

RETHINKING RECYCLING IN EL PASO COUNTY

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SECTION 1: EXECUTIVE SUMMARY

Introduction

As part of a strategy to increase waste diversion and recycling in the Pikes Peak region, El Paso County contracted with Skumatz Economic Research Associates Inc (SERA) to conduct an analysis of recycling efforts in the area. The project had three goals:

- 1) Identify recycling tonnage and show a comparative analysis that accurately reflects landfill disposal and recycling tonnage
- 2) Analysis of existing recycling opportunities in El Paso and Teller counties
- 3) Develop a strategy plan to outline options that will increase recycling participation in the Pikes Peak region



To complete the project SERA conducted a series of phone and in-person interviews with stakeholders, contacted all of the private and public sector actors involved in waste, recycling, and composting in the region, and used SERA's extensive in-house database of recycling and diversion programs to outline a cohesive strategy for increased diversion.

Analysis of Tonnage

In order to estimate the recycling tonnage in the region, SERA contacted a total of 54 solid waste and recycling stakeholders in the Pikes Peak region. The stakeholders were asked to complete a proposed Colorado Department of Public Health and Environment (CDPHE) commodities reporting form. Of the 54 stakeholders, 41 agreed to be interviewed but only nine were willing to complete the voluntary reporting form¹.

Due to the lack of reliable, complete, and accurate data from the generators, haulers, and processors in the Pikes Peak region, SERA estimated the recycling rates and tonnage using two techniques:

- **Calculated recycling rate:** Through the stakeholder interviews and the *commodity reporting form* SERA was able to gather data that was used to calculate a municipal solid waste (MSW) recycling rate for the region. The MSW recycling rate was calculated

¹ Each stakeholder was contacted a minimum of three times and some of the largest players were contacted significantly more than three times over a period of 3 months in an effort to collect the data.

to be between **10.4%** and **11.4%**, slightly higher than the **8.6%** for El Paso County² reported by the CDPHE. This higher rate is due to two main factors:

- Recyclables collected in El Paso County processed in Denver County and Boulder County
- Materials recycled and diverted by salvage yards

The estimated number of tons of MSW recycled in the region is **89,000** to **99,000**.

- Modeled generation: Using regional generation per day figures and the relevant population, we estimate the disposed tonnage from the two counties is 762,400 per year (perhaps 377,400 of it commercial) and materials remaining in the stream (using best fit waste composition studies).
 - The largest recyclable components remaining in the *residential stream* include paper and organics (totaling 45% of the trash container).
 - The largest recyclable components remaining in the *commercial stream* are projected to be: paper (34%), organics (31%) and C&D (13%).

Analysis of Existing Opportunities

The vast majority of recycling and diversion efforts that are underway in the region are provided through the private sector. There are limited examples of County or City-operated programs in the region. All major landfill, transfer, composting, and processing facilities are owned and operated by the private sector. Curbside recycling services are widely available for many generators (with the exception of some mountain areas, low density eastern plains areas, and some multi-family generators region-wide). Participation in curbside programs is driven mainly by a generator's desire to recycle, there is little economic incentive³ to recycle for most generators and curbside recycling is almost always an extra added cost⁴. There are drop-off opportunities for residential and small commercial generators that are convenient for the majority of the population in the region. This however, is not true for some parts of Teller County and the Eastern and Northern portions of El Paso County. The drop-offs are generally not staffed. Education and outreach programs are limited where available and most often undertaken by the private sector as a way to increase business and participation in their own programs.

Strategy Plan

Based on the research presented in Sections 2 and 3 of this report SERA identified a selection of nearly 40 potential programs and strategies with the greatest opportunity to increase diversion and recycling in the Pikes Peak region now. The overarching ideas supported by the programs presented in the strategy list are:

² CDPHE does not estimate a rate for Teller County because there are no facilities reporting to the CDPHE in the County.

³ One hauler does offer a recycling incentive program.

⁴ It is not always the case that recycling is an extra fee. Many areas of Colorado, including Manitou Springs in the Pikes Peak Region (other examples include Denver, Fort Collins, Durango, Thornton, Golden, Boulder County, etc.) have trash rates that include recycling services for no additional fee.

- The private sector has invested significantly in diversion. The region should leverage this investment and work with the private sector to grow existing initiatives and efforts through partnerships, outreach, and business supporting actions.
- Recycling and other diversion activities are not always cheaper than disposal in the landfill and in some cases it can cost more. The region should promote the benefits of diversion, highlight the areas, locations, and times where it can save money, and undertake efforts to help reduce the costs of diversion for generators when possible.
- Without significant investment in capital or staff, the tools local government can use to increase diversion are limited. Ordinances are a useful tool that can provide strong impacts at a low cost to governments. Additionally, the governmental sector can lead by example through the implementation of diversion programs at public owned facilities.
- Although drop-off recycling can be difficult to operate cost effectively, drop-off facilities should continue to play an important role in the region into the future. Efforts and programs should be undertaken to support existing drop-offs, add more materials, or create additional sites (especially in rural / low population density areas).
- Price incentives for diversion currently do not exist for generators or for the private sector actors. Efforts to assist facilities and markets, aggregations of materials and 'hub and spoke' collection for eastern El Paso, and political will can help create incentives.
- Conventional recycling⁵ only represents a portion of the total diversion potential of the Pikes Peak region. The region should consider additional diversion opportunities with a focus on organic materials and, to a lesser extent, construction and demolition debris.



Photo: Food re-use program at Whole Foods on Academy Blvd., Colorado Springs

The recommended programs are shown in Table 1.1 below. More detail on each strategy including the relative costs and impacts and example communities can be seen in Section 4 of the report.

⁵ Defined in this report as materials such as plastics #1 - #7, old corrugated cardboard (OCC), old newspaper (ONP), office paper, other paper, aluminum, tin, steel, glass, and other materials recycled in a typical curbside or drop-off program.

Table 1.1: Recommended Programs and Strategies

ID	Program Name	ID	Program Name
1	Outreach and education	20	Equal space for recycling
2	Increased / improved drop-offs (A)	21	Home Owners Association (HOAs) program
3	Increased / improved drop-offs (B)	22	Certified organics used in county roads and parks project
4	On-Line outreach	23	Environmentally preferable purchasing guidelines
5	Technical assistance	24	Dedicated position at the County for recycling
6	Re-use and donations	25	Hauler reporting
7	Zero waste public events	26	Require recycling plan for large (over XXX attendees) public events
8	Business recognition	27	In-sink disposal outreach
9	School curriculum development	28	County / City facilities contract for organics collection
10	Work with facilities to sponsor tours for school children	29	Discounted composting sales
11	Channel 8 'zero waste' challenge	30	Master composter class
12	Social media campaign	31	Landscaping material from County / City facilities must go to compost site
13	Support Pay-As-You-Throw whenever possible	32	Shared recycling containers for downtown businesses
14	Commercial start-up grants	33	Food trucks
15	School start-up grants	34	Asphalt shingles
16	LEED or 'Greenpoints' type recognition or incentive program	35	Regional cooperation
17	Local tax credits for recycling related businesses	36	Recycling drop-off membership cards
18	Haulers 'offer' residential recycling service	37	Advance Disposal Fees (ADFs)
19	Large business recycling	38	Increased SW user fee

Getting to 50% Diversion and Beyond

All of the recommended strategies have the potential to increase diversion in the region. If however, the Pikes Peak Region wants to reach diversion rates of 50% or greater, aggressive actions, potentially including mandates, embedded fees, disposal bans, and others, would need to be implemented. Section 4 of the report highlights a few of the high impact low cost diversion strategies used by communities in Colorado and beyond to reach high levels of diversion.

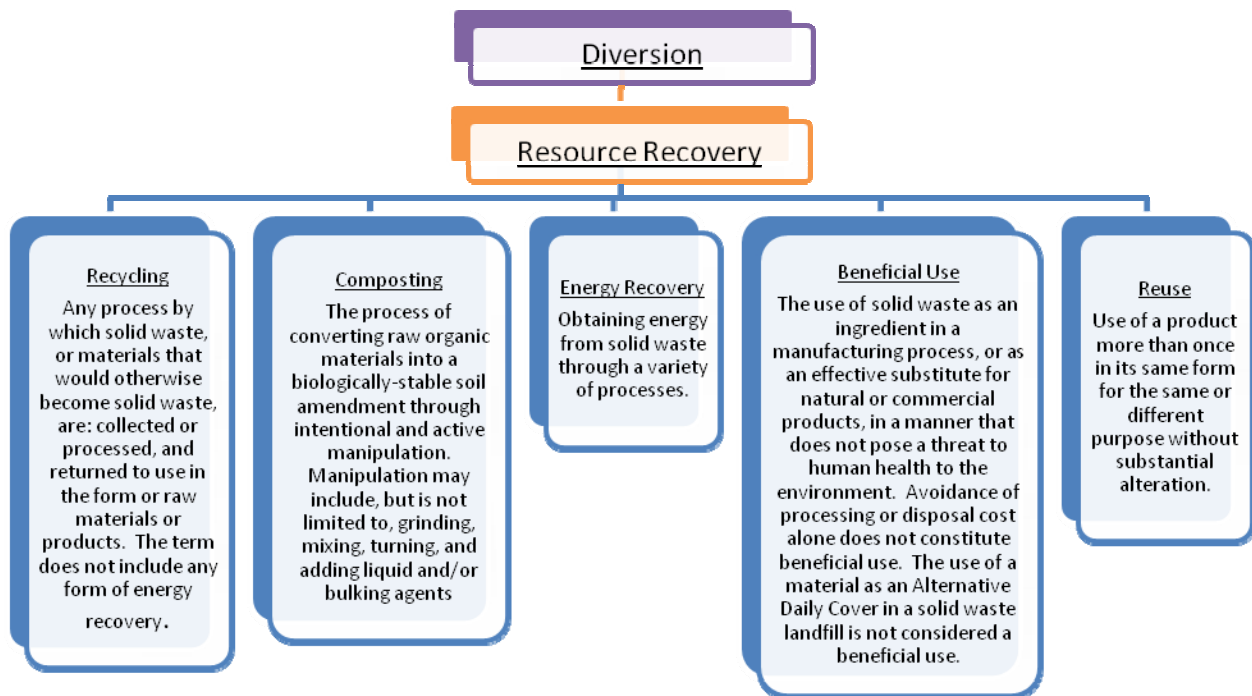
SECTION 2: TONNAGE ANALYSIS

The first step in designing potential strategies for increased recycling and diversion in the Pikes Peak region was to determine what is currently occurring both in terms of tons of materials generated and disposed and in terms of what options for diversion already exist. Section 2 of this report covers the examination of the tons currently being generated, diverted, and disposed. Section 3 reviews the existing diversion options.

2.1: The Reporting Form

In June of 2010 a committee of representatives from states in EPA Region 8⁶ convened to discuss ways to measure and track recycling and diversion throughout the region. The committee agreed on a 'core commodities' list of materials that they felt each state should try to measure in their best means possible. In addition to the core commodities the committee came up with the material methodology material flow diagram as shown in Figure 2.1.

Figure 2.1: EPA Region 8 Proposed Material Flow Diagram and Definitions⁷:



Based on the agreed definitions and material flow diagram, the CDPHE has drafted a material reporting form. The form has been designed by the committee to be as simple as possible while still collecting data from various entities. These entities include material recovery facilities

⁶ These states include Colorado, Utah, Wyoming, Montana, South Dakota, and North Dakota

⁷ Source: Griek, Kray, Presentation Colorado SWANA Annual Meeting October 6 2011, Aurora, CO

(MRFs), permitted landfills, municipalities, transfer stations, salvage recyclers, communities, large retail businesses, and brokers (the proposed reporting form can be seen in the appendix of this report).

As a way to gather tonnage data and to test the effectiveness of this new form SERA contacted all of the proposed covered entities in the Pikes Peak region via phone and email to try and collect the data requested in the form. Table 2.2 shows the sectors and the number of entities contacted, the number interviewed, and the number that were voluntarily willing to complete the proposed form. SERA researchers first asked respondents to complete the form, or as much of it as possible over the phone, email or both. Regardless of whether or not they were willing to share tonnage data, SERA researchers proceeded with a brief interview to identify barriers to recycling in the region, efforts already underway, and to gather input on what efforts may be useful in the future to increase diversion in the region. The results of the interview can be viewed in Section 3.

Table 2.2: Contacted and Interviewed Stakeholders

Entity Sector	Contacted	Interviewed	Willing to Report Tons	Percent reporting
Commercial Generator (large)	9	7	0	0%
Cities / Communities in the Region	12	11	1	8%
Compost Facilities	4	4	1	25%
Landfills	3	2	2	67%
Transfer Stations	3	2	2	67%
Haulers (MSW and Recycling)	11	9	0	0%
MRF	1	1	1	100%
Salvage Yards	11	6	3	27%
Total	54	41	9	19%

Overall, the interviews designed to collect commodity data found that:

- The proposed *commodity form* is reasonable and ‘makes sense’ to processors and haulers
- The proposed *core commodity* list is clear and covers the materials generated and diverted in the region
- Concerns about proprietary information (even with the ability to mark data as proprietary) exist
- Voluntary reporting of data will only gather data from a small portion (perhaps 20% or less) of possible entities, the majority were not willing to complete the reporting form
- Collecting voluntary data will require staff effort (identifying entities, finding contacts, calling, emailing, mailing initial request, follow-up request, checking data)
- Voluntary data collection will not provide enough data to determine accurate metrics
- Reporting entities in the region are suspicious of efforts by ‘the government’ to collect data and worried what the data would be used for and how it would be shared
- Some entities (particularly commercial generators, municipalities, and communities) may not be able to report data (even if reporting was mandatory)
- Determining exactly where (county, city, sector) materials are generated is challenging. Neither the current CDPHE reporting form nor the proposed form, if applied statewide, would successfully address this issue
- There is the potential for double counting

- Some stakeholders questioned the definitions and diagram in the *Material Flows Diagram* (what qualifies as diversion, recycling, WTE, etc.)
- CDPHE’s existing mandatory reporting form asks for more complete data on sources and destinations
- The delineation between landfills, transfer stations, recycling processors, and compost operations is blurring as facilities move toward a resource recovery model encompassing more materials

As previously shown in Table 2.2 above, less than 20% of the possible reporting entities identified⁸ were willing to voluntarily share actual data on the tons of materials diverted. Additionally, of the entities willing to share tonnage data, very few of them were willing or able to share detailed information on commodity types or where the materials were generated (El Paso County, Teller County, or even Pueblo County)⁹. Table 2.3 displays the responses to the data collection efforts and contains SERA’s analysis of the sector’s future ability and / or willingness to complete a similar form in the future.

Table 2.3: Stakeholder Feedback and Analysis

Sector	Potential to Report	Responses	Analysis
Commercial Generator (large)	Low	All of the contacted businesses were diverting at least one item (for example OCC) and some, such as Whole Foods and Wal-Mart, were aiming for zero waste ¹⁰ . A few were able to report the level of contracted trash and recycling service. None were able to report tons generated, recycled, or disposed. Some could report national numbers (i.e. Company globally diverts X %).	Voluntary, or even mandatory reporting, of the tons of materials diverted and disposed by large commercial generators does not seem feasible. Services are often contracted through a national headquarters, not locally, others are provided by a property management company, and the large generators are often undertaking in-house recycling programs that are difficult to track. There is a small possibility that large generators could share their contracted service levels and potentially estimates of percent full, however, this would require a mandate for the generators and staff time to follow-up with a large number of generators.
Cities / Communities in the Region	Very low	Almost all of the communities in the region have an open-market subscription based service and reported that no data is available on the tons generated, collected or disposed. Only one of the communities (Manitou Springs) was able to provide data on tons collected and diverted in the residential sector. None of the communities had any information on the commercial sector. Some were able to share data on the materials collected from City facilities.	County / City staff are not a good source of tonnage data in the Pike Peak region. Haulers, processors, generators, etc. do not report tons to the City and the vast majority of the civilian population (+95%) reside in communities serviced by multiple haulers in an open subscription system. None of the communities currently require haulers to report on tons collected.

⁸ El Paso County provided SERA with the original list of possible entities involved in solid waste, recycling and composting in the region. It is likely that there are some small actors not yet identified in the region that are undertaking recycling activities, Additionally, such recyclers as Goodwill, oil recyclers, electronics and special waste recyclers, were not included in this research.

⁹ SERA staff serve on the board of directors for both the recycling and solid waste organizations in Colorado and have good connections with many of the entities contacted. Despite these contacts and their familiarity with SERA staff, many entities were unwilling to share data.

¹⁰ This does not indicate that all of the large commercial generators in the region are recycling.

Sector	Potential to Report	Responses	Analysis
Compost Facilities	High	Only one of the four composters in the area was willing to supply data on the tons of materials processed. They were not able to provide information on where the materials were generated. They were able to separate materials processed by type (manure, yard trimmings, wood waste, dimensional lumber).	The CDPHE currently requires all classes of certified compost facilities to report the type of facility, the nitrogen and carbon sources by category and portion used, feedstock on site, feedstock shipped, and annual inventories. Neither the current form (nor the tested form) asks for where materials were generated or from which sector.
Landfills	Very high	Only one of the landfill operators was willing to share data. The data they shared was the data submitted to CDPHE. Additional questions regarding sources of tons (which county, which city, which sector) went unanswered by all.	Landfills are a good source of data on the tons disposed. They are currently required to report tons processed to CDPHE. Issues may arise with double counting and identifying sources of materials (geographic and sector). If a hauler, transfer station, or community also report the tons of MSW materials collected for disposal there is potential for double counting. To avoid double counting it is important to query respondents (such as haulers, transfer stations, communities) about the origin and destination of materials. Landfills are more and more becoming involved with processing HHW, organics, conventional recyclables, hard to recycle materials such as asphalt shingles, dimensional lumber, and others. This transition from disposal to resource recovery should be reflected in reporting forms.
Transfer Stations	High	Only one transfer station was able to report the number of tons of recyclables and MSW that they processed annually as well as where the materials were sent. The entity was able to estimate where it came from but was not willing to supply detailed information on sources (city or sector). They were not able to separate the tons of recycling into various categories as everything was single stream. Other transfer stations were either unwilling to share information or the transfer station was part of a larger system (in which the operator also owned a landfill).	If the goal of the data collection is to determine where materials are generated (County or City) tracking transfer station data is important. However, transfer stations, by definition, consolidate and transport materials to other facilities for processing or disposal leading to a high potential for double counting. Additionally, transfer stations, like landfills, are transforming into resource recovery facilities and are handling materials beyond MSW.
Haulers (MSW and Recycling)	High	Although haulers do have the data available on where tons are collected, where they are delivered for processing, the number and types of customers, etc., none of them were willing to share detailed data, even when told it would only be used in aggregate. Some of the haulers were very helpful and were willing to talk at length about future programs, provide some gross estimates, etc. but none were willing to provide data on tons diverted by county, city, or sector. The haulers that were not vertically integrated reported that they would only be able to share tons of MSW and single stream recycling, not recycling by commodity (if they were required to share data).	Haulers, along with landfills and MRFs are one of the best possible sources of data. Unlike MRFs, compost facilities, and landfills, haulers are not currently required to report information to the CDPHE. Due to the very competitive nature of the industry, gathering data on tonnages which can potentially be business sensitive is very challenging. We do not believe a voluntary reporting for the haulers would result in the collection of meaningful data. Some communities in Colorado require haulers to report data and are able to accurately measure materials generated, disposed, and diverted. A requirement for reporting can be met with resistance by some in the industry. If haulers report data, it is integral that proprietary information is kept that way and data is only shared in aggregate. Once again, double counting is a potential issue. For example, one of the haulers in the Pikes Peak region brings their recyclables to a transfer station, the transfer station then

Sector	Potential to Report	Responses	Analysis
			sends them to out of El Paso for processing. Thus, if careful accounting is not used, the same tons of materials could be reported by the hauler, the transfer station (both in El Paso County), and then a MRF in another county. Under the current CDPHE reporting forms the recycling conducted by this hauler, although taking place in El Paso County, is attributed to another county, underestimating what is happening in the region.
Material Recovery Facilities (MRF)	All	There is currently only one active MRF in the region. The facility was able to share detailed data, as submitted to CDPHE, on the types and amounts of materials processed annually. The data contains some information on the source of the materials.	MRFs, like the other processing facilities in the state, are currently required to submit annual reporting forms to CDPHE. The MRF reporting forms include material type, amount, amount processed, amount sent off site, and source (county, city, sector). Tracking where commodities come from and are sent is very important. Some of the recycling activity that is happening in the region may be being under reported because the recyclables are being sent to facilities in other counties. For example, the interviews revealed that two of the major recyclers in the region are not sending their recyclables to the local MRF, thus some of the recycling activity that is occurring in El Paso County is being reported in other counties.
Salvage Yards	About half	The salvage sector contained some of the only contacted facilities that were willing to fully complete the proposed form. Conversely, the sector also contained some facilities that reported to SERA that they would not be able to accurately report the materials they collect and process locally, only on a national basis and facilities that were unwilling to ever share data ¹¹ .	CDPHE currently does not require salvage yards to report the materials processed and diverted. The current CPDHE and EPA definitions of diversion and generation do not include many salvage metals ¹² . However, this is a sector that may be able to report diversion activities in the future. Voluntary reporting may be able to get some of the data. Required reporting would not necessarily be welcomed by the sector but it would be able to gather much more potential data.
Interviews beyond the Region	All	SERA contacted several haulers, recyclers, and processors not in the Pikes Peak region to gather additional feedback on the recycling form.	All of the additional stakeholder responded that the form was rather straightforward and could be completed if required. They did not seem willing to complete it voluntarily and did not see a large difference in the proposed form compared to what some of them are already required to submit to CDPHE annually. Concerns were voiced over ensuring that proprietary information is kept confidential.

2.2: Calculated and Modeled Estimates

Due to the lack of reliable, complete, and accurate data from the majority of the generators, haulers, and processors in the Pikes Peak region, SERA calculated the estimated recycling rates for the region using two techniques:

¹¹ One of the interviewees told SERA researcher that "The only way you will ever get that data is if you buy my company"

¹² The tested reporting form does ask for salvage materials and salvage metals are on the 'core commodities' list developed by EPA Region 8. The US EPA is re-assessing their definitions of recycling and diversion in the fall of 2011.

- 1) *Calculated recycling rate*: For this estimate SERA used all of the actual tonnage data from the region as inputs and combined them with the estimated data and qualitative data collected during the interview process.
- 2) *Modeled generation*: For this estimate SERA created a model that incorporates the data available from the region (used in the calculated rates) and combined it with data from other sources in Colorado and nationally. The model uses census data on population, housing type, number and types of business, number of employees, and statistical work previously completed by SERA on recycling program impacts to estimate generation and materials streams.

Both models were used to estimate what the CDPHE and the EPA calls the “MSW Recycling Rate”. The rate includes materials generated and diverted by the residential, commercial, and institutional sector but not the materials from the industrial sector¹³.

Calculated Diversion Rates

The CDPHE estimate for MSW Recycling in El Paso / Teller counties in 2010 is **8.6%**. This rate is based on three sources:

- 1) *Recycling Facility Annual Reporting Form* – Submitted by material recovery facilities and other recycling processors detailing the tons of commodities processed and shipped off site
- 2) *Solid Waste User’s Fee Quarterly Reporting Form for Non-NPL Facilities* – Submitted by landfills on total tons of incoming solid waste
- 3) *Composting Facility Annual Reporting Form* – Submitted by Class I-V composting facilities covering incoming and processed tons

Prior to 2008 CDPHE did not collect and analyze data on recycling rates in the state. The CDPHE has greatly improved their data collection over the past few years and takes significant effort to avoid double counting wherever possible. However, the statewide efforts for calculating MSW recycling rate do not fully take into account a few of the following factors that impact the County MSW recycling rate locally¹⁴:

- Tons of solid waste that are generated out-of-county and delivered to facilities in-county (and vice versa)
- Recycling that is collected in-county and delivered out-of-county or recycling from other counties ending up in-county¹⁵
- Salvage yards do not report tons collected / diverted (statewide)

Through the stakeholder interviews and the tested *commodity reporting form* SERA was able to gather supplemental information that was used to calculate an MSW Recycling Rate for the region. The MSW recycling rate was calculated to be between **10.4%** and **11.4%**, slightly higher than the **8.6%** reported by the CDPHE. This higher rate is due to two main factors:

- 1) Recyclables collected in El Paso County processed in Denver County and Boulder County

¹³ Most notably, the MSW recycling rate does not count aggregate in the calculations. Other materials that are not included in the MSW recycling rate include scrap cars/vehicles, bio-solids, and construction debris. The “MSW recycling rate” is a generally accepted term to measure a community’s recycling efforts and although it is called a ‘recycling rate’ it *does* include composting / organics diversion.

¹⁴ When calculating a state-wide rate these factors are less important, it does not matter if the recycling tons are counted in Denver County or El Paso County for the state diversion rate, as long as they are not counted in both places.

¹⁵ The Recycling Facility Annual Reporting Form does ask MRFs to report on sources whenever possible, however, it appears as if some of the tons are moving between counties and communities unreported.

2) Materials recycled and diverted by salvage yards

The 2010 state average as calculated by the CDPHE was **15%**.

The table below displays the factors SERA considered when calculating the recycling rate.

Table 2.4: Calculated Inputs

Data Source	Application	Estimated tons
Landfilled tons reported to CDPHE	Based on the location of the El Paso County landfills and population centers and the landfills and cities in surrounding counties, the reported landfill tons were used as is.	769,000
Recyclables reported to CDPHE	A small portion of the recyclables processed at the MRF in El Paso County were estimated to come from Pueblo County (which does not have a MRF) or other counties.	69,000
Compostables reported to CDPHE	Due to the weight and high cost of transportation for organics it was assumed that the composted tons reported in the County were generated in the County.	Included above
Additional Recycling	Two of the largest haulers and one of the smaller local haulers reported that they sent all of their recyclables out-of-county for processing. Estimates were combined with reported numbers (from haulers and out-of-county MRFs) and were included in the calculations. Additional recycling was reported by a few smaller private drop-off facilities and is included.	14,000 - 22,000
Salvage Yards	A few of the salvage yards contacted were able to provide accurate and complete data on tons and commodities. These data were supplemented with estimates of commodity types for salvage yards that were not able to report tons. Non-MSW salvage materials were not included.	6,500 - 8,500

Modeled Generation

Given the data collection issues, SERA used in-house models to project the tonnage disposed and generated (residential and commercial), and estimated recycling or diversion rates, as well as the percentages of key materials likely remaining in the residential and commercial waste streams.

Tons Generated and Disposed:

To estimate the tonnage, we used three key pieces of information:

- Population in Colorado Springs, and the non-Springs population in El Paso and Teller counties;
- A total waste disposal factor (6.6 pounds per capita per day¹⁶);¹⁷ and
- An estimate of the residential / commercial split for tonnage in the area (we used 50:50).

Applying these factors, we estimated there were 762,400 tons disposed in the two-county region. The total disposal based on the sum of the two landfills was 769,000 tons or less than 1% difference.

¹⁶ The per capita estimate is derived from national, regional and local studies including EPA 2010 estimates, CDPHE statewide estimates, and SERA studies of waste generation in communities in Colorado.

¹⁷ We used only the residential generation factor for Teller County, and assigned all the County's tons to the residential sector.

If we use an estimated figure of 72,659 tons recycled, the sum of trash and recycling is 841,646 tons, and the estimate recycling rate is 8.6% (which turns out to be the same as the CDPHE estimate).

Residential Sector:

The “total” tonnage figures were apportioned between the residential and commercial sectors. Given the treatment of Teller County as largely residential tons, we estimated 388,200 residential tons disposed. To provide a “proxy” waste composition, we looked for a waste composition from an urban area with a recycling rate in the 5-10% range. Philadelphia’s 2001 waste composition reflected a 6% recycling rate. The resulting waste composition for the landfilled portion follows. Note that more than half the waste is “non-recyclable”, which is likely true in the medium-term in Colorado Springs until infrastructure and transportation options improve. In addition, 45% of the material disposed is either paper or organics. More paper recycling, and an organics program, have the potential to pull nearly half the waste from the residential trash can.

Figure 2.5: Residential Disposal Stream Shares – Proxy Values

Major Material Stream	% of Total	Estimated Tons
Paper	23%	89,300
Aluminum Cans	1%	3,900
Steel Cans	2%	7,700
Glass Containers	3%	11,600
Organics	22%	85,400
Hard or Non-recyclable	51%	198,000
<i>Total</i>	<i>100%</i>	<i>388,200</i>

Commercial Sector:

On the commercial side, we were able to use a SERA model that projects commercial waste tonnages and compositions based on industry-specific values for tons generated per employee (by SIC code), and careful selection of the most appropriate from among about a dozen SIC-level commercial waste composition studies conducted around the nation. We built up the estimates using a total of about 40 SIC groupings. Again, we used three inputs:

- Employment by industry subcategory in the two-county region
- Tonnage generation in pounds per employee per year, by SIC / business group
- Disposal waste compositions by SIC code / business group

The product of these numbers produces the weighted average for the waste composition across the commercial sector. We display the results in Figure 2.6. Note the “big four” high (estimated) potentially recyclable products include: presence of paper (34%), organics (31%) construction and demolition (13%) and plastic (almost 9%).

Figure 2.6: Estimated Commercial Disposal Stream Shares – Proxy Values

Major Material Stream	% of Total	Estimated Tons
Paper	33.9%	128,700
Glass	3.6%	13,500
Metal	5.9%	22,500

Major Material Stream	% of Total	Estimated Tons
Plastic	8.8%	33,500
Other Organic	30.7%	116,500
Construction & Demolition	13.1%	49,800
Household Haz Waste	0.2%	800
Special Waste	3.2%	12,100
Mixed Residue	0.5%	1,900
<i>Total</i>	<i>100%</i>	<i>380,000</i>

SECTION 3: ANALYSIS OF EXISTING RECYCLING OPPORTUNITIES

Overview of Current System

The vast majority of recycling and diversion efforts that are underway in the region are provided through the private sector. There are limited examples of County- or City-operated programs in the region (a few of the exceptions include the El Paso County Household Hazardous Waste (HHW) Facility, some City / Community drop-offs in Teller and El Paso counties, and single-hauler contracted service in Manitou Springs with recycling rates embedded in residential trash rates). All major landfill, transfer, composting and processing facilities are owned and



Privately operated public drop-off located in Colorado Springs

operated by the private sector. Curbside recycling services are widely available for many generators (with the exception of some mountain areas, low density eastern plains areas, and multi-family generators). Participation in curbside programs is driven mainly by a generator's desire to recycle, there is little economic incentive¹⁸ to recycle for most generators and curbside recycling is almost always an extra added cost¹⁹. There are drop-off opportunities for residential and small commercial generators that are convenient for the majority of the population in the region. This however, is not true for some parts of Teller County and the eastern and northern portions of El Paso County. The drop-offs are generally not staffed. Education and outreach programs are limited, where available, and most often undertaken by the private sector as a way to increase business and participation in their own programs. Figure 3.1 displays the location of the major diversion facility options in the region.

¹⁸ One hauler does offer a recycling incentive program.

¹⁹ It is not always the case that recycling is an extra fee. Many areas of Colorado, including Manitou Springs in the Pikes Peak Region (other examples include Denver, Fort Collins, Durango, Thornton, Golden, Boulder County, etc.) have trash rates that include recycling services for no additional fee.

	Presence	Description	Analysis and Barriers	Opportunities
			haulers are providing services to different residents in the same neighborhood, meaning that on any given day there may be multiple haulers driving down the same street. Without hauler licensing it may be possible that not all the market actors are competing on a level playing field.	working with haulers to provide more opportunities for diversion.
Recycling drop-offs	Yes	There are many drop-off recycling opportunities throughout the region which are most often operated by the private sector. A few communities in the region operate a drop-off for residents. The drop-offs are typically unmanned (unless located at a transfer station or MRF) and are often located at existing businesses (Wal-mart, Whole Foods, etc.). The drop-offs are used by single and multi-family residents and small business generators.	The drop-offs provide an important recycling outlet for residents and businesses not paying for or without access to curbside options. Unmanned sites have the potential for contamination of recycling streams and dumping of bulky items or trash. Constructing and staffing a manned drop-off can be in the range of \$20K to >\$100K depending on the size and scope of the drop-off.	Recycling drop-offs should continue to play an important role in the region going forward. There may be options for staffing sites, public private partnerships, adding materials (such as food scraps or organics) or regional cooperation for facilities.
Single-family curbside recycling	Yes	With the exception of some low population density areas in the mountainous areas of Teller County and eastern portions of El Paso County most single family residents have the opportunity to contract for recycling collection at the curb. Curbside collection is almost always collected as single stream. One of the haulers provides an innovative recycling incentive program through a partnership with a national vendor. One community (Manitou Springs) embeds the cost of recycling in the trash bills for all residents.	Convenience and low cost are two of the main factors that make recycling work. Curbside service in the region can be costly for some residents (\$3 - \$7/month or more), some haulers require that residents purchase recycling bins for an extra cost, and some only provide service in 18-gallon bins, all of which present potential barriers to participation and diversion. Home Owners Associations may also present a barrier to recycling if curbside service is not included in the group contract. It is important to note that although recycling can be a less expensive service to provide compared to MSW collection, it is not a 'free' service and the savings / revenue from the sale of commodities only covers a portion of the costs for haulers to provide service/	There is a large opportunity to increase curbside recycling. Current participation is estimated to be between 10% and 30% of single family residents in the region ²⁰ . Opportunities exist for larger containers, more consistent service options among haulers, outreach and education, incentives, and others.

²⁰ A definitive number on participation is not available. The estimate of 10% to 30% participation is based on SERA interviews with the waste haulers and other stakeholders in the region.

	Presence	Description	Analysis and Barriers	Opportunities
Multi-family curbside recycling	Limited	Very few multi-family units have official recycling programs. Multi-family tenants can use the drop-off program. There is no significant multi-family program at this time. About 17% of housing units in the region are in buildings with 5 or more units, 13% are in building with 9 or more units.	Potential barriers include space, anonymity, education and outreach for multi-family residents, a lack of incentives to recycle, shorter time in a unit, and potential language barriers. Property management companies and HOAs may play a large role in this sector.	There is an opportunity to increase access to recycling for multi-family units but it important to note that this is one of the hardest sectors to reach high recycling rates in.
Commercial recycling	Yes	Optional curbside recycling is available for commercial customers – service costs and levels depend upon hauler.	Some of the larger national generators in the sector are recycling OCC, aluminum, office paper, and some metals already. For these large generators recycling can save money or actually generate revenue or it is corporate policy. The existing programs can be operated by haulers or through some other options such as back-hauling. Some smaller businesses are also participating. Overall commercial recycling is thought to be low (both participation and diversion ²¹). There is little incentive to participate in the program for many commercial generators, recycling may cost more for some customers than trash disposal alone. Space for containers (both inside and out) is an issue for many generators. Additionally, where decisions are made (nationally or locally) and who pays for service (property manager or business owner) create some potential barriers.	Commercial recycling programs are an option including shared dumpsters, combined routes, waste audits, technical assistance, outreach, and others. These are explored further throughout this document.
Public area recycling	Yes (in some portions of the region)	Some areas of the region (downtown Colorado Springs) have public area recycling containers; many other areas do not.	Public area recycling can be expensive and has the potential for high contamination.	The City of Colorado Springs has partnered with a private vendor to implement an innovative model program that could potentially spread to other areas of the region.

²¹ Like the residential sector, accurate estimates on participation or diversion from the sector were not available. Interviews with stakeholders and haulers indicate that participation in the sector may be as low as 5-10% or as much as 25%.

	Presence	Description	Analysis and Barriers	Opportunities
Education / outreach	Very limited	Little official outreach and education programs run by County / City. Private haulers do operate their own programs.	Outreach, education, and awareness of options are integral to a successful program. There is no full scale coordinated outreach program in the region. An effective outreach program can be expensive.	There is an opportunity to increase diversion through education/outreach, especially through public and private entity partnerships. Topics to be covered include awareness of already existing programs, benefits of recycling and diversion, the actual costs of recycling and diversion (it is not 'free') where and what to recycle.
Household hazardous waste	Yes	El Paso County operates an HHW facility at 3255 Akers that is free to all residents in El Paso and Teller counties. This is the only significant County owned / operated facility related to solid waste and recycling. There are private companies in the region that have grown to deal with electronics waste, waste oil, and paint.	As the public operated program becomes more and more successful the potential cost of handling the HHW materials collected will increase. The facility is not conveniently located for all generators in the county.	There are a few alternatives for increasing funding (potential ADFs that can be explored). The private sector is a good option for processing many of these materials (e-waste, oil, anti-freeze) and the region should continue to partner with these businesses.
Organic material composting facility	Yes	There are privately owned and operated facilities in the region, one of which that is accepting food scraps from commercial haulers.	Distance to the facility(s) may be an issue for some haulers. The cost of tipping organics can be a barrier to the growth of programs. Establishing a viable end-market for processed compostable is an issue state-wide in Colorado.	Organic material can be as much as 25% of the total materials generate din the Commercial, Institutional, and Residential sectors. There is a large opportunity to divert both yard waste and food scraps through curbside or drop-off programs.
Landfills	Yes	There are three permitted landfills in El Paso County. The landfills are owned and operated by the private sector.	The County has extremely limited control or input in to the operations at the privately owned and operated landfills. There is ample capacity for the MSW generated in the region at the existing landfills. The tip fees do not currently provide an economic incentive for diversion.	The County has the opportunity to implement or increase the SW Fees charged on MSW disposed at the landfills.

	Presence	Description	Analysis and Barriers	Opportunities
Material recovery facility (s)	Yes	There is currently one privately owned and operated material recovery facility located in Colorado Springs. The facility accepts single stream recyclable material from commercial haulers and at a public drop-off area. The rate paid or charged to haulers depends on private contracts, commodity values, and other variables. One of the other haulers in the region is in the process of constructing a new MRF.	The hauling business is highly competitive and the gate rates, contracts, or other agreements will dictate who uses what facility. Some haulers choose to do long-hauls (up to 200 miles RT) for recyclable material collected as opposed to using the local facility. The value of recycled commodities is variable, gate rates vary, and recycling is not always significantly cheaper than MSW disposal. Despite these issues, there appears to be ample capacity in the region to accept and process the recyclables generated locally.	There is little opportunity for the County to impact the MRFs (unless the region chooses to build their own public facility). The newly planned privately owned and operated facility may help to make the price paid/charged at the gate for commodities more competitive.
Other recycling facilities	Yes	There are privately owned and operated metal salvage yards in the region. There are also privately owned / operated aggregate facilities in the region.	The privately owned salvage facilities do not report the materials collected or diverted and there is little information available on which facility does what. This makes it difficult for the region to accurately estimate diversion or to conduct outreach/ education for generators on what services are available	There are ample privately owned facilities for salvage materials and some opportunity to increase the awareness of these opportunities.
Construction and demolition	No	C&D may potentially make up 30% of the total waste stream.	The current gate rates for disposal of materials in the landfill do not create a significant incentive to divert C&D materials and for many generators it may be financially beneficial to send all their materials to the landfill for disposal.	Although construction is slower than in the recent past, there is still a significant amount of growth in the region. C and D is a waste stream that the region may wish to address in-depth in the future.
Food / yard waste collection	Very limited	A few haulers have recently begun to offer curbside collection of residential and commercial organics.	Only limited programs available at this time and service is cost prohibitive for many generators.	This is a growing opportunity for the state and the region. There are some opportunities for the County to work with private haulers to promote curbside programs, divert organics from County / City facilities, add organics to drop-offs, host zero waste events, promote organics diversion from school cafeterias, and others.

	Presence	Description	Analysis and Barriers	Opportunities
Federal facilities and military bases	Yes	There are several large military installations in the region. Some, like Ft. Carson, have implemented several successful recycling programs	The County has little influence on the programs adopted on federal facilities. There are federal goals and protocols for recycling and diversion that are being implemented in these facilities.	There is an opportunity for increased cooperation in the region with the federal facilities and information sharing.
Schools and university programs	Limited	There is not a unified outreach program or a consistent school recycling/ diversion program for the school districts in the region. The colleges and universities in the region are undertaking significant efforts to increase diversion.	School budgets are, in general, being cut, and in districts or schools where diversion is more expensive than MSW service alone there may be little monetary incentive to start programs. Additionally, the start up costs of a program, although often relatively small, can pose a barrier.	Schools (K-12) are a good place to increase awareness of recycling and diversion options and impacts as well as get direct tons of diversion. Universities and colleges can serve as an 'incubator' for programs and ideas and can provide volunteers for diversion efforts in the community (event staff, project ideas, etc.). Grant money (state and federal) is often available for school programs.
Ordinances / bans	No	None	There is little to no local regulation of trash and recycling in the Pikes Peak region (there is of course, CDPHE regulations regarding processing facilities that apply to the region).	There are multiple opportunities for ordinances or regulations to increase diversion that are discussed later in this report. It is important that any ordinances or regulations are crafted in conjunction with the private sector to ensure they do not hinder the growth of business.

The gap analysis shows that there are still many opportunities to increase diversion in the region. Table 3.3 below highlights both the strengths and opportunities of the current trash and recycling system.

Table 3.3: Strengths and Opportunities (gaps)

Strengths	Opportunities
<ul style="list-style-type: none"> Strong private sector actors including haulers, processors, composters, landfills, and others that have already taken the initiative to increase diversion There are ample private facilities (although distance to facilities may be an issue) for processing recyclables Recently opened Class I composting facility Curbside recycling is available to the vast majority of single-family residents and commercial generators 	<ul style="list-style-type: none"> There is a large opportunity to increase both participation and tons collected in residential curbside recycling programs. Participation is currently estimated to be low (perhaps around 10% -30% of eligible households). High-performing cities in Colorado have seen participation rates as high as 90%+. The region should build on the strong private sector actors already existing. Partnerships can be established to best leverage existing services. The newly established Class I composting facility represents

<ul style="list-style-type: none"> • A number of 'free' drop-offs in the metropolitan area • The County owned / operated HHW facility • Colorado Springs is located on a major interstate with access to various recycling markets • Existing examples of public / private partnerships (such as Green Corners) that provide cost-effective options • Military installation with contracted waste and recycling service 	<p>a large opportunity to increase diversion of organics from both the residential and commercial sector.</p> <ul style="list-style-type: none"> • Although there is some cooperation among communities in the region, there is an opportunity to increase this cooperation, particularly around raising awareness / conducting outreach. The private sector can be a partner in this effort as well. • There are facilities (although limited) for some construction and demolition materials in the region (unlike many other parts of the state which may have no facilities available) that represent a large opportunity for diversion. • There is very little oversight of solid waste and recycling services. The region has the opportunity to work with stakeholders to establish a level playing field that will make it easier for generators to get service and ensure that all market actors are competing at the same level. • The metropolitan region is one of the largest in the state and, although some diversion is already occurring, there is a largely untapped resource existing in the materials currently sent to the landfill. Properly designed and implemented programs have the ability to generate significant jobs using what is currently a wasted resource. • For the most part, population in the region is in a centralized region making transportation and routes economically feasible
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Table 3.4 highlights and compares a few of the attributes of the largest communities in the state as well as three of the high performing communities in Colorado and one of the high performing communities in the region (Boulder, Fort Collins, Loveland, and Manitou Springs, respectively).

Table 3.4: Comparative Analysis

Location	Residential Hauler Arrangement	Commercial Hauler Arrangement	Residential Recycling	Commercial Recycling	Drop-Off Recycling	Organics	Diversion Rate
Pikes Peak Region	Open Subscription	Open Subscription	Available to most for an extra fee	Available to some for an extra fee	Available for some	Very limited programs	Unknown (estimated at ~8%)
Aurora	Open Subscription	Open Subscription	Available to most for an extra fee	Available to some for an extra fee	Widely available	Curbside service not available	Unknown
Boulder	Open Subscription	Open Subscription	Embedded in trash rates via ordinance	Available to most for an extra fee	Widely available	Embedded in trash rates via ordinance	44% (54% residential)
Denver	Municipal Staff	Open Subscription	Included in property taxes, must ask for a cart to participate	Available to most for an extra fee	Widely available	Available for a significant extra fee	12% (residential)

Location	Residential Hauler Arrangement	Commercial Hauler Arrangement	Residential Recycling	Commercial Recycling	Drop-Off Recycling	Organics	Diversion Rate
Fort Collins	Open Subscription	Open Subscription	Embedded in trash rates via ordinance	Available to most for an extra fee	Widely available	Some haulers offer for extra fee	42% (res. only)
Lakewood	Open Subscription	Open Subscription	Available to most for an extra fee	Available to most for an extra fee	Widely available	Curbside service not available	Unknown
Loveland	Municipal Staff	Open Subscription	Embedded in trash rates	Available to most for an extra fee	Widely available	Available for all residents for a small extra fee	54% (res. only)
Manitou Springs	Contracted hauler	Open Subscription	Embedded in trash rates	Available to most for an extra fee	Widely available	Available for all residents for extra fee	28% (res. only)
Thornton	Municipal Staff	Open Subscription	Embedded in trash rates	Available to most for an extra fee	Widely available	Curbside service not available	11% (res. only)
Pueblo	Open Subscription	Open Subscription	Not available to most households	Available to some for an extra fee	Available for some	Curbside service not available	Unknown

SECTION 4: STRATEGIES TO INCREASE DIVERSION IN THE REGION

Based on the research presented in Sections 2 and 3 of this report, SERA identified a selection of programs with the greatest opportunity to increase diversion and recycling in the Pikes Peak region now. Some of the recommendations will increase participation by a greater percentage of the population, while others are focused on increasing the actual number of tons diverted, not the number of businesses or residents participating. Programs are recommended for residential, commercial, governmental, and institutional or school sectors. All of the programs and strategies can work within the existing framework in the region. A wide variety of programs and tools are included to provide the region and the cities and communities in the region with a number of options to choose from. One program may make sense for Manitou Springs or Cripple Creek but not for Colorado Springs and vice versa. The overarching ideas supported by the programs presented in the detailed strategy list are:

- The private sector has invested significantly in diversion. . The region should leverage this investment and work with the private sector to grow existing initiatives and efforts through partnerships, outreach, and business supporting actions.
- Recycling and other diversion activities are not always cheaper than disposal in the landfill and, in some cases, it can cost more. The region should promote the benefits of diversion; highlight the areas, locations, and times where it can save money; and undertake efforts to help reduce the costs of diversion for generators when possible.
- Without significant investment in capital or staff, the tools local government can use to increase diversion are limited. Ordinances are a useful tool that can provide strong impacts at low cost to governments. Additionally, the governmental sector can lead by example through the implementation of diversion programs at public-owned facilities.
- Although drop-off recycling can be difficult to operate cost-effectively, drop-off facilities should continue to play an important role in the region into the future. Efforts and programs should be undertaken to support existing drop-offs, add more materials, or create additional sites.
- Price incentives for diversion currently do not exist for generators or for the private sector actors. Efforts to assist facilities and markets, aggregations of materials and 'hub and spoke' collection, and political can help create incentives.
- Conventional recycling represents only a portion of the total diversion potential of the Pikes Peak region. The region should consider additional diversion opportunities with a focus on organic materials and, to a lesser extent, construction and demolition debris.

4.1: Recommended Strategies

Table 4.1 contains the recommended strategies for increased recycling and waste diversion in El Paso and Teller counties. The strategies were based on the following inputs:

- Detailed interviews with recyclers, haulers, and generators in the area
- Review of the existing infrastructure, programs, and 'gaps'
- Interviews with other communities with similar demographics and programs
- Use of SERA's database of 1,300 communities and their recycling and diversion programs
- Baseline data on generation and diversion gathered by SERA
- Modeled estimations of generation and diversion in the Colorado Springs metropolitan area

All costs and impacts are shown relative to each other (L=Low, M=Medium, H=High). Impacts are displayed in the relative number of tons the program would divert.

Table 4.1: Recommended Recycling and Diversion Strategies

ID	Program Name	Type	Sector	Description	Tons	Cost (G)	Cost (C)	Example Cities
1	Outreach and Education	Public Private Partnerships	All	Focus the outreach and education on diversion options already existing in the area (drop-offs, HHWF, hauler-provided services, salvage yards, composting, etc.) and the benefits of recycling. The County should partner with haulers / City / businesses to conduct the outreach and promote a shared message.	L - M	L	M	Boulder County, CO Alameda County, CA
2	Increased / Improved Drop-Offs (A)	Public Private Partnerships	Residential	Foster co-location of recycling drop-off at existing business locations (ex. Whole Foods on Academy).	L - M	L	L	Lincoln, NE Arvada, CO
3	Increased / Improved Drop-Offs (B)	Public Private Partnerships	Residential	Gather business sponsors for public drop-off facilities in mountain areas (similar to the Green Corners program in Colorado Springs)	L - M	L	L	Charlotte / Mecklenburg County, NC; Pittsburgh, PA
4	On-Line Outreach	Public Private Partnerships	All	Information on County / City websites on who provides what diversion services for both residential and commercial generators.	L	L	L	Westminster, CO Fort Collins, CO Denver, CO
5	Technical Assistance	Public Private Partnerships	Commercial	Waste audits for commercial generators, targeted at specific generators with high potential for diversion. The audits can be conducted by the hauler(s) with financial support / rebates from the County / City.	M	L	M	Alameda County, CA Contra Costa SWD, CA; Shoreline, WA
6	Re-use and Donations	Public Private Partnerships	All	Work with faith organizations, commercial generators (food) and residential generators (clothes / goods) to promote reuse and donations.	L	L	L	Pima County, AZ (RISE); Milton, PA (HUF); Raleigh, NC (Wheels for Hope); Plano, TX

7	Zero waste public events	Outreach and Education	Government	County events are 'zero waste'. The events are used for direct tons of diversion as well as a significant outreach and education piece for attendees.	L - M	L	M	Louisville, Lafayette, Longmont, Durango, Telluride, CO
8	Business recognition	Outreach and Education	Commercial	County business recognition program. Businesses wanting recognition must complete a brief certification checklist (materials recycled, energy efficiency, etc.) and qualify to be recognized on the City website, a sticker program on shop windows, and local media.	L	L	L	Fort Collins, CO Richland, WA Knoxville, TN Central PA Chamber of Commerce
9	School curriculum development	Outreach and Education	School	Work with school districts to offer a recycling curriculum that can be given to teachers. Other options include assemblies, school vs. school competitions, district competitions, and others.	L	L	L	Longmont, CO Pitkin County, CO States of CT, MA, ME, MN, and others
10	Work with facilities to sponsor tours for school children	Outreach and Education	School	County works with private businesses operating MRFs and / or landfills to promote school field trips to the facilities.	L	L	L	Alpine Waste and Altogether Recycling (Denver)
11	Channel 8 'zero waste' challenge	Outreach and Education	All	A 'reality' TV program on the local community station where selected families compete weekly to generate the least trash possible.	L	L	M	Austin, TX
12	Social media campaign	Outreach and Education	All	Outreach campaign using tools such as facebook, twitter, youtube, flickr, and others. Although these tools are free to start using, staff effort is needed to make the campaign viable.	L	L	M	Gallegos Sanitation, Fort Collins' Western Disposal, Boulder County; State of NC (Recyclemorenc.org, RE3.org)
13	Support Pay-as-you-throw whenever possible	Incentives	Residential	PAYT is the most effective way to increase recycling in the residential sector. The County should undertake efforts to support haulers and / or communities interested in implementing PAYT programs.	H	M	L	PAYT cities in CO include Durango, Fort Collins Golden, Grand Junction, Lafayette, and many others
14	Commercial start-up grants	Incentives	Commercial	Annual grant program (perhaps in the range of \$5K - \$10K / year) to support commercial generators interesting in adopting new recycling programs. The grants range in size from \$500 - \$1,000 and can be used by the generator to purchase bins, signs, conduct waste audits, or other options.	M	L	M	Wake County, NC San Francisco, CA Alameda County, CO Boulder County, CO
15	School start-up grants	Incentives	School	Same as above except targeted at schools.	M	L	M	Cuyahoga County, OH, Wallingford, CT Rio Rancho, NM Alameda County, San

								Jose, CA
16	LEED or Greenpoints type recognition or incentive program	Incentives	Construction and Demolition	County-adopted program operated by Codes Division. New construction can qualify as a "green' building if they meet certain specifications. Some communities require that new construction meet a minimum number of 'points' prior to receiving the certificate of occupancy; in El Paso/ Teller counties it may be more of a recognition program.	L - H	M	L	Dallas, TX; Santa Fe, NM Boulder County, CO, LEED (national), Oakland CA Hayward, CA State of MA
17	Local tax credits for recycling-related businesses	Incentives	Commercial	City provides tax credits or TIF reductions for qualified recycling businesses. These businesses could include haulers, re-use stores, recycling processors, composters, or manufacturers using a large portion of recycled material feedstock.	L	L	L	AZ, FL, IA, KY, LA, NC, NJ, VA
18	Haulers 'offer' residential recycling	Ordinances	All	All haulers operating in the County / City must 'offer' residential recycling at least every other week for a select set of commonly accepted recyclable items. It is up to the hauler to decide what the rates charged to residents are and generator participation is voluntary.	M	L	L	Westminster, CO Highland Park, IL Gardiner, ME Lee Summit, MO
19	Large business recycling	Ordinances	Commercial	All commercial generators with over 100 employees on-site must recycle at least 2 materials from a select list of materials (OCC, paper, plastic, aluminum, yard waste, etc.). This program only impacts a small portion of the generators but has the potential to gather a lot of tons.	M	L-M	L	Austin, TX Minneapolis, MN
20	Equal space for recycling	Ordinances	Construction and Demolition	County / City adopted ordinance that all new and significant remodels include equal space for recycling and trash containers. Program is mainly aimed at commercial and multi-family building. Removes barriers of space in future recycling efforts.	L	L	L	Boulder, CO Lafayette, CO Superior, CO
21	Home Owners Association (HOAs) program	Ordinances	Residential	Many HOA's contract for trash (and sometimes recycling) service for all residents in the HOA. Under this program the County / City adopts an ordinance stating that an HOA cannot stop a resident in the HOA from contracting individually with a recycling hauler.	L	L	L	
22	Certified organics used in county roads and parks project	Ordinances	Government	Procurement standard for County / City road construction and parks projects requiring that certified organics compost is used in projects if it is available and the price is within X% of other options. This program helps to create a local market for composting end product.	L	L	M	The State of Colorado has specs for state or state-funded agencies such as CDOT

23	Environmentally preferable purchasing guidelines	Ordinances	Government	County / City procurement guidelines outlining a preference for recycled materials, companies that support recycling, and other considerations.	L	L	L	State of Colorado CSU; CU Frontier Airlines Alameda County, CA San Jose, CA Santa Monica, CA State of MA King County, WA
24	Dedicated position at the County for recycling	Ordinances	Government	County / City hires establishes one full-time employee dedicated to recycling and diversion programs.	M	M	H	Boulder County Denver County Pitkin County
25	Hauler reporting	Ordinances	All	Haulers operating in the County / City must submit annual reports on the tons of materials collected, disposed, and diverted.	L	L	L	Fort Collins, CO Golden, CO Westminster, CO
26	Require recycling plan for large (over XXX attendees) public events	Ordinances	Government	Any permitted public event with over XXX attendees must complete a recycling plan prior to being granted the permit, submit a small deposit, and report on any recycling activities completed at the event in order to receive the deposit back. A more aggressive option is to require the event to have a recycling station.	L	M	L	Chula Vista, CA Tulsa, O Pittsburgh, PA Austin, TX
27	In-sink disposal outreach	Organics	Residential	As an alternative to composting, a few cities are encouraging residents to send more materials through their in-sink disposals to the wastewater treatment facility (WTF). The City could partner with the private sector (Insinkerator) to conduct an outreach program for residents to encourage this behavior. Coordination with the WTF would be necessary.	L - M	L	L	Milwaukee, WI
28	County / City facilities contract for organics collection	Organics	Government	County / City add food scraps and organics collection services at certain government-owned facilities (Courthouse, Municipal Center, etc.).	M	L	M	Boulder, CO Longmont, CO , Oakland, CA Palo Alto, CA
29	Discounted composting sales	Organics	Residential	County / City offer discounted composting bin sales at special events for at-home composting.	L	L	L	Colorado: Denver, Durango, Fort Collins, Longmont
30	Master composter class	Organics	Residential	County offer a class for master composter certification once or twice a year. In order to be a "master," attendees must also do some composting volunteer hours and certified composting masters can teach future classes.	L	L	M	Colorado: Boulder County Summit County Longmont

31	Landscaping material from County / City facilities must go to compost site	Organics	Government	Requirement that all landscapers contracting with the County / City bring collected materials to a compost facility instead of a landfill.	M	M	M	Prince George County, MD; Carver County, MN King County, WA
32	Shared recycling containers for downtown businesses	Others	Commercial	County / City coordinates shared recycling containers for OCC or other common and valuable commodities for downtown area businesses.	M	M	M	Cambridge MA Howard County, MD Charlotte / Mecklenburg County, NC
33	Food trucks	Others	Government	County sponsor, purchase, or support a program to operate a refrigerated truck to collect food stuff from commercial generators / processors, and deliver to local food pantry.	L	L	M	Hennepin County, MN Ramsey County, MN Portland, OR
34	Asphalt shingles	Others	Government	Set County / City road construction standards that include asphalt shingles.	M	L	L-M	Boulder County
35	Regional cooperation	Others	Government	Support and foster regional cooperation among cities and unincorporated areas in the county for education and outreach, transportation, special events, hard to recycle materials, and others.	L	L	L	
36	Recycling drop-off membership cards	Funding	Residential	Recycling drop-off 'membership' to pay for staffed sites or mobile drop-offs. Residents or small businesses purchase a membership (perhaps \$5 / month) and are supplied ID cards to bring materials to drop-offs. The memberships go to pay for upgraded drop-offs and staffed drop-offs.	M	M	L	Pueblo West, CO; GreenPurpose (Champaign, IL)
37	Advance Disposal Fees (ADFs)	Funding	All	ADFs on hard-to-recycle materials (latex paint, pesticides, others) that goes to support the HHW facility. The program relies on the 'polluter pays principal' and individual responsibility to support HHW.	L	M	M	State of Colorado (on scrap tires); Telluride, CO; Washington, DC
38	Increased SW user fee	Funding	Government	Small annual or every-other-year increase to the fee charged on SW at landfills, no fee on recycling or organics, and use the increase to support diversion programs. The increase can be linked to the Consumer Price Index or other escalators to at least maintain current funding levels.	L - H	M	L	CA, MN, NC

4.2: Other High Impact Strategies from Around the US

In addition to the recommended strategies, a selected list of some of the most effective recycling and diversion strategies in use throughout the nation is included. These are programs and strategies that, although they may not be appropriate for the region at this time, may make sense in the future. They are the recycling and diversion strategies that will result in the ‘biggest bang for the buck’. They are cost-effective, but they are not free. Many of them require local government to enact certain mandates / programs and incorporate user fees to pay for the program. They have all been used in many communities throughout Colorado and the US and all present the region with an opportunity to greatly impact diversion. These are the types of programs that are necessary for a community or county to adopt if their goal is to reach high levels of diversion. History has shown that voluntary and market driven approaches alone will not propel a community toward 50% diversion or beyond. Despite the potential for strong diversion, these programs may not be appropriate for consideration in the Pikes Peak Region at this time due to infrastructure, funding, political, or other barriers that could make implementation difficult.

- **Require that Haulers Embed the Cost of Recycling in Residential Trash Fees**
Examples: Golden, CO; Fort Collins, CO; Boulder County, CO
Communities in Colorado and the nation that have sought to increase residential participation, make curbside service less expensive for each household, and look for ways to increase overall recycling rates have implemented programs that embed the costs of recycling service for all households. The program is implemented through an ordinance, contract, or by communities that use municipal staff to collect trash. In open-market subscription situations, an ordinance is adopted that requires all haulers serving the residential sector to include recycling service for any household that wants it for no additional cost. This does not mean that the residents are not paying for the service. It instead means that the base rate of service now includes the cost of recycling and households are paying for the service regardless of whether or not they use it. The program does increase the cost of trash service for households that were previously not recycling; however, the per-household cost of recycling is significantly lower due to the realization of economies of scale. Other consideration in an ordinance embedding recycling fees may be annual outreach informing residents that they now have recycling service and a requirement that the cost of the minimum number of necessary recycling bins is also included in the rates.
- **Pay-As-You-Throw (PAYT) / Variable Trash Rates**
Examples: Lafayette, CO; Fort Collins, CO; Durango, CO; Louisville, CO
PAYT is the single most effective program a community can adopt to increase diversion and reduce the amount of MSW sent to the landfill²². Under PAYT, all residents have the costs of recycling embedded in their trash fees and are charged based not on how much recycling they set out but on how much trash they throw away. The less trash households dispose, the less they pay; the more they dispose, the more they pay.

²² Skumatz, Freeman. Pay-As-You-Throw in the United States. 2006 Update and Analysis. Submitted to US EPA

Rates are based on the number of bags / cans set out per week or on the size of the cart each household subscribes to.

- **Curbside Organics Collection Options**

Examples: Louisville, CO; Loveland, CO; Boulder County, CO; Portland, OR

Organic materials (food scraps, yard waste, brush, leaves, grass, and food-soiled paper) make up a large proportion of the residential waste stream in Colorado. For example, the City of Denver reports that 57% of the residential materials going to the landfill are divertible organics. Similar to the program in which the costs of recycling are embedded in their trash rates, this strategy would require all haulers to embed the costs of curbside collection of organics in residential trash fees. Residents are not required to participate but are required to pay for the service. This strategy makes a considerable impact on the residential waste stream that is organic material and has been implemented in some of the highest performing communities. An alternative (and less aggressive) option is to require all haulers to 'offer' organics collection to residential accounts for a cost that is lower than the trash service costs. The program is totally voluntary and it would be up to each resident to decide whether or not they want to sign up for service. Participation and diversion is typically lower under this scenario; however, it is a more common approach in Colorado and the nation.

- **Mandatory Recycling for Certain Business Types and Materials (Commercial 12)**

Examples: State of NC; San Francisco, CA; Lee County, FL; Gainesville, FL; Santa Barbara, CA; San Diego, CA; Chicago, IL; Honolulu, HI; Seattle, WA; Minneapolis, MN

According to the US EPA the commercial sector is responsible for generating between 40 to 60% of the waste generated in the US. Often, instead of requiring that all commercial generators recycle the same set of materials, or requiring that all commercial generators recycle, communities adopt mandatory commercial programs that are adaptable and are designed to get the most tons for the lowest cost. For example, it may not be as effective for the region to focus on small commercial generators with only 2 or 3 employees that are not generating a lot of waste (such as a hair salon or a cell phone store) as opposed to focusing on large generators of certain materials such as offices with over X employees (or square feet). Successful programs may require businesses to choose one or two materials to recycle off a menu list of recyclables, require that haulers embed the costs of a set level of recycling in the trash rates, ban the disposal of targeted materials (such as OCC), require that business subscribed to over X cubic yards of trash service also contract for recycling service, or require that the costs of recycling service cannot be greater than the cost of trash service.

- **Commercial Organics Collection**

Examples: Seattle, WA; San Francisco, CA; San Jose, CA

Some communities have adopted a program in which haulers are required to 'offer' organics collection to all commercial generators (for an optional additional fee) while others have required that certain commercial generators (restaurants, food processors, etc.) must divert organics through disposal ban or source separation requirement. Others have required that haulers embed the costs of organic service in the trash fees for commercial generators. Although these types of programs are not very common in Colorado at this time, the number of communities using these programs is growing. Some private sector driven programs are starting in the Colorado Springs region and the

region already has some of the infrastructure in place to divert commercial organics. Examining ways to promote commercial organics diversion may be a direction the region will wish to consider in the future.

- **C&D Dumpster Deposit**

Examples: San Diego, CA; Portola Valley, CA; Woodside, CA; San Jose, CA

A C&D deposit program requires that all new construction or significant remodeling contractors pay a deposit when applying for their building permit. The deposit is returned to the contractor prior to the approval of the Certificate of Occupancy only if the contractor meets required diversion rates. For example, the contractor must provide receipts showing that they diverted 40%²³ of the C&D materials generated on-site in order to get their deposit back. This is a very effective program that has been used in many west coast communities.

- **Mixed Solid Waste Sorting Facility** (*Not a low cost strategy*)

Examples: Livermore, CA; San Jose, CA

Some of the highest performing communities in the nation (those with 65% diversion or greater) are using new mixed solid waste sorting facilities (dirty MRFs) to overcome a number of the institutional and long-standing barriers in the commercial and multi-family (MF) sector. This is not a low cost strategy but is included to show some of the range of potential options. It is a capital intensive strategy. By allowing commercial / MF generators to place all materials in one stream (MSW, organics, and recycling), generator costs, education needs, space constraints, and other issues are addressed. For the program to work, an organics processing facility as well as a mixed solid waste facility is needed, both at a significant capital cost. However, as shown by some of the recent examples nationally, this program may increase overall diversion rates in the sector to as high as 80%. Critics of the technology feel that the materials separated out of the processing are not always sellable commodities and the recyclables may end-up in a landfill.

In order to illustrate the differences of various program impacts an example from recent SERA work is provided below²⁴.

Example: County 10-Year Sustainability Plan

SERA assisted County X in developing a 10-year plan for waste diversion. As part of the plan SERA worked with a group of stakeholders to recommend various strategies for implementation. Models of the recommended program impacts on the County were then developed. The strategies were grouped into short-term (0-2 years), mid-term (3-5 years) and long-term (5 – 10 years) time frames as well as a selection of 10 high impact/low cost strategies that could be implemented at any time. The detailed model of potential impacts of the programs uncovered that the short term programs (mainly voluntary, educational, and outreach based) while effective and important, actually had costs that were slightly higher for the county than the

²³ The diversion rate could be set at whatever level the county / jurisdiction and contractors feel is reasonable; the required diversion rate could start at 20% (presumably a rate that could be met with OCC and other currently divertible materials) and ratcheted up over time.

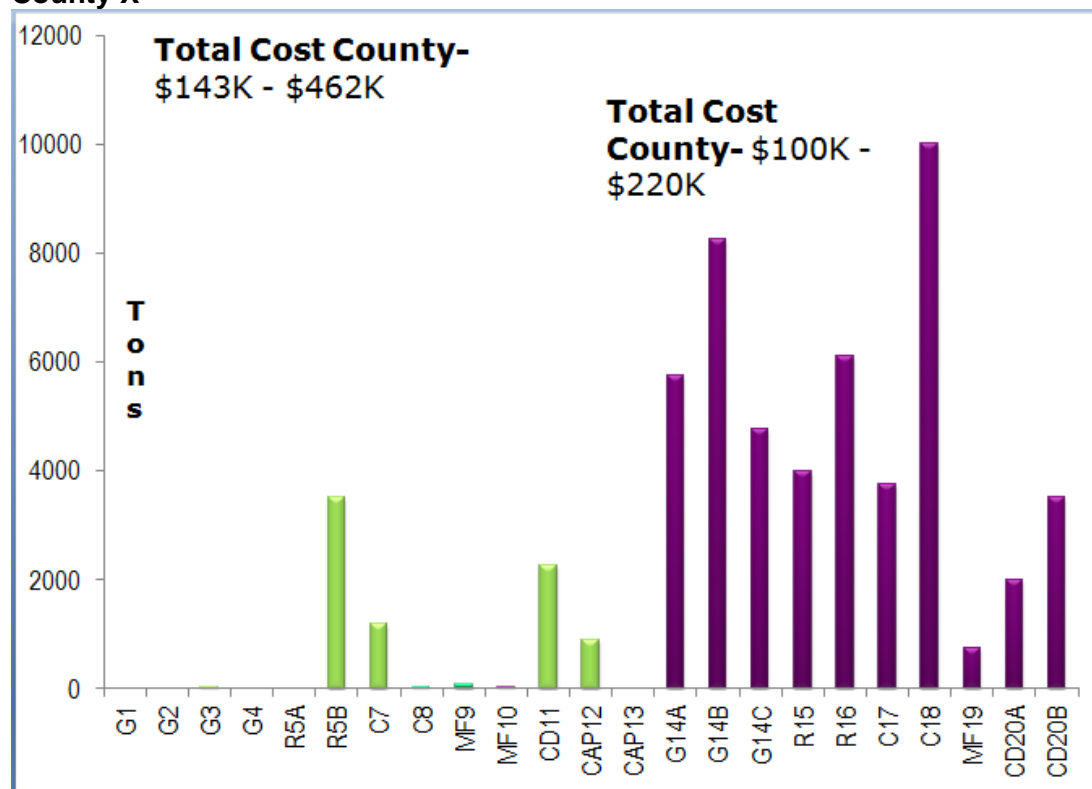
²⁴ The examples provided is from a 2011 SERA client. It is not included to demonstrate *specific* impacts of certain programs, but instead to show the differences in impacts of types of programs. Determining detailed costs and impacts of the 40+ programs recommended in this report requires developing an El Paso specific waste diversion assessment model and was not within the scope or budget of this project.

high impact strategies (which used mandates, disposal bans, and other aggressive tools). At the same time, the high impact strategies diverted nearly 5 times more tons from the waste stream. The impacts and costs are shown in figures 4.2 and 4.3. The high impact programs may not cost as much in terms of dollars, but they do take significant political will and involvement to implement. It is up to each community in the county to weigh the trade-offs of the various program impacts and costs for their citizens and businesses.

Figure 4.2: Summary of Short Term and High Impact Strategies for County X

	Short-term strategies	High-impact strategies
Tools	Voluntary, education, incentives, encouragement, minimal ordinances	Mandates, ordinances, bans, embedded fees
Example programs	Residential outreach program, hauler reporting, commercial waste audits, school curriculum, zero waste events, and others	Residential pay-as-you-throw, cardboard disposal ban, mandatory commercial recycling, construction and demolition requirements, and others
Total costs to County	\$143K - \$462K	\$100K - \$200K
Estimated 'new' tons diverted annually	3,300 - 12,600	30,200 - 40,000

Figure 4.3: Impacts of Voluntary-type (green) and Mandatory-type (purple) Programs in County X



APPENDIX: COMMODITY REPORTING FORM

Any records in our possession identified as “confidential business information” or as a “trade secret” **will not be disclosed** without giving the party raising the claim notice of the request and an opportunity to contest the release of the information. The burden of proving that the information is protected as a trade secret is on the party raising the claim. In order to claim this protection, you must meet the following requirements:

1. you must show that you have taken reasonable measures to protect the confidentiality of the information, and that you intend to continue to take such measures;
2. the information is not, and has not been, reasonably obtainable without your consent by other persons using legitimate means;
3. either:
 - i. you have satisfactorily shown that disclosure of the information is likely to cause substantial harm to your competitive position; or
 - ii. the information is voluntarily submitted information and its disclosure would be likely to impair the Government’s ability to obtain necessary information in the future;
4. no statute specifically requires disclosure of the information; and
5. you have to assert a claim of business confidentiality in writing. You may do so by checking the box below, adding your facility information, and submitting along with your reporting forms.

I have read Items 1-5 and am hereby requesting that information submitted on my 2009 Recycling Facility Reporting Forms be kept as confidential information.

Yes (MUST check to claim privilege)

Facility Name:

Street Address / City / Zip Code:

Telephone / County:

Submitted By / Date:

Submit only one confidentiality form per facility. Applies only to facility identified above.

Account for Materials Actually Diverted to Viable Resource Recovery End Use

Select Facility Type: Select from drop list or circle one of the following:
 (MRF, Permitted Landfill, Municipality, Transfer Station, Salvage Recycler, Community, Large Retail Business, Broker)

Materials within each General Commodity grouping are organized by Sub-category, and further by Individual Commodity. Please provide data in the most specific categories possible.

General Commodity	Sub-category	Individual Commodity		Amount	Units of Measure	Optional: Shipped Out-of-State?
Paper			Total:	5		
	Paper (All Mixed)		Subtotal:	3		No / Yes, where
		White Office Paper (high grade paper)	1			No / Yes, where
		Mixed Paper (newsprint and other office paper)	1			No / Yes, where
		Phone Books	1			No / Yes, where
	Cardboard & Paperboard		Subtotal:	2		No / Yes, where
		Cardboard	1			No / Yes, where
		Paperboard	1			No / Yes, where

Metals			Total:	7	Units	
		Auto Scrap / Shred	1			No / Yes, where
		Industrial Ferrous	1			No / Yes, where
		Industrial Non-Ferrous	1			No / Yes, where
		Residential Aluminum Cans	1			No / Yes, where
		Residential Steel Cans / Tin Cans (food containers)	1			No / Yes, where
		White Goods	1			No / Yes, where
		Other Industrial Steel	1			No / Yes, where

Batteries			Total:	2	Units	
		Vehicle Batteries	1			No / Yes, where
		Other Batteries (AA's, etc)	1			No / Yes, where

Plastics			Total:	16	Units	
	#1 - #7 Mixed		Total:	11		
	#1 & #2 Mixed		11			No / Yes, where
		PET #1	1			No / Yes, where
		HDPE #2 - Mixed	1			No / Yes, where
		HDPE #2 Natural	1			No / Yes, where
		HDPE #2 Colored	1			No / Yes, where
	All others #3 through #7		1			No / Yes, where

Organics		Total:	12	Units	No / Yes, where
	Mixed Organics	Subtotal:	9		No / Yes, where
	Agricultural Organics (livestock, manure, food waste)	1			No / Yes, where
	Biosolids	1			No / Yes, where
	Compost Feed Stock	1			No / Yes, where
	Drywall	1			No / Yes, where
	Food Processing Residuals	1			No / Yes, where
	Food Scraps	1			No / Yes, where
	Sewage Sludge	1			No / Yes, where
	Yard Trimmings (grass & wood chips)	1			No / Yes, where
	Other Compostables	1			No / Yes, where
	Wood	Subtotal:	3		No / Yes, where
	Agricultural Wood	1			No / Yes, where
	Construction/ Dimensional Lumber/ Pallets/Crates/Shingles Forestry Secondary Materials - Mill Byproducts	1			No / Yes, where

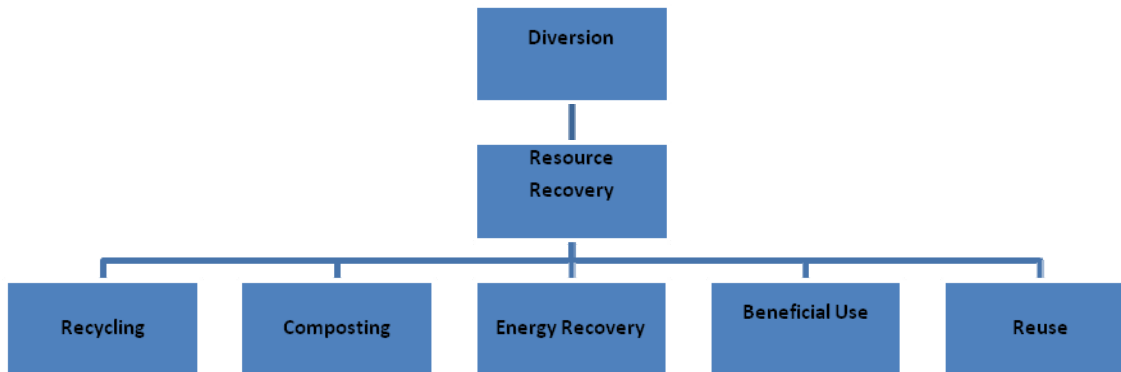
Aggregates		Total:	3	Units	No / Yes, where
	Asphalt Pavement	1			No / Yes, where
	Concrete	1			No / Yes, where
	Other	1			No / Yes, where

Coal Combustion Products		Total:	5	Units	No / Yes, where
	Bottom Ash	1			No / Yes, where
	Coal Slag	1			No / Yes, where
	FGD Gypsum	1			No / Yes, where
	Fly Ash	1			No / Yes, where
	All others	1			No / Yes, where

Textiles		Total:	3	Units	No / Yes, where
	Carpet	1			No / Yes, where
	Carpet Padding	1			No / Yes, where
	Other Textiles (clothing, fabric, upholstery)	1			No / Yes, where

Glass		Total:	3	Units	No / Yes, where
	Mixed Glass	1	2		No / Yes, where
	Amber Glass (not included in the Mixed amount above)	1			No / Yes, where

Scrap Tires / Rubber		Total:	2	Units	No / Yes, where
	Passenger Tires	1			No / Yes, where
	Commercial Truck	1			No / Yes, where



Regional Agreement Definitions: (draft)

Diversion: process of systematically redirecting waste from disposal.

Resource Recovery: the recovery of material or energy from solid waste.

Recycling: any process by which solid waste, or materials that would otherwise become solid waste, are collected or processed and returned to use in the form of raw materials or products. The term does not include any form of energy recovery.

Composting: the process of converting raw organic materials into a biologically stable soil amendment through intentional and active manipulation. Manipulation may include, but is not limited to, grinding, mixing, turning, and adding liquid and/or bulking agents.

Energy Recovery: obtaining energy from solid waste through a variety of processes.

Beneficial Use: the use of solid waste as an ingredient in a manufacturing process, or as an effective substitute for natural or commercial products, in a manner that does not pose a threat to human health or the environment. Avoidance of processing or disposal cost alone does not constitute beneficial use. The use of a material as an Alternative Daily Cover in a solid waste landfill is not considered a beneficial use.

Reuse: use of a product more than once in its same form for the same or different purpose without substantial alteration.

Disposal: the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into any water or on any land so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters. (SWDA)