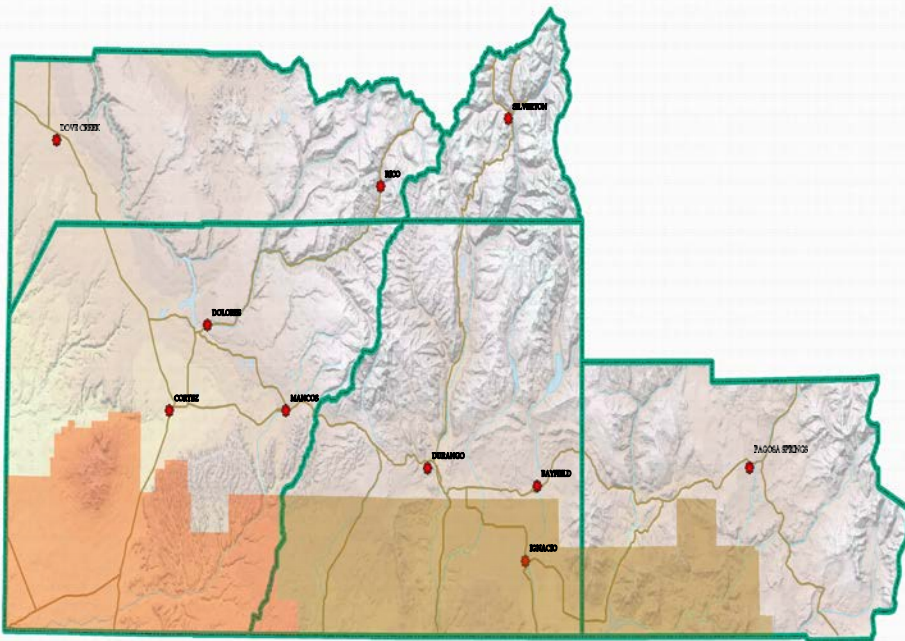




SOUTHWEST COLORADO COUNCIL OF GOVERNMENTS

SOUTHWEST COLORADO WASTE STUDY Volume 1



LBA ASSOCIATES

June 2015

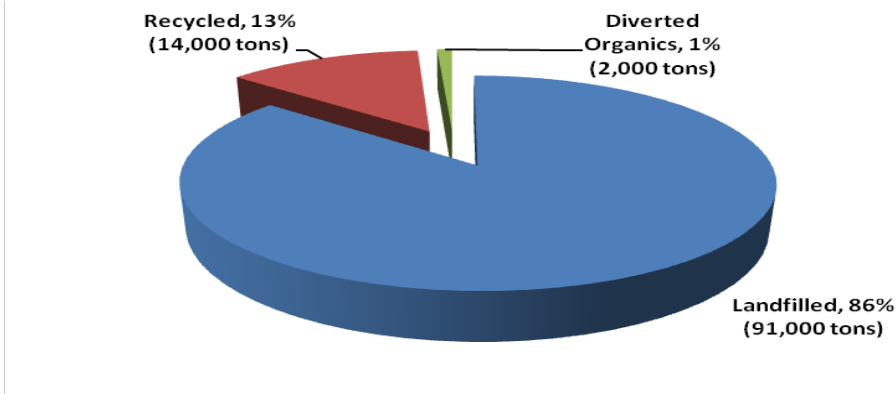
EXECUTIVE SUMMARY

The Southwest Colorado Waste Study was conducted in late 2014 as a State of Colorado Recycling Resource Economic Opportunities grant project. The study was completed by the Southwest Colorado Council of Governments (SWCCOG), and encompassed the five-county region of Archuleta, Dolores, La Plata, Montezuma and San Juan Counties as well as the Southern Ute and Ute Mountain Ute Tribes. This area - with its mountainous terrain, agriculture, and wilderness areas coupled with population density of 15 persons/square mile - has unique waste diversion challenges for the region. Further complicating waste diversion for the region is the differing access to recycling opportunities.

Background

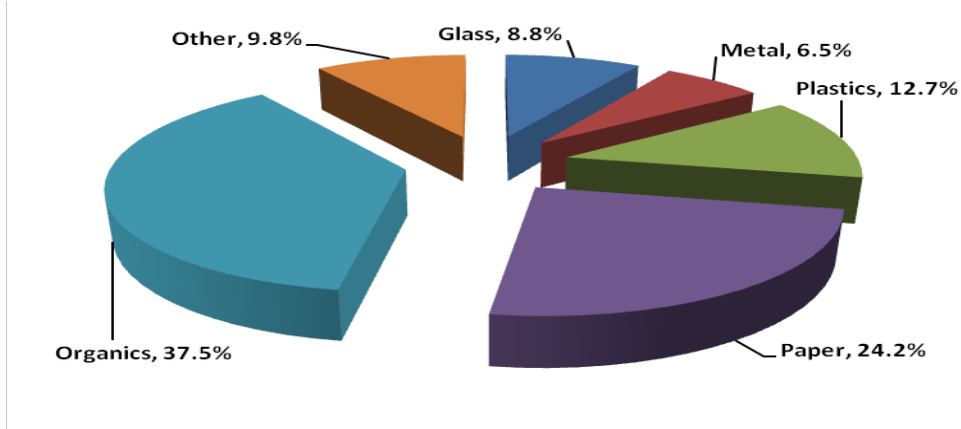
The study, which focused on municipal solid waste stream (MSW), found that recycling infrastructure beyond the cities of Cortez and Durango is limited and that organics recovery is also constrained. It is estimated that at least 107,000 tons of MSW is generated annually, and the diversion rate is approximately 14% (see Figure ES-1).

Figure ES-1 MSW Management (percent by weight)



Waste audits conducted during the study discovered that nearly 62% of landfilled materials included organics and paper - much of which could be diverted through recycling efforts (see Figure ES-2).

Figure ES-2 Waste Composition by Material Category (tons, percent by weight)



Of particular note, the audit results indicated that landfill waste samples included at least 7% by weight each of glass containers, cardboard, yard waste and food waste (food waste was nearly 18%). However, diversion of these materials was hindered by long hauls to processors and markets, low quality materials (especially single-stream recyclables) and low market pricing.

Future Waste Diversion Options

To evaluate opportunities for increasing waste diversion in southwest Colorado, SWCCOG developed a Recycling Task Force comprised of governments and tribes, haulers, transfer and landfill operators, non-profit organizations and interested citizens. These stakeholders agreed that improving the economics of recycling was an important goal, and that regionalizing diversion activities, expanding public outreach, creating diversion incentives and providing better access to recycling collection were important components.

Based on task force direction, a waste diversion coalition was evaluated that could provide:

- Leadership in a region that has not generally prioritized waste diversion
- Reduced workload for governments
- Increased efficiencies by centralizing activities
- More waste diversion programming
- Increased diversion of quality materials
- A neutral third party to buffer relationships between local jurisdictions, public, and private sectors and encourage a united versus competitive environment

A focused coalition consisting of key stakeholders can be expected to effectively direct grant funding to support an on-going public outreach, advocacy and policy efforts, address management of problem wastes and collect materials data. An initial cost-benefit analysis determined that these activities would create a new half-time position, while the economics may range from \$28,000/year net cost to \$321,000/year net revenue, depending on fund-raising success and material prices. The avoided landfill tip fee expenditures associated with diverted tons represents \$21,000/year in net savings.

Public education and outreach would be one of the coalition's more important functions and would form the foundation of future waste diversion in southwest Colorado. The program would require initial development of a regional diversion brand; messaging for the public, businesses and visitors; establishing consistent materials collection; and on-going program implementation. Advocacy efforts reinforce the importance and value of waste diversion among elected officials and government staff may culminate in policies that create incentives for diversion over disposal. Other activities, such as adding cost-effective rural recycling drop sites in unincorporated areas and tackling the diversion of glass and tires, will provide both technical assistance and infrastructure to a region currently lacking in both.

While the actual costs would be accrued by the coalition undertaking this work (which will significantly bolster the ability to increase diversion across the region), revenues will be earned by public, private and non-profit organizations that operate collection and processing programs. SWCCOG is ideally suited to host the coalition, given its non-profit nature, membership base and regional leadership role. SWCCOG has a strong fund-raising track record and a

membership dues structure that will allow it to cover costs as it supports operations by others across the five-county area.

Recommended Waste Diversion Strategy

It is important to understand that if the southwest Colorado region doesn't work to increase diversion, it will miss many important opportunities, such as taking advantage of state funding and the work completed to the Recycling Task Force; moving away from inefficient, decentralized programming; supporting private development of a new single-stream processing facility; and having a long-term, regional vision that prioritizes waste diversion as a solid waste management strategy.

If SWCCOG and the Recycling Task Force choose instead to move forward, recommended strategy steps include:

- Creating an effective waste diversion coalition within SWCCOG
- Obtaining grant funding to support a regional, on-going education and outreach program
- Supporting new MRF development by Phoenix Recycling and full-scale composting by Montezuma County
- Tackling glass and tire management with regional (and possibly beyond regional) solutions
- Establishing long-term, on-going operations to maintain these programs with updated goals/objectives, waste audit data and material quantities to monitor diversion programs

It will be important for the region to communicate to its public, governments, businesses and visitors that waste diversion is important to southwest Colorado. This message must acknowledge, however, that recycling isn't "free" - that it requires effort to collect and manage quality materials - but that both the measurable and immeasurable benefits are significant when compared to disposal.

Rural areas undoubtedly have greater diversion challenges than other parts of Colorado - they also have greater motivations such as protecting their pristine lands and clean air, and preserving tourist attractions and recreation areas. The southwest communities, stakeholders and SWCCOG have the opportunity to leverage existing programming and the Recycling Task Force's work to foster collaboration over competition, rally political will and create a waste diversion system that is both environmentally and economically viable.

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Appendix I	Drop-Site Cost Estimate Model

LIST OF ABBREVIATIONS

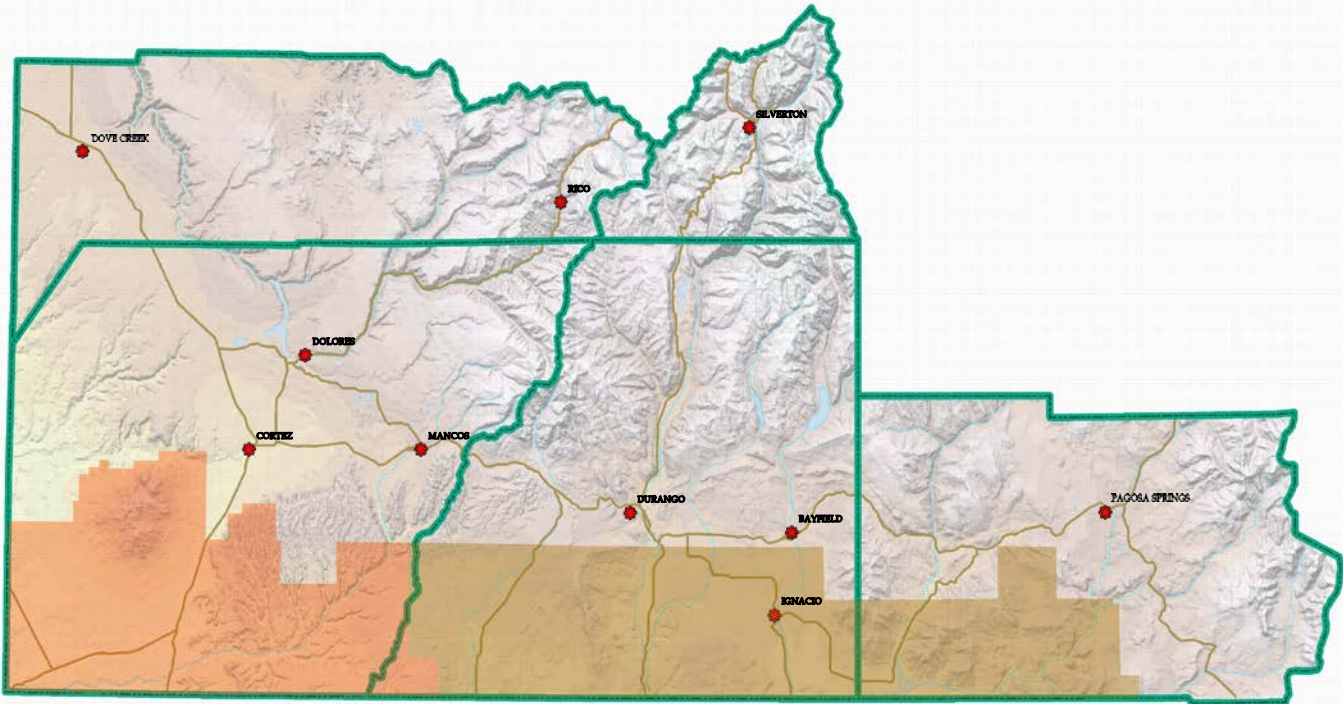
C&D	Construction & demolition	NMRC	New Mexico Recycling Coalition
CDPHE	Colorado Department of Public Health & Environment	O	Organics
COG	Council of Governments	PAYT	Pay-as-you-throw
CTRA	Central Texas Recycling Association	PPCD	Pounds per capita-day
CY	Cubic yard	R	Recycling
DOC	Drop-off site	RREO	Resource Recycling Economic Opportunity (Colorado grant)
DOLA	Department of Local Affairs (Colorado)	SDO	State Demography Office (Colorado)
E&O	Education & outreach	SFU	Single-family (residential) unit
FTE	Full-time equivalent	SINGLE	Single-stream recyclables collection
GAL	Gallon	SJBRA	San Juan Basin Recycling Association
HH	Household	SJRCD	San Juan Resource Conservation Development District
HHW	Household hazardous waste	SPRA	Southwest Public Recycling Association
LBA	LBA Associates, Inc.	SWCCOG	Southwest Colorado Council of Governments
LF	Landfill	T	Trash
MFU	Multi-family (residential) unit	TPY	Tons per year
MO	Month	TS	Transfer station
MRF	Materials recovery facility	UAACOG	Upper Arkansas Area Council of Governments
MSW	Municipal solid waste	US	United States
MULTI	Multi-stream recyclables collection	USDA	US Department of Agriculture
		VISTA	Volunteers in Service to America

SECTION 1

INTRODUCTION

The Southwest Colorado Waste Study was conducted in late 2014/early 2015 as a State of Colorado Recycling Resource Economic Opportunities (RREO) grant project. The study was completed by the Southwest Colorado Council of Governments (SWCCOG). It encompassed the five-county region of Archuleta, Dolores, La Plata, Montezuma and San Juan Counties, which includes all of the SCWWOG's partner governments¹ as well as several additional organizations. Figure 1 illustrates the boundary of the five-county study area².

Figure 1 - SWCCOG Region & Study Area



LBA Associates, Inc. (LBA) assisted in the completion of this work. Fort Lewis College also supported the study by providing student interns to conduct a waste audit.

¹ SWCCOG members include Archuleta County, Bayfield, Cortez, Dolores County, Dolores, Durango, Ignacio, La Plata County, Mancos, Pagosa Springs, San Juan County and Silverton - the Southern Ute and Ute Mountain Ute Indian Tribes are signatories.

² Map courtesy of the SWCCOG.

1.1 Purpose

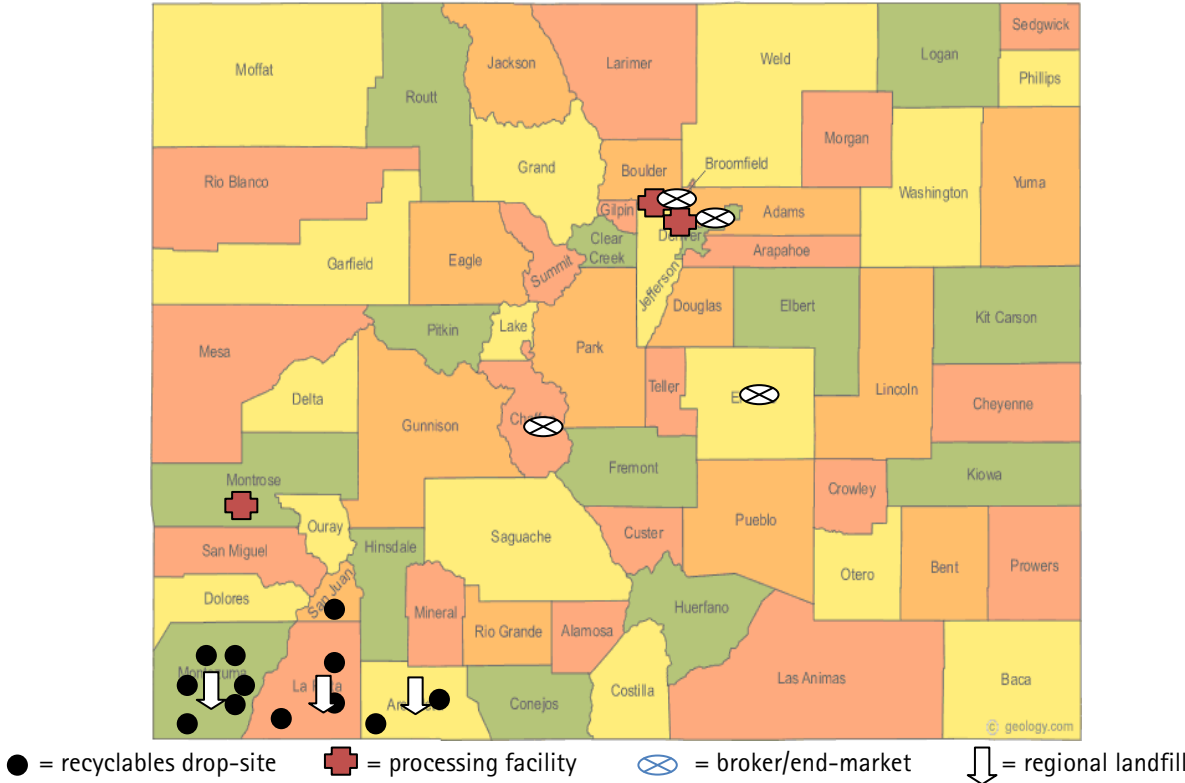
The focus of the study was diversion of the municipal solid waste (MSW) stream³. The study was intended to create a level playing field and to catalyze regionalization by government and industry stakeholders to support improved programming, policy and infrastructure.

1.2 Background

The northern parts of the region are mountainous, while the southern areas include several river basins. With the exception of Cortez and Durango, the region is rural: the 2014 population was estimated to be 99,000⁴ and the density is approximately 15 persons/ square mile. Archuleta, La Plata and Montezuma Counties account for 13%, 56% and 27% of the population, respectively (Dolores and San Juan Counties representing less than 5% combined).

The Southern Ute Indian Tribe and the Ute Mountain Ute Tribes are located in the southern half of the region. The region includes the Mesa Verde National Park and Chimney Rock State Park, as well as several national wilderness areas and monuments. The geography, diverse populations and recreation/tourist areas all present unique solid waste management challenges. These challenges are exacerbated by low population densities, long hauls to processing facilities and markets over mountainous terrain, and decentralized programming.

Figure 2 - Existing Colorado Facilities Used by SWCCOG Recyclers & Haulers



³ MSW is that waste generated by residences (homeowner) and commercial (business and institutional) entities.

⁴ Based on Colorado Division of Local Government data, State Demography Office, November 2013.

Figure 2 (previous page) identifies the location of in-state facilities commonly used by local recyclers for transfer, processing and final material sales. Trash collection is available in most areas of the region, and disposal is provided by three local landfills. Recycling collection is somewhat less available and recyclables are managed at a mix of public and private sector facilities, or hauled directly to distant end markets. Organics recovery suffers from a lack of collection and processing infrastructure at this time.

SECTION 2 EXISTING & FUTURE SOLID WASTE SYSTEM

Archuleta, La Plata and Montezuma Counties have the most developed solid waste management systems. Dolores County trash is hauled to and disposed at the Montezuma County Landfill, and has no consistent recycling program. San Juan County trash and recyclables are exported from the study region by a private contractor. Small amounts of trash generated in the unincorporated areas of La Plata and Montezuma Counties are exported to New Mexico and occasionally Utah, while most recyclables are exported from the region.

Table 1 summarizes the public policy, diversion services and municipal solid waste facilities in place in each county as well as the primary service providers. While diversion policy is implemented by local governments, services and facilities are operated by both public and private organizations. Non-profits - such as the Four Corners Recycling Initiative (FCRI) and the San Juan Basin Recycling Association (SJBRA) - also support diversion.

Table 1 - Existing Policy, Services & Facilities

Organization (est. 2014 population)	Diversion Policy	Diversion Services	Solid Waste Facilities/Policy
Archuleta County (12,800)		County DOC - Pagosa Springs, Arboles; Recyclables haulers - Elite & At Your Disposal	County TS; County LF
La Plata County (56,000)	County building recycling; County green purchasing	Recyclables haulers - Phoenix, Waste Mgmt, Transit Waste; Durango Compost Co.; County DOCs - Bayfield, Marvel; Recla metals recycling	Transit Waste TS, LF; Phoenix C&D recycling, document destruction; Southern Ute TS (with special waste); Ignacio/Bayfield contract waste collection
Durango (18,000)	Mandatory pay <7 hhs; MFU >7 hhs must have R; New development R space	City collection <ul style="list-style-type: none"> • T \$13-19.50/hh-mo • R \$3/hh-mo add'l; DOCs for commingled & glass <ul style="list-style-type: none"> • \$1/60-gal residents • \$3/cy commercial; R transfer (baling, no sorting)	Bi-annual HHW drop-site collection (with La Plata County); Weekly e-waste drop-site collection
Montezuma County (26,500)		Recyclables haulers - Baker, FCRI, Waste Mgmt, Evergreen; Belt Salvage metals recycling; County baling/transfer; County pilot compost; Ute DOC - Towaoc (all R)	LF (includes Dolores County tons); Ute Mountain Ute TS - Towaoc

Organization (est. 2014 population)	Diversion Policy	Diversion Services	Solid Waste Facilities/Policy
Cortez (8,600)	Mandatory pay <7 hrs	City collection (multi) <ul style="list-style-type: none"> T&R \$18/cart 	DOC at city service center (multi)
Cortez (8,600)	Mandatory pay <7 hrs	City collection (multi) <ul style="list-style-type: none"> T&R \$18/cart 	DOC at city service center (multi)
San Juan County (700)		DOC at Silverton TS - contracts with Bruin Waste (mixed containers/mixed paper/cardboard - hauled to Montrose County)	Silverton TS; Serves county (contracts with Bruin, hauls to Montrose County); Collects T, R, special waste <ul style="list-style-type: none"> \$22/hh-mo

See the List of Abbreviations on page iii.

Table 2 includes a listing of recyclables accepted for collection in the region. The list may need to be verified in the future as markets and programs are dynamic and website postings are not always up to date.

Table 2 - Recyclables Accepted in Existing Collection Programs

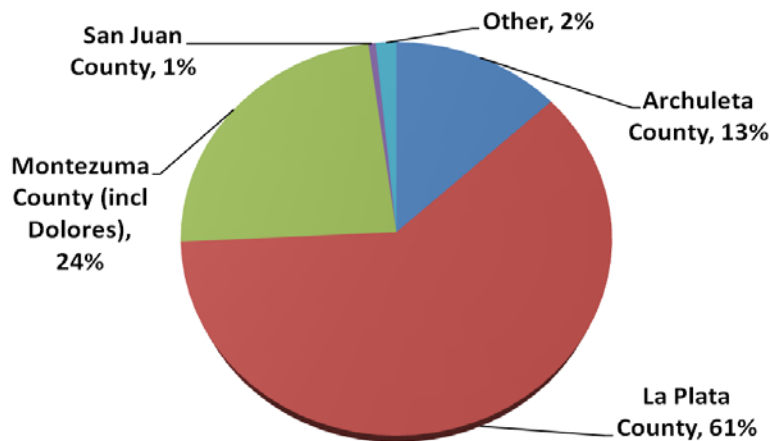
COLLECTION	TYPE	LEVEL of COMMINGLING	CARDBOARD	NEWSPAPER	MIXED PAPER	METAL CONTAINERS	PLASTICS	GLASS	OTHER
City of Cortez	Curbside	Multi-stream	X	X	X	X		X	Bulky, yard waste
	DOC	Multi-stream							
City of Durango	Curbside	Single w/o glass	X	X	X	X	1-7		E-waste, HHW
	DOC	Multi- & glass	X	X	X	X	1-7	X	
	DOCs (3)	Glass only						X	
Town of Silverton	DOC	Commingled containers	X	X	X	X	1-7	X	Scrap metal, C&D, e-waste
Archuleta County	DOCs (2)	Multi-stream	X	X	X	X	1-7	X	
La Plata County	DOCs (2)	Multi-stream		X		Alum		X	Motor oil/batteries, yard waste
Southern Ute Tribe	DOC		X						Scrap metal, oil, HHW
Ute Mountain Ute Tribe	DOC	Multi-stream	X	X	X	X	1/2	X	
FCRI	DOCs (4)	Multi-stream	X	X	X	X			
Phoenix	Curbside	Single w/o glass	X	X	X	X	1-7	X	C&D, shred
Baker Sanitation	DOCs (2)	Multi-stream	X	X	X	X			
Waste Management	Curbside	Single w/o glass	X	X	X	X			

See the List of Abbreviations on page iii.

2.1 2014 Baseline Waste Generation & Diversion

Based on data obtained from haulers, landfills, recyclers, material brokers, diversion facilities and food banks in the study area, it was estimated that approximately 107,000 tons of MSW was generated in 2014⁵. Figure 3 illustrates the proportion of tons generated in each county. Not surprisingly, these quantities closely mimic county populations. The waste generation rate was calculated to be about 5.9 pounds per capita-day (ppcd). This value is notably lower than the State of Colorado average of 8.8 ppcd⁶, but higher than the national average of 4.4 ppcd⁷. Appendix A includes a breakdown of current MSW generation estimates.

Figure 3 – MSW Generation by County (percent by weight)



Figures 4 and 5 (next page) consider the management of generated MSW for the overall region and by county, respectively, and illustrate an overall diversion rate of 14%⁸. This rate compares to a State of Colorado diversion rate of 22%⁶ and national rate of 34%⁷. San Juan County reported the highest county diversion rate of 28% by weight. However, Durango (La Plata County), which hauls residential and some commercial trash and recyclables, reported a rate of 32%⁹ and leads the region in waste diversion.

⁵ This value likely under-estimates total MSW generation levels slightly – while reasonable efforts were made to track waste generated and/or managed in the region, it is probable that some small waste streams were not counted (such as some household hazardous waste, electronic waste, and tire tons).

⁶ CDPHE Annual Solid Waste Diversion Totals, 2013.

⁷ USEPA Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2012.

⁸ This value reflects a 25% recovery of recycled paper, plastics, metal and glass materials; and 1% recovery of food/yard waste.

⁹ Durango's diversion rate pertains to wastes managed by the city and excludes commercial tons hauled by the private sector.

Figure 4 - MSW Management (percent by weight)

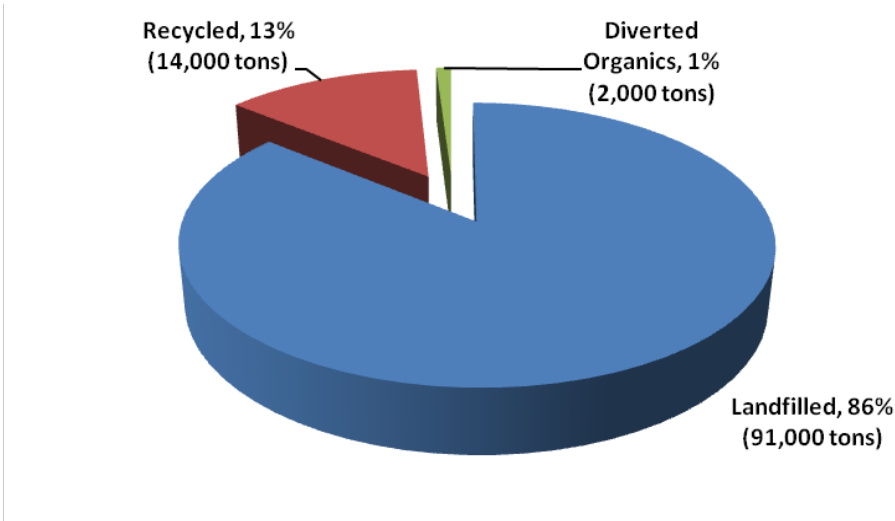
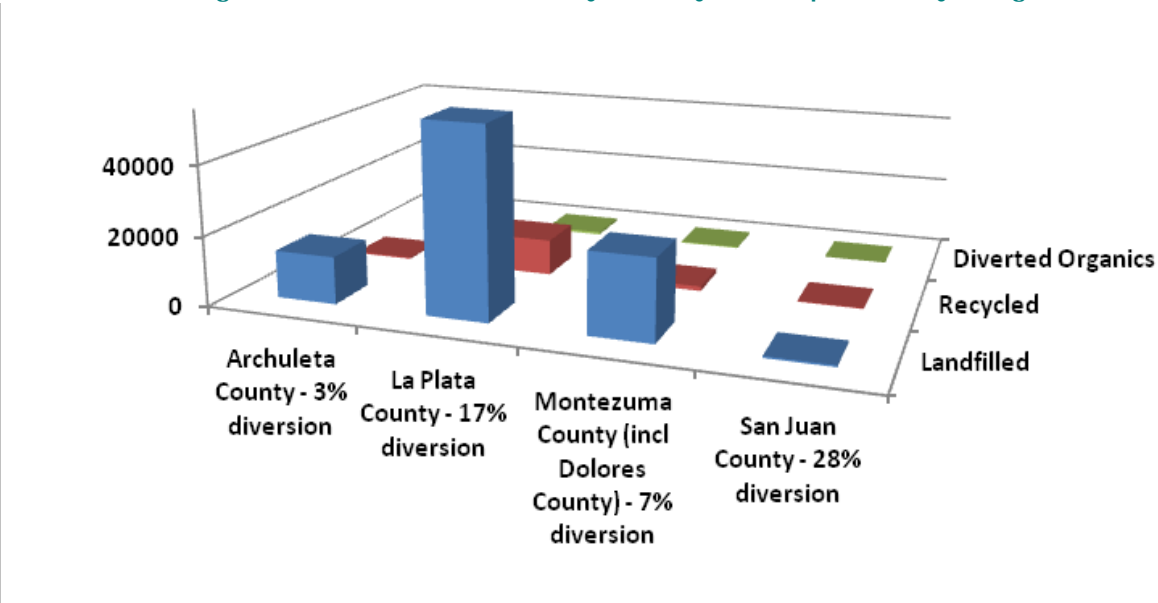


Figure 5 - Waste Diversion by County (tons, percent by weight)



2.2 Composition of Landfilled Waste

In an effort to identify the types and quantities of potential recyclables and organics in landfilled trash, the SWCCOG and several Fort Lewis College interns conducted a brief waste audit on ten trash samples during the fall of 2014. Spot residential and commercial samples were collected from Cortez, Durango, Bayfield, Montezuma County and Pagosa Springs. Appendix B includes sample-specific waste audit results.

Due to logistical constraints, samples from Tribal and some unincorporated areas could not be obtained. While not fully representative of the entire region's waste stream, these audit results represent an initial screening of trash composition and provide an indication of future diversion opportunities. Additional auditing that includes Tribal and unincorporated area samples should be conducted to verify these results in the future. Figures 6 shows the overall waste composition for all samples - these categories of landfilled waste included both materials that could be diverted and non-divertable materials. Nearly two-thirds of the samples (61.7%) included organics and paper¹⁰.

Figure 6 - Waste Composition by Material Category (tons, percent by weight)

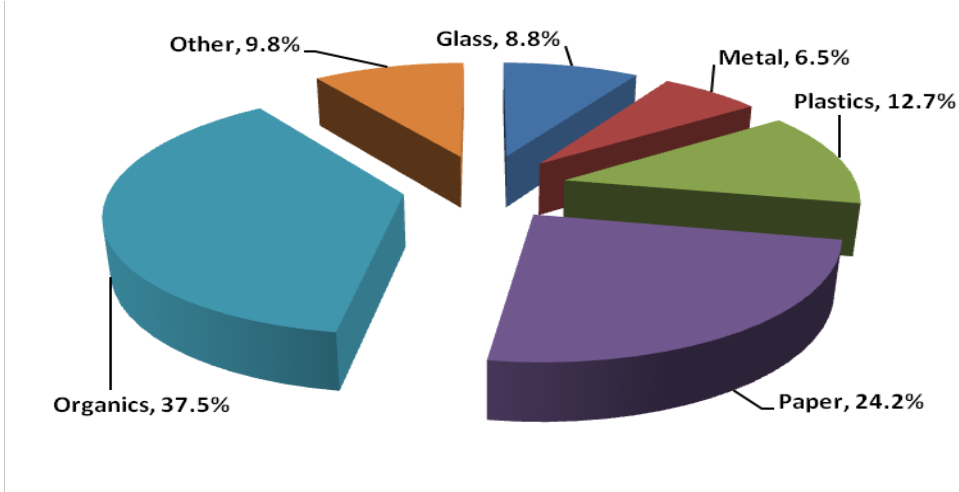
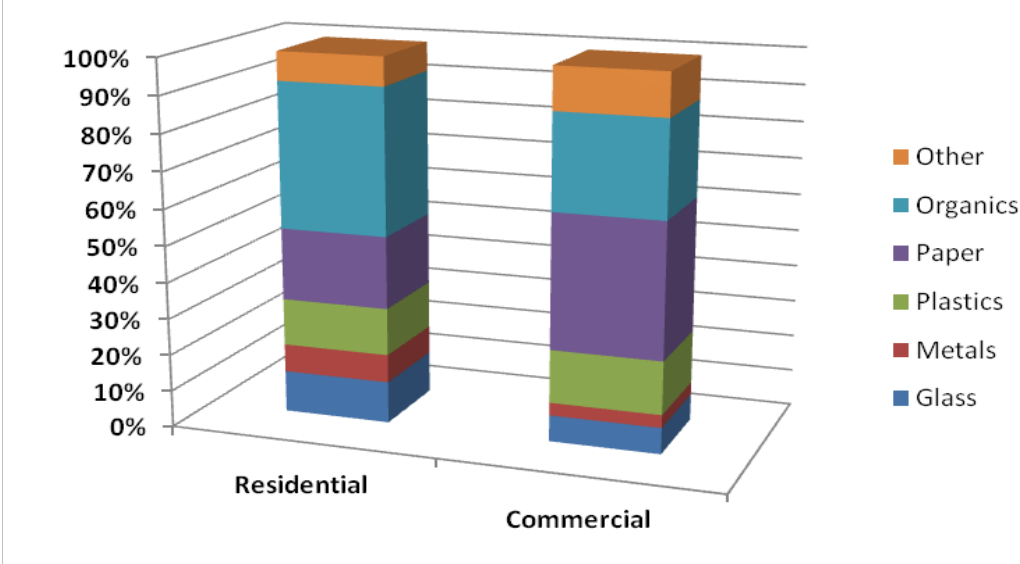


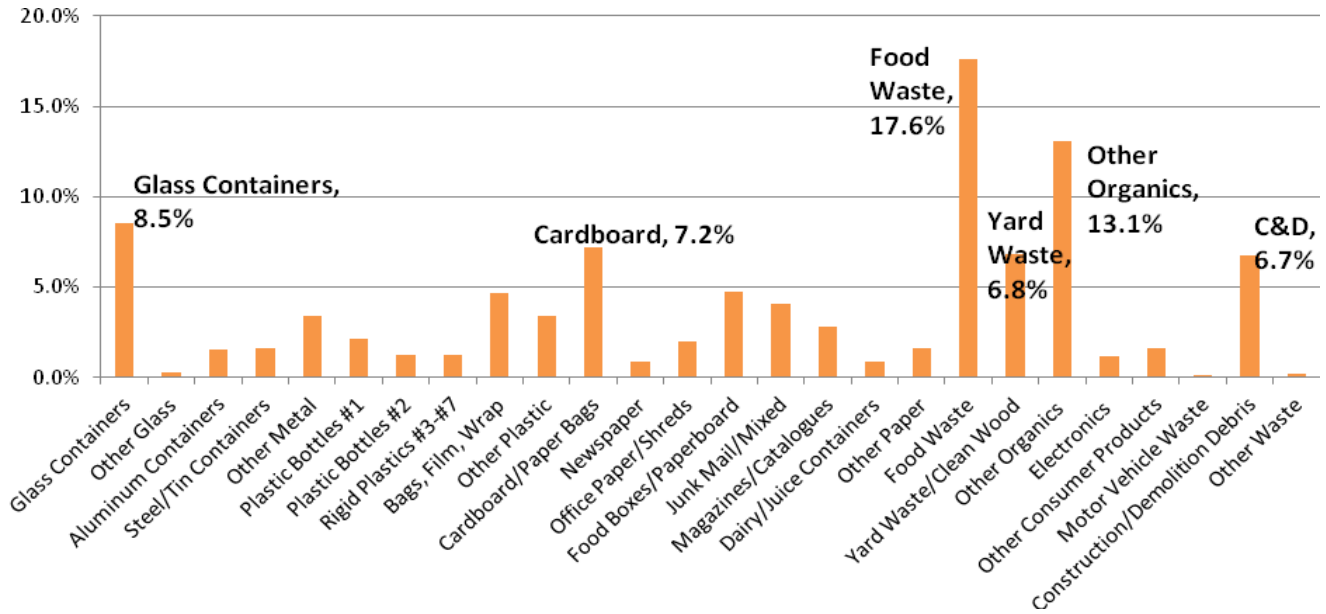
Figure 7 - Residential versus Commercial Composition (percent by weight)



¹⁰ These results show a notable decrease (over 11%) in total paper waste compared to earlier Colorado audits conducted by LBA (2006 through 2010), and illustrates the evolving solid waste stream that includes lower tons of high-value materials (i.e., less paper, more light-weighting and more non-recyclable packaging). Appendix B includes a summary of past audits for comparison.

Figure 7 (previous page) compares residential versus commercial waste composition and shows the difference between household waste (higher glass/organics generation) and business/institution waste (higher paper generation). Lastly, Figure 8 depicts the cumulative findings for each of 26 materials sorted out of the trash samples. Those materials present in levels greater than 5% by weight are called out in this figure¹¹.

Figure 8 - Waste Composition by Material Type (percent by weight)



2.3 Key Waste Diversion Obstacles & Opportunities

Several factors impact the success of waste diversion in southwest Colorado, as shown in Table 3.

Table 3 - Key Factors Impacting Waste Diversion

FACTOR	OBSTACLE	OPPORTUNITY
Low Population Density & Low Recycling Tons	Reliance on drop-site collection (typically drop sites generate less recyclables as they are less convenient to use)	Incentivize diversion through public policy & through broader & more consistent education & outreach programs (increasing tons will reduce unit costs)
	Less effective peer pressure to recycle - burning is more prevalent in rural areas	
	Fixed collection and processing costs spread over fewer tons - increasing unit costs (i.e., lower economy of scale)	
Long Hauls to Processors & End-Markets	High operating costs (both multi- and single-stream tons are shipped to markets ranging from 200 to 400 miles)	Implement local processing; Identify local markets (glass); Back-haul where possible
	Challenge obtaining transportation in rural areas (especially in winter)	
	Individual education efforts & messaging reflects immediate municipal, tribal and county program only (is not connected to	

¹¹ The waste audit noted relatively high Other Organics quantities (which are largely not divertable at this time) and high C&D tons, which were most likely generated from do-it-yourself projects (not contractors).

FACTOR	OBSTACLE	OPPORTUNITY
Long Hauls (continued)	neighbors or overall region)	Outreach program with consistent messaging; Encourage scrap metal dealers to take leadership role (scrap not collected in most programs)
	Waste audit results showed 8.5% glass overall; >5% #1/#2 plastics in Durango/Pagosa Springs; 7.2% cardboard overall (>17% in commercial samples); up to 11% scrap metal in residential samples) neighbors or overall region)	
Poor Quality Materials	Recyclables stream evolving to include lower tons of high-value materials (i.e., less paper, more light-weighting, more non-recyclable packaging)	Increase education about "recycling right"; Limit commingled to urban areas; Expand education about "recycling right"; Utilize temporary or staffed drop sites whenever possible
	Commingled recyclables typically have higher levels of contamination (especially when glass is included in the mix)	
	Unstaffed drop sites can also be contaminated by illegal dumping	
Low/Erratic Market Pricing	Domestic & international pricing outside control of regional recyclers ^a	Support private sector efforts to develop local MRF (increased tons improves market position); Evaluate local glass markets
	Lack of local processing for commingled materials	
	Lack of local end-markets	
Limited Organics Recovery	Waste audit results show 17.6% food waste (food bank donations represent most of diversion currently but data accuracy is marginal)	Support public/private efforts to evaluate feasibility for composting food/yard waste; Evaluate opportunities for diverting other organics (e.g., textiles can be 6% of waste)
	Lack of full-scale compost or alternative organics management facilities in region (organics diversion is under-developed in most of Colorado)	
Limited Diversion Policy	Only Cortez & Durango have effective policy measures ^b	All govts could incentivize recycling through policy; Cortez/Durango could increase hauler & commercial recycling requirements
Moderate Landfill Tip Fees & High Facility Capacity	Archuleta County tip fees = \$52/ton; Bondad tip fees = \$46/ton; Montezuma County tip fees = \$39/ton	Some communities have considered surcharging landfills to increase diversion & create funds for diversion programs
	Archuleta County = 20-30 years remaining life; Bondad >20 years; Montezuma County tip fees >100 years	

^a Due to China's Green Fence policy, the recently resolved U.S. west coast labor strike, the strong U.S. dollar and falling oil prices.
^b Both have residential PAYT/ mandatory pay recycling; Durango requires commercial recycling and discounts their customers.

2.4 Municipal Solid Waste Quantity Projections for 2025

Based on projected population increases for the five-county area¹², it is estimated that MSW generation could increase 130% between 2014 and 2025, to a generation rate up to 179,000 tons/year. Table 4 (next page) includes an estimation of 2015 and 2025 MSW generation by material category, as well a range of potential diversion levels selected to reflect current diversion (for the 2015 projection) and more aggressive rates (approximately doubling 2015 levels) for the 2025 projection. Note that each category includes both divertable and non-divertable materials - only those materials that can be diverted through conventional recycling and composting programs were considered in the diversion estimates. Appendix A details both the generation and diversion estimates.

¹² Colorado State Demography Office, 2013

Table 4 - Projected MSW Generation & Estimated Diversion (rounded to nearest 100 tons)

MATERIAL CATEGORY	PERCENT BY WEIGHT COMPOSITION ^a	2015		2025	
		PROJECTED TOTAL GENERATION ^b	ESTIMATED DIVERSION POTENTIAL ^c	PROJECTED TOTAL GENERATION ^b	ESTIMATED DIVERSION POTENTIAL ^d
Paper	24%	22,000-33,000	5,000 - 8,000	29,000 - 43,000	10,000 - 13,000
Plastics	13%	12,000 - 18,000	2,000 - 3,000	15,000 - 23,000	4,000 - 6,000
Glass	9%	8,000 - 12,000	2,000 - 3,000	11,000 - 16,000	4,000 - 5,000
Metals	6%	6,000 - 9,000	1,000 - 2,000	8,000 - 12,000	3,000 - 4,000
Organics	38%	35,000 - 52,000	1,000 - 3,000	45,000 - 67,000	13,000 - 18,000
Other/Special Waste	10%	9,000 - 14,000	0	12,000 - 18,000	0
<i>Total Tons Diverted</i>	<i>100%</i>	<i>92,000 - 138,000</i>	<i>12,000 - 19,000</i>	<i>119,000 - 179,000</i>	<i>34,000 - 46,000</i>
<i>Resulting Diversion Rate</i>	<i>-----</i>	<i>-----</i>	<i>11% - 16%</i>	<i>-----</i>	<i>23% - 31%</i>

^a Based on waste audits conducted during this study between August and November 2014.

^b Based on SDO projections, waste audit results and an assumed range of per-capita waste generation of 5.0 to 7.5 ppcd.

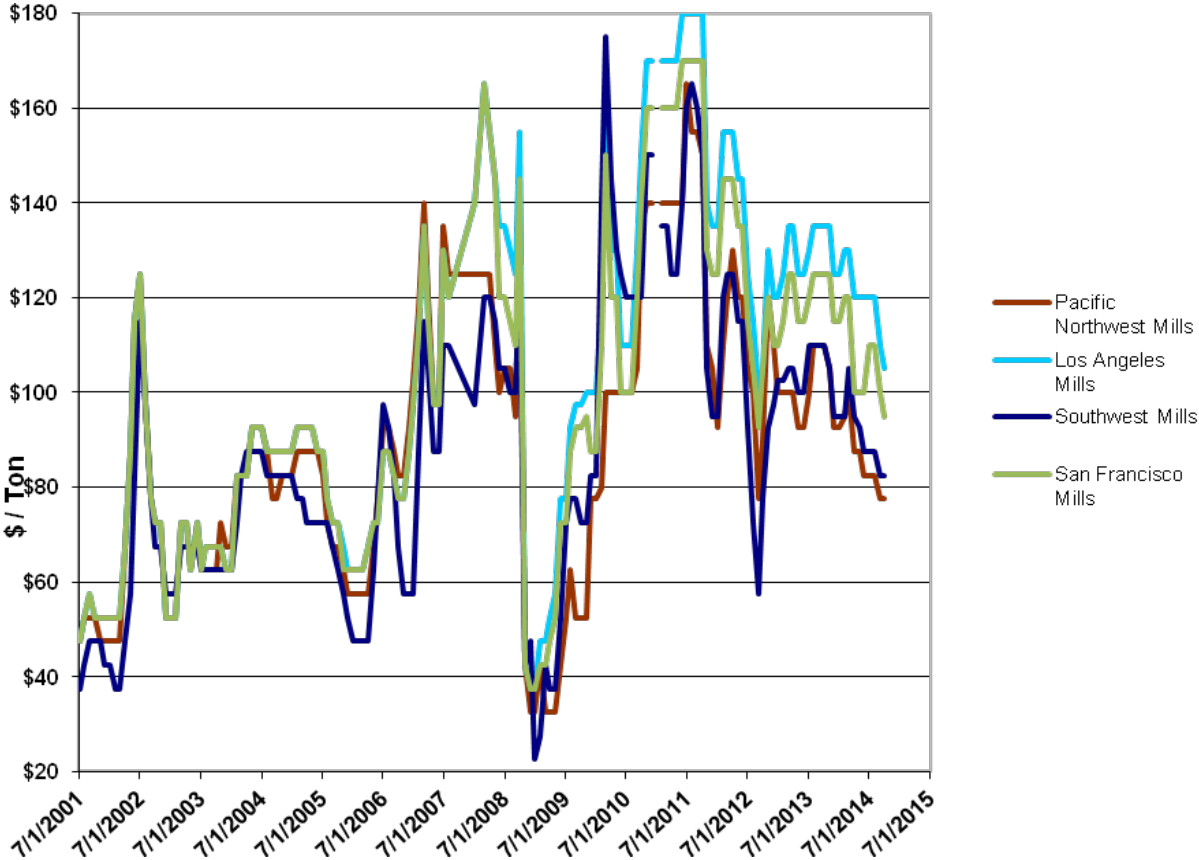
^c Assumed recovery for divertable recyclables/organics equal to those 2014 levels (i.e., about 25% recyclables and 1% organics).

^d Assumed recovery for divertable recyclables/organics 30%-40%; includes recycled textiles).

Future program, policy and infrastructure changes will affect the ability to double future diversion levels. One important change may be a new materials recovery facility (MRF) under development by Phoenix Recycling, a recyclables hauler, C&D recycler and confidential document shredder located outside of Durango. Phoenix's new facility (expected in 2016) will serve the entire region, sort commingled recyclables and accept source-separated materials. The availability of local processing is expected to increase revenues over current options used by regional recyclers, although specific pricing will not be quantified until the MRF is on-line.

It is also expected that current recyclable prices paid by end markets in late 2015/early 2016 will rebound somewhat from the low values of the last several months. This rebound will not likely return pricing to the levels seen in 2007/2008, however, due to a strong U.S. dollar against the euro, low oil prices, inventories remaining from the west coast labor strike and struggling domestic markets. Figure 9 (next page) illustrates how dynamic the secondary materials market is over time with an example of cardboard pricing from four domestic mill groups. Values reflect prices paid for delivered, baled cardboard meeting industry contamination standards.

Figure 9 - Cardboard Pricing 2001-2014



SECTION 3

FUTURE WASTE DIVERSION OPTIONS

3.1 Recycling Task Force & Needs for Further Evaluation

While the initial RREO recycling study was intended to collect baseline data and support consideration of waste diversion obstacles and opportunities in southwestern Colorado, the SWCCOG realized the additional need for implementing study recommendations over the long-term. To accomplish this, the SWCCOG worked to develop a Recycling Task Force including key stakeholders in the region. These organizations provided baseline data and prior to the completion of this report attended three stakeholder meetings in 2015: January 27th (Durango), March 31st (Cortez) and April 1st (Durango). Additional meetings are expected in late 2015 and 2016. Appendix C includes stakeholder information and Appendix D includes meeting materials.

These service providers, policy makers and facility operators had different customer bases, services and profit goals and in some cases, were in direct competition with one another. Bringing this diverse group together was an important step for information sharing, open dialogue and collective brain-storming. There was ready agreement amongst all parties that improving the economics of recycling was important to all participants, and that once this was accomplished increased diversion would follow in a re-enforcing loop. However, the specific options and means for attaining improved economics varied widely. Stakeholders were able to identify, however, the need to evaluate:

- A regional waste diversion coalition to provide leadership and advocacy
- Regional education and outreach to provide consistency and efficient use of resources
- New waste diversion policies - suggestions included a cardboard disposal ban, glass storage in Montezuma County, hauler ordinances in urban areas and data collection requirements
- Expanded recycling access to remote areas (especially tribal and unincorporated areas)

3.2 Waste Diversion Coalition

The concept of a waste diversion coalition is based on the over-arching need to collaborate on new/expanded waste diversion efforts to increase awareness and efficiencies, as well as provide regional leadership. Such a coalition would formalize pre-existing relationships the counties and municipalities have used to manage solid waste. The potential value of a coalition is many-fold:

- Leadership in a region whose governments do not generally prioritize waste diversion
- Reduced workload for those governments who are involved in solid waste management
- Increased efficiencies by centralizing activities
- More waste diversion programming (especially education and outreach)
- Increased diversion of quality materials
- Neutral third party to buffer relationships between local and county agencies, public and private sectors and encourage a united versus competitive environment

While the functions of a multi-government entity can vary widely, it is most likely that in southwest Colorado this collaboration would initially focus on advocacy and fund-raising to support additional diversion activities, and potentially grow into an organization with the ability to operate a specific program(s) and influence decision-makers on a regional level. In other words, it is likely to start slowly as the newly-formed Recycling Task Force and incrementally develop into an effective coalition as initial efforts demonstrate political and economic feasibility and value.

Short- & Long-Term Functions

The new regional coalition can have a wide range of responsibilities. Given the political uncertainty of new waste diversion priorities in the region, it is likely that short-term waste diversion collaborative activities may be limited to:

1. **Grant Funding** - New funding would be used to support early program development that is typically more resource-intensive than on-going program operation (which will ideally be self-sustaining). Funding options may initially focus around a regional education and outreach (E&O) program and could include;
 - USDA Solid Waste Management Grants - available for technical assistance and training in regions of small communities (<10,000 people); applications are accepted between October and December each year and the grant cycle extends from the following August through July
 - Colorado Department of Local Affairs (DOLA) - available to municipalities and council of governments (COGs) for planning and capitalization (could be used to supplement a USDA grant in support of early coalition activities); COG applications are accepted in October for funding the following year
 - Colorado Department of Public Health Resource Recycling Economic Opportunity Grants (used for this study) - available to fund capital expenditures/operations of waste diversion programs; applications due in March and the grant cycle extends from the following July to June

2. **Regional Education & Outreach** - Implemented on a regional level, this program could i) relieve municipal and county governments' current work load while providing materials that could supplement existing programs, and ii) provide broader and more efficient messages targeted directly to school, residential, commercial and tourist populations. Recommended components of this program are described in Section 3.3.

3. **Advocacy** - As an advocate for waste diversion in the region, the coalition should consider several tasks with a focus both internally to stakeholders and externally to promote waste diversion across the region;
 - Expanding the goal of increasing recycling economics with specific objectives that most stakeholders agree on
 - Helping other stakeholders understand the value of collaboration (most notably, Montezuma County and the Tribes)
 - Making a credible case for waste diversion - such as delaying the need for new landfill cell construction, creating jobs, meeting demands for more recycling by tourists/residents moving to the area, avoiding landfill tip fees and generate new revenues
 - Educating elected officials and senior staff about the facts-versus-fiction of waste diversion benefits and costs in southwest Colorado

- Assisting in policy development
4. **Problem Waste Management** - Glass and tires were identified by stakeholders as particularly difficult to manage economically. Glass is challenging to recycle due to its ability to contaminate other materials in a commingled mix and low revenue potential, and there are limited recycling options for old tires not accepted by dealers. Both of these materials could potentially be processed for local uses with existing equipment or mobile units shared within (and beyond) the region. Technical assistance to improve the sustainability of local diversion and reduce illegal dumping and stockpiles would be a valuable coalition role, and could be accomplished by working with new markets (glass) and with regional stakeholders and other counties to share equipment and resources (tires). Appendix E includes additional resources on these two materials.

The coalition could also help to regionalize the collection of household hazardous waste and electronic waste materials, which are currently managed primarily through collection events in some communities. Electronic waste is now banned from landfill disposal in Colorado, and paint is governed by a new product stewardship program, which involves new collection points at retailers throughout the state. The management of both materials could also be facilitated through a regional education effort (see Section 3.3).

5. **Solid Waste Data System** - Quantifying waste generation, disposal and diversion levels on a regular basis is important to tracking progress and determining opportunities for improvement. Without this information, it can be challenging to convince the public that their diversion efforts are worthwhile, to justify program continuance to elected officials and to obtain additional funding. Quantification efforts will require surveys of local landfills, recycling and compost facilities, haulers who take materials out of state, grocery stores/food banks and others who manage additional waste streams. At a minimum, data should include total annual quantities, but tons by sector and number/types of customer accounts are also helpful. Sources for developing a data system include:
- 2014 baseline review conducted for this study - this assessment should be expanded to monitor miscellaneous waste streams such as tires, household hazardous waste and electronic waste
 - CDPHE's annual landfill quantities report (by individual facility) and recyclable/organics diversion report (aggregated state-wide)¹³
6. **Other Activities** - An additional opportunity is liaising between stakeholders and the regional recycling hub(s). This could be informal (limited to general communications) or more formal (e.g., a contractual relationship that commits tons to the hub in exchange for set pricing/revenues). The objective of the later would be to ensure an economy of scale to the hub to in turn yield better revenues for recycling programs, and will likely be applicable to the new Phoenix MRF and full-scale Montezuma County compost operations.

Other coalition activities may also include technical assistance for collection programs, development of remote drop sites and encourage the development of compost operations. Examples of these activities by collaborative organizations are provided below.

¹³ www.colorado.gov/pacific/cdphe/categories/services-and-information/environment/waste-management-and-recycling

Organizational Development

Given the need to start small and minimize resource requirements, it would be reasonable for the coalition to be formed as part of an existing (host) organization that has a compatible mission. Based on the findings in Table 5, which identifies potential host options in southwest Colorado, the SWCCOG appears to be the best partner for a waste diversion coalition. It is possible that the SWCCOG could partner in this endeavor with SJBRA to allow involvement by private service providers and other non-profits.

Table 5 - Potential Host Organizations

ORGANIZATION	ADVANTAGE	DISADVANTAGE
Southwest Colorado Council of Governments <i>501c(3)</i> based in Durango - members include majority of regional governments	Existing structure with strong public/private/non-profit relationships, visibility and credibility; Existing knowledge of waste diversion; Existing skills/resources for group decision-making, interacting with elected officials, advocacy & fund-raising; Involvement in current recycling study and development of Recycling Task Force; Other Colorado COGs actively involved in waste management (Upper Arkansas Area COG collects/markets recyclables)	New staff will be needed; Mission, vision, bylaw revisions may be required
San Juan Basin Recycling Association operates as part of SJRCD (fiscal agent) - serves 5-county area	Many SJBRA members have been involved in Recycling Task Force; Members include private sector service providers Active in waste diversion (members have appropriate expertise)	Not a stand-alone organization; Volunteer-based (no staff); Largely dormant last few years
Four Corners Recycling Initiative <i>501c(3)</i>	Provides education and recycling to Dolores & Montezuma County; Obtained previous CDPHE grant funding; Strong relationships with haulers and counties	Recently suspended Dolores County drop site; No activity in eastern region; Volunteer-based (no staff) Did not participate in study

Costs & Benefits

Table 6 (next page) includes a summary of anticipated new diverted tons, start-up and annual program costs, avoided disposal costs and revenues earnings associated with a new regional coalition that focuses on i) obtaining grant funding, ii) developing/ implementing a regional education and outreach program, iii) leading a volunteer-based advocacy effort, iv) providing technical assistance for developing local glass and tire processing/end use, and v) quantity data tracking. Appendix F includes additional detail on the cost/revenue estimates. As noted:

- Table 6 identifies costs for all programs - but shows the impact of obtaining grant funding to cover start-up costs for developing a regional E&O program
- Net costs could vary greatly based on material revenues earned - revenues will be a function of the level of commingling, haul distance, recycler/broker relationships and even global economics (the development of a

new local MRF is expected to improve revenues, but this benefit cannot be quantified until this facility is on-line next year)

- Net savings (i.e., avoided net tip fee costs) reflect the difference between avoided landfill tip fees and recycling facility tip fees and may also vary widely - these savings are not considered in the bottom line net cost/revenue estimate (but do illustrate the improved economics of recycling over disposal)
- The entity that incurs the costs described in Table 6 (i.e., the waste coalition host organization) will most likely not be the entity who receives earnings from material sales (i.e., the public, non-profit and private organization that hauls and/or recycles directly) unless the coalition expands its role into brokering
- Equivalent¹⁴ net start-up costs range from \$0.30 to \$0.70/capita with an annual range of \$0.30 (cost) to \$3.20/capita-day (revenue) - as noted above, market revenues are not expected to accrue to the coalition, however
- Job creation may include up to 0.5 total full-time equivalents (FTEs) during start-up - and up to 0.2 FTEs on an on-going basis (see Appendix F for staffing information)

Table 6 - Regional Waste Diversion Coalition Costs & Benefits
(rounded to nearest 1,000 tpy and \$1,000)^a

	START-UP	ON-GOING ANNUAL (2015)
New Diverted Tons ^b <i>(includes diversion from E&O program, increased glass & tire diversion)</i>	-----	4,000 tpy
Costs		
With E&O grant funding ^c	(\$31,000)	(\$9,000)
Without E&O grant funding	(\$69,000)	(\$28,000)
Avoided Net Tip Fees Costs ^d	-----	\$21,000
Revenues ^e	-----	\$0 - \$330,000
Net Costs/Revenues <i>(excludes avoided tip fee benefit)</i>	-----	
With E&O grant funding	(\$31,000)	(\$9,000) - \$321,000 or (\$2/ton) - \$80/ton
Without E&O grant funding	(\$69,000)	(\$28,000) - \$302,000 or (\$7/ton) - \$76/ton

^a Values in (red) are costs, values in black are revenues.

^b Assumes 30% increase in overall diversion from E&O and expanded glass/tire recycling.

^c Ideally, grant funding (\$38,000) will be obtained for start-up of the E&O program.

^d Assumes net benefit of \$5/ton (average regional landfill tip fees are \$45/ton and recycling fees can be as high as \$40/ton in Montezuma County).

^e Assumes a range of revenues (net of transportation) of \$0/ton (single-stream materials) to \$80/ton (multi-stream materials) based on current revenues earned by Cortez, Durango and Archuleta County. Organizations that incur costs may not be same as those that earn revenues.

Once the waste coalition is in place and operating effectively, the net benefit for the region will be increased waste diversion and potential revenues.

¹⁴ Based on the estimated 2014 regional population of 99,142 (see Appendix A).

Coalition Examples

Table 7 includes four waste diversion cooperatives that - while they don't precisely model the type of coalition that may ultimately be developed for southwest Colorado - provide some operating and organizational examples that could be used during start-up¹⁵. Appendix G includes an example coalition member contract.

Table 7 - Example Coalition Models

EXAMPLE	DESCRIPTION
Upper Arkansas Area Council of Governments Recycling Program (UAACOG)	Inter-governmental authority with county members (Custer & Fremont Counties); Provides DOC collection & marketing (competes with other haulers); Charges member counties \$0.79/capita-year
Southwest Public Recycling Association (SPRA) <i>Served AZ, CO, NM, NV, TX & UT</i>	Formed in 1991 & headquartered in Tucson, AZ; Provided cooperative marketing for rural public/private/non-profit members located in remote areas; Supported market development & encouraged buying recycled content products; Provided training & technical assistance; Was disbanded several years ago due to financial difficulties
New Mexico Recycling Coalition (NMRC)	Used federal funding to establish hub-and-spoke system; Previously provided design, procurement & operation (hauling) assistance; Previously developed regional solid waste organizations to implement; Cooperatively marketed hub materials (no longer needed); Currently offers consulting services in/out of New Mexico
Central Texas Recycling Association (CTRA)	Has 60 partnerships & 500 community members; Founded to bring recycling to rural areas (improve cost-effectiveness by increasing the economy of scale); Provides on-going technical assistance & cooperative marketing (contracts with single hauler/processor); Focus is growing quality & pricing over quantity; Accepts multi-stream only through staffed DOCs & requires baling when >1 hr from MRF; Use member contracts with no membership dues (instead earn 10% brokerage fees) - offset costs & expenses associated with 1.5 full-time staff

3.3 Regional Education & Outreach Program




Table 8 (next page) provides a general summary of existing outreach materials from within the region currently. A regional E&O program could be developed to build on these materials and provide expanded breadth and services to collect a greater quantity of higher quality recyclables, including:

- Work with stakeholders to establish a core list of recyclables collected in every program (whether multi-stream or commingled, drop-site or curbside) - to make recycling consistent and easy
- Develop a simple brand for regional recycling efforts to increase awareness and streamline/standardize materials - with a logo and signage format for all regional communications as well as for stakeholders to use as they augment/modify their existing E&O materials

¹⁵ Both NMRC and CTRA are available for consulting services associated with coalition start-up.

- Develop messaging or recycling "campaign" content for regional and stakeholder use - messaging should be modified to target students, residents, businesses, tourists and other groups as identified over time (e.g., senior citizens, garden clubs, chambers of commerce, etc.)
- Establish and maintain a comprehensive list of recycling services and facilities
- Develop and implement training materials for students, the public and elected officials - which may include presentations and tours

Table 8 - Existing E&O Programming

COMMUNITY	WEBSITE	TOURS	LOGO	MISCELLANEOUS	INFO FOR OTHER SERVICES/PROVIDERS
Cortez	X			brochure	X
Durango	X	X		X	X
Archuleta County	X				
La Plata County	X				
Ute Mountain Ute Tribe	X				X
FCRI	X			on-line discussion forum (dormant)	

Private businesses also have websites describing their services.

The estimated cost of developing and maintaining an effective E&O program was described as part of an overall waste collaborative in Section 3.2. Given the current low pricing for recycled commodities and the issues producing quality single-stream materials, a comprehensive education and outreach program that is efficient and effective in raising awareness and encouraging diversion is expected to have a notable impact on recycling in southwest Colorado.

3.4 New Waste Diversion Policy

Policy is typically implemented at the municipal level but some county-wide policy has also proven effective (e.g., hauler licensing and disposal bans). Policies can be incentive- or mandate-based and can target either the trash or diverted waste stream to drive recycling and/or organics recovery. Table 9 (next page) includes a summary of potential policies reviewed by the Recycling Task Force.

The suitability of the policy components listed in Table 9 (next page) will likely vary for each government agency. For example, Cortez and Durango already have several recycling incentives in place for their waste generators, and may instead consider requiring private trash haulers to provide recycling service to commercial customers. More rural regions who rely on trash drop-sites may evaluate the feasibility of a pre-paid bag pay-as-you-throw (PAYT) policy. Other policies, such as a cardboard disposal ban, could be implemented by individual municipalities, counties or region-wide.

Table 9 – Waste Diversion Policy Options

POLICY COMPONENTS	PROS	CONS	EXAMPLES
Hauler Policy (basic)			Fort Collins (\$100/vehicle-year license); Aspen (fee based on number of employees); Loveland (\$100/vehicle-year); Larimer County (\$25/year)
Annual licensing	Insurance, vehicle safety standards	Minor administrative burden for haulers	
Data reporting	Ability to track progress	May be proprietary data	
Required recyclable materials	Consistency for customers		
Education & outreach	Augments regional E&O	Costs passed on to customers	
Hauler Policy (advanced)			PAYT cities with hauler contracts – Edgewater, Golden, Lafayette; PAYT cities with public collection – Loveland, Thornton; PAYT cities with open collection – Aspen, Fort Collins, Vail; Cities with bundled commercial pricing – Aspen, Vail
Required recycling	Increased access to recycling	Potential hardship for small, trash-only haulers	
PAYT residential trash pricing	Creates incentive & increased diversion; Customer control of fees; Many ways to implement (bags, cans, carts) & pay (pre-pay, at collection/disposal points)	Need to adjust billing; May need different container inventory; Hard to implement in unincorporated areas	
Bundled commercial pricing	Increased access & diversion	Overall pricing may be hardship for some generators	
Disposal Ban (Cardboard)			Fort Collins (since March 2013) – increased commercial recycling accounts by 95% & tons diverted by 19%
Generator applicability	Applicable to all sectors	Must have universal recycling access first; Harder to implement in unincorporated areas	
Penalties	Need enforcement for policy credibility	Cost of enforcement	

^a It is estimated that as much as 6,000 tons of cardboard is landfilled in the region annually at a cost of \$280,000 (landfill tip fees).

Even for incentive-based ordinances, policy development is often challenging because it means changing the status quo. Using a sound strategy that includes sufficient research, preparation of elected officials, broad stakeholder involvement and incorporating flexibility as well as enforcement is important for any rule-making effort (Appendix H includes an informative article for tackling policy development at the community level). Also critical is the ability to identify the full facts both for and against any new ordinance to build credibility and trust with the public and council/commission members. Resources needed for advocacy efforts associated with policy development were included under the waste coalition estimates discussion in Table 6 and Appendix F.

3.5 Rural Recycling Drop-Site Access

Determining regional need for additional drop sites is difficult due to limited data (the 2014 baseline task was successful in obtaining most quantities disposed and diverted at management facilities, but individual program and collection point data was not universally available). Additionally, the cost of serving remote areas is difficult to justify in many communities. Table 10 (next page) summarizes the advantages and disadvantages of drop-site recycling.

Existing recyclable drop sites included a mix of dumpsters and roll-off containers. These sites are operated by non-profit, public and private owners, but all are hauled by the private sector. Most are unstaffed, with the exception of Durango's Recycling Center, which accepts residential and commercial materials.

Table 10 - Drop Site Recyclables Collection

PROS	CONS
Can serve low populations	If unstaffed, illegal dumping can degrade material quality & increase maintenance costs
Typically collects multi-stream materials (higher quality if illegal dumping is controlled)	Hauling from remote areas is costly (can be minimized by storing/hauling semi-trailer loads)
Materials are essentially market-ready	Specialized equipment may be required to service dumpsters and roll-offs
Can be used as temporary collection point (reducing contamination/illegal dumping potential)	Sporadic hours reduces convenience (& ultimately diversion) by users

As an alternative to existing facilities, a towable drop site system was evaluated¹⁶. This system utilizes 21-cubic yard roll-off containers, which can be configured into one- to six-compartments with appropriate openings. But instead of being hauled by a roll-off truck, these containers can be serviced by a simple trailer with a hydraulic lift that can be pulled by a 3/4-ton pick-up truck. The advantage of this system is the avoidance of specialty collection equipment (the trailer can be used for multiple drop sites and nearly every fleet includes pick-up trucks) and suitability for both rural and temporary collections¹⁷. This system may be most suitable where new, stand-alone collection sites are needed in the future, but would also be compatible with existing operations (the roll-off containers can be managed with conventional roll-off hoists).

Table 11 - Towable Drop-site Collection System Costs & Benefits (rounded to nearest \$1,000)^a

	START-UP	ON-GOING, ANNUAL
Diverted Tons		
"Small" service area (500 people)	-----	38 tpy
"Large" service area (1,500 people)	-----	13 tpy
Costs		
Trailer	(\$21,000)	-----
Roll-off box (each)	(\$7,000)	-----
Hauling - small area	-----	(\$1,640) or (\$131/ton)
Hauling - large area	-----	(\$3,880) or (\$103/ton)
Avoided Net Tip Fees Costs ^b	-----	\$100 (small) - \$200 (large)
Revenues ^c	(\$21,000)	up to \$1,000 (small) up to \$3,000 (large)
Net Costs/Revenues (excluded avoided tip fee benefit)	(\$7,000)	up to (\$640) (small) up to (\$880) (large)

^a Values in (red) are costs, values in black are revenues - excludes site development and maintenance costs.

^b Assumes net benefit of \$5/ton (average regional landfill tip fees are \$45/ton and recycling fees can be as high as \$40/ton in Montezuma County).

^c Assumes a range of net revenues of \$0/ton (single-stream materials) to \$80/ton (multi-stream materials) based on current revenues earned by Cortez, Durango and Archuleta County.

¹⁶ ProTainer's Pro Roll-Off system is one example - see <http://protainer.com/>.

¹⁷ Temporary drop sites can be "staffed" by the pick-up driver to minimize contamination and illegal dumping.

Table 11 (previous page) includes a summary of anticipated diversion potential, program costs, avoided disposal costs and revenue earnings for a towable drop-site configuration¹⁵ in two rural service area scenarios. Appendix I provides additional details. As noted, there are expected to be net costs for this system even when net revenues are factored in. Because of these revenues, however, the cost of drop-site recycling is likely to match or be lower than drop-site trash for the same service areas.

3.6 Other Potential Improvements

Among the remaining improvements that could be implemented in the region, enhanced composting infrastructure to support organics recovery and provide soil amendment for this semi-arid region would likely be the biggest "bank for the buck" in terms of waste diversion. Figures 6 and 8 showed that 37.5% of landfilled waste is organics, and that two-thirds of this category is food and yard waste (or about 22,000 tons every year). The waste diversion coalition should regularly evaluate Montezuma County's ability to serve the overall region when its pilot facility becomes a full-scale operation, as well as ancillary considerations such as back-haul opportunities between Cortez and organics generation points, inclusion in a regional E&O program and policy needs to incentivize organics recovery as well as recycling.

SECTION 4

RECOMMENDED WASTE DIVERSION STRATEGY

4.1 Consequences of No Further Action

Although the SWCCOG and stakeholders have made important strides towards identifying the needs for waste diversion in southwestern Colorado, it is important to understand the consequences of not building on this progress. While the worst of these may well be the continued reliance on landfill disposal to manage the waste stream (a majority of which can be recycled or composted), the missed opportunities may be the biggest loss for the region as they are numerous and far-reaching:

- Failure to take full advantage of Colorado RREO grant funding and the work completed to date by key waste management stakeholders
- Failure to move away from decentralized programming that serves immediate audiences only with a limited economy of scale and net revenues
- Failure to cost-effectively divert some of the most easily recyclable material such as residential glass and commercial cardboard (let alone special wastes such as tires, electronics and household hazardous materials)
- Failure to support a new single-stream processing MRF that could otherwise reduce the cost of recycling for the region, create local jobs and support private-sector waste management
- Failure to access shared equipment that individual communities cannot afford on their own (e.g., tire shredder, glass crusher)
- Failure to leverage the public to help increase diversion levels as well as the value of those materials
- Failure to brainstorm creative solutions (such as back-hauling single-stream recyclables and organics between the Montezuma County Landfill and Durango facilities)
- Failure to have a long-term, regional vision that anticipates recycling a continually evolving waste stream and organics recovery

To turn these potential failures resulting from no action into opportunities with the real potential for increasing cost-effective waste diversion in the region, an effective strategy is required (see Section 4.2).

4.2 Strategy for Creating & Implementing an Effective Coalition

Basic to any other waste diversion activities will be the need to help the existing Recycling Task Force 1) clarify what they want to accomplish as it evolves into a waste diversion coalition, and 2) adopt a collaborative versus a competitive relationship. In addition to the long list of waste diversion obstacles identified in Table 3, any multi-jurisdictional region struggles with aligning their efforts under a common goal and set of actions. Individual organizations will look at a future coalition differently:

- Communities vary in terms of how advanced their waste diversion systems are and as a result need different levels of services - for example, at one end of the spectrum Cortez and Durango have aggressive multi-sector programs while at the other end the Tribes' waste diversion focus is primarily on schools (both programs are valid and appropriate for their organizations' current status but have different future growth needs)

- Organizations have different financial objectives - public agencies typically seek cost-neutral programs while private companies need to make a net profit
- Competition is inherent - landfills compete with recycling programs for MSW tons, all private haulers compete with one another for customers (public agencies can also resist collaborating as they protect the short-term resources of their citizenry)
- Transition - there are several transitions occurring that may make decision-making difficult in the short-term (i.e., development of a new processing MRF in Durango, possible change in Montezuma County's collection strategy, new glass markets on the Front Range and turbulent recyclables pricing)

Focus the Recycling Task Force (2015) - The first important step will be working with the initial Task Force to move from the "talking phase" to the "action phase" of making improvements. Recommended actions include:

1. **Refine the Task Force Membership** - for fair representation and appropriate group discussion:
 - Include one to two (maximum) number of representatives from each organization
 - Include a mix of senior staff, management, elected officials¹⁸, Tribal leaders, executive directors and owners
2. **Goal-Setting** - During the course of this study, the stakeholders generally agreed that there is a common goal (or "problem statement"): *improving the economics of waste diversion in the region*. There was little agreement, however, as to what objectives and actions make sense for achieving that goal. In order to pursue this broad goal, the following sub-goals or objectives should be adopted:
 - Increase diverted tons from the residential, commercial, institutional and tourism sectors
 - Maximize recyclables quality (e.g., single-stream with glass separate)
 - Have more "spokes" and less "hubs" - to create the best economy of scale for processing, transporting and selling as a valuable commodity
 - Maximize benefits to the private sector so that public/private (and non-profit) relationships flourish
3. **Determine Specific Short-Term Activities & Plan for Implementing** - These are expected to include those activities discussed in Section 3.2 (i.e., grant funding, E&O program development, advocacy, problem materials management and quantity data collection). This action should also include confirmation of activity costs and benefits. While this report includes an initial estimate of costs based on assumptions related to which activities will be prioritized, programs and services in transition, staff costs and others, final costs will need to be refined as assumptions are verified.

While these actions will be challenging for diverse stakeholders, the focus should be on two or three objectives that most stakeholders can agree on in the short-term. Once the Task Force/waste coalition make some progress and are able to demonstrate successes, stakeholder support will be easier to obtain. It is expected that the SWCCOG will lead

¹⁸ If SWCCOG is the ultimate host organization, elected officials are members of the COG board.

these first strategy steps given its current leadership of the recycling study and possible future role as a host organization.

Establish Waste Coalition (2015/2016) - Armed with a specific initial strategy, the stakeholders can pursue launching a regional waste diversion coalition as part of a host organization with the existing resources, relationships, credibility and neutrality necessary to effectively make change. As noted in Section 3.2, the SWCCOG appears to be the optimal host for a new regional coalition. To accomplish this, several actions are needed:

4. **Conduct Internal Advocacy** - This should consider the membership of the SWCCOG such that the coalition members have an equal say and equal responsibility;
 - Not all governments on the Recycling Task Force members are currently members of the SWCCOG (e.g., Montezuma County, Dove Creek and Rico) - the Task Force should advocate the value of waste coalition membership to these communities
 - Non-local government agencies such as the National Park Service should also encouraged to participate
 - The Southern Ute and Ute Mountain Ute tribes are not full members of the SWCCOG - again the coalition may be able to advocate full membership
 - Non-profit and private businesses are not members of the SWCCOG - this could potentially be addressed through a partnership agreement with SJBRA
 - Advocacy efforts should help the Tribes and non-profits consolidate their resources in their own organizations to more efficiently participate in the waste coalition and avoid disconnects between stakeholders (especially where trash and recyclables are managed by different departments)

5. **Develop Compelling Argument for the SWCOG Board of Directors** - This argument should present the initial waste coalition strategy, staffing, membership, cost and revenue expectations. As shown in Table 6, start-up costs are expected to range from \$31,000 to \$69,000. Annually, however, the range may fluctuate from \$28,000/year net costs to \$321,000/year net revenues (although gross revenues will not likely accrue to the SWCCOG). Cost implications will include;
 - The SWCCOG may be able to conduct some of the activities described in Section 3.2 without new revenues¹⁹ - this may included efforts associated with focusing the stakeholders, establishing the waste coalition and development of a successful grant application(s) in late 2015/early 2016
 - Successful grant funding efforts will ideally cover the E&O program development - and possibly initial development of a quantity data collection process
 - Other costs are likely to require new revenues, which could be generated through the SWCCOG membership dues - this will require re-evaluating the dues structure and assessing which communities participate in waste diversion, along with varying the Tribal and non-profit rates

¹⁹ The SWCCOG has obtained a new AmeriCorps VISTA volunteer for 2015/2016 who could be partially allocated to coalition work.

As activities are implemented, waste diversion levels are expected to increase, generating cost savings (associated with tip fees) for generators and haulers as well as revenues from material sales. These revenues will not likely accrue to the host organization, however, and should be considered in evaluating the SWCCOG cost implications (above).

Short-Term Actions (2016) - Short-term projects should focus on achieving one or two early successes to build credibility and support from all parties. These may include:

6. **Obtain E&O Grant Funding** - Funding should support a comprehensive program with region-wide benefits.
7. **Support New Local MRF/Composting Development** - Support continued collaboration between regional stakeholders and Phoenix as the company develops its single-stream sorting MRF to maximize service capabilities (additional Recycling Task Force meetings have been tentatively scheduled for late 2015). This collaboration should also be applied to Montezuma County's compost facility, as applicable.
8. **Tackle Glass and Tire Management Solutions** - These problem wastes are a universal issue for stakeholders and may have some low-tech solutions that can be implemented in the short-term.

Long-Term Projects (2017 & Beyond) - Projects that will most likely build on early successes and include:

9. **Implement the E&O Program.**
10. **Continue Efforts to Address Problem Wastes** - Expand efforts to include HHW and electronic waste, also evaluate the feasibility of recycling textiles across the region.
11. **Develop a Process for Quantity Data Collection** - This should target 2016 data and will be a reasonable next step to the 2014 baseline data provided in this report (continue data collection annually thereafter).
12. **Policy Development** - Provide advocacy and technical assistance as appropriate for local waste diversion policy.
13. **Other** - Miscellaneous actions should include;
 - Update waste composition data with more comprehensive audits that target all generator wastes
 - Evaluate greenhouse gas emissions from both landfill disposal and recycling to further clarify the advantages of diversion
 - Revise waste coalition goal, objectives and actions at least every other year

4.4 Final Observations

While environmental sustainability through recycling and organics recovery (as well as source reduction, reuse and re-purposing) is critical to any region, the economic sustainability of these diversion strategies must be simultaneously

considered. Recycling and composting are not only not "free" (as much of the public believes they should be), but are capital-intensive - in some rural areas, they are nearly as expensive as landfilling because of long haul distances and contamination. That said, many of the economic advantages of waste diversion cannot be fully quantified - these encompass avoided disposal costs, avoided greenhouse gas emissions, local and global benefits of avoided virgin material mining/production, and even changes in consumer and waste generator habits.

The goal of any diligent and forward-thinking government organization should be to create a waste diversion strategy that successfully balances the environmental and economic aspects to support long-term systems. While this is typically more of a challenge in rural areas than urban, rural stakeholders and elected officials often have greater incentives: protection of pristine lands and clean air; preservation of tourist and recreational spots; and job creation.

Southwest Colorado has the opportunity to utilize an existing platform maintained by the SWCCOG and built on early stakeholder enthusiasm to consolidate the efforts of numerous public, private and non-profit entities into a centralized approach that provides leadership and effective action for waste diversion across the region. The growth of the existing Recycling Task Force into a credible, inclusive and effective waste diversion coalition will require political will, the ability to consider the overall waste management system and a spirit of cohesion over divisiveness. Once accomplished, however, southwest Colorado may well develop a regional network of sustainable programs and infrastructure that is not only economically viable, but is a state leader in terms of rural solid waste management - clearly a preferable outcome to the consequences of no further action.