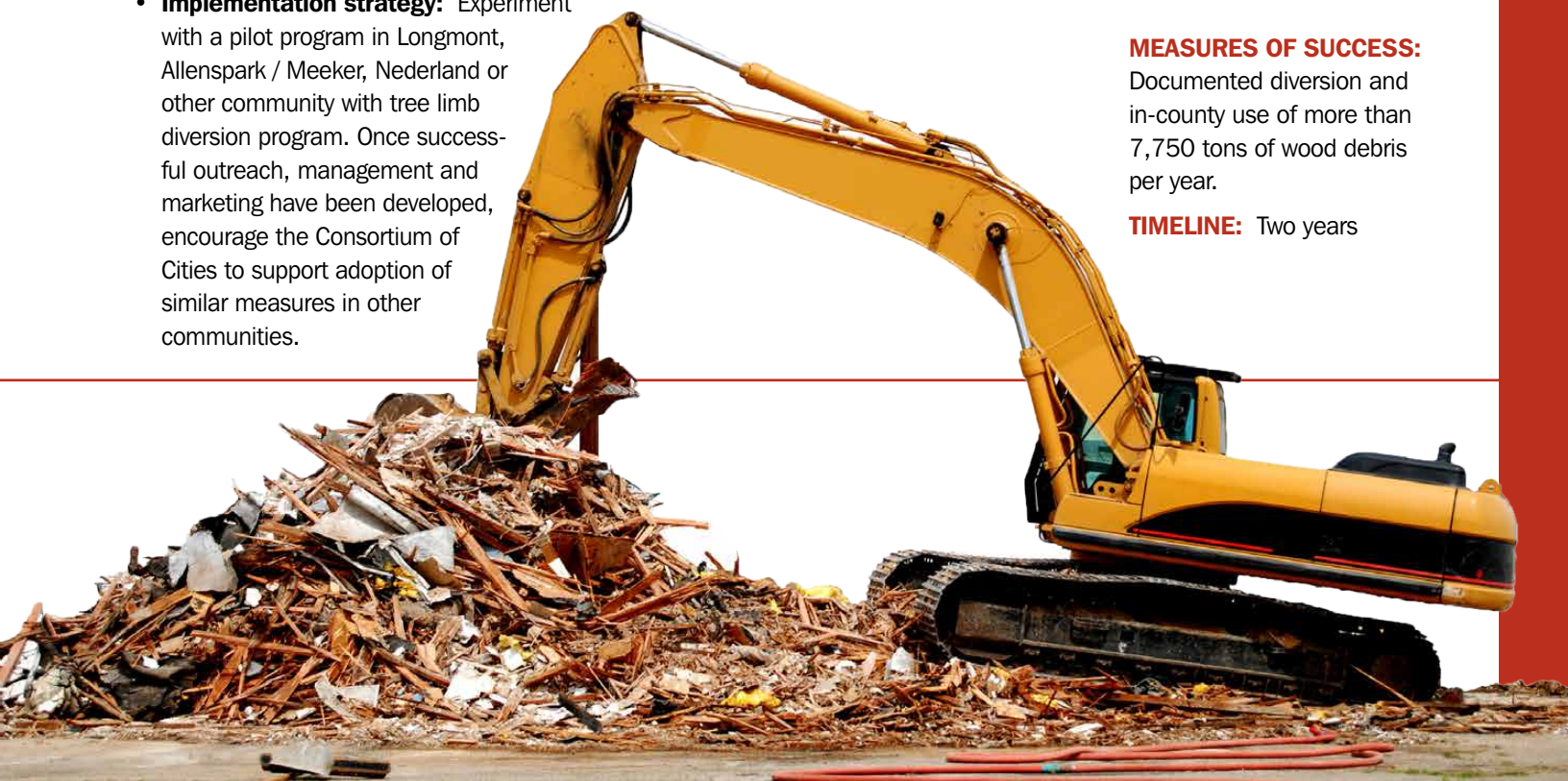
SUMMARY: *While the Boulder County and City of Boulder compost drop-off location accepts clean lumber for processing, most drop-off locations outside of Boulder do not accept wood waste or lumber. The materials generation study commissioned by Boulder County did not measure the wood management practices of construction contractors but did survey lumber retailers, who generally minimize wood waste buy selling scrap wood bundles, donating bad wood for fuel, and donating wood to employees.*

The study showed that wood retail businesses nevertheless contribute significant loads of un-marketable wood to disposal and could benefit from additional drop-off opportunities for clean (untreated, unpainted), unusable lumber.

- **Annual tonnage diverted:** 7,750
- **Additional diversion percentage:** 2.3%
- **Government costs:** $48 per ton each year for diversion site operation
- **Generator costs:** possible disposal costs
- **Job creation estimate:** 7 jobs
- **Carbon reduction:** 3,800 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** This project offers an opportunity to educate municipalities and contractors about the benefits of chipping and composting materials, versus other disposal means.
- **Operational Feasibility:** Operating costs and the agreement of municipal facilities to incorporate clean lumber into their operations might slow implementation of this element. Additional storm-water protection might also be necessary at existing sites that accept wood. If the private sector were to develop mechanisms for chipping, storing and marketing slash, clean wood waste might also become part of this mix. Monitoring loads for contamination by treated or painted wood would be important. Marketing of the chipped wood will be a crucial element of this program's success.
- **Implementation strategy:** Experiment with a pilot program in Longmont, Allenspark / Meeker, Nederland or other community with tree limb diversion program. Once successful outreach, management and marketing have been developed, encourage the Consortium of Cities to support adoption of similar measures in other communities.

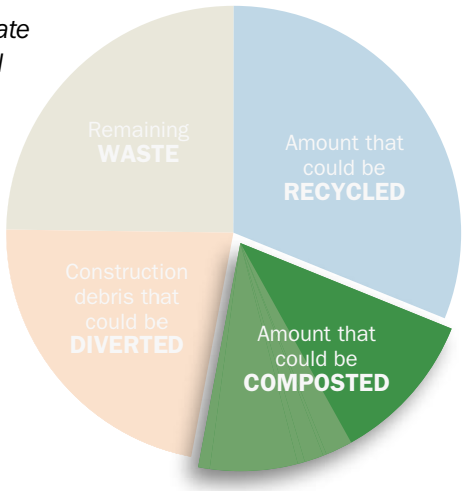
MEASURES OF SUCCESS: Documented diversion and in-county use of more than 7,750 tons of wood debris per year.

TIMELINE: Two years



Support capacity for additional composting

Short-Term Residential Composting



SUMMARY: *Though composting and marketing facilities have been developed by the private sector in and near Boulder County, some are restrictive about the range of materials they will accept. The Western Disposal facility will accept residentially generated food waste. Yard waste is accepted at the transfer station for composting through a program subsidized by Boulder County and the city of Boulder. No convenient centralized drop-off facility within the County is currently open to all commercially generated compostables. Transport out-of-county is frequently cost-prohibitive.*

To consider savings on materials transport costs, this recommendation was put forth by staff to analyze the best compost options for Boulder County. This element supports other compost recovery strategies in this plan. A compost generation study commissioned by the County includes analysis of facility needs. Any forthcoming recommendation for siting a new facility for commercially generated discards would be supported by this plan element, as would appropriate modifications of existing facilities.

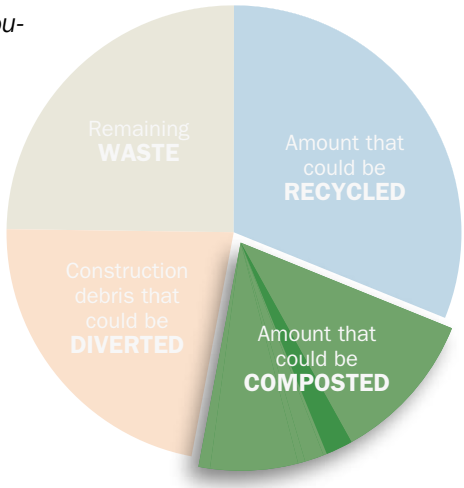
- **Annual tonnage diverted:** 76,486 tons of compostable materials are estimated to be available in the County. Not all of those compostables would be diverted in the short- or mid-term; the tonnage that would be diverted is estimated under other recommendations.
- **Additional diversion percentage:** Diversion estimates are measured under other recommendations.
- **Government costs:** To be determined through the compost study. Industrial storm-water runoff measures would need to be included in capital and operations costs.
- **Generator costs:** Generators would be charged on a per-ton basis. Current materials disposal charges range from free to $45 per ton in and around Boulder County, depending on material.
- **Job creation estimate:** Possible jobs are accounted for in other recommendation categories
- **Carbon reduction:** Specific reduction estimates are measured under other recommendations. In general, however, compost programs have a higher carbon-reduction equivalent than many recycling programs because of the methane generation that can be avoided by composting. Methane increases global climate change much faster than carbon dioxide.
- **Educational Value to the Community:** Because the general public will receive education about the value of composting through other initiatives, this recommendation would provide most of its educational value to collectors and transporters of organic residue. They would be educated about savings and greenhouse gas reductions. Marketing of the locally generated compost will be critical, and this can be assisted by tying the application of compost to broader land, food, and climate change programs.
- **Operational Feasibility:** Logistical considerations are currently being analyzed. It is likely Boulder County could support the private sector in development and management – or expansion – of a commercial composting facility (also open to residentially generated compostables) at a lower cost to the county than governmental development of a new facility. Feedstocks available in Boulder County have been analyzed. Biosolids (from sewage treatment facilities) are not considered suitable feedstock for local application due to community concerns about pathogens as well as possible residual metals and pharmaceutical components. Without such nitrogen-rich feedstocks, however, the Western facility has struggled with maintaining a carbon-nitrogen balance that speeds up composting and also with high enough nutrient content to accommodate agricultural users. An increase in food scrap composting should provide adequate nitrogen for a local composting facility.
- **Implementation strategy:** Secure funding source. Conduct feasibility study, including "waste shed" requirements, site options and capitalization costs for a new or expanded composting facility. Begin necessary permitting and construction work. Determine budget and operations needs. Open and promote facility; market finished compost. Evaluate use and adjust as necessary.

Measures of success: In-county composting and marketing of 60,000 tons of compostables each year at the estimated cost or lower.

Timeline: Three to five years

Provide curbside collection of compostable materials

Short-Term Residential Compostables



SUMMARY: *Currently food and yard debris are collected at curbside in Boulder, Louisville and parts of unincorporated Boulder County lying close to the cities of Boulder and Longmont. Longmont and Lafayette, too, are studying curbside compost collection service. The materials are composted in Boulder County or near by. While not requiring customers to subscribe to additional curbside compost collection service, this recommendation would require collection companies in areas with a certain population density to offer compostables collection.*

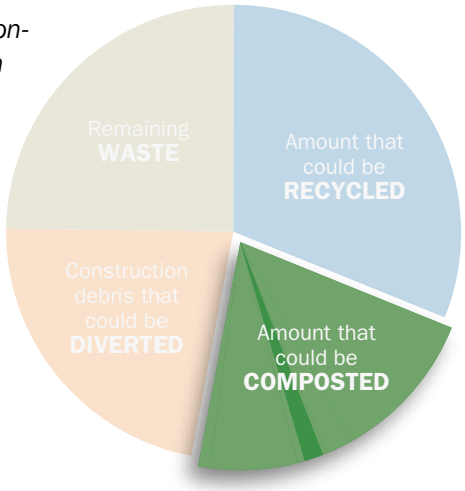
- **Annual tonnage diverted:** 9,040
- **Additional diversion percentage:** 2.6%
- **Government costs:** some staff time for outreach, contracting, ordinance preparation and enforcement
- **Generator costs:** $389 per ton
- **Job creation estimate:** 8 jobs
- **Carbon reduction:** 1,260 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** Diversion of compostable materials from the landfill is one of the most effective steps any resident can take – not only to conserve resources but also to reduce the potent greenhouse gas methane. Regular curbside collection of compostables offers excellent educational opportunities from the collection companies as well as from the community at large – especially if those collected materials are reused locally as compost. In the latter case, soil health and agricultural productivity can benefit.
- **Operational Feasibility:** Collection of compostable materials has been successfully tested in Boulder, Louisville and parts of unincorporated Boulder County. Additional collection equipment and education would be needed to expand the service to other communities.
- **Implementation Strategy:** Coordinate language, requirements and measurement strategies between Boulder County and the cities of Boulder, Louisville and Longmont. Encourage the Consortium of Cities to support adoption of similar measures in other communities.

MEASURES OF SUCCESS: 9,040 tons of compostables collected at curbside and distributed within Boulder County for use as soil amendments.

TIMELINE: Years one through three.

Total at-home composting program

Short-Term Residential Compostables



SUMMARY: *Currently, backyard composting is supported in Boulder County by Resource Conservation Division workshops and bin sales that serve the whole county. Additional outreach is provided by the city of Boulder, Eco-Cycle and Colorado State University Extension programs. Together, the outreach programs support backyard composting at more than 300 homes per year. There is no current, effective measure of materials diversion through backyard compost and grasscycling programs.*

This plan element recommends a combination of approaches, including compost workshops, bin sales and outreach for individuals and neighborhoods interested in backyard composting. Homeowners' associations, in particular, might benefit from increased education about home composting. Some HOAs, notably in the Superior area, have begun relaxing restrictions that previously prohibited backyard compost bins.

The goal of this recommendation is increased on-site composting of household materials to supplement compostables collection programs.

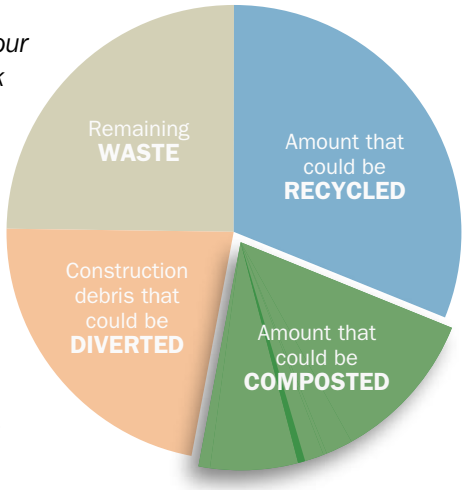
- **Annual tonnage diverted:** 4,670
- **Additional diversion percentage:** 1.4%
- **Government costs:** $19 per ton for training, compost bins, demonstration site maintenance and promotion
- **Generator costs:** $4 per ton
- **Job creation estimate:** no new jobs
- **Carbon reduction:** 650 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** Historically, this program targeting the residential sector has educated more than 300 households each year, with some 200 home compost bins sold annually. The project meshes well with public and private initiatives that encourage home gardening, and it complements curbside compost collection programs as well as city of Boulder and CSU Extension integrated pest management programs.
- **Operational Feasibility:** Infrastructure for the workshops, sales and outreach is already in place. Effective distribution of information can take place through existing channels with some funding set aside for innovative outreach mechanisms and measurements.
- **Implementation strategy:** Continue budgeting for annual program implementation. Consider annual planning meetings between Resource Conservation staff, CSU Extension staff and city of Boulder staff to coordinate messages and outreach. Marketing staff of local garden centers might also contribute useful ideas or outreach opportunities. Develop survey or equivalent measure for evaluating program success year over year.

MEASURES OF SUCCESS: A successful program will show 150 or more participants in seminars each year with 200 or more bins sold. Self-reporting and surveys will be needed to evaluate average diversion of compostable food and yard debris per participant in the first year. Diversion can be assumed to be ongoing for several years thereafter in the majority of households that have received training and / or bins.

TIMELINE: Year One and ongoing

Support opportunities for tree limb management

Short-Term Residential Compostables



SUMMARY: *With the 2009 closure of the Louisville tree limb drop-off site, only four locations in Boulder County now offer drop-off for limbs and large branches: Allenspark / Meeker, Boulder County / city of Boulder at Western Disposal Services, Longmont, and Nederland. Lyons offers seasonal branch collection service to residents. A log collection program piloted by Peak to Peak Wood with Boulder County Parks and Open Space staff is also underway in the foothills. This recommendation for cities to operate or share tree-limb drop sites would support diversion of large branches in communities where compost collection programs don't accept limbs and logs.*

- **Annual tonnage diverted:** 740
- **Additional diversion percentage:** .2%
- **Government costs:** $80 per ton; in-kind contributions by participating municipalities are unknown at the time of this writing.
- **Generator costs:** Currently in Boulder County, unincorporated residents and others pay 40-percent of the costs of limb management.
- **Job creation estimate:** 1 job
- **Carbon generation:** 90 Metric Tons of Carbon Equivalent generated per year.
- **Educational Value to the Community:** Users of limb diversion programs tend to be residents and businesses who trim their own trees or who are cleaning up fallen branches. Some already understand the benefits of compost but are unable to manage limbs in backyard piles. Opportunities to use chipped branches as ground-cover or mulch illustrate the cycle of organic materials in the landscape.
- **Operational Feasibility:** Unknown; this element requires more study. The cost of managing organic drop-off sites has challenged some communities; hence the trend towards private compost collection services. Land use and staffing requirements might be lessened if cooperative chipping sites were to offer only restricted hours for drop-off. Industrial storm-water runoff measures would need to be considered at some sites.
- **Implementation strategy:** A survey of property-owners in areas of the county without limb-diversion facilities might be needed to determine whether branches pose an ongoing problem and how far generators are willing to travel to divert limbs – and at what cost. Based on this information, at least one, possibly two, satellite locations for branch composting will likely be established on a pilot basis to determine annual usage, optimal operating hours, staffing, costs, and composting / marketing of chips. It is possible these services can be provided through a private-sector landscaping company or similar business.

MEASURES OF SUCCESS: Annual diversion of 740 or more tons of tree limbs within budget.

TIMELINE: Three to five years

Volume-Based residential collection and embedded recycling (Pay As You Throw)

Short-Term Residential Recycling

SUMMARY: *"Pay-As-You-Throw" (PAYT) programs by which residents are charged for the volume of waste they discard (unlimited recycling is included), have contributed to measureable diversion increases in unincorporated Boulder County.*

The Board of County Commissioners adopted an amended hauler ordinance in December, 2007 that requires volume-based disposal with unlimited recycling to be provided to residential single-family homes in the unincorporated portion of the county. The City of Boulder, Town of Superior, and cities of Lafayette, Louisville and Longmont also require, or provide, volume-based disposal services.

This recommendation would support additional communities, including Erie, Jamestown, Lyons, Nederland and Ward in adopting ordinances or contracts that require PAYT service with embedded recycling in their jurisdictions.

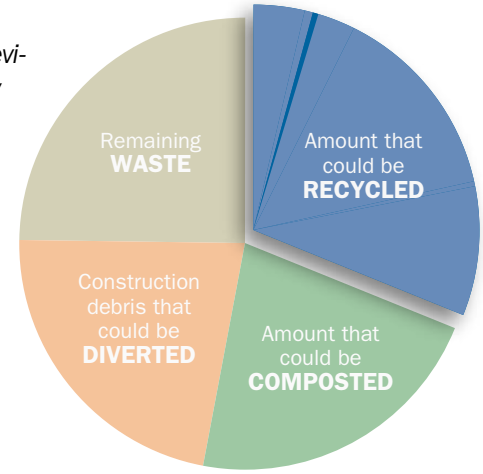
- **Annual tonnage diverted:** 6,170
- **Additional diversion percentage:** 1.8%
- **Government costs:** $1 per ton
- **Generator costs:** $1 per ton
- **Job creation estimate:** 5.5 jobs
- **Carbon reduction:** 3,460 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** This program will affect the residential sector and materials collection businesses. In general, Boulder County residents have supported PAYT programs with embedded single-stream recycling. This program would benefit from ongoing promotion about how to use the system and the effectiveness of PAYT on reducing costs and disposal.
- **Operational Feasibility:** All large haulers currently operating in Boulder County are equipped with the trucking and administrative infrastructure to implement this recommendation. Some recycling containers might need to be purchased on behalf of recycling customers in new areas.
- **Implementation strategy:** Working through the consortium of cities, Boulder County staff would support all municipalities in writing PAYT ordinances or contracts to secure the recommended service levels. Boulder County has received a limited amount of Federal funding to assist mountain communities with ordinance and contract development.

MEASURES OF SUCCESS: Reductions in garbage collection service (frequency and can size) are collected by the haulers; this information would be available through expanded ordinances and contracts to provide a countywide measure of annual diversion.

TIMELINE: Year one and ongoing

Increase Electronics Collection

Short-Term Residential Recyclables



SUMMARY: *Electronics, including computer processing units, monitors, color televisions and cell phones, are common in nearly every Boulder County household. Many components – from the metals in circuit boards to the plastic housing – can be recycled, but the recycling infrastructure for these materials is still developing. If these materials are discarded as trash, the valuable components can be lost, and hazardous metals that include lead can be introduced to the environment.*

Currently, many agencies, including Boulder County government, and larger businesses recycle electronics through special collection programs, contracted special events, retail programs or at drop-off sites in and near the city of Boulder. Smaller businesses and residents also have access to a variety of Boulder-area drop-off sites. This recommendation includes planning for and implementation of two electronics collection events per year as well as associated outreach to residents, governments and small businesses.

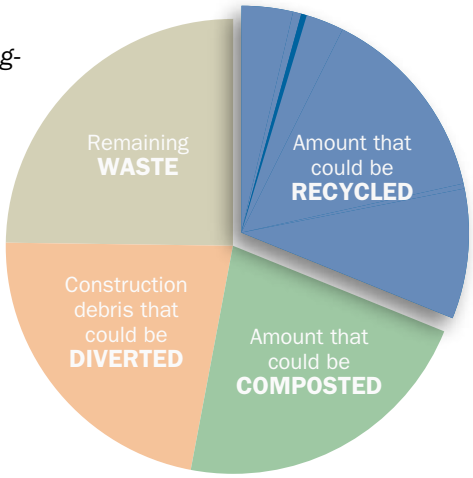
- **Annual tonnage diverted:** 600 tons
- **Additional diversion percentage:** .21%
- **Government costs:** $38 per ton staff costs for planning, contracting, outreach and measurement
- **Generator costs:** $460 per ton
- **Job creation estimate:** .5 jobs
- **Carbon reduction:** 380 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** This effort will provide residents with information about recycling opportunities for electronics of all sorts, including obsolete televisions, computers and cell phones. Information about the toxic materials used in electronics manufacture and about repair / reuse opportunities will also be provided. Governments and businesses will be reminded that they are required to dispose of electronics – and all similarly classified "universal wastes" – responsibly.
- **Operational Feasibility:** Though the drop-off infrastructure for recycling electronics has already been developed in the Boulder area, any collection event would require extensive logistical coordination. A pilot project run in coordination with the private sector at a city or town in the north or east county is likely to be the most effective first step. Government and business communications will be coordinated through existing and expanded education programs, including the P.A.C.E. (Partners for a Clean Environment) outreach structure.
- **Implementation strategy:** Use data from Boulder County's Waste Composition Study to determine geographic source of greatest electronics discards. Issue request for private-sector collection event proposals. Support and measure private-sector efforts. Determine appropriate structure for future collection efforts. Monitor developments at state level that might eventually require producer responsibility for the end-of-life management for electronic products.

MEASURES OF SUCCESS: The weight of collected materials at each event - and from the targeted government offices and businesses - will determine the success of this initiative.

TIMELINE: Year one and ongoing

Offer metal recycling at additional locations

Short-Term Residential Recyclables



SUMMARY: *While scrap metal can be recycled at the Boulder County Recycling Center, Longmont drop-off center, Nederland transfer station, Western Disposal and some private businesses, it is not accepted at most of the area's drop-off centers nor through single-stream curbside collection. Some businesses do offer pick-up for a fee; these services are usually restricted to non-ferrous metals.*

This recommendation would offer metal recycling at the Allenspark transfer station and create an opportunity for metal drop-off in the east part of the county. This strategy assumes the expansion would take place at existing collection sites. Some income is expected from the sale of the metal.

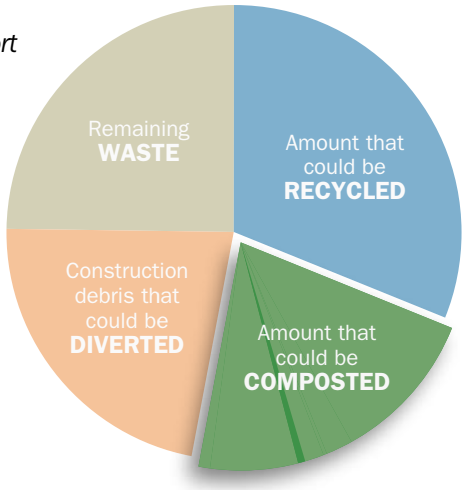
- **Annual tonnage diverted:** 180 tons
- **Additional diversion percentage:** .05%
- **Government costs:** An average $30 profit per ton is anticipated
- **Generator costs:** $0
- **Job creation estimate:** 0 jobs
- **Carbon reduction:** 260 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** Recycling of metal creates greenhouse gas reduction benefits, which could be emphasized to the community through this program.
- **Operational Feasibility:** Collection sites are already established. Aside from needed expansion of the Allenspark facility improvements would be minimal. Transport of collected metals to market would be needed. Education could be accomplished through existing channels. All drop-off sites are assumed to be in compliance with storm-water runoff requirements and other regulations.
- **Implementation strategy:** Space for additional equipment would need to be secured at the Allenspark site, along with metal collection service. East-County sites should confer to determine which would provide similar service and the steps needed to capitalize, implement, and promote the new system. Use and success will be monitored quarterly during the first two years after start-up; annually thereafter.

MEASURES OF SUCCESS: Measured recycling of 180 additional tons of metal per year, with a profit of $30 per ton, on average, accruing to the County.

TIMELINE: One to three years, depending on scope.

Support commercial food composting

Short-Term Commercial Composting



SUMMARY: *According to surveys for the 2010 "Organic Waste Generation" report commissioned by Boulder County, "…40 percent of restaurant respondents and 31percent of grocery store / food supplier respondents were discarding large volumes of organic waste, primarily food waste, as refuse." This recommendation would support, but not require, commercial food composting throughout Boulder County. Establishment of additional competition in the commercial compost sector could reduce collection costs.*

- **Annual tonnage diverted:** 2,140 tons
- **Additional diversion percentage:** .6 percent
- **Government costs:** $5 per ton
- **Generator costs:** $17 per ton
- **Job creation estimate:** 2 jobs
- **Carbon reduction:** 550 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** The business community has an excellent opportunity through this recommendation to significantly lower their greenhouse gas impacts while maintaining even costs, IF additional charges for compost collection are balanced by lower garbage collection costs. Select businesses might also, through this initiative, be informed about the benefits of using county-generated compost in on-site landscaping applications.
- **Operational Feasibility:** The commissioned organic waste generation study noted that county and municipal ordinances could be rewritten to mandate commercial compost collection. Transport to processing facilities is currently challenging for some Boulder County haulers, but the infrastructure is in place to collect and compost materials from commercial businesses. Cost containment would be the largest hurdle to overcome in the short-term. Siting of collection containers will need to be determined on a business-by-business basis. Convenient location of cost-effective local processing is being studied during the second phase of the organic waste generation study.
- **Implementation strategy:** Case studies of existing successful commercial composting programs could be developed and shared with targeted business sectors. Voluntary adoption of additional composting throughout the sector would be help introduce more businesses to the practice. Ease of composting, financial savings and similar benefits should be detailed and shared whenever possible.

MEASURES OF SUCCESS: An increase in commercial composting of 2,140 tons or more and a measurable increase in the number of businesses contracting for compost service.

TIMELINE: Two to four years.

Commercial Volume-Based Collection with Enhanced Recycling Programs

Short-Term Commercial Recycling

SUMMARY: *Commercial recycling throughout Boulder County is already close to a "Pay-As-You-Throw" (PAYT) system, because businesses are charged by volume for disposal. As with residential PAYT programs, embedding an amount of recycling into volume-based commercial pick-up rates is likely to result in significant diversion increases.*

Programs in other communities require equal or greater amounts of recycling to be provided, commensurate with garbage pick-up. For instance, a business that pays for weekly collection of a 20-yard trash container would receive 20 yards or more of free recycling collection every week, depending on how collection ordinances were structured. Changes to the existing Boulder County trash hauler ordinance as well as municipal programs would be required.

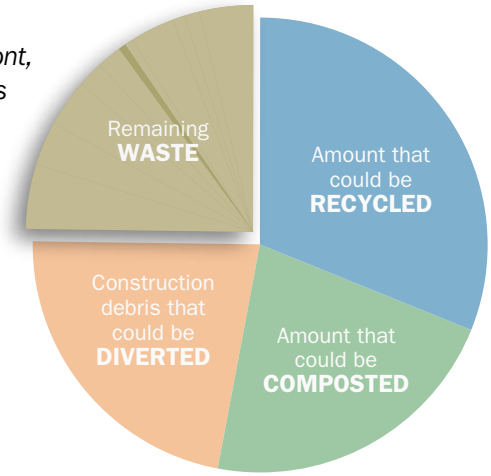
- **Annual tonnage diverted:** 7,390
- **Additional diversion percentage:** 2.5%
- **Government costs:** $3 per ton
- **Generator costs:** $235 per ton
- **Job creation estimate:** 7 jobs
- **Carbon reduction:** 5,700 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** This program will affect the commercial sector and materials collection businesses. Most residents in Boulder County have and support PAYT programs with embedded single-stream recycling at home. This program would extend similar service to the commercial sector and would benefit from ongoing promotion about how to single-stream recycling systems and the effectiveness of PAYT on reducing costs and disposal.
- **Operational Feasibility:** All large haulers currently operating in Boulder County are equipped with the equipment and administrative infrastructure to implement this recommendation. Some collection trucks and recycling containers might need to be purchased on behalf of the expanded service. Siting of collection containers will need to be determined on a business-by-business basis. The initial high cost of expanded service to commercial consumers would be the primary roadblock to this program's start-up.
- **Implementation strategy:** To be determined.

MEASURES OF SUCCESS: Annual diversion of an additional 7,390 tons of material from the commercial sector.

TIMELINE: Three to five years

Provide free waste audits for businesses

Short-Term Education & Policy



SUMMARY: *Boulder County, in cooperation with the cities of Boulder and Longmont, supports the "Partners for a Clean Environment" (PACE) program, which certifies businesses for resource management, water quality and energy conservation programs. The program will provide free waste audits for a number of Boulder County businesses each year beginning in 2010. PACE will also provide technical assistance for resource management and purchasing programs and monitor waste reduction with a goal of up to 70% diversion per business seeking recognition for "Zero Waste" efforts. These initiatives will complement additional private-sector resource management programs in the County.*

- **Annual tonnage diverted:** 190
- **Additional diversion percentage:** .1%
- **Government costs:** $339 per ton
- **Generator savings:** estimated at $158 per ton
- **Job creation estimate:** 0 jobs
- **Carbon reduction:** 150 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** This project offers an opportunity to educate the commercial community about the cost-savings and environmental benefits associated with reuse and recycling.
- **Operational Feasibility:** PACE is a well-established and respected program in Boulder County with staff experienced at providing energy audits. While the specific Zero Waste recognition component is new in 2010, the design is based on the input of nearly 100 businesses. Educational materials would need to be developed and printed to support the new program.
- **Implementation strategy:** PACE staff will conduct a free waste audit for existing certified businesses as well as new participants to determine whether they meet minimum environmental performance criteria and how close they are to achieving the 70% diversion goal. PACE staff will work with the business to initiate a waste management and purchasing plan based on the findings from the waste audit, provide additional technical assistance as necessary and monitor waste diversion tonnage.

MEASURES OF SUCCESS: 190 or more tons diverted per year. PACE will also document that each business that achieves Zero Waste recognition implements at least one area of continuous environmental improvement each year for three years or longer.

TIMELINE: Year one and ongoing.

Land-Use Code Updates - improve commercial and multifamily recycling requirements

Short-Term Commercial Recycling

SUMMARY: *This recommendation would revise the Boulder County Land Use Code to require commercial indoor and outdoor space for recycling and diversion equal to the space provided for disposal. Currently, no such requirements are in place for new or existing commercial structures in the unincorporated county, though a new international code is expected to be adopted in 2011. The cities of Boulder and Louisville have developed code language to accommodate recycling; ideally, all local municipal governments would adopt similar code revisions for commercial and multifamily structures within their jurisdictions.*

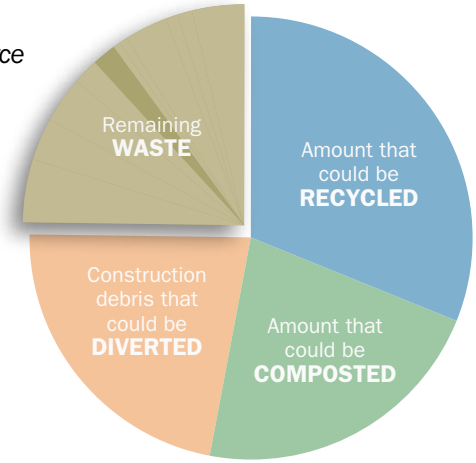
- **Annual tonnage diverted:** Not modeled
- **Additional diversion percentage:** Not modeled
- **Government costs:** $20,000 per year for implementation and enforcement
- **Generator costs:** Not modeled
- **Job creation estimate:** Not modeled
- **Carbon reduction:** Not modeled
- **Educational Value to the Community:** This project offers an opportunity to educate the commercial community about the cost-savings and environmental benefits associated with reuse and recycling.
- **Operational Feasibility:** Communities on the west coast have these provisions in their building codes. This could be tied to permitting requirements.
- **Implementation strategy:** The commercial code for Boulder County is being revised; these elements could be incorporated into the revision.

MEASURES OF SUCCESS: Adoption of requirements in all Boulder County jurisdictions; compliance in all new construction.

TIMELINE: Year One and ongoing

Municipal contact and advocate

Short-Term Education & Policy



SUMMARY: *Boulder County supports the outreach programs of an active Resource Conservation Division. Various for-profit and non-profit businesses in Boulder County also advocate for Zero Waste initiatives. Among municipal governments in Boulder County, however, only the cities of Boulder and Longmont have active solid waste departments advocating for resource management. Committees in Lafayette and Louisville provide some municipal advocacy, but their efforts seem to have little impact outside city departments and the County Resource Conservation Advisory Board.*

This recommendation would designate a specific department, position or person at each municipality who would act as the primary contact for recycling information and be an advocate of diversion programs. Their role would be to monitor and promote Zero Waste programs and successes to their citizenry and across the County. In lieu of municipal representation, a designated community volunteer or non-profit organization could fulfill a similar role on behalf of local government.

- **Annual tonnage diverted:** 5,170
- **Additional diversion percentage:** 1.5%
- **Government costs:** $18 per ton
- **Generator costs:** $0
- **Job creation estimate:** 4 jobs
- **Carbon reduction:** 4,000 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** Communities that do not have an existing advocate for waste diversion programs could benefit from additional advocacy and education.
- **Operational Feasibility:** Development and continuing education for appropriate personnel in each municipality would likely be time-consuming, though ongoing education could be supported by volunteers.
- **Implementation strategy:** Individual governments would be responsible for implementing and evaluating the effectiveness of this initiative. One approach might be to work within the current RCAB structure to document the Zero Waste outreach efforts of each municipality, evaluate programs and share successes and strategies.

MEASURES OF SUCCESS: Specific measures would be tied to community efforts and would need to be developed and evaluated on a case-by-case basis.

TIMELINE: Year one and ongoing

Develop "Zero Waste" branding and initiate comprehensive education program

Short-Term Education & Policy

SUMMARY: *Boulder County communities were able to develop and agree on the "ClimateSmart" brand for cooperative efforts to increase energy efficiency and reduce greenhouse gas emissions. This recommendation envisions a similar cooperative approach to Zero Waste education across the residential, business and multifamily sectors. Work on this initiative has begun through Boulder County's Resource Conservation Division.*

Best practices in waste reduction link community education to successful diversion efforts, with some studies showing diversion increases of 20 percent or more5. Already, Boulder County, its municipalities and private resource management businesses and non-profits use a variety of outreach methods to support Zero Waste behaviors in different Boulder County demographic markets, including methods that reduce the disposal of harmful or hazardous materials.

This initiative would evaluate the effectiveness and brand recognition of existing outreach methods, craft a campaign that resonates with those demographic sectors shown to create the greatest volumes of "waste," coordinate outreach messages and evaluate success.

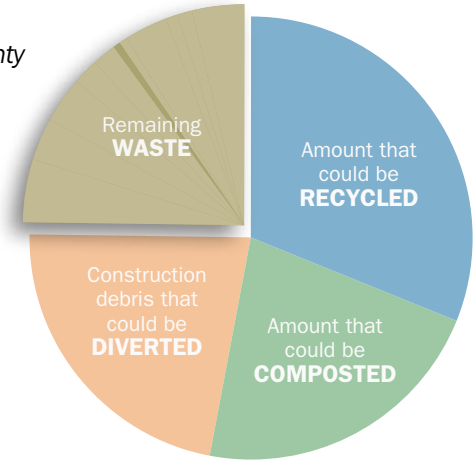
- **Annual tonnage diverted:** 4,578
- **Additional diversion percentage:** 1.3%
- **Government costs:** $36 per ton
- **Generator costs:** $0
- **Job creation estimate:** Undetermined
- **Carbon reduction:** 3,862 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** Though countywide in scope, this program will be designed to effectively reach those residential, multifamily and / or business groups most likely to increase their diversion efforts through specific Zero Waste steps. Broad demographic sectors and / or target materials will be identified through Boulder County's 2010 waste composition study.
- **Operational Feasibility:** Boulder County has successfully initiated educational campaigns in the past; the infrastructure is in place to replicate effective programs.
- **Implementation strategy:** Use the 2010 waste composition study to identify specific material streams and generator sectors to be targeted in the short-term. Employ a marketing consultant to study messages that will effectively resonate with the target groups and promote the County's zero waste strategies to divert resources from the waste stream. Consultant will design a three-year outreach campaign, including messages, vehicles and "style." Craft a budget; begin to implement and monitor success of campaign.

MEASURES OF SUCCESS: Message-specific goals will be set and measured as part of this initiative.

TIMELINE: Year one and ongoing.

Determine Zero Waste funding mechanism

Short-Term Education & Policy



SUMMARY: *According to the most recent "Solid Waste" section of the Boulder County Comprehensive Plan (1999, SW 4.07), "….a combination of general property tax revenues (Solid Waste Mill Levy) and user fees… support the planning, construction and operation of solid waste facilities and funding of public education on the ways of proper disposal of waste."*

The mill levy, however, does not currently support these programs. This recommendation would provide a mechanism through which Boulder County could develop and guarantee ongoing funding for waste diversion programs.

- **Annual tonnage diverted:** This element would not contribute directly to diversion
- **Additional diversion percentage:** This element would not contribute directly to diversion
- **Government costs:** To be determined
- **Generator costs:** To be determined
- **Job creation estimate:** This element would not contribute directly to job creation
- **Carbon reduction:** This element would not contribute directly to reduction
- **Educational Value to the Community:** Funds from the surcharge would fund ongoing community outreach and Zero Waste operations.
- **Operational Feasibility:** To be determined
- **Implementation strategy:** To be determined

MEASURES OF SUCCESS: Secure funding that continually results in a measurable decrease in "waste." Ironically, if resource management funds are tied to solid waste programs, an annual decrease in funding can be expected as Zero Waste programs achieve their goal of fewer tons going to the landfill each year. Outreach can be reduced as necessary in concurrence with revenue decreases.

TIMELINE: One to three years, depending on chosen funding mechanism and speed of implementation.

Require trees and slash from grubbing and landscaping to be diverted from landfill

Mid-Term Residential Construction & Demolition

SUMMARY: *A compost generation study commissioned by Boulder County in 2009 measured the practices of landscape and tree maintenance services, but not landclearing companies. The surveyed businesses generally diverted trees and slash from landfill disposal by using Boulder County drop-off services or through internal practices (wood fuel, chipping). Anecdotal information indicates companies that clear land for construction follow similar practices.*

This recommendation would require unmarketable wood products from construction site preparation and landscaping operations to be ground and left on site for mulching purposes. (Most trees and logs are presumed to be marketable as lumber or as firewood.)

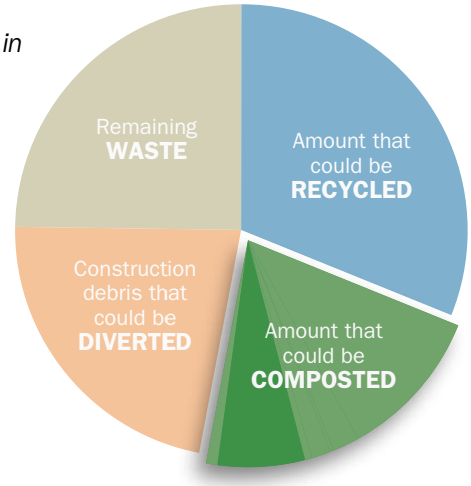
- **Annual tonnage diverted:** 9,940
- **Additional diversion percentage:** 2.9%
- **Government costs:** $11 per ton
- **Generator costs:** $12 or more per ton
- **Job creation estimate:** 9 jobs
- **Carbon reduction:** 1,987 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** This project offers an opportunity to educate the construction community about the benefits of on-site chipping of materials, versus other disposal means, and the use of chips as mulch.
- **Operational Feasibility:** Established tree and stump removal services already operate in Boulder County. It is likely, therefore, that private chipping and grinding services could be encouraged through BuildSmart measures and similar programs around the county. When woody material is left on construction sites, defensible space buffers would need to be maintained around structures for fire prevention. Distribution of ground material would need to be performed in a way that is most beneficial to the specific site (not too deep, not impacting watersheds, not impacting flora, etc.).
- **Implementation strategy:** A first step is to determine whether unmarketable wood from construction sites poses a disposal problem in Boulder County. If so, BuildSmart requirements would be expanded to include diversion of these materials to composting or similar beneficial use.

MEASURES OF SUCCESS: Diversion of up to 9,940 tons of landclearing materials each year.

TIMELINE: Program design and capitalization by year four; implementation by year six.

Support ban on yard materials going to landfill

Mid-Term Residential Composting



SUMMARY: *Even with convenient yard material composting opportunities available in many parts of Boulder County, an estimated 35% of tree limbs, leaves, grass clippings and other yard debris is still going to disposal. This recommendation was originally conceived as a local ban that could be implemented through municipal ordinances and collection contracts. Further analysis determined the proposal would be more feasible and far-reaching at the state level: 22 states have already banned yard debris from landfill disposal.*

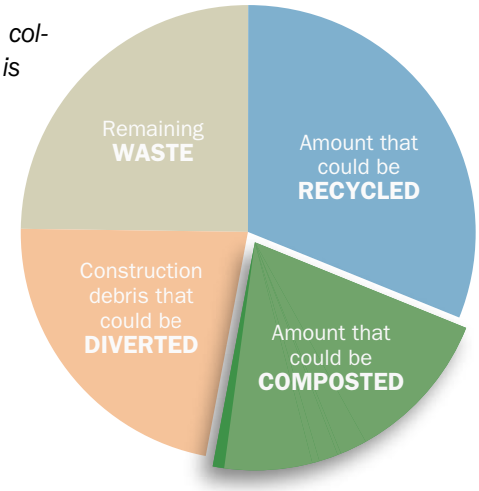
- **Local annual tonnage diverted:** 22,570
- **Additional diversion percentage:** 6.6%
- **Government costs:** $4 per ton
- **Generator costs:** $158 per ton
- **Job creation estimate:** 20 jobs
- **Carbon reduction:** 540 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** This proposal will support community education on the many positive aspects of composting in general:
  - Reduction in methane generation for significant GHG reductions
  - Reduced net collection and transportation costs for generators
  - Job creation and retention
  - Extended landfill capacity
- **Operational Feasibility:** With established legislation in other states and an increased Colorado focus on GHG reductions, passage of such a ban could be anticipated within the next decade. In Boulder County, infrastructure to collect, process and market compostable materials is being strengthened through other elements of this plan. Once a ban has been authorized, implementation should be quick in Boulder County.
- **Implementation strategy:** Boulder County's waste composition study would need to be completed or repeated in advance of any other work in order to provide evidence of the materials still needing to be banned locally. Afterwards, a list of yard materials included in the ban would need to be created, followed by draft legislation at the local level, enforcement mechanisms and the evaluation tools necessary to implement the ban and monitor compliance. If local and private-sector mechanisms prove insufficient, exploration of a ban at the state level may then be undertaken.

MEASURES OF SUCCESS: Passage of a statewide ban. Documented collection of 22,570 tons or more of yard debris per year.

TIMELINE: Six to eight years

Support ban on food scraps going to landfill

Mid-Term Residential Composting



SUMMARY: *Capacity for composting food scraps exists in Boulder County, and home collection of these materials has been established in many communities. Once service is extended Countywide, there is no logistical barrier to composting food scraps. With an appropriate pricing structure, economic barriers should also be removed. A diversion requirement becomes, at that point, the most effective means to increase food scrap composting, should scraps continue to be present in the disposal stream. It is thought this proposal will be more feasible and far-reaching if implemented at the state level.*

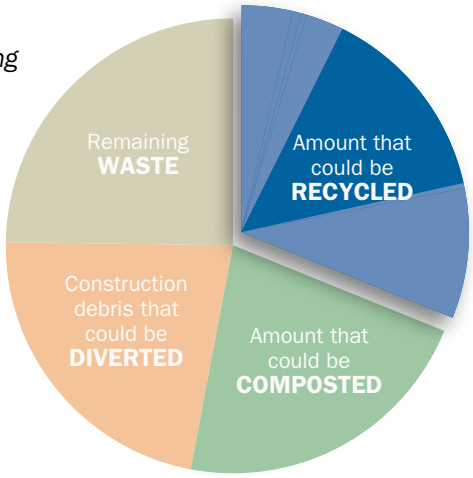
- **Annual tonnage diverted:** 2,900
- **Additional diversion percentage:** .8%
- **Government costs:** $29 per ton
- **Generator costs:** $1,234 per ton
- **Job creation estimate:** 2.5 jobs
- **Carbon reduction:** 750 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** This proposal will support community education on the many positive aspects of composting in general. In addition, this element offers opportunities for education about links between local food composting and local food residue production and processing.
- **Operational Feasibility:** Infrastructure to collect, process and market compost from food scraps is being strengthened through other elements of this plan. Once a yard debris ban has been authorized at the state and local levels, implementation of a local food scrap ban could be independently undertaken by Boulder County. A statewide food scrap ban might take more than a decade to enact.
- **Implementation strategy:** Boulder County's waste composition study would need to be completed or repeated in advance of any other work in order to provide evidence of the materials still needing to be banned locally. Afterwards, a list of food scrap materials included in the ban (or excluded from the ban) would need to be created, followed by draft legislation at the local level, enforcement mechanisms and the evaluation tools necessary to implement the ban and monitor compliance. Prior establishment of a yard debris ban would smooth the way for this next logical element. If local and private-sector mechanisms prove insufficient, exploration of a ban at the state level may then be undertaken.

MEASURES OF SUCCESS: Passage of a statewide ban or local ban(s). Documented collection of 2,900 or more tons of materials per year.

TIMELINE: Eight years or longer

Support ban on recyclables going to landfill

Mid-Term Residential Recyclables



SUMMARY: *Currently, an estimated 13.4 percent of Boulder County materials going to disposal could be recycled through existing markets. This recommendation would support local initiation of a statewide ban on disposal of traditional recyclables in landfills. Materials would include corrugated cardboard, newsprint, mixed scrap paper, metal food containers and scrap metal. If successful, this initiative would support opportunities for local governments to ban additional materials from disposal, including container glass, plastic containers, and other materials for which local recycling markets have been developed.*

Few states in the U.S. currently ban recyclables from disposal. Instead, communities tend to ban Styrofoam, electronics and compostable materials.

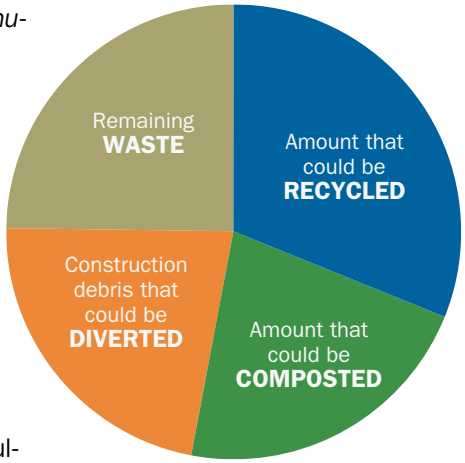
- **Annual tonnage diverted:** 36,900
- **Additional diversion percentage:** 10.7%
- **Government costs:** $2 per ton
- **Generator costs:** $4 per ton
- **Job creation estimate:** 33 jobs
- **Carbon reduction:** 28,410 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** Without an understanding of the environmental and economic costs and benefits of this proposal, consumers and businesses might oppose the ban. Outreach would be necessary to overcome any hesitation.
- **Operational Feasibility:** Because all of Boulder County's disposed materials are sent to landfills out-of-county, legislation must be initiated on a state level, rather than locally. Though success of this program would be rewarding on many levels, political challenges abound. Other communities have experienced costly opposition from landfill operators who worry about a loss of income from reduced materials streams.
- **Implementation strategy:** Boulder County's waste composition study would need to be completed or repeated in advance of any other work in order to provide evidence of the materials still needing to be banned locally. Afterwards, a list of recyclable materials included in the ban would need to be created, followed by draft legislation at the local level, enforcement mechanisms and the evaluation tools necessary to implement the ban and monitor compliance. If local and private-sector mechanisms prove insufficient, exploration of a ban at the state level may then be undertaken.

MEASURES OF SUCCESS: An 80% diversion rate for each targeted material is the initial goal of this element. Material-by-material diversion rates might be difficult to track, however. Documentation of an additional 36,900 tons of recyclables collected over baseline could be gathered through hauler reports.

TIMELINE: Four to six years for initiation and ongoing thereafter.

Support multifamily compost collection system

Mid-Term Commercial Composting



SUMMARY: *Currently, residential compost collection is provided in many Boulder County municipalities and a large part of the unincorporated County. Similar systems are not yet tested for multifamily complexes. This recommendation would support development of a multifamily compostable materials collection system.*

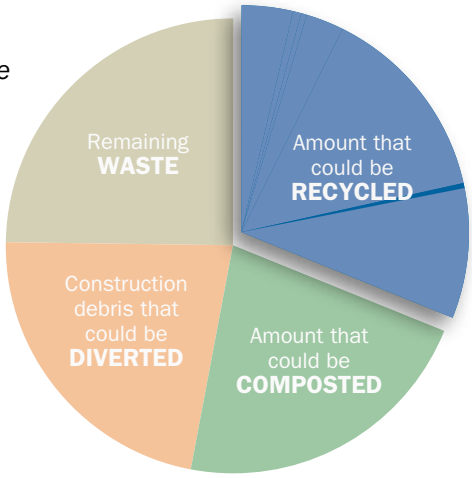
- **Annual tonnage diverted:** This element has not been modeled.
- **Additional diversion percentage:** This element has not been modeled.
- **Government costs:** This element has not been modeled.
- **Generator costs:** This element has not been modeled.
- **Job creation estimate:** This element has not been modeled.
- **Carbon reduction:** This element has not been modeled.
- **Educational Value to the Community:** Outreach will benefit both the residents of multifamily units and the owners and managers of such complexes. Education to residents will likely focus on the "how and why to compost" elements with possible association with GHG reductions. Owners and managers will receive similar education, but outreach is likely to focus, as well, on the economic benefits of compost collection and on opportunities for using compost in landscape applications.
- **Operational Feasibility:** The multifamily collection infrastructure in Boulder County is still developing. It is likely, therefore, that this element will be initiated first in multifamily communities where recycling collection is accepted and functioning smoothly.
- **Implementation strategy:** This project would develop slowly, beginning with a pilot project targeted at interested complexes, and supported with education, infrastructure and measurement. Once the most effective local means for achieving success have been determined, this initiative would be expanded in the unincorporated area east of the foothills. Implementation in the remainder of the county would be accomplished with assistance from municipalities and participating collection companies.

MEASURES OF SUCCESS: Implementation of compost collection programs in a growing percentage of multifamily units throughout Boulder County will indicate the success of this recommendation. Any documented diversion and cost savings will be of additional measurement benefit.

TIMELINE: Five to seven years.

Single-stream multifamily recycling collection countywide

Mid-Term Commercial Recyclables



SUMMARY: *Residences in many parts of Boulder County enjoy single-stream curbside recycling collection. Extending this service to multifamily buildings is being tested in Longmont and discussed in the city of Boulder. This recommendation would support single-stream recycling service at multifamily residences throughout Boulder County. A pilot project to test efficient messaging has been commissioned by the city of Longmont. If successful, it could be expanded to other complexes.*

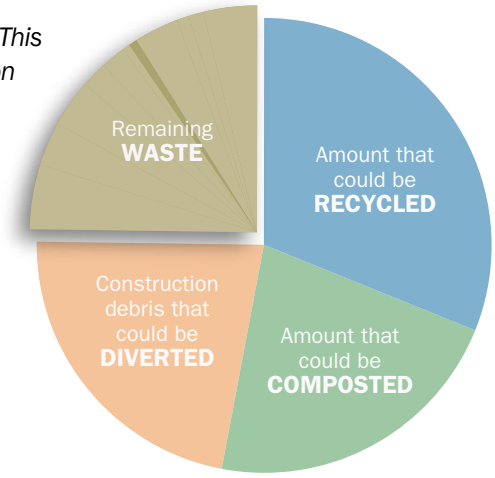
- **Annual tonnage diverted:** 980
- **Additional diversion percentage:** .3%
- **Government costs:** $minimal
- **Generator costs:** Expected to be offset by lower garbage costs
- **Job creation estimate:** 9 jobs
- **Carbon reduction:** 760 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** Across the nation, multifamily recycling programs present educational challenges. Education about the benefits of and "how tos" of recycling will be provided through the Zero Waste branding campaign to communities throughout Boulder County. Providing recycling service to capitalize on the effectiveness of that education will supplement the County's other Zero Waste efforts.
- **Operational Feasibility:** Program would need to begin in communities with strong education programs and recycling infrastructure and spread to other multifamily complexes throughout the County.
- **Implementation strategy:** Using successes from the Longmont pilot project, this initiative would extend recycling service and messages to other interested multifamily communities, beginning with targeted sites in the unincorporated areas of the County and those complexes suggested by partner cities. The program will be supplemented by education, site support to insure adequate collection capacity, and evaluation of success, including diversion and cost effectiveness.

MEASURES OF SUCCESS: Diversion of 980 tons or more per year.

TIMELINE: Initiate in years five through seven

Secure Advanced Disposal Fees on priority items

Mid-Term Education & Policy



SUMMARY: *In Colorado, an advanced fee on tires helps pay for end-of-life management. This is the only statewide "advanced disposal fee" (ADF) for any material. This recommendation would secure advanced disposal fees on three priority items to reduce their use and help pay for proper management. The Boulder County Resource Conservation Advisory Board recommends the following three items as the first priorities for a local ADF:*

Mercury products, including fluorescent lighting, thermostats and thermometers

Pesticides, including all pet, garden, cleaning and hobby types

Paints, including both latex and oil-based products, as well as thinners, etc.

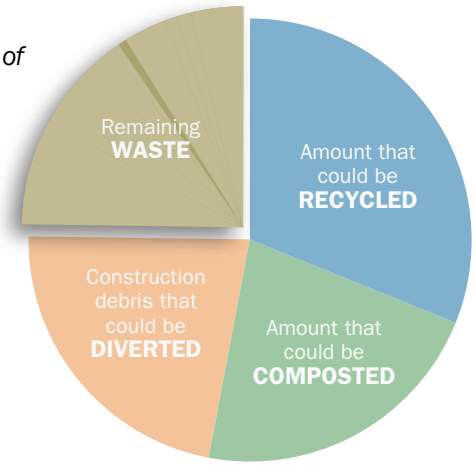
- **Fees have yet to be determined.** Collected monies would be used to offset costs of managing the three priority products at the Boulder County Hazardous Materials Management (HMM) facility.
- **Annual tonnage diverted:** 1,077
- **Additional diversion percentage:** .3%
- **Government costs:** $58 per ton
- **Generator costs:** $464 per ton
- **Job creation estimate:** 1 job
- **Carbon reduction:** 679 Metric Tons of Carbon Equivalent offset per year.
- **Implementation strategy:** The Resource Conservation Advisory Board and Board of County Commissioners have adopted the "Boulder County RCAB Product Stewardship Committee Work Plan 2009/2010" as a guide for this recommendation. Initially, Boulder County would need to seek local authority to collect an advanced disposal fee and develop the accounting mechanisms for the initiative. Currently, only home-rule jurisdictions can enact fees of this type. An effort to collect advanced disposal fees at the state level should also be pursued. Once the legal and financing mechanisms are in place, education to the manufacturers, retailers and the general public would be in order, and a campaign would need to be developed and launched. Between six- and 12-months notice of fee implementation would afford adequate time for stakeholders and the County to prepare for the change. After implementation, progress towards Zero Waste could be monitored through fee collection and disposal activity at the HMM site.

MEASURES OF SUCCESS: Local approval of the Advanced Disposal Fee would be an initial measure of this effort's success, as would diversion of 1,077 tons of targeted materials. Later, decreased use of the target products might serve as additional proof of success.

TIMELINE: Implementation expected within five-to-seven years.

Provide zero waste building planning assistance

Mid-Term Education & Policy



SUMMARY: *An intensive one-year education and outreach program would set a goal of obtaining average 1% diversion from the Boulder County commercial sector. Technical assistance would be available. Successful existing zero waste businesses could serve as models.*

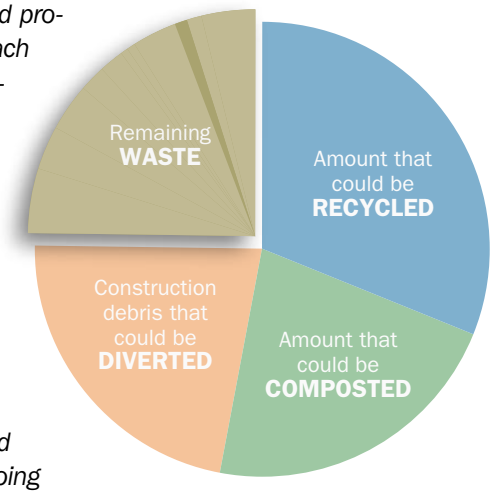
- **Annual tonnage diverted:** 770
- **Additional diversion percentage:** .2%
- **Government costs:** $20 per ton
- **Generator costs:** $0
- **Job creation estimate:** 1 job
- **Carbon reduction:** 590 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** Programs that demonstrate social norms – especially those that can also indicate additional benefits such as cost savings – are shown to have greater behavior-change effect than simple information campaigns. This targeted outreach is designed to measure an increase in business waste diversion through education and assistance.
- **Operational Feasibility:** Similar programs for the commercial sector are already underway in Boulder County through the "Partners for a Clean Environment" (PACE) initiative, the Eco-Cycle "Zero Waste" initiative and others. This recommendation could benefit from this infrastructure and would be poised for speedy implementation.
- **Implementation strategy:** To be determined

MEASURES OF SUCCESS: 770 tons diverted with indication by participating businesses of their intent to continue diversion measures.

TIMELINE: Begin by year five

Require Zero Waste planning for large events on public property

Mid-Term Education & Policy



SUMMARY: *While many of Boulder County's high-profile community festivals practice and promote "Zero Waste" – notably the Boulder County Fair, Rhythm on the River, Lafayette's Peach Festival, Boulder County Farmers' Market and others – many outdoor events are not currently required to compost, restrict purchases or otherwise reduce waste. The city of Boulder requires permitted events on city property to establish recycling programs when recyclable materials are generated; composting is also encouraged by the city.*

Scores of community events take place in Boulder County each year: Several resource management services provide event recycling and composting support for a fee in Boulder County. This recommendation would require each permitted event attended by 200 or more people on public property within Boulder County and its partner municipalities to submit a Zero Waste plan and deposit prior to permit issuance. Compliance with plan objectives would be documented by service receipts after each event. Event organizers who do not fulfill their Zero Waste plans would lose their deposits, which would then be directed to a fund for administrative support of this recommendation and for ongoing Zero Waste education.

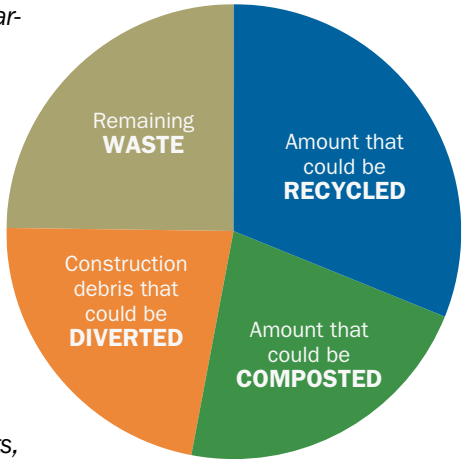
- **Annual tonnage diverted:** 36
- **Additional diversion percentage:** minimal
- **Government costs:** $0
- **Generator costs:** $1,226 per ton
- **Job creation estimate:** 0 jobs
- **Carbon reduction:** 2 Metric Tons of Carbon Equivalent offset per year.
- **Educational Value to the Community:** These programs serve an educational role for all who attend, demonstrating that Boulder County is committed to zero waste and providing concrete examples of how to properly recycle and compost materials. The value of such education, in fact, could be greater than the diversion potential represented by this initiative.
- **Operational Feasibility:** Very feasible – Zero Waste events are already common, and services are available. This initiative would help standardize services and education throughout the County.
- **Implementation strategy:** Rules and permitting / accounting systems for this effort would need to be adopted and infrastructure in place before the deposit element would be required. Permitting staff in each jurisdiction would need to be educated and assigned to review each plan prior to permit issuance, to monitor compliance and to measure diversion. A checklist of required zero waste elements would be provided to each event applicant, and a system developed by which the submitted event plans would be reviewed – in a timely fashion - by a qualified individual or group. Program fees would help offset the administrative costs.

MEASURES OF SUCCESS: All eligible events in Boulder County submit Zero Waste plans; diversion of three tons or more proven by recycling and composting receipts.

TIMELINE: Education has begun, but requirements are to be delayed for approximately five years, depending on composting infrastructure.

Promote markets for county-generated recyclables and compost

Mid-Term Education & Policy



SUMMARY: *The Boulder County Recycling Center has, over time, developed strong markets for traditional recyclables that range from newsprint and corrugated cardboard to scrap metal and aluminum cans. Other area recycling companies, including Eco-Cycle and Western Disposal, have also developed markets for diverted materials. This recommendation supports ongoing analysis and development of markets for new materials that will be added to the County's diversion stream as a result of the Zero Waste steps contained in this plan. Staff resources would also be available to serve as the liaison with any local and state economic development or procurement programs that could support more local uses for county-generated materials.*

The former "Clean Washington Center" (CWC) observed: "Viable markets for collected recycled materials are requisite for operating a cost-effective, sustainable recycling program." Boulder County residents and businesses deserve certainty that materials collected for recycling or composting are actually being used for new products, rather than discarded or stockpiled, and that diversion programs are providing the most cost-effective end uses for locally generated resources.

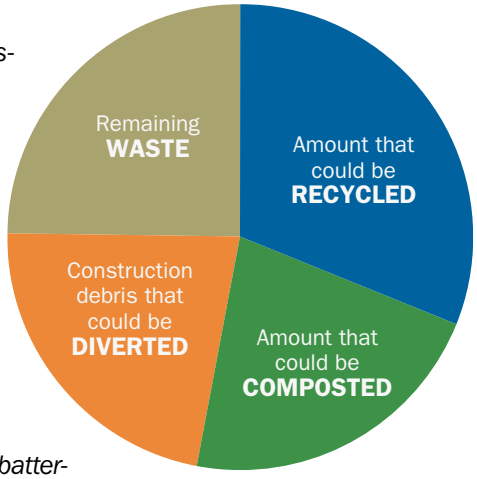
- **Annual tonnage diverted:** undetermined
- **Additional diversion percentage:** undetermined
- **Government costs:** undetermined
- **Generator costs:** undetermined
- **Job creation estimate:** undetermined
- **Carbon reduction:** undetermined
- **Educational Value to the Community:** Not every Boulder County resident understands that an item isn't truly recycled – nor its potential energy savings realized – until it is incorporated into a new product. Most, however, are concerned that the materials they place at curbside for recycling or composting are directed into recycled material or compost markets. This initiative provides evidence that viable and affordable end uses have been secured or are being developed for all materials generated in Boulder County.
- **Operational Feasibility:** Elements of this program have been developed for traditional recyclables and are being strengthened for composted material, especially in governmental applications. For new Boulder County feedstocks that include increased volumes of compostable materials and construction / demolition materials, market development could be challenging. Cooperation with economic development agencies will likely be required.
- **Implementation strategy:** Analyze and verify current material streams, end market volumes, uses and prices. Study projected material generation and confirm market availability and price projections. Strengthen markets following CWC recommendations:
    - Monitor and research proven uses of recycled and composted materials and support local government, growers and PACE businesses to implement or adopt such application(s).
    - Assist recycled manufacturers with strategic and/or market planning activities.
    - Determine a prioritized list of targeted local companies / businesses that could convert to recycled feedstocks and local compost.
    - Enlist support from recycled material suppliers to promote feedstock conversion.
    - Get press for companies that manufacture, process or sell recycled materials.

MEASURES OF SUCCESS: Successful re-utilization of all Boulder County compost and materials diverted for reuse, recycling and composting will prove the value of this element. Additional revenue streams and jobs created through materials use will serve as additional measures.

TIMELINE: Formalize within five years; ongoing thereafter

Support Product Stewardship initiatives, including Extended Producer Responsibility at the state and local level

Mid-Term Education & Policy



SUMMARY: *Many products are expensive and/or difficult to recycle or dispose of (think pesticides and other toxic chemicals, televisions, computers, etc.), and often this cost falls to local governments who operate household hazardous waste and/or electronic waste collection programs, and ultimately to local taxpayers who fund these programs.*

In Europe, Canada and parts of the U.S., manufacturers are increasingly being called upon to take financial responsibility

for end-of-life management of their products and associated packaging, a policy known as "Extended Producer Responsibility" (EPR). One key benefit of EPR is that ultimately it encourages producers to redesign their products to make them easier and cheaper to recycle or dispose. This approach also often includes making products less hazardous to humans or the environment.

A good U.S. example of EPR is the voluntary, nationwide program that collects rechargeable batteries at numerous retail outlets and other locations, and is funded by rechargeable battery manufacturers through the Rechargeable Battery Recycling Corporation. Other national EPR projects include programs for diverting ceiling tiles and the Carpet America Recovery Effort, which is supported in Colorado by a Denver-based business. Regional efforts in other parts of the U.S. encourage manufacturers to pay for proper management of paints, computers and televisions.

Other product stewardship initiatives include programs that also look to retailers to play a role in collection (for example, pharmaceutical take-back programs) and/or require consumers to share in the cost of recycling or disposal through fees at the point of sale (advance disposal fees).

This recommendation would support state product stewardship initiatives including EPR on a yet-to-be-determined range of products. Based on national initiatives, Colorado efforts might target electronics, pharmaceuticals, paint, carpet, mattresses and other materials that are difficult to handle at end-of-life.

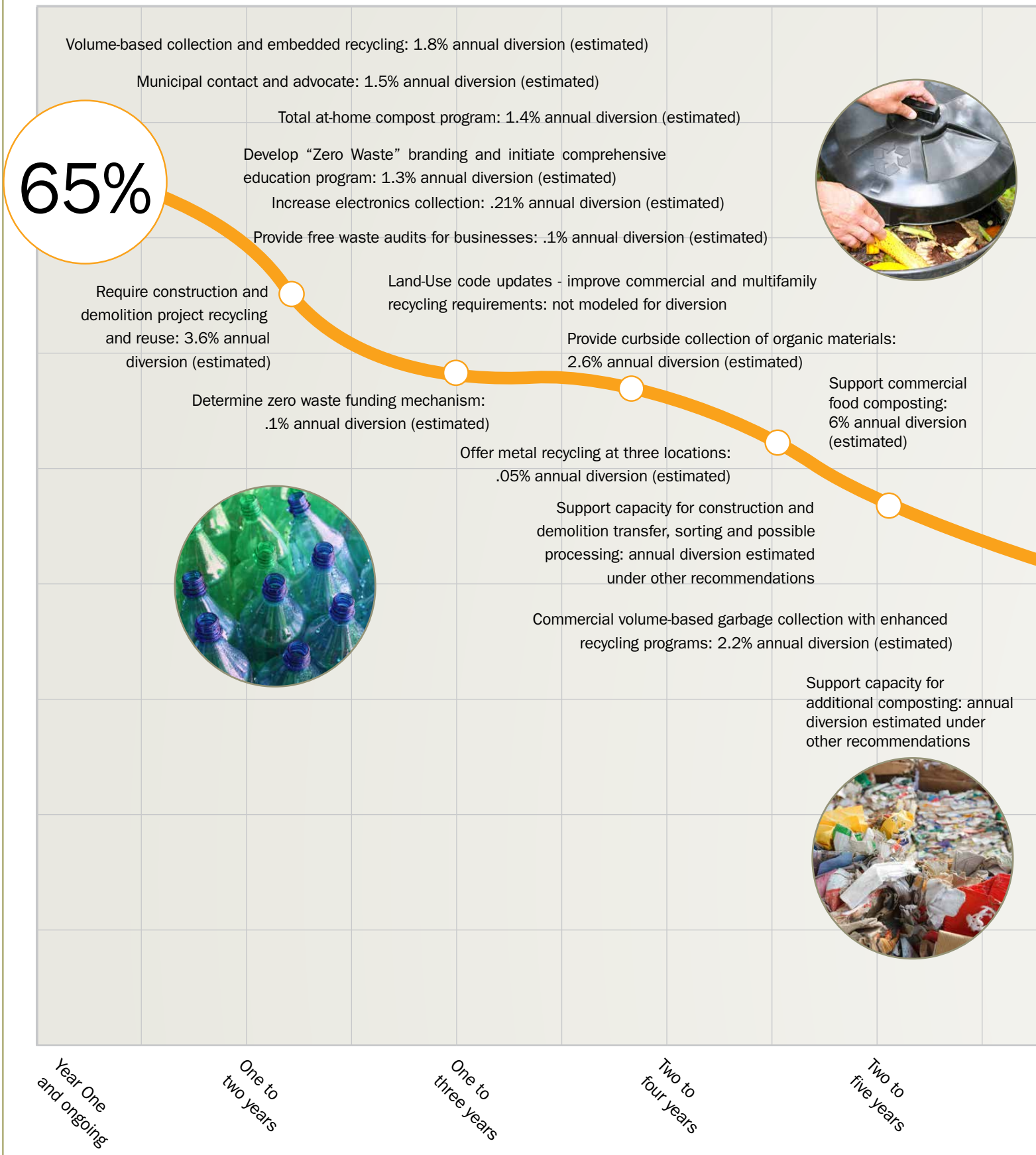
- **Annual tonnage diverted:** no diversion modeled
- **Additional diversion percentage:** no diversion modeled
- **Government costs:** not modeled
- **Generator costs:** not modeled
- **Job creation estimate:** unknown
- **Carbon reduction:** not modeled
- **Educational Value to the Community:** U.S. consumers have become accustomed to paying the costs of material disposal at the end of the product's life, rather than as an up-front cost embedded in the product price by manufacturers, even as producers continue to design and market products for obsolescence. As costs for end-of-life product management shift from consumers to producers in more and more communities, buyers are more likely to insist that manufacturers bear the full costs of resource management. Consumers may also begin to realize – and exercise – their responsibility to demand more durability and ease-of-repair in the products they purchase.
- **Operational Feasibility:** Proven possible but challenging in other communities. Progress in Colorado will hinge on success in other states. Statewide measures to promote EPR are being considered at the legislative level.
- **Implementation strategy:** The Resource Conservation Advisory Board and Board of County Commissioners have adopted the "Boulder County RCAB Product Stewardship Committee Work Plan 2009/2010" as a guide for this recommendation. Initial steps include supporting a product stewardship committee within the Colorado Association for Recycling, researching retail take-back opportunities and developing outreach program materials.

MEASURES OF SUCCESS: Passage at the state level of product stewardship/EPR measures would be an initial measure of success. Subsequent documentation of related waste diversion in Boulder County would provide additional measures.

TIMELINE: Five to seven years

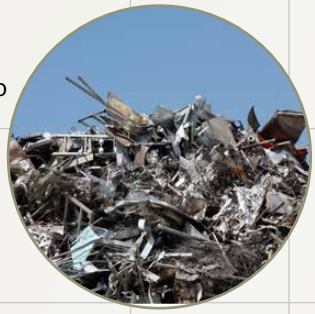
appendix

Timeline 42
Recommendations Spreadsheet 44
Resource Management Opportunities 46
Preliminary Recommendations not detailed in current plan 48
Zero Waste Resolution, 2005 50
Partners for a Clean Environment (PACE) Zero Waste Plan 52
Job Creation Metrics 52
Collaboration 54
Public Feedback and Responses 56


65%
Volume-based collection and embedded recycling: 1.8% annual diversion (estimated)
Municipal contact and advocate: 1.5% annual diversion (estimated)
Total at-home compost program: 1.4% annual diversion (estimated)
Develop "Zero Waste" branding and initiate comprehensive education program: 1.3% annual diversion (estimated)
Increase electronics collection: .21% annual diversion (estimated)
Provide free waste audits for businesses: .1% annual diversion (estimated)
Land-Use code updates - improve commercial and multifamily recycling requirements: not modeled for diversion
Require construction and demolition project recycling and reuse: 3.6% annual diversion (estimated)
Provide curbside collection of organic materials: 2.6% annual diversion (estimated)
Support commercial food composting: 6% annual diversion (estimated)
Determine zero waste funding mechanism: .1% annual diversion (estimated)
Offer metal recycling at three locations: .05% annual diversion (estimated)
Support capacity for construction and demolition transfer, sorting and possible processing: annual diversion estimated under other recommendations
Commercial volume-based garbage collection with enhanced recycling programs: 2.2% annual diversion (estimated)
Support capacity for additional composting: annual diversion estimated under other recommendations
Year One and ongoing
One to two years
One to three years
Two to four years
Two to five years

Support opportunities for tree limb management: .2% annual diversion (estimated)

Clean, damaged dimensional lumber to be included in slash management pro grams: 2.3% annual diversion (estimated)



Support ban on recyclables disposal: 10.7% annual diversion (estimated)

Support Extended Producer Responsibility model at the state and local level: diversion not modeled

Provide zero waste building planning assistance: .2% annual diversion (estimated)

Require trees and slash from grubbing and landscaping to be ground and left onsite: 2.9% annual diversion (estimated)

Zero Waste event planning: diversion not modeled

Multifamily Organics Collection: diversion not modeled

Single-stream multifamily collection countywide: .3% annual diversion (estimated)

Promote markets for county-generated recyclables and organics: diversion not modeled

25%

Secure Advanced Disposal Fees on priority items: .3% annual diversion (estimated)

Support ban on yard materials disposal: 6.6% annual diversion (estimated)

Support ban on food scraps disposal: .8% annual diversion (estimated)

Three to five years

Four to six years

Five to seven years

Six to eight years

Eight years or longer

Recommendations' Estimated Costs and Benefits

SHORT-TERM 18.16% estimated diversion potential	% diversion	Total Tons / year	Government Costs	Generator Costs	MTCE Equiv. / year
Res. Construction & Demolition: 5.9% diversion potential (in conjunction with commercial programs)					
Support capacity for C&D transfer, sorting and possible processing	supports other steps		not modeled	not modeled	
Require construction and demolition project recycling and reuse	3.6	12,570	low	$100,400	9,400
Clean, damaged dimensional lumber should be included in slash management programs	2.3	7,750	$374,800	$-	3,800
Res. Organics: 4.2% diversion potential (in conjunction with commercial programs)					
Support capacity for additional composting #	supports other steps		$250,000	$110,000	
Provide curbside collection of compostable materials	2.6	9,040	$-	$3,514,700	1,260
Total at-home composting program	1.4	4,670	$90,000	$18,900	650
Support opportunities for tree limb management	0.2	740	$58,500	$-	(90)
Res. Recyclables: 2.06% diversion potential (in conjunction with commercial programs)					
Residential volume-based collection with embedded recycling	1.8	6,170	$6,400	$7,700	3,460
Increase electronics collection *	0.21	600	$22,700	$276,000	380
Offer metal recycling at additional locations	0.05	180	$(5,400)	$-	260
# Capital cost estimates for enclosed windrow system from 2010 Tetra-Tech Report					
* Eco-Cycle estimates generator cost at $357,600 or .30 per pound					
Comm. Construction & Demolition: diversion potential recorded under residential programs)					
Comm. Organics: 0.6%					
Support commercial food composting	0.6	2,140	$10,000	$35,700	550
Comm. Recyclables: 2.6% estimated diversion potential					
Commercial volume-based collection with enhanced recycling programs	2.5	7,390	$21,800	$1,742,300	5,700
Provide free waste audits for businesses	0.1	190	$64,400	$(30,000)	150
Land Use Code Updates - improve commercial / multifamily recycling requirements		-	$20,000	$-	-
Municipal contact and advocate	1.5	5,170	$95,000		4,000
Develop "Zero Waste" branding and initiate comprehensive education program	1.3	4,578	$165,505	$-	3,862
Determine Zero Waste funding mechanism	not modeled	not modeled	not modeled	$-	-
Short-Term Totals:	**18.16**	**61,188**	**$1,173,705**	**$5,775,700**	**33,382**

MID-TERM 21.8% estimated diversion potential	% diversion	Total Tons / year	Government Costs	Generator Costs	MTCE Equiv. / year
Res. Construction & Demolition: 2.9% diversion potential (in conjunction with commercial programs)					
Require trees and slash from grubbing and landscaping to be diverted from landfill	2.9	9,940	$109,600	$124,100	1,987
Res. Organics: 7.4% diversion potential					
Support ban on yard materials going to landfill+	6.6	22,570	$83,100	$3,577,300	540
Support ban on food scraps going to landfill+	0.8	2,900	$83,100	$3,577,300	750
Res. Recyclables: 10.7% diversion potential					
Support ban on recyclables going to landfill+	10.7	36,900	$8,300	$139,600	28,410
Comm. Organics: unknown diversion potential					
Support multifamily compost collection system	not modeled	-	$-	$-	-
Comm. Recyclables: .3% estimated diversion potential					
Single Stream multifamily collection countywide	0.3	980	minimal	minimal	760
Education & Policy: .5% estimated diversion potential					
Secure Advanced Disposal Fees on priority items	0.3	1,077	$63,000	$499,982	679
Provide zero waste building planning assistance	0.2	770	$15,000	$-	590
Require Zero Waste planning for large events on public property^	minimal	3	$-	$3,678	2
Promote markets for county-generated recyclables and compost	not modeled	-	$-	$-	-
Support product stewardship initiatives at the state and local level	not modeled	-	$-	$-	-
Mid-Term Totals:	**21.8**	**75,140**	**$362,100**	**$7,921,960**	**33,718**
Grand Total:	**39.96**	**136,328**	**$1,535,805**		**67,100**

+ bans were modeled for residential diversion only

^ modeled for a single 10,000-person event

Partial List of Existing Area Resource Management Programs

Garbage Disposal / Transfer Sites : all accept both household and business garbage from Boulder County

Allenspark Transfer Station, Allenspark
Nederland Transfer Station, Nederland
Western Disposal Transfer Station, Boulder
Buffalo Ridge Landfill, Keenesburg
Denver Regional Landfill, Erie
Larimer County Landfill, Fort Collins
North Weld Landfill, Ault
BFI Landfill, Golden
Waste Management Transfer Station, Estes Park

Organics Composting / Transfer Sites

Tree limb diversion, Longmont
Community Forestry Sort Yard, Allenspark / Meeker
Community Forestry Sort Yard, Nederland
A1 Organics, Platteville
Western Disposal Compost Facility, Boulder

Recycling Processing / Transfer Sites

Allenspark Drop-Off Center: containers, paper, corrugated cardboard
Boulder County Recycling Center: containers, paper, corrugated cardboard, metal
CU Recycling Drop-Off Center: containers, paper, corrugated cardboard
Erie Drop- Off Center: containers, paper (includes cardboard)
Eco-Cycle Roundup Event, Jamestown: containers, paper, corrugated cardboard
Lyons Drop-Off Center: containers, paper, corrugated cardboard
Nederland Drop-Off Center: containers, paper, corrugated cardboard
Niwot Drop-Off Center: containers, paper, corrugated cardboard
Superior Drop-Off Center: containers, paper (includes cardboard)
Eco-Cycle Roundup Event, Ward: containers, paper, corrugated cardboard

Reuse Drop-Off Sites

Extensive list available from Eco-Cycle

Electronic Reuse Exchanges

Extensive list available from Eco-Cycle

Garbage Collection Companies

1-800-Got Junk; primarily east county
Allied Waste Services; primarily east county
Boulder Hauling Co. ; primarily east county
Boulder/Longmont Trash Removal; primarily north county
City of Longmont; Longmont only
Dan's Clean Up & Hauling
Deluxe Trash Services, Inc.
G&M Disposal
Gator Rubbish Removal
Heimbuck Disposal
McDonald Farm Enterprises, Inc.
Mile High Roll Off
One Way Trash

Sam's Hauling, Inc
Town & Country; primarily east county
Waste Connections of Colorado, Inc.
Waste Management- Estes Park; primarily north county
Waste Management-Northern Colorado; primarily Superior area
Western Disposal Services; primarily east county
Yellowbox Disposal

Recycling Collection Companies

1-800-Got Junk; primarily east county
Allied Waste Services; primarily east county
Boulder Hauling Co.; primarily east county
College Hunks Hauling Junk; primarily east county
Consolidated Construction Services,LLC; primarily east county
Dan's Clean Up & Hauling; primarily east county
Deluxe Trash Services, Inc.; primarily east county
Eco-Cycle; primarily east county
G&M Disposal; primarily east county
Green Girl Recycling; primarily foothills area
Heimbuck Disposal; primarily east county
City of Longmont
McDonald Farms Enterprises, Inc.; primarily east county
One-Way Trash
US Waste Ind.; primarily east county
Waste Connections of Colorado, Inc.; primarily east county
Recycling Collection Companies, cont.
Waste Management-Northern Colorado; primarily east county
Waste Management-Recycle America; primarily east county
Western Disposal Services; primarily east county
Yellowbox Disposal; primarily east county

Organics Collection Companies

Allied Waste
College Hunks Hauling Junk; primarily east county
Deluxe Trash Services, Inc.; primarily east county
Eco-Cycle; primarily east county
G&M Disposal; primarily east county
McDonald Farms Enterprises, Inc. ; primarily east county
One-Way
Waste Connections
Western Disposal Services; primarily east county
Yellowbox Disposal; primarily east county
Hazardous Waste Management Opportunities
List to be developed
Reuse Collection Companies
List to be developed
Other Zero Waste Programs / Policies

List to be developed

Resource Management Education Programs

List to be developed

SUBJECT	TASK	WHY IT WAS REMOVED FROM SHORT AND MID-TERM LIST
#1 Require volume-based residential trash collection and recycling in the unincorporated county and determine opportunities for municipalities and the county to work together to pursue this countywide.		
Volume Based (PAYT) Disposal in unincorporated county	Implement Volume Based Disposal (PAYT) with unlimited recycling in municipalities	Incorporated into "Residential volume-based collection with embedded recycling for all"
Opportunities for county and municipalities to work together	Consider innovation ideas to promote unified programs	Incorporated into "Advocate" recommendation
#2 Require increased diversion of organic waste		
Governmental facilities in the county should have an organics management plan	Manage municipal landscapes to minimize irrigation, fertilization and mowing. Compost all organic landscape waste.	Might need to be re-incorporated in order to encourage compost purchasing and IPM
Slash Management in Mountains	Open additional slash site in mountains	Nederland facility opened summer 2010 fulfills this recommendation
Slash Management on the Plains	Maintain current status	Didn't appear to divert sufficient quantitites; will be "covered" when organics are banned from landfill
Organics from land development	Grind organic material on site at end of construction	Incorporated into "chip materials from landclearing and grubbing" recommendation
Pet Waste	Collect pet waste curbside for composting.	Too little diversion: moved to long-term
Backyard Composting	Master Composter Training	Incorporated into "total at-home comdposting," though this element might disappear due to cost vs. effectiveness concerns
Compost seminars	Conduct 4-6 seminars per year	Incorporated into "total at-home composting"
Backyard Compost Bin Sale	Conduct additional sales	Incorporated into "total at-home composting"
Eliminate HOA Restrictions	Encourage HOA's to eliminate restrictions to backyard composting.	Incorporated into "total at-home composting"; might need to be reconsidered in the long-term
Bans	Ban the collection of grass and leaves unless they will be delivered to compost facility.	Incorporated into "ban yard waste" recommendation
Bans	Ban the sale and use of non-compostable single serve utensils and containers.	Too little diversion: moved to long-term
Substitute prairie for lawns	Promote transition from mowed turf to natural prairie grasses in institutional/industrial settings.	Too little diversion: moved to long-term
Capital intensive composting	Evaluate feasibility of anaerobic digestion with energy recovery	Too little diversion: moved to long-term
#3 Support and promote increased traditional and non-traditional recycling through modification of the recycling center to accept and process single stream materials, education and outreach, and support of facilities providing supplementary recycling opportunities.		
Add extra single-stream bin at drop-off locations	Lease bin / service; nogotiate contracts; adjust budgets	Too little diversion coupled with logistical challenges: moved to long-term
Glass Recovery	Outreach should be focused on recovery of glass from bars and restaurants.	Incorporated into commercial recycling recommendations
Increase plastics recovery	Implement "All-Bottle' program	Completed already
Increase plastics recovery	Add #5 tubs	Completed already
Develop Management Strategy for Plastic Bags	Establish additional plastic bag collection locations	Too little diversion: moved to long-term
Develop Management Strategy for Plastic Bags	Explain plastic bag contamination and market issues	Already undertaken: moved to long-term
Develop Management Strategy for Plastic Bags	Provide incentives along with intensive outreach	Too little diversion: moved to long-term

SUBJECT	TASK	WHY IT WAS REMOVED FROM SHORT AND MID-TERM LIST
Develop Management Strategy for Plastic Bags	Market development for dirty film	Too little diversion: moved to long-term
Develop Management Strategy for Plastic Bags	Decide on additional plastics in 2009	Too little diversion: moved to long-term
Paperboard	Add paperboard to collection programs without restriction	Completed already
Shredded Paper	Collect shred in plastic or paper bags	Will be superceded by compost programs to address shred
Shredded Paper	Hold shredded paper collection events	Too little diversion: moved to long-term if not addressed by diverting shred to compost or by the private sector
Develop Management Strategy for Metals	Implement Bicycle Re-use	Too little diversion: moved to long-term
Clothes	Increase locations of collection locations	Too little diversion: moved to long-term
Develop Management Strategy for Metals	Expand metal storage at Recycling Center	Determined this would progress without "recommendation" status
Develop Management Strategy for Metals	Conduct special events for white goods collection or drop-off	Too little diversion: moved to long-term
#4 Support increased diversion of construction and demolition waste streams		
BuildSmart	Diversion through green building codes	Replicates requirement for construction and demolition project recycling and reuse
#5. Require new development to provide adequate indoor and outdoor space for recycling and other waste diversion programs.		
#6. Instigate and support legislation at the state and local level that supports zero waste		
Extended Producer Responsibility	Resource Conservation Advisory Board to consider EPR recommendation to the County Commissioners	Determined that ZWAP fulfills this step
Hauler Ordinance	Implement the ordinance	Completed already
Hauler Ordinance	Municipal adoption of similar programs	Incorporated into "Residential volume-based collection with embedded recycling for all"
Require Waste Diversion Planning	Adopt regulations	Too little diversion: moved to long-term
Create Authority to ban the sale/use of materials	Adopt regulations	Too little diversion: moved to long-term
Provide Taxing Authority	Adopt new law	Will be considered with other legislative initiatives; could be resurrected as long-term recommendation
#7 Seek Public and Private Partnerships to leverage public resources to accomplish Our Zero Waste Goals		
Waste Audits	Conduct waste audits of all municipal buildings	Too little diversion: moved to long-term
Waste Audits	Conduct county-wide waste quantification study	Occurring without "recommendation" status
Zero Waste Buildings	Prepare zero waste building outreach for business sector	Will be included with "Zero Waste Branding" recommendation
Funding	Focus Community Outreach Program on specific issues	Occurring without "recommendation" status
Funding	Support expansion of CHARM and RESOURCE on "Recycle Row"	Occurring without "recommendation" status; will be considered with long-term recommendations if additional assistance needed
Funding	Evaluate feasibility of re-use facility for durable goods	Too little diversion: moved to long-term

RESOLUTION 2005 – 138

Adopting Zero Waste as a Guiding Principle and Supporting the Creation of a Zero Waste Plan

WHEREAS, Article 30-11-107 of the Colorado Revised Statutes enables the Board of County Commissioners to make orders concerning the property of the County; and

WHEREAS, Article 30-28-115 of the Colorado Revised Statutes enable the Board of County Commissioners to promote the health, safety and welfare of the inhabitants of the county; and

WHEREAS, 30-28-201 of the Colorado Revised Statutes enable the Board of County Commissioners to adopt ordinances and building codes; and

WHEREAS, Boulder County is committed to protecting and enhancing environmental quality in the county now and for future generations; and

WHEREAS, Boulder County Commissioners are focusing on environmental sustainability as one of three major Commissioner goals; and

WHEREAS, an estimated 300,000 tons of waste is generated in Boulder County each year by residents, businesses, and institutions, and approximately 75% of this amount is sent for landfill disposal; and

WHEREAS, the placement of materials in landfills can cause damage to human health, wastes natural resources, and wrongly transfers liabilities to future generations; and

WHEREAS, waste prevention, reuse, recycling, and composting are material management options that conserve resources while reducing environmental impacts; and

WHEREAS, increased recycling and composting will increase the cost-efficiency of local, publicly-supported recycling facilities and programs; and

WHEREAS, increased recycling saves energy, water, natural resources, reduces air and water pollution, reduces the damage caused by extracting resources from the environment, and reduces the need for landfill facilities; and

WHEREAS, consumers are currently forced to assume the high financial cost of collecting, recycling, and disposing of materials; and

WHEREAS, tax subsidies for waste and virgin materials send the wrong economic signals to both consumers and producers; and

WHEREAS, a resource recovery-based economy will sustain, on a per-ton basis, up to ten times more jobs than landfilling or incineration, and these jobs will be more productive and meaning-ful; and

WHEREAS, increasingly, U.S. and international governments and organizations are adopting the policy that the financial responsibility of collecting, recycling, and disposing of materials belongs with producers; and

WHEREAS, producers should design products to ensure that they can be safely recycled back into the marketplace or nature; and

WHEREAS, most types of waste streams can be eliminated through across-the-board minimum recycling content laws, the use of non-toxic alternatives in product design, and local composting facilities; and

WHEREAS, recognizing that some presently non-recyclable materials are necessary for public health and national security; and

WHEREAS, recognizing that voluntary recycling goals have not, and in all probability cannot, achieve waste elimination; and

WHEREAS, with the understanding that government is ultimately responsible for leading by example and establishing criteria needed to eliminate waste, so that manufacturers produce and businesses sell materials that can be safely recycled or composted; and

WHEREAS, the Zero Waste philosophy accepts that the earth's ability to support life is finite and that natural resources must be used in the most efficient and sustainable way possible; and

WHEREAS, the guiding principles of Zero Waste are: managing resources instead of waste; conserving natural resources through waste prevention and recycling; turning discarded resources into jobs and new products instead of trash; promoting products and materials that are durable and recyclable; and discouraging products and materials that can only become trash after their use.

NOW, THEREFORE, BE IT RESOLVED BY THE BOULDER COUNTY BOARD OF COUNTY COMMISSIONERS (BOCC) AS FOLLOWS:

BOCC hereby adopts Zero Waste as a guiding principal for all county operations and for outreach and actions within the community. BOCC hereby directs staff to develop a Zero Waste Plan for Boulder County.

The Zero Waste Plan will be completed by December 2006, and will address Boulder County, "the organization," and Boulder County, "the community and geographic area." Boulder County is committed to promoting, facilitating, and modeling Zero Waste in the community. The Plan will be designed to achieve the initial goal of: increasing waste diversion for Boulder County government and for the county as a whole, to 50% or better by the year 2010. The ultimate goal of Boulder County's Zero Waste Plan is to eliminate waste (i.e. achieve

Zero Waste or "darn near") by 2025.

The Plan will assess the county's current levels of resource use and wastage; identify objectives; and recommend short-, medium-, and long-term actions to reach these goals. The Plan will, within budget constraints, seek to effectively, efficiently, and quickly address the issues identified as well as allow for a public process to address recommended actions.

A. BOCC hereby directs staff to consider, for inclusion in the action plan, green purchasing and waste reduction measures targeting county facilities. The BOCC directs staff to consider the costs and costs savings associated with these actions; their impact on waste reduction and environmental purchasing practices; their educational value to the community; their operational feasibility; and the appropriate phasing of such actions. Actions to be considered include, but are not limited to:

1. Standardizing county purchasing practices to reduce cost, reduce unwanted surplus items, and increase operational and delivery efficiencies.
2. Revising the county Environmentally Preferable Purchasing (EPP) policy to clarify the county's intent to purchase environmentally friendly products whenever and wherever fiscally possible.
3. Changing procurement instructions to vendors requiring that bids and proposals do not waste paper or reduce paper use and plastic bindings or other packaging.
4. Using "take back" language in procurement documents to require that equipment suppliers take back old equipment for reuse or recycling.
5. Encouraging utilization of re-useable packaging.
6. Making waste reduction and diversion a priority through policies, improving in-house equipment and collection services, and urging employees to conserve energy and save money.
7. Quantifying the county's mass balance of inputs (products and services) to outputs (solid wastes, hazardous wastes, recyclables, compostables).
8. Determining current waste diversion levels for county government and countywide.
9. Assessing construction practices and facility operation and maintenance practices for opportunities to reduce the quantity and toxicity of wastes produced and to increase diversion.
10. Assessing waste reduction opportunities at county meetings and events through the use of durable, recyclable, and compostable food service items.
11. Including in the action plan a requirement for an annual report to the BOCC that evaluates waste reduction efforts, progress in achieving Zero Waste and other efforts as identified in the plan.

B. BOCC hereby declares its intent to pursue green purchasing and Zero Waste countywide through education, regulatory measures, and public policy. The county will consider the impact of these measures on residents, businesses, and communities, and will conduct inclusive public processes incorporating affected parties. Measures to be considered include, but are not limited to:

1. Requiring volume-based residential trash collection and recycling in unincorporated Boulder County and determining opportunities for municipalities and the county to work together to pursue this countywide.
2. Requiring increased diversion of organic waste streams generated in unincorporated Boulder County for beneficial reuse (as wood mulch) or composting into soil amendments and other products; supporting the efforts of public, private, and nonprofit entities in providing infrastructure for organics recovery.
3. Supporting and promoting increased traditional and non-traditional recycling through modification of the recycling center to accept and process single stream materials, education and outreach, and support of facilities providing supplementary recycling opportunities.
4. Supporting increased diversion of construction and demolition waste streams.
5. Requiring new development to provide adequate indoor and outdoor space for recycling and other waste diversion containers.
6. Instigating and supporting legislation at the state and local level that supports Zero Waste.
7. Seeking public and private partnerships to leverage limited public resources to accomplish our Zero Waste goals.
8. Incorporating these principles into updates of the Boulder County Comprehensive Plan.

C. BOCC hereby directs members of the Sustainability Task Force to draft an action plan as outlined in this document, recommend actions for consideration in the upcoming budget cycle, and identify additional activities that merit consideration.

ADOPTED this 22nd day of November, 2005.

BOARD OF COUNTY COMMISSIONERS

Partners for A Clean Environment (PACE) Zero Waste Plan Elements: Provide Free Waste Audits, provide a municipal advocate/contact, develop and support zero waste branding and education, prepare and implement zero waste outreach program for the business sector.

Summary: In 2010, the PACE program will offer businesses the opportunity to achieve Area of Excellence Certificates in Resource Management, Energy Efficiency, and Water Conservation. The Resource Management Area of Excellence will be a key component of the Boulder County Zero Waste Plan. Through this initiative PACE will work with businesses to achieve a 70% waste diversion rate, educate employees and customers about resource management, and develop a Sustainable Purchasing Area of Excellence.

Implementation Strategy: PACE will work with businesses to determine if they currently meet the 70% diversion goal by conducting a free waste audit. Businesses that meet the 70% diversion goal, and minimum PACE criteria, will be certified as a PACE partner with an Area of Excellence Award for Resource Management / Zero Waste. PACE will work with the business to initiate a waste management and purchasing plan based on the findings from the waste audit to:

1. Develop an Action Plan of prioritized, prescriptive measures for waste management and purchasing.
2. Develop an education plan for customers and employees to recycle, compost and purchase to meet the business waste plan.
3. Identify and implement the highest priority waste reduction and purchasing measures that will significantly move the business toward reaching the 70% diversion goal.
4. Implement the education plan

Examples of actions that will move business significantly toward achieving 70% diversion:

	Conservation Measure
Waste Diversion	Add a Hard-to-Recycle program (plastic bags, wood, metals, packaging, Styrofoam, books etc.)
	Start a composting program (both by composting and offering compostable products.
	Conduct an education campaign to increase recycling rate with employees (including doing a trash sort)
	Research and implement a diversion program for the material that is of the highest composition in your waste stream.
	Conduct an necessary facility alterations and additions
Chemical Management	Conduct an inventory of chemicals used and purchased.
	Replace a hazardous material used in the facility with a safer or non-hazardous one.
	Develop an integrated pest management plan to address indoor and landscape pest problems. Select only outside service providers that can implement this policy.
	Reduce or eliminate the use of CFC containing aerosols
	Identify any indoor air quality issues that may be due to chemical sources
Purchasing and Policy	Develop and implement a policy for recycling or reusing outdated or unsold merchandise/equipment.
	Develop and implement a comprehensive policy creating sustainable purchasing practices focusing on reducing waste.
	Install electric dryers or roll paper towels in restrooms instead of C-fold paper towels.
	Conduct an inventory of products that are consumed by the company and evaluate against PACE sustainability criteria (tbd)

Annual tonnage diverted: Boulder County: since 1995 PACE has met with over 1,300 different private businesses and municipal operations

Approximately 20% of all key PACE sector businesses in Boulder County (50% in the cities of Boulder) are currently PACE-certified.8,9 Based on the PACE certification criteria, certified businesses already achieve a higher rate of waste diversion than non-certified businesses (approximately 30% diversion)

Additional diversion percentage: PACE businesses achieving an Area of Excellence designation for Resource Management / Zero Waste would increase diversion rates by approximately 40%.

Government costs: $2,000 to $5,000 per year for smaller communities and $12,000 per year for larger communities

Educational Value to the Community: This project offers an opportunity to educate the commercial community about the cost-savings and environmental benefits associated with reuse and recycling.

Operational Feasibility: While the Area of Excellence component is new, the design is based on the input of nearly 100 businesses. In addition, PACE has a proven track record working with businesses in communities across Boulder County.

Measures of success: PACE will conduct before and after waste audits to determine the success of the program and recertify businesses each year to: 1) ensure that they maintain the diversion rate goals; and 2) implement at least one area of continuous environmental improvement each year.

Estimate of Job Potential in the Reuse / Recycling / Compost / C&D Industries

2006 Business Listings

This is an incomplete listing of the type of employment opportunities afforded by Boulder County resource management programs. Baseline FTEs compared with additional jobs added through the Zero Waste Plan have yet to be determined. The businesses indicated by hollow "bullets" were found online and have yet to be confirmed as still doing business in or near Boulder County.

Deconstruction services / resale

Alpine Demolition (Alpine Recycles)
Colorado Demolition
Haul Away Recycling Inc.
Mendoza Demolition Services (recycled building materials)
Resource Sales Yard

Furniture Repair

Antique Furniture Repair
Antique Place
Custom Upholstery and Trim
Definite Improvements
Forrest Thomas Finishing
Jacobs Furniture Repair
Restoration Arts
Wayside Interiors and Upholstery

Document destruction / shredding

Better Shredder Inc.
Data Destruction Service
DocuVault Secure Shredding
Security Document Destruction Inc.
Shred-It (Denver)
Tri-R Shredding (Denver)

Plastics Manufacture?

Colorado Plastic Products Inc.?

Asphalt reprocessor

Used Computers

Action Computers Inc.
Computer Renaissance
Extronex
Mac Shack
PC Brokers
Reputable Systems

Other Electronics

Cartridge World
Magnatude Inc.
Wireless Alliance LLC
Collective Good
Cellular Recycle

recycling collection

Boulder Scrap Metals Pickup
Boulder Hauling Co.
Data Destruction Services
Eco-Cycle
Green Mountain Recycling Services
G & S Mountain Recyclers
Marks' Hometown Hauling
Green Girl
Unwanted Appliances Hauled Away
Western Aluminum Recycling
Western Disposal (Recycling Department)
Wise Recycling

Recycling Systems

Komptech
Compost
Colorado Materials
Lee Hill Peat
Soil Rejuvenation Products
Colorado Wood Products

Automotive Salvage-types

Bizzy B's Recycling
Boulder Electric Motor Co.
Ty's Re/Cycle Shop

Consignment

Boulder Sports Recycler Inc.

Boulder County government intends to build on a variety of important existing and future collaborations to implement the Zero Waste Plan. Primary among these partnerships are the national, state and local governments that have instituted their own Zero Waste initiatives. Non-governmental organizations and private businesses, too, play a vital role.

In addition to the private and non-profit ventures listed as resources on pages --- and ---, Boulder County benefits from the following governmental and non-profit collaborations, alphabetized in this order: Boulder County boards and municipalities, Broomfield, state resources, non-profit partners.

Boulder County Consortium of Cities: Established as a forum to promote regional communication and cooperation among governments, the Consortium comprises representatives from every city and town in Boulder County, as well as a county commissioner, who chairs the organization. The Consortium facilitated countywide adoption of the Sustainable Energy Plan, which contains zero waste elements, and will be asked to facilitate adoption of the Zero Waste Plan, after its passage by the Commissioners.

City of Boulder: Boulder has developed a (get correct title: Resource management plan) that complements the Boulder County Zero Waste vision by supporting a variety of initiatives:

- Pay-as-you-throw garbage rates
- Curbside compost collection for single-family residences
- School and business education programs
- Space for operation of the non-profit "ReSource" used building materials outlet and eco-cycle's "Center for Hard to Recycle Materials"
- A trash tax to fund these initiatives

Town of Erie: Erie holds one of several standing positions on the County's "Resource Conservation Advisory Board" (RCAB), which advises the Board of County Commissioners on Zero Waste policy.

Town of Jamestown: In addition to participating in the RCAB, Jamestown sponsors a monthly recycling collection event operated by the non-profit eco-cycle.

City of Lafayette: Lafayette participates in the RCAB and supports a (get correct title: Sustainability Advisory Committee) that advises the Lafayette City Council on Zero Waste measures.

City of Longmont: Longmont partners with Boulder County through the RCAB and also demonstrates Zero Waste model programs in accordance with its (name the formal plan, here). The city's compost yard is open to residents from outside the city limits.

City of Louisville: Louisville participates in the RCAB and maintains a "Sustainability Advisory Board" that advises city decision-makers about Zero Waste initiatives. Through a contract with Western Disposal, Louisville offers its residents curbside garbage, recycling and compost collection service.

Town of Lyons: A "Sustainable Futures Committee" in Lyons supports the town's RCAB representative in developing Zero Waste programs for the community. Boulder County's Resource Conservation Division maintains a recycling drop-off center in Lyons.

Town of Nederland: Nederland has a position on the RCAB. Boulder County's Resource Conservation Division maintains a recycling drop-off center in Nederland. To promote forest health, the Boulder County Land Use and Parks and Open Space divisions jointly operate a Community Forestry Sort Yard for trees and slash in Nederland.

Resource Conservation Advisory Board (RCAB): The Resource Conservation Advisory Board advises the Board of County Commissioners on major waste diversion policies and strategies, including policy and action recommendations for this long-range Zero Waste Plan.

Town of Superior: A representative from Superior sits on the RCAB. The town also demonstrates Zero Waste events and similar initiatives supported by a community sustainability group.

Town of Ward: Ward has a position on the RCAB.

County and city of Broomfield: Broomfield, though no longer a Boulder County municipality, utilizes the services of the Boulder County Hazardous Materials Management Facility (HMMF), which is due to open in late 2010 in Boulder. Boulder County also provides for a community wide household hazardous waste collection event as requested by Broomfield. Broomfield also has a seat on RCAB.

Boulder County Public Health: Employees of Boulder County Public Health provide Zero Waste education through their website

and the "Partners for a Clean Environment" (PACE) business program. PACE Zero Waste efforts are also funded by the cities of Boulder, Lafayette, Longmont and Louisville.

Colorado Department of Public Health and Environment (CDPHE): The Department licenses landfills, recycling centers, compost facilities and hazardous materials management facilities throughout the state, including in Boulder County. CDPHE also provides technical and financial resources to various Zero Waste initiatives, including the funding of compost equipment and reimbursement for recycling marketing expenses.

University of Colorado, Boulder (CU): The University of Colorado is one of the largest employers in Boulder County and a national leader in zero waste research, education, and operations. CU faculty members and students have directly assisted local governments and recycling programs. More campus-community collaboration on sustainability initiatives and joint funding requests is anticipated. CU has increased support for academic integration in sustainability, and a clearinghouse of opportunities is being developed.

Colorado Association for Recycling (CAFR): Members of the association work with staff and committees to develop resource management policy at the state level. Zero Waste elements, including a compost committee and product stewardship committee, are a focus of the non-profit. The Boulder County Resource Conservation Division is a CAFR member, as are several individual county staff members.

2010 Feedback Period Comments and Responses

These comments were compiled from 42 survey responses, public input at two community meetings, direct email from 15 individuals and businesses, notes from a Boulder County Food and Ag Policy Council meeting and one dictated recommendation later confirmed via email. The source for each response is indicated in parentheses at the end of each statement.

At staff's discretion, some lengthy comments have been divided into different response categories (support, suggesting improvements, questions, etc.) so that answers could be tailored for clarity. Spelling, punctuation and grammar within each question submitted online have not been changed.

Responses were composed by Boulder County sustainability staff; approval of staff response was authorized by the Boulder County Resource Conservation Advisory Board at their June 23, 2010, meeting.

Table of Contents

General Comments in support . . . . . page 55

General Comments in opposition 55

General Comments suggesting improvements 56

General Comments, neutral 57

Process Comments 58

Testimonials 59

Specific Comments grouped by recommendation:

Support capacity for construction and demolition transfer, sorting and possible processing. 59

Require construction and demolition project recycling and reuse 60

Clean, damaged dimensional lumber should be included in slash management programs 61

Support capacity for additional composting. 61

Provide curbside collection of organic materials. . . 62

Total at-home composting program 62

Support municipal tree limb drop-off facilities 63

Direct shredded paper to composting system 63

Volume based collection with embedded recycling. 63

Electronics collection events 64

Offer metal recycling at three transfer stations . . . 64

Support commercial food composting 64

Commercial volume-based collection with embedded recycling 65

Support municipal and business efforts to recycle electronics 65

Provide free waste audits for businesses. 65

Land Use Code update – improve commercial and multi-family recycling requirements 66

Municipal contact and advocate 66

Develop "Zero Waste" branding and initiate comprehensive outreach. 66

Provide zero waste building planning assistance . . 66

Determine Zero Waste funding mechanism. 66

Require trees and slash from grubbing and landscaping to be chipped and left on-site 66

Lobby for statewide ban on yard debris disposal . . 67

Lobby for statewide ban on food scrap disposal. . . 67

Lobby for statewide ban on recyclables disposal . . 68

Multifamily organics collection 68

Single-stream multifamily collection countywide . . 68

Secure advanced disposal fees on priority items . . 69

Consider tax on plastic bags 69

Zero Waste event planning 69

Promote markets for county-generated recyclables and organics 70

Support extended producer responsibility model at the state and local level 70

Long-Term Recommendations 71

New Recommendations 71

Questions 72

General Comments in support: At their June 23 meeting, members of the Boulder County Resource Conservation Advisory Board acknowledged receipt of these comments with appreciation for their submittal. No additional response was deemed necessary.

- Is there enough (recycling / composting) business out there for other people to compete? Sure! (email)
- We've got a great start and okay progress, but I'd like to see just a bit more urgency, especially with regard to construction materials and composting (Survey)
- Need to see commercial/business sector to step-up more with special emphasis on reduction. (Survey)
- I'm sure small businesses will argue with aspects of the plan. I like it, and support strong measures (like requiring C&D recycling, setting up ADF's and banning or at least taxing plastic bags.) (Survey)
- Goals should be high. It hopes to do a lot, which is great (Survey)
- Plan looks good. I think it addresses the major issues in a logical sequential order. (Survey)
- Boulder should be a leader in this area. The less that ends up in a landfill the better. It will teach consumers to think about the entire life cycle of a product and its packaging. (Survey)
- Thanks for doing what you do! Let's get ahead of the game early on in the push toward Zero Waste by 2025. (Survey)
- It's better then a kitten with a can stuck on its head. (Survey)
- We need to make it easy and cheap! (Survey)
- I realize that everything cannot be on the short-term list, but it would be nice to have more (now) and eliminate some later - either by RCAB or the Commissioners (public meeting survey)
- The Center for ReSource Conservation and the ReSource Director would like to thank the Boulder County staff for their clear commitment to the issues of zero-waste in our community. The ReSource Director has reviewed the entire document and is in strong support of the goals and recommendations outlined in the Zero-Waste Plan Draft. The Zero-Waste Plan Draft introduces ambitious goals to our community which will require logical, planned infrastructure and strong support from the municipality to their community landfill diversion partners. Logistical, financial, and regulatory support will be needed for existing and future programs to meet the goals outlined in the zero-waste plan. (email)
- I like this part (implementation timeline) because it feels more like a plan, rather than just a numerical analysis of suggestions. How are programs split between years—is it simply ease of implementation or are their themes? (email)

General Comments in opposition: At their June 23 meeting, members of the Boulder County Resource Conservation Advisory Board acknowledged receipt of these comments with appreciation for their submittal. Staff responses to individual comments are indicated, below.

- nervous that zero waste will be implemented and hurt small businesses. (email)
- Much of Europe has already decided that Zero Waste is not practical or realistic, and they are beginning to realize that new clean burning incinerators will be the best method of disposal for some trash items. (Survey)
- You promote this program as being easy and better, when in many ways it will be burdensome and expensive. (Survey)
- Product stewardship will affect manufacturers' ability to hire (public meeting)
- For businesses, it's difficult to buy recyclable / compostable products (public meeting)
- There are no jobs for scrap metal collection (public meeting)
- Sorta bossy (Survey)
- I appreciate the importance of reducing trash in land fills however, to tell people they can't buy certain products and must compost feels very "big brother" to me. (Survey)
- I believe that much of the Zero Waste plan could and should be accomplished through the free market system. The Zero Waste plan will increase costs on both businesses and residents and will place an undue burden on both. People are already in an overloaded state, and Zero Waste will add hours to their week as they attempt to sort, store, prepare and try to find places to recycle/repurpose their trash. (Survey)

- This plan is making many assumptions, not the least of which is that other parts of the country are not proceeding with plans similar to this one, and will not produce or package items as the plan might mandate. (Survey)
- The County is already placing burdens on waste haulers as you have required them to weigh all the waste they have been hauling. It is indicated in the plan there will be a request for a tax increase, this is unacceptable in our current economy. (Survey)
- The Zero Waste program will grow both Boulder County government and each city that adopts the program. It will create a bigger tax burden for all of us in wages and benefits to pay new government employees. You discuss "free programs", there are no free programs, tax payer dollars are used to provide these programs. (Survey)
- Additionally, you talk about educating students in the schools so they can comply with Zero Waste. This is not acceptable as the Commissioners are operating from their own ideology. School is for learning about history, math, science and English. Not the Commissioners view of global warming or climate change. (Survey)
- When I first read the Zero Waste plan, I thought it might be someone's practical joke or comedy routine. Surely, you cannot be serious? What scares me is it appears you indeed are serious about this plan. This plan has miserably failed in other countries and becomes so entangled with corruption and under-the-table dealings, it bleeds into a nightmare at the expense of the taxpayer. (email)

  Staff Response: *Boulder County sustainability staff responded to this email with a request for more specifics but received no reply. A copy of staff correspondence is available on request.*
- I am very concerned as I am a liberty minded individual and really don't want my freedoms taken away. I do, however, love my country and appreciate what God has given us as people and think we should do what we can to take care of and respect our world. (email)
- The graph on page 6 is confusing (mixes timeframes in single pie chart) (Survey)
- We're disappointed that it will be 10 years before we reach 70% when there are communities like San Francisco and Fresno who are at 70% today. Fresno jumped from 29% to 71% in just 6 years with strong programs in the commercial sector and C&D materials. (email)

General Comments suggesting improvements: At their June 23 meeting, members of the Boulder County Resource Conservation Advisory Board acknowledged receipt of these comments with appreciation for their submittal. Staff responses to individual comments are indicated, below.

- If making business recommendations, be sure to identify those businesses that are complying with current regulations. (email)
- Strongly suggest we target maximizing current recycling participation over the near future while we build composting infrastructure. Then we can move to organics and have "themes" or big steps forward rather than a mash of different programs. (email)
- Combine residential and commercial into one timeline. (email)
- There is no cookie-cutter approach to reaching 70%—different approaches are needed for different communities and political and legal atmospheres—but there are some fundamental programs and infrastructure that must be in place for communities to reach 50% and 70%. One of them is PAYT, which this plan expands. Another is universal or bundled services, meaning all trash haulers offer recycling and later composting service in addition to trash services (as embedded costs). Finally, mandatory composting and recycling is needed to reach 70% recovery. (email)
- Not enough pressure on commercial entities. If San Francisco can pass and enforce laws leading to zero waste for both residents and companies (including banning retailers from providing plastic bags) surely Boulder County can do more to mandate zero waste policies. Recommendations aren't enough; requirements (with stiff fines to pay for implementation and enforcement) are the only way to guarantee compliance. (Survey)
- Could be more tough on local business. A lot of infrastructure is already available. Need more incentives and requirements. (Survey)
- I'd like to see a more aggressive approach regarding three key areas: commercial recycling, construction materials (150,000 tons / year in Boulder County ?!?!), and especially COMPOSTING (25,000 tons of organics / year still not being composted

in Boulder County. . . this is the most basic step toward Zero Waste that we can take.) (Survey)

- I found the visual pie charts very helpful, but how does the commercial /residential fit together? The chart's don't seem to add up in this draft . . . can you please make that clearer? (Survey)

  Staff Response: *Some recommendations overlap the commercial and residential sectors, which affects how they "add up." Better graphic design tools might help clarify these visuals.*

- The plan would serve the public better if it focused on what the problems are and possible solutions encouraging lots of input from the public and experts. A county plan should not be a PR opportunity for itself. It should be a sincere effort to improve itself. (email)

- We would like to see more emphasize on methane avoidance rather than just on CO_2. Some programs, like food waste recovery, may be more impactful than straight CO_2 reductions from say metal recycling. It's definitely important to use MTCE to compare apples to apples at the end of the day but we think it should be noted in the text where the reductions are primarily methane and where they are CO_2 reductions. (email)

  Staff response: *This level of greenhouse avoidance was not modeled in the draft plan. If the new EPA "WARM" calculation model becomes available before the plan is completed, it might be substituted for the earlier numbers.*

- A lot of the numbers don't add up and I've point that out throughout the report. In many cases, we're talking about a lot of available tonnage but programs only capturing a small fraction of that. From the first few strategies, it appears that most tonnage is coming from the C&D and organics streams and those should be a top priority in both the residential and commercial sectors. (email)

- To get to 70% diversion, we need all sectors to have universal recycling and composting services and relatively high participation rates. This will not happen with voluntary or encouraging efforts. We need to start mandating services and later participation. This is particularly true in the commercial sector. We are very disappointed to see this plan outlining only 4% additional diversion from the commercial sector. The data we've seen from the city of Boulder show the commercial sector is far underperforming the residential sector. Our experience with other communities shows residential tonnage is always the first target of Zero Waste plans but moving toward and past 50% and beyond requires strong commercial programs beyond just voluntary measures. (email)

- Be careful when you say that something is "free". I've heard people say that the yard waste drop-off in Boulder at Western is "free", but actually it is costing taxpayers $105,000 per year to handle about 3,000 tons per year (?) ... that is NOT free. (email)

- I'm doubtful of these numbers. According to EPA data, food and yard debris is 25 % of what we throw away after recycling, which would put the number closer to 62,500. I know we're now recovering some food but I doubt the recovery rate is very high because composting programs have low participation rates to start. Same goes for paper, which can be about 20% of what we throw away after recycling, putting the number closer to 50,000. Unless this 250k tons of garbage is what we generate every year—if so, it's very unclear. Data from US EPA MSW report, 2008: http://www.epa.gov/epawaste/nonhaz/municipal/msw99.htm (email)

General Comments, Neutral: At their June 23 meeting, members of the Boulder County Resource Conservation Advisory Board acknowledged receipt of these comments with appreciation for their submittal. At staff's discretion, some of these suggestions (provision of a table of contents, etc.) have been incorporated into the revised plan. No additional response was deemed necessary.

- The draft Plan needs a table of contents and tighter introduction as elements of "document hygiene." (public meeting) (A chart format was suggested for summarizing the recommendations.)

- As the program becomes more successful it will actually get harder because all of the "easy" items will be been completed. Closing the last 10% will be the hardest. It will take lots of small items to keep the initiative moving. At some point more speculative, expensive and complex efforts will be required. It may be a good idea to figure out how to continually try out new ideas. (Survey)

- Commercial totals and relative contribution seems low. Diversion from businesses and institutions is typically less than Boulder County residential sector so should be a greater priority in this plan. More diversion should be expected from commercial and institutional sources like school districts, federal labs, and the university. More programs could be included for commercial/institutional sector. (Survey)

- Include University of Colorado in Processing Transfer sites (Survey)
- In "setting an example," include University of Colorado's initiatives to meet the State's directives for paper reduction and zero waste. (Survey)
  - Lisa Skumatz's methodology paper did not speak to the CO_2 estimates and whether they came from WARM and were lifecycle emissions or if they only represented avoided landfill emissions. This is an important point that should be clarified in the text. Just examining CO_2 data can also be a misguiding tool since landfills get credit for carbon storage for burying materials like yard waste. I think it's important to include not only local emission savings but any lifecycle emissions savings that occur outside of Boulder County, if only for reference.
- There needs to be more emphasize on this (green practices as a marketing tool), especially since it's so important for our community. (email)
- (Break) strategies up into three categories: Programs, Infrastructure, and Rates, Rules & Incentives….to help organize. (email)
- Break this (existing diversion) apart into residential and business when possible since the plan lays out different strategies. (email)
- This (reason for relegating some recommendations to long-term) is very vague and could be expanded with details about certain program areas, funding commitments, etc. (email)

Process Comments: At their June 23 meeting, members of the Boulder County Resource Conservation Advisory Board acknowledged receipt of these comments with appreciation for their submittal. Staff responses to individual comments are indicated, below.

- I think the plan has a lot of good ideas but I was wondering is there a way to leverage the vast community in a way where more people can participate. I like the idea of this survey but maybe there would be a way to solicit individuals to participate in ongoing surveys. This is a big issue and the more early adopters can assist the easier it will be to roll out programs. (Survey)
- Working with municipalities is going to key in this. Little towns like Superior need help sometimes in getting things passed by the board. (Survey)
- You have promoted this process in a closed environment with selected audiences and have not made public the true ramifications in a transparent way. (Survey)
- There is way too much information for me to comment on specifics at this point. But I strongly feel the County should provide information on how this program will impact homeowners and businesses financially. (Survey)
- Please stop this public "ram" for the moment and let's look for some volunteers to present the counter side to this plan with some real facts. Then, let's present both views of this to the public in open forum and fairly discuss both sides in the newspapers so the general public can properly see both sides. There are some terrible side-effects of Zero Waste and in many situations it doesn't solve any problems, but instead creates more problems. Please take a breathe and allow some debate in public view from both sides.
  - Zero Waste staff responded to this email shortly after receipt with the following information: The development of the Zero Waste plan has been taking place at public meetings of the Resource Conservation Advisory Board for several years, following the adoption of Boulder County's Zero Waste Resolution in 2005. This opportunity for the public to comment on the draft plan represents yet another forum for open, public input.
  - Present the counter side to this plan with some real facts: This is the public's opportunity to provide such information, which will be forwarded to the Resource Conservation Advisory Board (RCAB) at a public meeting, either June 23 or July 28 and, later, to the Boulder County Board of County Commissioners and the individual jurisdictions within Boulder County that might choose to adopt the finished plan. I'm keeping the public comment period open until the end of this week (June 18) to gain feedback from under-represented communities if you'd like to take advantage of this opportunity. Please provide real facts in your response.
  - Let's present both views of this in open forum: I'm sorry if you missed the public comment opportunities earlier this month, which were publicized in several media and designed to provide the forum you seek. Again, your next opportunity is the RCAB meeting on June 23. These meetings begin at 4:30 p.m. on the fourth Wednesday of every month at the Boulder

County Resource Conservation Division meeting room, 1901 63rd Street, Boulder. …

- Fairly discuss both sides in the newspapers: I would love to see more discussion of Zero Waste ideas and options in local media. They seem to like documents to back up their reporting, so a point-by-point response to the Zero Waste Plan would probably get us furthest. The response I'm suggesting here could double as your input on the plan itself.
- The debate in public view from both sides that you request is going on now, as I collect, record and plan to share all responses to the Zero Waste Plan. These comments that you have sent in will be incorporated into the larger document that shows all responses to the draft plan. I encourage you to take advantage of the extended comment period and the upcoming public meetings if you'd like to provide more input.

Testimonials: At their June 23 meeting, members of the Boulder County Resource Conservation Advisory Board acknowledged receipt of these comments with appreciation for their submittal. No additional response was deemed necessary.

- The thing about Zero Waste is that it isn't that difficult to implement from a personal /residential level. I do not know about feasibility for commercial entities, but for us, it is close to becoming a reality. I am a part of a family of 4 individuals and a dog. Every week, we fill our trash can about 1/ 10 full. We compost, curbside recycle, CHARM recycle, reuse materials, etc. We are pretty efficient, but there is room for improvement. Our neighbor, a single lady in her late 60's, fills her trash can to overflowing every week. She is not the excessive type, either, just not interested in the Zero Waste idea. If we can do it, anyone can. (Survey)
- I wonder how to deal with fatigue. I am a fanatic recycler but have had several experiences where I observe huge waste in events, construction, retail and industrial. It's hard not to conclude that I'm crazy or at least just spitting in the ocean. It's too hard to get clear, honest unbiased information about this. Example of how hard and confusing it is even to the motivated: Head to CHARM with a metal paint can, thin interior of dried out latex paint. Attendant told me to take it to the County hazardous waste facility by Western off Valmont. When got there one of the employees let slip "we are just going to put it in the landfill." Another employee told him to be quiet. So why didn't I just throw it in my trash? Should I have taken it to the metal recycling bin? (Is a thin film of brand new latex paint any more hazardous than the paint on most of the things sitting in the metal recycling bins?) (Survey)
- I think education and commitment here are the most important aspects. We as contractors can only do what are customers are willing to pay for. My experience has been that though there is a lot of good talk, our customers (and more importantly their tenants) do not want to pay extra for more energy efficient practices. We typically handle the recycling of construction debris as part of our daily business, but installation of more efficient products (i.e. HVAC, lights, toilets, etc.) is something that needs to come from the end user and their willingness to pay for it. (email)
- (Our recycling business has) done lots of work to improve …data tracking systems (email)

Specific Comments grouped by recommendation: At their June 23 meeting, members of the Boulder County Resource Conservation Advisory Board acknowledged receipt of these comments with appreciation for their submittal. Many of these comments were deemed consistent with the recommendations they referenced. In these cases, no additional response seemed necessary. Staff responses to other comments are indicated, below.

1. Support capacity for construction and demolition transfer, sorting and possible processing

- Make convenient collection facilities available for building materials (public meeting)
- I support recovery and recycling for construction and demolition materials. We would love to have a place to take these; they're piling up in our back yard, waiting for this initiative. This also should be a requirement for businesses. (Survey)
- These are the portions I am very glad to see in the proposal: centralized asphalt shingle and C&D product collection locations (Survey)
- We would like to see local facilities to divert: carpet, drywall (this is more of a global issue since there does not appear to be a viable use for drywall waste), concrete, acoustical ceiling tiles. (email)

  Staff response: *A full materials list is likely to be finalized as the facility is closer to opening*
- I am in favor of prioritizing C&D - I think the County will get the most bang for the buck. (email)

- Please support increased capacity for ReSource operations at 6400 Arapahoe, as deconstruction will be a key strategy to meet C&D goals, ReSource will need increased space for reusable materials and processing. (email)

  Staff response: *The efficiency of this idea is part of ongoing analysis by Resource Conservation Division staff*

- Consider the Center for ReSource Conservation and ReSource as a partner for any C&D recycling facility activities. We believe consistency in operational brand between the reuse and recycling deconstruction activities would help to provide better customer service and market development. (email)
- The Resource Conservation Advisory Board determined during Plan discussion that a collaboration section should be added to the plan to illustrate current partnerships between resource conservation entities in Boulder County. RCAB members felt that discussion of specific partnerships was not appropriate to this recommendation.
- CU is interested in partnering on projects including C&D re-use & recycling (Survey)
- So this (C&D generation estimate) is 60% of the total tons disposed in the county—that seems pretty high—but if it's true, this really should be a top priority in the ZW plan (email)
- Better identification on what infrastructure is available and what is needed in terms of materials, i.e. does the county need better aggregate recycling, wood drop-off, capacity for mixed waste, etc. (email)

  Staff response: *This information is included in the January 2009 report "Construction & Demolition Waste Diversion: Baseline Information & Gap Analysis" completed for Boulder County by Gracestone Inc.*

2. Require construction and demolition (C&D) project recycling and reuse

- San Diego's C&D ordinance mandates 90% recycling of inert materials and 70% for all other C&D. It seems to me we should be aiming higher on C&D. (email)
- The Resource Conservation Advisory Board determined during Plan discussion that a stronger infrastructure for recycling construction waste, and stronger markets for materials from deconstruction, should be in place in Boulder County before C&D mandates are enacted. The recommendation will be revised to incorporate a phased increase in diversion.
- I support Eco-cycle's recommended 75% recovery rate for construction materials (Survey)
- Can Cnty work with Resource 2000, which has a huge, underused, understaffed facility? (Survey)
- The Resource Conservation Advisory Board determined that discussion of specific partnerships was not appropriate to this recommendation.
- Please do require C&D recycling and re-use; we had difficulty persuading our contractor to go through with this step when we remodeled ("too much trouble . . . too expensive . . .")
- Recycling/diversion needs to be cost effective for our customers. Trucking used carpet to Englewood is not cost effective as an example. (email)
- Construction waste recycling is strongly tied to the BuildSmart and Green Points Deconstruction Programming, including;
- C&D recycling is incentivized through the reused material donation tax deduction, lessening or eliminating the additional cost to the homeowner/contractor
- Much of the existing construction waste recycling is driven through the education provided by the City of Boulder Deconstruction Professional, including knowledge of existing infrastructure for C&D recycling including locations.
- The document states the public will receive education in the value of C&D reuse and recycling, this should include support in the development of the individual deconstruction plans for the homeowner or contractor, in order to simplify and streamline this process. (email)

  Response: *RCAB discussed the deconstruction plan element and determined it would be further considered as the recommendation is implemented.*

- Why are there no C&D programs for the commercial sector?! We should have BuildSmart or deposit-based recycling requirements for all sectors by 2018 for 80% or more of C&D materials, based on successful CA programs that have been in place for years. (email)

  Staff response: *This recommendation, though included in the "residential" section, would also apply to commercial C&D. RCAB determined that differentiation between commercial and residential construction recycling and, also, deconstruction / remodeling reuse options could be detailed more explicitly in the recommendation text.*

3. Clean, damaged dimensional lumber should be included in slash management programs.

- First, I am extremely worried about collecting dimensional lumber wood waste at (Boulder County) Community Forestry Sort Yards (CFSYs) because of the worry of metal being found in the material. Metal will severely damage a chipper if accidentally sent though the machine. Also, at our Community Forestry Sort Yard a majority of the slash we collect is burned and not recycled. We use our air curtain burn to burn slash because their really aren't local markets that will purchase this type of low value material. I would worry about the effectiveness/merits of collecting dimensional wood waste at the community forestry sort yards because we already have a hard enough time locating a market for the material we currently collect. Also, if the collected dimensional material is burned is that better for the environment then sending it to a landfill? (email)

  Staff response: *This recommendation is aimed at municipal programs and will not impact CFSYs. Any de-nailing requirements as part of the definition of "clean wood" will be considered as the recommendation is implemented.*

4. Support capacity for additional composting

- If money were being funneled to a county facility for compost, it would create a level playing field for other businesses to open and be profitable. (email)
- Eco-Cycle is tired of taking compostables to Platteville (public meeting)
- Would like to see countywide collection of organics and a county facility to process (Survey)
- I think the timeline for composting organics could be moved up. (Survey)

  Staff response: *This element will be implemented as soon as siting and financing are finalized.*

- I support providing capacity for additional composting. It would be wonderful to have ways to divert organics from the landfill and use them for compost. (Survey)
- Household organic composting will always be minimal compared to what we can do by combining household organic waste; let's make a BIG waste yard, sell the product for a minimal price (C of Bldr's price is far too high), and incorporate commercial food wastes – require restaurants & grocery stores to participate. Make folks sign a hold-harmless agreement when they buy the finished compost for home use. (Survey)

  Staff response: *Pricing and certification details will be developed as the site becomes operational*

- We think that the compost issue should include a coordinated compsot and mulch distribution to all the local government entiites. Finding a home for compost and mulch is difficult and the logical way to get rid of it is to use it on public parks, golf courses, baseball fields, etc. (email)

  Staff response: *This element will be covered under the "marketing" recommendation*

- this is another HUGE area that has been consistently back-burnered due to cost of land, location etc. We desperately need a large scale commercial (or government?) composting that will serve the whole county. (email)
- The Problem: Boulder County land use policies regard composting as industrial and have sabotaged efforts deal with organic wastes which pose the greatest environmental problem and are growing in quantity. These include yard and wood waste, food waste, animal waste, mortalities, shredded and soiled paper, corn starch products, etc. Before imposing regulations on every other sector, the county should change its policies and encourage composting on private farms and county open space.
- Since serving as a member of the Boulder County Solid Waste Task Force ('92-'94) which supported the '94 tax to build recycling and composting facilities in Boulder County, I have been disappointed that Boulder County ignored its promise to build a countywide composting facility.
- Agriculture viability depends on adopting many new roles. If the proper economic incentives were available and county land use regulations changed, farmers might be interested in taking up composting organic wastes.
- Whenever sensibilities and the environment collide, the environment always gets trumped in Boulder County. In past years, county entities have received excellent recommendations from composting and on-farm composting consultants. Unfortunately, the recommendations were ignored because the county was unwilling to change its policies. (email)

  Response: *After discussion, RCAB declined to become involved with land use policy at this stage*

- Do any communities have excess capacity at wastewater treatment plants to anaerobically digest organics with biosolids? This is being done very successful in Oakland and provides reduced hauling distances, increasing revenue and energy at

wastewater plant and reduces GHG emissions. Talk to local plants to see and check out East Bay Municipal Utility District in Oakland (email)

Staff response: *Limited research has not discovered sufficient excess local anaerobic capacity to handle the County's needs*

- This (estimated generation) is also a huge number so it seems like the two primary goals should be organics composting and C&D recovery. (email)
- This ($80 per ton disposal cost) seems ridiculously high. Does any of this organics data include biosolids? (email)

Staff response: *Staff will confirm range of current disposal costs*

- The organics section should have a strong tie to integrated pest management and clean water strategies within the county. San Francisco and several communities in Ontario have banned certain or all pesticides from residential areas and this type of action can go hand in hand with increased composting education and soil management. (email)
- Compost opportunities should be a level playing field and not structured so that customers have to pay through the nose. (email)

5. Provide curbside collection of organic materials

- … ask that curbside composting (thank you for its implementation thus far!) be available county-wide (Survey)
- Homeowners should not have to pay extra for larger yard waste bins. (Survey)

Staff response: *An extra charge will likely be levied for this collection, but the recommendation requires only that service be offered; homeowners are not required to use the service*

- Adjust composting services to every week and trash to every other week to increase participation; offer residents less frequent trash service options such as monthly or an expanded bag program (email)

Response: *RCAB discussed this comment and determined additional public process would be needed to change collection frequencies. No action will be taken on this suggestion at this time.*

- We would recommend this be enforced as hauler licensing. All haulers offering trash service in these areas would be required to offer recycling and composting services for residents. (email)
- Our friend Jeff Morris out of Seattle has a model that includes the benefits of compost use to reducing pesticides and fertilizers, reducing toxic runoff from yards and the health risks from applying pesticides. It tweaks this (MTCE avoided) number higher. (email)

Staff response: *Staff recommends current MTCE measures remain, for consistency but will ask the consultant to recalculate emissions diversion estimates for all recommendations, possibly using EPA's new WARM model*

- (Provision of) weekly compost (service in the mountains) would be a whole 'nother truck, a whole 'nother route – would almost double rates; people wouldn't pay. ($35 per month is "kind of the limit" for services in the mountains.) Most people that are composting in the mountains are bringing material down to town. A lot of people stopped composting because of Eco-Cycle's extra $3 gate fee (about $12 per month extra plus time, gas and transport). (email)
- Green Girl will begin composting when there's a facility within the geographic range where they can turn a profit (or at least break even in limited instances). Not possible for mountain communities. They are more interested in composting than the businesses in Boulder, because they're producing more compost and there's less opportunity to compost at their house because of the animals. (Avid Zero Waste proponents have) had to stop composting at home for this reason. (email)

Staff response: *Staff recommends that mountain education focus on yard debris where appropriate, rather than food scraps*

6. Total at-home composting program

- Food waste generated at the house should be available to the garden, not going down the sewer. (public meeting)
- We don't want to eat our own shit. (Survey)
- Please note that composting at home is not possible at the urban / mountain interface given wildlife concerns. (bears will eat the compost bin comnpost) (Survey)

Staff response: *Staff recommends that mountain education focus on grasscycling and at-home composting of yard debris*

where appropriate, rather than food scraps

- We would rather see materials for composting going into carts for collection. We need the nitrogen in the food products homeowners put out for our composting program. (email)

  Response: *After some discussion, RCAB determined at-home composting, in addition to compost collection service, is most consistent with Zero Waste principles*

- So backyard composting would account for 1.4% diversion but curbside collection only adds 2.6%. This doesn't add up. Curbside values should be significantly higher. I tend to think we have a pretty educated community about green issues and those people willing and able to do curbside composting is already close to saturation. (email)

  Staff response: *Staff will ask consultant to recalculate diversion estimate*

- This (job creation estimate) seems high considering it's mostly education and marketing that will move people to do more backyard composting. (email)

  Staff response: *Staff will change job creation estimate*

- Several towns in Ontario have banned the collection of grass clippings from residents as a way to reduce waste and encourage composting. It can divert a decent quantity with little cost and I would urge we consider it as an option since the Colorado climate is amenable to grasscycling. This would also be a big GHG reduction since grass decays so readily in the landfill into methane. (email)

7. Support municipal tree limb drop-off facilities

Staff response: *Staff recommends changing focus to "supporting opportunities for tree limb management"*

- How does this work with or complement the curbside organics program? What size branches are targeted? Can this be paired with clean wood facilities? (email)

  Staff response: *Staff recommends Materials can be detailed during implementation. Curbside organics programs that already accept limbs and larger branches would complement the expanded focus.*

- Can it be paired with municipal public works facilities that are already managing tree limbs from city maintenance? I just added this as a suggestion for cash-strapped east county communities that are still pretty small to have their own drop-off sites. Perhaps a one Saturday a month type of plan. I'm sure it will have logistics problems but so will finding and staffing a designated site. (email)

  Staff comment: *Implementation would vary by municipality.*

- Are there tree companies or other private sector that could be enticed to do this? Firewood suppliers? (email)

  Response: *The expanded focus (supporting opportunities) can incorporate these additional elements*

8. Direct shredded paper to composting system

Staff response: *As per comments, staff recommends incorporating this element into larger zero Waste Branding effort and education for expanded organics programs*

- It would also be helpful to divert shredded paper into compost. (Survey)
- Education on alternatives to shredding should be provided to reduce waste. (email)
- How would this be different or complement the existing dirty dozen campaign about shred and plastic bags? Shouldn't this really piggyback on the expansion of composting programs to other municipalities and businesses? (email)

9. Volume-based collection with embedded recycling

- Mandate recycling trucks in Boulder County – at least let them be available. (Survey)
- Refuse removal in unincorporated boulder county must include segregated refuse streams. (Western does not have separate bins for collection those that can be recycled.)
- Pay as you throw is way overdue for all of us. Let's emphasize this in spite of some spoiled whining. (Survey)
- The City of Longmont provides trash and recycling for all residential (and some multi-use). As a result, residents get significant more "bang for the buck" than all other county municipalities and unincorporated. Plus we have full reporting/data, flow

control & can get creative with services (ie thinking about doing moving all receptacles to one side of streets to limit carbon, street & truck wear and tear etc.) I'm pretty sure they provide like $500,000 to the general fund - I may be wrong on that number, but I know it's in the black anyway. If other municipalities were to think about getting into the business, it would provide jobs and many other benefits. Obviously the trash haulers, namely Western Disposal, would be against this, but I think it would be good for municipalities to have access to what the benefits are. (email)

Staff comment: *Municipalities must consider this option of their own initiative, rather than as a Zero Waste recommendation. In general, governments in the U.S. are moving towards privatization of community services, rather than towards municipal adoption of resource management efforts.*

- This should be combined with hauler licensing for the commercial and MFU sector so no one has to pay extra for recycling service and it is included with every base trash service. (email)

10. Electronics collection events

Staff response: *Staff recommends combining these events into a larger "increase electronics recycling" recommendation that would also incorporate business and government electronic diversion efforts*

- (Each electronics collection event) needs to also include education on why to recycle electronics, how to do so for free through the manufacturers, and how to recycle them. (email)
- Two collection events per town or just per county, one east and one in mountains? (email)

Staff interpretation: *two events for the entire county*

11. Offer metal recycling at three transfer stations.

- Given there are no additional costs or expenditures, and that it actually turns a profit, can this timeline be shifted to one year instead of 1-4 years?

Staff response: *Staff notes that "one year" is consistent with the initial 1-4 year timeline. Additional years are provided in case implementation takes longer than anticipated.*

- This should also include education about what's accepted at scrap metal since it's a service too few people know about.

Staff response: *Staff recommends this suggestion be incorporated into the implementation plan*

12. Support commercial food composting

- Businesses should be required to do minimal recycling, composting, and food businesses like coffee shops generating a lot of food / take out cups should be required to compost and use compostable plates, cups, etc. (Survey)

Response: *After discussion, RCAB determined any requirements should be phased in and tied to development of the composting infrastructure recommended elsewhere in this document*

- Standardize the receptacles and signs. make them available for ALL businesses who participate for free because the compostable bags are VERY expensive for a restaurant. the public would recognize the same signage all over town. (forwarded via county webmaster)

Response: *RCAB determined education would be developed during implementation of this recommendation*

- On the commercial side, food composting should be part of a mandatory recycling ordinance for the commercial sector but applicable only to high organics processors like restaurants, grocers, etc. Again, I'm not sure the county has this authority but it would be the recommended path for cities once we have the infrastructure to handle all the county's organic discards. (email)

Response: *After discussion, RCAB determined any requirements should be phased in and tied to development of the composting infrastructure recommended elsewhere in this document*

- The county should begin by requiring food collection for high volume businesses. Cost containment can be well managed since the trash costs are offset. (email)
- Infrastructure is available and much of costs will be offset by lower trash fees so we strongly support mandatory composting for restaurants and high-volume food processors. Voluntary efforts, such as coupons for the first few months of service, have been underway for a while. (email)

Response: *After discussion, RCAB determined any requirements should be phased in and tied to development of the com-*

posting infrastructure recommended elsewhere in this document. Incentives will be developed during implementation of this recommendation.

- Full Zero-Waste package: A business has to have enough money to pay for the whole system. Eco-Cycle is losing money on haul to A1 with tipping fees and transportation. (email)

13. Commercial volume-based collection with embedded recycling

- The city of Aspen makes zero waste mandatory for businesses. Check out their program. (public meeting)
- Commercial businesses need to recycle more – minimally, to sort recyclables such as paper, cardboard and containers. It's not that hard !!! (Survey)
- We support PAYT rates for commercial and imbeded recycling, however, it is a very complex area and will require a lot of thought as we move townards any implementation. (email)
- City of Boulder three-month free recycling program is great: "The city is willing to pay for your first three months – you just have to stay with the service for a year." Expand to other municipalities if possible and continue in unincorporated county. Anytime you can create incentives, you're going to drive other people to recycle. We have to create more incentives. (email)
- Single stream recycling should not be considered the one size that fits all commercial recycling collection programs. Eco-Cycle and Western service programs that should continue to source-separate materials (i.e. print shops). In addition, the University, after testing single stream for a year, has opted for a dual stream system for conclusive financial and environmental benefits. Commercial and institutional generators should be enabled to determine their optimal collection programs-whether single or multi-streams. SUGGESTION: Replace "embedded single stream" with "enhanced collection programs for increased diversion." Increase support from the County for commercial and institutional diversion. (email)

  Staff response: *Staff recommends this new wording be adopted for greater implementation flexibility*

- Required recycling services for businesses under PAYT or hauler licensing as a short-term strategy; this sets up mandatory participation by 2018 (email)

  Response: *After some discussion, RCAB determined current hauler licensing programs and PAYT structures support recycling in a manner consistent with this recommendation.*

- Commercial recycling now being mandated in California as a top priority for reducing greenhouse gas emissions. State is targeting (specific) materials: They hope to save MTCE just by getting at 50% of the materials available. (email)
- This could be done by ordinance or it could also be done by hauler licensing. Again, we strongly feel there should be universal services for all sectors, starting with just recycling and trash and then adding in composting as the infrastructure expands to handle all local organics. (email)

14. Support municipal and business efforts to recycle electronics

Staff response: *Staff recommends combining these efforts into a larger "increase electronics recycling" recommendation that would also incorporate collection events*

- These are the portions I am very glad to see in the proposal: supporting business electronic recycling (Survey)
- Education efforts have been underway for a while on this although there could always be more. City of Fort Collins passed a landfill ban on electronics and that definitely caught the attention of residents and businesses. It may not be very enforceable in Boulder but would certainly provide a punch. Also, we should consider the state may take action on this in the next legislative session (email)
- Shouldn't this be dovetailed with the electronics collection events? (email)

  Staff response: *Staff will combine recommendations*

15. Provide free waste audits for businesses

- If a resident or a business chooses to have an energy audit, they should be financially responsible for the audit, not other tax payers. (Survey)

  Staff response: *Staff feels those businesses that can afford independent audits will choose them; this recommend-dation will serve those in the business community that might not commission their own audits*

- These are the portions I am very glad to see in the proposal: free waste audits (Survey)
- Eco-Cycle also offers free audits, so our efforts can add to the total # of businesses reached and tonnage diverted. We can also be working with businesses on replacing their packaging, moving away from Styrofoam and other non-recyclable containers to those that are compostable or recyclable. (email)

Staff response: *Staff recommends changing the narrative of this recommendation to broaden program options*

16. Land Use Code Update – improve commercial and multifamily recycling requirements

- Include multi-family units, both indoor and outdoor space.

17. Municipal contact and advocate

- Yes, every city needs to be represented but does it always need to be government staff; could it be a nonprofit or other community member/organization? (email)

Staff response: *Staff recommends changing the narrative of this recommendation to broaden participation options*

18. Develop "Zero Waste" branding and initiate comprehensive outreach program

- Branding is cool but may not yield a lot of diversion, really (public meeting)
- I would emphasize the education component of the plan targeting all age groups in Boulder to help achieve these goals. (Survey)
- Education … is the only way the (Zero Waste) concept will survive. (Survey)
- Education is critical to everything and should be embedded as part of the plan. (email)
- Latino outreach is a huge educational opportunity that showed great potential during Eco-Cycle's trials in Longmont; evaluate potential for diversion from better Latino education . . . . we think all education efforts should also have a Latino component and this would be a good chance to coordinate efforts across communities. (email)

19. Provide zero waste building planning assistance

- How is this different from free waste audit efforts? (email)

Staff response: *Staff notes this recommendation focuses more on building design than on the materials or practices within the building.*

20. Determine Zero Waste funding mechanism

Response: *After some discussion, RCAB determined a $2 million per year budget would be necessary to maintain programs over the start-up period. Additional funds might be necessary to capitalize the compost and C&D infrastructure recommendations*

- Unclear on what has to change at the state level to make this happen? How about disposal tax in other communities like Boulder Trash Tax—assessed on haulers for tons collected for trash, gives incentive to haulers to provide recycling services (which should be required) and for them to encourage participation among their customers. (email)

Staff response: *Staff notes Boulder County does not currently have the legal authority to levy a trash tax.*

21. Require trees and slash from grubbing and landscaping to be chipped and left on-site.

- From an operational perspective, "grubbed" material really needs to go through a grinder as opposed to a chipper. The material is more often than not contaminated with dirt/rocks which can be very detrimental to a chipper. Chippers use knifes, grinders use hammers with a screen. Spreading chips back on the site is something, in my opinion, that is best not implemented with a 'broad brush' approach. Specific site conditions including soils, nutrient availability, and flora species all play into the decision. Also, there are dramatic differences depending on the depth of chips. If the intent is, however, to process the material into one pile on site, I am not opposed to that. I would not recommend BC buying the machinery to support this effort. Using the material in a compost operation is a very viable option, however. ;-) (email)

Staff response: *Staff recommends incorporating this information into detail for recommendation*

- Great suggestion. Could be paired with leaving grass clippings on site for residents. (email)

Staff response: *Staff recommends grass clippings element be relegated to other recommendations including "Total At Home Composting" and "Zero Waste Branding."*

22. Lobby for statewide ban on yard debris disposal

Response: *After some discussion, and in accordance with public feedback, RCAB agreed to change the focus of the recommendation to a stepped program beginning with provision of universal compost service, followed by lobbying for bans at the local level and, for the long-term, the statewide ban approach; enforcement will be considered with any option*

- I especially oppose any lobbying of the State in order for this program to gain compliance. This is not necessary and does not reflect the will of the people. The County is attempting to mandate ideology, however not all residents of Boulder County are in agreement with the Commissioners' ideology. (Survey)
- Like the recognition to influence state-level in order to accomplish goals (Survey)
- Another thing which didn't seem to be mentioned explicitly, though maybe it was implied by the sections on lobbying for statewide bans on sending divertable materials to landfills, was eventually needing to impose penalties on those who refuse to participate voluntarily. You can get a long way toward the ultimate goal of zero just by making things easy, because most of us want to do the right thing when it's easy, but in the end, there will still be some people and businesses that are too lazy or thoughtless or opposed to the idea in an abstract sense. Eventually, it gets real hard to make things any easier for people, and at that point, you need penalties. Fines for throwing away your compostables and aluminum cans, etc. Where in the system is the right place to implement these -- consumer, hauler, landlord, etc., I don't know, but Maybe Vancouver, BC and other cities have some experience they'd like to share. (Survey)
- There has been a lot of effort in most of the county around volunteer measures for food and yard composting. It can't just be about education anymore. The first step needs to be to get composting service to residents in the entire county and then talk about requiring participation down the road. From what I heard of the county's legal authority, this will have to be done at the city level, but could be the path the county encourages cities to take. (email)
- Agree this would be great at the state level but likelihood of happening much less than at the county level—this would have the most significant impact on organics diversion (email)
- Break out methane contributions and total CO_2 savings. (email)

  Staff response: *Staff recommends current MTCE measures remain, for consistency but will ask the consultant to recalculate emissions diversion estimates for all recommendations, possibly using EPA's new WARM model*

- Can we model county level ban? (email)

  Response: *Bans are not possible on the County level; only the (home-rule) municipal and state levels*

- Creates compost and mulch for improving local soils (email)

23. Lobby for statewide ban on food scrap disposal

Response: *After some discussion, and in accordance with public feedback, RCAB agreed to change the focus of the recommendation to a stepped program beginning with provision of universal compost service, followed by mandatory source-separation from commercial operations prior to additional requirements at the local level and, for the long-term, the statewide ban approach; enforcement will be considered with any option*

- We are not crazy about landfill bans because we don't know what the unintended consequences might be. Perhaps we can get information form states with bans that would make us more comfortable, (email)

  Staff response: *Staff feels information from states with yard waste bans will be forthcoming during preparations for any legislative step*

- I really question this number—food waste is a huge part of the waste stream and this says a ban would only at 0.8%??? (email)

  Staff response: *Staff will ask the consultant to recalculate this diversion estimate*

- Curbside composting programs have low participation rates to start and this would greatly increase participation and tonnage (email)
- I would strongly encourage we model this on the local level as universal composting services provided with trash as the first step (after recycling) and then mandatory participation. Action at the state level is highly doubtful particularly since no state has done this yet. Massachusetts is considering a ban on commercially generated food waste. (email)

24. Lobby for statewide ban on recyclables disposal

Response: *After some discussion, and in accordance with public feedback, RCAB agreed to change the focus of the recommendation with implementation options to include mandatory source separation (no recyclables in garbage) at the local level with a statewide ban possible over the long-term; enforcement will be considered with any option*

- These are the portions I am very glad to see in the proposal: statewide ban on disposal of compostables and recyclables (We cannot rely on the goodwill of people to sort their trash. To motivate everyone, we need to squeeze their pocket books or threaten law enforcement.) (Survey)
- This number seems to low as well, even for residential sector. Also model this number for commercial and MFU units and talk about how much of our waste is currently recyclable or compostable. (email)

Staff response: *Staff feels current numbers can stand and will be clarified during the countywide waste composition study in 2010*

- Let's model mandatory source separation at the local level. (email)
- Local communities have banned recyclables from trash or required source separation and these laws have much better effect than statewide efforts. The state of NY has banned recyclables since the late 80s and their diversion rate is still only in the 20% range because local communities didn't adopt it. (email)
- State action on this is not likely in the next decade so strongly advocate to model local action. (email)
- Because a landfill ban isn't always the best path. Many states have source separation ordinances for various recyclables, including from the commercial sector. (email)

25. Multifamily (MFU) organics collection

- I would like to see compostible stuff picked up from multi-family complexes. Apartment and Condo residents do not have land to do home composting. One or two collection pick up locations per complex would make it possible to compost from many many residences with only one or two stops. As opposed to stopping at every house in a single family neighborhood. (Survey)
- COMMENT: (This does) not seem to be related to improvements in commercial sector improvements over the next eight years. SUGGESTION: A greater list of commercial sector steps needs to be devcloped. (Survey)

Staff response: *Staff recommends considering this element over the short-term to see what additional programs are needed based on waste generation after other Plan elements are employed*

- Require residents to leave grass clippings onsite (email)
- This report really seems to neglect the MFU population and I think that's a serious misgiving. MFUs are large portions of the population and their recycling rates are typically in the pits (email)

Staff response: *Staff recommends additional MFU programs be determined long-term based on waste generation after other Plan elements are employed*

- First, we need to make sure all MFUs have recycling services. Then we can expand into organics, but we have a long way to go with just recycling at MFUs. (email)

Response: *After some discussion, RCAB determined implementation of recycling and composting programs at multifamily units would be more efficient if initiated concurrently*

26. Single-stream multifamily (MFU) collection countywide

- Make MFUs more of a priority; years 1-4. (email)

Response: *After some discussion, RCAB determined implementation of recycling and composting programs at multifamily units would be more efficient if initiated concurrently as a mid-term recommendation*

- I think that multi-family single-stream should be accomplished in less than 5-7 years. (Survey)
- Between now and 2025 I hope to see Boulder become more like a small city and less like a big town, but this will mean a higher proportion of the population will be living in high density housing, which makes it imperative that all the composting/recycling options are available in multi-family housing developments, and the sooner the better. I've lived in cities that had great programs for detached houses, and basically nothing for apartment renters or condo owners. Obviously we can't get to Zero without including multi-family residences. (Survey)

- COMMENT: (This does) not seem to be related to improvements in commercial sector improvements over the next eight years. SUGGESTION: A greater list of commercial sector steps needs to be devcloped. (Survey)

  Staff response: *For the purposes of this plan, multifamily units are considered part of the commercial sector, because their materials are generally collected by commercial service trucks emptying dumpsters, rather than individual bins. Staff recommends additional commercial-sector steps be determined in the future, based on waste generation after other Plan elements are employed*

- Where are efforts at MFUs? This is a very underserved community. We think any hauler providing trash services at MFUs must also provide recycling services (embedded or bundled services).
- There are significant volumes to be captured at MFUs. We strongly support universal services for MFUs that all trash service is provided with recycling service at no additional subscription cost. (email)
- I'm not sure how this (potential diversion) number was generated but there are many, many MFUs that don't even have recycling services so I think this is much too low. (email)

Staff response: Staff observation: actual diversion will be documented through program evaluation

27. Secure advanced disposal fees (ADF) on priority items

- While diversion is not high, this program can create revenue for the cities that enact it while can fund other programs or offset other costs. In theory, it could eventually offset all the county's costs for HHW and then possibly for all municipal recycling as is happening in Ontario. (email)

  Staff response: *Staff observation: revenue generation, if any, will be documented through program evaluation*

- I would question this (government cost estimate) because the ADF offsets the government cost by putting it on the consumer and manufacturer. While there is initial upfront cost to pass the ordinances, all administrative costs are covered by the ADF. (email)

Staff response: Sustainability staff will ask the consultant to recalculate the government cost estimate.

28. Consider tax on plastic bags

Response: *After some discussion, RCAB determined this element should remain as a mid-term recommendation with clarification about Boulder County's authority to levy such a tax. All single-use bags will be considered; not just plastic bags. Despite discussion of a "ban," this element will remain as a "tax" recommendation.*

- These are the portions I am very glad to see in the proposal: tax on plastic bags (Survey)
- Plastic bag industry strongly attacked Oakland tax on bags and city eventually receded. Bans seem to be having better luck across the country. (email)
- For much better success and education, pair this with a ban on packaging that isn't recyclable, compostable or reusable. (email)
- Look at taxing all single-use bags, not just plastic bags (email)

29. Zero Waste event planning

- Require Zero Waste events (with deposit); not merely event planning (email)

  Response: *After extended discussion, RCAB determined several implementation objectives for this recommendation:*

  – *Enhanced public education*

  – *Requirement only at events with 200 or more participants*

  – *Deposit required*

  – *Checklist of Zero Waste elements provided*

  – *Plan review by qualified individual / group*

  – *Enforcement*

- While education and planning can begin anytime, deposit and enforcement requirements are to remain in the mid-term until infrastructure has been developed.

- Not sure if requiring a plan would be the best course of action. I think you require the event provide proof of services for recycling and composting. It could be like C&D recycling where they could put down a deposit saying they're going to recycle and then it gets returned when they provide proof of services. This would cut down on overhead costs. (email)
- Eco-Cycle diverts 113 tons per year in its program which only reaches a fraction of events (email)

  Staff response: *Staff will ask the consultant to recalculate this diversion estimate*
- Could be done sooner; already required at Boulder Reservoir. (email)

30. Promote markets for county-generated recyclables and organics

- …. creating a market for materials is the only way the (Zero Waste) concept will survive. (Survey)
- promote & measure development of business &markets that provide end uses… I immediately thought of Tires….. I've brought this issue forward many many times…. It's a huge problem and I'd love to see eco-cycle or some such entity get into the recycle/reuse business. (email)

  Staff response: *Staff disagrees, with this comment, as tire marketing is already handled through state efforts and the private sector.*
- Boulder County regulations should encourage businesses that process beetle kill. Wood Pellets are an important source of renewable fuel in Europe. There are lots of old public buildings that fitted with pellet stoves or biomass burners. This should be strongly encouraged in all cities and towns. (email)

  Staff response: *Staff disagrees with this comment, thinking fuel applications for beetle-killed lumber are outside the scope of this plan. RCAB could consider incorporation of a strategy for beetle-kill materials into a plan update or contingency plan if the material becomes more of a problem stream in Boulder County.*
- This is better suited for hard to recycle materials, like the new CHaRM partnership with a local manufacture to recycle yoga mats. (email)

  Staff response: *Staff disagrees with this comment, thinking larger-volume materials deserve more emphasis and that smaller-volume items can be marketed through the private sector.*
- Talk about more specific incentives for local manufacturers like tax incentives for companies using locally-generated recycled feedstocks, or space for start-up companies, etc. (email)

  Response: *This element will be further developed during implementation of this recommendation.*
- Also can include government procurement preference for companies using locally generated feedstocks for recycling and composting. (email)

  Response: *This element will be incorporated into implementation of this recommendation.*

31. Support extended producer responsibility model at the state and local level

- Personally, my trash consists primarily of diapers, plastic ziplock bags, plastic wrappers, chip bag packaging, painted or coated wood construction debries, and frozen food containers (mainly wax coated paper,) most of which would make an excellent source of combustion fuel for an incinerator. To eliminate this waste, I see a need (as mentioned in the plan) to focus on working with the industry / taxes on non-recyclable packaging / regulation to eliminate this packaging. (Survey)
- Don't generate waste and / or recycling in the first place: make the manufacturer responsible for the "unnecessary packaging". (This suggestion has) been successfully applied outside Colorado. Junk mailers should be taxed for the disposal fee. (This suggestion has) been successfully applied outside Colorado. (Survey)
- Like the recognition to influence state-level in order to accomplish goals (Survey – also included with "bans," above)
- These are the portions I am very glad to see in the proposal: focus on placing responsibility on the producers of products to deal with their products at their "end of life." (Survey)

Long-Term Recommendations

- Agree that clothes, bikes, appliances ought never be in the waste stream. (Survey)
- One comment about the collection of pet waste is: how would it be collected. Owners typically collect this in reused newpaper bags, which would not be compostable. Would compostable bags be a viable solution? (Survey)

Staff response: *Pet waste will continue to be the "long-term" section of the plan for possible future consideration. This information will be kept on file for possible incorporation in the Plan update.*

- I am concerned about the pet waste disposal as I have 3 dogs and I need to be proactive about what to do with their poo. I looked on line and am doing more homework on the Zero Waste plans. Finding out where and how it originated and so on. In doing this, I came across information on composting dog poo. I think this information would be valuable to Vet clinics, kennels and dog groomers, and also to the average dog owner, such as myself. I have provided one of the many sites below:
  - http://glenbrookzerowaste.wordpress.com/2010/03/05/compost-your-dog-poop-please/

  Staff response: *Pet waste will continue to be the "long-term" section of the plan for possible future consideration. This information will be kept on file for possible incorporation in the Plan update.*

  – These are the portions I am very glad to see in the proposal:

  – higher tax on trash hauling

  – lunchroom trash sorting assistance at schools (This is what I volunteered for this year at the county's first Green Star middle school.)

  – encourage printing on both sides of the paper (Survey)

  Staff response: *None of these comments are specifically detailed in Plan, but all are consistent with Zero Waste philosophy*

New Recommendations: At their June 23 meeting, members of the Boulder County Resource Conservation Advisory Board acknowledged receipt of these comments with appreciation for their submittal. No new recommendations will be added at this time. RCAB recommended these comments be incorporated into existing recommendations as appropriate.

- Mountain communities would like more free drop-off Saturdays, but they cannot be sustained for free – too expensive. (email)
- Extra Dumping Weekends for no charge. See sunnyvale.ca.gov/LinkClick.aspx?fileticket=_Q-2FzMx7PQ%3d&tabid=529 (Survey)
- Stop offering "free" trash/drop days (email)

  Response: *In response to all of these comments, RCAB observed that provision of free dumping opportunities is not compatible with Zero Waste goals.*

- Would be nice for there to be a collection point in northern Boulder to service areas towards Lyons, Ward, Boulder Heights, etc. – with such growth. (Survey)
- Require data reporting from all haulers for both residential and commercial sectors as part of licensing. (email)

  Staff response: *This reporting is already required. RCAB recommends streamlining the reporting process.*

- Very little to nothing about reuse or waste reduction initiatives –these are very low cost programs that can divert or reduce a good amount of materials. At the very least there should be educational efforts to promote reuse, such as a directory of reuse outlets. (email)

  Staff response: *Staff recommends these be incorporated into the "Zero Waste Branding" recommendation*

- Ban on packaging that isn't recyclable, compostable or reusable. (email)
- The county should buy a landfill in Erie (as a funding source) (public meeting)
- Educate about household hazardous waste and toxics (public meeting)

  Response: *RCAB recommended greater emphasis on these materials in the summary to the plan, the Zero Waste branding recommendation and the Extended Producer Responsibility recommendation*

- Work with multi-tenant property owners (malls and strip malls) to "unbundle" trash and send a Pay-As-You-Throw signal to tenants (public meeting)
- Emphasize the need for toxics diversion (public meeting)

  Response: *RCAB recommended greater emphasis on these materials in the summary to the plan, the Zero Waste branding recommendation and the Extended Producer Responsibility recommendation*

- A couple of thoughts come to mind that I didn't see in the proposal: "Leave it on the curb." - Why not have a day each year where people can leave there stuff on the curb for the taking. Many of the items that are left out would end up in the landfills vs. being used for another decade or so. (Survey)
- Get Yellowstone-style bear-proof transportation container for future compost storage between (mountain) collection and transport to town. Perhaps a grant could help capitalize this equipment. (email)
- Water Conservation – I know people don't think of this as waste, but it is a limited resource and it get treated at a "waste facility" so it really is waste once it is used so it may make sense to start on some water reduction efforts now. (Survey)

  Staff response: *Staff observation: A long-term recommendation to emphasize low-water-use landscaping would accommodate this suggestion.*

- Conditional permits – allowing a select group of people to try new technologies in their homes / businesses and have a way to report back on their effectiveness. These may include items that currently aren't allowed or there are no clear guidelines. Items such as grey water system, electric composters, business composting on site, discounts for construction methods. (Survey)
- Junk mailers should be taxed for the disposal fee. (Also included under producer responsibility recommendation) (Survey)
- Make containers reusable using the deposit system rather than recyclable. (This suggestion has) been successfully applied outside Colorado. (Survey)
- Establish a new program with Eco-cycle, our own home-grown recycling entity: An inordinate amount of recyclables could be collected if twice a year Eco-cycle roll off containers were placed for a one-week period in strategic locations in mountain subdivisions for the collection of: glass, newspaper, cardboard, mixed paper. In the grand scheme of things, how expensive could that be? Few residents have been as obsessive, diligent and consistent over a 30+ year time period as we who collect and sort our personal recyclables plus and drive them to Eco-cycle on 63rd. As a consequence, we have put out one trash bag every 5-7 weeks!!! Now multiply that by the 470 residential properties in Boulder Heights alone and think of the TONNAGE of recyclables that could be diverted from the land fill! I've mentioned this to Eco-cycle but they have neither the resources nor staff to fund this operation. HOWEVER, with County funds, this could make a HUGE impact on the BCC's efforts toward Zero Waste. (email)
- Subsidize application of compost on ag lands. (suggested at food and ag. policy council meeting; not formalized by FAPC)
- Provide for a Deconstruction Professional for the BuildSmart Deconstruction (email)
- Requirements to provide homeowner and contractor education and outreach, including deconstruction plan development to streamline this process. (email)
- Improved collaboration with the University

  Response: *This comment was provided as a detailed recommendation, available for review on request. RCAB recommended a "collaboration" section be added to the Zero Waste Plan.*

Questions:

- Responses provided at public meetings are summarized here; responses provided via email are copied here. Survey questions did not receive immediate responses. These answers, composed by staff, were approved by the RCAB at the June 23 meeting.
- Is aluminum the only valuable recyclable? (public meeting)

  Response: *At the public meeting staff responded that many other materials collected for recycling have commercial value at this time and that the recycling center turns a profit from sale of collected recyclables*

- Will access to services be voluntary? (public meeting)

  Response: *At the public meeting staff responded that participation in programs was designed to voluntary but that service providers would likely be required to offer service. During this public comment phase, many have suggested that Zero Waste programs be mandatory for some types of businesses and that event recycling be required.*

- Will biosolids be included in composting? (public meeting)

  Response: *At the public meeting, staff responded that biosolids were not considered to be part of the residential or business compostables streams; they are not included as compost in this plan.*

- How does one keep rats out of compost? (public meeting)

  Response: *At the public meeting, staff explained that compost containers are designed to be as pest-proof as garbage containers, if not more so, and that materials currently being disposed as garbage are as likely to draw vermin as compost containers. Staff described common compostables as kitchen scraps and paper cups, rather than a frightening drippy mess, and pointed out that regular collection should forestall rodent problems.*

- Can we really get to Zero Waste (public meeting)

  Response: *Boulder County's goal is "Zero Waste or darn near," by 2025. This plan sets out recommendations for approaching 70% recycling over the next decade, leaving additional time in future years to address the remaining 30% of the "waste stream."*

- How to encourage cities to participate? (public meeting)

  Response: *After the public comment period closes, the draft Zero Waste Plan will be revised and submitted to the Resource Conservation Advisory Board, which has representation from all Boulder County cities, for approval and recommendation to the Board of County Commissioners. After approval by the Commissioners, the final plan will be offered to the Consortium of Cities for consideration and possible adoption. From there, the plan will be offered to various Boulder County municipalities for adoption. Boulder County sustainability staff will be available to assist local communities with implementing the plan recommendations.*

- Is the plan only for the unincorporated county? (public meeting)

  Response: *After approval by the Commissioners, county sustainability staff will encourage other jurisdictions within the County to adopt and implement the various recommendations. Diversion estimates in the draft plan assume that all jurisdictions will accept the recommendations as set forth.*

- How will the County decide which recommendations to fund? (public meeting)

  Response: *Determining an ongoing funding source for county zero waste programs is one recommendation of the draft plan. Budgets for each recommendation will need to be adopted by partner agencies as implementation plans are put into effect.*

- Would it be easier to have other / more bins? Is it efficient to have one for paper, metal, plastic and glass? (Survey)

  Response: *In general, residential collection in the U.S. is more effective with one bin in which common recyclables are mixed as a "single stream." Benefits include higher public participation and lower collection costs. A drawback is the contamination of some materials by others. Paper, for instance, is often contaminated with bits of broken glass. For this reason, materials that are separated for recycling through drop-off centers have greater value but higher collection costs and lower participation success. For business collection and for construction material recycling, separate bins are often preferred for high-volume materials.*

- Will waste composition study include an outside audit of waste haulers? Ours routinely makes mistakes in collection – who knows how they are reporting! (Survey)

  Response: *Boulder County has commissioned an audit of Boulder County's waste this summer and fall, but the collection and accounting practices of individual haulers / collection companies will not be analyzed.*

- We typically take light fixtures (drop in troffers) to metal recycling for lack of a better use. Perhaps this is best since we are typically replacing older T12 style lights with more efficient lighting options. But is there a better use for these? (email)

  Response: *Staff was unable to discover a better use for drop-in light fixtures than metal recycling. Fluorescent tubes, which contain mercury, should be recycled unbroken.*

- What's the difference between the (diversion of) organics that are targeted short-term vs. mid-term? (email)

  Response: *This plan anticipates that after implementation of the short-term diversion recommendations for compostables (organics), a portion of the remaining stream would be diverted through the mid-term recommendations. Short-term, an estimated 24,860 tons of compostable materials would be diverted, including unusable dimensional lumber from the construction and demolition stream. Mid-term, nearly 37,000 additional tons of compostable materials would be diverted, including nearly 10,000 tons of landclearing debris. Together, the short- and mid-term streams are estimated to account for nearly 18 percent of Boulder County's annual disposal tonnage.*

- Can there be any more detail on what is in the 30% remaining waste? (email)

  Response: *Boulder County's waste stream will be detailed during a "waste composition study" this summer and autumn. That information will inform not only the accuracy of the Zero Waste Plan's diversion estimates but also the types of material in the remaining waste stream.*

- I question these (unincorporated Boulder County diversion) numbers. How can organics diversion only rise 3% with a new program to collect food and yard waste? Didn't the program start mid year—is that why it's so low? (email)

  Response: *In unincorporated Boulder County, organics diversion doubled in 2009 with 2,903 tons collected, compared to 1,571 tons reported in 2008. Recycling collected in the unincorporated county was even higher, with 8,771 tons collected, compared with only 3,891 tons reported the year before. As a percentage of the entire materials stream, however, the increase in composting was only 1.5% for the unincorporated area, since garbage disposal also rose, from 29,258 tons in 2008 to 37,381 tons in 2009. Part of the latter increase resulted from more companies reporting their activities in 2009.*

- I had received comments from a colleague who thinks this is disastrous for businesses in Boulder County. But on the county website your department indicated the zero waste plan is supported by businesses. I'm not sure if this means individual businesses or the business community in general. (email)

  Response: *We hope to get the business community to provide formal support for this effort, but currently it's supported by individual businesses only. This draft stage is the perfect time to secure specific suggestions from businesses. The construction industry, for instance, seems to desire more convenient diversion sites for various materials and hopes to find cost savings through this type of efficient resource management. Agricultural businesses have expressed a wish for more affordable compost with a higher nutrient content to apply on their lands. While I appreciate that some individuals or businesses might be concerned about what "Zero Waste" might mean to them, I encourage everyone to look at the opportunities offered by sensible resource management approaches.*

- Do you have any projections as to what it will cost homeowners and businesses to comply? As you know, the cost to implement required programs is passed down to the consumer, be that a resident or a business owner. Personally, I support the goals of the plan; we can't just keep creating new land fills. But I also understand the concerns of business owners during this difficult economic time. If you have information with which I can combat the rumors and comments making the rounds in the business community, that would be very helpful. (email)

  Response: *It is important to note that the cost per individual business will vary greatly, just as the cost for individual business trash service and recycling service varies greatly depending on business size, type, collection frequency, generation (materials and volume), and diversion potential. For businesses that are able to cut down on trash service by recycling more, they will most likely see a decrease in their monthly costs, for others the costs will remain about the same, and some may see an increase in costs. The businesses that may need assistance in implementation are those already on the lowest level of trash service available. These are business that have limited opportunities to reduce trash service costs by recycling more as they are already on the lowest cost service level. Larger businesses have a much greater potential to divert materials and realize cost savings.*

  After the comments on this draft plan are incorporated and the final version approved by the Resource Conservation Advisory Board, the Boulder County Board of County Commissioners must adopt the final plan. Budget numbers should be more clear at this stage of the game: Right now we're using estimates from our consultants.

  After approval by the Commissioners, Boulder County sustainability staff will encourage other jurisdictions within the County to adopt and implement the various recommendations. The assumptions in the draft plan are that all jurisdictions will accept the recommendations as set forth: Numbers will change as programs are adopted and implemented.