Recycling Resources Economic Opportunity Program

Eighth Annual Report, FY2015

May 2016

Submitted to the Colorado State Legislature
By the Colorado Department of Public Health and Environment
Division of Environmental Health and Sustainability, on behalf of the
Pollution Prevention Advisory Board

- This page intentionally left blank -

Table of Contents

Document Information

Title:	Recycling Resources Economic Opportunity Program Eighth Annual Report, FY2015
Principal Author:	Eric Heyboer, Recycling Grant Program Administrator, Division of Environmental Health and Sustainability
Contributing Authors/ Technical Assistance:	Rachel Wilson-Roussel, Sustainability Unit Manager, Division of Environmental Health and Sustainability
Subject:	Report to the Colorado General Assembly on the status of the eighth year of the Recycling Resources Economic Opportunity Fund for the State of Colorado
Statute:	C.R.S. Chapter 270 Article 19.7 25-16.5-106.5
Date:	May 16, 2016
Number of pages:	34 (not including appendices)

For additional information or copies:

Rachel Wilson-Roussel, Sustainability Unit Manager
Division of Environmental Health and Sustainability
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530
(303) 692-2976

Executive Summary

Coloradans recycle and compost at a rate of 23 percent, well below the national average of 34 percent[1]%. In 2014, more than 7 million tons of trash was disposed in Colorado's landfills[2], the equivalent weight of three Hoover Dams[3]. We have the opportunity to increase waste diversion and extend the life of our landfills while creating jobs and economic opportunities in the process. The Recycling Resources Economic Opportunity Act of 2007 established a grant program within the Colorado Department of Public Health and Environment (the department). The act also established a recycling rebate program to support those Colorado businesses and organizations that are actively collecting materials for recycling. These funds promote economic development through the productive management of recyclable materials that would otherwise be treated as discards.

$2.9 Million Awarded

In FY2015, 60 percent of funding for the RREO program came from landfill tipping fees. For every cubic yard of waste disposed at landfills within Colorado, the fund received a $0.11 tipping fee. Additionally, Gov. John Hickenlooper's FY2015 budget included a one-time, $1.5 million appropriation to replace funds that were removed from the program to help balance the state's budget during the economic downturn in 2007-08.

11 Grant Projects

Two Requests for Applications were released in FY2015. The first grant opportunity focused on materials management infrastructure. Of the 41 proposals received, ten were funded for a total of $1.3 million. The second grant opportunity focused on end-market development for recyclable commodities. Of the nine proposals received, three were funded for a total of $1.3 million. In addition to this investment, grantees leveraged a total in-kind match of $2.6 million to implement their projects. To date, this investment created 57.75 full-time jobs and diverted more than 8,900 tons from the landfill.

57 Jobs Created

In addition to awarding grants, the department issued a total of $300,000 in rebates. Rebates were distributed at six-month intervals, in October 2014 and April 2015. The rebates were distributed to operators of free public recycling drop-off centers.

In December 2014, the department completed an economic impact study of waste diversion in Colorado. The purpose of the study was to identify the economic impacts the recycling, remanufacturing, and reuse (RRR) industry on the state economy, with particular focus on how RRR affects both urban and rural areas. The results of this study revealed the RRR industry sustains 86,000 jobs in Colorado and accounts for 5 percent of the state's overall economic activity.

74 Rebates

[1] Advancing Sustainable Materials Management: Facts and Figures. (2015, June). Retrieved from https://www.epa.gov/smm/advancing-sustainable-materials-management-facts-and-figures
[2] Solid waste data and reports, Recycling Data. (2015). Retrieved from https://www.colorado.gov/pacific/cdphe/swreports
[3] Hoover Dam. (n.d.). Retrieved from http://www.usbr.gov/lc/hooverdam/educate/kidfacts.html

This industry clearly plays an important role in Colorado's economy and will only grow stronger as more Coloradans participate in recycling and composting programs. The department will embark on a new initiative in FY2017 to identify the state's potential for growth within this industry and consider how the state can better position itself to encourage this growth.

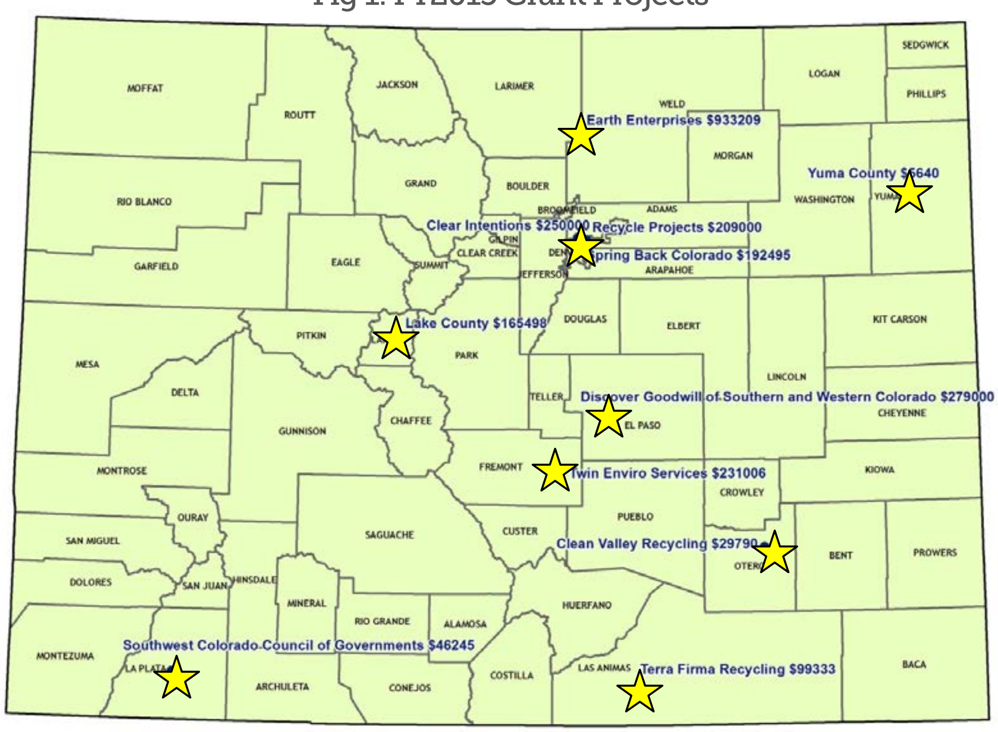
Despite the promising metrics that show progress toward improving the state's waste diversion rate, more could have been done in FY2015. A total of $986,553 remained unspent in the RREO program's budget. Three primary factors collectively resulted in this unusually high amount of uncommitted reserves:

- Actual revenue collected from tipping fees in FY2015 greatly exceeded revenue projections.
- Actual grant expenditures were lower than the amount awarded, as one project was cancelled late in the fiscal year and another was significantly restructured resulting in project savings.
- The regional recycling study was intended to be released and grant funds encumbered by the end of FY2015, but the Request for Applications was delayed until FY2016.

The RREO program will make every effort in FY2016 to encumber the maximum allowed by the spending authority and will award a significant number of grants and rebates in FY2017. Not only will new revenues be encumbered, but the amount of uncommitted reserves will be reduced to a more reasonable level. Since the close of FY2015, the program has 25 additional grant projects that are either currently active or pending contract approval, totaling $4.4 million in awards. This is in addition to a planned second round of regional studies that will be released in FY2017, an additional $300,000 dedicated to recycling rebates, and developing the scope of a recycling markets analysis.

The future of the RREO program is bright. Public interest remains strong, and the program is positioned to successfully meet demand in future grant cycles. The RREO program will continue to work toward a future where Colorado has a robust and sustainable infrastructure for recycling and composting activities.

Fig 1: FY2015 Grant Projects



Background

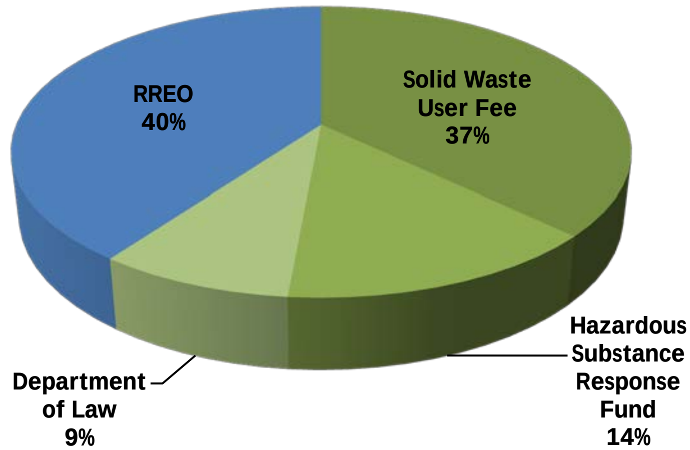
Colorado's municipal solid waste recycling rate continues to lag behind the national average. To advance opportunities for recycling in Colorado, the state legislature passed the Recycling Resources Economic Opportunity (RREO) Act of 2007, establishing a grant program to help create or expand existing recycling programs and a rebate program to reward those Colorado businesses and organizations that are actively providing recycling services. The state legislature recognized the need to incentivize waste diversion activities in Colorado to take advantage of the many benefits they provide.

Fig 2: Waste Diversion Benefits

Funding provided through the RREO grant program promotes economic development through the productive management of recyclable materials that would otherwise be treated as discards. In addition, these funds help businesses, local governments, nonprofit organizations, and schools and universities that may not have the ability to raise the capital needed to start or expand a recycling program. Projects that meet the goal of the grant program are designed to implement source reduction, recycling, anaerobic digestion, composting or beneficial use/reuse for a wide variety of materials.

Before the act was signed into law, no state agency had the responsibility to encourage or help sustain recycling in Colorado. The RREO Program is currently housed at the Department of Public Health and Environment (the department), Division of Environmental Health Sustainability. The Pollution Prevention Advisory Board Assistance Committee advises the department and the board on how best to allocate RREO funds. The committee comprises thirteen representatives from various state agencies, local government entities, for-profit businesses and nonprofit groups. The committee also evaluates applications and makes recommendations on the grants to be funded each fiscal year as well as the formula used to calculate rebate payments.

Fig 3: RREO Portion of CDPHE Solid Waste Tipping Fee



All funding for the RREO program currently comes from tipping fees charged to each landfill operating in the state. This Solid Waste User Fee is paid each calendar quarter on a per-cubic-yard basis for the amount of waste the landfill accepted for disposal. As of Jan. 1, 2016, the Solid Waste User Fee totals $0.35/cubic yard of waste and funds four distinct programs. The department's Solid Waste Program receives $0.13/cu yd, the Hazardous Substances Response Fund receives $0.05/cu yd, and the Department of Law receives $0.03/cu yd. These fee components are covered in §25-16-104.5(1.7), C.R.S., and are set by the Solid and Hazardous Waste Commission. The fourth program funded by the Solid Waste User Fee is the RREO program, which receives $0.14/cu yd as defined in §25-16-104.5(3.9), C.R.S. As shown in Figure 2, the RREO Program receives 40 percent of the total fee charged.

With the passage of SB13-050, the fee that funds the RREO program has gradually increased since January 2014 (see Table 1). In the first half of FY2015, the RREO program received $0.09 per cubic yard. In the second half of FY2015, the program received $0.11 per cubic yard. Effective Jan.1, 2016, the program began receiving the maximum fee allowed at $0.14 per cubic yard. Currently, this is the only state funding dedicated to supporting recycling, reuse, and composting projects in Colorado.

Table 1: RREO sources of funding

	Rate per cubic yard of solid waste disposed	Waste tire fee, per tire
FY2008 - FY2011	$0.07	$0.25
FY2012 - Dec. 2013	$0.07	$0
CY2014	$0.09	$0
CY2015	$0.11	$0
CY2016 - FY 2026	$0.14	$0

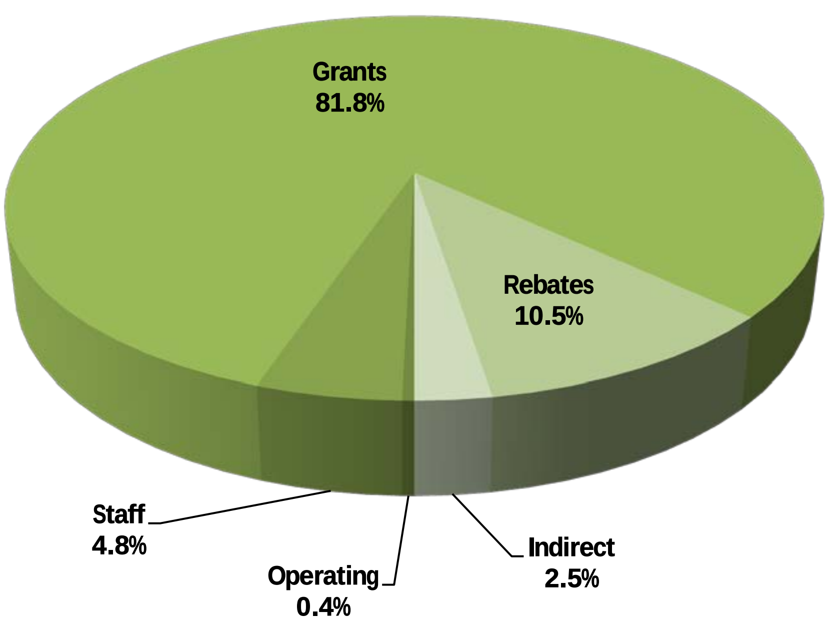
The department thanks the legislature for recognizing the need to further incentivize expanded access to recycling, composting, and end-markets within Colorado by passing SB13-050. With the reallocation of waste tire fees in FY2012, the RREO program lost approximately $800,000 in annual revenue. The fee increases approved by SB13-050 will more than replace that lost revenue source.

As shown in Table 2, total revenues in FY2015 amounted to $3,847,183. Included in this amount is the $1,500,000 earmarked by Gov. John Hickenlooper and subsequently approved by the Joint Budget Committee to replace funds that were taken from the program to help balance the state's budget during the economic downturn in 2007-08. Despite the department's efforts to fully spend the program's revenues, an unusually large fund balance remained at the end of FY2015. An explanation of the circumstances and the department's plans to minimize the fund balance in the future is provided in the conclusion of this report. As shown in Figure 3, of the $2.8 million spent in FY2015, more than 90 percent was distributed via grants and rebates.

Table 2: RREO Program Budget, FY2015

Revenue:	
FY2014 Fund Balance	$104,171
FY2015 Revenue	$3,743,012
Total Revenue	**$3,847,183**
Expenses:	
Operating	$11,232
Personal Services - 1.6 FTE	$138,018
Grants	$2,338,713
Rebates	$300,000
Indirect	$72,667
Total Expense	**$2,860,630**
Fund Balance	$986,553

Fig 4: FY2015 Program Expenses



Grant Program

Two Requests for Applications were announced in FY2015, one for infrastructure development and one for end-market development. A third solicitation for proposals focused on regional planning was developed in FY2015, but was delayed until FY2016.

Infrastructure Development

A Request for Applications (RFA) for FY2015 was released by the department in January 2014. The department's purchasing and contracts unit reviewed the RFA to ensure compliance with state procurement guidelines.

The RFA sought applications that met one or more of the following general objectives:

- Accomplishing greater levels of solid waste minimization, waste diversion, recycling, material reuse and composting.
- Implementing proven diversion methods such as Pay-As-You-Throw (PAYT), market incentives, contracting, municipal ordinance. or other mechanisms.
- Developing best practices in recycling, waste minimization and diversion, material reuse, and composting.
- Improving market research and data to identify material reuse opportunities.
- Providing data on quantities of recyclables in order to set goals, track progress, and support new or expanded market development.
- Providing detailed economic information on the impacts of recycling and material reuse in Colorado.
- Educating and informing the general public about recycling.
- Increasing regional partnerships to maximize economies of scale.

The committee created a tiered system to prioritize eligible types of projects to best help the state increase waste diversion and create economic opportunities. Priorities may change in future grant cycles based on the committee's recommendations.

First Tier

Implement the hub-and-spoke model:

- To develop or expand local or regional recycling infrastructure, especially in underserved areas of the state.
- To form public-private or multi-jurisdiction partnerships to promote waste diversion, recycling, recycling markets, the beneficial use of discarded materials, or other recycling-related uses.

Hub-and-Spoke

Second Tier

- Implement projects that directly result in increased levels of recycling, reuse, and/or composting to divert more materials from landfill disposal. This may include Pay-As-You-Throw (PAYT) programs, market incentives, performance-based contracting, municipal ordinances, or other similar mechanisms.
- Provide local incentives to develop or expand markets for recycled products and material reuse.
- Develop or expand local or regional recycling infrastructure, though not necessarily via a hub-and-spoke model.
- Form public-private or multi-jurisdiction partnerships to promote waste diversion, recycling, recycling markets, the beneficial use of discarded materials, or other recycling-related uses. These partnerships can be developed independently of a comprehensive hub-and-spoke system.

Infrastructure

Third Tier

- Provide sustainable community resource education programs on the importance of reducing, reusing, recycling, and composting.
- Develop educational programs and improve waste diversion infrastructure for schools and other educational institutions.
- Provide assistance in connection with the development or improvement of integrated waste management plans by local governments that focus on waste diversion.
- Clean up illegal waste dumping.

Education & Planning

Grant Projects

In the FY2015 grant cycle, 41 grant applications were submitted totaling more than $5.9 million in requests. The applications were evaluated based on the following six criteria:

- Environmental benefits.
- Economic impact.
- Infrastructure improvement.
- Feasibility of successful implementation.
- Measurable results and outreach.
- Experience and qualifications.

The department awarded a total of $1,337,098 to 10 applicants (see Table 3). Grant recipients began their projects on or after July 1, 2014 and completed their projects by June 30, 2015. The following is a summary of each project, including a discussion of deliverables achieved and updates on additional project accomplishments in the six months since the fiscal year ended.

TABLE 3: FY2015 RREO Grants, Infrastructure Development

#	Name of Applicant	Project Title	Award	Type	Geographic Location
1	Clean Valley Recycling	Clean Valley Recycling Expansion Project	$29,790	Nonprofit	Otero, Bent, Kiowa, Prowers Counties
2	Clear Intentions	Clear Intentions Hub-and-Spoke Glass Recycling	$250,000	For-Profit	Wheat Ridge, Front Range
3	Discover Goodwill of Southern and Western Colorado	Retail Support Center Recycling Expansion	$279,000	Nonprofit	Southern half of Colorado, Utah to Kansas
4	Lake County	Lake County Recycling Initiative: Access and Economic Sustainability	$165,498	Govt	Lake County
5	Southwest Colorado Council of Governments	Southwest Colorado Waste Study	$46,245	Govt	Four Corners Region
6	Terra Firma Recycling	Recycling and Waste Diversion in Las Animas County	$99,333.20	For-Profit	Las Animas County
7	Twin Enviro Services	Twin Enviro Recycling Expansion in Fremont County	$231,006	For-Profit	Fremont County
8	Yuma County	Storage for Electronic Recycling	$5,640	Govt	Yuma County
9	City of Fort Collins*	Integrated Recycling Facility (IRF)	$68,000	Govt	City of Fort Collins
10	City of Pueblo**	Pueblo Waste and Recycling Ordinance	$162,586	Govt	City of Pueblo
		Total Amount Funded:	**$1,337,098**		

* -- The Fort Collins project was terminated June 24, 2015. City Council decided that ongoing costs of operating the planned facility presented too much of a financial risk to the city. The city did not spend any of their grant funds, so $68,000 was rolled into FY2016.

** -- The Pueblo project was terminated April 16, 2014, soon after they were notified of their award. From the time their grant application was submitted on March 3 to the time the city was notified they were a finalist on April 9, the Pueblo Waste and Recycling Ordinance became a controversial issue, and City Council was not confident a compromise on the new ordinance could be reached and the program implemented within the one-year grant cycle. The $162,586 set aside for the City of Pueblo project was not reallocated to another project, but instead earmarked for the planned end-market development solicitation later in FY2015.

Hub-and-Spoke Recycling in Eastern Colorado

Clean Valley Recycling

Summary

Clean Valley Recycling established a hub-and-spoke model for southeastern Colorado. New recycling collection containers have allowed the organization to successfully expand services into the communities of Crowley, Ft Lyon, and Las Animas. Grant funds were used to purchase additional recycling bins to collect cardboard and glass, as well as bins to provide to commercial accounts. A marketing campaign was also launched.

Deliverables Achieved

New spoke locations were established at the Ft Lyon Supportive Residential Community and the Town of Eads. Regularly scheduled service continues at the Crowley County Correctional Facility and City of Las Animas spokes. Newspaper advertisements, utility bill mailings, and public service announcements on a local radio station made up their marketing campaign.

Six-Month Update

Clean Valley Recycling partnered with the City of Rocky Ford to launch a pilot program for residential curbside recycling service. Two new spoke locations were established in the unincorporated community of Karval in Lincoln County and the Town of Walsh.

Nonprofit
Tax status

Otero County and region
Geographic area

$29,790
Awarded

100%
Year-over-year increase in recycling

New End-Market for Glass

Clear Intentions

Summary

Clear Intentions constructed a glass processing facility in Denver with the ability to sort source-separated post-consumer and commercial glass. Additionally, a network of glass-only drop-off centers located at bars, restaurants, hotels, and event centers was established through a Glass Valet program.

Deliverables Achieved

Significant delays in finding warehouse space followed by a lengthy permitting process with Adams County meant their facility couldn't begin accepting glass until the last quarter of the grant cycle. By the end of the grant cycle, all equipment purchased with grant dollars was on-site but still required assembly. Clear Intentions was able to launch their Glass Valet program and they have experienced incredible interest.

Six Month Update

Clear Intentions is working with the City of Fort Collins to establish a network of glass stations that offer glass-only recycling service to the general public. This is in conjunction with their growing network of Glass Valet clients along the Front Range, including Denver International Airport.

For-Profit
Tax status

Front Range
Geographic area

$250,000
Awarded

1st
Denver-based glass-only processing facility

Recycling, Reuse, and Jobs

Discover Goodwill of Southern and Western Colorado

Summary

While Discover Goodwill repurposed or recycled 13,213 tons of donations in 2013, more than 200 semi-trailers of product have been stored and more than 10 million pounds (5,348 tons) of donations were driven to landfills. These factors prompted the creation of a "Retail Support Center (RSC)." The RSC will function as a "hub" for the retail and donation centers. By the end of FY2015, the RSC reduced material donation waste from 28.8 percent to 19.1 percent through expanded recycling. Specifically, Goodwill added the capability to recycle glass and plastics #1 - #7. The RSC will provide 21 jobs for disadvantaged individuals and individuals with disabilities. The spokes will similarly stimulate the economy with the placement of attended donation centers and donation drives in underserved recycling areas like rural El Paso, Pueblo and Rio Grande Counties.

Nonprofit
Tax status

Southern Half of Colorado
Geographic area

$279,000
Awarded

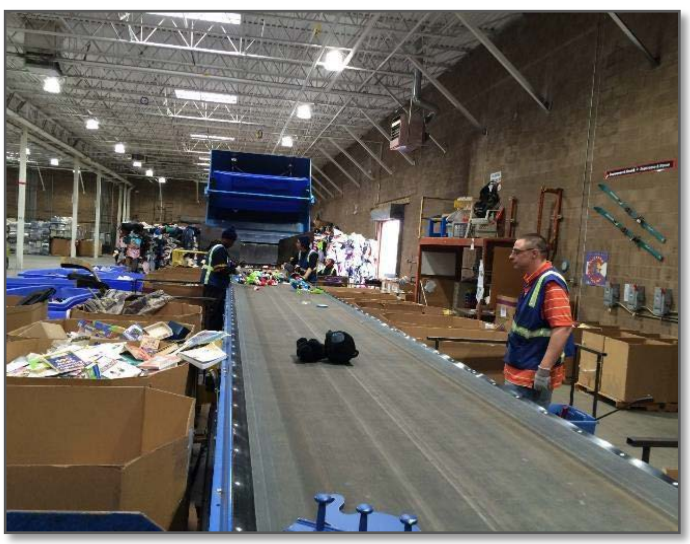
30
Jobs created

Deliverables Achieved

All equipment was installed in the new Retail Support Center by January of 2015. Discover Goodwill recycled more than 7,000 tons of material using the new sort line.

Six Month Update

Discover Goodwill's diversion rate continues to climb. A year-over-year comparison revealed a 47 percent increase in diversion, or more than 500 tons. A total of 20 different materials are now recycled at the Retail Support Center that were previously discarded.



Hub-and-Spoke Recycling in Lake County

Lake County

Summary

This project set a goal to triple the amount of material recycled in Lake County and create a sustainable revenue stream for recycling services in the future by (a) providing increased access to recycling at two new drop-off sites, (b) increasing Lake County's ability to store and process material and (c) providing the institutional and educational support needed to make increased access a long-term economic success.

Deliverables Achieved

A new baler, roll-off containers, and a semi-trailer were purchased. Though the two new drop-off sites were not opened during the grant cycle due to the planning commission's recommendation to relocate the drop-off sites and the subsequent delays in permitting, they anticipate completing construction by September 2015. A total of 14 workshops were held at the elementary school, including 20 hours of instructor training.

Six Month Update

Both drop-off sites opened to the public on September 25, 2015. Through a partnership with the sheriff's office, illegal dumping is minimal. The semi-trailer allows the county to ship a full load of a single material, ensuring the best possible market price for the recyclable commodity while minimizing travel costs.

Govt
Tax status

Lake County
Geographic area

$165,498
Awarded

104
Percent increase in recycling year-over-year since the new drop-off sites opened

Collaboration in the Four Corners Region

Southwest Colorado Council of Governments

Summary

The Southwest Colorado Council of Governments (SWCCOG) proposed a regional strategy for diverting recyclables that both builds on existing programs and establishes a solid foundation for the future. In FY2015, SWCCOG used grant funding to build this strategy by 1) establishing a design basis for a regional hub-and-spoke recycling system, 2) developing public/private partnerships needed to provide recyclables transfer and MRF processing facilities, and 3) identify local policies to drive diversion, provide consistency and create a culture change across the region. A new Southwest Recycling Task Force will foster an all-inclusive process with public, private, and non-profit stakeholders.

Deliverables Achieved

Ten waste audits were completed to determine the regional waste diversion rate and typical composition of the waste stream. The Recycling Task Force was established and prioritized six focus areas for the future. A final report was submitted that presented the data collected and made recommendations on how the region could improve diversion rates over time.

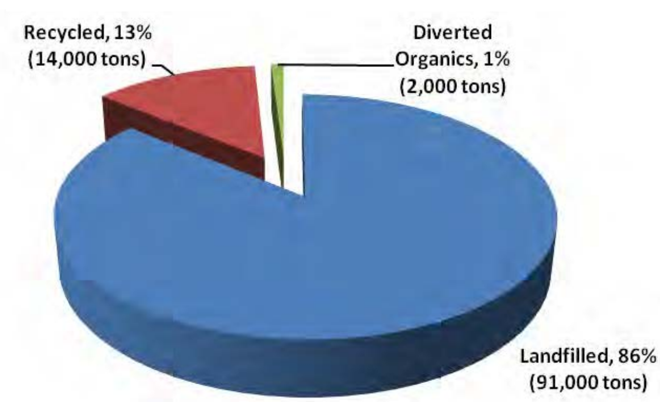
Govt
Tax status

Four Corners
Geographic area

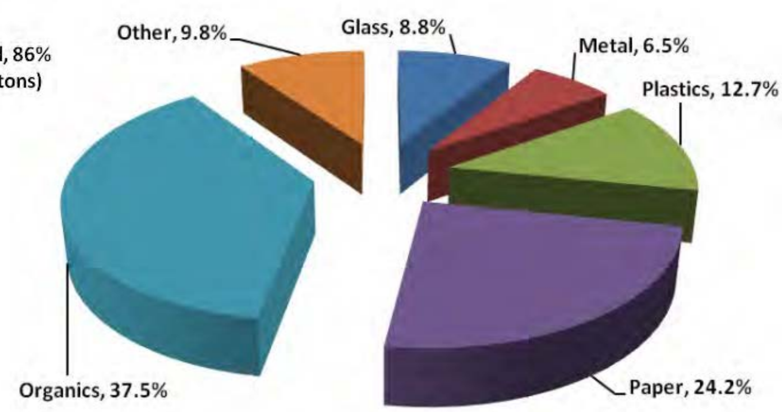
$46,245
Awarded

14%
Current regional waste diversion rate

MSW Management
(percent by weight)



Waste Composition by Material Category
(tons, percent by weight)



New Recycling Center in Las Animas County

Terra Firma Recycling

Summary

Terra Firma Recycling developed a Hub-and-Spoke recycling infrastructure to serve up to 16,000 people within a 75-mile radius of Trinidad, Colorado. Grant funds were used to increase storage and purchase a baler, conveyor system, and a new pickup truck to haul materials.

Deliverables Achieved

All equipment was purchased and installed by October 2014. Terra Firma has 40 businesses and 500 individuals participating in their recycling program. Two part-time employees were hired to help sort recyclables.

Six-Month Update

Terra Firma Recycling and Twin Enviro Services established a commercial cardboard collection route in Trinidad, CO. A new recycling drop-off site was established west of Trinidad, in Stonewall, CO. Community support continues to grow and Terra Firma Recycling continues to be an active participant in community-wide events to advertise the importance of recycling.

For-profit
Tax status

Las Animas County
Geographic area

$99,333
Awarded

1st
Recycling center to be established in the region

New Recycling Center in Fremont County

Twin Enviro

Summary

Twin Enviro Services of Fremont County utilized RREO grant funds to purchase a vehicle scale, a baler and a 50-foot by 100-foot building to house the baler. With the new equipment, Twin Enviro was able to expand its curbside residential recycling routes, begin cardboard and glass recycling services for commercial customers, and serve as a small hub for fellow small-town single-stream recyclers in neighboring low-density areas of Chaffee and Custer Counties.

Deliverables Achieved

A new scale was installed in July 2014. The baler was purchased and installed by March 2015 and the new recycling center was fully functional as of April 1, 2015. Four full-time employees have been hired to operate the recycling center.

Six-Month Update

Twin Enviro partnered with A1 Affordable in Pueblo, CO to accept and process their curbside single-stream recyclables. A partnership with Westcliffe also appears promising. Twin Enviro struggles to continue expanding their curbside recycling service in Fremont County since there is resistance to paying an extra fee for recycling.

For-profit
Tax status

Fremont County
Geographic area

$231,006
Awarded

68
Percent increase in number of curbside recycling customers

Electronics Recycling in Northeastern Colorado

Yuma County

Summary

Yuma County purchased two standard high cube 8-foot by 40-foot storage pods to hold the discarded electronics until they can be recycled by Encore Life, a local nonprofit.

Deliverables Achieved

The storage pods arrived and were installed at the Yuma County landfill in November 2014.

Six-Month Update

A total of 16.4 tons of old electronics have been recycled through the program. Yuma County, the City of Yuma, and Encore Life are finding ways to sustain the recycling program long-term since costs for recycling e-waste are higher than anticipated.

Govt
Tax status

Yuma County
Geographic area

$5,640
Awarded

16.4
Tons of electronics recycled

End-Market Development

A special, one-time grant opportunity was offered in October 2014 to spend down the $1.5 million returned to the RREO program by Gov. Hickenlooper and approved by the Joint Budget Committee. The intent of this solicitation was to fund projects that would:

- Create or expand the processing capacity of a recyclable material that will produce a feedstock suitable for end-use manufacturing.
- Create or expand an end-use manufacturing process that uses recycled materials as a feedstock.
- Purchase needed equipment (or the materials to build the equipment needed) to implement a proven, market-ready concept that will contribute to greater degrees of waste diversion.

Projects were awarded funding in December 2014. All grant funds had to be spent and all deliverables achieved by June 30, 2015. Table 3 lists all projects approved for funding through this solicitation.

TABLE 4: FY2015 Grants, Material End-Market Development

#	Name of Applicant	Project Title	Award Amount	Geographic Location
1	Earth Enterprises Inc. (DBA Waste-Not Recycling)	Disruptive Innovative Technology: Waste to Product in Colorado	$933,209	Larimer County
2	Recycle Projects	Food-Grade Plastics Sorting Facility	$209,000	Denver
3	Spring Back Colorado	Building Capacity to Recycle Mattress Byproducts	$192,495	Denver
		Total Amount Funded:	**$1,334,704**	

With the exception of Spring Back Colorado, all grantees spent their grant award in its entirety. Spring Back Colorado was able to fulfill the key objectives of their project at a considerably lower cost, resulting in $73,237 in savings. These funds were rolled over into FY2016.

EcoSheets: An End-Market for #3 - #7 Plastics

Earth Enterprises

Summary

Based on proven technology currently in operation in Poland, the UK, and Belgium, a process line was installed that uses various mixed plastics to manufacture sheets that offer an alternative to products such as plywood and OSB. Earth Enterprises is the first company in the United States to implement this technology and produce EcoSheets. This process will offer Colorado recyclers a new market for #1 - #7 containers, plastic toys, e-waste plastic, hangers, boot grind, grocery bags, scrap carpet and other rigid/bulky plastics.

Deliverables Achieved

A final design and process schematic of the equipment line was submitted in March. A summary report on potential sources of plastic to be used in this new process, as well as a market entry sales plan, were submitted in early June. The full equipment line was installed June 30.

Six-Month Update

Earth Enterprises has faced a significant challenge with metals appearing as a contaminant in all the plastics they have sourced. To prevent damage to the equipment, they have yet to go into full-production mode until a feasible method is found to remove metals from their mixed plastics. In the interim, Earth Enterprises is actively seeking buyers of the panels they will eventually manufacture.

For-profit
Tax Status

Weld County
Geographic area

$933,209
Awarded

3000
Anticipated monthly production of EcoSheets

Food-Grade Plastics

Recycle Projects

Summary
Recycle Projects has established a method for collecting, sorting, and processing high-quality polyethylene, polypropylene, and polystyrene resins. With a proven process, Recycle Projects used grant funds to implement a small-scale plastics sorting and processing facility to specifically recover Food and Drug Administration-approved post-consumer plastics.

Deliverables Achieved
All equipment was installed on June 19, 2015. Training materials were developed to instruct participating recycling facilities how to sort for food-grade plastics.

Six-Month Update
Through a partnership with the Boulder County Recycling Center, Recycle Projects processed 81 tons of food-grade plastic. Research is underway to develop a delabeling process to ensure the highest quality product for post-consumer recycled plastic.

For-Profit
Tax status

Denver
Geographic area

$209,000
Awarded

500
Anticipated monthly tonnage of food-grade plastics recycled

Remanufactured Mattresses and Pet Beds

Spring Back Colorado

Summary

Spring Back used grant funds to create a local end-market for byproducts of their existing mattress recycling operation. Materials, supplies, and equipment were purchased to implement a dog bed manufacturing line and a mattress remanufacturing line. Spring Back focuses on redemptive employment, hiring those recovering from addiction or who were previously incarcerated. Through this project, Spring Back hired nine new employees.

Deliverables Achieved

All supplies and equipment were onsite by June 30, 2015. Two people were hired to build the dog beds and two more were hired to rebuild mattresses.

Six-Month Update

Spring Back has actively pursued buyers for their dog beds and remanufactured mattresses. Spring Back has established strong connections within the drug and alcohol rehabilitation sector to sell their remanufactured mattresses to shelters and rehabilitation centers. Dog beds manufactured by Spring Back are currently sold in 13 boutique pet stores along the Front Range. By fostering these end-markets, Spring Back has managed to repurpose 95 percent of the textiles generated from the mattress recycling process, a product that lacked any feasible end markets.

Nonprofit
Tax status

Denver
Geographic area

$192,495
Awarded

9
Total new jobs

Regional Planning

In February 2015, work began on developing a Request for Application focused on regional studies inf Colorado, in an effort to spend down the remainder of the $1.5 million returned to the RREO program by Gov. Hickenlooper and approved by the Joint Budget Committee. A total of $250,000 was allocated for this funding opportunity. The intent of these studies was to identify existing waste diversion activities in the study area and suggest ways to coordinate those activities to maximize economic efficiencies and increase opportunities for additional waste diversion. Unfortunately, delays in the procurement process forced the solicitation into FY2016. Three projects were funded through this process in FY2016 and will be addressed in more detail in next year's annual report.

Project Monitoring and Reporting

Department staff members monitor all grants to ensure they are meeting the requirements in their Scope of Work. Ongoing communication with the grantees is done through conference calls, emails, meetings and site visits. Each grantee is also assigned two members of the committee to act as grant monitors and provide technical assistance when needed. At minimum, the grantee must provide a midterm, year-end, and six-month follow-up report to the department.

The year-end report includes:

- A financial summary.
- All deliverables.
- A list of completed tasks and outcomes.
- Description of unanticipated outcomes or roadblocks encountered.
- Discussion of potential future applications of project results.
- One-page summary describing new jobs created, economic impact of project, increased volumes of materials collected, participation in recycling that occurred as a result of the project, and environmental metrics and outcomes resulting from the project.

To review year-end reports for all FY2015 grants, please visit the following website: https://www.colorado.gov/cdphe/rreo-grant-projects-fiscal-year-2015

Rebate Program

Background

The rebate program is designed to reward companies and organizations that offer recycling services throughout the state. Although there is no specific requirement about how rebate funds may be used by a recipient, the intent is to reinvest the funds to support or expand their recycling services. Rebates were issued in six-month intervals based on submitted data from the previous six-month period.

Application

The committee develops the Recycling Rebate Application (RRA) for each rebate cycle and presents their recommendation to the board for approval. The RRA describes the eligible rebates that are offered and the formula that is used to determine the amount of rebate an entity may receive.

In FY2015, the department issued a total of $300,000 in rebates. Rebates in each cycle were awarded to any entity that incurred transportation/hauling costs associated with providing free public recycling drop off sites. The committee hopes to encourage the availability of free public recycling drop-off sites in the state, especially in areas where other recycling options are limited or unavailable. In each cycle, 50 percent of the fund was allocated based on tonnage recycled and miles traveled to bring recyclables to the nearest processing facility. The remaining 50 percent was allocated based on the number of eligible recycling drop-off sites available to the public.

75 percent of Rebates Support Rural Areas

In the first cycle, covering July 2014 to December 2014, $150,000 in rebates was distributed. In the second cycle, covering January 2015 to June 2015, $150,000 in rebates was distributed.

Evaluation and Audit

Department staff members reviewed all applications to determine if the applicant was eligible for the rebate. Staff members are required to audit at least 10 percent of received applications, per committee by-laws. For the FY2015 rebate cycles, staff completed audits on 95 percent of the applications to ensure accurate information was submitted. All rebate amounts were approved by the board based on the recommendation of the committee. Tables 5 and 6 provide a breakdown of all rebate recipients and payouts by cycle.

Average Rebate $4,080

FY2015 Rebate Payments

Tables 5 and 6 below detail the organizations and businesses who received a rebate in each of the two rebate cycles in FY2015. No applicant received more than 10 percent, or $15,000, of the total amount available to the rebate program in each cycle.

TABLE 5: First Cycle – 07/01/2014 to 12/31/2014

#	Name	Total Rebate Due
1	Alpine Waste and Recycling	$1,046.57
2	Baker Sanitation	$4,778.88
3	Bestway Transfer	$1,012.10
4	Boulder County	$4,333.95
5	C&C Disposal	$7,229.07
6	City of Brighton	$1,005.60
7	City and County of Broomfield	$1,201.17
8	City of Brush	$974.66
9	City of Cortez	$1,032.25
10	City of Ft. Collins	$1,353.24
11	City of Lakewood	$1,715.83
12	City of Loveland	$1,124.05
13	City of Northglenn	$1,998.13
14	City of Thornton	$4,899.14
15	Eagle County	$6,247.88
16	El Paso County	$1,030.09
17	Four Corners Recycling Initiative	$3,902.54
18	Gallegos Sanitation, Inc.	$1,007.12
19	Gunnison County	$8,454.55
20	Howard Disposal	$1,885.90
21	Mesa County	$975.03
22	Morgan County	$1,557.26
23	Northern Colorado Disposal	$1,131.46
24	Pitkin County	$10,363.64
25	Recycle-Creede	$8,454.55
26	South East and East Central Recycling Association	$15,000.00
27	Summit County	$9,409.09
28	SustainAbility	$2,032.59
29	Terra Firma Recycling	$8,454.55
30	Town of Julesburg	$962.38
31	Town of Meeker	$4,460.35
32	Twin Landfill Corp.	$966.40
33	Upper Arkansas Recycling	$15,000.00
34	Waste Management	$15,000.00
	Total:	**$150,000**

TABLE 6: Second Cycle – 01/01/2015 to 06/30/2015

#	Name	Total Rebate Due
1	Alpine Waste and Recycling	$895.24
2	Angel of Shavano	$2,996.37
3	Baker Sanitation	$3,344.52
4	Bestway Transfer	$931.16
5	Boulder County	$3,763.08
6	C&C Disposal	$8,333.33
7	City of Brighton	$901.57
8	City and County of Broomfield	$1,091.90
9	City of Brush	$854.77
10	City of Cortez	$926.01
11	City of Craig	$1,924.42
12	City of Durango	$852.48
13	City of Fort Collins	$1,295.58
14	City of Lakewood	$1,764.95
15	City of Longmont	$1,188.98
16	City of Loveland	$1,007.11
17	City of Northglenn	$1,762.64
18	City of Thornton	$4,323.10
19	City of Westminster	$3,663.93
20	Colorado Mattress Recycling	$850.72
21	Eagle County	$4,592.26
22	El Paso County	$948.90
23	Four Corners Recycling Initiative	$3,425.66
24	Gunnison County	$8,333.33
25	Howard Disposal and Recycling	$1,024.07
26	Mesa County	$854.13
27	Morgan County	$1,960.71
28	Northern Colorado Disposal	$997.03
29	Overton Recycling	$858.62
30	Pitkin County	$10,000.00
31	Recycle Creede	$8,333.33
32	Southeast and East Central Recycling Association	$15,000.00
33	Summit County	$9,166.67
34	Sustainability	$973.27
35	Terra Firma Recycling	$8,333.33
36	Town of Julesburg	$843.74
37	Town of Williamsburg	$843.23
38	Twin Enviro Services	$839.86
39	Upper Arkansas Recycling	$15,000.00
40	Waste Management of Colorado	$15,000.00
	Total:	**$150,000**

Economic Impact Study

ENVIRON was retained by the Colorado Department of Public Health and Environment (the department) to conduct an economic impact study of waste diversion in Colorado. The overall purpose of the study was to identify the economic impacts the recycling, remanufacturing, and reuse (RRR) industry on the state economy, with particular focus on how RRR affects both urban and rural areas. The study had several components, each of which built on the previous component, with final results presented in this composite report. The separate study components are:

- Data Gap Analysis.
- Survey Plan.
- Data Collection Report.
- Regional Impact Analysis.

Fig 5: Waste Diversion Benefits

The RRR industry comprises all government and private entities involved in collecting recyclable materials, processing of such materials, manufacturing products from recycled materials, and using and remanufacturing products from recycled materials.

The economic impact analysis uses existing data combined with new data collected through a survey process. The survey was used primarily to develop supporting information for the study. Specifically the survey results provided the percentage of a respondent's business activity that included RRR sector activities. For the sectors where survey responses were not robust, outside sources were used for this percentage. Two regional models were developed for the analysis: one for the urban region (defined as all urban counties combined) and one for the rural region (defined as all rural counties combined). This allowed the department to identify specific attributes and/or needs of each of the regions, which have different economic structures.

Survey

- Nearly 80 percent of entities do business within Colorado, and nearly 69 percent do business outside the state.
- More than 70 percent of respondents believe that there is a demand for recycled materials in Colorado.
- The RRR industry travels a large number of miles both to collect recycled materials and to move materials for processing, with nearly 60 percent traveling over 50 miles and nearly 30 percent traveling more than 100 miles to collect recycled materials.
- On average, material movement for processing is more than 100 miles to 16 facilities and to 8 facilities less than 50 miles.
- Only 31 percent of respondents partner with local Colorado manufacturers to use recycled materials for their manufacturing needs.

Policy Recommendations

- There is an opportunity to improve the multiplier effect (the additional indirect and induced effects) in rural areas if government policies can target sectors favorably linked with the RRR sector.
- If there is high unemployment in any county, public recycling facilities can be located in these areas and result in an economic stimulus.
- To strengthen rural county RRR multipliers, the spatial location of strong RRR sector establishments should be analyzed to see if there are "leakages" of indirect and induced impacts across state borders.
- Existing government programs that support industries like manufacturing, can consider supporting and strengthening the economic activity that is linked to manufacturing through the RRR sector, thereby maximizing the benefit of government investments in jobs and economic development.

Conclusion

Looking ahead to FY2016, the following activities are currently underway:

Looking Ahead

1. FY2016 Grants: The FY2016 grants were announced in April 2015 and projects are currently being implemented. Grant recipients began their projects on or after July 1, 2015. This RFA was developed using the same objectives and prioritized tiers described in Section III of this document. More details regarding these projects will be made available in the next annual report. Table 7 lists all approved FY2016 grant projects.

TABLE 7: FY2016 RREO Grants, Infrastructure Development

#	Name of Applicant	Project Title	Award Amount	Geographic Location
1	A1 Organics	Purchase of Tiger HS 640 BioStrainer De-Packaging System	$402,300	Weld County, Front Range
2	Angel of Shavano Recycling	Angel of Shavano Recycling Hub-and-Spoke Expansion Project	$285,794	Chafee County
3	Bruin Waste Management	Bruin Waste Management Recycle Sorting Facility	$97,392	Mesa, Montrose, San Miguel, Ouray, San Juan Counties
4	Colorado Department of Personnel and Administration	Colorado Capitol Building Recycling Project	$70,556	Denver
5	Go Green Pallet Company	Non-Standard Size Pallet Recycling Program	$19,350	Weld County, Front Range
6	Momentum Recycling	Glass Fines Recovery and Market Development Project	$202,003	City and County of Broomfield, Front Range
7	Onsite Electronics Recycling	Equipment Purchase for Material Processing and Expanded Recycling	$99,218	Fort Collins
8	Phoenix Recycling	Southwest Regional Recycling Facility	$263,209	Dolores, San Juan, Montezuma, La Plata, Archuleta Counties
9	Pitkin County	SCRAPS	$201,765	Pitkin, Eagle Counties
10	Twin Enviro Services	Twin Enviro Northwest Colorado Recycling Expansion	$289,283	Routt, Moffat, Jackson Counties
		Total Amount Funded:	**$1,930,870**	

2. Regional Planning Studies: A Request for Application was released on August 24, 2015 soliciting proposals for regional studies in Colorado. The studies will:
   - Identify existing waste diversion activities in the study area.
   - Suggest ways to coordinate those activities to maximize economic efficiencies.
   - Establish goals that will guide future efforts to minimize the amount of waste sent to a landfill.

   Three proposals were selected and work began in early CY2016. More details regarding these projects will be made available in the next annual report. Table 8 lists all approved FY2016 regional study grant projects.

Regional Planning

TABLE 8: FY2016 RREO Grants, Regional Studies

#	Name of Applicant	Project Title	Award Amount	Geographic Location
1	City of Fort Collins	Regional Wasteshed Planning (Northern Front Range)	$48,750	Larimer County
2	EcoAction Partners	Sneffels Waste Diversion Planning Project	$18,144	San Miguel, Ouray Counties
3	Town of Fraser	Grand County Public Outreach and Strategic Planning	$31,815	Grand County
		Total Amount Funded:	**$98,709**	

3. Recycling Rebates: Effective July 1, 2015, the rebate program transitioned to an annual application cycle as opposed to twice per year. A rebate application covering the period 07/01/2015 – 06/30/2016 will be available in August 2016. It is anticipated that rebates will continue to be offered to those who operate free public recycling drop-off sites.

Rebates

4. FY2017 Grants: A Request for Application for hub-and-spoke and infrastructure development projects for FY2017 was released Dec. 10, 2015. Of the 37 proposals submitted, a total of twelve projects were selected in April 2016. Contract development is currently underway with an anticipated start date for all projects set for July 1, 2016.

FY2017 Grants

5. Markets Analysis: The department is in the early stages of developing the scope for a statewide markets analysis for the recycling and organics industries. As made evident in the recently completed economic impact study, this industry plays an important role in Colorado's economy, in spite of the state's persistently low waste diversion rate. As waste diversion rates inch higher, Colorado's economy grows. The department wishes to identify the state's potential for growth within this industry and consider how the state can better position itself to allow this growth to occur.

Markets Analysis

Statewide and Regional Planning

The department, through its Solid Waste Program, will release an updated Integrated Solid Waste and Materials Management Plan in July 2016. This plan will include both statewide and regional waste diversion goals, established using realistic objectives from the department's waste diversion data. Long-term goals with a twenty-year horizon will be identified, as will short-term goals to benchmark progress. A major emphasis of the plan will include an analysis of, and recommendations for developing, regionalized materials management infrastructure in rural communities. A number of stakeholder meetings will be held throughout the state.

To complement this statewide plan, the RREO program intends to fund three regional studies in FY2016 and will likely fund a second round of regional studies in FY2017. These localized studies will identify existing waste diversion activities in the study area, suggest ways to coordinate those activities to maximize economic efficiencies, and establish goals to guide future efforts and minimize waste disposal. To assist key stakeholders within the regions identified in the statewide plan, the RREO program will allocate the funding needed as they develop a path forward to successfully achieve these newly identified waste diversion goals. These regional studies will also ensure grant funds are used efficiently, minimizing the risk of funding duplicative infrastructure within a particular region.

Final Thoughts

Progress Made

The grant program has achieved much success by increasing waste diversion, creating jobs and investing in Colorado's recycling infrastructure. As a result of the FY2015 grants, 58 jobs were created and 8,944 tons of recyclables and compostables were diverted from the landfill. Funding for capital equipment made up 94 percent of all grant awards funding (see Appendix 1 for a detailed look at payouts and project benefits). This equipment will continue to sustain waste diversion activities across the state long after the grant period has ended. Additionally, recycling rebates continue to be offered to help sustain free public recycling drop-off centers, many of which are located in rural areas.

The level of interest in the RREO grant program continues to be strong. More than 40 people representing 28 organizations involved in recycling, reuse and remanufacturing industries attended the pre-application conference for the FY2015 Infrastructure RFA. This is reflected in the total amount requested versus the availability of funds to meet the requested need. The department received $5.9 million in grant requests, while only $1.3 million could be awarded. This represents only 22 percent of the total amount requested. With the passage of SB13-050, revenue coming into the RREO Fund will increase over time to help address unmet need.

Spending Authority

Despite these promising metrics that show progress toward improving the state's waste diversion rate, more could have been done in FY2015. A total of $986,553 remained unspent in the RREO program's budget. As explained to the Joint Budget Committee during the 2016 legislative session, three factors collectively resulted in this unusually high amount of uncommitted reserves:

- Actual revenue collected from tipping fees in FY2015 greatly exceeded revenue projections.

- Actual grant expenditures were lower than the amount awarded, as one project was cancelled late in the fiscal year and another was significantly restructured resulting in project savings.
- The regional recycling study was intended to be released and grant funds encumbered by the end of FY2015, but the Request for Application was delayed until FY2016.

In an effort to minimize the amount of uncommitted reserves, it is anticipated that in FY2016 the department will encumber nearly the entire amount allowed by the RREO program's approved spending authority. As revenues continue to increase year-over-year, it is also anticipated that revenues collected in FY2016 will exceed the program's spending authority. As a result, the Joint Budget Committee is considering increasing the program's spending authority for FY2017 so that the department can develop opportunities to encumber the program's uncommitted reserves; however, it is likely the RREO program will again see nearly $1 million in uncommitted reserves for FY2016. The RREO program will make every effort in FY2017 to award a significant number of grants and rebates so that not only will new revenues be encumbered, but the amount of uncommitted reserves reduced to a more reasonable level. Given that the average annual unmet need is $4 million, there are an ample number of worthwhile and shovel-ready projects that can be funded in future grant cycles.

Because of SB13-050, the RREO program has been extended through June 2026, and it is likely that interest in the program from for-profit companies, non-profit organizations, school districts, universities and local government entities will remain strong in the coming years. The board, committee, and the department remain committed to fully utilizing the potential of the RREO program to guide Colorado toward a more environmentally sustainable and economically prosperous future.

Thank You!

Appendix 1: FY2015 Grant Metrics -- Total Payout, Jobs Created, and Tons Diverted

Budget Item	Clean Valley Recycling	Clear Intentions	Discover Goodwill	Earth Enterprises	Lake County	Recycle Projects	South West Colorado Council of Govts	Spring Back Colorado	Terra Firma	Twin Enviro	Yuma County	Category Total	Percent Breakdown	Budget Item
Personnel Salaries	$ -	$ -	$ -		$ -		$ 23,060.00		$ -	$ -		$ 23,060.00	*1.0%*	**Personnel Salaries**
Fringe Benefits	$ -	$ -	$ -		$ -		$ -		$ -	$ -		$ -	*0.0%*	**Fringe Benefits**
Tuition/Fees	$ -	$ -	$ -		$ -		$ -		$ -	$ -		$ -	*0.0%*	**Tuition/Fees**
Travel Costs	$ -	$ -	$ -		$ -		$ 1,712.48		$ -	$ -		$ 1,712.48	*0.1%*	**Travel Costs**
Materials/Supplies/Equipment(under $5000)	$ 26,210.91	$ -	$ 76,898.32		$ 2,578.93		$ 2,826.93	$ 43,314.57	$ -	$ -	$ 5,490.75	$ 157,320.41	*6.7%*	**Materials/Supplies/Equipment (under $5000)**
Equipment Purchases (over $5000)	$ -	$ 250,000.00	$ 198,644.16	$ 933,209.00	$ 146,919.07	$ 209,000.00	$ -	$ 73,179.00	$ 79,115.00	$ 178,736.00		$ 2,068,802.23	*87.5%*	**Equipment Purchases (over $5000)**
Contractors/Subcontractors	$ 1,582.77	$ -	$ -		$ 16,000.00		$ -	$ 2,764.86	$ 16,250.00	$ -		$ 36,597.63	*1.5%*	**Contractors/Subcontractors**
Consultants	$ -	$ -	$ -		$ -		$ 18,600.00		$ -	$ -		$ 18,600.00	*0.8%*	**Consultants**
Training/Education	$ -	$ -	$ -		$ -		$ -		$ -	$ -		$ -	*0.0%*	**Training/Education**
Marketing/Advertising	$ 1,955.34	$ -	$ -		$ -		$ -		$ -	$ -		$ 1,955.34	*0.1%*	**Marketing/Advertising**
Other Direct Costs	$ -	$ -	$ -		$ -		$ -		$ -	$ 52,270.00		$ 52,270.00	*2.2%*	**Other Direct Costs**
Indirect Costs	$ -	$ -	$ -		$ -		$ -		$ 3,968.20	$ -		$ 3,968.20	*0.2%*	**Indirect Costs**
Total Payout	**$ 29,749.02**	**$ 250,000.00**	**$ 275,542.48**	**$ 933,209.00**	**$ 165,498.00**	**$ 209,000.00**	**$ 46,199.41**	**$ 119,258.43**	**$ 99,333.20**	**$ 231,006.00**	**$ 5,490.75**	**$ 2,364,286.29**	**100.0%**	**Total Payout**

Final Report Metrics 07/01/2014 - 06/30/2015														**Final Report Metrics 07/01/2014 - 06/30/2015**
Job Creation*	1.75	5	28	0	1	0	0	2	1	4	0.5	43		**Job Creation***
Average Salary	$15,001 - $30,000	$40,001 - $50,000	$15,001 - $30,000	$0.00	$15,001-$30,000	$0.00	$0.00	$15,001-$30,000	Less than $15,000	$15,001-$30,000	Less than $15,000			**Average Salary**
Materials Diverted, Tons	360	79	4,217	0	251	0	0	5	137	108	11	5,168		**Materials Diverted, Tons**

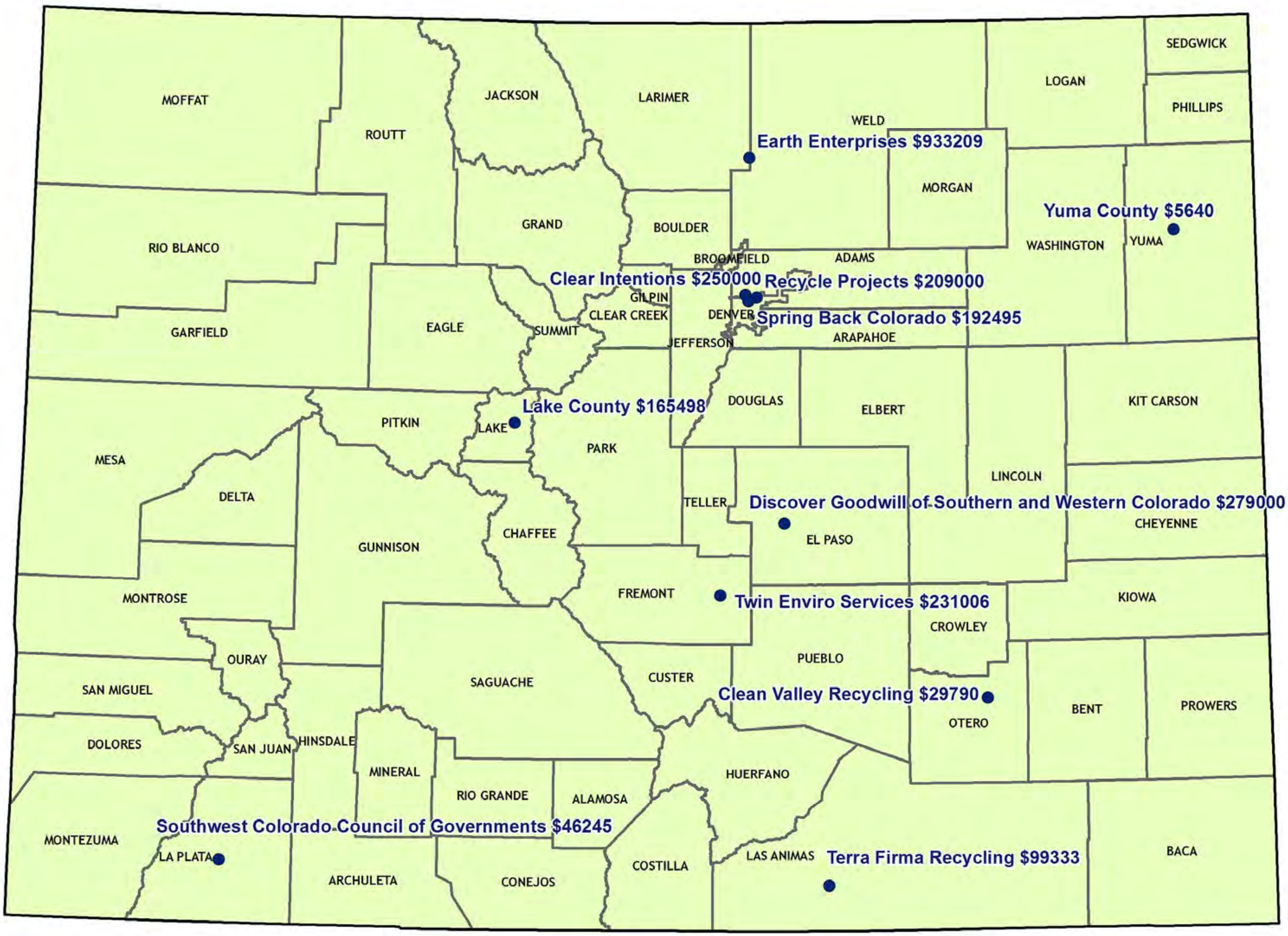
Six Month Summary Update 07/01/2015 - 12/31/2015														**Six Month Summary Update 07/01/2015 - 12/31/2015**
Job Creation*	0	1	2	3	0	2	0	5	1	0	0.5	15		**Job Creation***
Average Salary	$0.00		$50,001 - $60,000	$30,001 - $40,000	$0.00	$30,001 - $40,000	$0.00	$15,001-$30,000	Less than $15,000	$0.00	Less than $15,000			**Average Salary**
Materials Diverted, Tons	171	232	2,785	13.5	214	81	0	64	93	117	6	3,776		**Materials Diverted, Tons**

Total Materials Diverted, Tons	**531**	**311**	**7,002**	**14**	**466**	**81**	**0**	**69**	**230**	**225**	**16**	**8,944**		**Total Materials Diverted, Tons**
Total Jobs Created	**1.8**	**6.0**	**30.0**	**3.0**	**1.0**	**2.0**	**0.0**	**7.0**	**2.0**	**4.0**	**1.0**	**57.75**		**Total Jobs Created**

* 1 FTE = 40 hrs worked per week

FY15 Recycling Resources Economic Opportunity Grants

Appendix 2



COLORADO
Pollution Prevention Advisory Board
Department of Public Health & Environment

Board Members and CDPHE Staff
January 2016

Name/Company	Phone	E-mail
Lisa Bardwell, Earth Force	(303) 433-0016	lisa.bardwell@comcast.net
Andrew Flynn, Environmental Resources Management	(303) 898-9313	andrew.flynn@comcast.net
Karen Hancock, City of Aurora	(303) 739-7107	khancock@auroragov.org
Bill Hayes, Boulder County Public Health	(303) 441-1574	bhayes@bouldercounty.org
Bradley Kieding, Redox Environmental Consulting	(307)-742-4991 ext.3470	brad.kieding@apexcos.com
Mary Jo Lockbaum, Western Union	(720)-332-2747	maryjo.lockbaum@westernunion.com
Patricia Mason, Colorado USGBC	(303) 292-6183	patti@usgbccolorado.org
Kathryn Navin, CO Alliance for Environmental Education	(303) 273-9527	katienavin@caee.org
Nick Pizzuti, Xcel Energy	(303)-571-3799	nick.pizzuti@xcelenergy.com
Matthew “Quint” Redmond, AgriNETx LLC	(303) 458-8554 ext. 11	qredmond@agrinetx.com
Thomas Riggle, Jeffco Schools		thomas.riggle@gmail.com
Jarrett Smith, University of Colorado Denver	(303) 724-1848	jarrett.smith@ucdenver.edu
David Stewart, Stewart Environmental Consultants	(970) 226-5500 ext.204	dave.stewart@stewartenv.com
Kim Hargraves Tyrrell, Nat’l Conference of State Legislatures		Kim.Tyrrell@ncsl.org
Lindsay Weber, Denver Water	(303) 628-6837	lindsay.weber@denverwater.org
Rebecca White, CDOT (Ex-Officio)	(303) 512 5901	rebecca.white@state.co.us
Rachel Wilson- Roussel, CDPHE (Ex-Officio)	(303) 692-2976	rachel.wilson-roussel@state.co.us

CDPHE Staff

Eric Heyboer, Recycling Grants Administrator	(303) 691-4955	eric.heyboer@state.co.us
Lauren McDonell, PPAB Administrator	(303) 692-2979	lauren.mcdonell@state.co.us

Pollution Prevention Advisory Board
Assistance Committee

HB 07-1288 dictates that the Assistance Committee will consist of 13 members with no more than 6 members from each political party. The committee will consist of:

- One member representing the Colorado Department of Public Health and Environment
- One member representing the Colorado Office of Economic Development and International Trade
- One member representing the Colorado Energy Office
- One member representing a municipality situated in an urban county
- One member representing a municipality situated in a predominantly rural county
- One member representing an urban county
- One member representing a rural county
- The remaining 6 members shall be balanced equally to the extent practicable among representatives of nonprofit and for-profit entities engaged in recycling or composting activities

Terms begin August 1 and are 4 years in duration.

Name	Organization	Category	Term Ends
Wolfgang Kray, Committee Vice-Chairperson	Colorado Department of Public Health and Environment	CDPHE	2019
Alex Markovich	Office of Economic Development and International Trade	OEDIT	2017
Lindsey Wedewer	Colorado Energy Office	CEO	2019
Emily Freeman	City and County of Denver	Municipality, Urban	2019
-VACANT-		Municipality, Rural	2017
Shirley Garcia	City and County of Broomfield	County, Urban	2017
Walter Wright	On Behalf of San Miguel County	County, Rural	2017
Stephen Gillette	Solid Waste Association of North America, Rocky Mtn. Chapter	Nonprofit	2019
Rachel Nathan	SustainAbility	For-Profit	2019
Sarah Martinez	Eco-Products	For-Profit	2017
Cary Bush, Committee Chairperson	Recycle Creede	Nonprofit	2019
Alek Orloff	Alpine Waste and Recycling	For-Profit	2017
Melissa Kirr	Walking Mountains Science Center	Nonprofit	2017

STATE OF COLORADO

John W. Hickenlooper, Governor
Larry Wolk, MD, MSPH
Executive Director and Chief Medical Officer

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
Located in Glendale, Colorado

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090

www.colorado.gov/cdphe

Colorado Department of Public Health and Environment

Recycling Resources Economic Opportunity Fund Grant Program
C.R.S. Chapter 270 Article 19.7 25-16.5-106.5

Request for Application (RFA)
January 2014

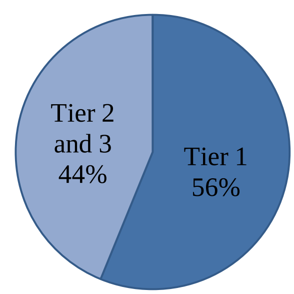
1.0 Grant Program Goals

The Colorado Department of Public Health and Environment (the department), working through the Pollution Prevention Advisory Board (the board) and the Assistance Committee to the board (the committee), requests applications for grant projects awarded from the Recycling Resources Economic Opportunity (RREO) Fund.[1] The Recycling Resources Economic Opportunity Act (the Act) created the RREO Grant Program (grant program) with the intent to fund implementation projects that promote economic development through the productive management of recyclable materials that would otherwise be treated as discards. Projects that meet this goal are designed to implement source reduction, recycling, beneficial use/re-use, anaerobic digestion, or composting for a wide variety of materials.

This will be the seventh year for the grant program. Approximately $1,200,000 is expected to be available in the fiscal year 2015[2] grant cycle to fund multiple projects for a duration of one year. Funded projects will be reimbursed for expenses incurred per the project's Scope of Work. See Section 9.0 for more information on disbursement of funds.

The grant program intends to fund projects that are sustainable beyond the scope of the grant, will enhance the financial viability of recycling in Colorado, and create new jobs in the state. To meet these goals, primary consideration will be given to those applicants who request funding to develop a recycling infrastructure similar to that of New Mexico's Hub-and-Spoke system.[3] <u>Up to 100% of the available grant dollars may be allocated to fund this type of program.</u> However, if the grant program receives applications that the committee and board feel do not adequately meet the criteria for a Hub-and-Spoke recycling system, grant dollars will be allocated to other projects that meet

Fig. 1 - Distribution of Grant Funds by Tier, FY13 & FY14



[1] C.R.S. §25-16.5-106.5 (Chapter 270 Article 19.7)
[2] The 2015 fiscal year begins on July 1, 2014 and ends on June 30, 2015.
[3] Visit http://tinyurl.com/RREO-HubSpoke to learn more about the Hub-and-Spoke concept.

second and third tier priorities as outlined in Section 4.0 of this document. Figure 1 above illustrates how past grant dollars have been allocated by tier since Hub-and-Spoke was made a priority. Proposals that do not include the Hub-and-Spoke concept remain competitive and have a fair chance at securing funding.

Emphasizing Hub-and-Spoke will develop increased recycling infrastructure and provide widespread access to recycling throughout the state. It is anticipated that Hub-and-Spoke will continue to be a top priority of the grant program for a number of years. The committee and board will look for proposals that establish a Hub facility that creates greater storage capacity and greater processing capabilities. Equally important are proposals that create or expand one or more recycling drop-off centers (Spokes). Proposals may request funds to establish a Hub, one or more Spokes, or a full Hub-and-Spoke system. See Attachment #3 for more detail on eligible expenses for Hub-and-Spoke proposals. See Attachment #4 for a complete list of the information required for Hub-and-Spoke proposals.

2.0 Application Procedures

2.1 Time Line

Time Line for 2014-2015 Recycling Grant Program	
January 3, 2014	Release of RREO Request For Applications
January 30, 2014, 3:00 PM	Deadline to Submit Questions Prior to Bidders Meeting
February 4, 2014, 9:00 AM	Bidders Meeting
February 18, 2014, 3:00 PM	Deadline to Submit Questions Prior to Application Due Date
March 3, 2014, 3:00 PM	**Application Due Date**
April 9, 2014	Selection Committee Issues Questions Via Email on High Ranking Proposals, If Applicable
April 16, 2014, 3:00 PM	Deadline to Respond to Questions from Selection Committee, If Applicable
May 1 – June 30, 2014	Notice of Grant Awards and Issuance of Contracts and Purchase Orders
July 1, 2014	Earliest Effective Start-Work Date for Awardees
June 30, 2015	Completion of 2014-15 Grant Funded Projects

2.2 Bidders Meeting

Though optional, grant applicants are strongly encouraged to attend the bidders meeting. This is each applicant’s opportunity to receive feedback directly from the selection committee on proposal ideas and to resolve any questions an applicant may have about the Request for Applications document. The bidders meeting is scheduled for Tuesday, February 4, 2014 from 9:00 AM till 11:30 AM in the Sabin/Cleere Room at the Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, 80246. Teleconferencing will be available. Questions may be submitted in advance of the Bidders Meeting to committee chair Marjorie Griek at mgriek@cafr.org. Please submit questions to be addressed during the meeting no later than 3:00 PM on Thursday, January 30, 2014. Questions may also be asked during the Bidders Meeting if not submitted beforehand.

Minutes from the Bidders Meeting, which will include answers to all questions submitted before and asked during the meeting, will be posted on the department’s website by Friday, February 7, 2014. If applicants have questions that weren’t addressed at the Bidders Meeting, committee chair Marjorie Griek will answer additional questions through 3:00 PM on Tuesday, February 18, 2014. These questions must also be submitted via email to mgriek@cafr.org. Corresponding answers will be posted on the department’s website by Friday, February 21, 2014.

To attend the meeting, please RSVP by contacting Eric Heyboer, Recycling Grants Administrator, at 303-691-4955 or cdphe.ppp2@state.co.us (include in the Subject Line: "RREO Grant Bidders Meeting Reservation"). Include the name of the business or organization, name(s) of those attending and contact phone number(s). Applicants who are unable to attend the bidders meeting in person may join via teleconference. Please indicate a teleconferencing preference when confirming attendance at the Bidders Meeting.

3.0 Grant Program Scope

Funding for the grant program was created by the Act, which collects a surcharge on solid waste taken to Colorado landfills for disposal. The Act established that recycling is an important means of realizing:

- Environmental benefits;
- Economic benefits to the state, including job development; and
- Preservation of the state's natural beauty.

Grants are available to qualified applicants whose applications address the three goals listed above and also meet one or more of the following objectives:

- Accomplishing greater levels of solid waste minimization, waste diversion (from landfill disposal), recycling (for various materials or products), material reuse and composting;
- Implementing proven diversion methods such as Pay-As-You-Throw (PAYT), market incentives, contracting, municipal ordinance, or other mechanisms;
- Developing best practices in recycling, waste minimization and diversion, material reuse and composting;
- Improving market research and data to identify material reuse opportunities;
- Providing data on quantities of recyclables in order to set goals, track progress, and support new or expanded market development;
- Providing detailed economic information on the impacts of recycling and material reuse in Colorado;
- Educating and informing the general public about recycling; and
- Increasing regional partnerships to maximize economies of scale.

3.1 Eligibility

Entities that are eligible to apply include:

- Public and government agencies, including but not limited to, universities, schools, special districts, and intergovernmental partnerships;
- Private sector (for-profit and nonprofit organizations) that have the approval and/or support of a local government agency[4];
- Private sector (for-profit and nonprofit organizations) that **do not** provide letters of support from a local government agency should include documentation in the application that the project will be beneficial to the local community and in compliance with all applicable regulations and permits from the State and local governments;
- Out-of-state companies or organizations that are expanding in or relocating to Colorado that have an in-state business presence (i.e., facilities, equipment, employees), are registered as doing business in Colorado, and whose project benefits Colorado directly (such entities must be registered with the Colorado Secretary of State's office prior to application submittal).

All entities must be able to meet the department's insurance requirements. Though proof of insurance is **NOT** required with the grant application, applicants who are selected for a grant award will need to provide proof of insurance before a formal contract is signed with the department. Please visit the following website to view the department's insurance requirements: http://tinyurl.com/RREO-Announcement

[4] Local government may include municipal, county, regional authorities, or special improvement district agencies.

Project proposals that collect, sort, and use food and agricultural wastes as raw materials for anaerobic digesters to produce methane gas are eligible to apply. **Other waste–to-energy projects are not eligible to apply for this grant opportunity.** These include, but are not limited to, technologies such as mass burn, gasification, pyrolysis, plasma arc, and other thermal technologies. With the exception of anaerobic digesters, no portion of the waste-to-energy process is eligible for funding.

4.0 Grant Priorities

Based on the 2010 report "Charting a New Course in Solid Waste Management for Colorado" (http://tinyurl.com/RREO-Vision), which evaluates waste diversion and recycling needs in Colorado, a tiered system is used to prioritize the types of projects that will best help the state increase waste diversion and create economic opportunities (priorities may change in future grant cycles). Projects that meet the criteria in the first tier will be prioritized over those that meet the second or third tier. To assist applicants in determining if a proposal will be considered first tier, please visit http://tinyurl.com/RREO-HubSpoke and open the Hub-and-Spoke Self-Determination Flow Chart document. The tiers are outlined below.

First Tier (projects must meet **both** criteria):

- Implement the Hub-and-Spoke model:
    - to develop or expand local or regional recycling infrastructure, especially in underserved areas of the state; and
    - to form public-private or multi-jurisdiction partnerships to promote waste diversion, recycling, recycling markets, the beneficial use of discarded materials, or other recycling-related uses.

Second Tier (includes some or all of the following *types* of projects in no order of priority):

- Implement projects that directly result in increased levels of recycling, reuse, and/or composting to divert more materials from landfill disposal. This may include Pay-As-You-Throw (PAYT) programs, market incentives, performance-based contracting, municipal ordinances, or other similar mechanisms.
- Provide local incentives to develop or expand markets for recycled products and material reuse.
- Develop or expand local or regional recycling infrastructure, though not necessarily via a Hub-and-Spoke model.
- Form public-private or multi-jurisdiction partnerships to promote waste diversion, recycling, recycling markets, the beneficial use of discarded materials, or other recycling-related uses. These partnerships can be developed independently of a comprehensive Hub-and-Spoke system.

Third Tier (includes some or all of the following *types* of projects in no order of priority):

- Provide sustainable community resource education programs on the importance of reducing, reusing, recycling, and composting.
- Develop educational programs and improve waste diversion infrastructure for schools and other educational institutions.
- Provide assistance in connection with the development or improvement of integrated waste management plans by local governments that focus on waste diversion.
- Clean up illegal waste dumping.

5.0 Application Evaluation Criteria

5.1 Threshold Requirements

Threshold requirements that must be met before any application will be fully evaluated include:

- All sections of the application are complete and the cover sheet is signed;
- The application is formatted correctly and within the defined page limit;
- The applicant is registered to do business within the State of Colorado (if applying as a for-profit or nonprofit entity)

If any of the threshold requirements listed above are not met, the application may be disqualified and may not be reviewed by the selection committee.

5.2 Point Assignments

Applications will be scored by a selection committee composed of board and committee members. Scores will be based on the applicant's ability to successfully address the following categories in the application narrative (see Sections 6.3 through 6.6):

Economic Impact (18 points)
Environmental Benefits (18 points)
Infrastructure Improvement (18 points)
Feasibility of Successful Implementation and Sustainability (15 points)
Measurable Results and Outreach (10 points)
Experience and Qualifications (8 points)
Project Work Plan (6 points)
Project Budget (6 points)
Facility Requirements (1 point)

Total: 100 points

All proposals will be scored by a selection committee and ranked accordingly. Proposals that score highest in the initial round of deliberations are considered finalists. The number of finalists will vary depending on the amount of funding available to award. The selection committee reserves the right to ask each finalist one or more clarifying questions in the event there are sections within a proposal that are confusing or unclear. The selection committee may adjust an application's initial score based on the answers received from each finalist, which will influence the committee's final decision to award or to reject a particular application. There is no guarantee that a finalist will be asked to answer any questions. If a finalist fails to respond to the selection committee's questions by the deadline, the proposal may be disqualified. The deadline to respond to questions is April 16, 2014, 3:00 PM. To ensure a transparent process, all questions and answers will be documented via email correspondence and will become part of the finalist's application.

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

6.0 Required Application Format

Sections 6.1 – 6.6 of this proposal must not exceed ten (10) consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 11-point type (e.g., "Arial" in black font only) with 1-inch margins. If submitting a Hub-and-Spoke application, do not exceed twelve (12) pages. All applications must be organized using the headings listed below (in bold). **Failure to adhere to format requirements may lead to disqualification.**

6.1 Cover Sheet

Use the application cover sheet (Attachment #1) to provide the following: project title, organizational contact information, federal tax identification number, total amount of funding requested, matching/in-kind contributions (if any), and contact information of both the project director as well as the financial officer. Estimate the cost/tons diverted for the project in the space provided by dividing the total dollar amount requested by the estimated tons of material the project plans to divert from the landfill during the first twelve months the project is fully operational. Be sure to check the box that indicates a Hub-and-Spoke application, if applicable. Visit http://tinyurl.com/RREO-HubSpoke to access the Hub-and-Spoke Self-Determination Flow Chart document.

Note: The cover page is counted as the first page of the application and is included within the page limit.

6.2 Project Abstract

Describe the intent of the proposed grant project in **250 words or less**. Clearly state the project's objectives and intended results. Keep this paragraph free of any proprietary information. Awarded projects will have their abstracts posted on the department's website.

6.3 Application Narrative

6.3.1 Criterion: Economic Impact

1) Quantify how the project will increase the potential for economic growth and job development for Colorado businesses. Consider the degree of economic benefit relative to the project's deliverables and expected outcomes. If applicable, quantify how the project will increase the potential for new markets or how it will expand end use manufacturing that will improve Colorado's waste diversion. Provide information to substantiate and justify the calculations, including an explanation of the cost per ton figure provided on the application cover sheet.

2) Describe specific jobs created as a result of this project and quantify the number of Full-Time Equivalent (FTE) positions, where one FTE equals a 40-hour per week position. Give the average wage rate and type of job created (temporary, permanent, contract, laborer, driver, office personnel, etc.).

6.3.2 Criterion: Environmental Benefits

1) Explain which materials will be recycled, composted, reused, etc. over the course of this project and why these materials were chosen to be the focus of the project.

2) If an e-waste project, are you certified to a nationally recognized standard? If not, explain how you will achieve this level of certification. Provide a list of downstream handlers.

3) Discuss the significance of the project's impact on recycling, waste diversion, and/or waste minimization. Quantify (in tons) the project's affect on recycling, waste diversion, material reuse and/or waste minimization in the state of Colorado or in a particular region of Colorado. Indicate when those benefits will be realized. If weights are not known, use the most appropriate volume-to-weight conversion calculation as provided in Attachment #5.

4) Discuss additional environmental benefits that will be realized from this project such as natural resource conservation, greenhouse gas reduction, energy conservation, water usage, air quality, or other environmental indicators. If the project requires the purchase of collection vehicles, consider those that emit less pollution such as vehicles powered by alternative fuels (natural gas, biodiesel, ethanol, etc.).

6.3.3 Criterion: Infrastructure Improvement

1) Specify whether this project creates a new Hub-and-Spoke recycling network or expands on an existing Hub-and-Spoke network. If either scenario applies, all questions listed in Attachment #4 must be answered as a separate attachment to the application.

2) Consider the level of need in the community and uniqueness of the services that will be provided. Describe the existing recycling infrastructure in the area and the need for additional infrastructure. If available, provide data to substantiate the need for the proposed project. Are there local service providers that offer a similar service to what this project proposes to accomplish? If so, how will the service created as a result of this project be unique in the community? If this project benefits an under-served portion of the state, explain how this project will create, enhance, or complement the local recycling infrastructure.

3) If any public, private, or multi-jurisdictional partnerships are created as a result of this project, how will these relationships be maintained and what role(s) will the partners play? Specifically, how will these partnerships be utilized to promote waste diversion and recycling? Hub-and-Spoke applicants may defer the answer to this question until Attachment #4, which requests more specific information on partnerships.

6.3.4 Criterion: Feasibility of Successful Implementation and Sustainability

1) Provide an overview of the project's goals and objectives, and how they will be achieved. Refer to Attachment #2 to specifically outline the project's work plan.

2) Specifically describe who will buy the products or materials this project proposes to create or collect. If applicable, include a discussion on market research indicating a demand for the product manufactured. Additionally, discuss how the recyclables collected over the course of the project will be processed and marketed, providing information on the downstream markets to be used. If recyclables are collected in separate streams, will they be marketed as individual commodities?

3) What plan is in place to assure the project will continue after the grant period ends and how will the project continue to be funded? Describe any long-term program planning, communications, and/or educational activities that will be implemented to help sustain the project.

4) Describe any challenges that may affect the outcome of the project and how these challenges will be addressed. If applicable, consider the constraints that adverse weather conditions could have on the project and how this will be accounted for in the work plan.

5) Which community stakeholders will be involved and how will they support the project?

6) Identify sources of any matching or in-kind funds or non-monetary support that will be used in conjunction with grant dollars to implement the project. While in-kind matching is not required, proposals that include in-kind funds will be scored more favorably.

7) Justify why grant dollars are needed to implement the proposed project. Consider whether current liquid assets or loans could negate the need for a grant. If other funding sources were explored explain why they were not feasible to fully fund the proposed project.

8) Confirm what permits will be needed to complete the project (storm water, air, recycling facility, local land use/zoning, etc.). Be sure to consider how delays in acquiring the necessary permits might affect the project's implementation timeline.

6.3.5 Criterion: Measurable Results and Outreach

1) Describe what metrics or indicators will be used to monitor the project's progress and how these metrics will be documented. Consider metrics for both economic (jobs created, revenues generated, etc.) and environmental benefits (tons recycled, reduced miles traveled to bring material to market, etc.). Describe how the results of the project, and any lessons learned, will be shared with the local community and beyond. For instance, sharing the results of the project with various trade associations (e.g., Colorado Association for Recycling, Solid Waste Association of North America, Colorado Municipal League).

2) Does this project have the ability to be duplicated in other communities in Colorado and how might that occur?

6.3.6 Criterion: Experience and Qualifications

1) Describe the applicant's relevant education and experience of key personnel.

2) Specify abilities the applicant possesses that will make the project a success.

3) If the applicant is part of the regulated community, describe what action will be taken to ensure the project meets all applicable state and local permitting requirements. Discuss the status of any environmental compliance issues with the department and/or the local governing body. Is there any other pending litigation or contingent liabilities that may have a bearing on this project or application? If yes, explain.

4) Discuss how worker safety will be addressed as the project is implemented. Will an Environmental Health and Safety plan be needed? If yes, explain. Consider including the development of this plan as a project deliverable.

6.4 Methodology and Work Plan

6.4.1 Project Work Plan / Timeline

Using the standardized chart provided in **Attachment #2** of this document, create the project's work plan and timeline. This includes a list of the project's primary objectives and any corresponding deliverables associated with the listed objectives. Each deliverable must be measurable, have a completion date, and identify the responsible entity that will achieve the deliverable. When identifying responsible entities in the work plan, use agencies or job titles instead of the names of key personnel. Deliverables may include specific tasks, project milestones, etc. Include key decision points for early project termination if the project is not meeting the scheduled objectives. **The work plan must be included within the 10-page application or within the 12-page limit of a Hub-and-Spoke application. <u>DO NOT</u> include the project's work plan in the appendix.**

6.5 Budget

6.5.1 Itemized Budget

Using the standardized budget categories provided in **Attachment #3** of this document, create a table listing all project costs. Note that some budget categories are not eligible for Hub-and-Spoke applications and are outlined in Attachment #3. Personnel costs should include budgeted hours and rate of pay. Travel costs are limited to those that are essential to accomplishing the project. Indirect costs, such as facility rental and utility bills, must not exceed 20% of the total funding request and must solely benefit this project (or be pro-rated for the amount it benefits the project). Rental equipment may be included in the project budget but only if it is needed to complete a specific task and will not serve as an integral part to the project's continuation.

Identify all other funding sources that will be dedicated to this project and include plans to obtain additional funding**. Matching funds do not include existing personnel, facilities, etc.** Only new spending directly related to this project should be included as in-kind matching. Though in-kind matching is not required, proposals will score more favorably if in-kind matching is included in the project's budget. **The itemized budget table must be included within the 10-page application or within the 12-page Hub-and-Spoke application. <u>DO NOT</u> include the budget table in the appendix.**

Applicants may offer more than one project budget in the proposal for the selection committee's consideration. For instance, Option A could entail a budget that allows the applicant to purchase everything needed to fully implement the project. Option B could alternatively request fewer grant dollars by including additional matching funds or creating a scaled back project that would still achieve most of the project's goals and remain equally sustainable in the long-term.

6.5.2 Budget Narrative

The budget narrative describes how costs are determined and how they relate to the project. The budget narrative should explain all expenditures listed in the itemized budget table. For personnel costs, list job titles, number of hours worked per week, and salary. For supplies or equipment, provide full industry specifications (make, model, serial number, age, ownership, etc.) and describe the purpose/application of each item with respect to the project. Indicate any other funding sources that will be used for this project and describe any plans to attract additional funding. If applicable, include a description of the financing approach that will be used (loans, other grants, etc.). Explain the contingency plan if additional funding is not secured. Identify any cost savings or revenue enhancements as a result of the project.

Note: During the course of the project the grantee may reallocate up to 5% of the awarded funds to accommodate unforeseen task changes with prior permission of the grant monitors on the committee. Any reallocation amount over 5% will require prior approval by the full committee.

6.6 Facility Requirements

Describe any resources that will be integral to the project, including facilities, manufacturing capabilities, equipment, and other technical and administrative resources. If applicable, discuss how the project will modify or improve existing facilities, equipment, etc. For example, will additional property need to be leased or purchased? Will the project require utility work?

If the applying entity is currently part of the regulated community, compliance history will be considered. If the proposed project requires any type of permit or regulatory licensing, the applicant must be prepared to provide documentation of compliance if the project is funded.

6.7 Appendix

The following information is **required:**

- Project leader(s) current resume(s)
- For-profit and nonprofit applicants must include:
  - At least one letter addressed to the Pollution Prevention Advisory Board from a local government agency that indicates their approval of the project and supports the project's objectives; **or**
  - Documentation that the project would be beneficial to the community affected by the grant award.
- Copy of Colorado's Secretary of State Certificate of Good Standing letter (for-profit or nonprofit 501(c) (3) entities only). Visit http://www.sos.state.co.us/pubs/business/businessHome.html for more information.
- For Hub-and-Spoke applications only:
  - Simple map of anticipated service area, identifying where the hub(s) and spokes will be located.
- For electronic waste recycling applications only:
  - List downstream handlers of all materials, the percent landfilled, and indicate whether or not they have obtained a nationally recognized certification as responsible recyclers (i.e. – eStewards, R2)

The following information is **optional,** but must be limited to 10 pages and attached as supplemental appendices:

- Letters of support from institutions of higher education, community leaders, etc., dated within six months of the application deadline.
- Copies of signed Letters of Commitment, Memorandums of Understanding (MOUs) or Inter-Agency Agreements with regional partners. Any other important materials relevant to evaluating the proposal. Note that these are required for Hub-and-Spoke proposals (see Attachment #4 for details).

7.0 Proprietary Information Policy

If proprietary information is provided by an applicant that constitutes a trade secret, confidential personnel information, or proprietary commercial or financial information, in accord with § 24-72-204(3), C.R.S., such documents may be withheld from disclosure if the department receives a request for records in accord with the Colorado Open Records Act, § 24-72-101 *et seq*. All such documents must be clearly marked with the term "Proprietary Information" on each appropriate page. Records marked as containing trade secret, confidential, personnel, or proprietary information that do not actually contain such information could be released pursuant to an Open Records Act request.

8.0 Reporting Requirements

Reports will be due for any project milestones identified by the grantee, or at a minimum of every six months. The grant program administrator will provide reporting templates to assist grantees in developing their reports. A draft final report is due 30 days after the 12-month grant funding period closes (due by July 31, 2015). A final report that incorporates feedback from the committee is due 60 days after the 12-month grant funding period closes (due by August 31, 2015). A six-month summary report is due after the 12-month grant funding period closes (due by January 31, 2016). If a project is not fully operational until the fourth quarter of the grant cycle (April 2015), the grantee will be asked to submit a progress report 12 months after becoming fully operational. This report will include diversion and job creation metrics. Other reporting may be required if deemed appropriate by the department.

All reporting will include a financial status summary and identify the deliverables completed during the reporting period. Also included will be a description of the work completed, a discussion on any findings and results, unanticipated outcomes or roadblocks encountered, potential applications of the project's results, and how this project successfully achieved the goals of the grant program to date.

The final report will include a one-page metrics worksheet that illustrates how many new jobs were created, the economic impacts of the project, the increased tons of material collected, and the amount of participation in recycling that occurred as a result of the project.

The grant program requires that the contact information of at least three community leaders, who are familiar with the project and may be contacted by the committee as a reference, be included with the final report. The final report will be placed on the department's website. The board and the committee reserve the right to request that grantees present their findings at board or committee meetings.

9.0 Grant Funding

The grant program funds projects on a reimbursement basis for a duration of one year. Ongoing monitoring of capital expenditures may occur after the one-year funding period if deemed appropriate by the department. Projects will be reimbursed no more than once per month for expenses incurred. Reimbursement requests must include supporting documentation of payment such as receipts, copies of cleared checks, or invoices with zero balances. It is preferred that reimbursement requests are submitted electronically. The state will not reimburse any cost incurred by the applicant prior to the issuance of a legally executed contract, task order, or authorized purchase order. Depending on the nature of the project, reimbursements may be based on the ability of the grantee to provide proof that equipment or materials purchased in-kind were in fact purchased and installed. Grantees may be required to spend a portion of their in-kind match before the department reimburses any expense related to the project if the in-kind expenditures are essential to the project's success.

Because the grant program funds projects on a reimbursement basis, the department recognizes that grantees may experience financial hardship when making high-dollar, project-related purchases. If for-profit or nonprofit entities require a loan to make purchases prior to being reimbursed by the department, or need additional in-kind funds to implement the project, contact the Colorado District Office of the United States Small Business Administration (SBA) at 303-844-2607 and ask to speak to a lender relations specialist. For lender approved loans, the US Small Business Administration will provide a respective guarantee on the approved loan amount for eligible businesses and nonprofits. This incentivizes participating banks to approve loans, oftentimes at lower interest rates and reduced collateral requirements. Additional resources are available online at the Colorado District Office's website http://www.sba.gov/about-offices-content/2/3104 .

Five percent (5%) of each reimbursement request will be withheld until a final report has been submitted by the grantee and approved by the committee at the end of the grant cycle. With committee approval, a portion of the five percent withheld may be released prior to the grantee submitting the final report once specific project milestones are achieved. An early release of withheld funds is not guaranteed for every project, so grantees should be prepared to receive withheld grant funds no sooner than the end of the grant cycle.

10.0 Submission of Applications

Electronic applications are strongly preferred. The full application, including any appendices, must be contained in a single document and must be in PDF (read-only) format. Please e-mail your fully completed application to Eric Heyboer, Recycling Grants Administrator, at cdphe.ppp2@state.co.us (subject line: RREO Grant Program Application). Applications submitted in multiple attachments and/or e-mails will not be accepted. Please do not send an electronic file larger than 10 MB (megabytes) since the e-mail may not be successfully delivered to the department's internal e-mail system.

If unable to submit electronically, the full application must be sent by courier or certified mail to:

RREO Grant Application
c/o Eric Heyboer, DEHS-B2
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

The deadline for **receipt** of complete applications by e-mail is **3:00 PM on March 3, 2014**. Applications that are mailed must be received by 3:00 PM on March 3, 2014. Applications postmarked on March 3 but delivered on a later date will no longer be accepted. Incomplete applications and applications received after this deadline will **not** be accepted. All applicants will receive e-mail notification of receipt of their application within one (1) business day. If you do not receive an e-mail notification after one (1) business day, contact Eric Heyboer **immediately** at 303-691-4955. Do not send both an electronic application and an application by courier or certified mail. Questions about the grant program may be sent to cdphe.ppp2@state.co.us (subject line: RREO Grant Program Questions).

Note: The successful applicant will be subject to the terms and conditions of the purchase order or contract. Applicants who are selected for funding will be asked to submit a final Scope of Work for their project, which will then be included in the final contract or purchase order.

Recycling Resources Economic Opportunity Fund Grant Program
2014 - 2015 Project Application
6.1 COVER SHEET
Attachment #1

Organization: ______________________________

Project Title: ______________________________

Street Address: ______________________________

City, State, Zip: ______________________________

E-Mail Address: ____________________ **URL Address:** ____________________

Phone Number: ____________________ **Fax Number:** ____________________

Federal Tax Identification Number: ______________________________

Legal Tax Status (check one): ___ For-Profit ___ Nonprofit ___Govt. ___ School/University

Hub-and-Spoke Application: ___ Yes ___ No

Did you attend the Bidders Meeting? ___ Yes, in person ___ Yes, on teleconference ___ No

By signing and submitting this application, the applicant agrees to operate the program as described in the Application for Funding and in accordance with the grant terms and assurances. The applicant agrees that the information provided in this application is, to the best of the applicant's knowledge and based on reasonable inquiry, true, accurate, and complete. The applicant understands that knowingly submitting any false information on this application could result in the project not being considered for funding or voiding any current or future contracts with the Department of Public Health & Environment.

Print name of Authorized Official: ______________________________

Signature of Authorized Official:

Please insert electronic signature if submitting electronically or written signature if being sent by mail.

Title: ____________________ Date: ____________________

<u>Project Director or Primary Contact</u>:
Name:
Title:
Address:
Phone:
E-Mail:

<u>Financial Officer</u>:
Name:
Title:
Address:
Phone:
E-Mail:

Total Amount of Funds Requested: $ ____________________

Total Matching/In-Kind Contributions: $ ____________________

Total Project Cost: $ ____________________

Total Project Cost Divided by Total Tons Diverted : $ ____________________

Recycling Resources Economic Opportunity Fund Grant Program
2014-2015

Attachment #2

WORK PLAN FORMAT

(Use this format when listing your major goals for the project)

GOAL #1			
Objective	**Deliverable/ Product**	**Responsible Entity**	**Completion Date***
1.	**1a** **1b** **1c**		**1a** MM/DD/YYYY **1b** MM/DD/YYYY **1c** MM/DD/YYYY
2.	**2a** **2b** **2c**		**1a** MM/DD/YYYY **1b** MM/DD/YYYY **1c** MM/DD/YYYY

GOAL #2			
Objective	**Deliverable/ Product**	**Responsible Entity**	**Completion Date***
1.	**1a** **1b** **1c**		**1a** MM/DD/YYYY **1b** MM/DD/YYYY **1c** MM/DD/YYYY
2.	**2a** **2b** **2c**		**1a** MM/DD/YYYY **1b** MM/DD/YYYY **1c** MM/DD/YYYY

***Completion dates must end on a regular business day (exclude weekends and holidays). Project timelines must follow the fiscal year, which is July 1, 2014 through June 30, 2015. All deliverables listed in the work plan must be completed within this timeframe.**

Recycling Resources Economic Opportunity Fund Grant Program
2014-2015

Attachment #3

LINE ITEM BUDGET FORMAT

You are required to use the following individual budget categories for your proposal. If you are submitting a Hub-and-Spoke proposal, note that several budget categories are not applicable and are indicated below.

Budget Category	Description	Eligible for Hub-and-Spoke Proposals
Personal Services	All personnel directly working on the grant project. Include fringe benefits such as health insurance, retirement funds, FICA, etc.	No
Materials/Supplies/Equipment (under $5,000)	Items that have a per-unit cost of less than $5,000. This includes construction materials, bins, roll-offs, trailers, etc.	Yes
Equipment Purchases ($5,000 or greater)	Items that have a per-unit cost of $5,000 or more with a lifespan of at least 1 year. Includes shipping/freight charges, fabrication, or retrofits.	Yes
Operating Costs	Includes utilities, fuel, vehicle maintenance or repair, equipment repair, hauling and transportation of recyclables.	No
Travel Costs	In-state only. Includes mileage, lodging, and meals. Out-of-state travel must be pre-approved by the committee.	No
Contractors/Subcontractors	Outside labor for construction, marketing, education, etc. Budget breakdown for each is required.	Yes
Permiting Review Costs and Consultants	Professional services directly related to grant. Budget breakdown for each is required.	No
Other Direct Costs	i. Expenses related to the grantee educating school groups, businesses, organizations, etc. ii. Tuition, memberships fees, etc. In-state resident rates only. iii. Expenses related to TV, radio, internet, brochures, mailings, printing, etc. iv. Other costs not covered by any other budget category.	No No Yes Yes
Indirect Costs	Cannot be more than 20% of Total Direct Costs (all categories listed above).	Yes

For Hub-and-Spoke applications, grant funds may be used for:

i. The purchase of equipment for the smaller Spoke communities to collect, transport, and possibly bale multiple materials;
ii. The larger Hub communities to build, enlarge, or remodel a processing facility with equipment to handle recyclable items;
iii. Community education materials related to the Hub-and-Spoke operation;
iv. Collecting data on recyclables generated as a basis for establishing service areas, designing collection or processing systems, and tracking program success.

For Hub-and-Spoke applications, grant funds may **not** be used for:

i. On-going operating costs such as fuel, vehicle maintenance or repair, equipment repair, hauling and transportation of recyclables;
ii. Personnel and fringe benefits;
iii. Purchase of land; or
iv. General overhead costs.

List only those budget categories that are applicable to the proposal. Itemize each individual budget category, including sub-totals, and calculate an overall budget total. See the examples below:

TIER 1 EXAMPLE	Grant Application Amount	Matching/In Kind Amount (if any)	Total Amount
Materials/Supplies – Sub-Total	**$15,000**	**$1,000**	**$16,000**
30-Yd Roll-Off Containers (4)	$15,000	$1,000	$16,000
Equipment Purchases – Sub-Total	**$30,000**	**$10,000**	**$40,000**
Horizontal Baler	$30,000	$10,000	$40,000
Contractor/Subcontractor – Sub-Total	**$55,000**	**$10,000**	**$65,000**
Concrete Pad	$35,000	$10,000	$45,000
Three-Walled Metal Building	$20,000	$0	$20,000
Total Project Cost:	**$100,000**	**$21,000**	**$121,000**

TIER 2 OR 3 EXAMPLE	Grant Application Amount	Matching/In Kind Amount (if any)	Total Amount
Personal Services – Sub-total	**$10,000**	**$30,000**	**$40,000**
Owner	$7,000	$20,000	$27,000
Forklift operator	$3,000	$10,000	$13,000
Equipment Purchases – Sub-Total	**$15,000**	**$0**	**$15,000**
Forklift	$15,000	$0	$15,000
Operating Costs – Sub-Total	**$500**	**$0**	**$500**
Fuel Costs, Forklift	$500	$0	$500
Project Cost	**$25,500**	**$30,000**	**$55,500**
Indirect Cost: (Not to exceed 20%)	**$7,000**	**$0**	**$7,000**
Total Project Cost:	**$32,500**	**$30,000**	**$62,500**

Recycling Resources Economic Opportunity Fund Grant Program
2014-2015
Attachment #4

For Hub-and-Spoke applications only. Include answers to the following questions as an attachment to the application, separate from Section 6 in the application narrative. This must be included within the application's 12-page limit. Please refer to the Hub-and-Spoke web page for more information**:** http://tinyurl.com/RREO-HubSpoke

1. If applying as an existing or future recycling Hub that will work with one or more Spoke communities, describe the recycling Hub's capacity and ability to receive more material.
2. If applying as an existing or future recycling Spoke location, identify in detail the recycling Hub where you will take the material, including the name of the Hub, distance from the Hub, ability to handle more material, ability to transport the material, and relationship with the Hub.
3. Describe the location of the proposed or existing facility. Is the Hub centrally located within the region to be served? Equipment typically requires 3-phase power to operate. If applying as a Hub, discuss how it will be acquired.
4. Explain how signage will be used to clarify which materials the project will collect for recycling. Consider signage needs at the collection facility and on individual containers, and how they might differ. Provide details on the signage that will be required. Refer to the Hub-and-Spoke web page for additional guidance.
5. If applicable, have all parcels of land and rights-of-way necessary for completion of this project been identified, purchased, leased, or otherwise acquired by the applicant? Have appropriate land-use permits been obtained from appropriate authorities for the project? If no, explain.
6. How many communities will be served (list counties, cities, towns, villages, pueblos, tribes, nations)? Please provide a simple map of the service area using an internet-based mapping service, such as Google Maps, MapQuest, or Bing Maps. **The map <u>must</u> be included in the appendix.**
7. What is the total population of people to be served by this project's implementation?
8. What collection methods will be used? Roll-offs, trailers, or both? Please describe.
9. What commodities will be received at the site? Will they be source-separated or single-stream? Note that the recyclables collected in a Hub-and-Spoke system are limited to what is traditionally found in the Municipal Solid Waste (MSW) stream, and should include some combination of paper and containers. "Paper" includes cardboard, paperboard, newspaper/magazines, and office paper/opened mail. "Containers" include #1 & #2 plastic containers (and may include plastics #3 - #7), aluminum/steel cans, and glass bottles/jars. This list is not all-inclusive.
10. List any existing equipment that will be used for this project (fork-lift, skid-steer, containers, etc.).
11. Will existing staff be able to commit to the project, and have the ability to oversee recycling center procurement, construction, installation and operation? Identify who will fill these roles.
12. Will additional staff be needed? Can new staff be hired if needed?
13. Considering the community where this project will take place, give a brief history of its track record with regional stakeholders on solid waste or utility projects.
14. Are there existing agreements in place with surrounding communities or entities? It is **<u>REQUIRED</u>** that a signed commitment with each partner community be submitted as part of the application. This does not need to be a legally binding document. The selection committee is interested in hearing from each partner in the proposed Hub-and-Spoke network to learn what resources and/or services they will provide to help implement this project. This is true for applicants applying as a Hub, a Spoke, or both. This will serve as evidence of the community's relationship and commitment to working with regional partners. It is required that to serve as a regional Hub, the applying entity must be able to process the recyclables generated in surrounding communities. Commitments must explain how the deliverables will be reached in the event that one or more parties does not fulfill their obligations toward the project. As evidence of these signed commitments, include Letters of Commitment, Memorandums Of Understanding, Inter-Agency Agreements, or contracts as attachments in the appendix. Examples of these documents can be accessed within the Hub-and-Spoke web page referenced above.

Recycling Resources Economic Opportunity Fund Grant Program
2014-2015

Attachment #5

VOLUME-TO-WEIGHT CONVERSION TABLE

The following conversion factors must be used if weight data is unavailable. If accurate tonnages are not available, the volume-to-weight conversions provided below must be used to maintain consistency among all applicants. The formula for converting cubic yards to tons is:

(number of cubic yards) x (weight in pounds) ÷ (2000 pounds) = tons

Category	Type	Volume	Estimated Weight (lbs)
Glass Bottles			
	Whole	1 yd^3	620
	Semi-crushed	1 yd^3	1175
	Crushed (mechanically)	1 yd^3	1840
Aluminum Cans:			
	Whole	1 yd^3	60
	Flattened	1 yd^3	225
Ferrous (Tin Cans):			
	Whole	1 yd^3	150
	Flattened	1 yd^3	850
Old Corrugated Cardboard			
	Loose	1 yd^3	200
	Compacted	1 yd^3	460
Newspaper			
	Loose	1 yd^3	445
	Compacted	1 yd^3	800
Commingled Containers			
(cans, glass, plastics)	Loose	1 yd^3	180
Office Paper			
	Loose	1 yd^3	655
	Compacted	1 yd^3	1310
Mixed Paper			
	Loose	1 yd^3	490
	Compacted	1 yd^3	755
Plastics, PET			
	Loose	1 yd^3	35
	Compacted	1 yd^3	515
Plastics, HDPE			
	Loose	1 yd^3	25
	Compacted	1 yd^3	270
Plastics, Mixed #1-#7			
	Loose	1 yd^3	38
	Compacted	1 yd^3	550

Applicant Checklist

Please use this checklist as a tool to ensure all required information is included and that formatting is correct prior to submitting your application. Do not submit this checklist with the application.

- ❑ Is the application no more than 10 pages (12 pages for Hub-and-Spoke applications) (Sections 6.1 – 6.6)?
- ❑ Is the Cover Sheet (Attachment #1) signed by an authorized official?
  - ❑ Was the Hub-and-Spoke determination checklist completed? Mark the appropriate box on the Cover Sheet indicating if the proposal is a Hub-and-Spoke project.
- ❑ Is the Work Plan (Attachment #2) included within the page limit? (10 pages, or 12 if a Hub-and-Spoke application)
- ❑ Is the Budget Table (Attachment #3) included within the page limit? (10 pages, or 12 if a Hub-and-Spoke application)
- ❑ For Hub-and-Spoke applications only, is Attachment #4 included within the 12 page limit?
- ❑ Are sections 6.1 -6.7 labeled as described in the Request for Applications?
- ❑ Is the application formatted as follows? Pages numbered, formatted to 8.5"x11" paper with 1-inch margins, single-spaced, standard 11-point type (e.g. "Arial"), black font.
- ❑ Are the following required documents included in the appendix:
  - ❑ Project Leader(s) current resume(s)
  - ❑ For-profit and non-profit applications only: Letter of support from a local government agency **<u>or</u>** a letter from the applicant explaining how the project would be beneficial to the community
  - ❑ Copy of Colorado's Secretary of State Certificate of Good Standing (for-profit or nonprofit only)
  - ❑ For Hub-and-Spoke applications only, a map of the anticipated service area.
  - ❑ For electronic waste recycling applications only, a list of downstream handlers of all materials, the percent landfilled, and indicate whether or not they have obtained a nationally recognized certification as responsible recyclers (i.e. – eStewards, R2)
- ❑ Is the grant application and appendix in a single PDF document (if sending electronically)?
- ❑ Is PDF document file size no larger than 10 MB (megabytes)? If no, reduce file size or send by courier or certified mail.
- ❑ Reviewed and fully understand sections 7.0 (Proprietary Information Policy), 8.0 (Reporting Requirements) and 9.0 (Grant Funding)?

Deadline to send electronically is March 3, 2014 by 3:00pm. Hard copy applications sent by mail must be received by 3:00 PM on March 3, 2014. <u>Applications postmarked on March 3 that are received on a later date will no longer be accepted.</u>

COLORADO
Department of Public Health & Environment

Request for Applications
End Market Development for Colorado's Recycling Industry

October 6, 2014

1.0 – Goals

The Colorado Department of Public Health and Environment, working through the Pollution Prevention Advisory Board and the Assistance Committee to the board, requests applications for grant projects awarded from the Recycling Resources Economic Opportunity Fund. The Recycling Resources Economic Opportunity Act created a grant program to fund implementation projects that promote economic development through the productive management of recyclable materials that would otherwise be treated as discards.

The intent of this solicitation is to fund projects that will:

- create or expand the processing capacity of a recyclable material that will produce a feedstock suitable for end-use manufacturing; or
- create or expand an end-use manufacturing process that uses recycled materials as a feedstock; or
- purchase the equipment needed, or the materials to build the equipment needed, to implement a proven, market-ready concept that will contribute to greater degrees of waste diversion.

By focusing on projects that address one of the goals listed above, the board hopes to incentivize economic growth and job creation within Colorado's recycling industry. A total of $1.25 million is available for this solicitation. The board wishes to limit the number of funded projects to six, though up to 100% of the available grant dollars may be allocated to a single project if that project will have a significant impact on the state's recycling industry. Awarded projects will be reimbursed for expenses incurred per the project's Scope of Work. See Section 8.0 for more information on disbursement of funds.

2.0 – Scope

Funding for this grant program originates from a surcharge on solid waste taken to Colorado landfills for disposal. The act that created this grant program declared recycling as an important means of realizing:

- environmental benefits;
- economic benefits to the state, including job creation; and
- preservation of the state's natural beauty.

The board recognizes the difficulty of capturing and processing residential and commercial recyclables in Colorado, as well as the challenges of producing a product from those recyclables within the state. To encourage market development for products made with recycled content, this solicitation is focused on creating new markets for recycled products and expanding existing markets. Transportation costs are a significant barrier to building a sustainable recycling infrastructure within Colorado. The majority of the end-markets for recyclables are great distances from Colorado's borders. It is this board's intention to incentivize end-market development to create an in-state demand for recyclable materials.

Grants are available to qualified applicants whose applications address the goals listed in Section 1.0. In an effort to expedite the review process with the board and contract execution with the department, grant funds will be restricted to the purchase or fabrication of equipment only. Such equipment may be used in the direct manufacture of a product with recycled content or for the purpose of processing recycled materials that creates a feedstock needed in the manufacturing process. Equipment may also be used to implement a new or improved processing or manufacturing technique that has been fully vetted through a robust research and design phase, particularly if this new process or technique focuses on a hard-to-recycle material. For example, equipment eligible for grant funding includes, but is not limited to, the following activities:

- sort
- pelletize
- grind
- shred
- wash
- extrude
- alter a recyclable material to a condition necessary to create a feedstock for manufacture
- manufacture a product with post-recycled material or finished compost material

Ineligible equipment includes but is not limited to:

- balers
- roll-off containers
- compactors
- windrow turners
- equipment used as part of a waste-to-energy or other conversion technology process
- equipment that processes a post-industrial and/or pre-consumer byproduct
- collection or processing equipment to be used in a materials recovery facility

Funded projects will be reimbursed for expenses incurred per the project's scope of work. All grant funds must be spent by June 30, 2015 and can only be used for equipment purchases. See Section 8.0 for more information on the disbursement of funds. The equipment must be installed and fully operational by June 30, 2015. No extensions will be allowed. The department may exercise its right to monitor the use of the equipment beyond June 30, 2015.

2.1 – Eligibility

Entities that are eligible to apply include:

- Colorado-based for-profit businesses and nonprofit organizations;
- Out-of-state for-profit businesses and nonprofit organizations that are expanding in or relocating to Colorado that have an in-state business presence, are registered as doing business in Colorado, and whose project benefits Colorado directly (such entities must be registered with the Colorado Secretary of State's office prior to application submittal);
- Public and government agencies, including but not limited to, universities, schools, special districts, and intergovernmental partnerships.

All entities must be able to meet the department's insurance requirements. Though proof of insurance is **not** required with the grant application, applicants who are selected for a grant award will need to provide proof of insurance before a formal contract is signed with the department. Please visit the following website to view the department's insurance requirements: https://www.colorado.gov/pacific/cdphe/recycling-grants

Anaerobic digestion and other waste–to-energy projects are not eligible to apply for this grant opportunity. These include, but are not limited to, technologies such as mass burn, gasification, pyrolysis, plasma arc, and other thermal technologies. No portion of the waste-to-energy process is eligible for funding.

3.0 – Application Procedures:

3.1 – Time Line

October 6, 2014	Release Request for Applications
October 20, 2014, 3:00 PM MST	Deadline to submit questions
October 22, 2014	Answers to questions posted on department website
November 3, 2014, 3:00 PM MST	**Application due date**
November 20, 2014	Selection committee issues questions via email to finalists, if applicable
December 1, 2014, 3:00 PM MST	Q&A period ends
December 8, 2014 – January 12, 2015	Notice of grant awards and issuance of contracts
January 12, 2015	Expected project start date
June 30, 2015	Completion of grant-funded projects

3.2 – Questions

All questions must be submitted to Assistance Committee Chairperson, Marjorie Griek at mgriek@cafr.org. Please submit questions no later than 3:00 PM MST on Monday, October 20, 2014. Answers to questions sent via e-mail will be posted on the department's website by October 22, 2014.

4.0 – Application Evaluation Criteria

4.1 – Threshold Requirements

Threshold requirements that must be met before any application will be fully evaluated include:

- All sections of the application are complete and the cover sheet is signed;
- The application is formatted correctly and within the defined page limit;
- The applicant is registered to do business within the State of Colorado

If any of the threshold requirements listed above are not met, the application may be disqualified and may not be reviewed by the selection committee.

4.2 – Point Assignments

Applications will be scored by a selection committee composed of board and committee members. Scores will be based on the applicant's ability to successfully address the following categories in the application narrative (see Sections 5.3 through 5.5).

Feasibility of business and marketing plans	30 points
Economic impact	20 points
Environmental benefits	20 points
Experience and qualifications	15 points
Facility requirements	5 points
Project work plan (Attachment #2)	4 points
Project budget (Attachment #3)	4 points
Metrics	2 points
Total:	**100 points**

All proposals will be scored by a selection committee and ranked accordingly. Proposals that score highest in the initial round of deliberations are considered finalists. The number of finalists will vary depending on the amount of funding available to award. The selection committee reserves the right to ask each finalist one or more clarifying questions. The selection committee may adjust an application's initial score based on the answers received from each finalist, which will influence the committee's final decision to award or to reject a particular application. There is no guarantee that a finalist will be asked to answer any questions. If a finalist fails to respond to the selection committee's questions by the deadline, the proposal may be disqualified. The deadline to respond to questions is December 1, 2014, 3:00 PM MST. To ensure a transparent process, all questions and answers will be documented via email correspondence and will become part of the finalist's application.

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

5.0 – Required Application Format

Sections 5.1 – 5.8 of this proposal must not exceed five consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 11-point type (e.g. - “Times New Roman” or “Arial” in black font only) with 1-inch margins. Applications must be organized using the headings listed below (in bold). Failure to adhere to format requirements may lead to disqualification.

5.1 – Cover Sheet

Use the application cover sheet (Attachment #1) to provide the following: project title, organizational contact information, federal tax identification number, total amount of funding requested, matching/in-kind contributions (if any), and contact information of both the project director as well as the financial officer.

Note: The cover page is counted as the first page of the application and is included in the five page limit.

5.2 – Project Abstract

Describe the intent of the proposed grant project in 250 words or less. Clearly state the project’s objectives and intended results. Keep this paragraph free of any proprietary information. Awarded projects will have their abstracts posted on the department’s website.

5.3 – Application Narrative

5.3.1 – Criterion: Economic impact

1) Quantify how the project will increase the potential for economic growth and job development for Colorado businesses. Quantify how the project will increase the potential for new markets or how it will expand end-use manufacturing that will improve Colorado’s waste diversion rate.
2) Describe specific jobs created as a result of this project and quantify the number of Full-Time Equivalent (FTE) positions, where one FTE equals a 40-hour per week position.

5.3.2 – Criterion: Environmental benefit

1) Explain what material will be the focus of this project and why this material was chosen. Discuss the significance of the project’s impact on recycling, waste diversion, and/or waste minimization.

5.3.3 – Criterion: Feasibility of business and marketing plans

1) Provide a business or work plan for the project that shows a thorough knowledge of the current situation in the field/industry and how this project will offer new opportunities for industry growth.
2) Specifically describe who will buy the products or materials this project proposes to create or collect. If applicable, include a discussion on market research indicating a demand for the product manufactured. Additionally, discuss how the recyclables

collected over the course of the project will be processed and marketed, providing information on downstream markets.

3) What plan is in place to assure the project will continue after the grant period ends? How will the project continue to be funded?
4) Identify sources of any matching or in-kind funds or non-monetary support that will be used in conjunction with grant dollars to implement the project. While in-kind matching is not required, proposals that include in-kind funds will be scored more favorably.
5) Justify why grant dollars are needed to implement the proposed project. Consider whether current liquid assets or loans could negate the need for a grant. Explain why other funding sources were not feasible to fully fund the proposed project.
6) Confirm what permits will be needed to complete the project (storm water, air, recycling facility, local land use/zoning, etc.). Be sure to consider how delays in acquiring the necessary permits might affect the project's implementation timeline.

5.3.4 – Criterion: Metrics

1) Consider metrics for both economic (jobs created, revenues generated, etc.) and environmental benefits (tons recycled, etc.) and how they will be documented.

5.3.5 – Criterion: Experience and qualifications

1) Describe the applicant's relevant education and experience of key personnel.
2) If there is a partnership involved, how will relationships be maintained and what are the roles and responsibilities of the partners?
3) Compliance history will be considered. If the applicant is part of the regulated community, discuss the status of any environmental compliance issues with the department or the local governing body.

5.3.5 – Criterion: Facility requirements

1) Describe the resources available that will be required to implement the project, including facilities, manufacturing capabilities, major equipment, and technical or administrative personnel.

5.4 – Work Plan

Using the standardized chart provided in **Attachment #2** of this document, create the project's work plan and timeline. This includes a list of each piece of equipment's purchase, delivery, installation, and operation start date. When identifying responsible entities in the work plan, use agencies or job titles instead of the names of key personnel. Include key decision points for early project termination if the project is not meeting the scheduled objectives. **The work plan template is included within the application's five page limit. Do not include the project's work plan in the Appendix.**

5.5 – Budget

5.5.1 – Itemized Budget

Using the standardized format and budget categories provided in **Attachment #3** of this document, create a table listing all equipment purchases. Identify all other funding sources that will be dedicated to this project and include plans to obtain additional funding.

Matching funds do not include existing personnel, facilities, etc. Only new spending directly related to this project should be included as in-kind matching. Though in-kind matching is not required, proposals will score more favorably if in-kind matching is included in the project's budget. **The itemized budget table is included within the application's five page limit. Do not include the project budget table in the appendix.**

Applicants may offer more than one, but no more than two, project budgets in the proposal for the selection committee's consideration. For instance, Option A could entail a budget that allows the applicant to purchase everything needed to fully implement the project. Option B could alternatively request fewer grant dollars by including additional matching funds or creating a scaled back project that would still achieve most of the project's goals and remain equally sustainable in the long-term.

5.5.2 – Budget Narrative

Describe in detail each piece of equipment listed in the budget table, its purpose, and how it will be used. Describe how costs were determined.

Note: The reallocation of funds for any equipment purchase not originally requested in this application will not be allowed.

5.6 – Appendix

The appendix is limited to 10 pages.

The following information is **required:**
- Project leader(s) current resume(s)
- For all proposed equipment purchases, provide full industry specifications (make, model, serial number, age, ownership, etc.)
- Copy of Colorado's Secretary of State Certificate of Good Standing letter (for-profit or nonprofit entities only)

The following information is **optional**:
- Documentation that the project would be beneficial to the community where the project will be implemented
- Letters of support from institutions of higher education, community leaders, etc. dated within six months of the application deadline
- Citations of any patents, references, etc. used in the proposal
- Articles or list of publications about the project group and/or grant project
- Any other important materials relevant to evaluating the proposal
- Applicants who have service-disabled veteran owned status should submit evidence of certification through the U.S. Department of Veterans Affairs with their submission.

6.0 – Proprietary Information Policy

If proprietary information is provided by an applicant that constitutes a trade secret, confidential personnel information, or proprietary commercial or financial information, in accord with § 24-72-204(3), C.R.S., such documents may be withheld from disclosure if the department receives a request for records in accord with the Colorado Open Records Act, § 24-72-101 et seq. All such documents must be clearly marked with the term "Proprietary Information" on each appropriate page. Records marked as containing trade secret, confidential, personnel, or proprietary information that do not actually contain such information could be released pursuant to an Open Records Act request.

7.0 – Reporting Requirements

A draft version of the final report is due 15 days after the grant cycle ends, July 15, 2015. The final report is due 30 days after the grant cycle ends, July 31, 2015. The report will include a financial status summary and will identify the tasks completed during the reporting period. Program staff will provide grantees with a reporting template. The final report will be placed on the department's website. The board and the committee reserve the right to request grantees present their findings at board or committee meetings.

8.0 – Grant Funding

The grant program funds projects on a reimbursement basis. Ongoing monitoring of capital expenditures may occur after the one-year funding period if deemed appropriate by the department. Projects will be reimbursed no more than once per month for expenses incurred. Reimbursement requests must include supporting documentation of payment such as receipts, copies of cleared checks, or invoices with zero balances. It is preferred that reimbursement requests are submitted electronically. The state will not reimburse any cost incurred by the applicant prior to the issuance of a legally executed contract, task order, or authorized purchase order. Depending on the nature of the project, reimbursements may be based on the ability of the grantee to provide proof that equipment or materials purchased in-kind were in fact purchased and installed. Grantees may be required to spend a portion of their in-kind match before the department reimburses any expense related to the project if the in-kind expenditures are essential to the project's success.

Five percent (5%) of each reimbursement request will be withheld until a final report has been submitted by the grantee and approved by the committee at the end of the grant cycle. Reallocation of dollars within the project budget for any equipment purchase not requested in this application will not be allowed.

Because the grant program funds projects on a reimbursement basis, the department recognizes that grantees may experience financial hardship when making high-dollar, project-related purchases. If for-profit or nonprofit entities require a loan to make purchases prior to being reimbursed by the department, or need additional in-kind funds to implement the project, contact the Colorado District Office of the United States Small Business Administration (SBA) at 303-844-2607 and ask to speak to a lender relations specialist. For lender approved loans, the US Small Business Administration will provide a respective guarantee on the approved loan amount for eligible businesses and nonprofits. This incentivizes participating banks to approve loans, oftentimes at lower interest rates and reduced collateral requirements. Additional resources are available online at the Colorado District Office's website http://www.sba.gov/about-offices-content/2/3104.

9.0 – Submitting an Application

Electronic applications are strongly preferred. The full application, including any appendices, must be contained in a single document and must be in PDF (read-only) format. Please e-mail your fully completed application to Eric Heyboer, Recycling Grant Program Administrator, at cdphe.ppp2@state.co.us (subject line: RREO Grant Program Application). Applications submitted in multiple attachments and/or e-mails will not be accepted. Please do not send an electronic file larger than 10 megabytes since the e-mail may not be successfully delivered to the department's internal e-mail system.

If unable to submit electronically, the full application must be sent by courier or certified mail to:

> RREO Grant Program
> Attn: Eric Heyboer, DEHS-B2
> Colorado Dept. of Public Health and Environment
> 4300 Cherry Creek Drive South
> Denver, CO 80246-1530

The deadline for complete applications sent by e-mail is 3:00 PM MST on November 3, 2014. Applications that are mailed must be received by 3:00 PM MST on November 3, 2014. Applications postmarked on November 3 but delivered on a later date will not be reviewed. Incomplete applications and applications received after this deadline will not be reviewed. All applicants will receive an e-mail notification confirming receipt of their application within one business day. If you do not receive an e-mail notification after one business day, contact Eric Heyboer immediately at 303-691-4955. Do not send both an electronic application and an application by courier or certified mail. Questions about the grant program may be sent to cdphe.ppp2@state.co.us (subject line: RREO Grant Program Questions).

The successful applicant will be subject to the terms and conditions of the purchase order or contract. Applicants who are selected for funding will be asked to submit a final scope of work for their project, which will then be included in the final contract or purchase order.

COLORADO
Department of Public Health & Environment

Recycling Rebate Application

Recycling Resources Economic Opportunity Fund

February 2, 2015

Overview

The Colorado Department of Public Health and Environment (department), working through its Pollution Prevention Advisory Board (board) and the Assistance Committee (committee) to the board, requests applications for a monetary rebate from the Recycling Resources Economic Opportunity (RREO) Fund. The intent of the RREO rebate program is to financially assist free public recycling drop-off sites that must ship their recyclables considerable distances to bring them to market or to be further processed. The total amount of rebate dollars available for the period July 1, 2014 through December 31, 2014 is $150,000.

For this round, 100% of the rebate is dedicated to free public recycling drop-off sites. Fifty percent of the fund will be allocated based on tonnage recycled and miles traveled to bring recyclables to the nearest processing facility. The remaining 50 percent will be allocated based on the number of eligible recycling drop-off sites available to the public. The application template is located on the department's website at www.colorado.gov/cdphe/recyclinggrantrebates.

Application Time Line

February 2, 2015	Application released
February 27, 2015, 3:00 PM MST	Applications due
March 2-10, 2015	Applications reviewed by staff and committee
March 24, 2015	Board to give final approval of rebates
April 14, 2015	Rebate payments mailed to recipients

Future Rebate Cycles

The committee and board have discretion on how the rebate fund will be allocated, and the rebate formula and/or eligibility requirements may change from one rebate cycle to the next. Applicants should not rely on the rebate program as guaranteed income in perpetuity.

NOTICE -- The frequency in which rebate applications will be made available will decrease. The rebate program will transition from a biannual to an annual rebate application. The intent of this change is to reduce the administrative burden in completing the rebate application. Rebate applications will continue to be made available every six months through August 1, 2015. Rebate applications will be released annually thereafter, every August.

Eligibility

According to the Colorado Revised Statutes, Section 25-16.5-105(1)(k), any local government, nonprofit, or for-profit entity within the State of Colorado that performs the services or recycles the materials listed below may apply for a rebate. Any entity that incurs transportation/hauling costs associated with providing one or more free public recycling drop-off sites is eligible to apply for a rebate. The following facilities are considered drop-off sites and would be eligible for a rebate provided that recyclables are accepted from the general public:

1) A drop-off site that is operated by any local government, nonprofit, or for-profit entity on public or private land within the state of Colorado
2) A Materials Recovery Facilities (MRF) or similar processing center that processes and sorts less than 8,000 tons of recyclables per year
3) An end-user of recyclable material within the State of Colorado that processes less than 8,000 tons per year
4) A facility that collects and processes post-consumer glass for recycling, but processes less than 8,000 tons per year

Additional eligibility requirements include:

1) Entities who incur transportation/hauling costs for pickup service are eligible to apply for the rebate. Entities who only incur other costs (container purchases, site maintenance, etc.) are not eligible for a rebate.
2) Drop-off sites must collect at least three different materials for recycling. Only drop-off sites that collect conventional recyclables are eligible. This includes aluminum/tin cans, cardboard, newspaper, office paper, plastics #1 – #7, glass bottles and jars, etc.
3) Buy back centers, clothing drop-offs, and similar drop-off sites are not eligible to apply. The committee reserves the right to disqualify any application in which recyclables collected are not deemed appropriate for a rebate.
4) Drop-off sites that opened or were discontinued during the six month period are not eligible for a rebate during this cycle.
5) Drop-off sites must be located at a permanent address and must be available to the public a minimum of 12 hours per week.
6) Each drop-off site must provide containers that collectively equal a minimum of 12 cubic yards of recycling capacity. For instance, a drop-off site with three, 4-yard containers serviced once per week would be eligible, but a site with two, 3-yard containers that are serviced twice per week would not be eligible.
7) For any drop-off sites that are MRFs or are similar processing facilities, and less than 8,000 tons are processed annually, all recyclables that are collected curbside or from commercial accounts must be subtracted. Only those recyclables that are delivered by the public are eligible and should be reported in the rebate application if the MRF (or similar) is listed as a public drop-off site.

Rebate Formulas

For the period July 1, 2014 through December 31, 2014, two formulas will be used to calculate rebate awards for eligible recycling drop-off sites. Fifty percent of the fund will be allocated based on the tonnage recycled and the miles traveled to bring recyclables to the nearest processing facility. A threshold of 35 miles is the minimum number of miles that must be traveled before mileage is factored into the rebate formula. Only the number of miles traveled beyond 35 will be counted in the formula. This portion of the rebate will be calculated as follows:

$$\text{Drop-Off Site Rebate Per Ton-Mile Per Location} = \frac{\text{(Total Material Tonnage)} \times \text{(Total Miles Material Shipped)} \times \text{(Total Dollars Available)}}{\text{(Total Number of Ton-Miles of Approved Applicants)}}$$

The remaining 50 percent will be allocated based on the number of eligible recycling drop-off sites. This portion of the rebate will be calculated as follows:

$$\text{Drop-Off Site Rebate Per Number of Drop-Off Sites} = \frac{\text{(Total Dollars Available)} \times \text{(Total Number of Drop-Off Site(s) for Applicant)}}{\text{(Total number of Drop-Off Site(s) by All Applicants)}}$$

Any eligible entity that incurs transportation/hauling costs associated with providing one or more free public recycling drop off sites is eligible to apply for a rebate. To be considered for a rebate, list all eligible free public recycling drop-off sites that were available to the public between July 1, 2014 and December 31, 2014 in the attached table. In the future, the formulas for awarding rebates may be re-structured or other materials may be added to or removed from the rebate program.

Volume-To-Weight Conversion Calculations

The following conversion factors* must be used if weight data is unavailable. Single-stream recyclables must be reported in tons. If accurate tonnages are not available, the volume-to-weight conversions provided below must be used to maintain consistency among all applicants.

The formula for converting cubic yards to tons is (number of cubic yards) x (weight in pounds) ÷ (2000 pounds) = tons.

Category	Recyclable Material	Volume	Estimated Weight (lbs)
Glass Bottles			
	Whole	1 yd^3	620
	Semi-crushed	1 yd^3	1175
	Crushed (mechanically)	1 yd^3	1840
Aluminum Cans:			
	Whole	1 yd^3	60
	Flattened	1 yd^3	225
Ferrous (Tin Cans):			
	Whole	1 yd^3	150
	Flattened	1 yd^3	850
Old Corrugated Cardboard			
	Loose	1 yd^3	200
	Compacted	1 yd^3	460
Newspaper			
	Loose	1 yd^3	445
	Compacted	1 yd^3	800
Commingled Containers			
(cans, glass, plastics)	Loose	1 yd^3	180
Office Paper			
	Loose	1 yd^3	655
	Compacted	1 yd^3	1310
Mixed Paper			
	Loose	1 yd^3	490
	Compacted	1 yd^3	755
Plastics, PET			
	Loose	1 yd^3	35
	Compacted	1 yd^3	515
Plastics, HDPE			
	Loose	1 yd^3	25
	Compacted	1 yd^3	270

Plastics, Mixed #1-7			
	Loose	1 yd^3	38
	Compacted	1 yd^3	550
Single-stream (mixed recyclables)			
	Loose	1 yd^3	177

Proprietary Information Policy

If proprietary information is provided by an applicant that constitutes a trade secret, confidential personnel information, or proprietary commercial or financial information, it will be treated in confidence by the department, the committee, and the board. This information must be clearly marked with the term “Proprietary Information” on each appropriate page.

Rebate Payments

The department will make rebate payments from the RREO Fund to successful applicants on April 14, 2015. Only rebates totaling $100 or more will be awarded. Rebate payments are capped at 10% of the total rebate fund available, or $15,000. No entity will receive more than 10% of the total monies available.

Submitting a Rebate Application

The department will accept applications beginning February 2, 2015. All applicants must complete the provided cover sheet and application form in its entirety. An organization applying for this rebate for the first time must include a W9 form with their submitted application. If an organization has previously applied for and received a rebate from this program, a W9 form is not required unless the address you wish the rebate check to be mailed has changed. Be sure the mailing address on the rebate application matches the address provided on the W9 since rebate checks will be mailed to the address on the W9. A template of the required W9 form can be found on the department’s website: www.colorado.gov/cdphe/recyclinggrantrebates

Electronic applications submitted in PDF format are **strongly preferred**. Please e-mail your application to Eric Heyboer, Program Administrator, at cdphe.ppp2@state.co.us (Subject Line: Recycling Rebate Application). Applications received by mail or by fax will also be accepted at the following:

RREO Rebate Program
Attn: Eric Heyboer, DEHS-A2
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Fax: 303-753-6809

The deadline to submit complete applications by e-mail is 3:00 PM MST on February 27, 2015. Applications that are mailed must be received by 3:00 PM MST on February 27, 2015. Applications postmarked on February 27 but delivered on a later date will not be reviewed. Incomplete applications and applications received after this deadline will not be reviewed. All applicants will receive e-mail notification of receipt of their application within one (1) business day. If you do not receive an e-mail notification after one (1) business day, contact Eric Heyboer immediately at 303-691-4955 to confirm that your application was submitted successfully. Do not send both an electronic application and an application by courier or certified mail. Please direct all questions or concerns to Eric Heyboer via email at cdphe.ppp2@state.co.us (Subject Line: Recycling Rebate Questions) or call 303-691-4955.

*Sources:

1. Massachusetts Office of Energy and Environmental Affairs, *Volume to Weight Conversions for Recyclable Materials,* http://www.mass.gov/dep/recycle/approvals/dsconv.pdf
2. United States Environmental Protection Agency, *Standard Volume to Weight Conversion Factors,* http://www.epa.gov/osw/conserve/tools/recmeas/docs/guide_b.pdf
3. Minnesota Pollution Control Agency, *SCORE Program Reporting Form*, p.17 http://www.pca.state.mn.us/index.php/data/score/score-program-survey.html

COLORADO
Department of Public Health & Environment

Recycling Rebate Application

Recycling Resources Economic Opportunity Fund

August 3, 2015

Overview

The Colorado Department of Public Health and Environment (department), working through its Pollution Prevention Advisory Board (board) and the Assistance Committee (committee) to the board, requests applications for a monetary rebate from the Recycling Resources Economic Opportunity (RREO) Fund. The intent of the RREO rebate program is to financially assist free public recycling drop-off sites that must ship their recyclables considerable distances to bring them to market or to be further processed. The total amount of rebate dollars available for the period January 1, 2015 through June 30, 2015 is $150,000.

For this round, 100% of the rebate is dedicated to free public recycling drop-off sites. Fifty percent of the fund will be allocated based on tonnage recycled and miles traveled to bring recyclables to the nearest processing facility. The remaining 50 percent will be allocated based on the number of eligible recycling drop-off sites available to the public. The application template is located on the department's website at www.colorado.gov/cdphe/recyclinggrantrebates.

Application Time Line

August 3, 2015	Application released
August 31, 2015, 3:00 PM MDT	Applications due
September 1 - 8, 2015	Applications reviewed by staff and committee
September 22, 2015	Board to give final approval of rebates
October 13, 2015	Rebate payments mailed to recipients

Future Rebate Cycles

The committee and board have discretion on how the rebate fund will be allocated, and the rebate formula and/or eligibility requirements may change from one rebate cycle to the next. Applicants should not rely on the rebate program as guaranteed income in perpetuity.

NOTICE

The frequency in which rebate applications will be made available will decrease. The rebate program will transition from a biannual to an annual rebate application. The intent of this change is to reduce the administrative burden in completing the rebate application. **There will NOT be a rebate application released in February 2016.** The next rebate application will be released in August 2016, which will request data on tonnage collected for the period July 1, 2015 through June 30, 2016.

Eligibility

According to the Colorado Revised Statutes, Section 25-16.5-105(1)(k), any local government, nonprofit, or for-profit entity within the State of Colorado that performs the services or recycles the materials listed below may apply for a rebate. Any entity that incurs transportation/hauling costs associated with providing one or more free public recycling drop-off sites is eligible to apply for a rebate. The following facilities are considered drop-off sites and would be eligible for a rebate provided that recyclables are accepted from the general public:

A drop-off site that is operated by any local government, nonprofit, or for-profit entity on public or private land within the state of Colorado

1) A Materials Recovery Facilities (MRF) or similar processing center that processes and sorts less than 8,000 tons of recyclables per year
2) An end-user of recyclable material within the State of Colorado that processes less than 8,000 tons per year
3) A facility that collects and processes post-consumer glass for recycling, but processes less than 8,000 tons per year

Additional eligibility requirements include:

1) Entities who incur transportation/hauling costs for pickup service are eligible to apply for the rebate. Entities who only incur other costs (container purchases, site maintenance, etc.) are not eligible for a rebate.

UPDATE

2) Drop-off sites must accept at least three different materials for recycling or accept single-stream recyclables. The following materials are eligible for a rebate: cardboard, chipboard, newspaper and inserts, office paper/mail, magazines, phone books, plastic bottles/tubs/jugs/jars #1 – #7, glass bottles and jars, aluminum and tin cans/containers.
3) Buy back centers, clothing drop-offs, and similar drop-off sites are not eligible to apply. The committee reserves the right to disqualify any application in which recyclables collected are not deemed appropriate for a rebate.
4) Drop-off sites that opened or were discontinued during the six month period are not eligible for a rebate during this cycle.
5) Drop-off sites must be located at a permanent address and must be available to the public a minimum of 12 hours per week.
6) Each drop-off site must provide containers that collectively equal a minimum of 12 cubic yards of recycling capacity. For instance, a drop-off site with three, 4-yard containers serviced once per week would be eligible, but a site with two, 3-yard containers that are serviced twice per week would not be eligible.
7) For any drop-off sites that are MRFs or are similar processing facilities, and less than 8,000 tons are processed annually, all recyclables that are collected curbside or from commercial accounts must be subtracted. Only those recyclables that are delivered by the public are eligible and should be reported in the rebate application if the MRF (or similar) is listed as a public drop-off site.

Rebate Formulas

Two formulas will be used to calculate rebate awards for eligible recycling drop-off sites. Fifty percent of the fund will be allocated based on the tonnage recycled and the miles traveled to bring recyclables to the nearest processing facility. A threshold of 35 miles is the minimum number of miles that must be traveled before mileage is factored into the rebate formula. Only the number of miles traveled beyond 35 will be counted in the formula. This portion of the rebate will be calculated as follows:

$$\text{Drop-Off Site Rebate Per Ton-Mile Per Location} = \frac{\text{(Total Material Tonnage) x (Total Miles Material Shipped) x (Total Dollars Available)}}{\text{(Total Number of Ton-Miles of Approved Applicants)}}$$

The remaining 50 percent will be allocated based on the number of eligible recycling drop-off sites. This portion of the rebate will be calculated as follows:

$$\text{Drop-Off Site Rebate Per Number of Drop-Off Sites} = \frac{\text{(Total Dollars Available) x (Total Number of Drop-Off Site(s) for Applicant)}}{\text{(Total number of Drop-Off Site(s) by All Applicants)}}$$

Any eligible entity that incurs transportation/hauling costs associated with providing one or more free public recycling drop off sites is eligible to apply for a rebate. To be considered for a rebate, list all eligible free public recycling drop-off sites that were available to the public between January 1, 2015 and June 30, 2015 in the attached table. In the future, the formulas for awarding rebates may be re-structured or other materials may be added to or removed from the rebate program.

Volume-To-Weight Conversion Calculations

The following conversion factors* must be used if weight data is unavailable. Single-stream recyclables must be reported in tons. If accurate tonnages are not available, the volume-to-weight conversions provided below must be used to maintain consistency among all applicants.

The formula for converting cubic yards to tons is (number of cubic yards) x (weight in pounds) ÷ (2000 pounds) = tons.

Category	Recyclable Material	Volume	Estimated Weight (lbs)
Glass Bottles			
	Whole	1 yd^3	620
	Semi-crushed	1 yd^3	1175
	Crushed (mechanically)	1 yd^3	1840
Aluminum Cans:			
	Whole	1 yd^3	60
	Flattened	1 yd^3	225
Ferrous (Tin Cans):			
	Whole	1 yd^3	150
	Flattened	1 yd^3	850
Old Corrugated Cardboard			
	Loose	1 yd^3	200
	Compacted	1 yd^3	460
Newspaper			
	Loose	1 yd^3	445
	Compacted	1 yd^3	800
Commingled Containers			
(cans, glass, plastics)	Loose	1 yd^3	180
Office Paper			
	Loose	1 yd^3	655
	Compacted	1 yd^3	1310
Mixed Paper			
	Loose	1 yd^3	490
	Compacted	1 yd^3	755
Plastics, PET			
	Loose	1 yd^3	35
	Compacted	1 yd^3	515
Plastics, HDPE			
	Loose	1 yd^3	25
	Compacted	1 yd^3	270

Plastics, Mixed #1-7			
	Loose	1 yd^3	38
	Compacted	1 yd^3	550
Single-stream (mixed recyclables)			
	Loose	1 yd^3	177

Proprietary Information Policy

If proprietary information is provided by an applicant that constitutes a trade secret, confidential personnel information, or proprietary commercial or financial information, it will be treated in confidence by the department, the committee, and the board. This information must be clearly marked with the term "Proprietary Information" on each appropriate page.

Rebate Payments

The department will make rebate payments from the RREO Fund to successful applicants on October 13, 2015. Only rebates totaling $100 or more will be awarded. Rebate payments are capped at 10% of the total rebate fund available, or $15,000. No entity will receive more than 10% of the total rebate fund available.

Submitting a Rebate Application

The department will accept applications beginning August 3, 2015. All applicants must complete the provided cover sheet and application form in its entirety. An organization applying for this rebate for the first time must include a W9 form with their submitted application. If an organization has previously applied for and received a rebate from this program, a W9 form is not required unless the address you wish the rebate check to be mailed has changed. Be sure the mailing address on the rebate application matches the address provided on the W9 since rebate checks will be mailed to the address on the W9. A template of the required W9 form can be found on the department's website: www.colorado.gov/cdphe/recyclinggrantrebates

Electronic applications submitted in PDF format are **strongly preferred**. Please e-mail your application to Eric Heyboer, Program Administrator, at cdphe.ppp2@state.co.us (Subject Line: Recycling Rebate Application). Applications received by mail will also be accepted at the following:

> RREO Rebate Program
> Attn: Eric Heyboer, DEHS-A2
> Colorado Department of Public Health and Environment
> 4300 Cherry Creek Drive South
> Denver, CO 80246-1530

The deadline to submit complete applications by e-mail is 3:00 PM MDT on August 31, 2015. Applications that are mailed must be received by 3:00 PM MDT on August 31, 2015. Applications postmarked on August 31 but delivered on a later date will not be reviewed. Incomplete applications and applications received after this deadline will not be reviewed. All applicants will receive e-mail notification of receipt of their application within one (1) business day. If you do not receive an e-mail notification after one (1) business day, contact Eric Heyboer immediately at 303-691-4955 to confirm that your application was submitted successfully. Do not send both an electronic application and an application by courier or certified mail. Please direct all questions or concerns to Eric Heyboer via email at cdphe.ppp2@state.co.us (Subject Line: Recycling Rebate Questions) or call 303-691-4955.

*Sources:

1. Massachusetts Office of Energy and Environmental Affairs, *Volume to Weight Conversions for Recyclable Materials,* http://www.mass.gov/dep/recycle/approvals/dsconv.pdf
2. United States Environmental Protection Agency, *Standard Volume to Weight Conversion Factors,* http://www.epa.gov/osw/conserve/tools/recmeas/docs/guide_b.pdf
3. Minnesota Pollution Control Agency, *SCORE Program Reporting Form*, p.17 http://www.pca.state.mn.us/index.php/data/score/score-program-survey.html

Economic Study of Recycling in Colorado
Final Report

Prepared for:
Colorado Department of Public Health & Environment
Denver, Colorado

Prepared by:
ENVIRON International Corporation
Denver, Colorado

Date:
November 17, 2014

Project Number:
3034728A

Contents

List of Appendices

Acronyms and Abbreviations

Department:	State of Colorado Department of Public Health and Environment
ENVIRON:	ENVIRON International Corporation
IMPLAN®:	IMpact analysis for PLANning
NAICS:	North American Industry Classification System
RRR:	Recycling, remanufacturing, and reuse

Executive Summary

ENVIRON was retained by the State of Colorado Department of Public Health and Environment (Department) to conduct an economic impact study of waste diversion in Colorado. The overall purpose of the study was to identify the economic impacts the recycling, remanufacturing, and reuse (RRR) industry on the State economy, with particular focus on how RRR affects both urban and rural areas of the state. The study had several components, each of which built on the previous component, with final results presented in this composite report. The separate study components are:

- Data Gap Analysis
- Survey Plan
- Data Collection Report, and finally,
- Regional Impact Analysis

The RRR industry comprises all government and private entities involved in collecting recyclable materials, processing of such materials, manufacturing products from recycled materials, and using and remanufacturing products from recycled materials. The economic impact analysis uses existing data combined with new data collected through a survey process. The survey was used primarily to develop supporting information for the economic study. Specifically the survey results provided the percentage of a respondent's business activity that included RRR sector activities. For the sectors where survey responses were not robust, outside sources were used for this percentage. Two regional models were developed for the analysis: one for the urban region (defined as all urban counties combined) and one for the rural region (defined as all rural counties combined). This allowed the Department to identify specific attributes and/or needs of each of the regions, which have different economic structures.

Significant results of the analysis include the following conclusions:

- The direct impact of the RRR industries totals $8.7 billion, with most of that ($8.1 billion) occuring in the urban areas.
- The total impact of the RRR industries, including the direct, indirect, and induced impacts totals $14.7 billion, with $13.9 billion occuring in the urban areas.
- Given a total Gross State Product (GSP, or the state counterpart of GDP) of $279.6 billion in 2012, RRR activities account for 3.1 percent of GSP in direct impacts, and 5.3 percent of GSP when considering the total impact from these sectors.
- The RRR industry impacts total nearly 86,000 jobs in the state representing 2.7 percent of overall employment in Colorado.
- Urban jobs in the RRR industry account for 80,394, or 2.9 percent of all urban employment, and rural jobs in the industry are estimated to total 5,433, or 1.2 percent of all rural employment.
- This employment translates to over $200 million in labor wages in the rural region, and greater than $5 billion in the urban region.

- Annual state and local tax revenue generated through the RRR industry is estimated at over $80 million for the rural region and approximately $1.2 billion for the urban region.

The results of the survey and the impact analysis are also interesting. The survey produced results from entities operating in nearly all Colorado counties indicating:

- Nearly 80 percent of entities do business within the State of Colorado, and nearly 69 percent do business outside the State;
- More than 70 percent of respondents believe that there is a demand for recycled materials in Colorado;
- The RRR industry travels a large number of miles both to collect recycled materials and to move materials for processing, with nearly 60 percent traveling over 50 miles and nearly 30 percent traveling more than 100 miles to collect recycled materials;
- On average, material movement for processing is more than 100 miles to 16 facilities and to 8 facilities less than 50 miles; and
- Only 31 percent of respondents partner with local Colorado manufacturers to use recycled materials for their manufacturing needs.

The survey results and the impact analysis results lead to the development of several policy recommendations for the State of Colorado. These recommendations include:

1. There is an opportunity to improve the multiplier effect (the additional indirect and induced effects) for RRR sectors in the rural areas if government policies can target sectors favorably linked with RRR sectors.

2. If there is high unemployment in any county, public recycling facilities can be located in these areas and result in an economic stimulus.

3. To strengthen rural county RRR multipliers, the spatial location of strong RRR sector establishments should be analyzed to see if there are ‘leakages’ of indirect and induced impacts across state borders.

4. Existing government programs that support industries like manufacturing, can consider supporting and strengthening the economic activity that is linked to manufacturing through the RRR sector, thereby maximizing the benefit of government investments in jobs and economic development.

1 Introduction

Recycling, remanufacturing, and reuse (RRR) industries can have a major positive impact on the overall economy of a state. Studies conducted for many states, as well as overall for the United States (US), have assessed and documented these positive economic impacts.[1] ENVIRON International Corporation (ENVIRON) has conducted this economic impact study of waste diversion in the State of Colorado for the State of Colorado Department of Public Health and Environment (Department). The overall purpose of this study is to identify the economic impacts the RRR industries have on the State. The Department's objectives with the results of this study include enhanced ability to set strategic goals for the Department, implement feasible and effective programs and policies for waste diversion, attract new businesses, markets, and end-users to Colorado, and to realistically track economic progress throughout the state.

1.1 Objectives

The overall objective of this study is to identify the economic impacts that waste diversion has on the State of Colorado. In order to assess these impacts, this study identifies the following:

1. Quantity and variety of recyclables available for local remanufacturing, and to which industries these materials would be applicable (agriculture, aerospace, consumer goods, bioscience, energy, etc.).

2. Number of jobs created by geographic area; including a consideration of the economic impact of waste diversion in rural and urban areas and identification of whether rural areas see a lesser or greater per capita benefit in their local economies from that investment when compared to urban areas.

3. Potential for job creation based on increased diversion.

4. Local and state tax revenues, and potential for increased revenues based on increased diversion.

5. Trickle-down effect (i.e., employees within the industry spending money in the State, etc.).

[1] R.W. Beck, Inc. 2001. U.S. Recycling Economic Information Study. Prepared for The National Recycling Coalition. Available online at: http://www.epa.gov/osw/conserve/tools/rmd/rei-rw/pdf/n_report.pdf ; SAIC Energy, Environment & Infrastructure, LLC (SAIC). 2013. The Economic Contribution of the Recycling Industry to the Houston-Galveston Region. Prepared for the Houston-Galveston Area Council. Available online at: http://www.hgac.com/community/waste/management/recycling/workshops/recs_h-gac%20-economic-contribution-report.pdf ; The National Recycling Coalition (TNRC). 2000. Florida Recycling Economic Information Study. Prepared for the Florida Department of Environmental Protection. Prepared in association with R.W. Beck, Inc. Available online at: http://www.wastexchange.org/upload_publications/Florida-EconomicImpactofRecyclingStudy2000.pdf ; Valentine, David, Ann Ulmer. 2005. Missouri Recycling Economic Information Study MOREIS. Final Report. Prepared for Environmental Improvement and Energy Resources Authority (EIERA). Available online at: http://eiera.mo.gov/eiera/files/2012/10/RecyclingFinalReport.pdf

1.2 Process

As a first step, ENVIRON developed a Data Gap Analysis, which was presented to, and reviewed by, the Department. Based on the gaps identified, the Department provided additional business categories and contact information for the RRR industries in the State. ENVIRON finalized the list of relevant entities and their contact information in order to initiate the survey process. A Survey Plan was then drafted, which outlined the plan to conduct the survey, and sought the Department's comments on the overall approach to be followed, the sampling plan, and the survey instrument. That document was revised based on the Department's comments. The online survey was conducted following that, and a third document, Data Collection Report, was then shared with the Department. That report presented the survey methodology that was applied, the response, and results of the survey. These three reports have been incorporated into this final report.

1.3 Structure of the Report

The structure of this report follows the process of the larger study, as outlined above. This report has six chapters after this introduction. Chapter 2 presents the Data Gap Analysis that was carried out to assess the availability of existing data. Chapter 3 provides the Survey Plan that to conduct an online survey of RRR industries in the state. Chapter 4 documents the survey results, and other Data Collection efforts. Chapter 5 details the results of the regional economic impact analysis for recycling in the State of Colorado. Based on that, policy recommendations from ENVIRON are presented in Chapter 6. The results and conclusions of the study are summarized in Chapter 7. A list of all references completes the main report.

This report also has three appendices: Appendix A presents the complete survey instrument; Appendix B provides a draft email sent to the survey recipients; and Appendix C includes a letter sent to the survey recipients on behalf of the Department as an attachment to the email.

2 Data Gap Analysis

The first step in the study was to develop a data gap analysis, the subject of this chapter. This chapter was originally presented to the Department as a stand-alone report, and has been included in this report in a comparable manner. This chapter includes the following sections:

- Section 2.1 defines the purpose and need for the gap analysis.
- Section 2.2 provides an overview of the recycling industry (or industries).
- Section 2.3 describes the information required to conduct the economic impact analysis.
- Section 2.4 presents the data available from secondary sources.
- Section 2.5 illustrates and explains the gaps between the needed data and the available data.
- Section 2.6 summarizes the discussion presented in the chapter.

2.1 Purpose and Need

The methodology to be used in the study requires that significant and specific data be collected from available sources. ENVIRON used the economic input-output modeling system IMPLAN® (IMpact analysis for PLANning) as the basis of its analysis methodology. Direct economic effects are those attributable to the industries involved in RRR. Indirect and induced effects are the secondary economic impacts that occur in other sectors of a regional economy but as a result of the direct stimulus. The IMPLAN system is used primarily to quantify those secondary impacts. Results of both direct and secondary impacts will be presented in terms of jobs, income, gross domestic product (GDP), regional output, and taxes.

The analysis of direct economic effects will be based on the statewide data covering all facets of recycling, including feedstock collection, processing, and manufacturing. A review of literature on similar types of studies, as well as an understanding of the IMPLAN® software methodology, defines the types of data necessary to perform this study. This data gap analysis will determine what data and information is currently available from known sources, what data will be necessary to obtain through surveys, interviews, and other methods; and also what data is needed in order to conduct the surveys, interviews or other data collection efforts. This analysis includes an assessment of missing, incomplete, or non-verified data required to perform the study.

2.2 The Recycling Industry

The RRR industry comprises all government and private entities involved in collecting recyclable materials, processing of such materials, manufacturing products from recycled materials, and using and remanufacturing products from recycled materials. Thus, four broad business sectors make up the RRR industry:

1. Recycling collection
2. Recycling processing
3. Recycling manufacturing
4. Reuse and remanufacturing

The specific business categories within each of these four identified sectors fall into several subclasses each, and each subclass may be identified within the North American Industry Classification System (NAICS) code. These NAICS codes are the standard used by Federal statistical agencies in classifying economic activity. A total of 1,906 firms make up the 29 NAICS categories associated with RRR in Colorado.[2] However, some of those firms may not be involved in recycling activities and others may only have a portion of their business activities dedicated to recycling.

Analyzing the recycling industry can be a complicated task. The key issue is that of identifying which operations that have any recycling activities are solely devoted to recycling activities, and which ones have only a portion of the business associated with RRR. For example, one paper mill may only use recycled paper to make new paper, while another might use both recycled paper and virgin materials.

2.3 Information Required to Conduct the Analysis

The economic impact analysis to be conducted will follow a methodology similar to the one used by R.W. Beck, Inc. (2001) in a study of national economic impacts, and Valentine (2005), TNRC (2000), and SAIC (2013), which represent a sample of numerous similar studies that have analyzed the economic impacts for other regions. Specifically the above-cited studies were conducted for Missouri, Florida, and the Houston-Galveston region respectively.

In general, the information required falls into one of several categories. Within Colorado, the IMPLAN input-output model requires that economic activity to be analyzed be isolated within a NAICS sector. Hence at the outset, needed data include the number of facilities within Colorado that are involved in RRR activities, each identified by NAICS code. For the study, ENVIRON will further break down the analysis into county-level information, requiring the county of each RRR facility to be identified. For each county, the magnitude of the economic impact is measured by a) the total number of employees, b) the total revenue of all firms in each county, and c) the annual payroll, thus requiring the collection of these data.

[2] U.S. Census Bureau. County Business Patterns. 2011. Available online at: http://www.census.gov/econ/cbp/.

Much of these data are available from the County Business Patterns data. County Business Patterns is published annually by the US Census Bureau and provides data on the total number of establishments, mid-March employment, first quarter and annual payroll, and number of establishments by nine employment-size classes by detailed industry for all counties in the United States. However, if there are too few firms in any sector at the county level, the data will not be disclosed due to proprietary concerns, and therefore ENVIRON must obtain that data elsewhere. ENVIRON is developing a survey of RRR firms to obtain the necessary economic data at the firm level, which can then be combined to provide the county-level data. Therefore, the final piece of information necessary for the completion of the study is contact information for all of the firms which comprise the RRR industry. This information includes the name of the firm, a contact person, the phone number of the contact person, and an email address for the contact person.

Another important data requirement is an estimate of the percent of the businesses activity that is associated with RRR only. For example, a glass manufacturer might produce glass from raw material, glass from recycled material, and might also collect glass bottles. Consequently, the entire revenue and jobs associated with the glass manufacturer cannot be allocated to RRR since only part of the business is associated with manufacturing glass from raw material. Only the share that is associated with glass collection and remanufacturing of glass material will be allocated to the RRR industry.

The specific data required and the data ENVIRON was able to acquire is compiled and presented in Table 2-1.

Table 2-1: Data Required for Analysis

Data	Description
NAICS Code	The facilities North American Industry Classification System code which is a standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the business in the US
Number of Establishments	Total number of physical locations by NAICS Code
County	The location of each establishment that the firm operates
Number of Employees	Total full-time equivalents that the firm employs
Total Annual Payroll	Total compensation paid to employees including wages, benefits, bonuses, and other payments for each firm.
Total Annual Receipts	All revenue received, including receipts from sales and services for each firm
% RRR	Percentage of business activity that is associated with RRR for each firm
Contact Information	Firm names, contacts names, phone numbers, and email addresses for each firm in the industry

2.4 Data and Information Available through Secondary Sources

To determine which industries are associated with RRR by NAICS code, a careful collection of all the different economic activity levels by sector was compiled by NAICS code for Colorado and is included in Table 2-2. As previously stated, the RRR industry incorporates several different levels of activity, including collectors, transportation, recycling manufacturers, and reuse and remanufacturers. In addition, there are several economic sectors involved, including glass, rubber, electronics, vehicles, and other goods and materials.

As a first step towards identifying firms within the RRR industry, ENVIRON conducted research for available economic data based on 2012 NAICS.[3] The relevant business sectors and more specific business categories were determined through the research. The results of the research are presented in Table 2-2.

While some additional data will primarily be collected through a survey effort and interviews with industry representatives, some economic information for 2011 for some NAICS business categories is available through County Business Patterns data released by the U.S. Census Bureau.[4]

The key to the success of the data gathering process is the completeness and accuracy of names and contact information for the firms and industry representatives to be contacted within each of the RRR business sectors, including any coalitions or organizations representing specific business sectors, so that we may know all of the parties that should be requested to complete the survey and all of the parties that should be interviewed. ENVIRON has completed research to identify contacts for different business sectors including the key contacts' names, key contacts' roles/titles, key contacts' telephone numbers, and key contact's email addresses. The information collected from online sources is limited and inconsistent. Additionally, it is not clear whether these data include all operations under a specific business category, and also if the contact information is accurate and current.

In addition to online search, ENVIRON received the names and contact information for registered recycling facilities and landfills with household hazardous waste (HHW) recycling from the Department. The last four columns of Table 2-2 provide the status of the contact information found online for the various NAICS business categories. A half-filled-in moon means that we have identified a few or more specific firms with contact information for the ENVIRON team to contact for data collection. A completely empty moon means we were unable to locate any information for that specific contact element related to that specific business sector. It is evident that complete information is not available for any category through online sources. The key piece of information missing for most categories is email addresses of key contacts, given that the link to online survey would be sent via email in order to ensure that the process is conducted efficiently and in a timely manner.

[3] U.S. Census Bureau. North American Industry Classification System. 2012. Available online at: https://www.census.gov/eos/www/naics/

[4] U.S. Census Bureau. County Business Patterns. 2011. Available online at: http://www.census.gov/econ/cbp/

Table 2- 2: NAICS Categories Associated with the RRR Industry and Status of Contact Information

Recycling Category[1]		NAICS CODE[2]	NAICS Code Description[2]	Total Identified Facilities by NAICS Code[3]	Facility Contact Information Researched			
					Facility Name	Key Contact	Email	Phone
Recycling Collection	Government Staffed	562111	Solid Waste Collection	183	◑	◑	○	○
	Private Staffed	562112	Solid Waste Collection	8	◑	◑	◑	◑
Recycling Processing	Compost & Organic Producers	325314	Fertilizers	9	◑	◑	◑	◑
	Materials Recovery Facilities	562920	Materials Recovery Facilities	27	◑	◑	◑	◑
	Recyclable Material Wholesalers	423930	Recyclable Material Wholesalers	102	◑	◑	◑	◑
Recycling Manufacturing	Glass Container Manufacturing Plants	327213	Glass Containers	2	○	○	○	○
	Nonferrous Secondary Smelting & Refining	331423	Miscellaneous Secondary Nonferrous Smelting, Refining and Alloying.	1	◑	○	○	◑
		331492	Miscellaneous Secondary Nonferrous Smelting, Refining and Alloying. (except for copper and aluminum)	1	◑	○	○	◑
	Nonferrous Product Producers	331421	Copper rolling, drawing, and extruding	1	◑	○	○	◑
		331315	Aluminum sheet, plate, and foil manufacturing	2	◑	○	○	◑
		331316	Aluminum extruded product manufacturing	1	◑	○	○	◑

Table 2- 2: NAICS Categories Associated with the RRR Industry and Status of Contact Information

Recycling Category[1]		NAICS CODE[2]	NAICS Code Description[2]	Total Identified Facilities by NAICS Code[3]	Facility Contact Information Researched			
					Facility Name	Key Contact	Email	Phone
	Nonferrous Foundries	331521	Aluminum die-casting foundries	4	◑	○	○	◑
		331522	Nonferrous (except aluminum) die-casting foundries	2	◑	○	○	◑
		331524	Aluminum foundries (except die-casting)	3	◑	○	○	◑
		331525	Copper foundries (except die-casting)	2	◑	○	○	◑
	Paper & Paperboard Mills/Deinked Market	322299	Other Converted Paper Product Manufacturing	4	◑	○	○	◑
	Pavement Mix Producers	324121	Asphalt paving mixtures and blocks	14	◑	○	○	◑
	Plastics Reclaimers	325991	Custom Compounding of Purchased Plastics Resins	7	○	○	○	○
	Plastic Converters	3261	Plastic Product Manufacturing	163	○	○	○	○
	Rubber Product Manufacturers	3262	Rubber Product Manufacturers	11	◑	○	○	◑
	Iron and Steel Manufacturers	331111	Iron and Steel Mills	5	◑	○	○	◑
	Computer & Electronic Appliance	411690	Other Electronic Parts and Equipment Wholesale	243	◑	◑	◑	◑

Table 2- 2: NAICS Categories Associated with the RRR Industry and Status of Contact Information

Recycling Category[1]		NAICS CODE[2]	NAICS Code Description[2]	Total Identified Facilities by NAICS Code[3]	Facility Contact Information Researched			
					Facility Name	Key Contact	Email	Phone
	Demanufacturers	811212	Computer & Office Machine Repair and Maintenance	118	◑	◑	◑	◑
	Motor Vehicle Parts	423140	Motor vehicle parts (used) merchant wholesalers	21	◑	○	○	◑
Reuse & Re-Manufacturing	Retail Used Merchandise Sales	45331	Used Merchandise Stores (excluding pawn shops)	391	○	○	○	○
	Tire Retreaders	326212	Tire Retreaders	4	◑	◑	◑	◑
	Wood Reuse	32192	Wood Container and Pallet Manufacturing	24	◑	◑	◑	◑
	Materials Exchange Services	54199	All Other Professional, Scientific, and Technical Services	437	○	○	○	○
	Other Reuse	423840	Wholesale Machinery, Equipment, and Supplies	116	◑	◑	◑	◑
Total Potential RRR Facilities in Colorado				**1,906**				

Sources:
[1] R.W. Beck, Inc. 2001. U.S. Recycling Economic Information Study. Prepared for The National Recycling Coalition.
[2] U.S. Census Bureau. North American Industry Classification System. 2012. Available online at: https://www.census.gov/eos/www/naics/
[3] U.S. Census Bureau. County Business Patterns. 2011. Available online at: http://www.census.gov/econ/cbp/

Key:
○ No information identified through research by ENVIRON

◑ Some information identified through research by ENVIRON.

Table 2-3 provides an overview of the sources of contact information ENVIRON has compiled for the study. This table includes the information that was secured from each of the data sources, and was used to develop the results of the data gaps identification provided in Table 2-2.

Table 2-3: Data and Information Sources

Source of Colorado RRR Firm Information	Description of Online Data Available	Website
Carpet America Recovery Effort (CARE) Databases	Map of CARE Certified Collectors	http://www.carpetrecovery.org/collector-finder/index.html
Construction Materials Recycling Association	List of C & D Recyclers	http://www.cdrecycling.org/index.php?option=com_community&view=search&task=usersearch
Institute of Scrap Recycling Industries /R2RIOS	Company search by State	http://store.isri.org/web/Custom_Directories/Company_Search.aspx
e-Stewards	List of e-Steward Certified Electronic Recyclers by State	http://www.e-stewards.org/find-a-recycler/
Asphalt Recycling & Reclaiming Association	Member Directory	http://www.arra.org/members/?listpage=1&member_search=&short_search=&s_company=&s_work=&s_state=&s_country=&s_status=&s_service=&krissoff-search=
Reusable Industrial Packaging Association	Member Directory	http://www.reusablepackaging.org/find-a-member/search-results/?comp_state=CO
Colorado Asphalt Pavement Association	Member Directory	http://co-asphalt.com/who_is_capa/membership_directory.htm
Colorado Association for Recycling	Member Directory	http://www.cafr.org/members/directory.php
Colorado List of Registered Electronics Recyclers	Online list of registered electronic recyclers in Colorado	http://www.colorado.gov/cs/Satellite/CDPHE-HM/CBON/1251615964355
BioCycle	Registered Compost Facilities and Locations	http://www.findacomposter.com/listing/location/united-states/colorado
Yellow Pages	Search for Facilities within an Industry by State	http://www.yellow.com/

2.5 Data Gaps

As discussed previously, two types of information are needed to carry out this analysis: 1) specific economic data for the business categories identified, and 2) contact information for

RRR businesses so that they may be surveyed or interviewed. Following the outline of needed information in Section 2.3 and the available information described in Section 2.4, it is evident that there are significant data gaps related to both types of information.

Table 2-3 illustrates the available data obtained and the data gaps ENVIRON identified through its research. The sectors with the most significant economic data gaps that will need to be addressed in the next phase of this study include:

- Solid Waste Collection – Private
- Compost and Organic Producers
- Materials Recovery Facilities
- Glass Container Manufacturing Plants
- Nonferrous Secondary Smelting and Refining
- Nonferrous Product Producers
- Nonferrous Foundries
- Paper and Paperboard Mills/Deinked Market

These sectors have data reported for the number of facilities, but the more specific information on jobs, income, and payroll are not reported.

The sectors with the most significant contact information gaps include:

- Glass container manufacturing plants
- Plastics reclaimers
- Plastic converters
- Retail used merchandise sales; and
- Materials exchange services

Several of these sectors have a large number of identified facilities by NAICS code.

ENVIRON's plan to collect and compile both the remaining economic data and share of the business sectors involved in the RRR industry is illustrated in Figure 2-1. The most reliable and accurate data would come from the County Business Patterns. The county-level are the preferable data to use, if available, and if not, the alternative approach is to use state level average data. If no state level data are available, national level average data is the third choice. If no national level data is available for the business sector, ENVIRON will need to rely on survey data or interviews with experts in the industry.

.

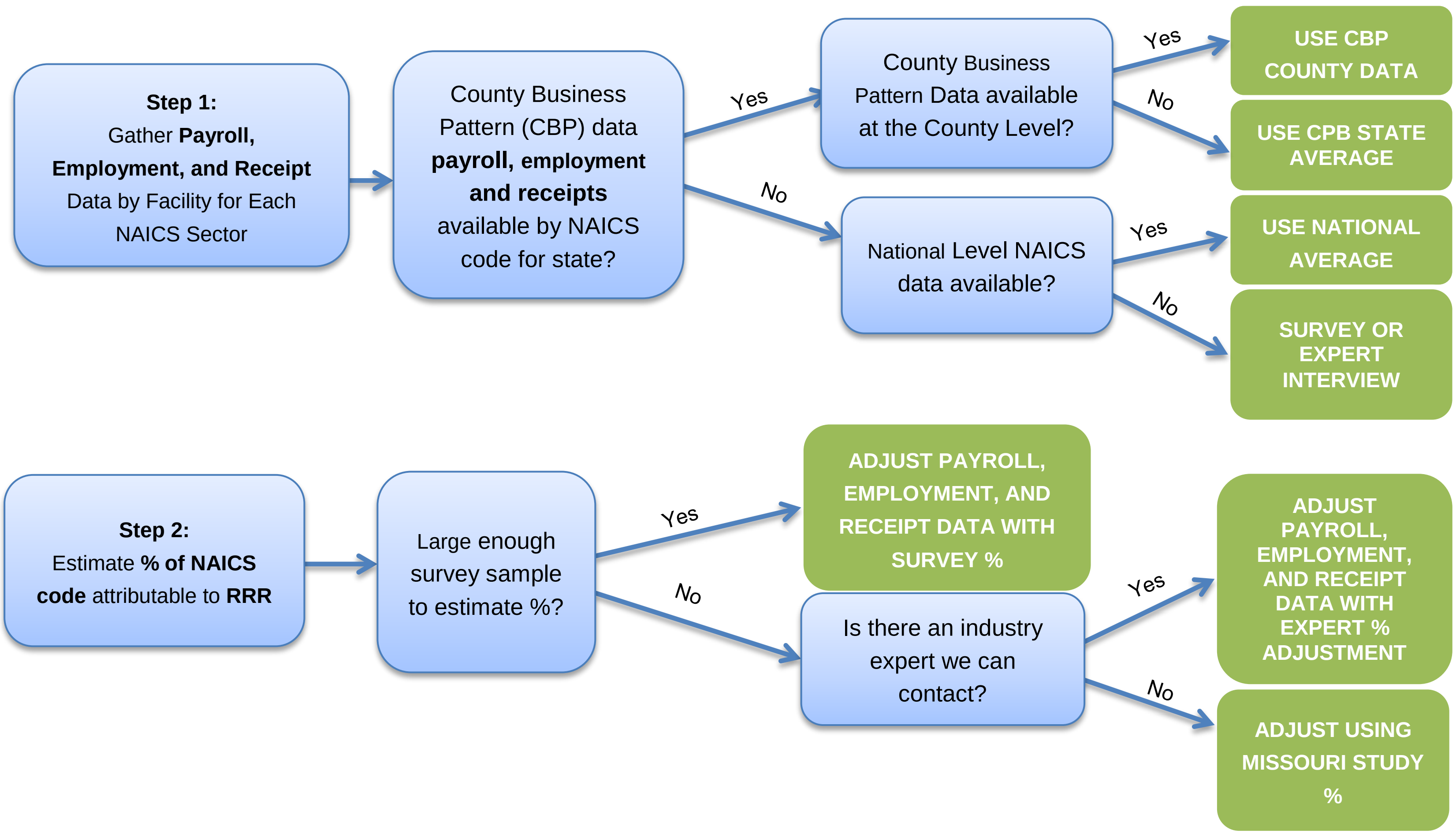


Figure 2-1: Flow Chart for Data Collection

The second step is to estimate the percentage of RRR activity within each business sector. If the results of the web-based survey provide a large enough survey sample to estimate the percent, ENVIRON will adjust the payroll, employment, and receipt data with the survey percent for the business sector. If the survey sample is not large enough to estimate the RRR percentage for the sector, ENVIRON will adjust the payroll, employment, and receipt data using information from an industry expert, if available. Otherwise ENVIRON will use the percentages included in the Missouri Study (Valentine 2005). Following this flow chart will allow ENVIRON to use the best available information in its assumptions, estimates, and analysis.

2.6 Summary and Conclusion

This chapter highlights the data needs for conducting an accurate analysis of economic impacts of recycling in Colorado, efforts to research that information through secondary sources, data available through such sources, and the information gaps. Two types of information is sought in order to proceed with the study:

- Specific firm-level economic data, including annual revenues, numbers of employees, payroll amounts, amounts paid in taxes, and percentages of the businesses' activities associated with RRR
- Contact information for firms within each specific business category identified in Table 2-2 for conducting a web-based survey and interviews.

Significant data gaps are identified for both these categories following a secondary research effort. The economic data for the analysis would be collected through firm-level surveys and interviews of RRR industry representatives. However, the success of that effort weighs heavily on the accuracy and completeness of the names and contact information for these firms, as well as the response rate.

The Department and other members of the research team can assist in ensuring the success of this data gathering process in three ways:

- Provide accurate and complete lists of the names of firms under within each business category outlined in Table 2-2, along with addresses, key contacts' names, key contacts' roles/titles, key contacts' telephone numbers, and key contact's email addresses. Although this information is needed for all business categories, the categories for which ENVIRON was unable to locate any contact information are the most critical: glass container manufacturing plants, plastics reclaimers, plastic converters, retail used merchandise sales, and materials exchange services.
- Identify key RRR industry representatives for telephone interviews, preferably for each business category identified in Table 2-2. Such personnel could be representatives of coalitions and organizations representing the industry, or heading a larger operation within a business category.
- Send out letters to the firm contacts, as well as industry representatives, prior to the initiation of the process. Such letters should cover the purpose of the study, its benefits for the RRR industry, and how the response of the recipient could play a key role in the accuracy of results. The letter could also contain a link to the online survey, in case the industry

representatives want to forward it to the firms themselves for a better response. A sample letter is attached as Appendix B of this document.

3 Survey Plan

As a first step, ENVIRON developed a data gap analysis, which was presented to, and reviewed by, the Department. Based on the gaps identified, the Department provided additional business categories and contact information for the RRR industries in the State. ENVIRON finalized the list of relevant firms and their contact information in order to initiate the survey process. This chapter outlines the plan to conduct the survey, including the approach to followed, the sampling plan, and the survey instrument. This chapter was originally developed as a separate report, and has been reformatted to become a chapter of this larger report, although most of the text has not changed since it was originally presented.

The remainder of the chapter identifies and presents the survey plan with the following layout:

- Section 3.1 identifies the purpose and need for the survey plan.
- Section 3.2 provides the details of the approach and methodology to be followed for conducting the survey.
- Section 3.3 identifies the sampling plan.
- Section 3.4 summarizes the layout and contents of the survey instrument.
- Section 3.5 summarizes the discussion presented in the chapter.

3.1 Purpose and Need

The methodology to be used to identify economic impacts of waste diversion on the State of Colorado requires significant and specific data to be collected from available sources. The Data Gap Analysis was the first step in the process. Through the Data Gap Analysis, ENVIRON determined what data and information is currently available from known secondary sources, and what data will be necessary to obtain through surveys, interviews, and other methods. This survey plan is the second step in the analysis process, and its purpose is to outline the procedure and expectations of the survey process. Based on the type of information to be collected through a survey and the number and types of firms identified, ENVIRON has developed this survey plan comprising the survey methodology, recommended sampling strategy, and the survey instrument.

3.2 Approach and Methodology

Conducting the analysis of economic impacts related to recycling activities in Colorado requires certain direct economic data specific to each RRR firm identified (or at least a representative sample of firms within each business category) to be collected. In addition to the business categories mentioned in the Data Gap Analysis chapter, firms in the NAICS codes shown in Table 3-1 will be added to the analysis.

Table 3-1: Additional NAICS Codes

NAICS	Definition	Total No. of Firms
321920	Wood Container and Pallet Manufacturing	14
326122	Plastics Pipe and Pipe Fitting Manufacturing	4
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing	5
326191	Plastics Plumbing Fixture Manufacturing	4
326199	All Other Plastics Product Manufacturing	104
326211	Tire Manufacturing (except Retreading)	5
326220	Rubber and Plastics Hoses and Belting Manufacturing	2
326291	Rubber Product Manufacturing for Mechanical Use	1
326299	All Other Rubber Product Manufacturing	12
327213	Glass Container Manufacturing	5
331110	Iron and Steel Mills and Ferroalloy Manufacturing	46
331318	Other Aluminum Rolling, Drawing, and Extruding	10
331523	Nonferrous Metal Die-Casting Foundries	7
423690	Other Electronic Parts and Equipment Merchant Wholesalers	458
453310	Used Merchandise Stores	362
541990	All Other Professional, Scientific, and Technical Services	594
562920	Materials Recovery Facilities	3

While some economic information is available through secondary sources, these data will be primarily collected through a survey effort. In general, data to be collected through the survey include locations of the facilities, annual revenues, numbers of employees, payroll amounts, amounts paid in taxes, and percentages and types of the businesses' activities associated with RRR.

The survey will be conducted using the online survey tool “Survey Monkey.” Survey recipients will be contacted through email with a letter attached on behalf of the Department (see Appendix B). Firms for which email addresses are not readily available will be contacted either through phone calls or via their websites contact pages to obtain valid email addresses. The email will contain a link to the survey, instructions, and a deadline for responding to it. The attached letter will provide some information on the purpose of the exercise and a request for firms to participate.

Following the development of the final contact list for the RRR industry and the survey instrument (see Appendix A), and one week prior to sending out emails to all identified contacts, the survey will be pre-tested using Survey Monkey by requesting six contacts to complete the survey. Based on the results of the pre-test, the survey instrument will be modified, if needed, finalized, and re-posted on Survey Monkey. Directly following survey modifications due to results from the pre-test, the ENVIRON team will be operating a booth at the Colorado Association for Recycling Summit (June 9 and 10, 2014) to make initial contact with relevant firms attending the summit, and the survey will be available on a laptop at the booth for completion by anyone who would like to participate in the survey at the summit.

As discussed in more detail later in Section 3.4, the survey instrument will include a qualifying question to determine if the firm is part of the RRR industry. That question will help filter out firms which indicate they are not involved in the RRR industry, thus ensuring that the impacts are not over estimated in the analysis.

The process used to obtain both accurate and measurable responses to the survey will involve a two contact approach. Approximately three weeks after emailing the links to the survey, the ENVIRON team will attempt to reach the contact persons for each non-responding firm by email or phone. If the effort is successful and the identified contact persons are reached, the contact information will be confirmed and the recipient will be encouraged to complete the survey online as soon as possible. A systematic protocol will be used to explain objectives of the survey and obtain accurate information from the recipient. If ENVIRON is unsuccessful in reaching the contact persons, the team will attempt to leave messages for the identified individuals. Another round of follow-ups through emails or phone calls will be carried out two weeks after the first round. Overall, ENVIRON will attempt to reach the targeted survey recipients at least two times before considering companies as non-respondents. Approximately seven weeks after the survey is posted for all contacts, the ENVIRON team will review the list of respondents to identify processors and end-users who have not responded. From that list, ENVIRON and the Department will try once more to contact the RRR firms handling large quantities of materials, or in locations not yet represented, to obtain the needed data. The objective of this final attempt will be to gather data from those entities considered to play a "significant" role in recycling in Colorado and to complete location-specific data collection.

During the survey process, the ENVIRON team will continue to review the surveys as they are received for completeness and accuracy. In case there are clarifications needed or missing information on any response, the relevant contact person will be contacted via email or phone call to ensure the accuracy of the information.

Following the completion of the survey process, ENVIRON will compile all data in an MS Excel spreadsheet for analysis.

3.3 Sampling Plan

The number of firms requested to participate in the data collection survey process will be determined based on the total number of firms under each NAICS code and the percent of total, or total, number of firms identified with contact information obtained. Sampling for the survey will be based on a random sample of 60 percent of each of the NAICS code sectors for which 80 to 100 percent of the firms have been identified and contact information obtained. Sampling of NAICS codes for which less than 80 percent of the firms have been identified and contact information obtained will be based on a random sample of 80 percent of the identified firms. The goal is to have full representation of business categories, sizes of RRR firms, and locations. Sampling will not be done for sectors which either have five or fewer firms in total or for which contact information for five fewer firms is obtained. Under those conditions, all identified firms will be contacted and asked to participate in the survey. After initial contact, follow-up contact may target specific firms who have not yet responded in order to achieve representation of all business categories, all sizes of firms, and all locations. It should be noted that some NAICS codes with only one or two firms may not be represented in the survey results. If all NAICS codes are represented using 60 percent random sampling, over 2,000 firms will be asked to participate in the survey. If a 50 percent response rate is achieved, results will be provided for over 1,000 total RRR firms. This sampling plan is subject to modification if smaller than expected number of firms are available to participate in the survey.

3.4 Survey Instrument

The survey instrument developed to collect data from RRR firms in Colorado includes initial questions identifying the firm name and location as well as information about the person who is completing the survey. The next set of questions requests information regarding the amount and type of RRR work the firm is engaged in and in which counties the company provides services, followed by a group of questions to obtain the company financial and employment data necessary for the analysis.

A copy of a draft of the survey instrument is provided as Appendix A.

3.5 Summary

This survey plan has been developed to provide the Department with an understanding of the approach and methodology of the on-line survey process, how the sampling will be conducted, and what the survey instrument will look like. This is the next step in determining the economic impact analysis of the RRR industries in the State of Colorado. Once the survey plan is approved by the Department, the survey process will be initiated and the necessary data will be collected and compiled for analysis.

Following an initial pre-test, the survey will be conducted online using Survey Monkey, with the recipients informed through emails and phone calls. Two follow-ups will be conducted with firms that do not initially respond, with a third follow-up only with larger firms or those in a location that ENVIRON did not receive sufficient responses from. In terms of sampling, 60 percent random sampling will be carried out for NAICS business sectors for which 80 to 100 percent of the firms are identified and their contact information obtained. However, in case of sectors which either have five or fewer firms in total or identified, or for which contact information for five fewer firms is obtained, no sampling will be done and all identified firms with contact information will be contacted. The survey instrument is provided in Appendix A.

4 Data Collection

This chapter presents the survey methodology that was applied, the response, and results of the survey. The data collection chapter was originally presented as a stand-alone report to the Department, and has been formatted and laid out to become a chapter of this larger report. This chapter has undergone a technical review since it was originally presented to the Department, and departmental comments have been addressed.

The remainder of the chapter identifies and presents the methodology used, the response, and results with the following layout:

- Section 4.1 identifies the purpose and need for this chapter.
- Section 4.2 provides the details of the approach and methodology that was followed for conducting the survey. This section also includes a discussion of the sampling, and a description of layout and contents of the survey instrument.
- Section 4.3 summarizes the overall results of the survey and also provides information on the response rate. It has two sub-sections; Sub-section 4.3.1 discusses the survey results by NAICS code, while Sub-section 4.3.2 presents the detailed results of the survey by question.
- Section 4.4 summarizes the discussion presented in the chapter.

4.1 Purpose and Need

The methodology to be used to identify economic impacts of waste diversion on the State of Colorado requires significant and specific data be collected from available sources. The Data Gap Analysis was the first step in the process. Through the Data Gap Analysis, ENVIRON determined what data and information are currently available from known secondary sources, and what data will need to be gathered through surveys, interviews, and other methods. The second step in the analysis was the Survey Plan, which outlined the procedure and expectations of the survey process. This chapter, which reports the results of the survey, is the third and a key step in the process. It provides pertinent economic and other information regarding the RRR industry in Colorado.

4.2 Approach and Methodology

ENVIRON followed the general methodology outlined in the Survey Plan to conduct the online survey. A spreadsheet was created with RRR contacts from a variety of entities and locations throughout the state. This included information supplied by CDPHE and that obtained through research by ENVIRON. Using the contact information from the spreadsheet, ENVIRON attempted to obtain more current contact information (including email addresses) for as many contacts as possible. During a period of a few weeks, over 50 RRR entities were contacted via telephone to obtain the contact information or, where relevant, get a current contact person’s name and email address. Following the initial effort to obtain updated contact information, over 150 RRR entities throughout Colorado were contacted via email to participate in the survey.

Approximately two weeks after emailing the link to the survey, the ENVIRON team attempted to reach the contact person for each non-responding entity by email and/or phone. After a contact was reached, the ENVIRON team encouraged each contact to complete the survey. If a contact could not be reached, a voicemail message was left with information about the survey and how to contact an ENVIRON team member if they had any questions or concerns. Approximately two weeks after the first round to reach contacts, another round of follow-up emails and phone calls was carried out.

ENVIRON attempted to contact the targeted survey recipients at least two times before considering those entities as non-respondents. Approximately seven weeks after the survey was posted for all contacts, the ENVIRON team reviewed the list of respondents to identify processors and end-users who had not responded. From that list, ENVIRON and the Department tried once more to contact the RRR entities handling large quantities of materials, or in locations not yet represented, to obtain the needed data.

Throughout this data collection effort, the ENVIRON team tracked all attempts to contact RRR entities in the RRR contact spreadsheet (previously mentioned). That spreadsheet identifies the entities that have completed the survey and those that declined to participate, or were uncooperative.

4.2.1 Sampling

As discussed in the Survey Plan, the number of entities requested to participate in the data collection survey process was to be determined based on the total number of entities under each NAICS code and the percent of total, or total, number of entities identified with contact information obtained. As per the Survey Plan, it was decided that sampling would not be done for sectors which either have five or fewer entities in total or identified, or for which contact information for five fewer entities is obtained. Under those conditions, all identified entities would be contacted and asked to participate in the survey. While collecting the names of entities and their contact information, it was determined that there were overlaps between NAICS codes, and for many of the entities, it was not clear what their primary operations were. A question in the survey instrument gives the option to the respondent to select a NAICS Code that the entity falls under. Also, given that the survey was to be conducted online, it was possible to send out the survey to more entities efficiently and without incurring too much additional expense. Therefore, all entities for which contact information was collected were sent the link to the survey in an email.

4.2.2 Survey Instrument

The survey instrument used to collect data from RRR entities in Colorado included initial questions identifying the entity name and location, as well as information about the person who completed the survey. The next set of questions requested information regarding the amount and type of RRR work the entity was engaged in, and in which counties the company provided services, followed by a group of questions to obtain the company financial and employment data necessary for the analysis, and another group of questions regarding locations of suppliers and processors.

A copy of survey instrument is used provided as Appendix A.

4.3 Survey Results

By the time the online survey was officially closed, 75 survey responses were received out of a total of 642 surveys sent, with an overall response rate of 12%,. The respondents are from a variety of entities ranging from landfills to electronic recycling sites, and include both public and private entities. 50% of the survey respondents identified themselves as a Collector/ Hauler, with Processors slightly lower at 49%, followed by 11% each for Manufacturers and Remanufacturers, 10% as a Reuser, 8% as a Broker, and 22% as Other. The Reuse and Remanufacturing sector represented by the survey participants comprises industries such as computer and electronic appliance remanufacturing, equipment or toner cartridge remanufacturer motor vehicle part manufacturer, retail used merchandise sales, and wood reuse or pallet rebuilder. The Other Recycling Entities include education/ research, organizer of collection sites, consultant, landfill, processing for community activities, trade association, drop off site, regulatory agency, equipment dealer, de-manufacturing, and various collection activities. Several interesting pieces of information stand out from reviewing the complete survey results. Many of these are highlighted briefly here, with the full detailed results found in Section 4.3.2.

It is interesting to note that survey responses were received from entities operating in nearly all Colorado counties (Question #7). Another very interesting result of the survey is that while nearly 80 percent of entities do business within the State of Colorado, nearly 69 percent do business outside the State (Question #21), and more than 70 percent know or believe that there is a demand for recycled materials in Colorado (Question #23). Further, and most likely related to doing business outside of Colorado, respondents indicated a large number of miles traveled both to collect recycled materials and to move materials for processing, with nearly 60 percent traveling over 50 miles and nearly 30 percent traveling more than 100 miles to collect recycled materials (Question #24) and, on average, moving materials for processing more than 100 miles to 16 facilities and to 8 facilities less than 50 miles. It is interesting to note that only 31 percent of respondents partner with local Colorado manufacturers to use recycled materials for their manufacturing needs, indicating potential for further education, outreach, and partnering within the RRR industry in the State of Colorado.

Other pertinent results of the survey show that of the 75 respondents, the majority self-identified themselves as collector/hauler or processor within the recycling industry. Additionally, the recycling industry in Colorado employs, on average, 58 full time employees and 14 part-time employees, working an average of 14 hours per week (Questions # 14, 15, and 16, respectively). Further, the data collected from the survey respondents appears to contribute positively to the Colorado economy by providing salaries primarily within the range of $15,000 to $25,000, with the next largest number of employees in the salary range of $25,000 to $50,000 (Question #18).

4.3.1 Survey Results Summary by Sector and NAICS Code

The survey included a question to identify, where possible, the NAICS codes each respondent was associated with (Question #6). Of the 75 respondents, 46 identified their NAICS codes, while 29 respondents skipped this question. The number of responses from each of the following NAICS codes (some respondents included more than one NAICS code) is shown in Table 4-1.

This section summarizes the responses received by NAICS code for specific questions (4, 9, 14, 15, 17, and 19, where appropriate). While a summary for each NAICS code for each question is not included, a selection of questions and NAICS codes are provided in Table 4 -1. Some of the summary results are not disclosed due to low response rates, resulting in propriety concerns relative to keeping individual data confidential. These results are indicated by *D in Table 4-1.

The greatest number of responses to Question #6 came from respondents identifying as a part of NAICS code 562920, Recycling Processing-Materials Recovery Facilities-Materials Recovery. This industry sector is also one of the two largest in terms of average number of employees and total average payroll. The other is 423930, Recycling Processing- Recyclable Materials Wholesalers-Recyclable Materials Wholesalers. Further, responses for these two sectors indicate a large percent of their business activities are related to the RRR industry, 92 percent and 96 percent, respectively. The majority of these NAICS codes indicate a significantly larger share of business practice applicable to private recycling collection. The three NAICS codes with a business practice applicable primarily to government recycling collection are 562111, Recycling Collection- Government Staffed-Solid Waste Collection; 325314, Recycling Processing-Compost &Organic Producers-Fertilizers; and 541990, Reuse & Re-Manufacturing – Materials Exchange Services-All Other Professional, Scientific, and Technical Services.

Table 4-1a provides an overview of the average percent of the NAICS code (or sector) within each business category that is dedicated to recycling, For example, for those who identified as Collector/Hauler and whose business falls under the NAICS code 592920, 35 percent of the business activities are related to recycling. As another example, for those who identified as a Processor and whose business falls under the NAICS code 562112- Recycling Collection- Private Staffed, 14 percent of all business activity is related to recycling. The highest percentage of recycling activities within any of the business categories for any of the NAICS codes is for Brokers in the NAICS code 562920- Recycling Processing- Materials Recovery Facilities, with 80 percent. The second highest is 67 percent, which is a tie between the “Other” business category (which may include entities such as consultants, trade organizations, organizers, education, and research), NAICS code 562111- Recycling Collection- Government Staffed, and the Reuser category for NAICS code 562920. The other high percentage of recycling activities falls under those identified as Processors, also in the NAICS code 562920. Remanufacturing reported 40 percent recycling activities for three of the five NAICS codes represented by that business category. The other business categories reported between three and 35 percent recycling activities for reported NAICS codes. Further details of the survey responses by business category are included as Appendix D

Table 4-1a also presents an insight on the importance of each business category as it relates to a specific NAICS code. This table shows that the collector/haulers and processors each have recycling activities under 10 of the 13 NAICS codes identified in the survey, with three and five of those, respectively, near or above 30 percent. This may indicate broad recycling activities for these business categories, with the potential to expand under all or most of those NAICS codes. The manufacturer category indicates recycling activities under six of the 13 NAICS codes, each with 25 percent, providing potential growth within each. Remanufacturer, Broker, and Reuser each identify recycling activities under only five of the 13 NAICS codes, but most of the percentages are above 30 percent and up to 80 percent, with the remaining sectors at 20 percent. This may provide opportunity for concentration of activities within those specific areas, or alternatively, attempting to discover why there isn’t activity within the other sectors and pursuing growth in those sectors if appropriate.

Table 4-1: Summary of Survey Results by NAICS Code

NAICS Code	4. Average percent of business activities related to recycling industry	6. Number of respondents from each NAICS code	9. Average percent of business practice applicable to Gov't / Private Recycling Collection	14. Average number of full-time employees	15. Average number of part-time employees	17. Average total payroll in 2013	19. Average total recycling revenue
562111 (Recycling Collection-Gov. Staffed)	44%	11	58% / 7%	4	2	$168,200	$57,600
562112 (Recycling Collection- Private Staffed)	64%	9	6% / 65%	29	1	$74,100	$186,700
325314 (Recycling Processing-Compost &Organic Producers-Fertilizers)	13%	5	51% / 3%	10	1	$500,000	$173,000
423930 (Recycling Processing- Recyclable Materials Wholesalers)	96%	8	5% / 78%	222	86	$9,270,400	$26,786,600
562920 (Recycling Processing-Materials Recovery)	92%	16	8% / 88%	109	54	$4,043,300	$101,600
324121 (Asphalt Paving Mixture and Block Manufacturing)	50%	2	3% / 100%	*D	*D	*D	*D
3261 (Plastic Bag Manufacturing)	100%	2	N/A	*D	*D	*D	*D

Table 4-1: Summary of Survey Results by NAICS Code

NAICS Code	4. Average percent of business activities related to recycling industry	6. Number of respondents from each NAICS code	9. Average percent of business practice applicable to Gov't / Private Recycling Collection	14. Average number of full-time employees	15. Average number of part-time employees	17. Average total payroll in 2013	19. Average total recycling revenue
331111 (Iron and Steel Mills	100%	1	N/A	*D	*D	*D	*D
333316 (Photographic and Photocopying Equipment Manufacturing)	25%	1	N/A	*D	*D	*D	*D
423690 (Other Electronic Parts and Equipment Merchant Wholesalers)	98%	3	0% / 100%	51	5	$666,700	*D
811212 (Computer and Office Machine Repair and Maintenance)	98%	2	10% / 90%	*D	*D	*D	*D
453310 (Used Merchandise Stores)	70%	1	5% / 95%	*D	*D	*D	*D
541990 (Reuse & Re-Manufacturing – Materials Exchange Services)	N/A	1	100%/ 0%	*D	*D	*D	*D

*D = less than 3 entities reporting; not disclosed for propriety reasons

Table 4-1a – Percent of Business Category Dedicated to Recycling by NAICS Code

	Business Categories						
NAICS Codes	**Collector/ Hauler**	**Manufacturer**	**Processor**	**Remanufacturer**	**Broker**	**Reuser**	**Other**
562920- Recycling Processing- Materials Recovery Facilities	35%	0%	59%	40%	80%	67%	0%
562111- Recycling Collection- Government Staffed	28%	25%	5%	0%	20%	0%	67%
562112- Recycling Collection- Private Staffed	31%	0%	14%	0%	20%	0%	0%
423930- Recycling Processing- Recyclable Materials	24%	0%	32%	40%	20%	67%	0%
325314- Recycling Processing- Compost	3%	0%	14%	0%	20%	0%	17%
423690- Recycling Manufacturing- Other Electronic	7%	0%	5%	40%	0%	33%	0%
324121- Recycling Manufacturing- Pavement Mix Prods	3%	25%	5%	0%	0%	0%	0%

Table 4-1a – Percent of Business Category Dedicated to Recycling by NAICS Code

	Business Categories						
NAICS Codes	**Collector/ Hauler**	**Manufacturer**	**Processor**	**Remanufacturer**	**Broker**	**Reuser**	**Other**
3261- Recycling Manufacturing- Plastic Converters	7%	0%	9%	0%	0%	0%	0%
811212- Recycling Manufacturing- Demanufacturers	3%	0%	5%	20%	0%	33%	17%
331110- Recycling Manufacturing- Iron & Steel Mills	0%	25%	0%	0%	0%	0%	0%
331111- Recyclign Manufacturing- Iron & Stell Mfgs.	0%	25%	0%	0%	0%	0%	0%
333316- Recycling Manufacturing- Nonferrous Product Prods	0%	25%	0%	0%	0%	0%	0%
453310- Reuse & Remanufacturing- Materials Exchange Srvcs	3%	25%	5%	20%	0%	33%	0%

Figures 4-1 through 4-6 illustrate average number of employees within the salary ranges for each of the specified NAICS code for which sufficient data are available.

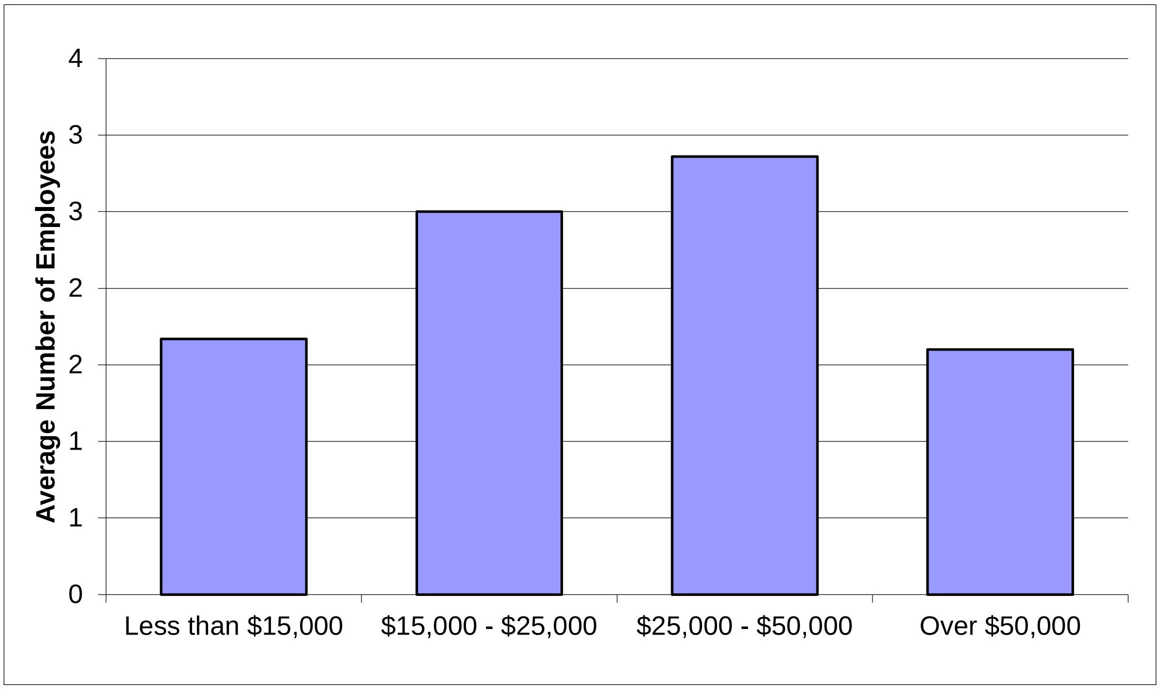


Figure 4-1: NAICS Code 562111 (Recycling Collection- Government Staffed) – Average Number of Employees within the Specific Salary Ranges

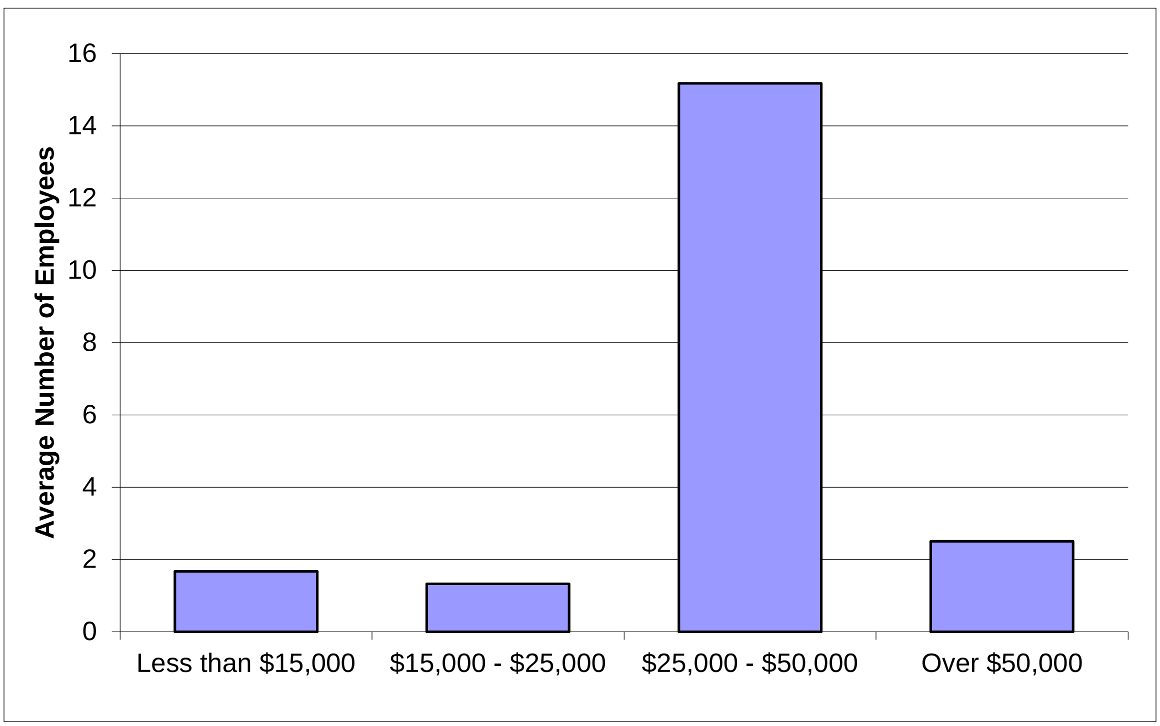


Figure 4-2: NAICS Code 562112 (Recycling Collection- Private Staffed) – Average Number of Employees within the Specific Salary Ranges

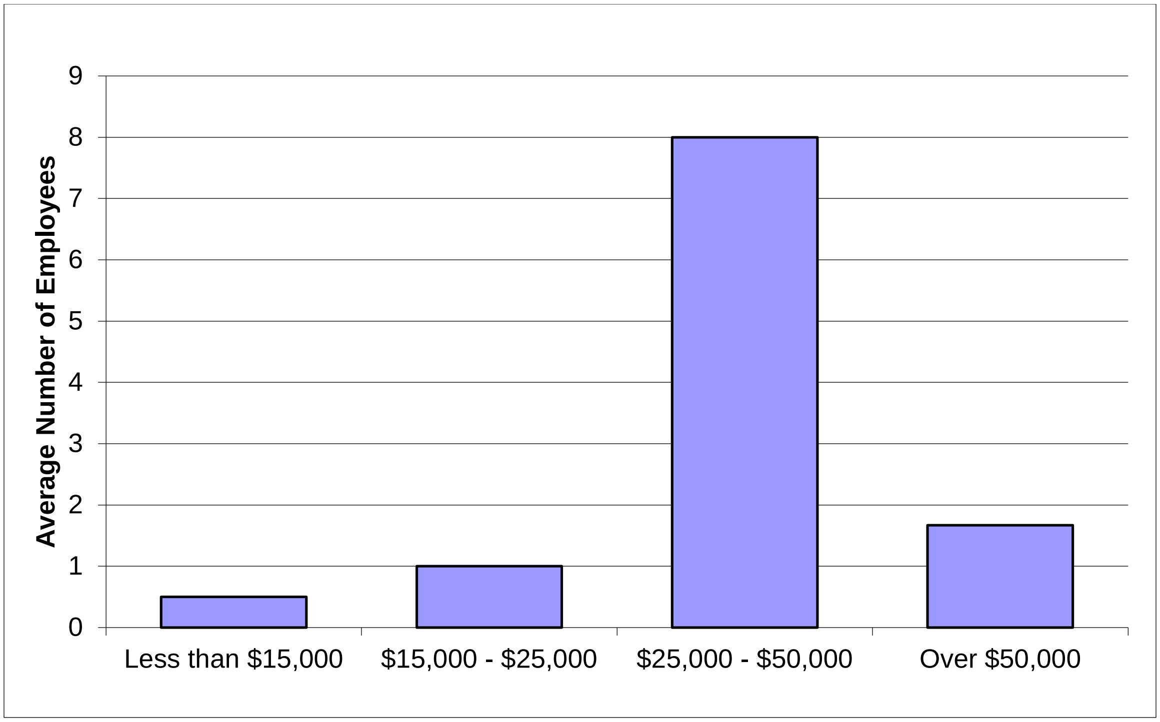


Figure 4-3: NAICS Code 325314 (Recycling Processing-Compost &Organic Producers-Fertilizers) – Average Number of Employees within the Specific Salary Ranges

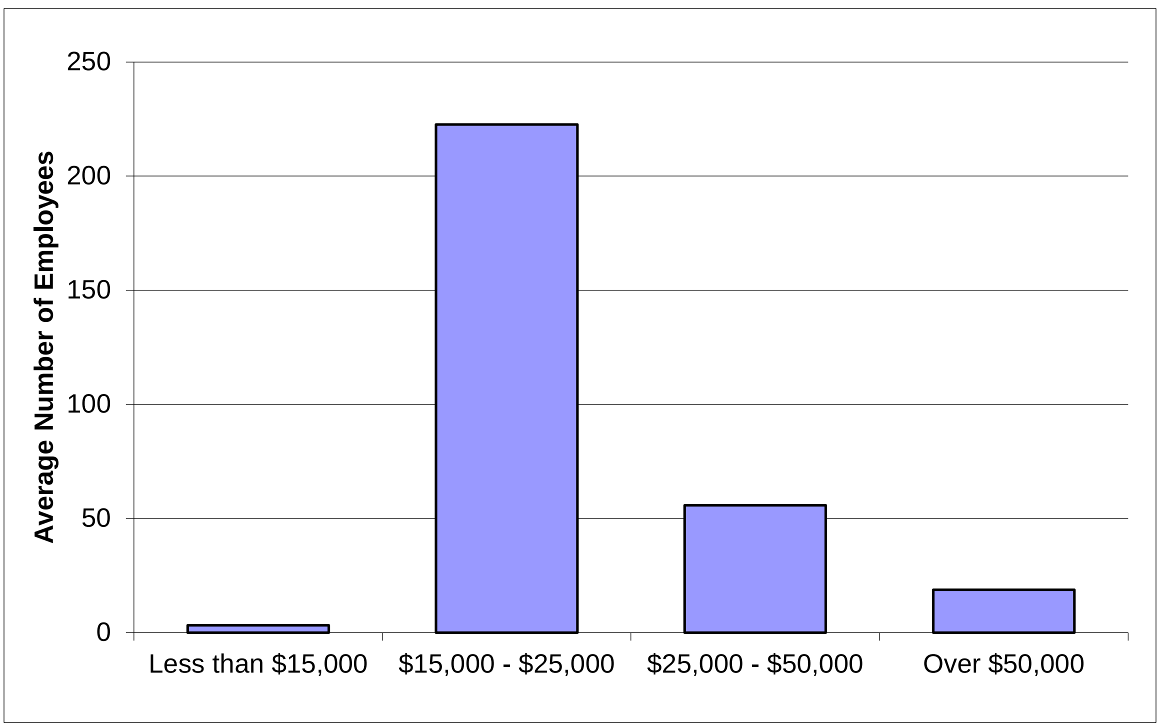


Figure 4-4: NAICS Code 423930 (Recycling Processing- Recyclable Materials Wholesalers-Recyclable Materials Wholesalers) – Average Number of Employees within the Specific Salary Ranges

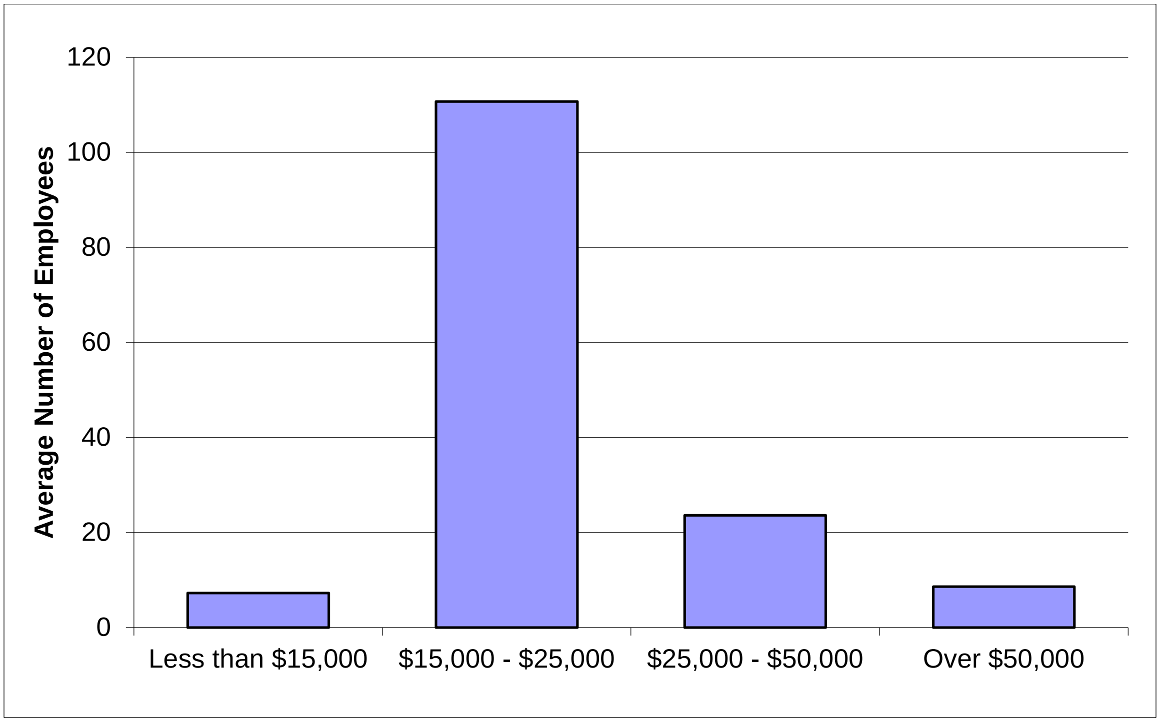


Figure 4-5: NAICS Code 562920 (Recycling Processing-Materials Recovery Facilities-Materials Recovery) – Average Number of Employees within the Specific Salary Ranges

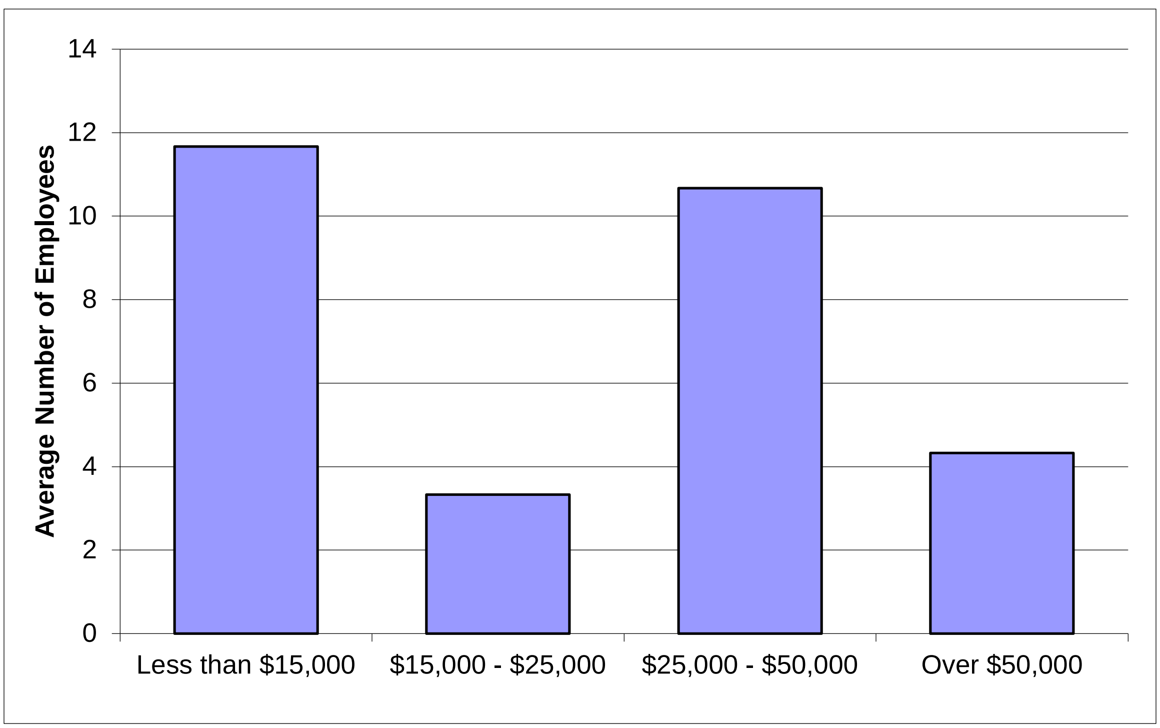


Figure 4-6: NAICS Code 423690 (Other Electronic Parts and Equipment Merchant Wholesalers) – Average Number of Employees within the Specific Salary Ranges

With the exception of NAICS code 423690, Recycling Manufacturing-Other Electronic Parts and Equipment Merchant Wholesale, which has a large share of employees with a salary of less than $15,000, all the sectors for which data was provided by a significant number of entities have the largest number of employees within the salary ranges of $15,000 to $25,000 and $25,000 to $50,000, indicating that, in general, the recycling industry productively contributes to the Colorado economy in terms of providing substantial income. Recycling Collection-Private Staffed-Solid Waste Collection (NAICS code 562112) provides the largest number of jobs with salaries between $25,000 and $50,000, with an average of 15 employees per entity.

All of these data will be utilized in the next phase of this study. The economic impact analysis will include the data provided by the responding entities related to employment, income, revenue, and taxes, to the extent that the data have been provided by NAICS code.

4.3.2 Complete Survey Results

The following is a summary of the complete survey results for all 26 survey questions, along with accompanying tables and figures to highlight the results, where appropriate.

Question #1: Please provide us the following information about you and your employer for our records and verification. All information will be kept confidential and no individual information will be provided to other parties. CDPHE will not request, or be entitled to see, any individual respondent data. All information will be processed, compiled, and consolidated prior to analysis and distribution, so as not to disclose any individual firm- or site-specific data. Results will only be used once aggregated to industrial sector. If there are multiple locations, please complete a separate survey for each site:

This question provides a list of survey respondents and their contact information. Due to the confidential nature of the survey data, no individual information is provided.

Question #2: Is your firm or organization currently involved in the collection, sale, purchase, processing, or use of recycled material on a regular basis? (Table 4-2 and Figure 4-7)

The majority of survey respondents (over 89%) indicated that their entity is currently involved in the collection, sale, processing, or use of recycled materials on a regular basis. Only 11% indicated that they did not conduct such activities.

Table 4-2: Is your firm or organization currently involved in the collection, sale, purchase, processing, or use of recycled material on a regular basis?

Answer Options	Response Percent	Response Count
YES	89.2%	66
NO	10.8%	8
answered question		**74**
skipped question		**0**

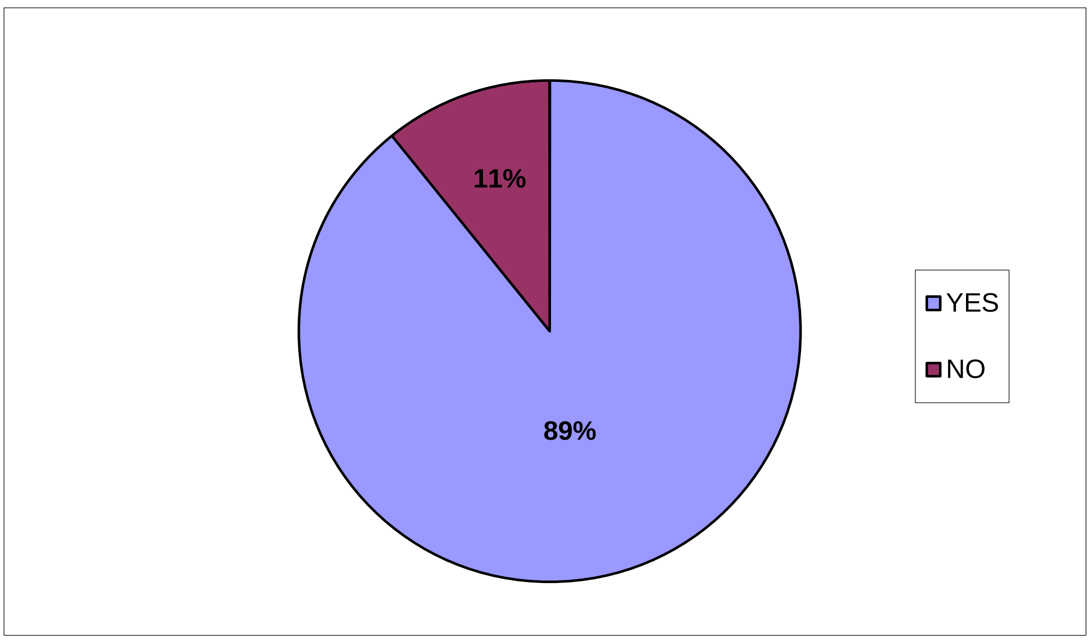


Figure 4-7: Is your firm or organization involved in the collection, sale, purchase, or use of recycled material on a regular basis?

Question #3: Does your firm or organization have multiple sites within Colorado where recycling activities occur? If yes, please be sure to complete a separate survey for each site (this includes all sites for which you are the primary responsible entity) (Table 4-3 and Figure 4-8)

The majority of survey respondents (almost 68%) indicated that they do not have multiple sites within Colorado. About 1/3 of respondents indicated that they had multiple sites within Colorado.

Table 4-3: Does your firm or organization have multiple sites within Colorado where recycling activities occur? If yes, please be sure to complete a separate survey for each site (this includes all sites for which you are the primary responsible entity)

Answer Options	Response Percent	Response Count
YES	32.4%	24
NO	67.6%	50
answered question		**74**
skipped question		**1**

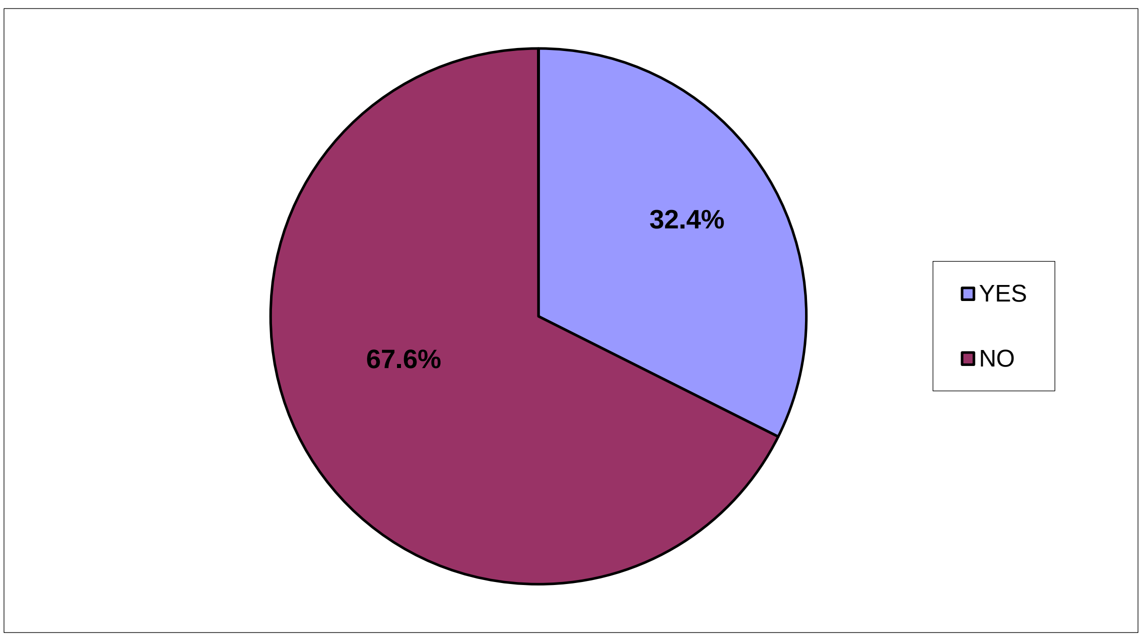


Figure 4-8: Does your firm have multiple sites within Colorado where recycling activities occur?

Question #4: Approximately what percent of the business activities conducted at this site is related to the recycling industry? (If N/A enter zero)

Over 67% of business activities are related to recycling (this is the average percentage for each site indicated in the second and third question from all the survey responses).

Question #5: Which category best defines your role as a recycling entity (check all that apply) (Table 4-4 and Figure 4-9)

The majority of survey respondents (over 50%) identified their entity as a Recycling Collector/ Hauler, which was followed by Recycling Processor (49%). Those that identified their entity as an Other Recycling Entity (22%) described their roles in recycling as the following; landfill, business consultant, trade association, electronic waste collector, recycling drop off site, government agency, equipment dealer, and demanufacturing. Very few respondents identified their entity as a Manufacturer, Remanufacturer, Re-user, or Broker.

Table 4-4: Which category best defines your role as a recycling entity (check all that apply)

Answer Options	Response Percent	Response Count
Collector / Hauler	50.7%	37
Processor	49.3%	36
Other (please specify below)	21.9%	16
Manufacturer	11.0%	8
Remanufacturer	11.0%	8
Reuser	9.6%	7
Broker	8.2%	6
Other (please describe)		20
answered question		**73**
skipped question		**2**

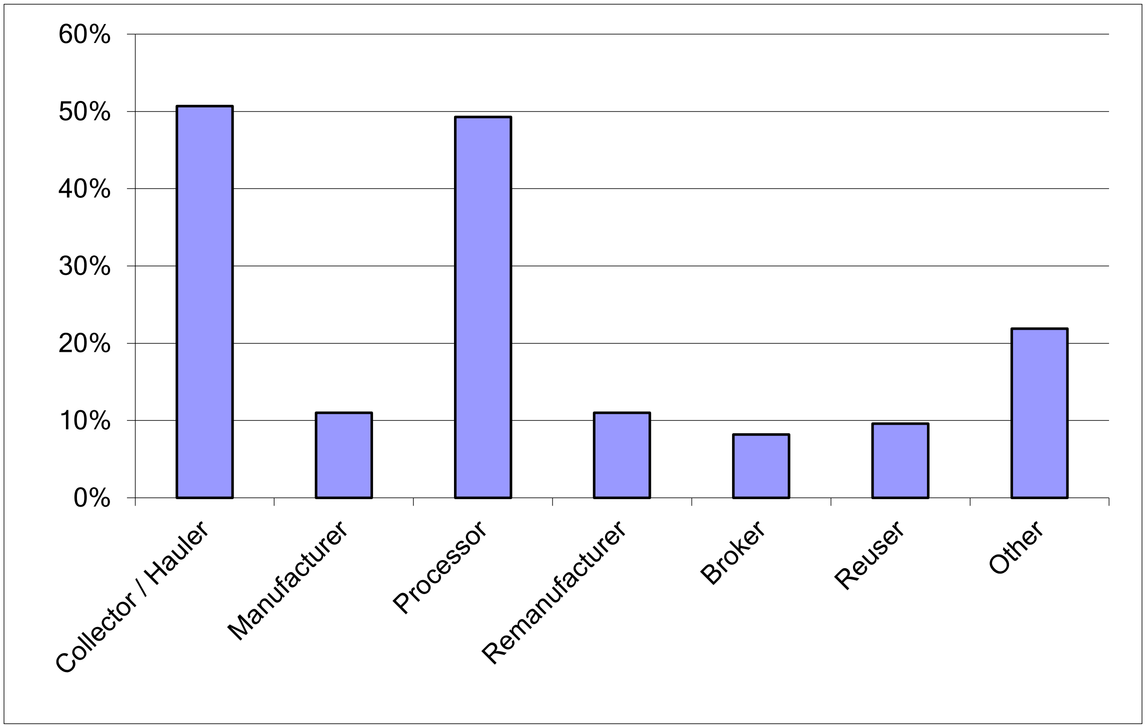


Figure 4-9: Percent of Respondents within Specific Recycling Entity Categories

Question #6: If you know under which NAICS code(s) your company / site operates, please include it (them) here (multiple answers ok) (Check all the apply) (Figure 4-10)

Over 34% of respondents identified their entity as NAICS Code 562920 - Recycling Processing-Materials Recovery Facilities, followed by NAICS Code 562111-Recycling Collection-Government Staffed-Solid Waste Collection (Over 23%), Recycling Collection-Private Staffed-Solid Waste Collection (Over 19%), and Recycling Processing-Recyclable Materials (Over 17%) Almost half of the respondents did not know what NAICS code their company/ site operated under.

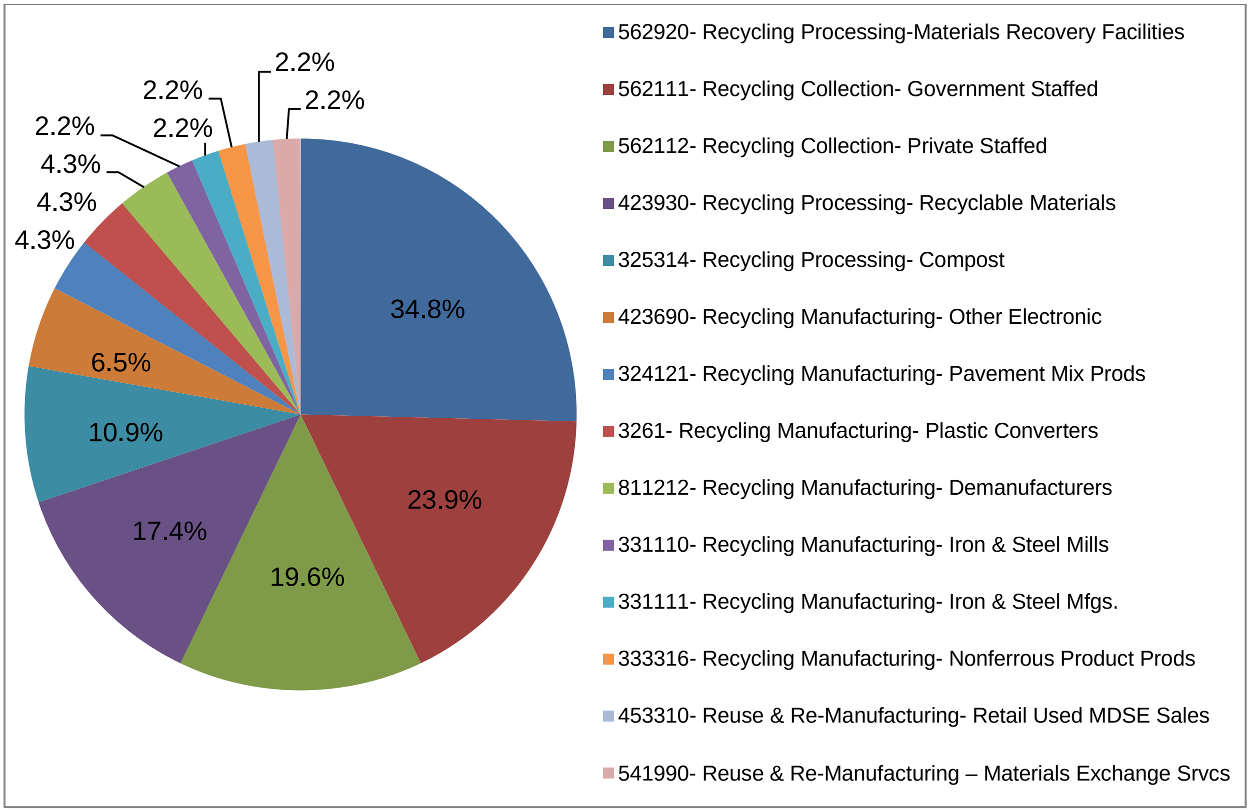


Figure 4-10: NAICS code(s) under which your company/site operate (share of all non-zero responses)

Question #7: What county(ies) do you operate in (mark as many as apply)? (Figure 4-11)

Over 22% of respondents operate in the City and County of Denver, followed by Jefferson County (16%), Larimer County (16%), El Paso County (14%), Adams County (13%), Arapahoe County (13%), Boulder County (11%), Mesa County (11%), Douglas County (10%), Summit County (10%), and Weld County (10%). Survey responses were received from entities operating in most of the counties.

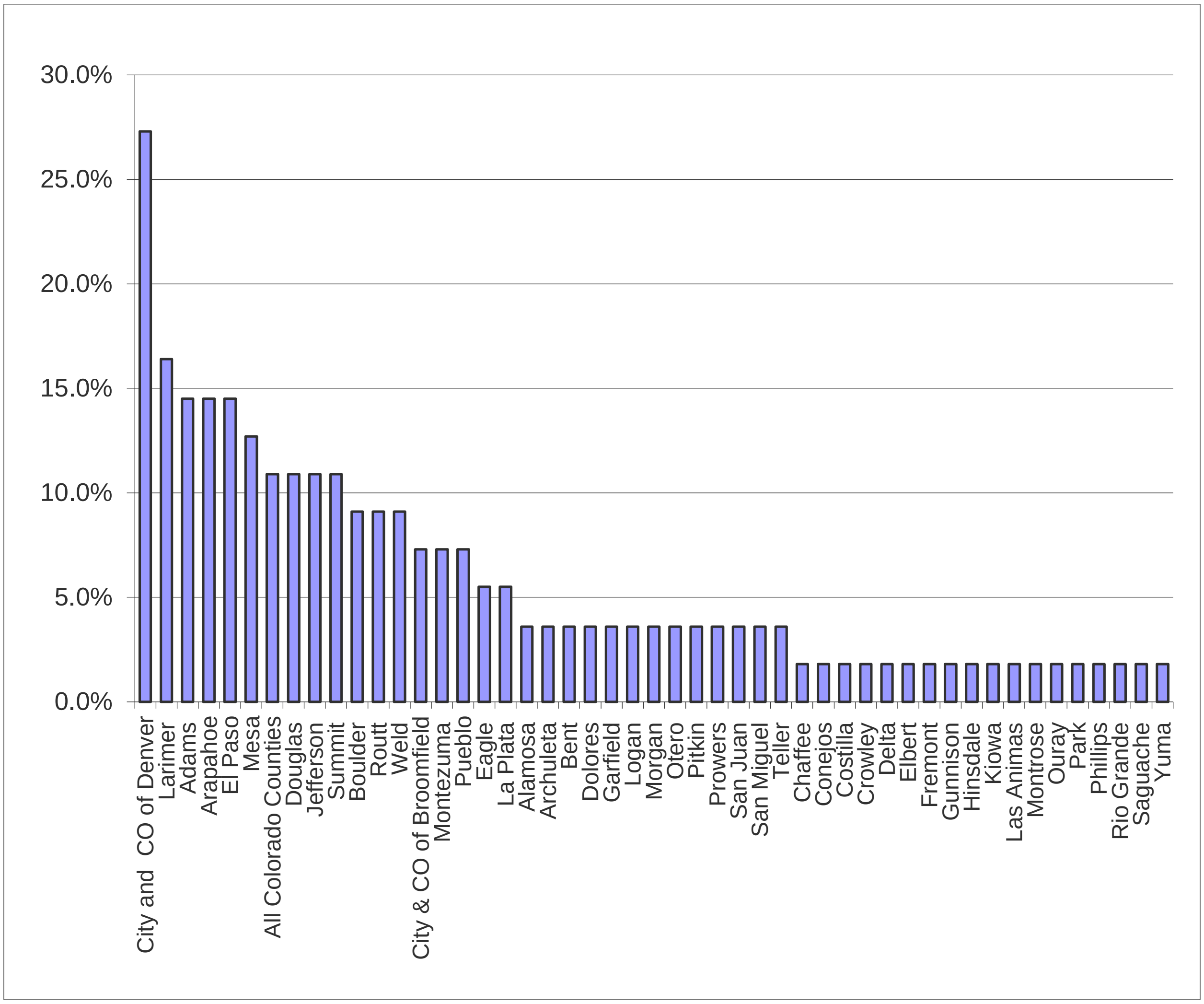


Figure 4-11: What county(ies) do you operate in (mark as many as apply)?

Question #8: Questions 9-13 help us better understand the sub sectors of recycling: Recycling Collection, Recycling Processing and Manufacturing, Reuse and Remanufacturing, Support Business, and Other. Please answer Yes or No to the recycling categories your business participates in. Note: It is possible for a firm to be engaged in more than one type of recycling. It is also possible for a firm to only dedicate a small percentage of its total time to recycling; therefore the answer may not add up to 100% unless the entire business is dedicated to recycling (for example, if a quarter of your business is dedicated to manufacturing of glass containers," place "25" to the right of the "Glass container manufacturing" category below)(Figure 4-12).

33 entities identified their entity as a Recycling Collection Site, followed by 22 Recycling Processing and Manufacturing Entities, 4 Reuse and Remanufacturing Entities, and 4 Support Businesses or Other Entities.

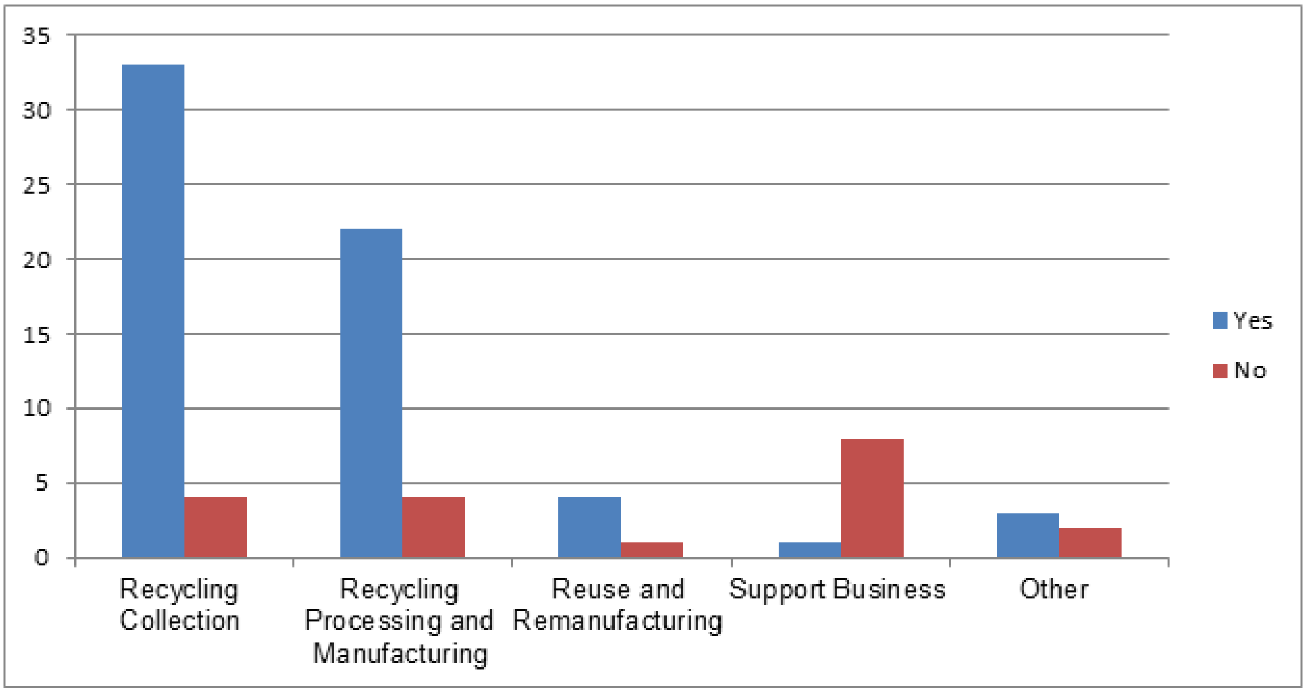


Figure 4-12: Number of Businesses in Different Subsectors of Recycling

Question #9: Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING COLLECTION categories provided below by writing in the percentage to the right of the category. (Table 4-5 and Figure 4-13)

Over 66% of entities identified as a Recycling Collection Facility were privately staffed, while only 37% were government staffed.

Table 4- 5: Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING COLLECTION categories provided below by writing in the percentage to the right of the category

Answer Options	Response Average	Response Count
Government-staffed collection	36.54	26
Private-staffed collection	66.58	31
answered question		**42**
skipped question		**33**

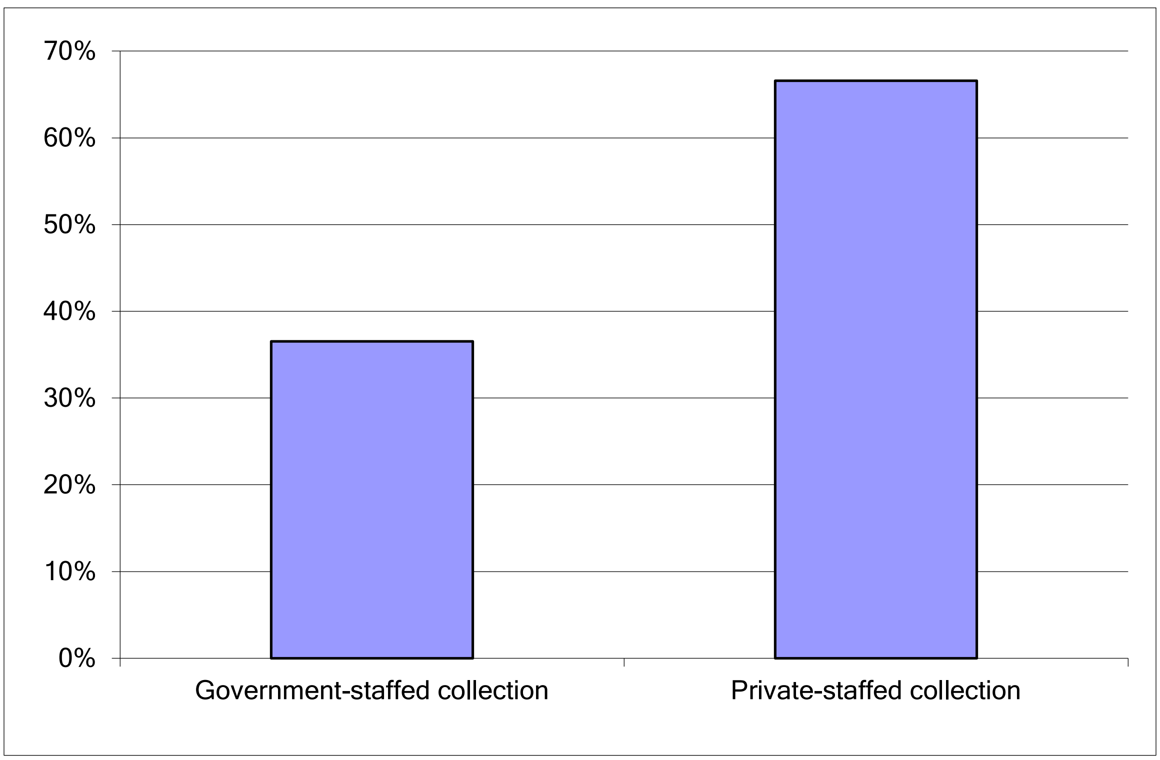


Figure 4-13: Average Percentage of Business devoted to the following Recycling Collection Categories

Question #10: Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING PROCESSING and MANUFACTURING categories provided below by writing in the percentage to the right of the category (Figure 4-14)

Over 42% of responding entities identified themselves as a Recycling Processing and Manufacturing facility were a Materials Recovery Facility, followed by Recyclable Materials Processor (over 39%), and Electronics Recycling Processor (over 36%). It is also worth noting that 26% of entities operate as a Nonferrous Product Producer and 15% of entities operate as either a Steel or Iron Manufacturing Site or Steel Mill.

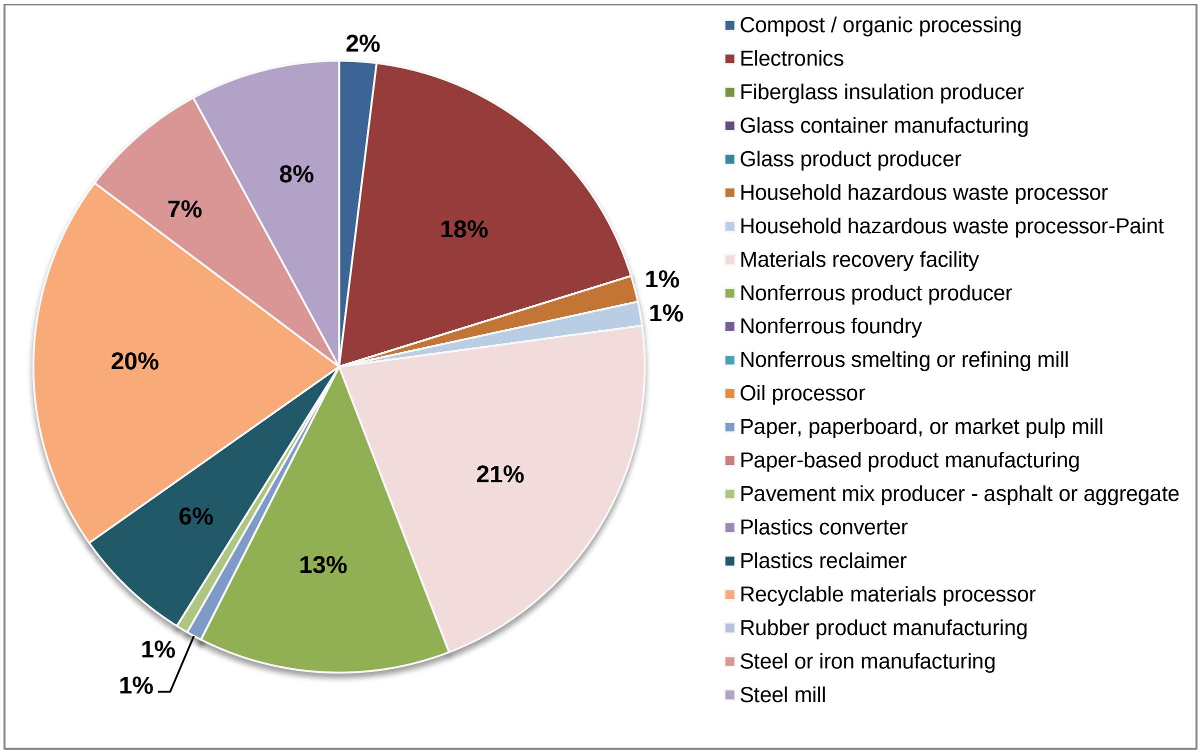


Figure 4-14: Percentage of Business Devoted to the following Recycling Processing and Manufacturing Categories

Question #11: Please indicate what percentage of your business practice (at this site) is applicable to the following REUSE and REMANUFACTURING categories provided below by writing in the percentage to the right of the category.

Over 15% of respondents who identified their entity as a Reuse and Remanufacturing facility were a Computer / Electronic Appliance Remanufacturing Site. A few respondents indicated that their entity was one of the following: an equipment or toner cartridge manufacturing site, retail used merchandise sales, or wood reuse or pallet rebuilder.

Question #12: Please indicate what percentage of your business practice (at this site) is applicable to the following SUPPORT BUSINESS categories provided below by writing in the percentage to the right of the category.

Over 22% of respondents with entities identified as a Support Business were a recycling transporter and 15% of respondents identified their business as a brokerage entity. A few respondents indicated that their entity was either a recycling and reuse equipment manufacturer or materials exchange entity.

Question #13: Please indicate what percentage of your business practice (at this site) are applicable to the following OTHER categories provided below by writing in the percentage to the right of the category.

Over 34% of respondents who identified their entity as an Other Recycling Business operate as a recycling processor / manufacturer. A few respondents also identified their entity as a reuse / remanufacturer.

Question #14: Please provide the number of FULL TIME employees (working 40 hours per week) at this site in 2013.

The average number of Full Time employees based on all survey responses is 58 FTE's. The number of Full Time employees ranges from 0 to 1400 FTE's.

Question #15: Please provide the number of PART TIME employees (working less than 40 hours per week) at this site in 2013.

The average number of Part Time employees based on all survey responses is 14 PTE's. The number of Part Time employees ranges from 0 to 600 PTE's.

Question #16: What was the average number of hours PART TIME employees worked per week in 2013?

The average number of hours for Part Time employees based on all survey responses is 14 hours/week. The number of hours worked for Part Time employees ranges from 0 to 77 hours/week.

Question #17: What was the total payroll associated at this site in 2013?

The average payroll associated at the sites indicated in the survey for 2013 based on all survey responses is $1,196,334 dollars. Total payroll at the sites indicated in the survey ranges from $0 to $4,500,000.dollars.

Question #18: Please indicate the number of employees within the following salary ranges: (Table 4-6 and Figure 4-15)

The majority of respondents indicated that their employees earn salaries in the $15,000 - $25,000 or $25,000 - $50,000 range. Only a few respondents indicated that their employees fell in the other salary ranges.

Table4- 6: Please indicate the number of employees within the following salary ranges

Answer Options	Average Number of Employees	Response Range	Response Total	Response Count
Less than $15,000	4.62	0 - 40	120	26
$15,000 - $25,000	38.13	0 - 1086	1,182	31
$25,000 - $50,000	16.44	0 - 239	707	43
Over $50,000	5.29	0 - 75	185	35
answered question				**54**
skipped question				**21**

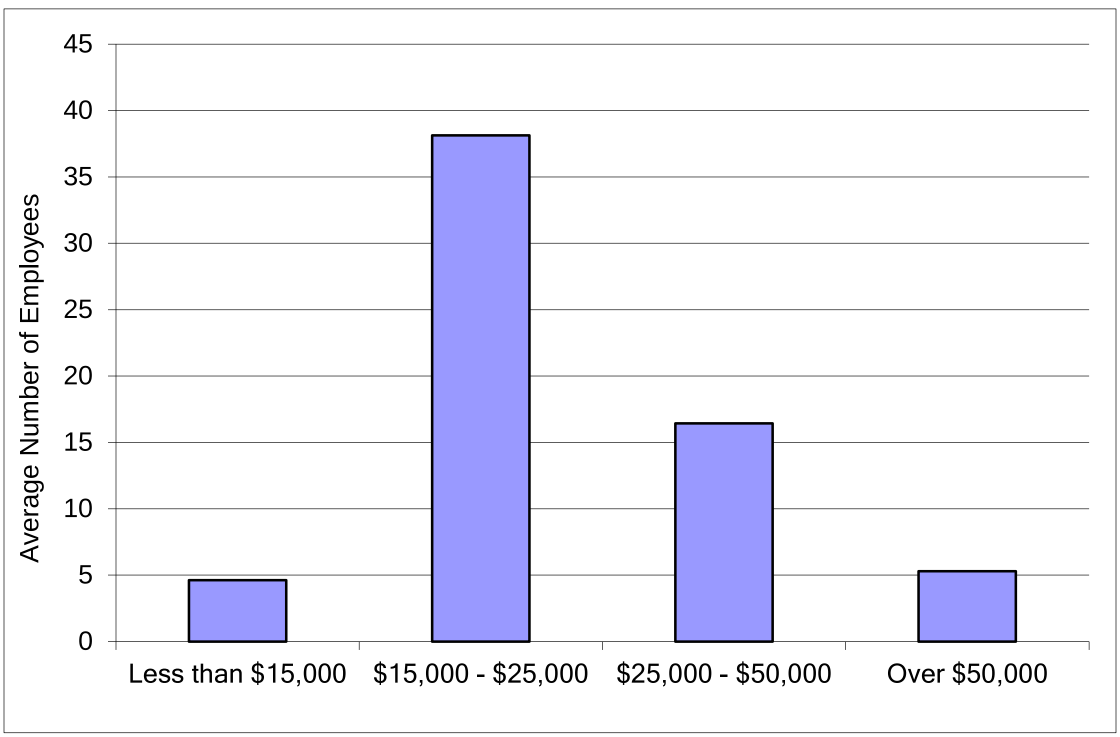


Figure 4-15: Average Number of employees in certain salary ranges

Question #19: What was the total amount of revenue associated with recycling at this site in 2013?

The average total revenue associated with recycling at the site indicated in the survey for all responses for the location is $3,999,284 dollars and the average total recycling revenue is $2,839,160 dollars.

Question #20: Please indicate the TOTAL amount paid in taxes for each of the following categories in 2013. (Figure 4-16)

The average total amount paid in taxes for all survey responses is as follows: Federal taxes - $85,175 dollars, State taxes - $24,179 dollars, and local taxes - $1,232 dollars.

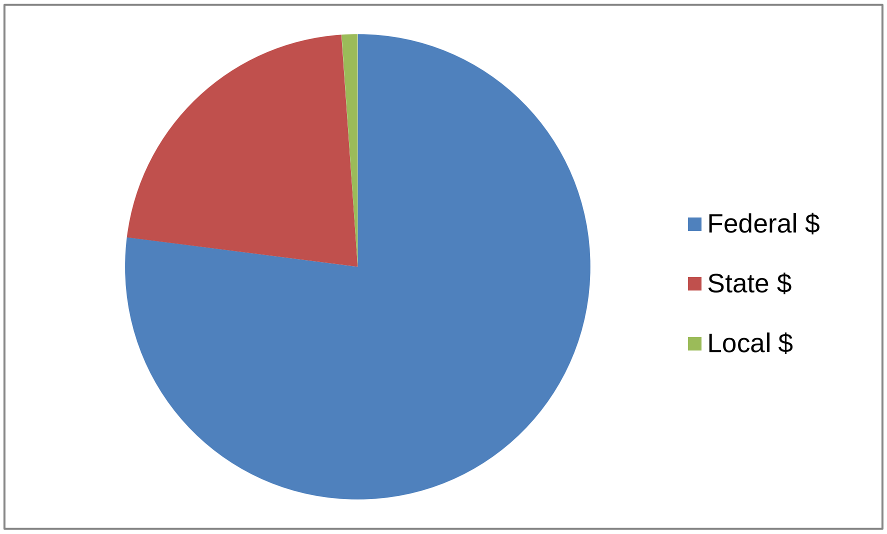


Figure 4-16: Taxes Paid (Federal, State, and Local)

Question #21: Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box. (Table 4-7 and Figure 4-17)

The majority of survey respondents (over 78%) indicated that they sell their recycling-related products to businesses within the State of Colorado. However, the majority of survey respondents also indicated that they sell their recycling related products to businesses outside the State. Only 14% indicated that neither applied. According to survey participants, compost, tires, concrete/ asphalt, contaminated soil, resale/reused or dismantled products, paper, and some scrap metal are some of the recyclable products that are sold locally. Businesses commented that it is cost prohibitive to sell some recyclable products (i.e. bailing twine, E-Waste, steel, metal commodities, plastics, etc.) within the state of Colorado because businesses are able to sell their products for a higher price elsewhere even with the shipping costs included. Colorado businesses sell recyclable products to most of the US states and internationally to quite a few countries (although Asia remains a top pick). Additionally, businesses use brokerage firm to sell and move products that can't be handled locally.

Table 4-7: Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box

Answer Options	Response Percent	Response Count
To businesses within the state of Colorado	78.6%	44
To businesses outside the state of Colorado	58.9%	33
Not applicable	14.3%	8
Comment:		27
answered question		**56**
skipped question		**19**

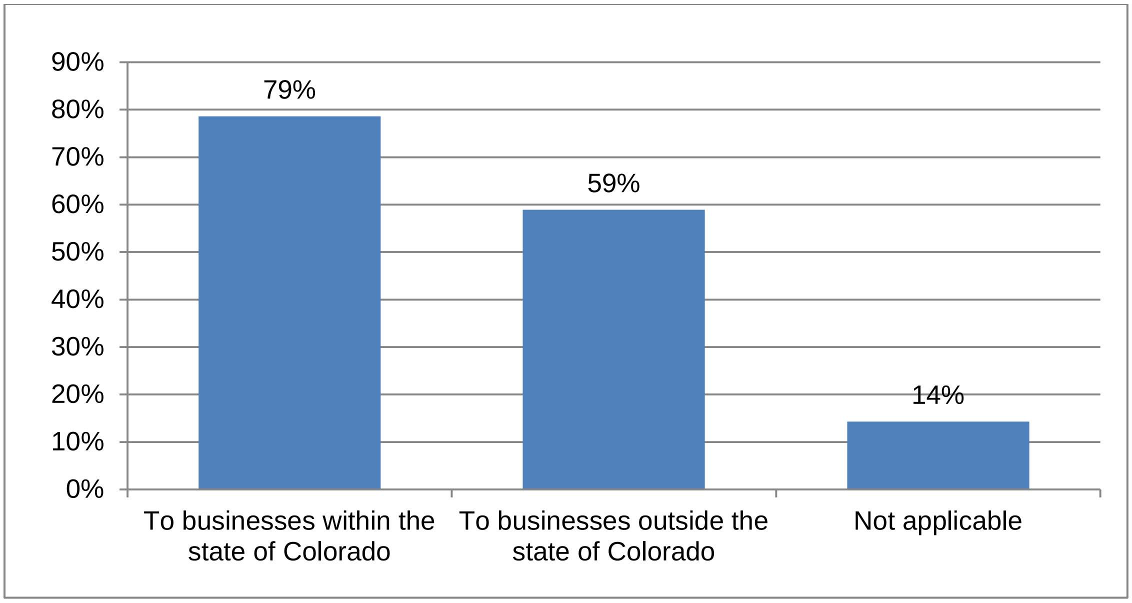


Figure 4-17: Locations where recycling related products are sold (average percent of responses)

Question #22: Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs? (Table 4-8 and Figure 4-18)

Almost 43% of survey respondents do not partner with local Colorado manufacturers to use recycled materials for their manufacturing needs. Only 32% of survey respondents indicated that they do partner with local manufacturers to use recycled materials.

Table 4- 8: Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?

Answer Options	Response Percent	Response Count
Yes	31.7%	20
No	42.9%	27
Not applicable	25.4%	16
answered question		**63**
skipped question		**12**

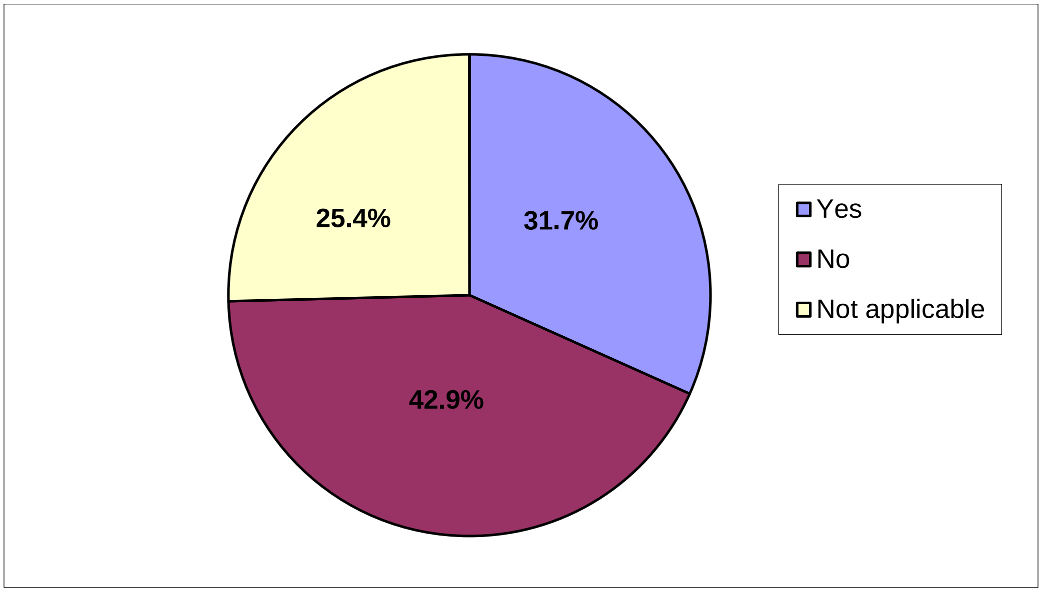


Figure 4-18: Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?

Question #23: Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado? (Table 4-9 and Figure 4-19)

The majority of survey respondents (71%) indicated that they have knowledge of, or believe that there is demand for, recycled materials in the State of Colorado. Only 19% of respondents did not have knowledge of, or believe there is a demand for, recycled materials in Colorado.

Table 4-9: Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado?

Answer Options	Response Percent	Response Count
Yes	70.8%	46
No	18.5%	12
Not applicable	10.8%	7
answered question		**65**
skipped question		**10**

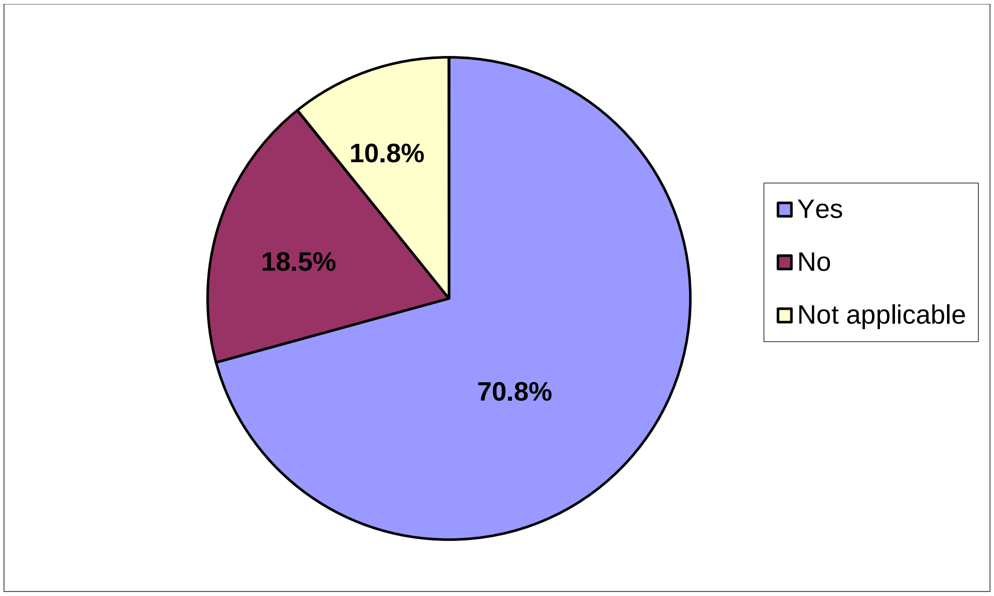


Figure 4-19: Do you have knowledge of, or believe that there is demand for your recycled materials within the state of Colorado?

Question #24: If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials: (Table 4-10 and Figure 4-20)

28% of survey respondents collect their materials from over 100 miles away from their site, 30% travel between 10-50 miles from their site, and 30% travel between 50-100 miles. Only13% of respondents travel less than 10 miles to collect their materials. For the Rural facilities, 25% of survey respondents collect their materials from over 100 miles away from their site, 35% travel between 10-50 miles from their site, and 35% travel between 50-100 miles. Only5% of rural respondents travel less than 10 miles to collect their materials. Urban facility respondents indicated that 23% of survey respondents collect their materials from over 100 miles away from their site, 27% travel between 10-50 miles from their site, and 23% travel between 50-100 miles. Only17% of respondents travel less than 10 miles to collect their materials.

Table 4-10: If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials

Answer Options	Response Percent	Response Count
0-10 miles	12.8%	6
10-50 miles	29.8%	14
50-100 miles	29.8%	14
Greater than 100 miles	27.7%	13
answered question		**47**
skipped question		**28**

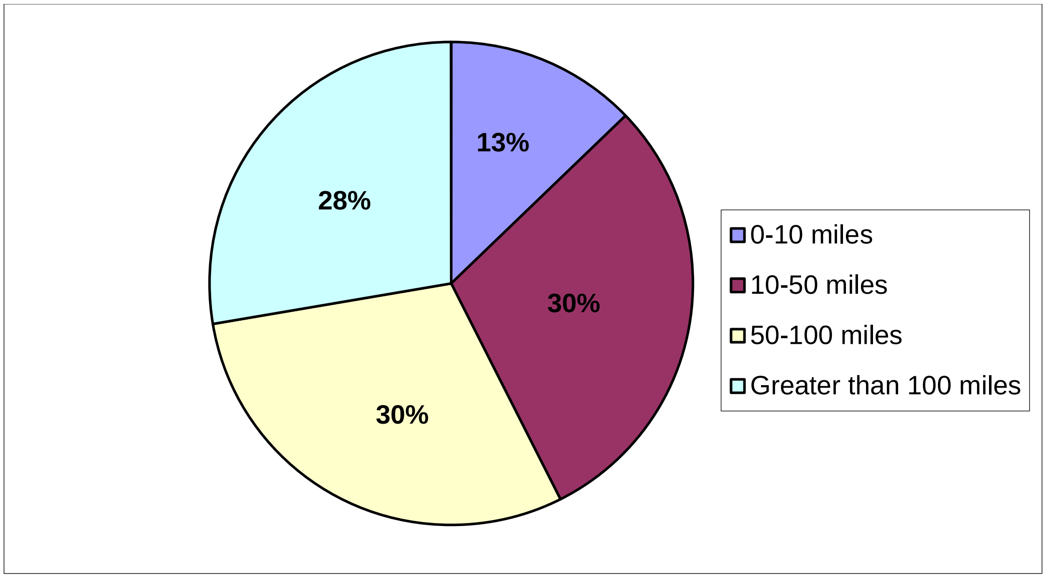


Figure 4-20a: If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials (Total).

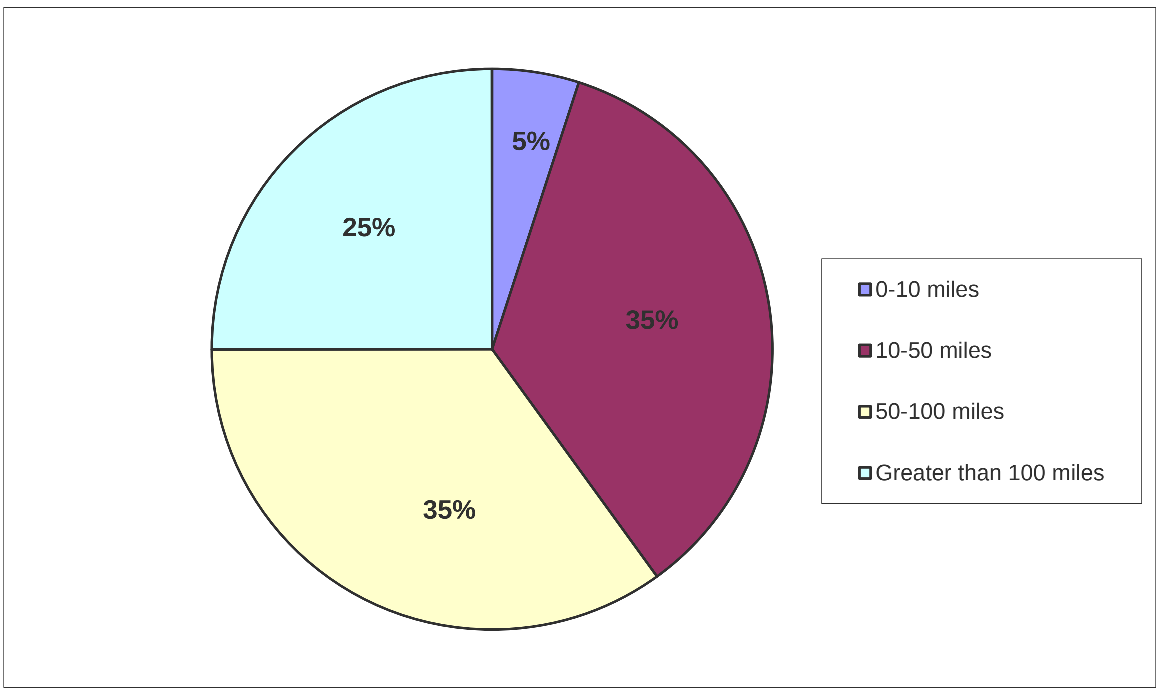


Figure 4-20b: If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials (Rural).

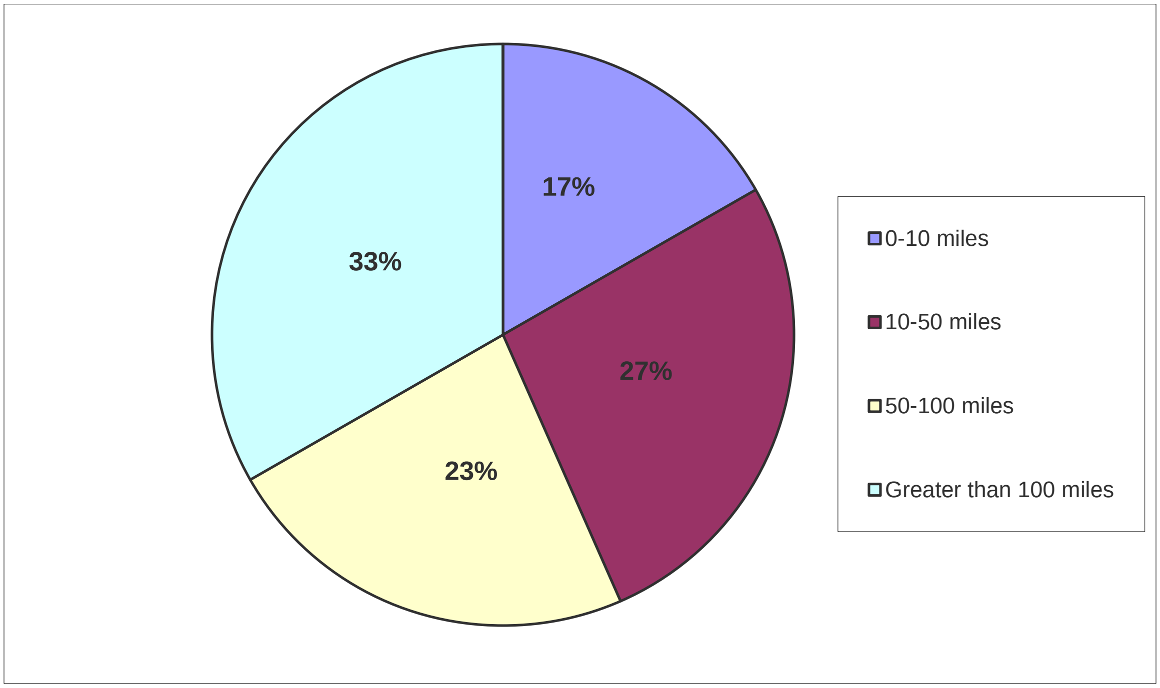


Figure 4-20c: If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials (Urban).

Question 25: If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site: (Table 4-11 and Figure 4-21)

The majority of respondents move their materials for processing more than 100 miles from their site, with an average of 16 facilities (based on all survey response). This is followed by sites moving their materials between 0-50 miles from their site, with an average of 9 facilities (Table 4-11 and Figure 4-21a). Figures 4-21b and 4-21c present the number of rural and urban facilities, respectively, that move their materials for processing specific distances.

Table 4-11: If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site

Answer Options	Average Number of Facilities	Response Count
0-10 miles	8.91	22
0-50 miles	8.83	18
50-100 miles	3.84	19
Greater than 100 miles	15.66	29
answered question		**23**
skipped question		**24**

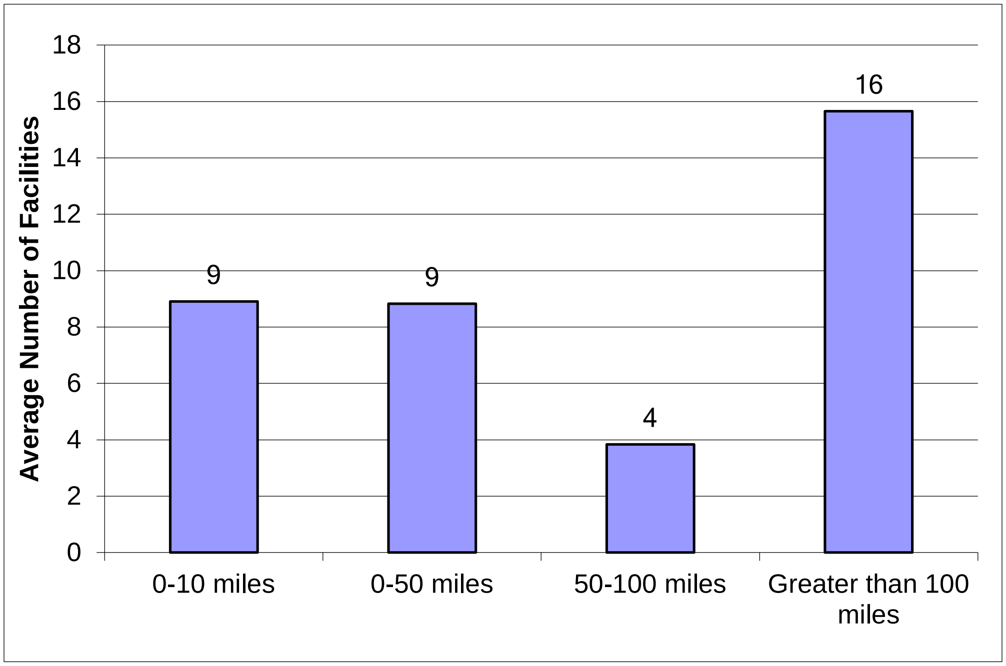


Figure4- 21a: If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site (average number of facilities within each distance) – Total

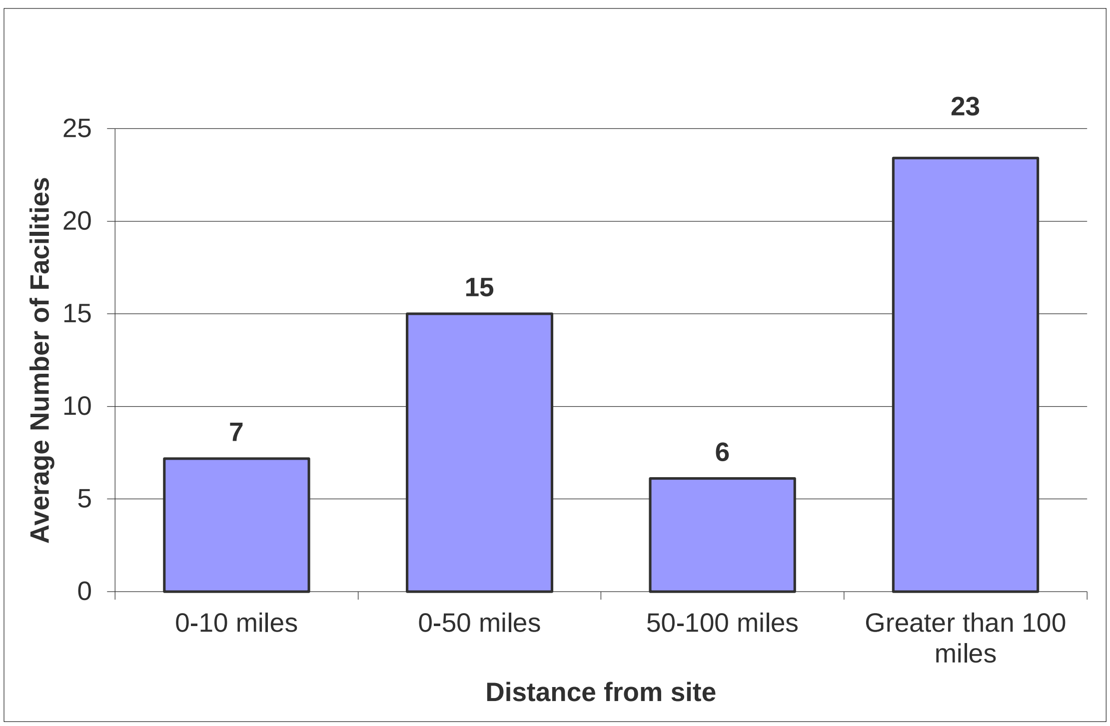


Figure4- 21b: If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site (Rural facilities within each distance) - Rural

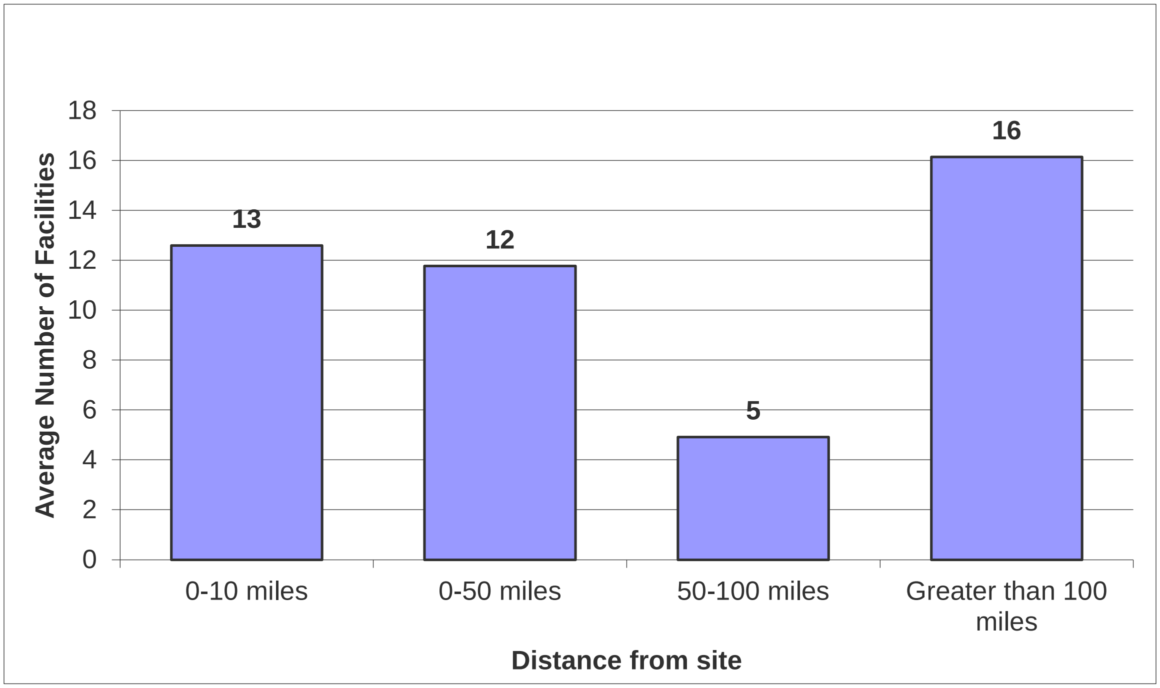


Figure4- 21c: If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site (Urban facilities within each distance) - Urban

Question #26: Please provide any additional information and/or comments here:

The survey respondents provided several comments on the survey questions, clarification on what and how they recycle, and a few suggestions on how the CDPHE grant fund could be improved. Some of the common comments include recommendations that recycling grants should focus on Hub and Spoke program and reconsideration of how grant money is used to attract and support collectors and processors, especially since the State has limited resources. For some participants, the survey did not address the type of recycling they do (concrete and asphalt reuse for roads, consulting, academic studies, various E- waste collection services not covered under identified business categories, etc.). Further, quite a few local governments and local businesses would like to expand their recycling operations, but they need investments in time and money.

4.4 Summary

This chapter provides information on the need, methods, and results of contacting various RRR entities to collect data necessary for the economic impact analysis of the RRR industry in the State of Colorado. Significant data and interesting information was obtained through the online survey of RRR entities. This data and information is essential to the study and will be included as data input into the next phase of this study, the economic impact analysis.

4.5 Lessons Learned

The survey had the potential to realize wide participation throughout the state of Colorado. However, it had a lower response rate than preferred. From this, there were several lessoins learned that could be used to improve response rates of any future surveys completed for the RRR industry in Colorado or elsewhere. One lesson and opportunity in the future is that there was not a lot of lead-time to introduce and present the survey to potential respondents, limiting the understanding of the need, the purpose, or the value of the survey, and thus limiting the response rate. Further, it appears that the potential respondents felt a limited incentive to participate in the survey. Future opportunities should include specific incentives to participate in the survey, thus increasing the response rate. A longer period to keep the survey open, with greater opportunity to connect directly with each potential participant would also create greater opportunity for increasing the response rate.

5 Regional Impact Analysis

This chapter provides a detailed description of the methodologies used to develop the economic activity estimates. It includes general discussions of strategies for data gathering and analyses employed in the study. The specific methodology for obtaining the direct data for each category is presented along with the results of the study. The remainder of this chapter identifies and presents the economic impact analysis with the following layout:

- Section 5.1 identifies the data used and the data sources.
- Section 5.2 provides the details of the approach and methodology followed for the economic impact analysis.
- Section 5.3 identifies the results of the analysis.
- Section 5.4 summarizes the conclusions drawn from the analysis.

5.1 Data Development and Sources

The methodology to be used to identify economic impacts of waste diversion on the State of Colorado requires significant and specific data to be collected from available sources. The Data Gap Analysis was the first step in the process, with the Survey Plan and the Data Collection Report providing additional necessary information.

The impact analysis focused on using existing data, of sufficient quality, consistent with the study, for as many business categories as possible. A survey of RRR firms was conducted, and is discussed in Chapter 4. If little or no existing information was available, estimates were derived based on the limited existing data and estimations.

For the economic impact analysis IMPLAN data is the primary source of economic activity. IMPLAN data comes from various sources. Employment and wage and salary income at the state and county levels is from the Bureau of Labor Statistics (BLS). National, state and county level proprietors, proprietor income, and the relationship between employee compensation and wage and salary income (to infer benefits) are from the Bureau of Economic Analysis (BEA). Data from the U.S. Census Bureau includes the number of firms by size at the national, state, county and zip-code levels.

The survey provided data and other information that ENVIRON used to help enhance the IMPLAN data. Specifically, the survey results provided the percentages of the business activities within a sector attributable to recycling for specific NAICS codes where sufficient responses were provided. These percentages were applied to the specific NAICS codes within the IMPLAN model. All NAICS codes included in the RRR industry used this study are provided in Tables 2-2 and 3-1. However, not all NAICS codes were represented in the survey. So the percentages from the Missouri Recycling Economic Information Study MOREIS Final Report (Missouri Study) were used where they were missing in the Colorado survey.[5]

Further, the survey also provided additional information regarding the RRR industry in Colorado that can be used outside the IMPLAN analysis, as supplemental data and information, as presented in Chapter 4. All data collected was incorporated into an Excel spreadsheet for analysis.

NAICS codes can provide very specific business groupings for analysis. However IMPLAN groups the NAICS codes into larger, more general, IMPLAN industry sectors. Each IMPLAN industry sector includes at least one NAICS code. Table 5.1 provides a cross-reference for converting NAICS codes to the IMPLAN sectors. In many cases, the listed codes also include businesses and other NAICS codes not involved in RRR. In those cases an adjustment factor has been applied. The adjustment factor is comprised of two parts: the share of the IMPLAN code that includes NAICS codes related to the RRR industry based on US Census Bureau County Business Patterns, and the share of the included individual NAICS codes that are related to the RRR industry, based on data received from the Colorado survey when available, and the Missouri Study.

Table 5-1: Conversion Table for NAICS Code to IMPLAN Sector

IMPLAN Sector	NAICS Codes
100	32192, 321920
112	322299
116	324121
130	325314
141	325991
144	326122
147	326150
149	326191, 326199
151	326220
152	326291, 326299
154	327213
170	331110, 331111
174	331315, 331316
177	331421, 331423

[5] Valentine, David and Ann Ulmer, Institute of Public Policy Truman School of Public Policy, 2005, Missouri Recycling Economic Information Study MOREIS Final Report. Prepared for Environmental Improvement and Energy Resources Authority (EIERA).

Table 5-1: Conversion Table for NAICS Code to IMPLAN Sector	
IMPLAN Sector	**NAICS Codes**
178	331492
180	331521, 331522, 331523, 331524, 331525
319	42193, 423140, 423680, 423840, 423930
330	45331, 453310
380	54199, 541990
390	562111, 562112, 562920
416	811212

5.2 Analytical Approach and Impact Methodology

Changes in output and employment often occur locally as a result of business changes, and such changes have implications for other parts of the local economy. This study uses an input-output (I/O) methodology to determine the economic and fiscal impacts of the project on the economy of the state within Urban and Rural regions. A regional input-output model traces the flow of interactions between local industries, with industries outside the region, and with final demand sectors in order to determine economic and fiscal impacts of the project. These models employ data on the intermediate and final goods produced. Information on the inputs for all industries is required in order to produce the dollar value of output for a specified industry.

Total economic values were estimated through economic modeling with IMPLAN. In order to apply the economic model accurately, certain categories required additional information as intermediate inputs. These were obtained through the survey.

An input-output model is a technique that quantifies the interactions between industries within an economy. Input-output models yield multipliers that are used to calculate the total direct, indirect, and induced impact on jobs, income and output resulting from a dollar of spending on goods and services in the study area. The model used to estimate economic impacts for this study is IMPLAN which is an input-output model developed by the United States (US) Government and the University of Minnesota (available from the Minnesota IMPLAN Group, Inc.[MIG]).

IMPLAN was chosen because it requires regional data which has been compiled from multiple sources and includes hundreds of industrial sectors. In addition to being widely used in regional economic analysis, the model and its methodology has been extensively reviewed in professional and economic journals. IMPLAN was developed by the US Forest Service in cooperation with the Federal Emergency Management Agency and the Bureau of Land Management (BLM) for the purpose of land and resource management planning. For the specified region, the IMPLAN approach accounts for all of the dollar flows between the different sectors within the economy and emulates the way income injected into one sector is then spent and re-spent in other sectors of the economy, generating economic multipliers.

ENVIRON collected 2012 Colorado county data from IMPLAN. IMPLAN measures economic impacts from data representing actual local economies. IMPLAN estimates regional contribution to jobs, income, revenue, GDP and taxes by following inter-industry spending from the original purchase through the full supply chain. IMPLAN reports economic contributions at three levels: (1) direct effects, (2) indirect effects, and (3) induced effects. The original purchase is known as the “direct” effect. “Indirect” effects are stimulated by the “direct” effect. Each supplier of an industry purchases inputs from other suppliers in order to create their own products. Increases in production not only require an increase in purchases of supplies, but typically also require an increase in total income paid to labor. The economic effects resulting from spending of labor income are known as “induced” effects. The sum total of direct, indirect, and induced effects is the total economic contribution of RRR expenditures.

IMPLAN is a tool to assess regional economic impacts. For this study, the Department was interested in pursuing an economic impact analysis for both an urban Colorado region and a rural Colorado region, as economies often widely differ between these two types of regions. The economic impacts from the RRR industry were analyzed separately for rural and urban areas within Colorado. For this analysis counties were designated either “rural” or “urban” based on information and a map obtained from Colorado Rural Health Center[6] and then consolidated for the regional economic modeling. Those counties designated “frontier” were included in the rural analysis. Table 5-2 shows the county designations for this study.

Table 5-2: Urban and Rural Counties of Colorado

Rural Counties	Rural Counties (cont.)	Urban Counties
Moffat	Mineral	Larimer
Routt	Rio Grande	Weld
Jackson	Alamosa	Boulder
Rio Blanco	Archuleta	Broomfield
Grand	Conejos	Gilpin
Garfield	Costilla	Clear Creek
Eagle	Huerfano	Denver
Summit	Las Animas	Adams
Pitkin	Logan	Arapahoe
Lake	Sedgwick	Jefferson
Delta	Phillips	Douglas
Gunnison	Morgan	Elbert
Chaffee	Washington	Park

[6] Colorado Rural Health Center, 2014, Colorado: County Designations, 2014, available at: http://coruralhealth.org/wp-content/uploads/2013/10/2014.Colorado-County-Designations.pdf.

Table 5-2: Urban and Rural Counties of Colorado		
Rural Counties	**Rural Counties (cont.)**	**Urban Counties**
Freemont	Yuma	Teller
Montrose	Lincoln	El Paso
Ouray	Kit Carson	Pueblo
San Miguel	Cheyenne	Mesa
Hinsdale	Kiowa	
Saguache	Crowley	
Custer	Otero	
Dolores	Bent	
San Juan	Prowers	
Montezuma	Baca	
La Plata		

As presented above, impacts resulting from operations of the various businesses within the RRR sector are composed of direct, indirect, and induced impacts. These impacts represent different yet related responses to the operation of these businesses. The sum of the three different impacts represents the total impact due to the RRR industry within urban and rural counties within the state of Colorado.

- Direct impacts indicate the initial change in economic activity due to operation of the RRR industry. Direct impacts capture both RRR activities and activities in other industries that directly support the RRR industry. Direct impacts measure the total amount of economic activity in terms of the value and employment that is injected into the local economy directly from the sector. Both the Rural and Urban analyses identify and assess the impacts of the RRR industry to the Colorado regional economy.
- Indirect impacts measure the response of local industries to increased demand from inter-industry transactions. The indirect impacts trace the ripple effect through the local economy as local industries increase supply due to the increase in demand generated from the RRR operation demand.
- Induced impacts measure the response of local industries to the increased expenditures resulting from new household income generated from direct and indirect effects.

The IMPLAN model along with the associated database and data provided by the Colorado Recycling Industry Survey, were used to determine the inter-industry transactions in the counties required for calculating the impact of the RRR industry in Colorado. Two IMPLAN models were utilized: one including all urban counties and one including all rural counties within the state. The share of each IMPLAN sector related to the RRR industry is based on a combined set of percent shares. The first is the percent share of business activities related to the recycling industry for each of the NAICS codes in the study. As mentioned above, these were based on the survey results and the results of the Missouri Study. The second set of percentages used is that share of each of the IMPLAN sectors that is represented by the study NAICS codes, based on total number of employees. These percentages and the resulting percentage applied to each sector are presented in Table 5.3. Using the percentages shown in Table 5.3, Table 5-4 presents the Urban, Rural, and State economic activity for each of the sectors.

Table 5-3: Recycling Industry Percentages

IMPLAN Sector	NAICS Code %	IMPLAN Sector %	Recycling % of IMPLAN sector (applied to each sector)
100	100%	100%	100%
112	100%	100%	100%
116	100%	100%	100%
130	13%	100%	13%
141	100%	100%	100%
144	100%	100%	100%
147	100%	100%	100%
149	100%	100%	100%
151	100%	100%	100%
152	100%	100%	100%
154	90%	67%	60%
170	95%	100%	95%
174	48%	100%	48%
177	95%	1%	1%
178	95%	50%	48%
180	90%	100%	90%
319	97%	10%	10%
330	100%	100%	100%

Table 5-3: Recycling Industry Percentages			
IMPLAN Sector	**NAICS Code %**	**IMPLAN Sector %**	**Recycling % of IMPLAN sector (applied to each sector)**
380	100%	45%	45%
390	67%	44%	29%
416	100%	31%	31%

Table5-4:Recycling Industry Economic Activity by IMPLAN Sector			
IMPLAN Sector	**Rural Direct Output**	**Urban Direct Output**	**State Direct Output**
100	$3,054,057	$72,587,303	$75,641,360
112	$1,687,682	$10,376,748	$12,064,430
116	$4,366,093	$140,691,315	$145,057,407
130	$767,582	$4,988,225	$5,755,807
141	$10,955,637	$488,663,116	$499,618,753
144	$-	$191,736,343	$191,736,343
147	$1,083,258	$114,917,938	$116,001,196
149	$37,963,181	$665,085,999	$703,049,179
151	$-	$10,540,689	$10,540,689
152	$-	$93,450,790	$93,450,790
154	$-	$35,550,953	$35,550,953
170	$45,411,806	$1,521,850,210	$1,567,262,016
174	$-	$89,700,637	$89,700,637
177	$-	$299,007	$299,007
178	$-	$15,704,218	$15,704,218
180	$1,636,158	$46,805,986	$48,442,144
319	$153,883,055	$2,041,570,688	$2,195,453,742
330	$202,089,432	$1,191,993,652	$1,394,083,084
380	$44,229,247	$920,740,320	$964,969,567
390	$56,923,049	$326,773,312	$383,696,361
416	$7,819,937	$136,604,068	$144,424,005
Total	**$571,870,174**	**$8,120,631,518**	**$8,692,501,693**

5.3 Results

Upon completion of the IMPLAN study results, they were reviewed to ensure that direct, indirect, and induced study data were valid and meaningful. The methods of review included:

- Review of completed model analysis by senior staff; and
- Comparisons of per-employee figures and associated sectors to ensure reasonableness.

The results of this impact analysis are presented here as they relate to employment, labor income, output or demand, and tax revenue, for both urban and rural counties of Colorado State.

5.3.1 Employment Impacts

The RRR industry generates jobs through the direct hiring of staff and indirect and induced impacts on jobs as local industries experience increases in demand for goods and services. The impact on jobs is measured by the total employment in the local economy resulting from the RRR industry. Total impact on jobs is the sum of the direct, indirect, and induced impacts, which are presented in Table 5-5.

Table 5-5: Employment Impacts of RRR Industry

Impact	Annual Jobs from RRR - Urban	Annual Jobs from RRR - Rural	Annual Jobs from RRR - State
Direct	39,791	3,774	43,565
Indirect	16,241	743	16,985
Induced	25,174	915	26,089
Total	**80,394**	**5,433**	**85,827**

Total employment is 85,827, the majority of which occurs in the urban areas (80,394). Total direct employment in the RRR industry is 43,565, with another 16,985 indirect and 26,089 induced jobs (totaling 43,074) added in Colorado. This indicates that each job added in the RRR industry, produces almost one more job. Food services and drinking places, the largest employment sector in Colorado, employs over 219,000, and real estate establishments employs over 168,000. By comparison, a 2005 recycling impact study of South Carolina[7] showed 37,440 recycling jobs, and a 2009 study of several northeast states[8] showed 2007 recycling employment impacts of over 52,000 for Pennsylvania.

[7] Hefner, Frank and Calvin Blackwell, 2006, The Economic Impact of the Recycling Industry in South Carolina, June 23.

[8] DSM Environmental Services, Inc. and MidAtlantic Solid Waste Consultants, 2009, Recycling Economic Information Study Update: Delaware, Maine, Massachusetts, New York, and Pennsylvania. Final Report, February,

5.3.2 Labor Income Impacts

The impact on employment (over 85,000 jobs) will generate impacts to local labor income. Labor income impacts are measured by the changes in wages to labor associated with the employment impacts of the RRR industry. Total labor income impact is the sum of the direct, indirect, and induced impacts and is shown in Table 5-6.

Table5-6: Labor Income Impacts of RRR Industry (millions of dollars)

Impact	Annual Labor Income from RRR-Urban	Annual Labor Income from RRR-Rural	Annual Labor Income from RRR-State
Direct	$3,248	$194	$3,443
Indirect	$1,056	$34	$1,090
Induced	$1,218	$34	$1,252
Total	**$5,522**	**$263**	**$5,785**

Total labor income is $5,785 million, with the greatest amount occurring in urban areas ($5,522 million). Direct annual labor income in the RRR industry is $3,443 million. Another $2,342 million in labor income is generated in indirect and induced impacts. For each dollar of direct labor income, another $0.68 of labor income is generated throughout the Colorado economy. This indicates that the jobs generated within the RRR industry are generally higher wage jobs than those generated from the indirect and induced effects. This is especially true in the rural areas, where the labor income from the RRR industry only generates another $0.35 induced and indirect labor income. The recycling industry, which comprises several sectors, can be compared to the total wholesale trade businesses, with labor income of more than $9 billion. Comparing these results to other states, the personal income from the recycling study in South Carolina in 2005 was $1.5 billion, and 2007 total payroll for Pennsylvania was $2.2 billion.

5.3.3 Total Output / Demand Impact

Total output (or demand) impacts are the sum of the direct, indirect, and induced impacts. The direct impacts are the result of the output within the RRR-related IMPLAN sectors, with the indirect and induced impacts resulting from the flow through the rest of the economy of that output. Table 5-7a presents the total output impacts, broken down between direct, indirect and induced impacts.

Table 5-7: Output / Demand Impacts of RRR Industry (millions of dollars)			
Impact	**Annual Output from RRR - Urban**	**Annual Output from RRR - Rural**	**Annual Output from RRR - State**
Direct	$8,121	$572	$8,693
Indirect	$2,436	$97	$2,533
Induced	$3,329	$103	$3,432
Total	**$13,886**	**$772**	**$14,658**

Total output is $14,658 million, with the greatest share occurring in urban areas ($13,886 million). The direct output from the RRR industry of $8,693 million generates another $5,9650 in indirect and induced effects. This indicates that for every dollar of output from the RRR industry, another $0.69 is generated throughout the rest of the Colorado economy. The induced and indirect impacts are greater in the urban areas than in rural areas, generating $0.71 and $0.35 respectively from one dollar of RRR activity. These differences between regions are mostly likely due to different types of industries, and associated types of jobs, the RRR industry has an impact on. The output from the recycling industry can be compared to that of real estate establishments, of greater than $25 billion. Total recycling economic impact for South Carolina in 2005 was $6.5 billion, and $20.6 for Pennsylvania in 2007.

Tables 5-7b and 5-7c provide the estimated breakdown of indirect and induced impacts, respectively for each of the IMPLAN sectors for both rural and urban counties. Total indirect impact of the RRRR Industry is $2.6 billion, the majority of which occurs in urban counties. Total induced impact of the RRR industry is $3.4 billion, with $3.3 billion occurring in urban counties. The direct impacts are provided in Table 5-4.

Table5-7b: RRR Industry Estimated Indirect Impacts by IMPLAN Sector (millions of dollars)

IMPLAN Sector	Rural Indirect Output	Urban Indirect Output	State Indirect Output
100	$1	$22	$22
112	$0	$3	$3
116	$1	$42	$43
130	$0	$1	$2
141	$2	$147	$148
144	$0	$58	$58
147	$0	$34	$35
149	$6	$200	$206
151	$0	$3	$3
152	$0	$28	$28
154	$0	$11	$11
170	$8	$457	$464
174	$0	$27	$27
177	$0	$0	$0
178	$0	$5	$5
180	$0	$14	$14
319	$26	$612	$639
330	$34	$358	$392
380	$8	$276	$284
390	$10	$98	$108
416	$1	$41	$42
Total	**$97**	**$2,436**	**$2,533**

Table5-7c: RRR Industry Estimated Induced Impacts by IMPLAN Sector (millions of dollars)

IMPLAN Sector	Rural Induced Output	Urban Induced Output	State Induced Output
100	$1	$30	$30
112	$0	$4	$5
116	$1	$58	$58
130	$0	$2	$2
141	$2	$200	$202
144	$0	$79	$79
147	$0	$47	$47
149	$7	$273	$280
151	$0	$4	$4
152	$0	$38	$38
154	$0	$15	$15
170	$8	$624	$632
174	$0	$37	$37
177	$0	$0	$0
178	$0	$6	$6
180	$0	$19	$19
319	$28	$837	$865
330	$36	$489	$525
380	$8	$378	$385
390	$10	$134	$144
416	$1	$56	$57
Total	**$103**	**$3,329**	**$3,432**

5.3.4 Tax Revenue Impact

The RRR industry provides an opportunity for the local community to benefit from additional tax revenue that can be used to develop and improve local programs and interests. Taxes are levied directly on the operation of the RRR industry. However, as the additional income generated from the industry circulates in the economy, other revenue will be collected as well. This additional tax revenue will come from multiple sources including property taxes and consumption taxes. The sum of the different sources of tax revenue is the total state and local tax revenue estimated from the construction and operation of the re-refinery. This is presented in Table 5-8.

Table 5-8: Annual State and Local Tax Impact of RRR Industry (millions of 2012 dollars)			
Impact	**Annual Tax Revenue from RRR - Urban**	**Annual Tax Revenue from RRR - Rural**	**Annual Tax Revenue from RRR – State**
Dividends	$0.98	$0.06	$1.04
Social Ins Tax- Employee Contribution	$2.11	$0.16	$2.27
Social Ins Tax- Employer Contribution	$4.16	$0.31	$4.47
Corporate Profits Tax	$10.57	$0.64	$11.21
Indirect Bus Tax: Sales Tax	$521.10	$38.02	$559.12
Indirect Bus Tax: Property Tax	$489.06	$35.68	$524.74
Indirect Bus Tax: Motor Vehicle License	$14.17	$1.03	$15.21
Indirect Bus Tax: Severance Tax	$13.20	$0.96	$14.16
Indirect Bus Tax: Other Taxes	$35.18	$2.57	$37.75
Indirect Bus Tax: S/L Non Taxes	$16.65	$1.22	$17.87
Personal Tax: Income Tax	$96.33	$3.99	$100.32
Personal Tax: Non Taxes (Fines- Fees)	$20.07	$0.83	$20.91
Personal Tax: Motor Vehicle License	$6.40	$0.27	$6.67
Personal Tax: Property Taxes	$2.06	$0.09	$2.15
Personal Tax: Other Tax (Fish/Hunt)	$6.78	$0.28	$7.06
Total State and Local Tax	**$1,239**	**$86**	**$1,325**

Local and state taxes generated from the RRR industry total $1,325 million, with 93 percent of that resulting from RRR activity in the urban areas. The three largest contributors to state and local taxes include business sales tax, business property tax, and personal income tax.

5.3.5 Accuracy of Results

The results of this study for the categories identified are thought to be realistic and reasonable.

The study did encounter a few limitations that may have reduced the accuracy of the analysis results to the extent that our ability to accurately capture all recycling and reuse activity was constrained. The limitations of the study include:

- Not all NAICS codes related to RRR were represented in the survey, reducing the accuracy of the actual RRR activity in those NAICS codes.
- Several NAICS codes include businesses with no activities related to RRR and as such were likely not included in the survey. This was remedied by estimating the shares of the RRR business activity within the NAICS codes by applying the average percentage of RRR activity for the survey respondents.
- The IMPLAN sectors that include RRR activities also include several NAICS codes not related to RRR at all. This made it impossible to define a sector as specifically RRR. This was remedied through an approximation of RRR within the IMPLAN sector by applying the percentages of employment within NAICS codes with RRR activity.

Although the analysis is not able to portray all possible RRR activity, the estimations used create a reasonably accurate assessment for the categories included and constitutes a conservative estimate of the total amount of RRR activity taking place within the state of Colorado, specified as either Urban or Rural.

5.4 Conclusion

The RRR industry provides significant contributions to the regional economy through jobs, output, and income. The impact from RRR activities provides a strong stimulus to the state economy. The total annual economic output associated with the RRR sector is $772 million in the rural region, and $13.9 billion in the urban region.

The RRR industry impacts total employment by more than 5,000 employees in the rural region and over 80,000 employees in the urban region annually, totaling greater than 85,000 employees annually. Many of these jobs are in high paying industries that will support individuals in attaining and retaining self-sufficient employment, but others are in lower paying sectors such as retail and wholesale. Several of these lower wage jobs may benefit disadvantaged workers. This employment translates to over $200 million in labor wages in the rural region, and greater than $5,000 million in the urban region.

This economic activity provides an opportunity for additional tax revenue to be collected to support community benefits such as schools and parks. Annual state and local tax revenue is estimated at over $80 million for the rural region and approximately $1,200 million for the urban region.

6 Policy Recommendations

This section presents several policy recommendations for the RRR industry within the State of Colorado. The ENVIRON team would like to work with the Department to develop any further policy recommendations based on the results of this study.

1. The rural counties do not have as high a multiplier for RRR sectors as does the urban counties. This makes sense because the urban counties have most of the businesses. However, there is an opportunity to improve this effect for the rural areas if government policies that favor sectors favorably linked with RRR sectors are developed. For example, if a rural county has a strength in one RRR sector activity, but the input suppliers for that firm are located in urban counties, then there are additional transportation costs for each establishment. But if input providers for a recycling related sector are located nearby, then efficiencies grow, and the multipliers for these counties can improve.

2. If there is high unemployment in any county, public recycling facilities can be located in these areas and result in an economic stimulus.

3. To strengthen rural county RRR multipliers, the spatial location of strong RRR sector establishments should be analyzed to see if there are ‘leakages’ of indirect and induced impacts across state borders.

4. Existing government programs that support industries like manufacturing, can consider supporting and strengthening the added economic activity that comes from the RRR sector to maximize the benefit of government programs to support jobs and economic development.

7 References

Arra.org Member Directory. Available online at: http://www.arra.org/members/?listpage=1&member_search=&short_search=&s_company=&s_work=&s_state=&s_country=&s_status=&s_service=&krissoff-search

Carpet Recovery Collector Finder. Available online at: http://www.carpetrecovery.org/collector-finder/index.html

CAFR Member Directory. Available online at: http://www.cafr.org/members/directory.php

CD Recycling Membership Database. Available online at: http://www.cdrecycling.org/index.php?option=com_community&view=search&task=usersearch

Co-Asphalt. Member Directory. Available online at: http://co-asphalt.com/who_is_capa/membership_directory.htm

Colorado.gov Directory. Available online at: http://www.colorado.gov/cs/Satellite/CDPHE-HM/CBON/1251615964355

E-stewards Find a Recycler. Available online at: http://www.e-stewards.org/find-a-recycler/

ISRI.org. Custom Directories. Available online at: http://store.isri.org/web/Custom_Directories/Company_Search.aspx

Reusable packaging Member Directory. Available online at: http://www.reusablepackaging.org/find-a-member/search-results/?comp_state=CO

R.W. Beck, Inc. 2001. U.S. Recycling Economic Information Study. Prepared for The National Recycling Coalition. Available online at: http://www.epa.gov/osw/conserve/tools/rmd/rei-rw/pdf/n_report.pdf

SAIC Energy, Environment & Infrastructure, LLC (SAIC). 2013. The Economic Contribution of the Recycling Industry to the Houston-Galveston Region. Prepared for the Houston-Galveston Area Council. Available online at: http://www.hgac.com/community/waste/management/recycling/workshops/recs_h-gac%20-economic-contribution-report.pdf

The National Recycling Coalition (TNRC). 2000. Florida Recycling Economic Information Study. Prepared for the Florida Department of Environmental Protection. Prepared in association with R.W. Beck, Inc. Available online at: http://www.wastexchange.org/upload_publications/Florida-EconomicImpactofRecyclingStudy2000.pdf

U.S. Census Bureau. County Business Patterns. 2011. Available online at: http://www.census.gov/econ/cbp/

U.S. Census Bureau. North American Industry Classification System. 2012. Available online at: https://www.census.gov/eos/www/naics/

Valentine, David, Ann Ulmer. 2005. Missouri Recycling Economic Information Study MOREIS. Final Report. Prepared for Environmental Improvement and Energy Resources Authority (EIERA). Available online at: http://eiera.mo.gov/eiera/files/2012/10/RecyclingFinalReport.pdf

Yellow Pages. Business Directory. Available online at: http://www.yellow.com/

Appendix A

Survey Questions

1. Please provide us the following information about you and your employer for our records and verification. All information will be kept confidential and no individual information will be provided to other parties. CDPHE will not request, or be entitled to see, any individual respondent data. All information will be processed, compiled, and consolidated prior to analysis and distribution, so as not to disclose any individual firm- or site-specific data. Results will only be used once aggregated to industrial sector. If there are multiple locations, please complete a separate survey for each site:

Respondents Name/Title:

Company Name:

Address:

If Multiple locations, name of location:

City/Town:

State:

ZIP:

County of Location:

Contact Email Address:

Contact Phone Number:

2. Is your firm or organization currently involved in the collection, sale, purchase, processing, or use of recycled material on a regular basis?

- YES
- NO

3. Does your firm or organization have multiple sites within Colorado where recycling activities occur? If yes, please be sure to complete a separate survey for each site (this includes all sites for which you are the primary responsible entity).

- YES
- NO

4. Approximately what percent of the business activities conducted at this site is related to the recycling industry? (If N/A enter zero)

Percentage (whole number)

5. Which category best defines your role as a recycling entity (check all that apply):

- [ ] Collector / Hauler
- [ ] Manufacturer
- [ ] Processor
- [ ] Remanufacturer
- [ ] Broker
- [ ] Reuser
- [ ] Other (please specify below)

Other (please describe)

6. If you know under which NAICS code(s) your company / site operates, please include it (them) here (multiple answers ok) (Check all the apply).

- [ ] 562111- Recycling Collection- Government Staffed- Solid Waste Collection
- [ ] 562112- Recycling Collection- Private Staffed- Solid Waste Collection
- [ ] 325314- Recycling Processing- Compost &Organic Producers- Fertilizers
- [ ] 423930- Recycling Processing- Recyclable Materials Wholesalers-Recyclable Materials Wholesalers
- [ ] 562920- Recycling Processing-Materials Recovery Facilities-Materials Recovery Facilities
- [ ] 322299- Recycling Manufacturing-Paper & Paperboard Mills/Deinked Market- Other Converted Paper Product Manufacturing
- [ ] 324121- Recycling Manufacturing- Pavement Mix Producers- Asphalt paving mixtures and blocks
- [ ] 325991- Recycling Manufacturing- Plastic Reclaimers- Custom Compounding of Purchased Plastic Resins
- [ ] 3261- Recycling Manufacturing- Plastic Converters- Plastic Product Manufacturing
- [ ] 326211- Reuse & Re-Manufacturing- Tire Manufacturing (except retreading)
- [ ] 326220- Recycling Manufacturing- Rubber and Plastics Hoses and Belting Manufacturing
- [ ] 326291- Recycling Manufacturing- Rubber Product Manufacturing for Mechanical Use
- [ ] 326299- Recycling Manufacturing- All Other Rubber Product Manufacturing
- [ ] 327213-Recyling Manufacturing-Glass Containers Manufacturing Plants-Glass Containers
- [ ] 331110- Recycling Manufacturing- Iron and Steel Mills and Ferroalloy Manufacturing
- [ ] 331111- Recycling Manufacturing- Iron and Steel Manufacturers- Iron and Steel Mills
- [ ] 331315- Recycling Manufacturing- Nonferrous Product Producers- Aluminum sheet, plate, and foil manufacturing
- [ ] 333316- Recycling Manufacturing- Nonferrous Product Producers- Aluminum extruded product manufacturing
- [ ] 331318- Reuse & Re-Manufacturing- Other Aluminum Rolling, Drawing, and Extruding
- [ ] 331421-Recycling Manufacturing- Nonferrous Product Producers- Copper rolling, drawing, and extruding
- [ ] 331423- Recycling Manufacturers-Nonferrous Secondary Smelting & Refining-Miscellaneous Secondary Nonferrous Smelting, Refining and Alloying.
- [ ] 331492- Recycling Manufacturers-Nonferrous Secondary Smelting & Refining-Miscellaneous Secondary Nonferrous Smelting, Refining and Alloying. (except for copper and aluminum)
- [ ] 331521- Recycling Manufacturing-Nonferrous Foundries-Aluminum die-casting foundries
- [ ] 331522- Recycling Manufacturing-Nonferrous Foundries- Nonferrous (except aluminum) die-casting foundries
- [ ] 331523- Reuse & Re-Manufacturing- Nonferrous Metal Die-Casting, Foundries
- [ ] 331524- Recycling Manufacturing-Nonferrous Foundries- Aluminum foundries (except die-casting)
- [ ] 331525- Recycling Manufacturing-Nonferrous Foundries- Copper foundries (except die-casting)
- [ ] 423140- Recycling Manufacturing- Motor Vehicle Parts- Motor vehicle parts (used) merchant wholesalers
- [ ] 423690- Recycling Manufacturing- Other Electronic Parts and Equipment Merchant Wholesale
- [ ] 811212- Recycling Manufacturing- Demanufacturers- Computer and Office Machine Repair and Maintenance
- [ ] 321920- Reuse & Re-Manufacturing- Wood Reuse- Wood Container and Pallet Manufacturing
- [ ] 423840- Reuse & Re-Manufacturing- Other Reuse- Wholesale Machinery, Equipment, and Supplies
- [ ] 453310- Reuse & Re-Manufacturing- Retail Used Merchandise Sales- Used Merchandise Stores (excluding pawn shops)
- [ ]

- [ ] 541990- Reuse & Re-Manufacturing – Materials Exchange Services- All Other Professional, Scientific, and Technical Services

7. What county(ies) do you operate in (mark as many as apply)?

- [ ] All Colorado Counties
- [ ] Adams County
- [ ] Alamosa County
- [ ] Arapahoe County
- [ ] Archuleta County
- [ ] Baca County
- [ ] Bent County
- [ ] Boulder County
- [ ] City & County of Broomfield
- [ ] Chaffee County
- [ ] Cheyenne County
- [ ] Clear Creek County
- [ ] Conejos County
- [ ] Costilla County
- [ ] Crowley County
- [ ] Custer County
- [ ] Delta County
- [ ] City and County of Denver
- [ ] Dolores County
- [ ] Douglas County
- [ ] Eagle County
- [ ] Elbert County
- [ ] El Paso County
- [ ] Fremont County
- [ ] Garfield County
- [ ] Gilpin County
- [ ] Grand County
- [ ] Gunnison County
- [ ] Hinsdale County
- [ ] Huerfano County
- [ ] Jackson County
- [ ] Jefferson County
- [ ] Kiowa County
- [ ] Kit Carson County
- [ ]

- [ ] La Plata County
- [ ] Lake County
- [ ] Larimer County
- [ ] Las Animas County
- [ ] Lincoln County
- [ ] Logan County
- [ ] Mesa County
- [ ] Mineral County
- [ ] Moffat County
- [ ] Montezuma County
- [ ] Montrose County
- [ ] Morgan County
- [ ] Otero County
- [ ] Ouray County
- [ ] Park County
- [ ] Phillips County
- [ ] Pitkin County
- [ ] Prowers County
- [ ] Pueblo County
- [ ] Rio Blanco County
- [ ] Rio Grande County
- [ ] Routt County
- [ ] Saguache County
- [ ] San Juan County
- [ ] San Miguel County
- [ ] Sedgwick County
- [ ] Summit County
- [ ] Teller County
- [ ] Washington County
- [ ] Weld County
- [ ] Yuma County

8. Questions 9-13 help us better understand the sub sectors of recycling: Recycling Collection, Recycling Processing and Manufacturing, Reuse and Remanufacturing, Support Business, and Other. Please answer Yes or No to the recycling categories your business participates in.

Note: It is possible for a firm to be engaged in more than one type of recycling. It is also possible for a firm to only dedicate a small percentage of its total time to recycling; therefore the answer may not add up to 100% unless the entire business is dedicated to recycling (for example, if a quarter of your business is dedicated to manufacturing of glass containers," place "25" to the right of the "Glass container manufacturing" category below).

	Recycling Collection (If Yes go to Question #9)	Recycling Processing and Manufacturing (If Yes go to Question #10)	Reuse and Remanufacturing (If Yes go to Question #11)	Support Business (If Yes go to Question #12)	Other (If Yes go to Question #13)
Yes	○	○	○	○	○
No	○	○	○	○	○

9. Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING COLLECTION categories provided below by writing in the percentage to the right of the category.

Government-staffed collection ____________________

Private-staffed collection ____________________

10. Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING PROCESSING and MANUFACTURING categories provided below by writing in the percentage to the right of the category.

Compost / organic processing	
Electronics	
Fiberglass insulation producer	
Glass container manufacturing	
Glass product producer	
Household hazardous waste processor	
Household hazardous waste processor-Paint	
Materials recovery facility	
Nonferrous product producer	
Nonferrous foundry	
Nonferrous smelting or refining mill	
Oil processor	
Paper, paperboard, or market pulp mill	
Paper-based product manufacturing	
Pavement mix producer - asphalt or aggregate	
Plastics converter	
Plastics reclaimer	
Recyclable materials processor	
Rubber product manufacturing	
Steel or iron manufacturing	
Steel mill	

11. Please indicate what percentage of your business practice (at this site) is applicable to the following REUSE and REMANUFACTURING categories provided below by writing in the percentage to the right of the category.

Computer / electronic appliance remanufacturing	
Equipment or toner cartridge remanufacturer	
Motor vehicle part manufacturer	
Retail used merchandise sales	
Wood reuse or pallet rebuilder	

12. Please indicate what percentage of your business practice (at this site) is applicable to the following SUPPORT BUSINESS categories provided below by writing in the percentage to the right of the category.

Broker

Materials exchange services

Recycling and reuse equipment manufacturer

Transporter

13. Please indicate what percentage of your business practice (at this site) are applicable to the following OTHER categories provided below by writing in the percentage to the right of the category.

Other recycling processor / manufacturer

Other reuse / remanufacturer

14. Please provide the number of FULL TIME employees (working 40 hours per week) at this site in 2013.

Full Time Employees (whole number)

15. Please provide the number of PART TIME employees (working less than 40 hours per week) at this site in 2013.

Total Part Time Employees for location (whole number)

16. What was the average number of hours PART TIME employees worked per week in 2013?

Average number of hours for location (whole number)

17. What was the total payroll associated at this site in 2013?

Total Annual Payroll for location (whole number)

18. Please indicate the number of employees within the following salary ranges:

Less than $15,000

$15,000 - $25,000

$25,000 - $50,000

Over $50,000

19. What was the total amount of revenue associated with recycling at this site in 2013?

Total revenue for location (whole number)

Total recycling revenue (whole number)

20. Please indicate the TOTAL amount paid in taxes for each of the following categories in 2013.

Federal $ ______

State $ ______

Local $ ______

21. Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box.

- ☐ To businesses within the state of Colorado
- ☐ To businesses outside the state of Colorado
- ☐ Not applicable

Comment:

22. Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?

- ○ Yes
- ○ No
- ○ Not applicable

23. Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado?

- ○ Yes
- ○ No
- ○ Not applicable

24. If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials:

- ○ 0-10 miles
- ○ 10-50 miles
- ○ 50-100 miles
- ○ Greater than 100 miles

25. If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site:

0-10 miles

0-50 miles

50-100 miles

Greater than 100 miles

26. Please provide any additional information and/or comments here:

Appendix B

Email Sent to RRR Industry Representatives and Survey Recipients

RE: Colorado Department of Public Health and Environment (CDPHE) Economics of Recycling Survey

The State of Colorado Department of Public Health and Environment (CDPHE) is striving to implement programs and policies that are more feasible, effective, and beneficial for waste diversion in the State. Such efforts would not only improve the environment and quality of life in Colorado, but also benefit individual recycling, remanufacturing, and reuse (RRR) firms by attracting new businesses, markets, and end-users to Colorado. In order to do that, the Department has hired ENVIRON International Corporation (ENVIRON), a leading international environmental consulting firm, to study the economic impacts of waste diversion activities within the State. The overall purpose of this study is to identify the contribution of the RRR industries on the Colorado economy. A letter explaining the study, from Martha E. Rudolph, CDPHE Director of Environmental Programs, is attached for your additional information.

In order to gather data for this analysis, a survey of RRR firms has been developed. State-wide surveys like this have been done elsewhere in the US, but this will be the first study of its kind done in Colorado. The data will allow CDPHE to tailor programs, policies, and incentives to better support the state's waste diversion activities. Further, investors from around the nation could use the results of this survey to identify Colorado's market potential based on the available feedstock of recyclables, compost, and the extent of the reuse and remanufacturing industries.

You have been selected as one of the contacts we are requesting to participate in the survey. It would be very helpful if you could **take a few minutes** to complete the online survey using the **link below**. Please be assured that **all information will be kept confidential** and no individual information will be provided to other parties. CDPHE will not request, or be entitled to see, any individual respondent data. All information will be processed, compiled, and consolidated prior to analysis and distribution, so as not disclose any individual firm- or site-specific data. Results will only be used once aggregated to industrial sector. We would appreciate your response by close of business Friday, July 18. If you think you may not be able to complete the survey by this date, or have any concerns about the study, please let us know as soon as possible so we can send it to another contact.

Survey link: https://www.surveymonkey.com/s/Colorado_Economics_of_Recycling_Survey

Your participation in the survey is appreciated and would be beneficial to the Department and to the Colorado RRR industry overall. If you have any questions, or need further information, please contact Maitri Dirmeyer from ENVIRON at 503-353-1734 or mdirmeyer@environcorp.com. The contact at the Department is Eric Heyboer. He can be reached at 303-691-4955 or eric.heyboer@state.co.us. Please note that Maitri Dirmeyer will call you next week to follow up and see if you have any questions.

Thank you very much.

Sincerely,

Maitri Dirmeyer

Appendix C

Letter from Colorado Department of Public Health and Environment to RRR Industry Representatives and Survey Recipients Sent as an Attachment with the Survey Request Email

Date

Dear Recycling, Remanufacturing, and Reuse (RRR) Industry Representative,

As you may know, the Colorado Department of Public Health and Environment (Department) is developing a study on the economics of recycling in Colorado and will soon be launching a survey to collect information from the RRR industry. ENVIRON International Corporation (ENVIRON) has been selected to conduct the survey and the study. ENVIRON is a leading international environmental consulting firm with over 80 regional offices in the U.S. and worldwide.

The team assembled for this work will be locally based in ENVIRON's Denver, CO office. Carolyn Nobel is leading the effort, with the assistance of Gretchen Greene, PhD and Jeri Sawyer, MS in ENVIRON's Clackamas OR office, each of whom has 10 years or more of experience managing and implementing research on environmental projects throughout the United States. They will be working together on the interviewing, information gathering, economic analysis, and report preparation processes.

Your participation in the survey is appreciated and would be beneficial to the Department and to the Colorado RRR industry overall. Please be prepared to respond to the ENVIRON team's requests for phone interviews and/or online survey questions. Your responses are critical to the success of this project, and to charting a successful future for the RRR industry in areas such as setting strategic goals, implementing feasible and effective programs and policies, attracting new businesses, markets, and end-users to Colorado, and to realistically track economic progress. Thank you.

Sincerely,

[signer]
Colorado Department of Public Health and Environment

Appendix D

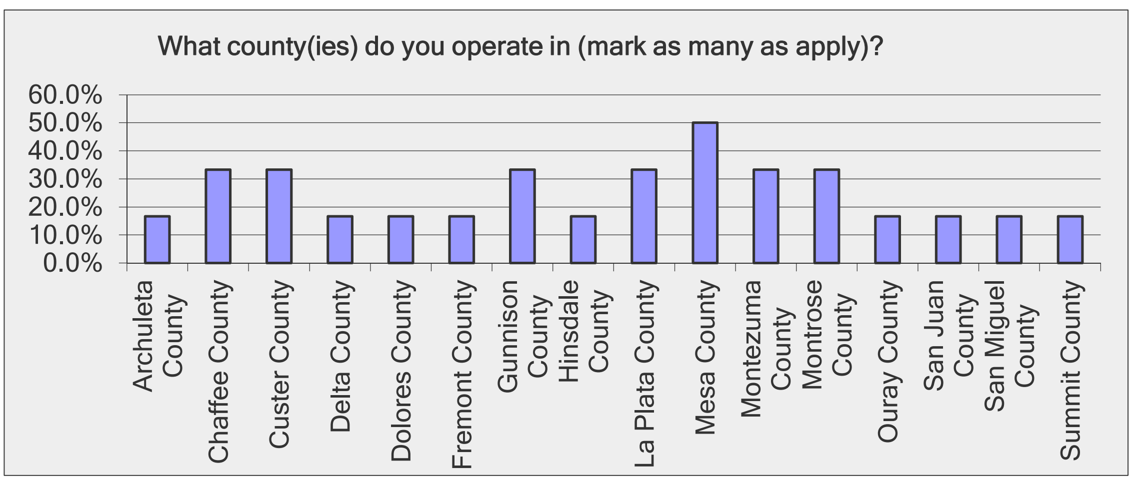
Select Survey Reponses by Business Category

Appendix D

Survey Responses by Business Category

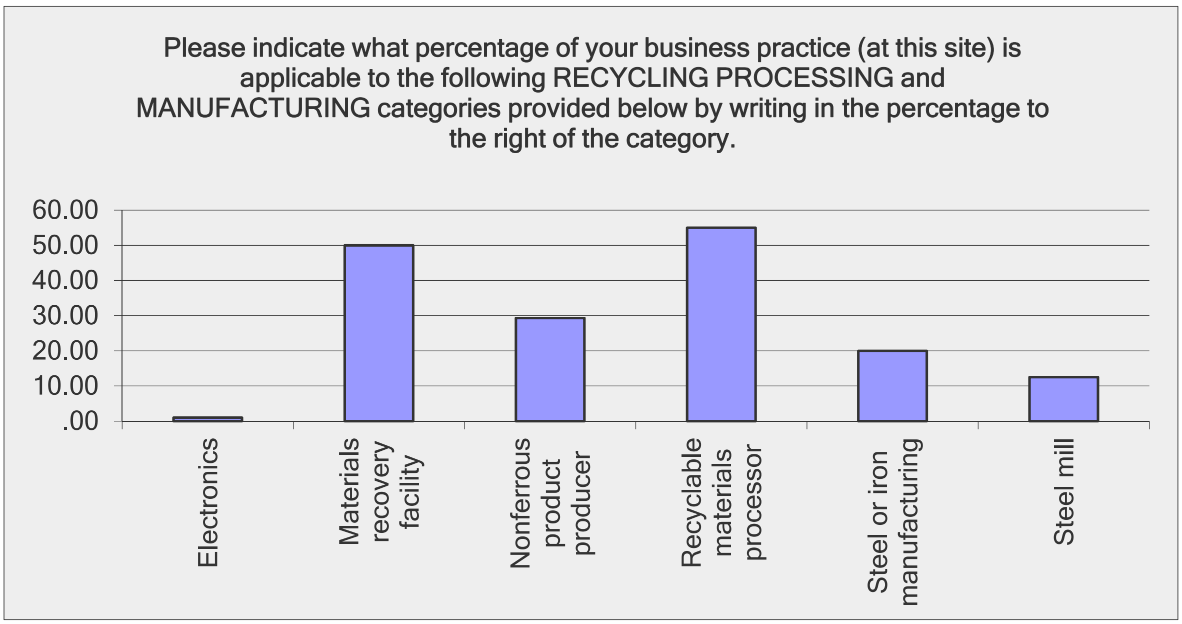
Economic Study of Recycling in Colorado-Broker

What county(ies) do you operate in (mark as many as apply)?		
Answer Options	Response Percent	Response Count
Archuleta County	16.7%	1
Chaffee County	33.3%	2
Custer County	33.3%	2
Delta County	16.7%	1
Dolores County	16.7%	1
Fremont County	16.7%	1
Gunnison County	33.3%	2
Hinsdale County	16.7%	1
La Plata County	33.3%	2
Mesa County	50.0%	3
Montezuma County	33.3%	2
Montrose County	33.3%	2
Ouray County	16.7%	1
San Juan County	16.7%	1
San Miguel County	16.7%	1
Summit County	16.7%	1
	answered question	6
	skipped question	0



Economic Study of Recycling in Colorado-Broker

Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING PROCESSING and MANUFACTURING categories provided below by writing in the percentage to the right of the category.		
Answer Options	Response Average	Response Total
Electronics	1.00	3
Materials recovery facility	50.00	200
Nonferrous product producer	29.33	88
Recyclable materials processor	55.00	165
Steel or iron manufacturing	20.00	20
Steel mill	12.50	25
		answered question
		skipped question



Economic Study of Recycling in Colorado-Broker

Please indicate what percentage of your business practice (at this site) is applicable to the following REUSE and REMANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Computer / electronic appliance remanufacturing	.00		3
Equipment or toner cartridge remanufacturer	.00		3
Motor vehicle part manufacturer	.00		3
Retail used merchandise sales	.00		3
Wood reuse or pallet rebuilder	.00		3
		answered question	3
		skipped question	3

Economic Study of Recycling in Colorado-Broker

Please provide the number of FULL TIME employees (working 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Full Time Employees (whole number)	13.80	69	5
		answered question	5
		skipped question	1

Economic Study of Recycling in Colorado-Broker

Please provide the number of PART TIME employees (working less than 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Total Part Time Employees for location (whole number)	.75	3	4
		answered question	4
		skipped question	2

Economic Study of Recycling in Colorado-Broker

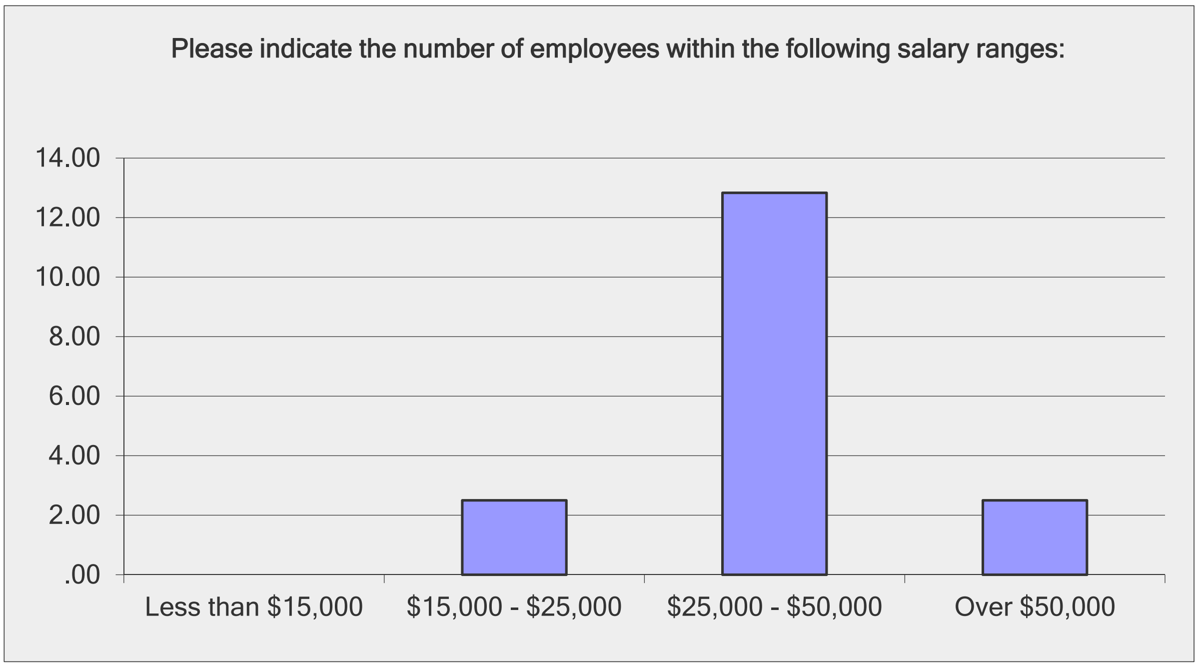
What was the average number of hours PART TIME employees worked per week in 2013?			
Answer Options	Response Average	Response Total	Response Count
Average number of hours for location (whole number)	2.00	10	5
		answered question	5
		skipped question	1

Economic Study of Recycling in Colorado-Broker

What was the total payroll associated at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total Annual Payroll for location (whole number)	200,000.00	200,000	1
		answered question	1
		skipped question	5

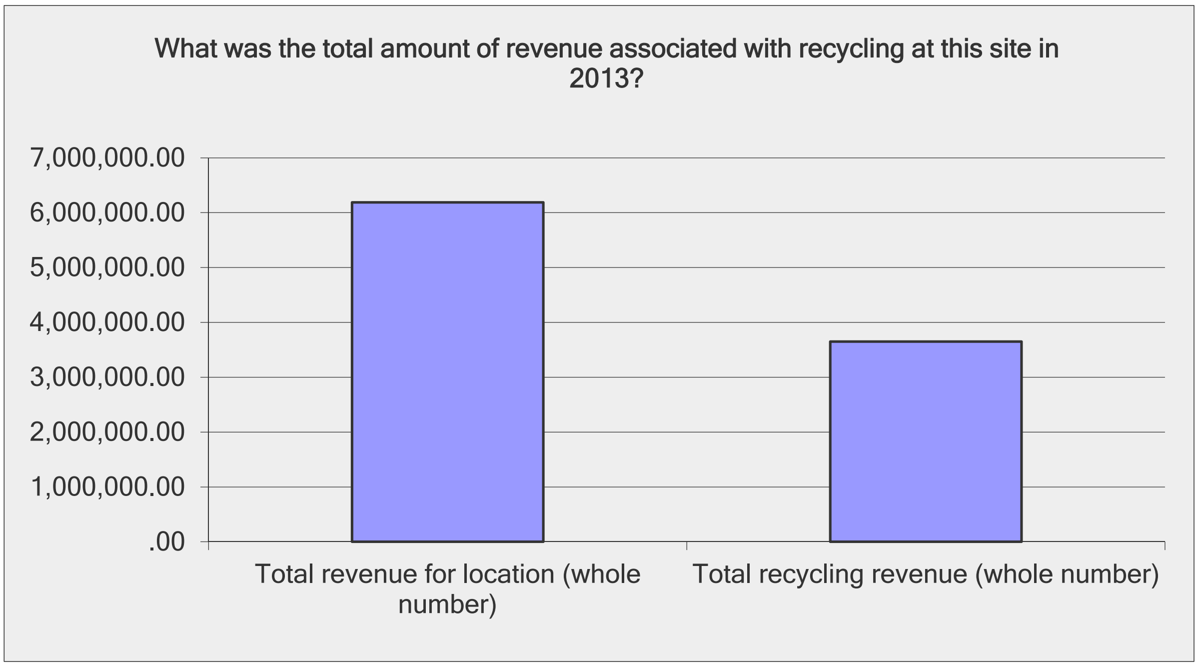
Economic Study of Recycling in Colorado-Broker

Please indicate the number of employees within the following salary ranges:			
Answer Options	Response Average	Response Total	Response Count
Less than $15,000	.00		1
$15,000 - $25,000	2.50	5	2
$25,000 - $50,000	12.83	77	6
Over $50,000	2.50	10	4
		answered question	6
		skipped question	0



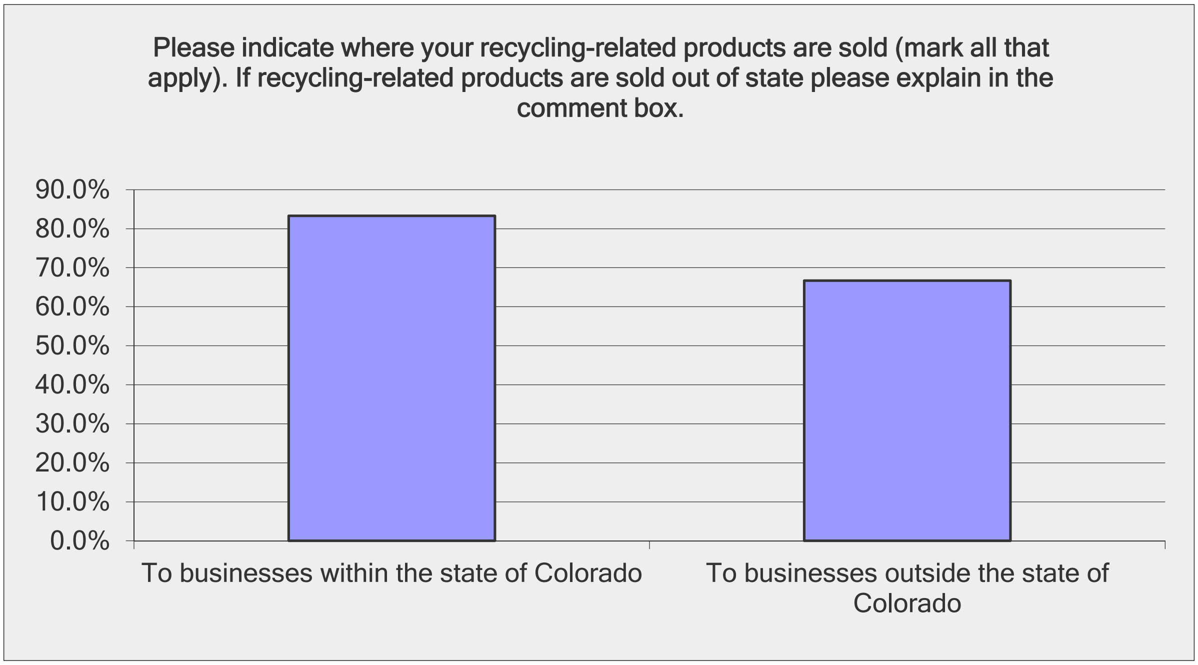
Economic Study of Recycling in Colorado-Broker

What was the total amount of revenue associated with recycling at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total revenue for location (whole number)	6,187,500.00	12,375,000	2
Total recycling revenue (whole number)	3,650,000.00	7,300,000	2
		answered question	2
		skipped question	4



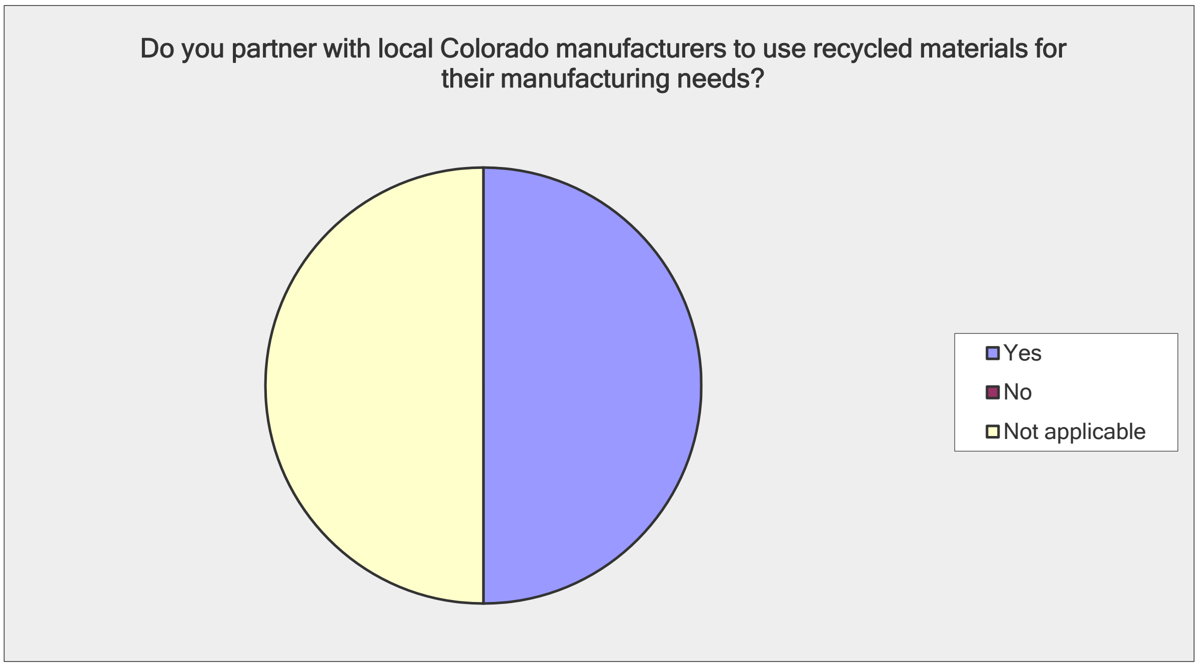
Economic Study of Recycling in Colorado-Broker

Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box.		
Answer Options	Response Percent	Response Count
To businesses within the state of Colorado	83.3%	5
To businesses outside the state of Colorado	66.7%	4
Comment:		4
answered question		6
skipped question		0



Economic Study of Recycling in Colorado-Broker

Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?		
Answer Options	Response Percent	Response Count
Yes	50.0%	3
No	0.0%	0
Not applicable	50.0%	3
	answered question	6
	skipped question	0

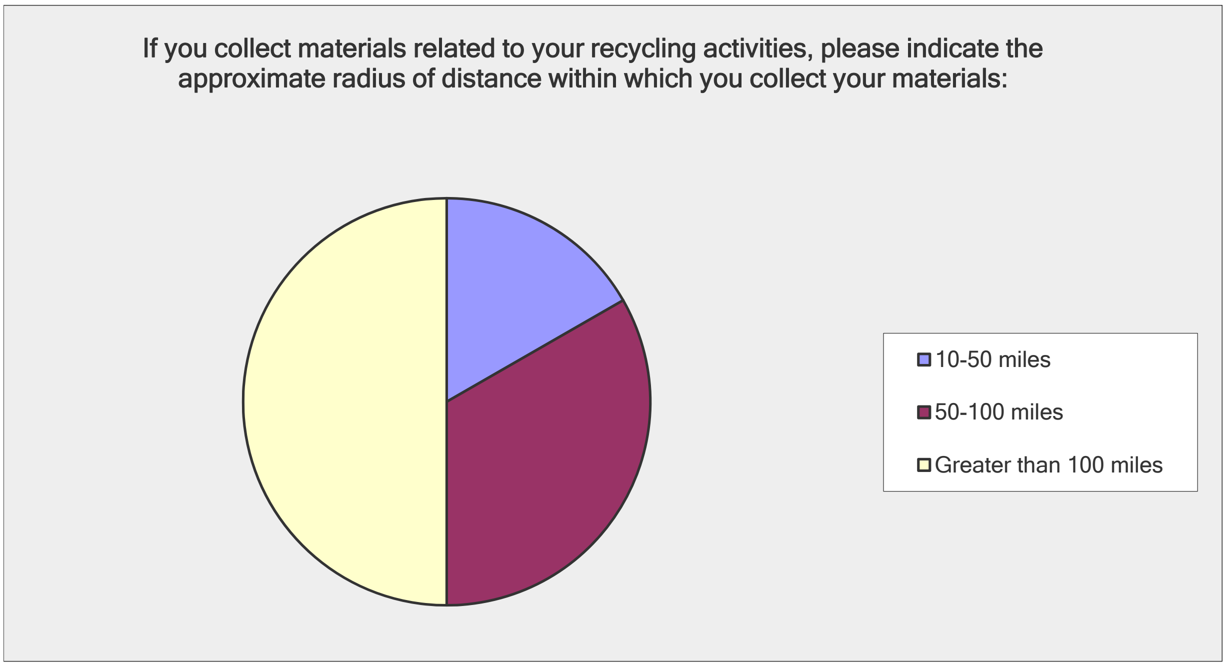


Economic Study of Recycling in Colorado-Broker

Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado?		
Answer Options	Response Percent	Response Count
Yes	83.3%	5
No	16.7%	1
	answered question	6
	skipped question	0

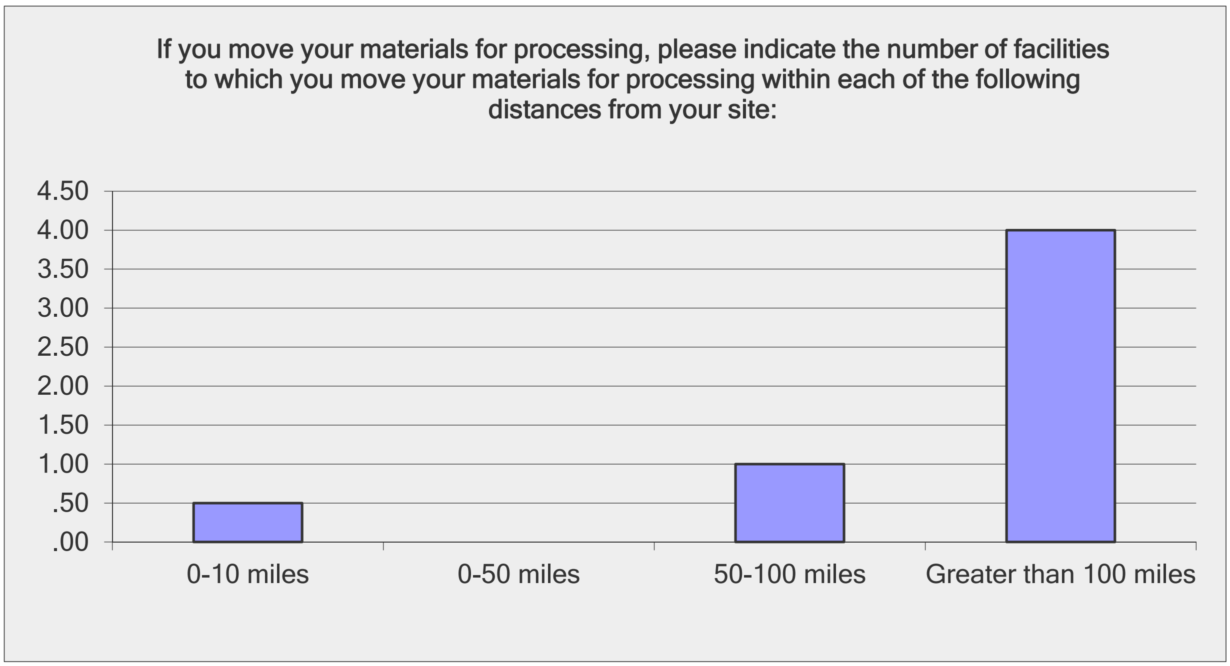
Economic Study of Recycling in Colorado-Broker

If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials:		
Answer Options	Response Percent	Response Count
10-50 miles	16.7%	1
50-100 miles	33.3%	2
Greater than 100 miles	50.0%	3
	answered question	6
	skipped question	0



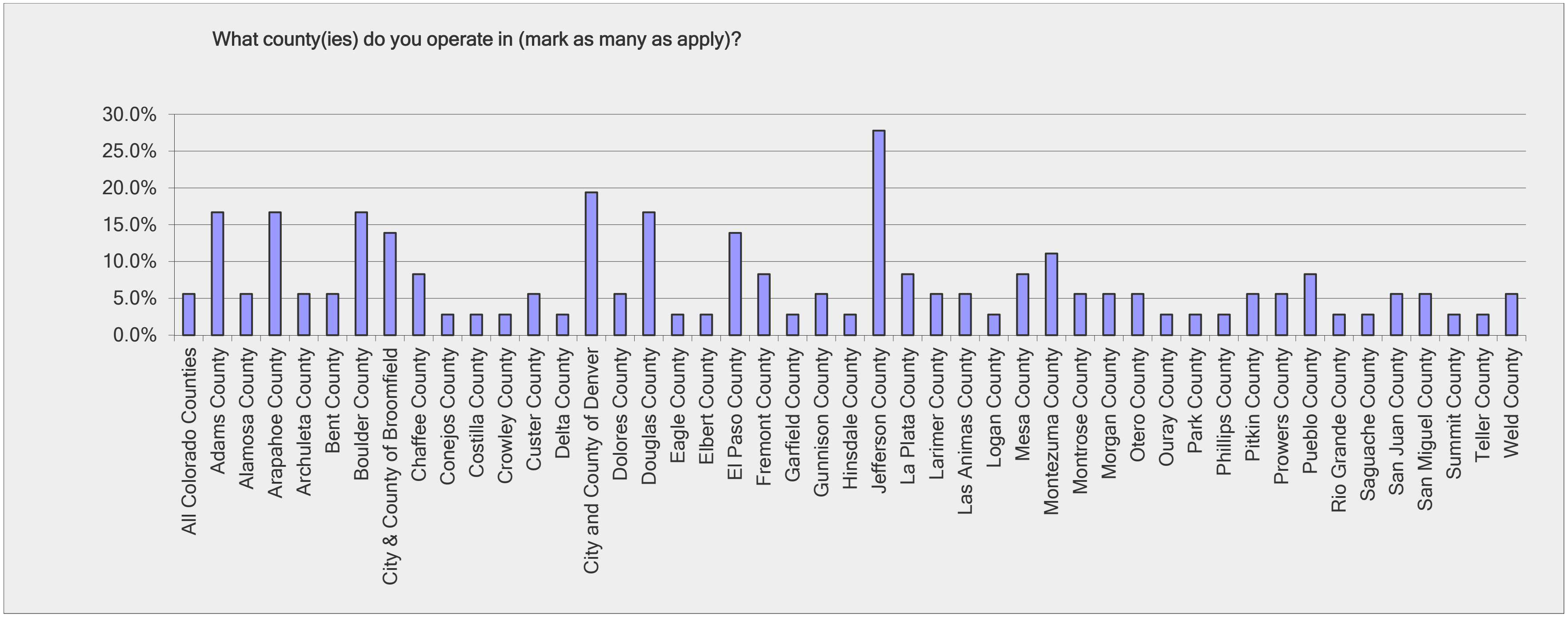
Economic Study of Recycling in Colorado-Broker

If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site:			
Answer Options	Response Average	Response Total	Response Count
0-10 miles	.50	1	2
0-50 miles	.00		1
50-100 miles	1.00	4	4
Greater than 100 miles	4.00	20	5
		answered question	5
		skipped question	1



Economic Study of Recycling in Colorado-Collector

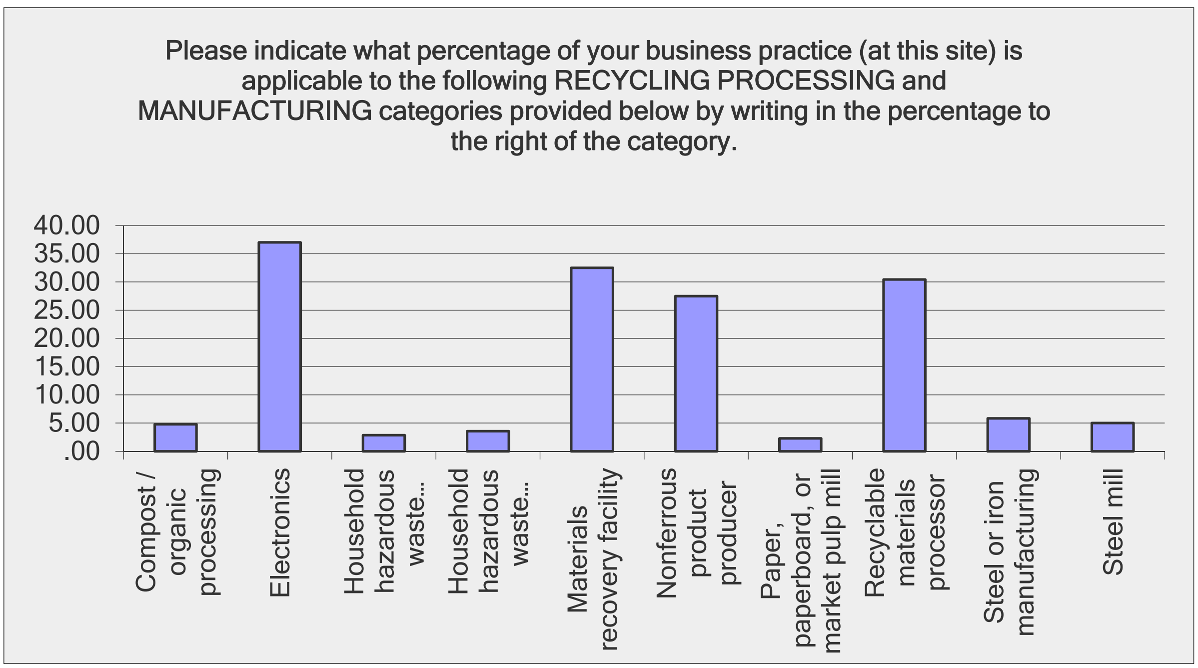
What county(ies) do you operate in (mark as many as apply)?		
Answer Options	Response Percent	Response Count
All Colorado Counties	5.6%	2
Adams County	16.7%	6
Alamosa County	5.6%	2
Arapahoe County	16.7%	6
Archuleta County	5.6%	2
Bent County	5.6%	2
Boulder County	16.7%	6
City & County of Broomfield	13.9%	5
Chaffee County	8.3%	3
Conejos County	2.8%	1
Costilla County	2.8%	1
Crowley County	2.8%	1
Custer County	5.6%	2
Delta County	2.8%	1
City and County of Denver	19.4%	7
Dolores County	5.6%	2
Douglas County	16.7%	6
Eagle County	2.8%	1
Elbert County	2.8%	1
El Paso County	13.9%	5
Fremont County	8.3%	3
Garfield County	2.8%	1
Gunnison County	5.6%	2
Hinsdale County	2.8%	1
Jefferson County	27.8%	10
La Plata County	8.3%	3
Larimer County	5.6%	2
Las Animas County	5.6%	2
Logan County	2.8%	1
Mesa County	8.3%	3
Montezuma County	11.1%	4
Montrose County	5.6%	2
Morgan County	5.6%	2
Otero County	5.6%	2
Ouray County	2.8%	1
Park County	2.8%	1
Phillips County	2.8%	1
Pitkin County	5.6%	2
Prowers County	5.6%	2
Pueblo County	8.3%	3
Rio Grande County	2.8%	1
Saguache County	2.8%	1
San Juan County	5.6%	2
San Miguel County	5.6%	2
Summit County	2.8%	1
Teller County	2.8%	1
Weld County	5.6%	2
	answered question	36
	skipped question	1


What county(ies) do you operate in (mark as many as apply)?
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
All Colorado Counties
Adams County
Alamosa County
Arapahoe County
Archuleta County
Bent County
Boulder County
City & County of Broomfield
Chaffee County
Conejos County
Costilla County
Crowley County
Custer County
Delta County
City and County of Denver
Dolores County
Douglas County
Eagle County
Elbert County
El Paso County
Fremont County
Garfield County
Gunnison County
Hinsdale County
Jefferson County
La Plata County
Larimer County
Las Animas County
Logan County
Mesa County
Montezuma County
Montrose County
Morgan County
Otero County
Ouray County
Park County
Phillips County
Pitkin County
Prowers County
Pueblo County
Rio Grande County
Saguache County
San Juan County
San Miguel County
Summit County
Teller County
Weld County

Economic Study of Recycling in Colorado-Collector

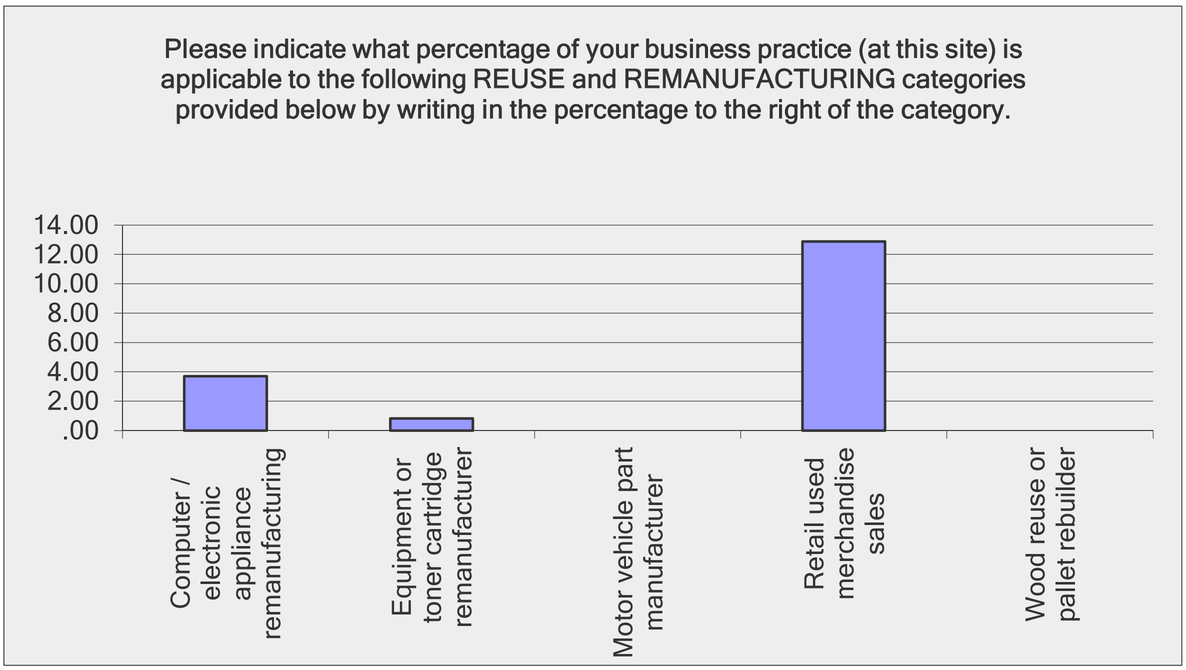
Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING PROCESSING and MANUFACTURING categories provided below by writing in the percentage to the right of the category.

Answer Options	Response Average	Response Total	Response Count
Compost / organic processing	4.78	43	9
Electronics	37.00	518	14
Household hazardous waste processor	2.86	20	7
Household hazardous waste processor-Paint	3.57	25	7
Materials recovery facility	32.50	325	10
Nonferrous product producer	27.50	220	8
Paper, paperboard, or market pulp mill	2.29	16	7
Recyclable materials processor	30.43	213	7
Steel or iron manufacturing	5.83	35	6
Steel mill	5.00	25	5
		answered question	21
		skipped question	16



Economic Study of Recycling in Colorado-Collector

Please indicate what percentage of your business practice (at this site) is applicable to the following REUSE and REMANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Computer / electronic appliance remanufacturing	3.70	37	10
Equipment or toner cartridge remanufacturer	.83	5	6
Motor vehicle part manufacturer	.00		6
Retail used merchandise sales	12.88	103	8
Wood reuse or pallet rebuilder	.00		6
		answered question	11
		skipped question	26



Economic Study of Recycling in Colorado-Collector

Please provide the number of FULL TIME employees (working 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Full Time Employees (whole number)	61.68	1,912	31
		answered question	31
		skipped question	6

Economic Study of Recycling in Colorado-Collector

Please provide the number of PART TIME employees (working less than 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Total Part Time Employees for location (whole number)	26.44	714	27
		answered question	28
		skipped question	9

Economic Study of Recycling in Colorado-Collector

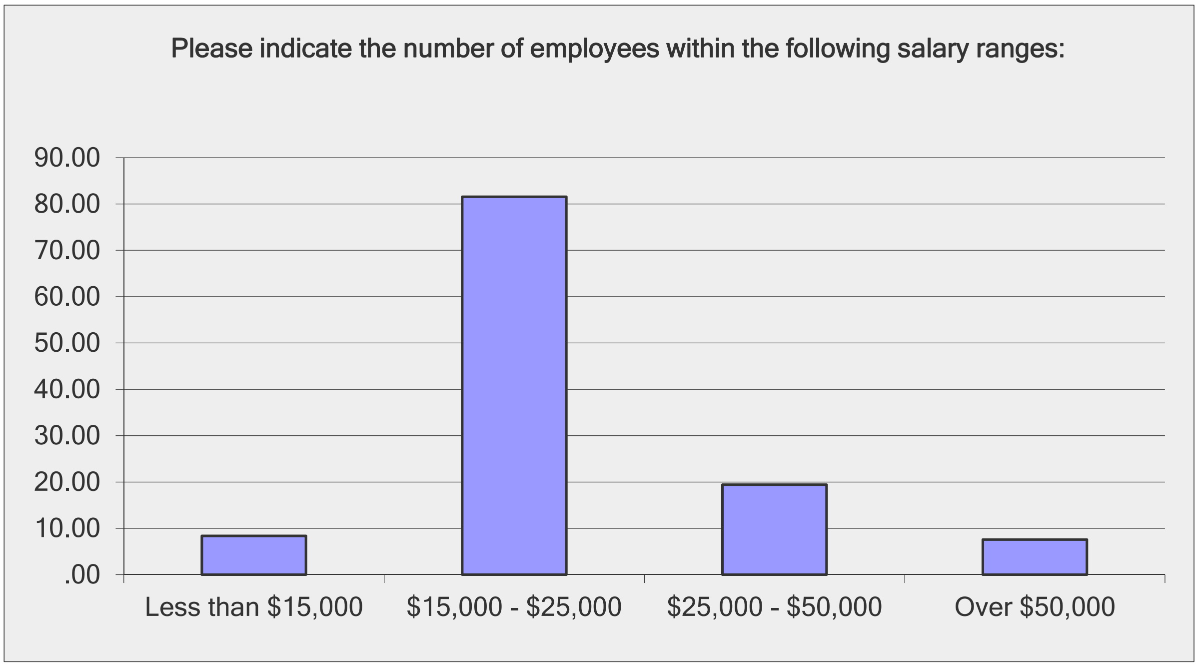
What was the average number of hours PART TIME employees worked per week in 2013?			
Answer Options	Response Average	Response Total	Response Count
Average number of hours for location (whole number)	15.56	389	25
		answered question	25
		skipped question	12

Economic Study of Recycling in Colorado-Collector

What was the total payroll associated at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total Annual Payroll for location (whole number)	2,099,419.00	37,789,542	18
		answered question	18
		skipped question	19

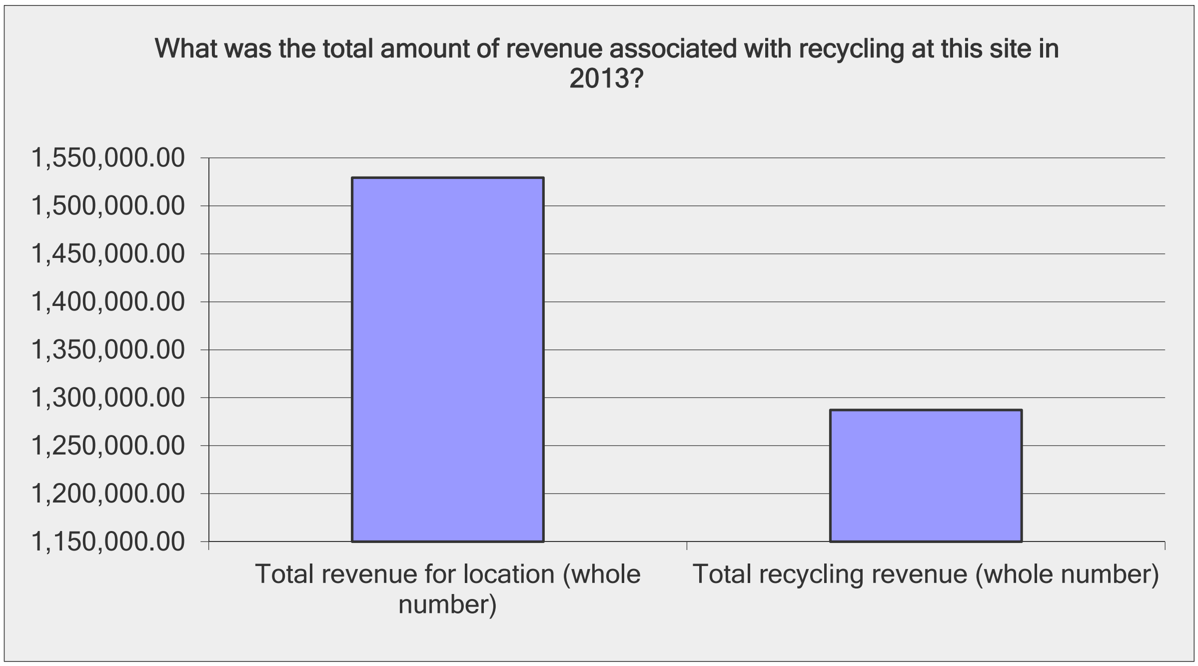
Economic Study of Recycling in Colorado-Collector

Please indicate the number of employees within the following salary ranges:			
Answer Options	Response Average	Response Total	Response Count
Less than $15,000	8.36	117	14
$15,000 - $25,000	81.57	1,142	14
$25,000 - $50,000	19.44	486	25
Over $50,000	7.58	144	19
		answered question	30
		skipped question	7



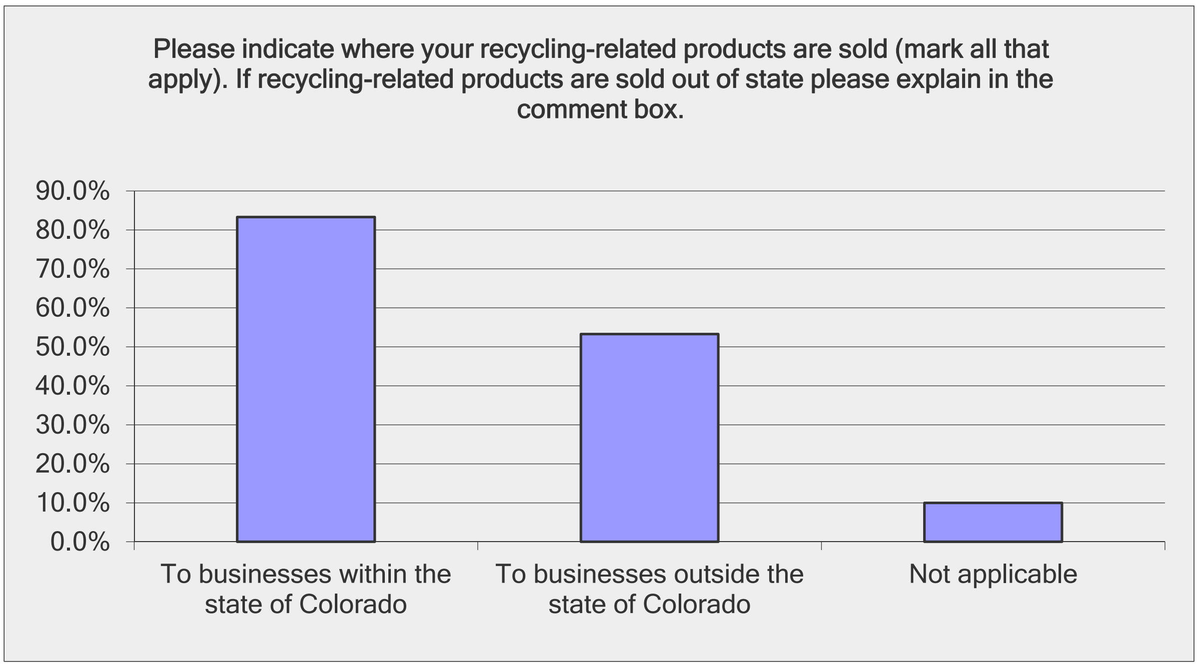
Economic Study of Recycling in Colorado-Collector

What was the total amount of revenue associated with recycling at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total revenue for location (whole number)	1,529,252.22	27,526,540	18
Total recycling revenue (whole number)	1,287,168.16	24,456,195	19
		answered question	20
		skipped question	17



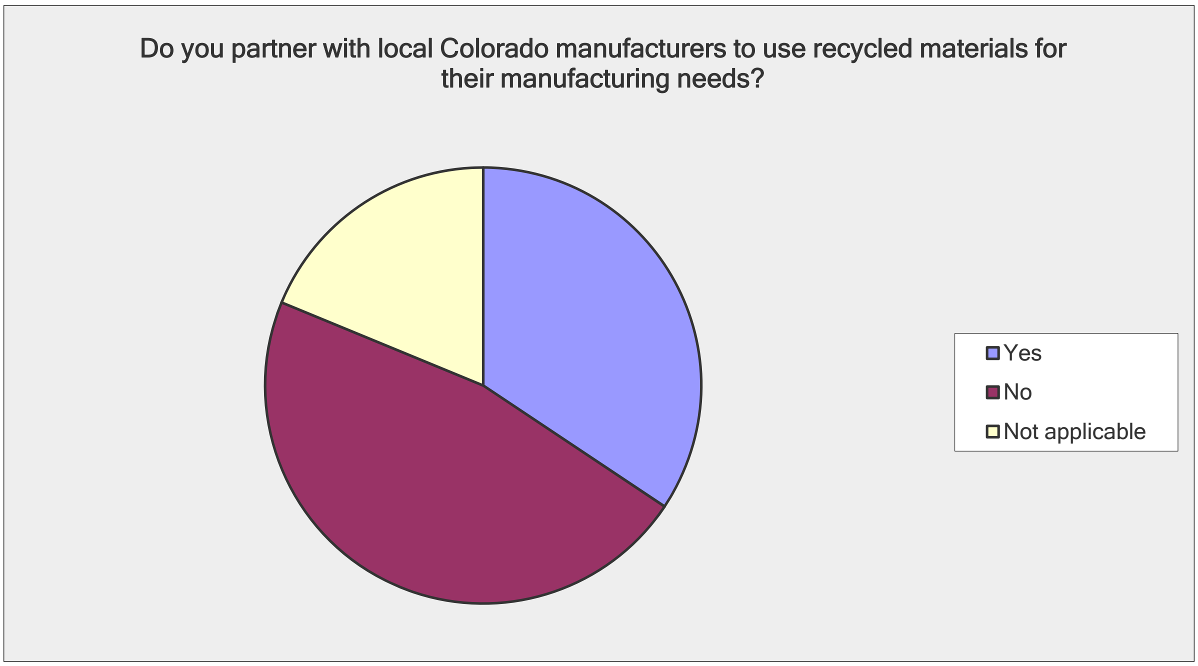
Economic Study of Recycling in Colorado-Collector

Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box.		
Answer Options	Response Percent	Response Count
To businesses within the state of Colorado	83.3%	25
To businesses outside the state of Colorado	53.3%	16
Not applicable	10.0%	3
Comment:		13
	answered question	30
	skipped question	7



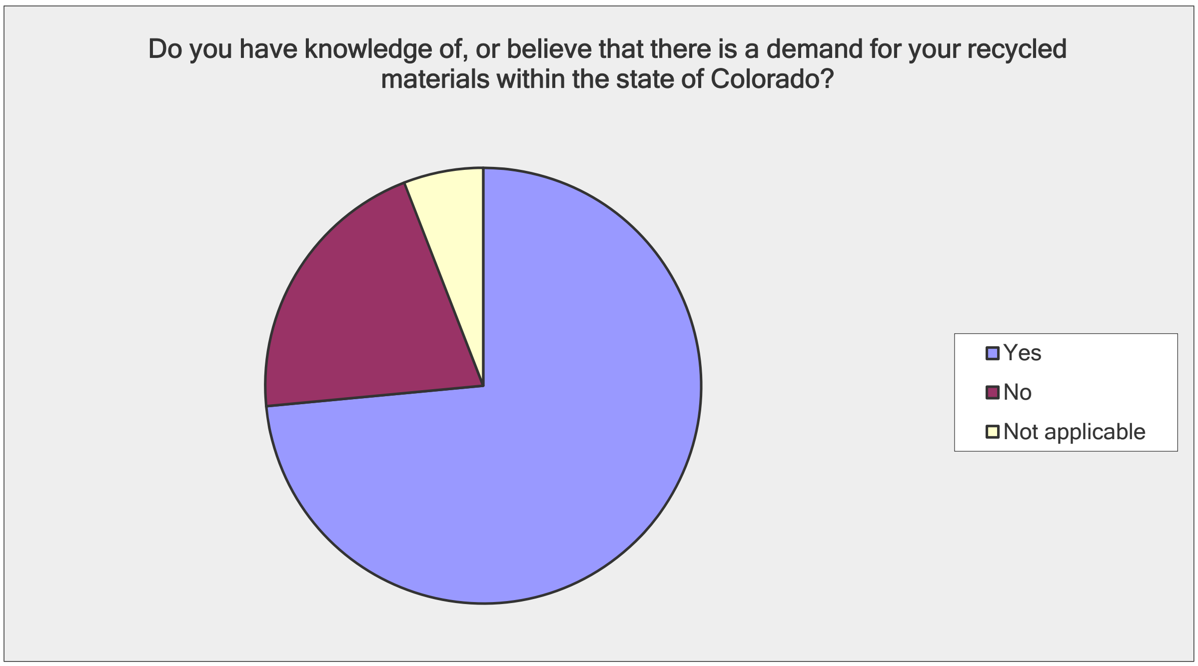
Economic Study of Recycling in Colorado-Collector

Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?		
Answer Options	Response Percent	Response Count
Yes	34.4%	11
No	46.9%	15
Not applicable	18.8%	6
answered question		32
skipped question		5



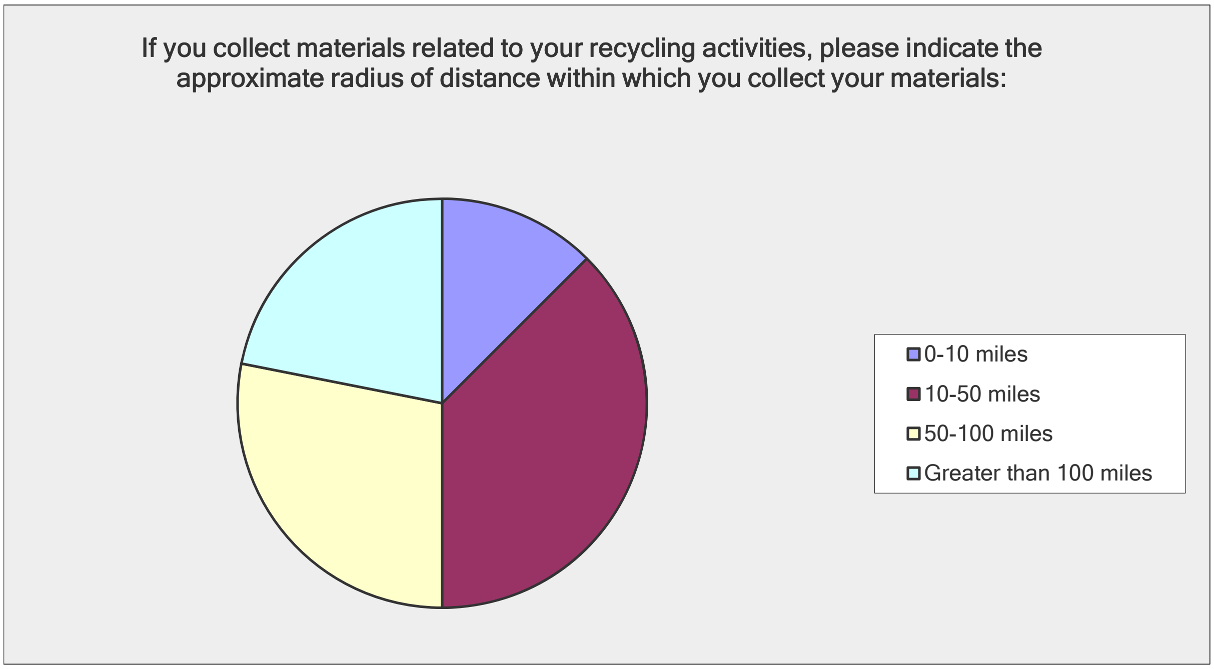
Economic Study of Recycling in Colorado-Collector

Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado?		
Answer Options	Response Percent	Response Count
Yes	73.5%	25
No	20.6%	7
Not applicable	5.9%	2
	answered question	34
	skipped question	3



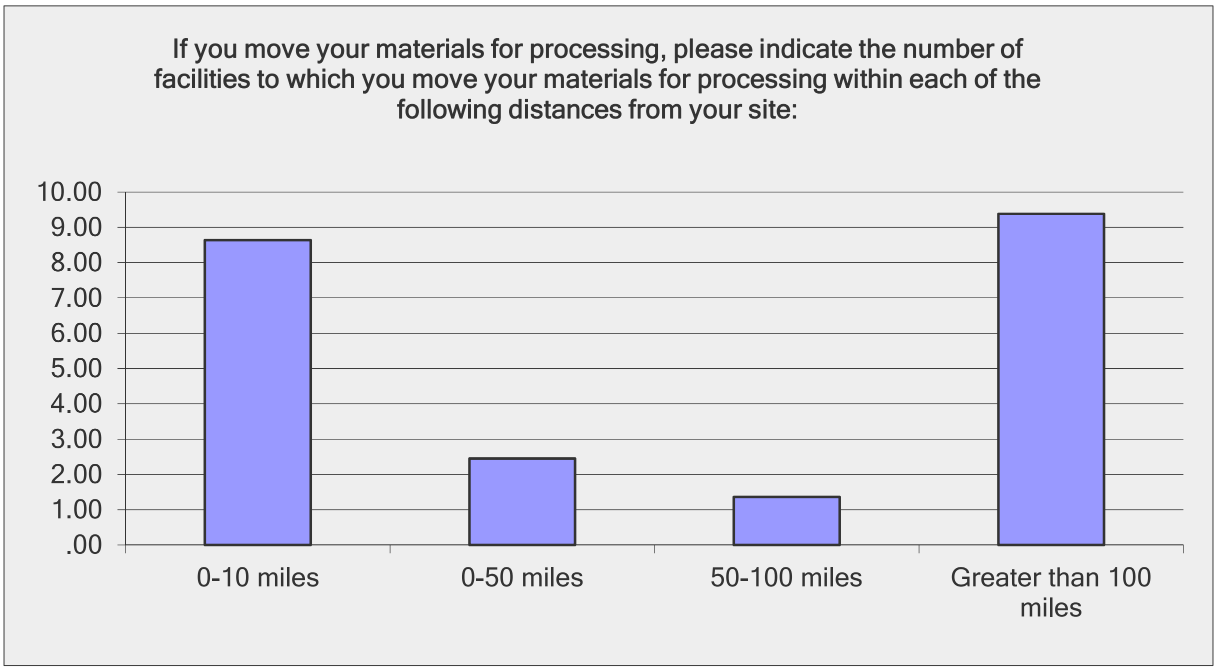
Economic Study of Recycling in Colorado-Collector

If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials:		
Answer Options	Response Percent	Response Count
0-10 miles	12.5%	4
10-50 miles	37.5%	12
50-100 miles	28.1%	9
Greater than 100 miles	21.9%	7
	answered question	32
	skipped question	5



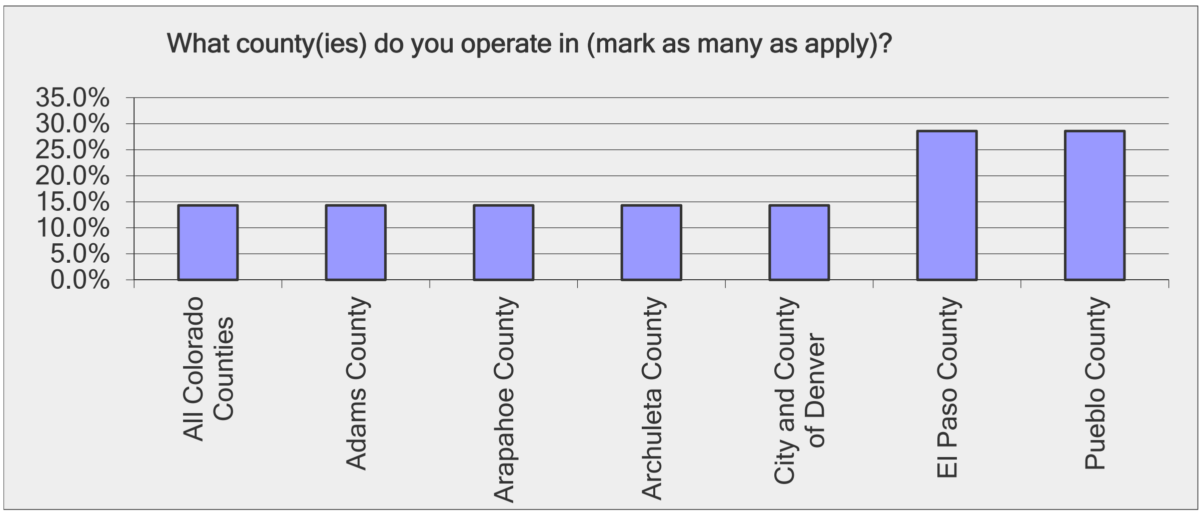
Economic Study of Recycling in Colorado-Collector

If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site:			
Answer Options	Response Average	Response Total	Response Count
0-10 miles	8.64	121	14
0-50 miles	2.45	27	11
50-100 miles	1.36	19	14
Greater than 100 miles	9.38	150	16
		answered question	24
		skipped question	13



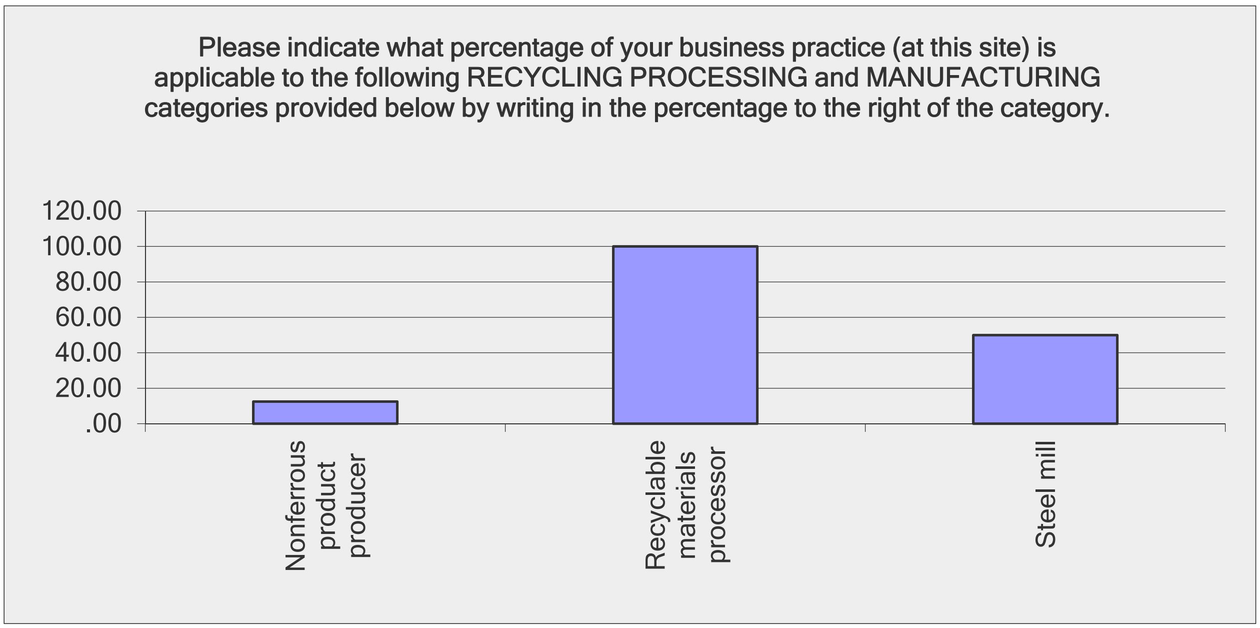
Economic Study of Recycling in Colorado-Manufacturer

What county(ies) do you operate in (mark as many as apply)?		
Answer Options	Response Percent	Response Count
All Colorado Counties	14.3%	1
Adams County	14.3%	1
Arapahoe County	14.3%	1
Archuleta County	14.3%	1
City and County of Denver	14.3%	1
El Paso County	28.6%	2
Pueblo County	28.6%	2
	answered question	7
	skipped question	1



Economic Study of Recycling in Colorado-Manufacturer

Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING PROCESSING and MANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Nonferrous product producer	12.50	25	2
Recyclable materials processor	100.00	100	1
Steel mill	50.00	100	2
		answered question	3
		skipped question	5



Economic Study of Recycling in Colorado-Manufacturer

Please indicate what percentage of your business practice (at this site) is applicable to the following REUSE and REMANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Computer / electronic appliance remanufacturing	.00		1
Equipment or toner cartridge remanufacturer	.00		1
Motor vehicle part manufacturer	.00		1
Retail used merchandise sales	.00		1
Wood reuse or pallet rebuilder	.00		1
		answered question	1
		skipped question	7

Economic Study of Recycling in Colorado-Manufacturer

Please provide the number of FULL TIME employees (working 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Full Time Employees (whole number)	184.29	1,290	7
		answered question	7
		skipped question	1

Economic Study of Recycling in Colorado-Manufacturers

Please provide the number of PART TIME employees (working less than 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Total Part Time Employees for location (whole number)	1.25	5	4
		answered question	4
		skipped question	4

Economic Study of Recycling in Colorado-Manufacturers

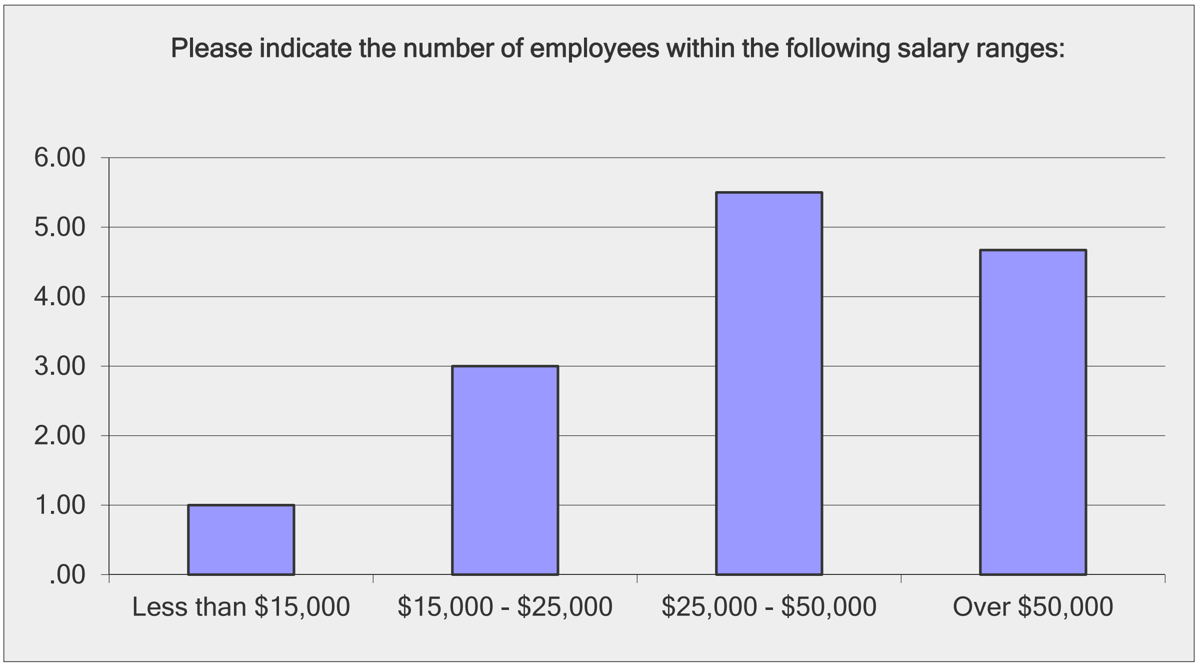
What was the average number of hours PART TIME employees worked per week in 2013?			
Answer Options	Response Average	Response Total	Response Count
Average number of hours for location (whole number)	15.00	45	3
		answered question	3
		skipped question	5

Economic Study of Recycling in Colorado-Manufacturers

What was the total payroll associated at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total Annual Payroll for location (whole number)	160,000.00	480,000	3
		answered question	3
		skipped question	5

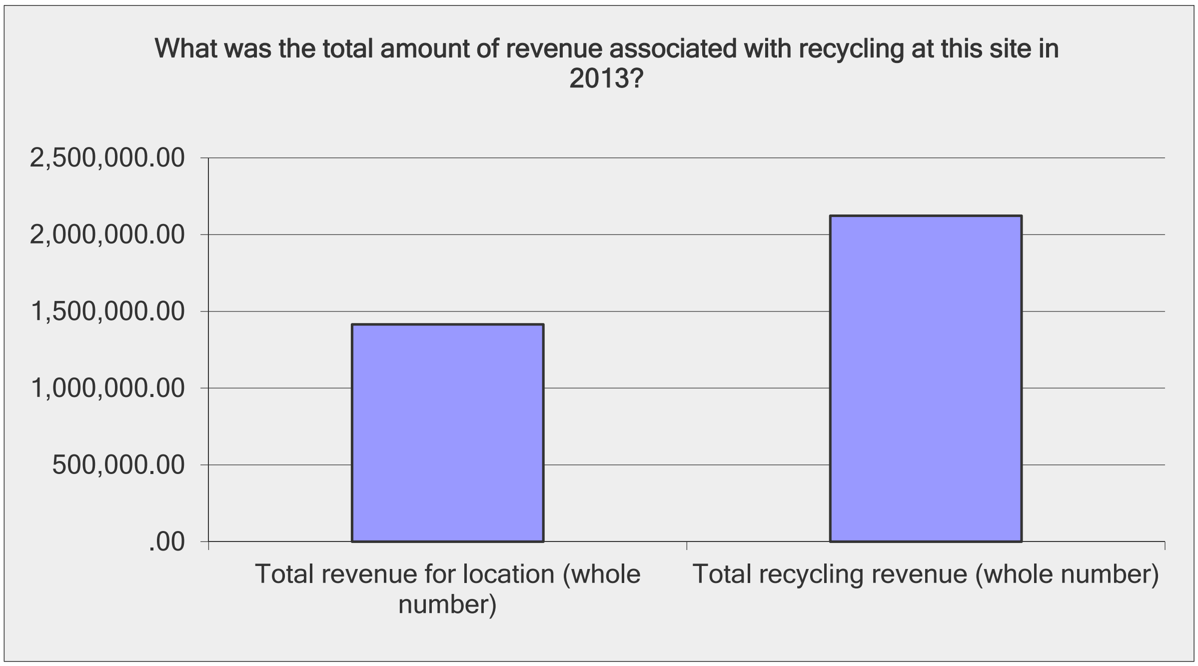
Economic Study of Recycling in Colorado-Manufacturer

Please indicate the number of employees within the following salary ranges:			
Answer Options	Response Average	Response Total	Response Count
Less than $15,000	1.00	2	2
$15,000 - $25,000	3.00	9	3
$25,000 - $50,000	5.50	11	2
Over $50,000	4.67	14	3
		answered question	4
		skipped question	4



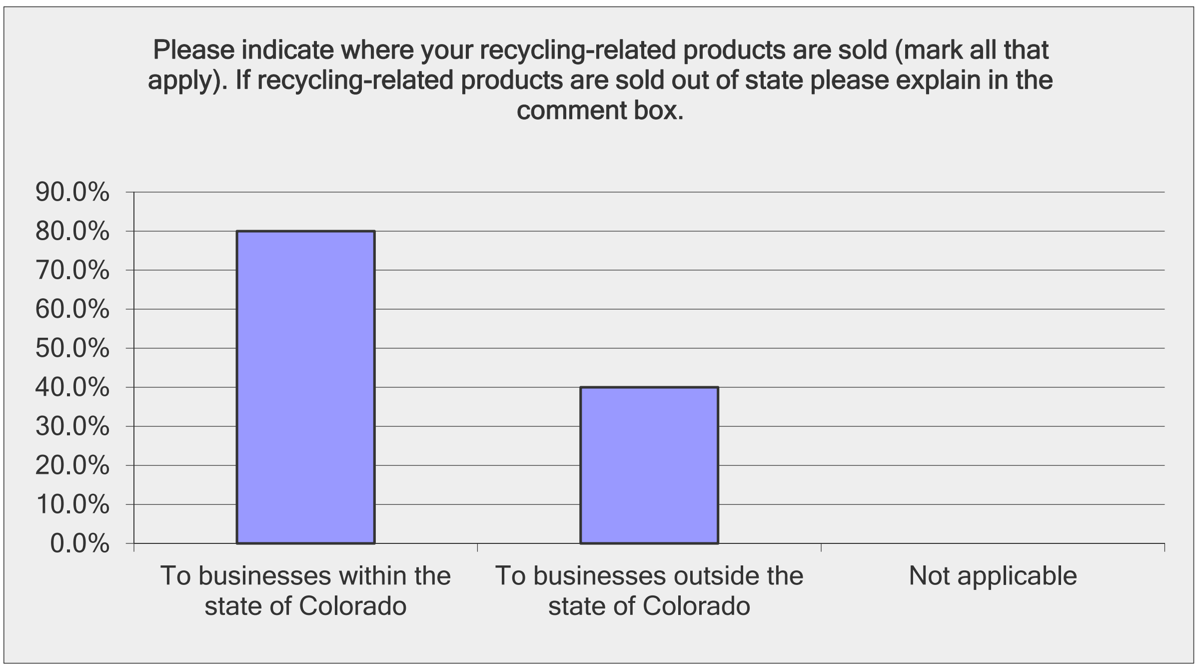
Economic Study of Recycling in Colorado-Manufacturer

What was the total amount of revenue associated with recycling at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total revenue for location (whole number)	1,414,833.33	4,244,500	3
Total recycling revenue (whole number)	2,122,250.00	4,244,500	2
		answered question	3
		skipped question	5



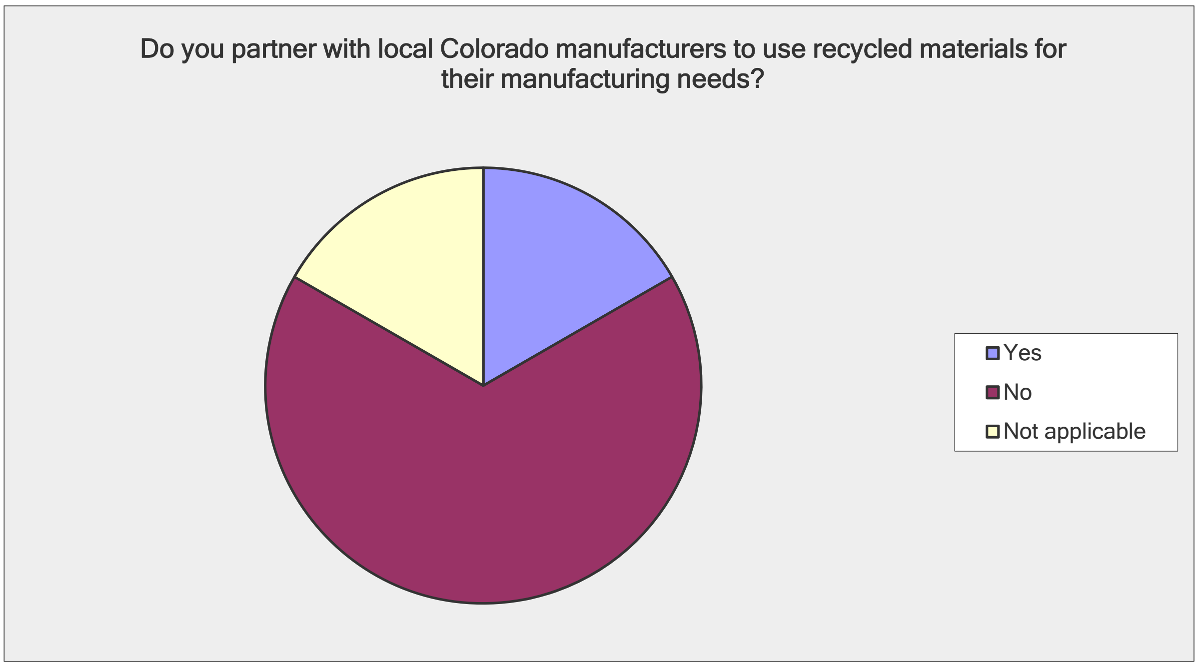
Economic Study of Recycling in Colorado-Manufacturer

Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box.		
Answer Options	Response Percent	Response Count
To businesses within the state of Colorado	80.0%	4
To businesses outside the state of Colorado	40.0%	2
Not applicable	0.0%	0
Comment:		1
	answered question	5
	skipped question	3



Economic Study of Recycling in Colorado-Manufacturer

Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?		
Answer Options	Response Percent	Response Count
Yes	16.7%	1
No	66.7%	4
Not applicable	16.7%	1
	answered question	6
	skipped question	2

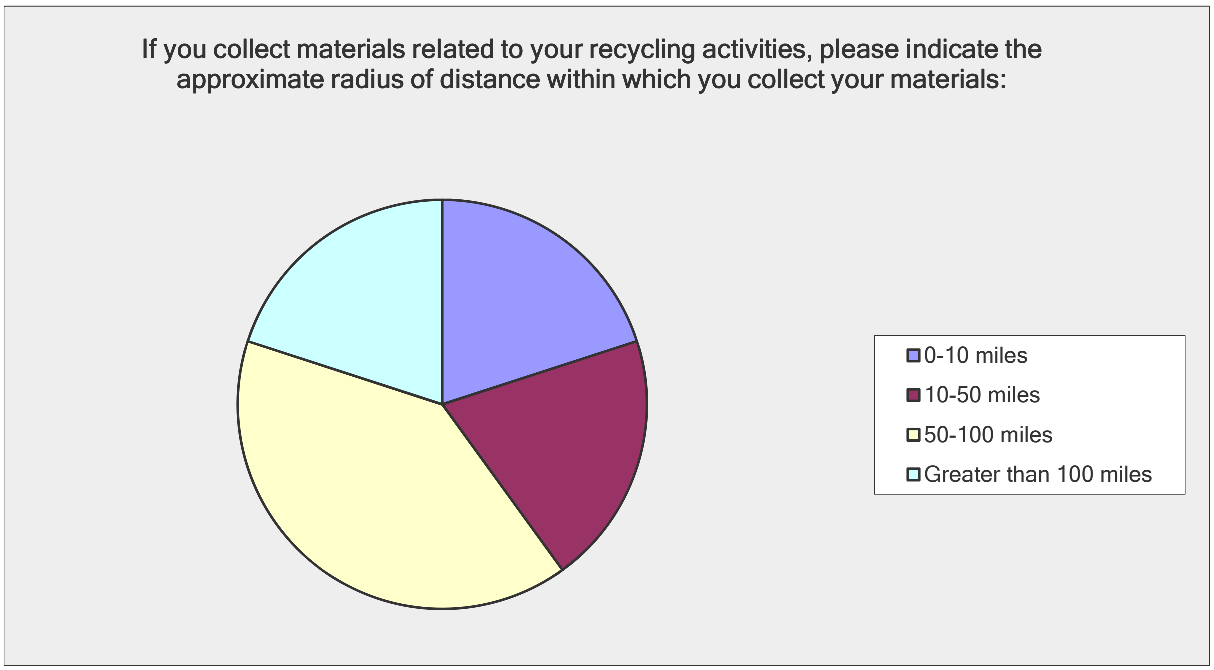


Economic Study of Recycling in Colorado-Manufacturer

Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado?		
Answer Options	Response Percent	Response Count
Yes	100.0%	6
No	0.0%	0
Not applicable	0.0%	0
	answered question	6
	skipped question	2

Economic Study of Recycling in Colorado-Manufacturer

If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials:		
Answer Options	Response Percent	Response Count
0-10 miles	20.0%	1
10-50 miles	20.0%	1
50-100 miles	40.0%	2
Greater than 100 miles	20.0%	1
	answered question	5
	skipped question	3

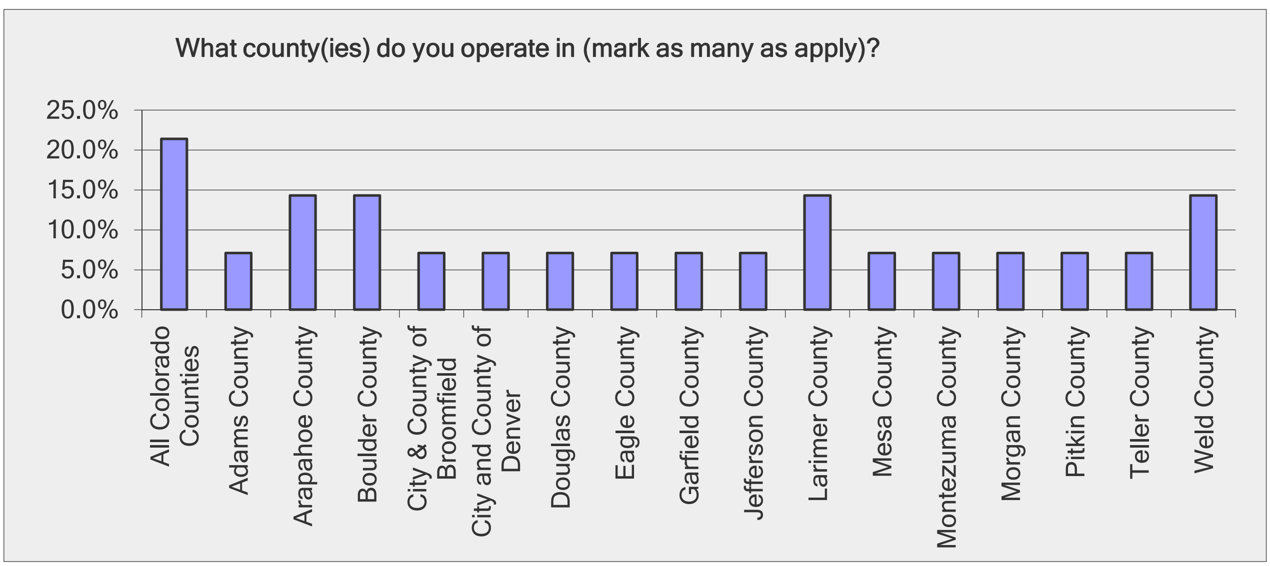


Economic Study of Recycling in Colorado-Manufacturer

If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site:			
Answer Options	Response Average	Response Total	Response Count
0-10 miles	.50	1	2
		answered question	2
		skipped question	6

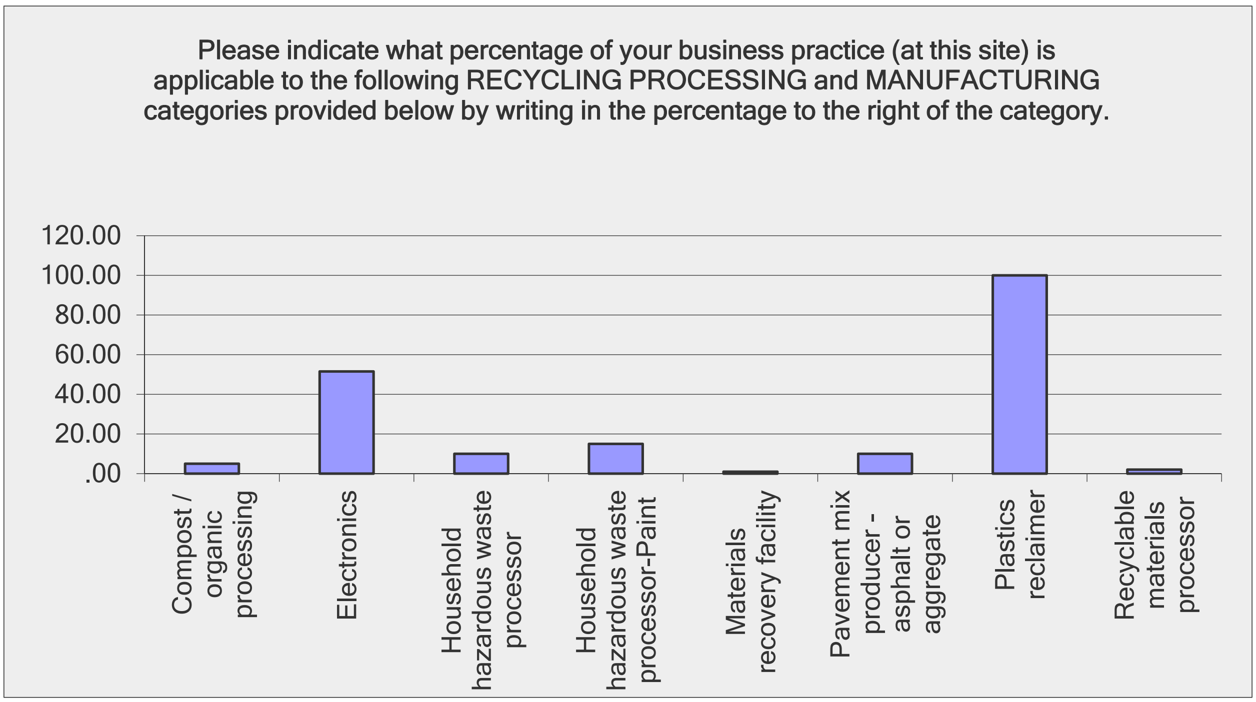
Economic Study of Recycling in Colorado-Other

What county(ies) do you operate in (mark as many as apply)?		
Answer Options	Response Percent	Response Count
All Colorado Counties	21.4%	3
Adams County	7.1%	1
Arapahoe County	14.3%	2
Boulder County	14.3%	2
City & County of Broomfield	7.1%	1
City and County of Denver	7.1%	1
Douglas County	7.1%	1
Eagle County	7.1%	1
Garfield County	7.1%	1
Jefferson County	7.1%	1
Larimer County	14.3%	2
Mesa County	7.1%	1
Montezuma County	7.1%	1
Morgan County	7.1%	1
Pitkin County	7.1%	1
Teller County	7.1%	1
Weld County	14.3%	2
	answered question	14
	skipped question	2



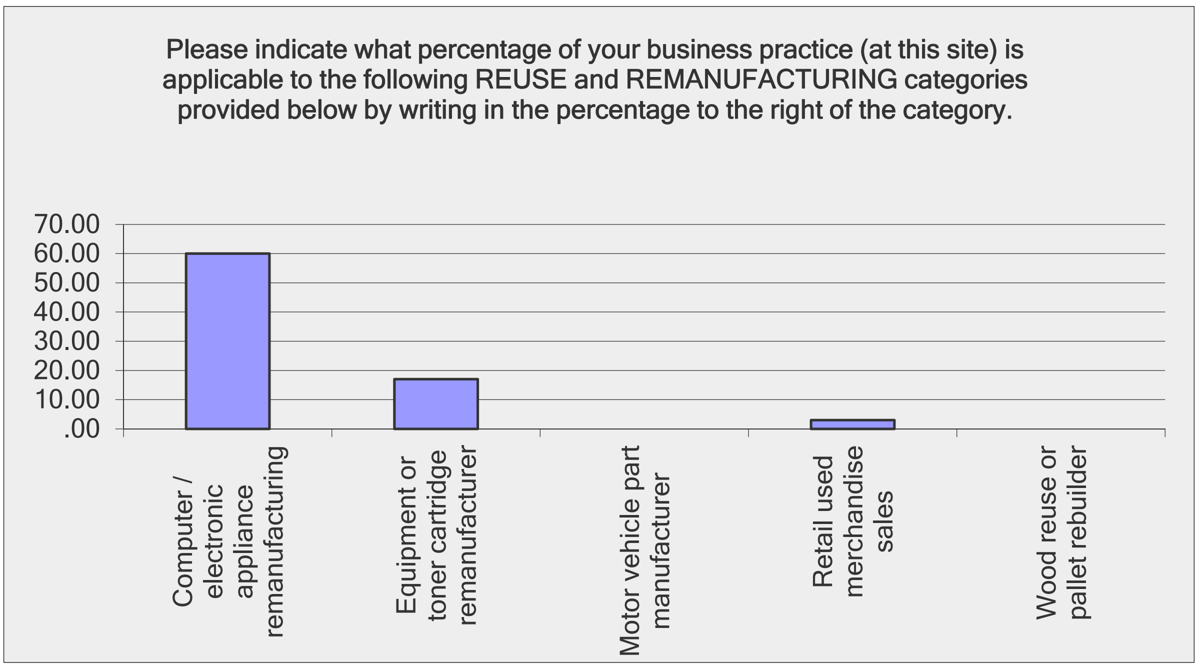
Economic Study of Recycling in Colorado-Other

Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING PROCESSING and MANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Compost / organic processing	5.00	15	3
Electronics	51.50	206	4
Household hazardous waste processor	10.00	10	1
Household hazardous waste processor-Paint	15.00	15	1
Materials recovery facility	1.00	1	1
Pavement mix producer - asphalt or aggregate	10.00	10	1
Plastics reclaimer	100.00	100	1
Recyclable materials processor	2.00	2	1
		answered question	7
		skipped question	9



Economic Study of Recycling in Colorado-Other

Please indicate what percentage of your business practice (at this site) is applicable to the following REUSE and REMANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Computer / electronic appliance remanufacturing	60.00	180	3
Equipment or toner cartridge remanufacturer	17.00	17	1
Motor vehicle part manufacturer	.00		0
Retail used merchandise sales	3.00	3	1
Wood reuse or pallet rebuilder	.00		0
		answered question	3
		skipped question	13



Economic Study of Recycling in Colorado-Other

Please provide the number of FULL TIME employees (working 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Full Time Employees (whole number)	10.00	140	14
		answered question	14
		skipped question	2

Economic Study of Recycling in Colorado-Other

Please provide the number of PART TIME employees (working less than 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Total Part Time Employees for location (whole number)	2.62	34	13
		answered question	14
		skipped question	2

Economic Study of Recycling in Colorado-Other

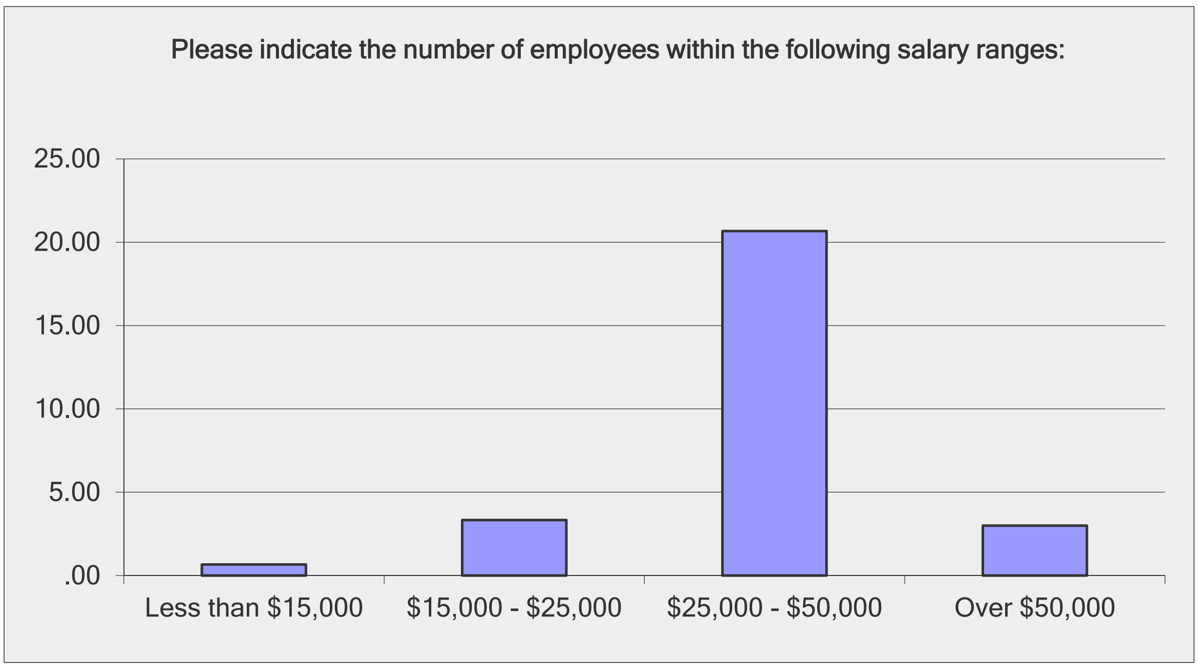
What was the average number of hours PART TIME employees worked per week in 2013?			
Answer Options	Response Average	Response Total	Response Count
Average number of hours for location (whole number)	11.15	145	13
		answered question	13
		skipped question	3

Economic Study of Recycling in Colorado-Other

What was the total payroll associated at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total Annual Payroll for location (whole number)	296,425.00	2,074,975	7
		answered question	7
		skipped question	9

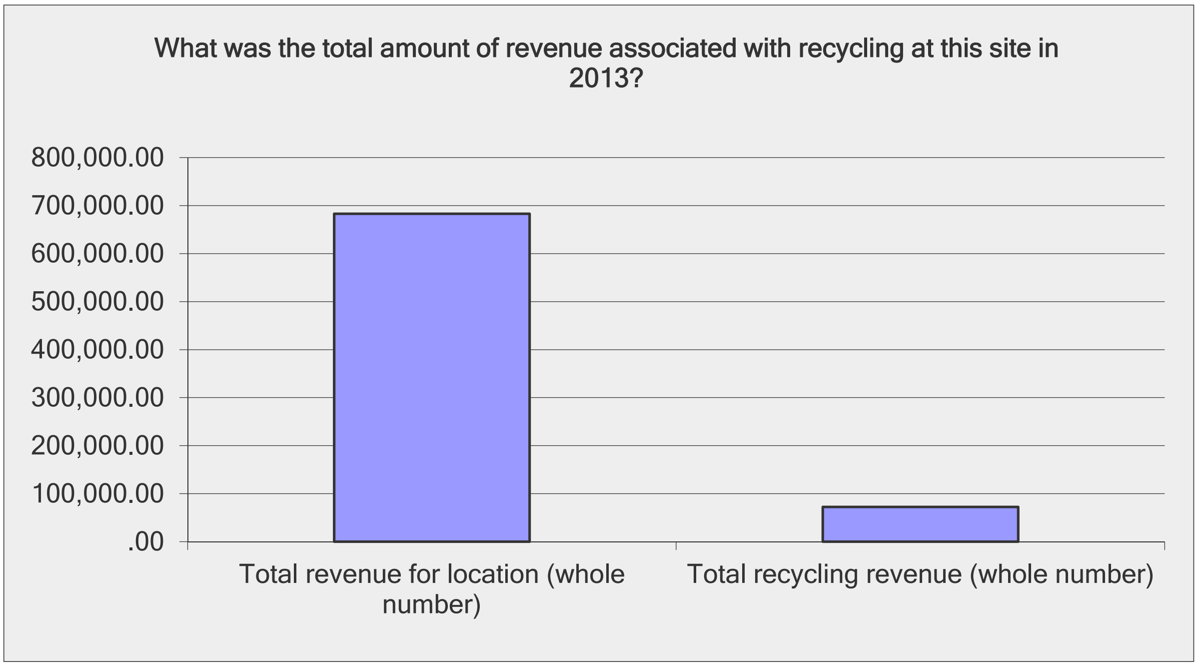
Economic Study of Recycling in Colorado-Other

Please indicate the number of employees within the following salary ranges:			
Answer Options	Response Average	Response Total	Response Count
Less than $15,000	.67	2	3
$15,000 - $25,000	3.33	20	6
$25,000 - $50,000	20.67	124	6
Over $50,000	3.00	21	7
		answered question	11
		skipped question	5



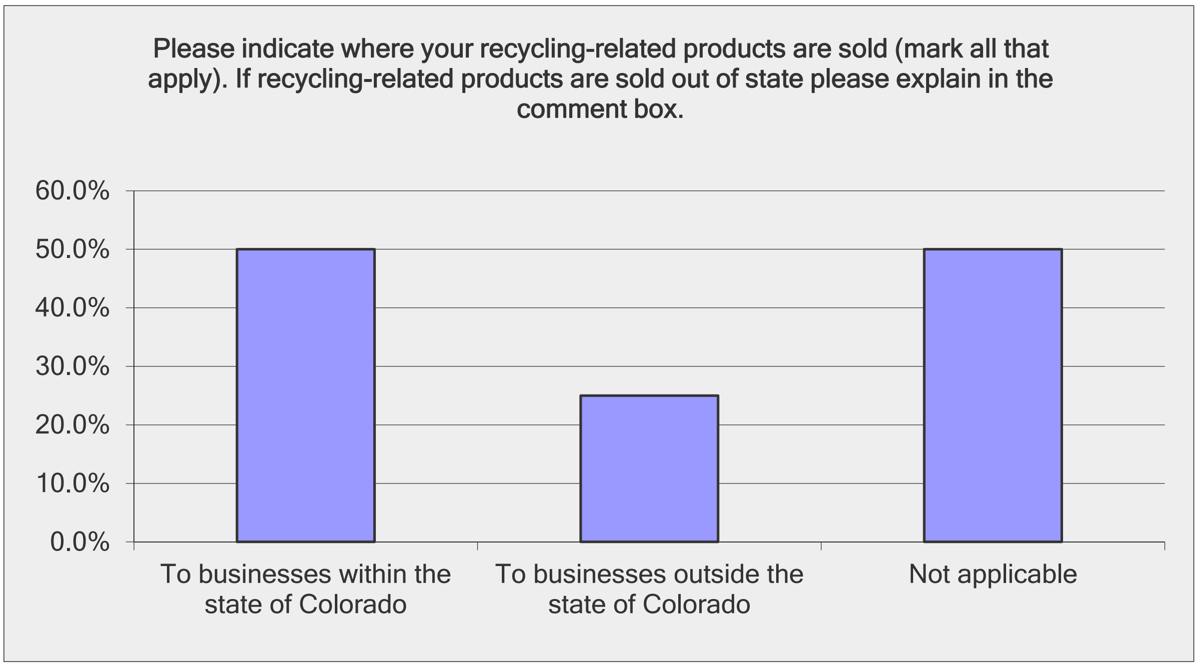
Economic Study of Recycling in Colorado-Other

What was the total amount of revenue associated with recycling at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total revenue for location (whole number)	682,756.73	7,510,324	11
Total recycling revenue (whole number)	72,374.56	651,371	9
		answered question	11
		skipped question	5



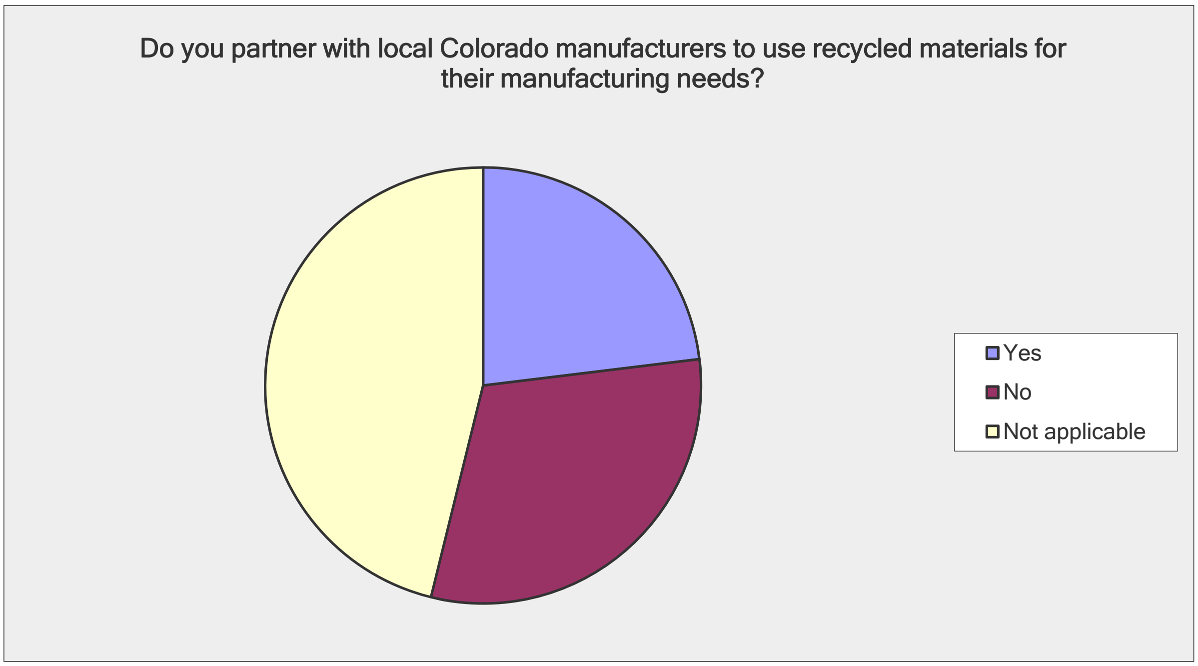
Economic Study of Recycling in Colorado-Other

Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box.		
Answer Options	Response Percent	Response Count
To businesses within the state of Colorado	50.0%	6
To businesses outside the state of Colorado	25.0%	3
Not applicable	50.0%	6
Comment:		7
	answered question	12
	skipped question	4



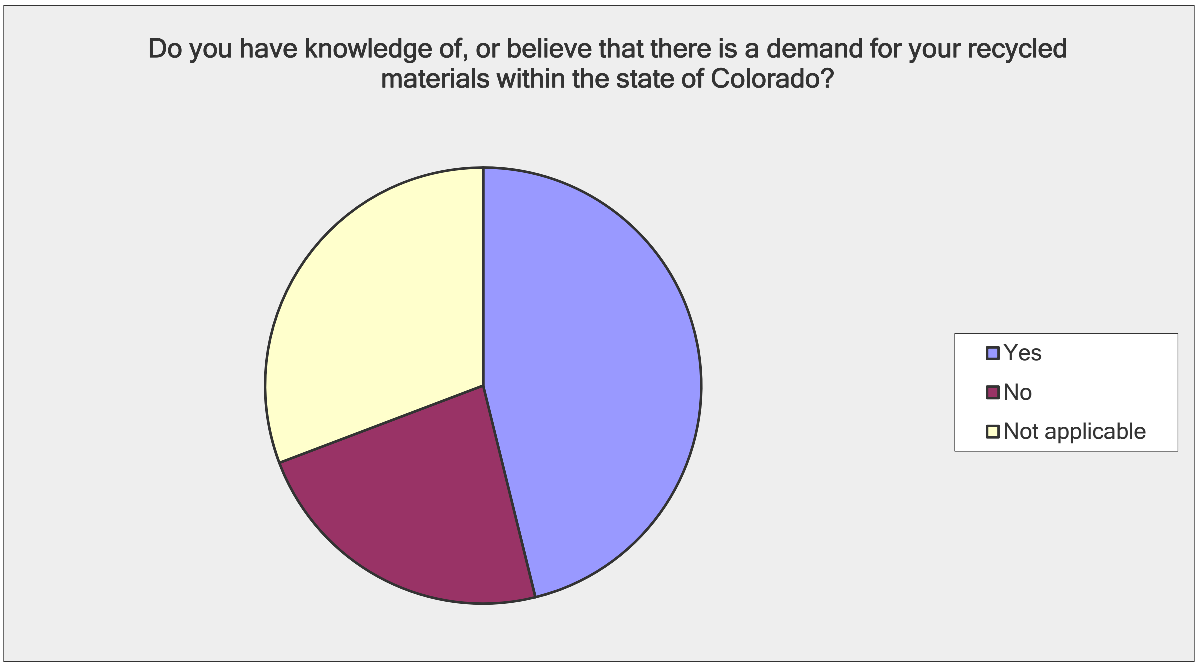
Economic Study of Recycling in Colorado-Other

Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?		
Answer Options	Response Percent	Response Count
Yes	23.1%	3
No	30.8%	4
Not applicable	46.2%	6
	answered question	13
	skipped question	3



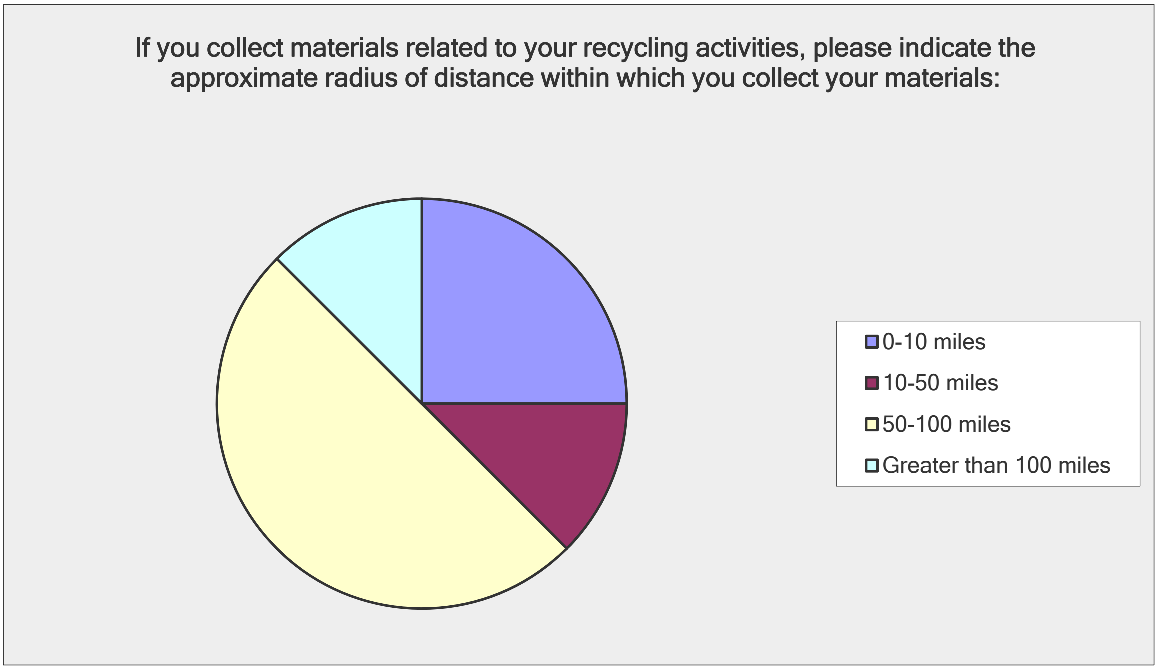
Economic Study of Recycling in Colorado-Other

Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado?		
Answer Options	Response Percent	Response Count
Yes	46.2%	6
No	23.1%	3
Not applicable	30.8%	4
	answered question	13
	skipped question	3



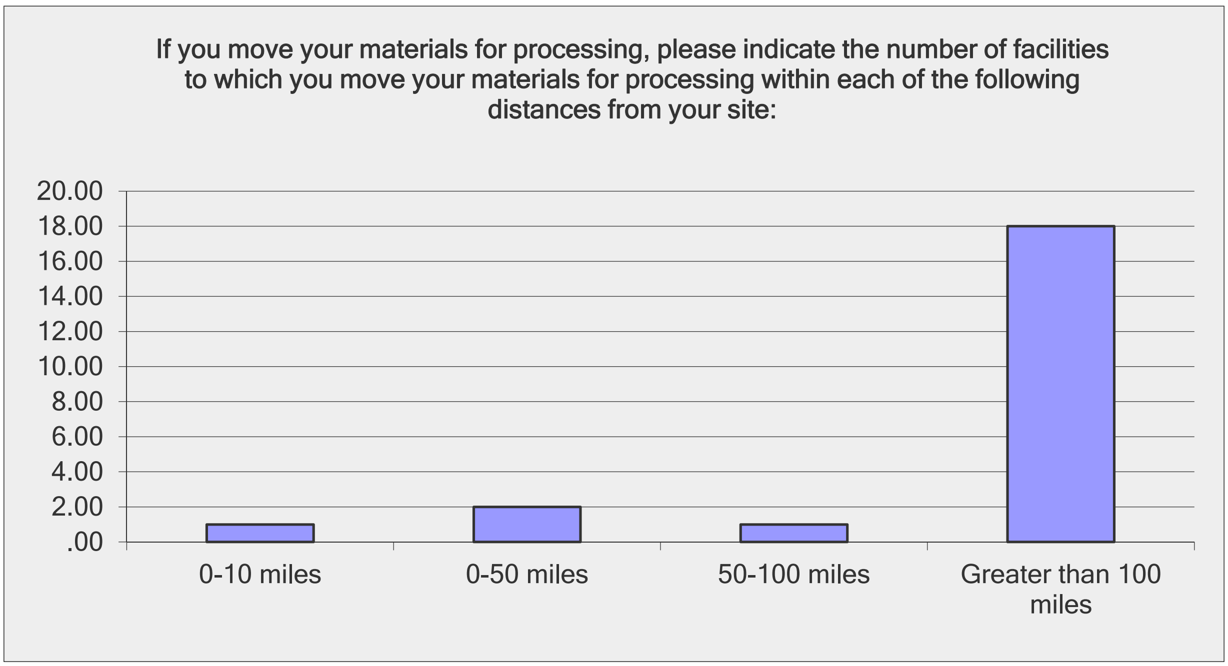
Economic Study of Recycling in Colorado-Other

If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials:		
Answer Options	Response Percent	Response Count
0-10 miles	25.0%	2
10-50 miles	12.5%	1
50-100 miles	50.0%	4
Greater than 100 miles	12.5%	1
	answered question	8
	skipped question	8



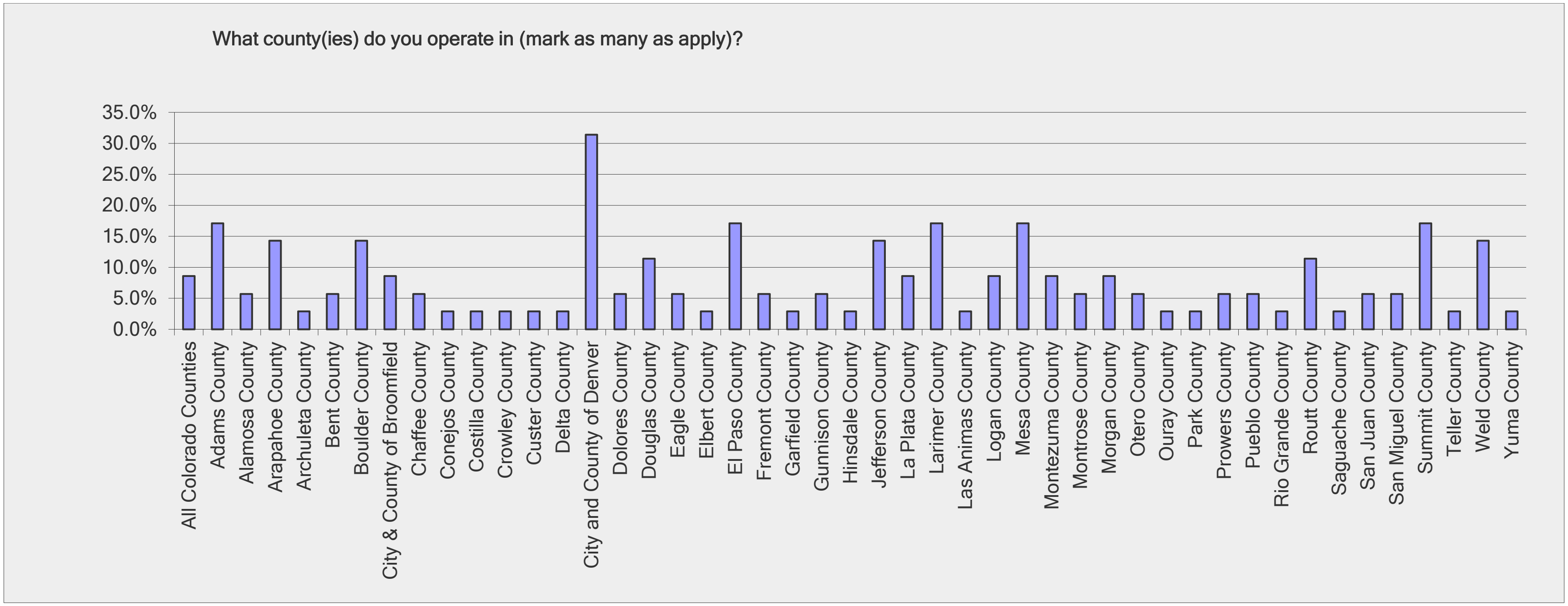
Economic Study of Recycling in Colorado-Other

If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site:			
Answer Options	Response Average	Response Total	Response Count
0-10 miles	1.00	3	3
0-50 miles	2.00	4	2
50-100 miles	1.00	1	1
Greater than 100 miles	18.00	108	6
		answered question	8
		skipped question	8



Economic Study of Recycling in Colorado-Processor

What county(ies) do you operate in (mark as many as apply)?		
Answer Options	Response Percent	Response Count
All Colorado Counties	8.6%	3
Adams County	17.1%	6
Alamosa County	5.7%	2
Arapahoe County	14.3%	5
Archuleta County	2.9%	1
Bent County	5.7%	2
Boulder County	14.3%	5
City & County of Broomfield	8.6%	3
Chaffee County	5.7%	2
Conejos County	2.9%	1
Costilla County	2.9%	1
Crowley County	2.9%	1
Custer County	2.9%	1
Delta County	2.9%	1
City and County of Denver	31.4%	11
Dolores County	5.7%	2
Douglas County	11.4%	4
Eagle County	5.7%	2
Elbert County	2.9%	1
El Paso County	17.1%	6
Fremont County	5.7%	2
Garfield County	2.9%	1
Gunnison County	5.7%	2
Hinsdale County	2.9%	1
Jefferson County	14.3%	5
La Plata County	8.6%	3
Larimer County	17.1%	6
Las Animas County	2.9%	1
Logan County	8.6%	3
Mesa County	17.1%	6
Montezuma County	8.6%	3
Montrose County	5.7%	2
Morgan County	8.6%	3
Otero County	5.7%	2
Ouray County	2.9%	1
Park County	2.9%	1
Prowers County	5.7%	2
Pueblo County	5.7%	2
Rio Grande County	2.9%	1
Routt County	11.4%	4
Saguache County	2.9%	1
San Juan County	5.7%	2
San Miguel County	5.7%	2
Summit County	17.1%	6
Teller County	2.9%	1
Weld County	14.3%	5
Yuma County	2.9%	1
	answered question	35
	skipped question	1

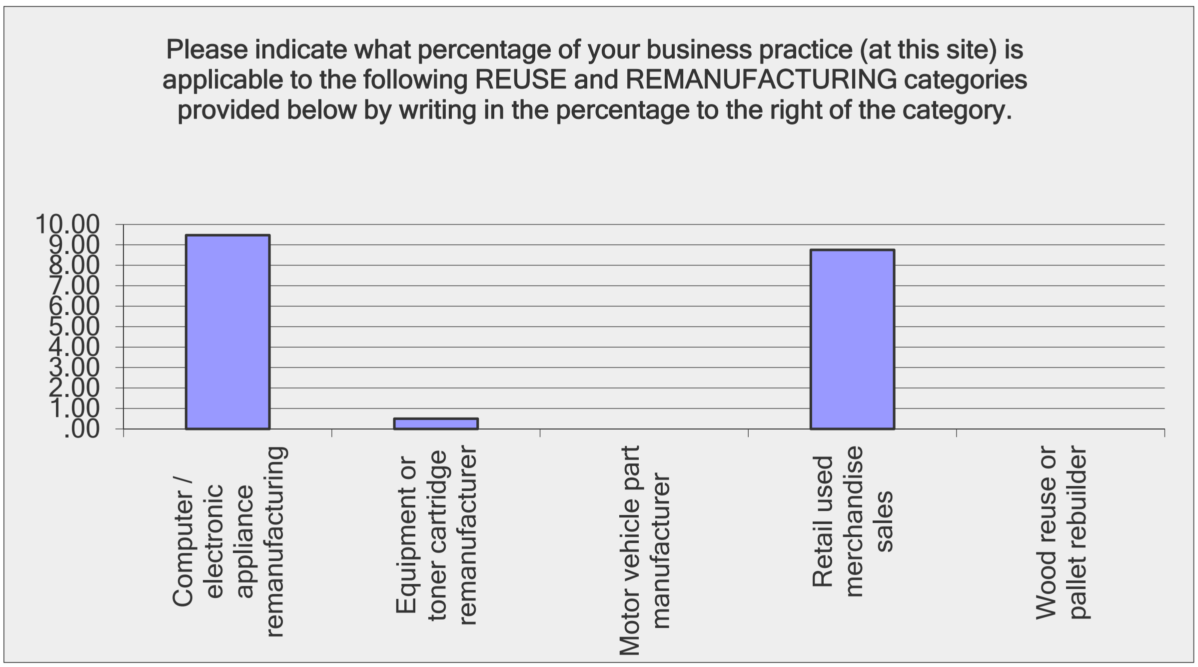

What county(ies) do you operate in (mark as many as apply)?
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
All Colorado Counties
Adams County
Alamosa County
Arapahoe County
Archuleta County
Bent County
Boulder County
City & County of Broomfield
Chaffee County
Conejos County
Costilla County
Crowley County
Custer County
Delta County
City and County of Denver
Dolores County
Douglas County
Eagle County
Elbert County
El Paso County
Fremont County
Garfield County
Gunnison County
Hinsdale County
Jefferson County
La Plata County
Larimer County
Las Animas County
Logan County
Mesa County
Montezuma County
Montrose County
Morgan County
Otero County
Ouray County
Park County
Prowers County
Pueblo County
Rio Grande County
Routt County
Saguache County
San Juan County
San Miguel County
Summit County
Teller County
Weld County
Yuma County

Economic Study of Recycling in Colorado-Processor

Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING PROCESSING and MANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Compost / organic processing	2.50	20	8
Electronics	38.47	577	15
Household hazardous waste processor	1.43	10	7
Materials recovery facility	42.67	640	15
Nonferrous product producer	31.70	317	10
Paper, paperboard, or market pulp mill	2.14	15	7
Recyclable materials processor	51.20	512	10
Steel or iron manufacturing	16.88	135	8
Steel mill	5.00	25	5
		answered question	26
		skipped question	10

Economic Study of Recycling in Colorado-Processor

Please indicate what percentage of your business practice (at this site) is applicable to the following REUSE and REMANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Computer / electronic appliance remanufacturing	9.47	142	15
Equipment or toner cartridge remanufacturer	.50	5	10
Motor vehicle part manufacturer	.00		10
Retail used merchandise sales	8.75	105	12
Wood reuse or pallet rebuilder	.00		9
		answered question	16
		skipped question	20



Economic Study of Recycling in Colorado-Processor

Please provide the number of FULL TIME employees (working 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Full Time Employees (whole number)	65.91	2,109	32
		answered question	32
		skipped question	4

Economic Study of Recycling in Colorado-Processor

Please provide the number of PART TIME employees (working less than 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Total Part Time Employees for location (whole number)	24.24	703	29
		answered question	29
		skipped question	7

Economic Study of Recycling in Colorado-Processor

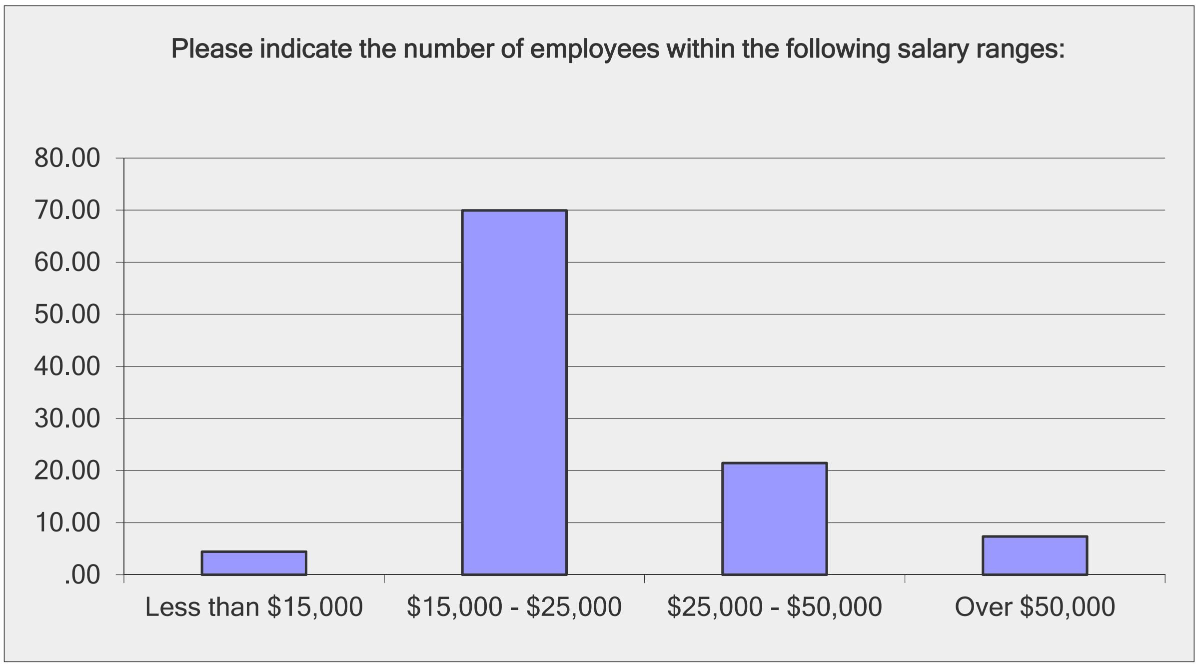
What was the average number of hours PART TIME employees worked per week in 2013?			
Answer Options	Response Average	Response Total	Response Count
Average number of hours for location (whole number)	11.00	297	27
		answered question	27
		skipped question	9

Economic Study of Recycling in Colorado-Processor

What was the total payroll associated at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total Annual Payroll for location (whole number)	1,896,728.95	41,728,037	22
		answered question	22
		skipped question	14

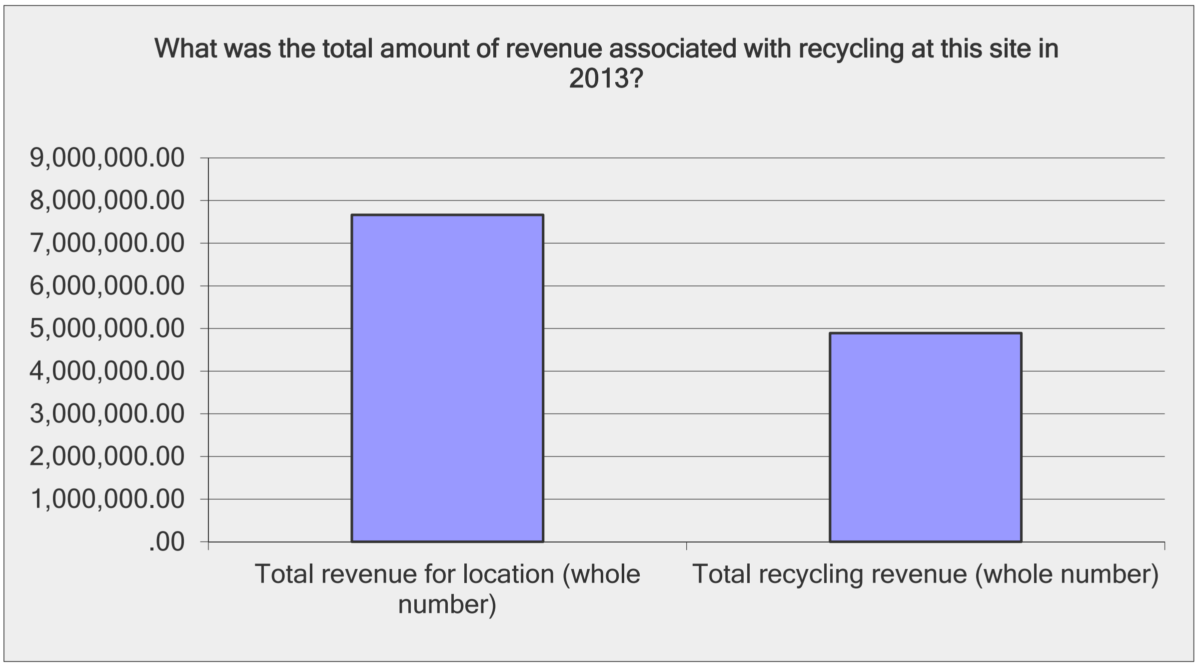
Economic Study of Recycling in Colorado-Processor

Please indicate the number of employees within the following salary ranges:			
Answer Options	Response Average	Response Total	Response Count
Less than $15,000	4.43	62	14
$15,000 - $25,000	69.94	1,119	16
$25,000 - $50,000	21.46	558	26
Over $50,000	7.35	147	20
		answered question	29
		skipped question	7



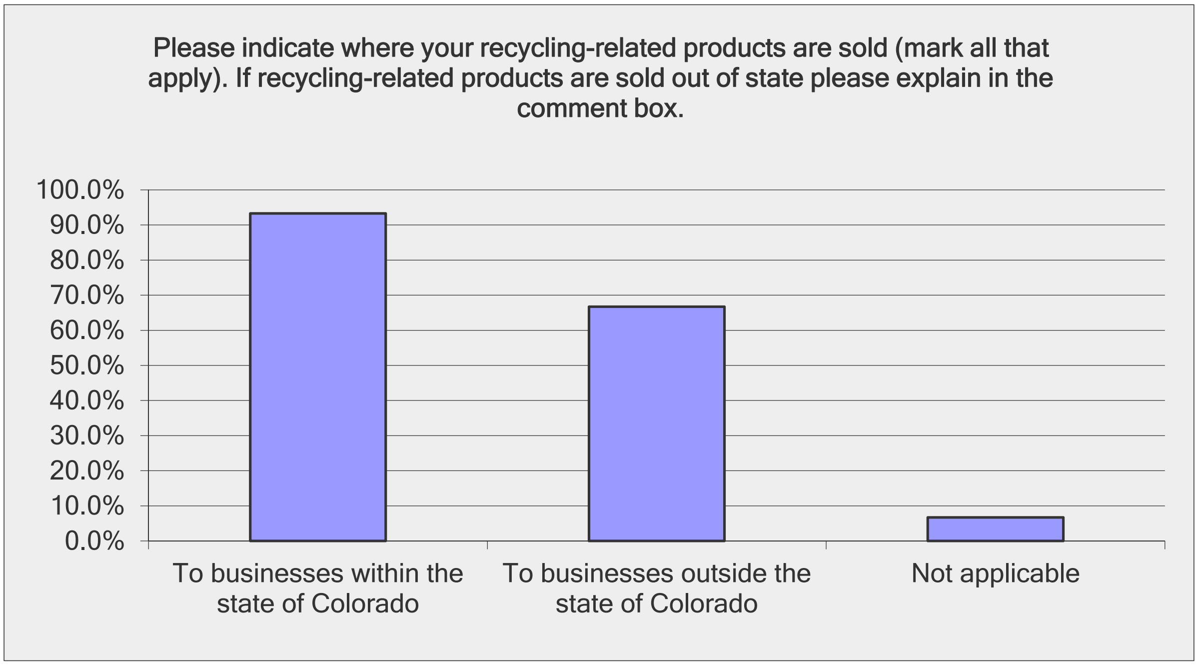
Economic Study of Recycling in Colorado-Processor

What was the total amount of revenue associated with recycling at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total revenue for location (whole number)	7,664,283.74	145,621,391	19
Total recycling revenue (whole number)	4,890,318.21	92,916,046	19
		answered question	20
		skipped question	16



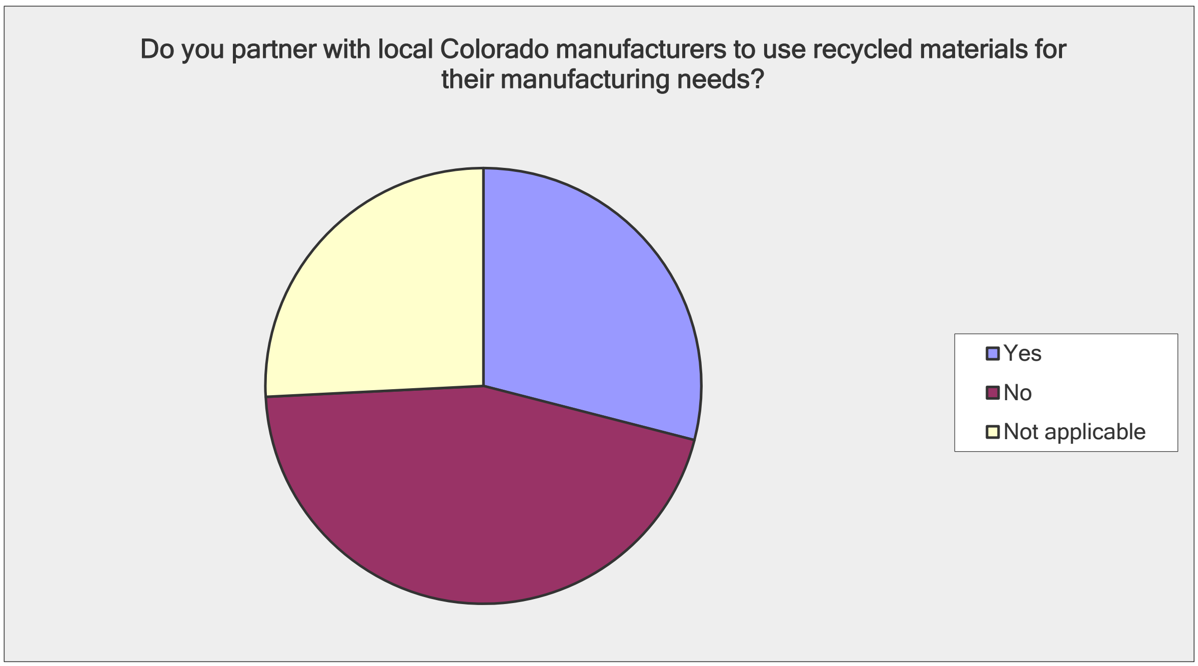
Economic Study of Recycling in Colorado-Processor

Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box.		
Answer Options	Response Percent	Response Count
To businesses within the state of Colorado	93.3%	28
To businesses outside the state of Colorado	66.7%	20
Not applicable	6.7%	2
Comment:		14
	answered question	30
	skipped question	6



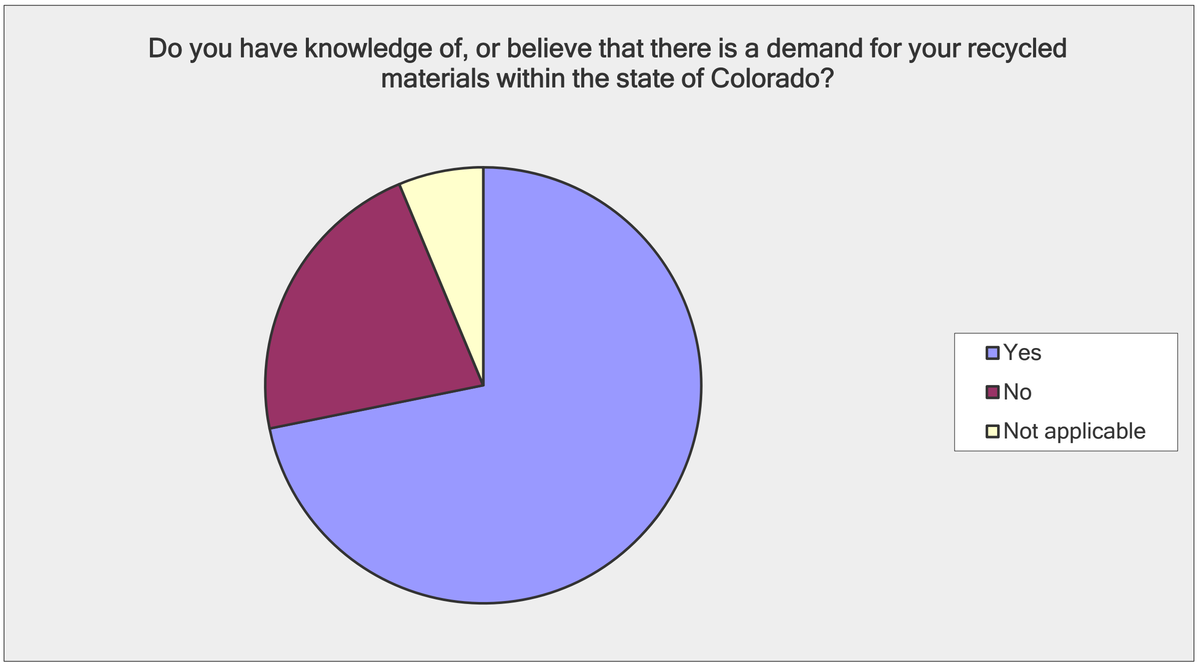
Economic Study of Recycling in Colorado-Processor

Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?		
Answer Options	Response Percent	Response Count
Yes	29.0%	9
No	45.2%	14
Not applicable	25.8%	8
	answered question	31
	skipped question	5



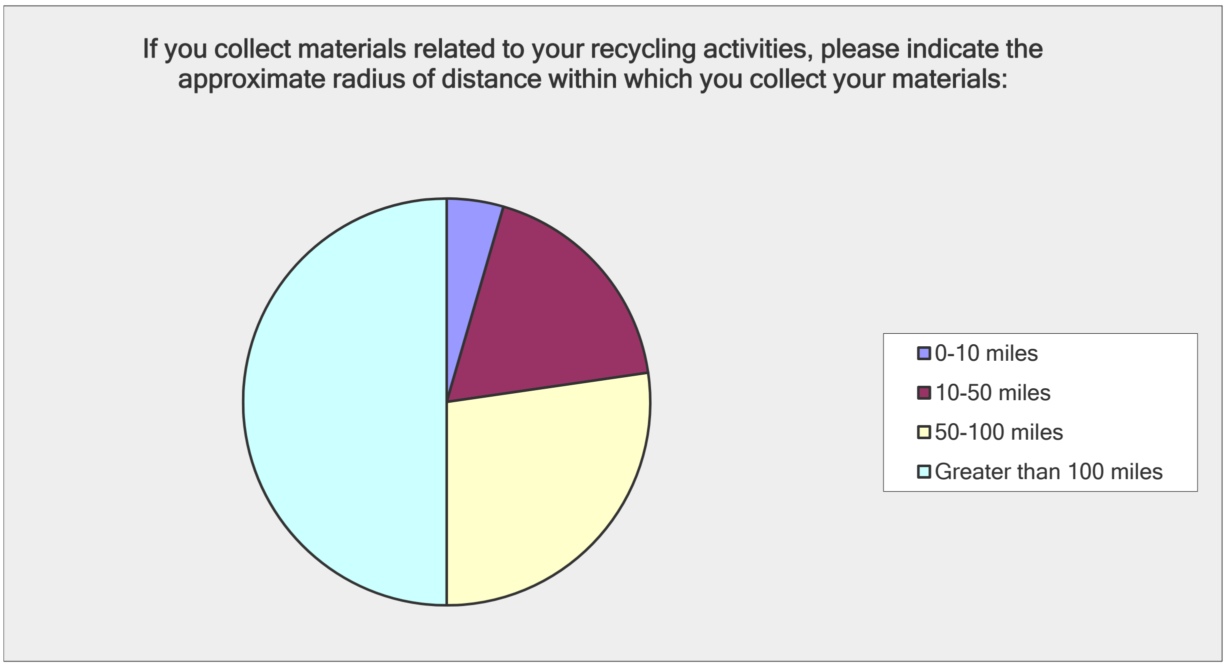
Economic Study of Recycling in Colorado-Processor

Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado?		
Answer Options	Response Percent	Response Count
Yes	71.9%	23
No	21.9%	7
Not applicable	6.3%	2
	answered question	32
	skipped question	4



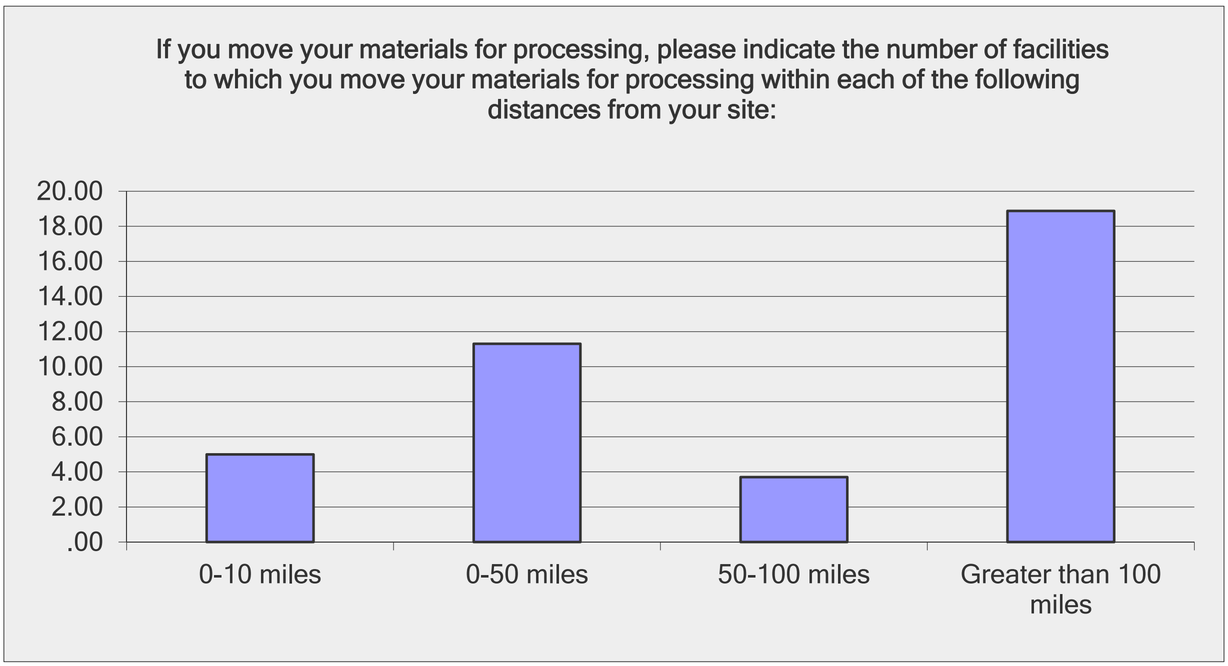
Economic Study of Recycling in Colorado-Processor

If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials:		
Answer Options	Response Percent	Response Count
0-10 miles	4.5%	1
10-50 miles	18.2%	4
50-100 miles	27.3%	6
Greater than 100 miles	50.0%	11
	answered question	22
	skipped question	14



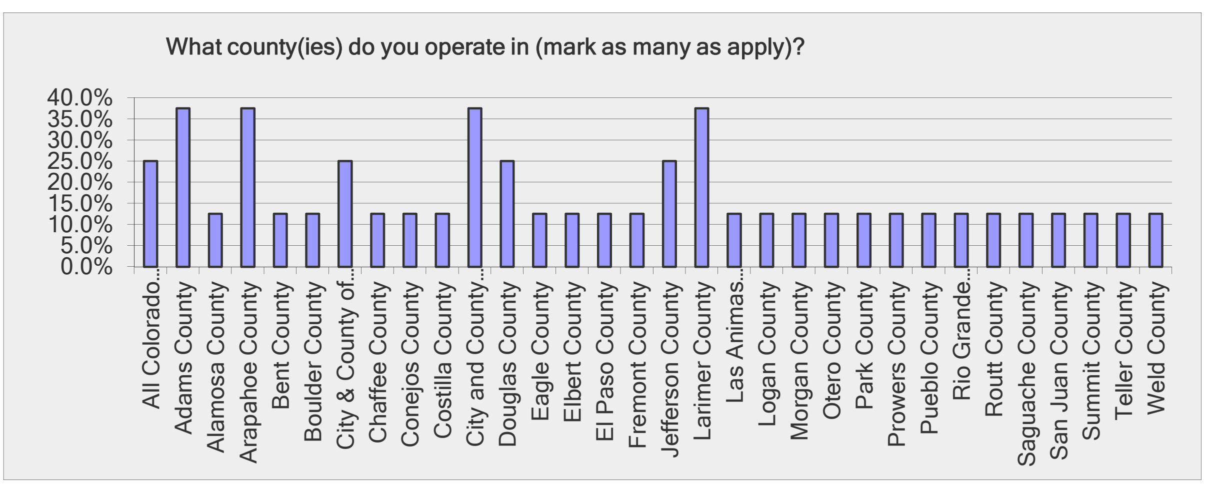
Economic Study of Recycling in Colorado-Processor

If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site:			
Answer Options	Response Average	Response Total	Response Count
0-10 miles	5.00	55	11
0-50 miles	11.30	113	10
50-100 miles	3.70	37	10
Greater than 100 miles	18.88	302	16
		answered question	19
		skipped question	17



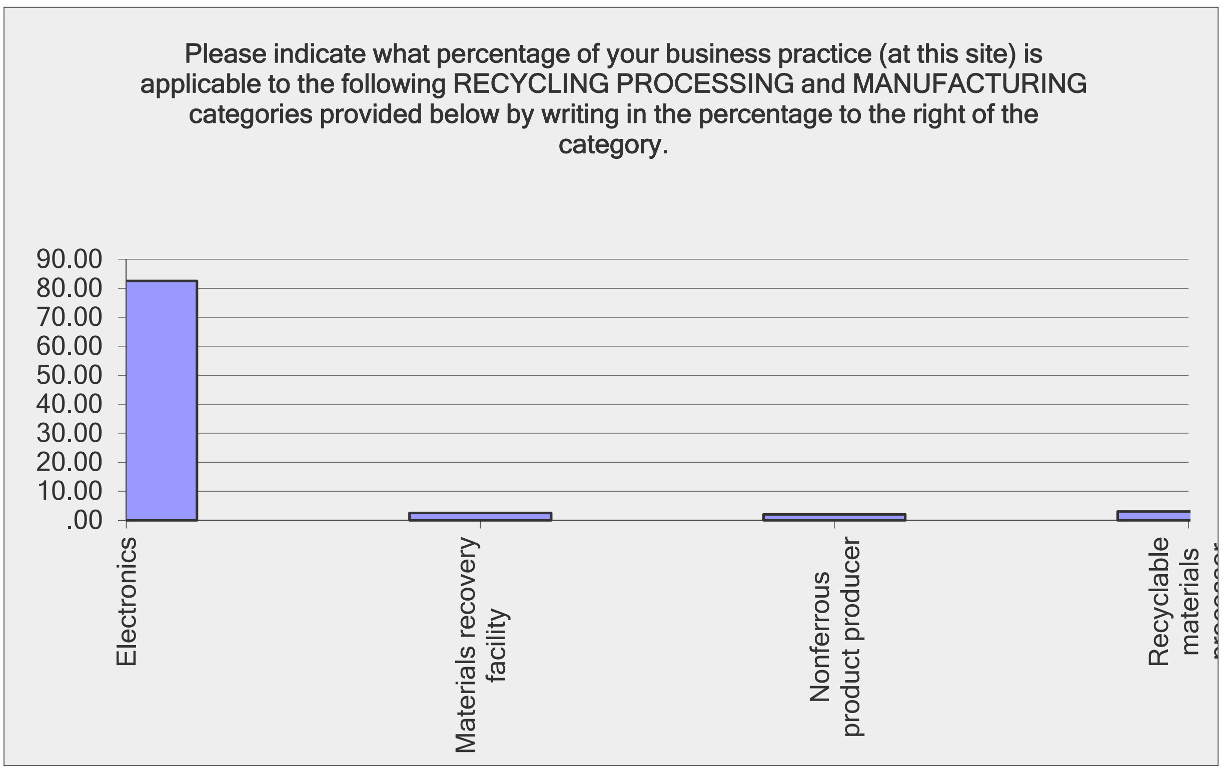
Economic Study of Recycling in Colorado-Remanufacturer

What county(ies) do you operate in (mark as many as apply)?		
Answer Options	Response Percent	Response Count
All Colorado Counties	25.0%	2
Adams County	37.5%	3
Alamosa County	12.5%	1
Arapahoe County	37.5%	3
Bent County	12.5%	1
Boulder County	12.5%	1
City & County of Broomfield	25.0%	2
Chaffee County	12.5%	1
Conejos County	12.5%	1
Costilla County	12.5%	1
City and County of Denver	37.5%	3
Douglas County	25.0%	2
Eagle County	12.5%	1
Elbert County	12.5%	1
El Paso County	12.5%	1
Fremont County	12.5%	1
Jefferson County	25.0%	2
Larimer County	37.5%	3
Las Animas County	12.5%	1
Logan County	12.5%	1
Morgan County	12.5%	1
Otero County	12.5%	1
Park County	12.5%	1
Prowers County	12.5%	1
Pueblo County	12.5%	1
Rio Grande County	12.5%	1
Routt County	12.5%	1
Saguache County	12.5%	1
San Juan County	12.5%	1
Summit County	12.5%	1
Teller County	12.5%	1
Weld County	12.5%	1
	answered question	8
	skipped question	0



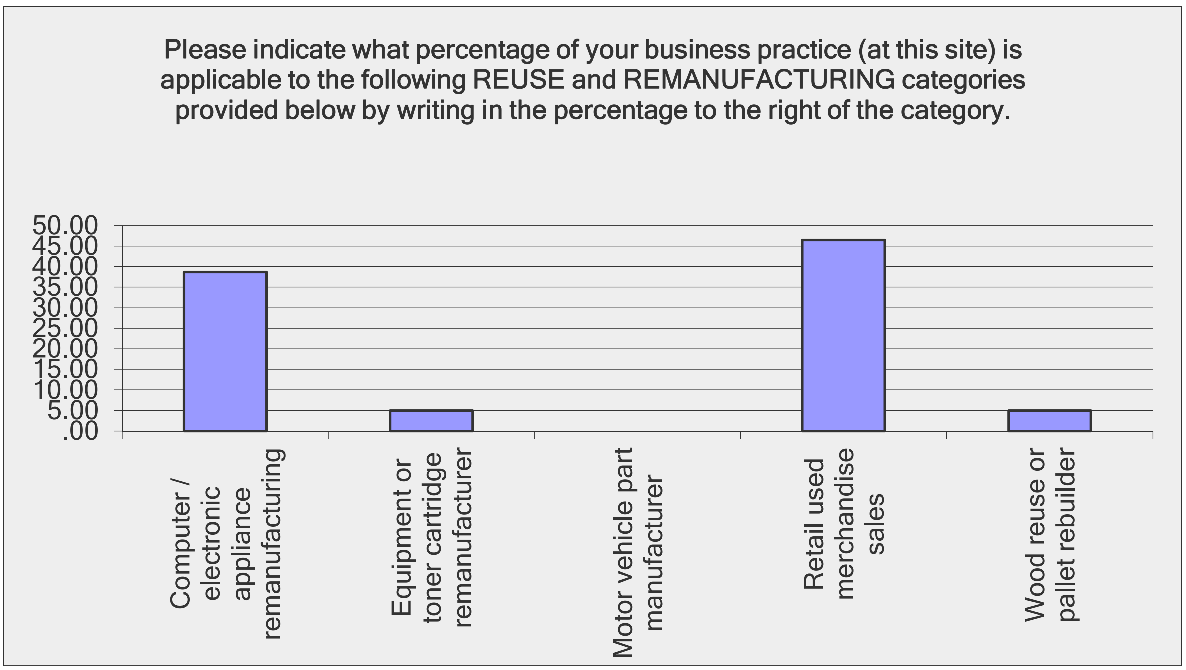
Economic Study of Recycling in Colorado-Remanufacturer

Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING PROCESSING and MANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Electronics	82.50	330	4
Materials recovery facility	2.50	5	2
Nonferrous product producer	2.00	2	1
Recyclable materials processor	3.00	3	1
		answered question	4
		skipped question	4



Economic Study of Recycling in Colorado-Remanufacturer

Please indicate what percentage of your business practice (at this site) is applicable to the following REUSE and REMANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Computer / electronic appliance remanufacturing	38.67	232	6
Equipment or toner cartridge remanufacturer	5.00	5	1
Motor vehicle part manufacturer	.00		1
Retail used merchandise sales	46.50	93	2
Wood reuse or pallet rebuilder	5.00	10	2
		answered question	7
		skipped question	1



Economic Study of Recycling in Colorado-Remanufacturer

Please provide the number of FULL TIME employees (working 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Full Time Employees (whole number)	205.88	1,647	8
		answered question	8
		skipped question	0

Economic Study of Recycling in Colorado-Remanufacturer

Please provide the number of PART TIME employees (working less than 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Total Part Time Employees for location (whole number)	78.75	630	8
		answered question	8
		skipped question	0

Economic Study of Recycling in Colorado-Remanufacturer

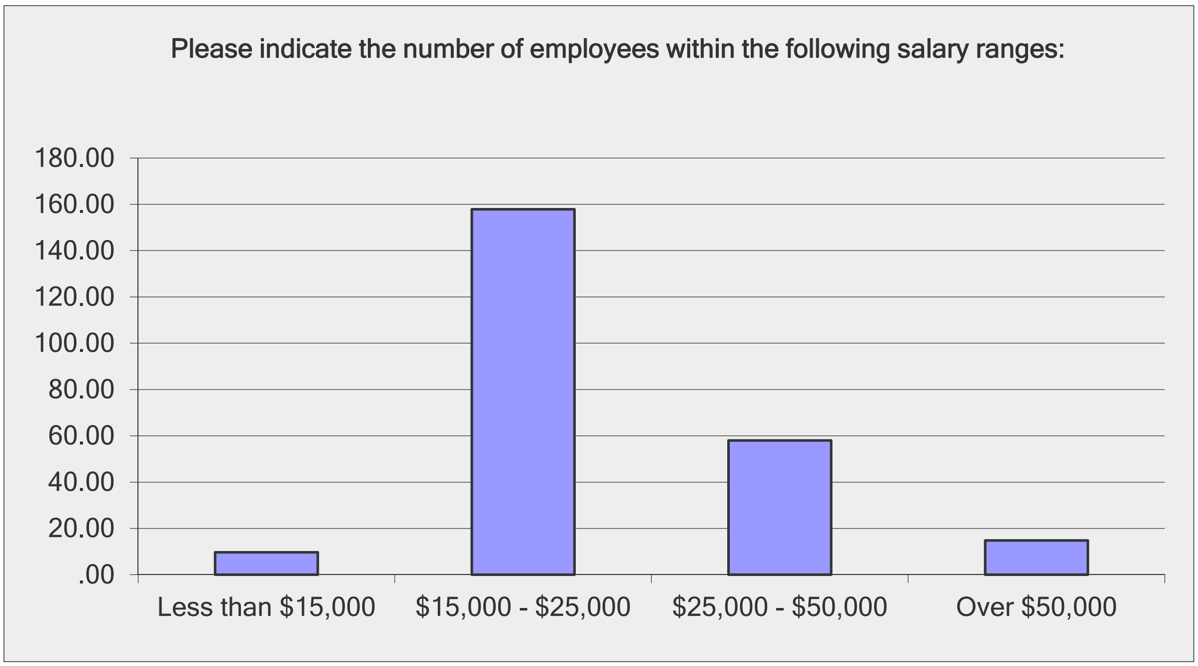
What was the average number of hours PART TIME employees worked per week in 2013?			
Answer Options	Response Average	Response Total	Response Count
Average number of hours for location (whole number)	16.29	114	7
		answered question	7
		skipped question	1

Economic Study of Recycling in Colorado-Remanufacturer

What was the total payroll associated at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total Annual Payroll for location (whole number)	5,490,167.00	32,941,002	6
		answered question	6
		skipped question	2

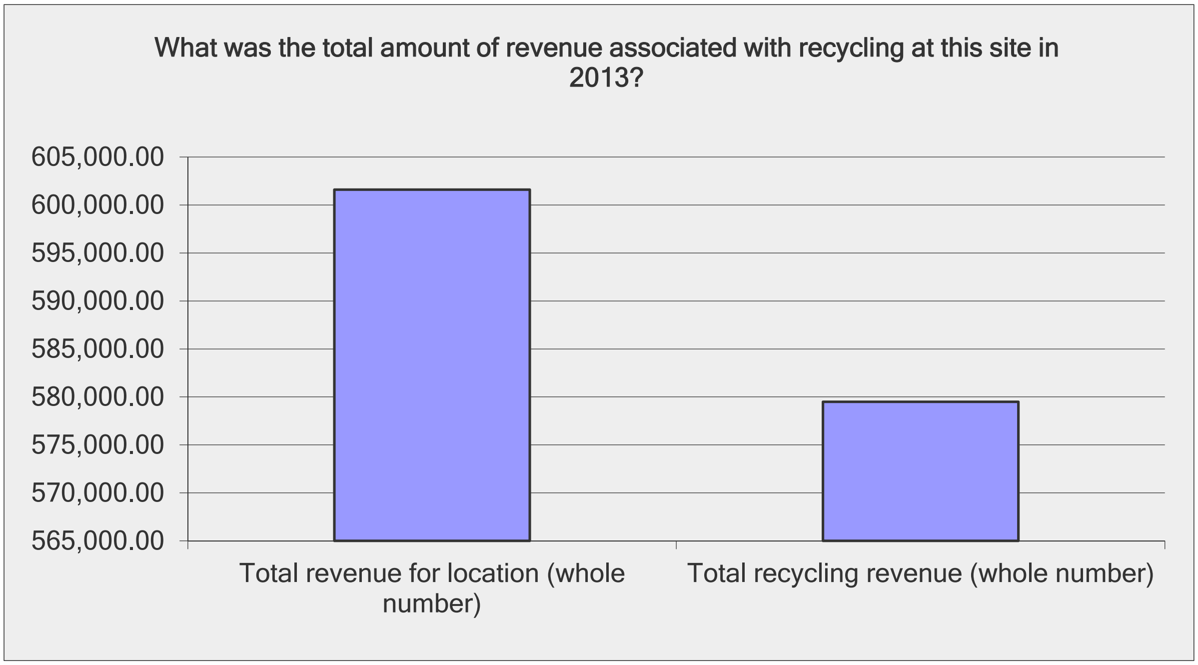
Economic Study of Recycling in Colorado-Remanufacturer

Please indicate the number of employees within the following salary ranges:			
Answer Options	Response Average	Response Total	Response Count
Less than $15,000	9.67	58	6
$15,000 - $25,000	157.86	1,105	7
$25,000 - $50,000	58.00	348	6
Over $50,000	14.83	89	6
		answered question	8
		skipped question	0



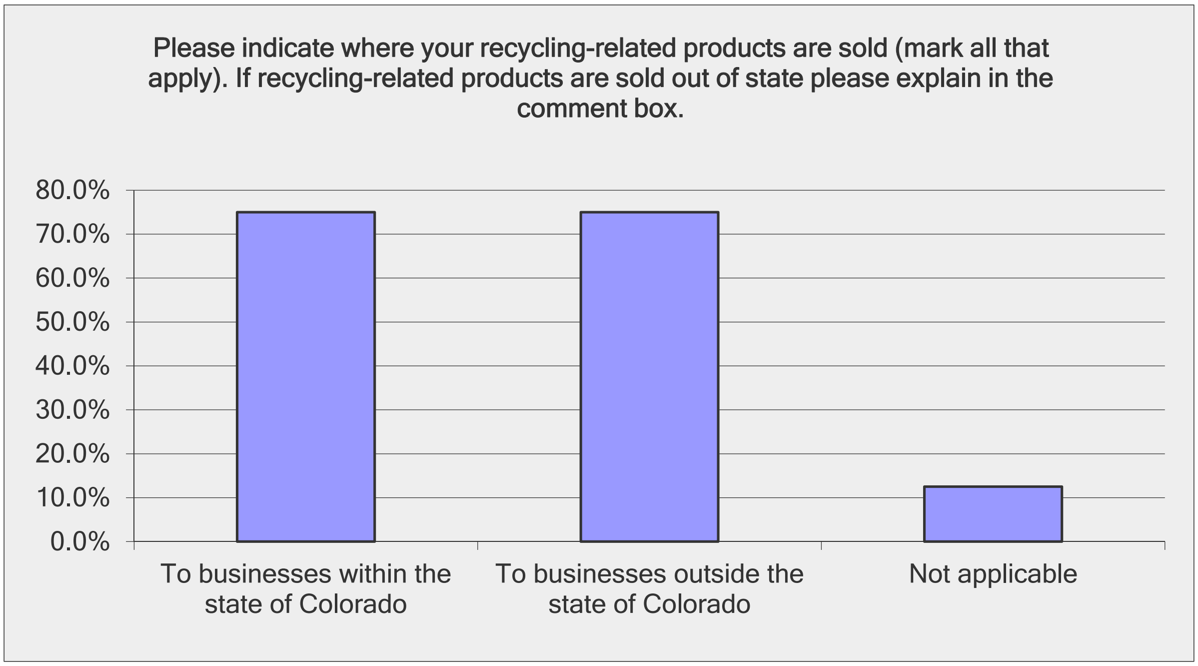
Economic Study of Recycling in Colorado-Remanufacturer

What was the total amount of revenue associated with recycling at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total revenue for location (whole number)	601,595.00	3,007,975	5
Total recycling revenue (whole number)	579,488.20	2,897,441	5
		answered question	5
		skipped question	3



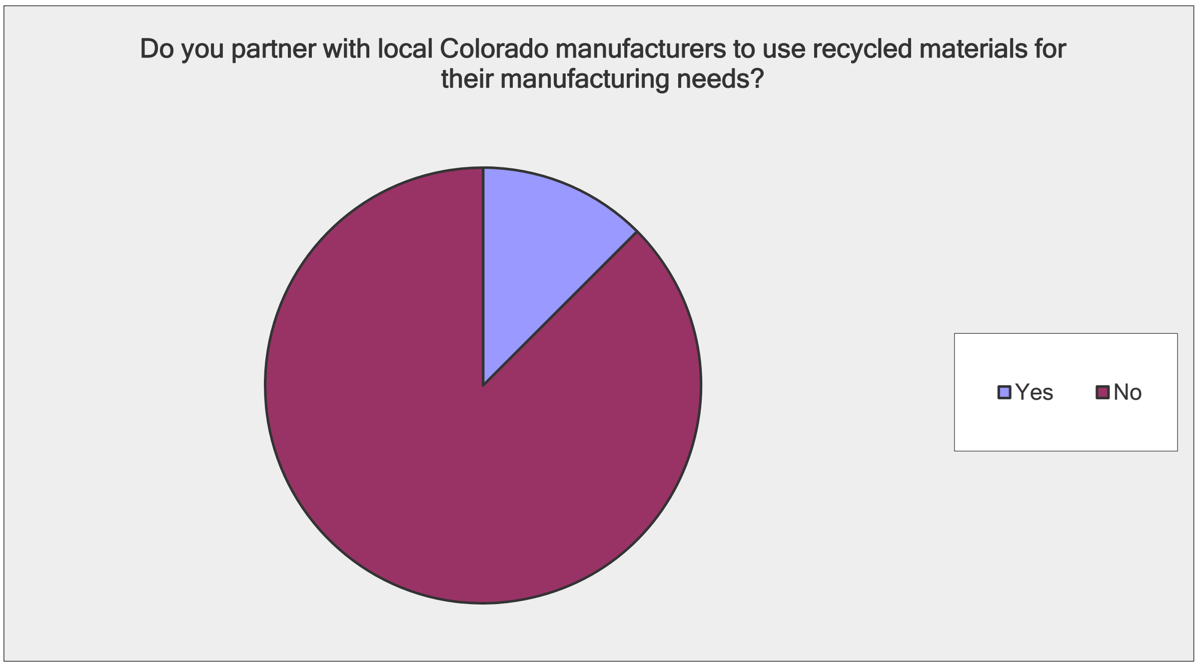
Economic Study of Recycling in Colorado-Remanufacturer

Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box.		
Answer Options	Response Percent	Response Count
To businesses within the state of Colorado	75.0%	6
To businesses outside the state of Colorado	75.0%	6
Not applicable	12.5%	1
Comment:		4
	answered question	8
	skipped question	0



Economic Study of Recycling in Colorado-Remanufacturer

Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?		
Answer Options	Response Percent	Response Count
Yes	12.5%	1
No	87.5%	7
	answered question	8
	skipped question	0

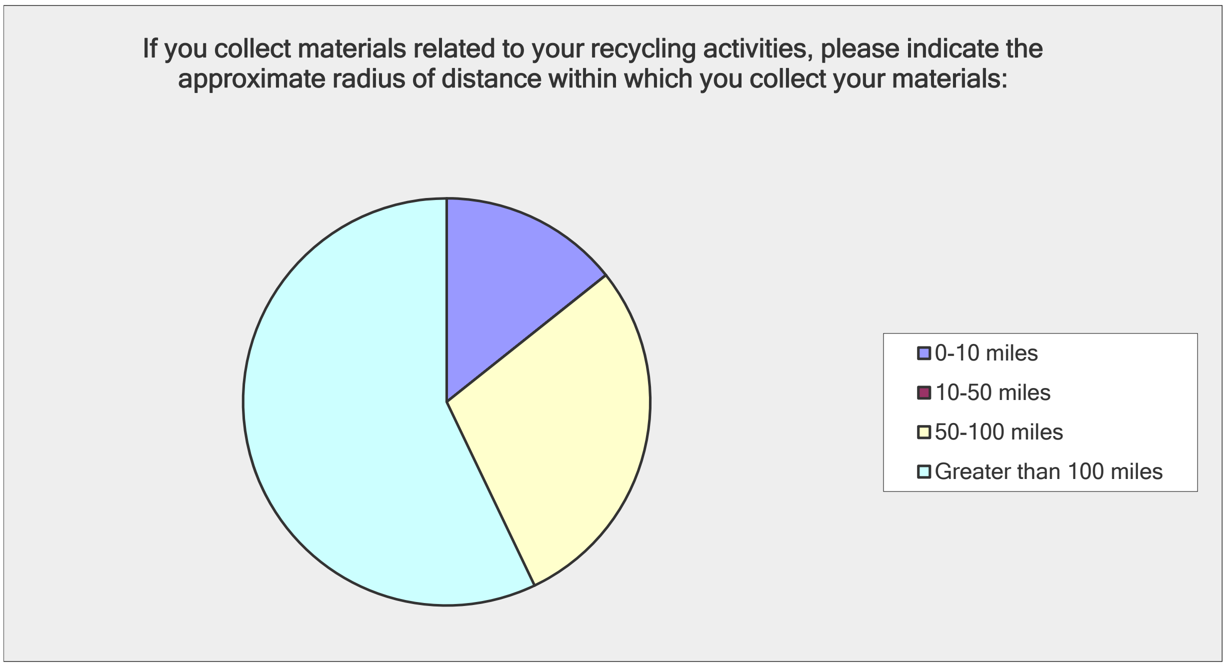


Economic Study of Recycling in Colorado-Remanufacturer

Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado?		
Answer Options	Response Percent	Response Count
Yes	62.5%	5
No	37.5%	3
	answered question	8
	skipped question	0

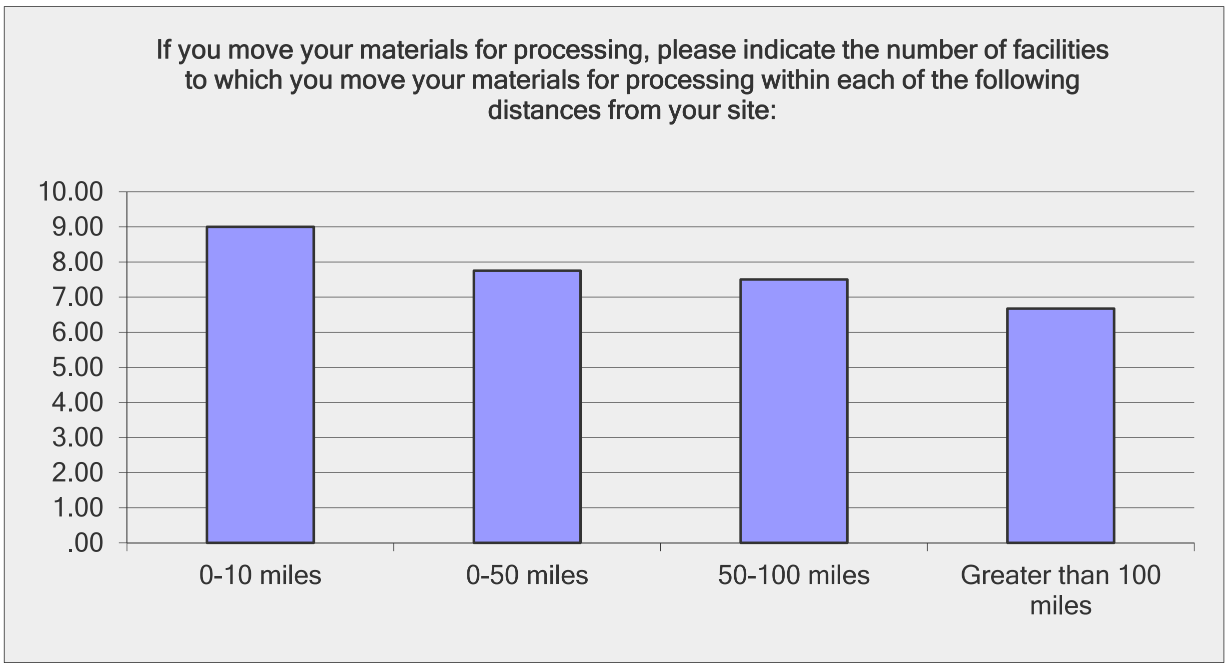
Economic Study of Recycling in Colorado-Remanufacturer

If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials:		
Answer Options	Response Percent	Response Count
0-10 miles	14.3%	1
10-50 miles	0.0%	0
50-100 miles	28.6%	2
Greater than 100 miles	57.1%	4
answered question		7
skipped question		1



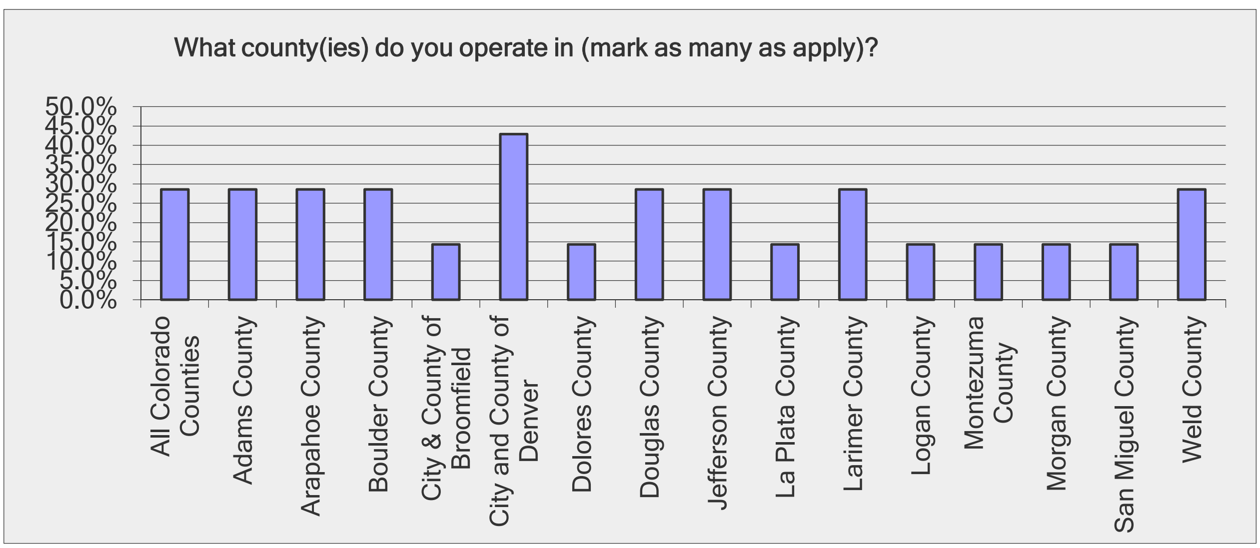
Economic Study of Recycling in Colorado-Remanufacturer

If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site:			
Answer Options	Response Average	Response Total	Response Count
0-10 miles	9.00	27	3
0-50 miles	7.75	31	4
50-100 miles	7.50	30	4
Greater than 100 miles	6.67	40	6
		answered question	6
		skipped question	2



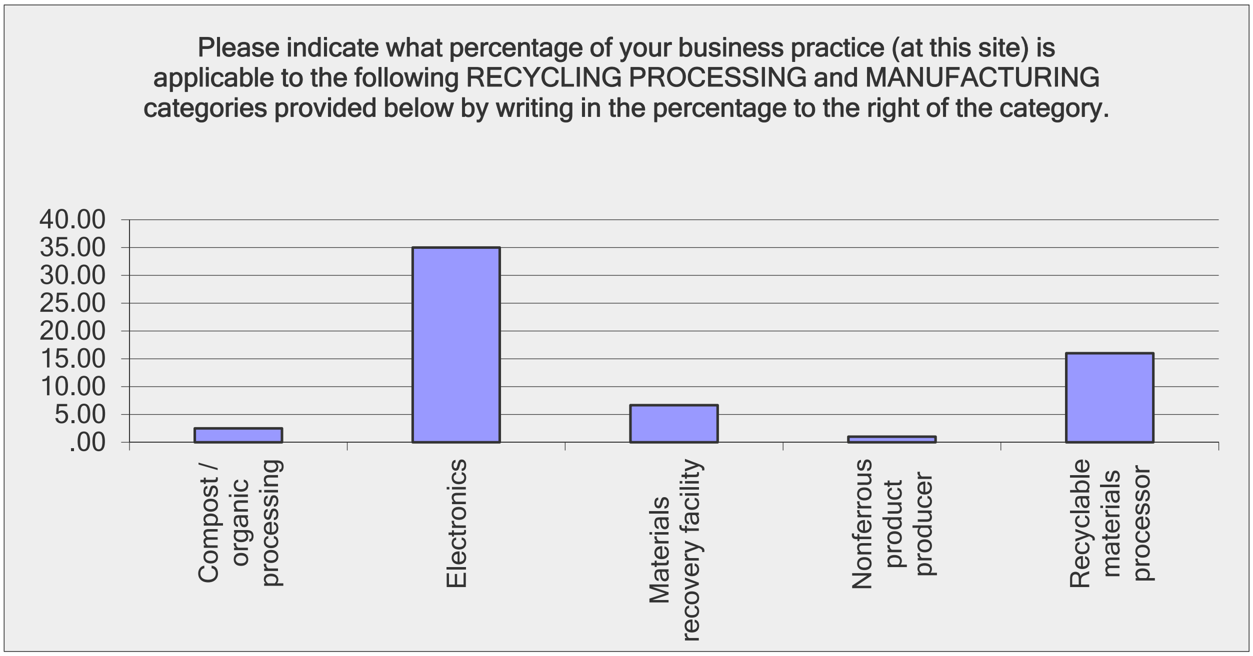
Economic Study of Recycling in Colorado-Reuser

What county(ies) do you operate in (mark as many as apply)?		
Answer Options	Response Percent	Response Count
All Colorado Counties	28.6%	2
Adams County	28.6%	2
Arapahoe County	28.6%	2
Boulder County	28.6%	2
City & County of Broomfield	14.3%	1
City and County of Denver	42.9%	3
Dolores County	14.3%	1
Douglas County	28.6%	2
Jefferson County	28.6%	2
La Plata County	14.3%	1
Larimer County	28.6%	2
Logan County	14.3%	1
Montezuma County	14.3%	1
Morgan County	14.3%	1
San Miguel County	14.3%	1
Weld County	28.6%	2
	answered question	7
	skipped question	0



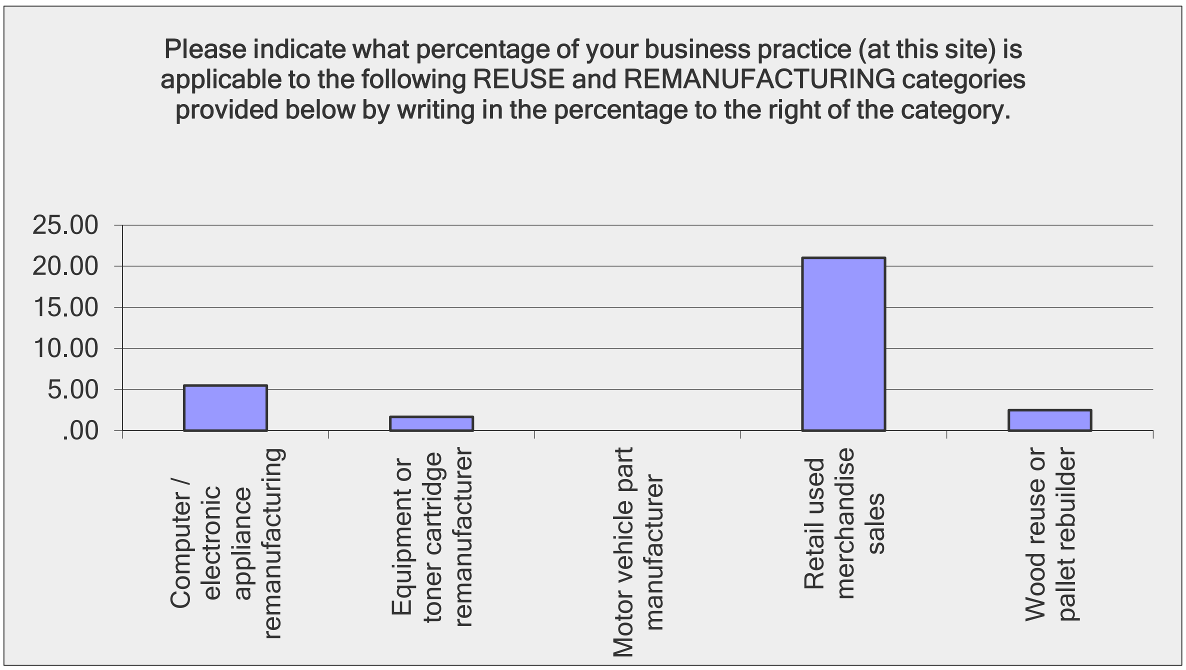
Economic Study of Recycling in Colorado-Reuser

Please indicate what percentage of your business practice (at this site) is applicable to the following RECYCLING PROCESSING and MANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Compost / organic processing	2.50	5	2
Electronics	35.00	105	3
Materials recovery facility	6.67	20	3
Nonferrous product producer	1.00	2	2
Recyclable materials processor	16.00	48	3
		answered question	3
		skipped question	4



Economic Study of Recycling in Colorado-Reuser

Please indicate what percentage of your business practice (at this site) is applicable to the following REUSE and REMANUFACTURING categories provided below by writing in the percentage to the right of the category.			
Answer Options	Response Average	Response Total	Response Count
Computer / electronic appliance remanufacturing	5.50	22	4
Equipment or toner cartridge remanufacturer	1.67	5	3
Motor vehicle part manufacturer	.00		3
Retail used merchandise sales	21.00	105	5
Wood reuse or pallet rebuilder	2.50	10	4
		answered question	6
		skipped question	1



Economic Study of Recycling in Colorado-Reuser

Please provide the number of FULL TIME employees (working 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Full Time Employees (whole number)	210.71	1,475	7
		answered question	7
		skipped question	0

Economic Study of Recycling in Colorado-Reuser

Please provide the number of PART TIME employees (working less than 40 hours per week) at this site in 2013.			
Answer Options	Response Average	Response Total	Response Count
Total Part Time Employees for location (whole number)	86.57	606	7
		answered question	7
		skipped question	0

Economic Study of Recycling in Colorado-Reuser

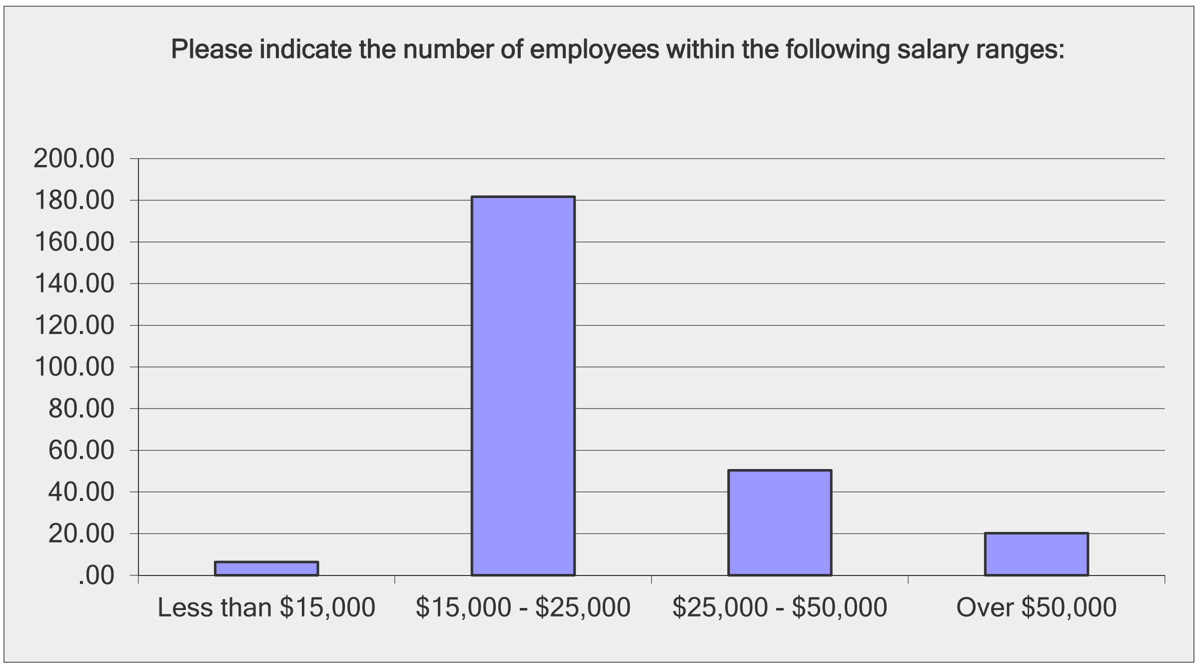
What was the average number of hours PART TIME employees worked per week in 2013?			
Answer Options	Response Average	Response Total	Response Count
Average number of hours for location (whole number)	14.50	87	6
		answered question	6
		skipped question	1

Economic Study of Recycling in Colorado-Reuser

What was the total payroll associated at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total Annual Payroll for location (whole number)	6,307,060.80	31,535,304	5
		answered question	5
		skipped question	2

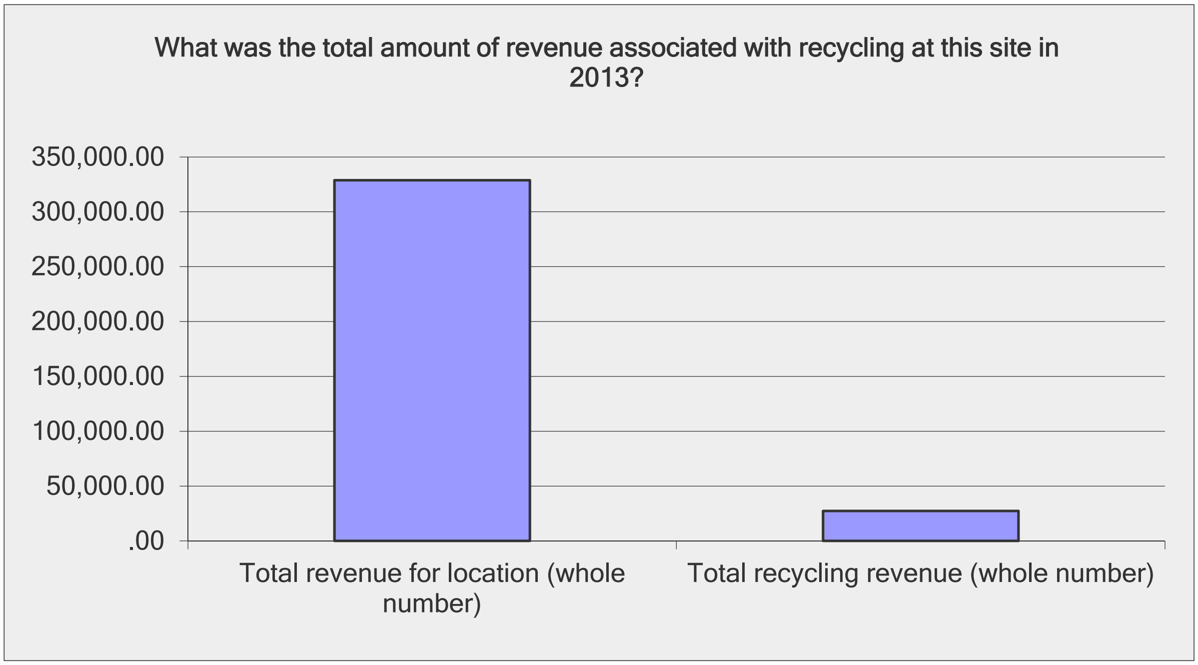
Economic Study of Recycling in Colorado-Reuser

Please indicate the number of employees within the following salary ranges:			
Answer Options	Response Average	Response Total	Response Count
Less than $15,000	6.40	32	5
$15,000 - $25,000	181.67	1,090	6
$25,000 - $50,000	50.40	252	5
Over $50,000	20.25	81	4
		answered question	7
		skipped question	0



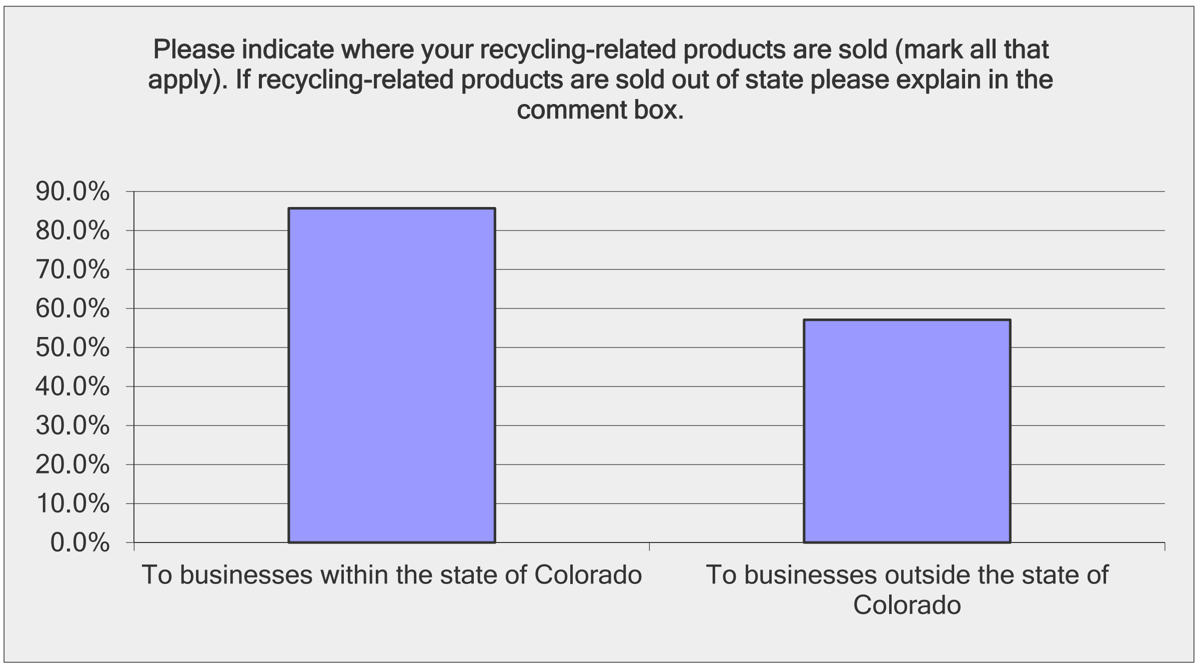
Economic Study of Recycling in Colorado-Reuser

What was the total amount of revenue associated with recycling at this site in 2013?			
Answer Options	Response Average	Response Total	Response Count
Total revenue for location (whole number)	328,779.75	1,315,119	4
Total recycling revenue (whole number)	27,337.75	109,351	4
		answered question	4
		skipped question	3



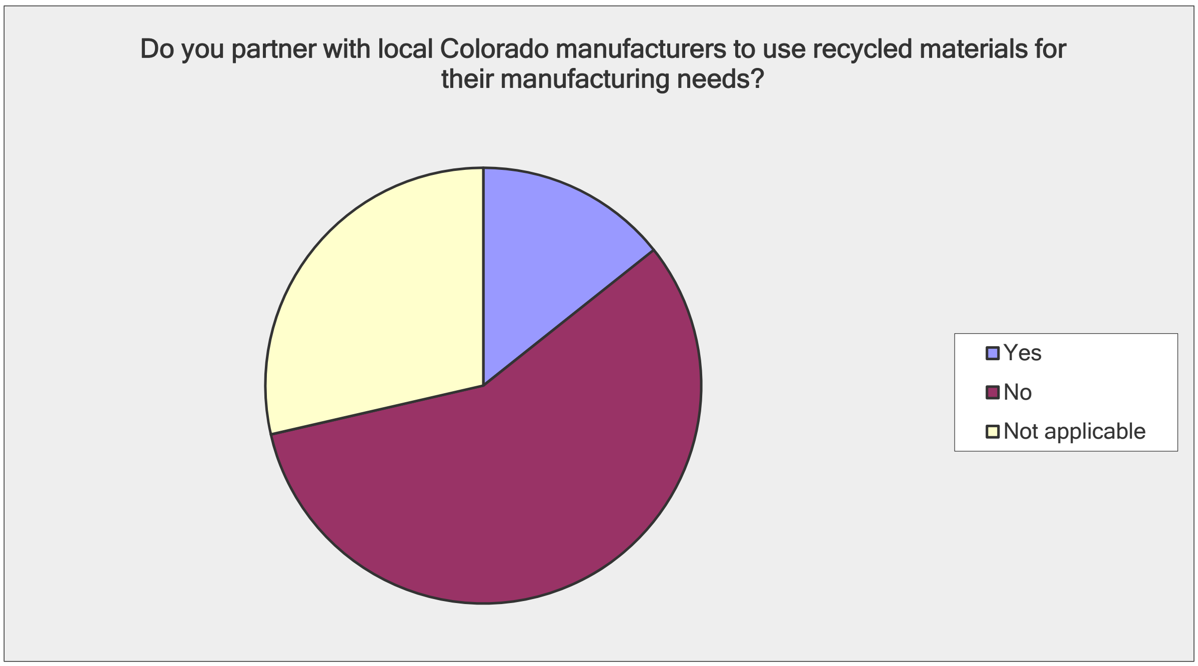
Economic Study of Recycling in Colorado-Reuser

Please indicate where your recycling-related products are sold (mark all that apply). If recycling-related products are sold out of state please explain in the comment box.		
Answer Options	Response Percent	Response Count
To businesses within the state of Colorado	85.7%	6
To businesses outside the state of Colorado	57.1%	4
Comment:		3
	answered question	7
	skipped question	0



Economic Study of Recycling in Colorado-Reuser

Do you partner with local Colorado manufacturers to use recycled materials for their manufacturing needs?		
Answer Options	Response Percent	Response Count
Yes	14.3%	1
No	57.1%	4
Not applicable	28.6%	2
	answered question	7
	skipped question	0

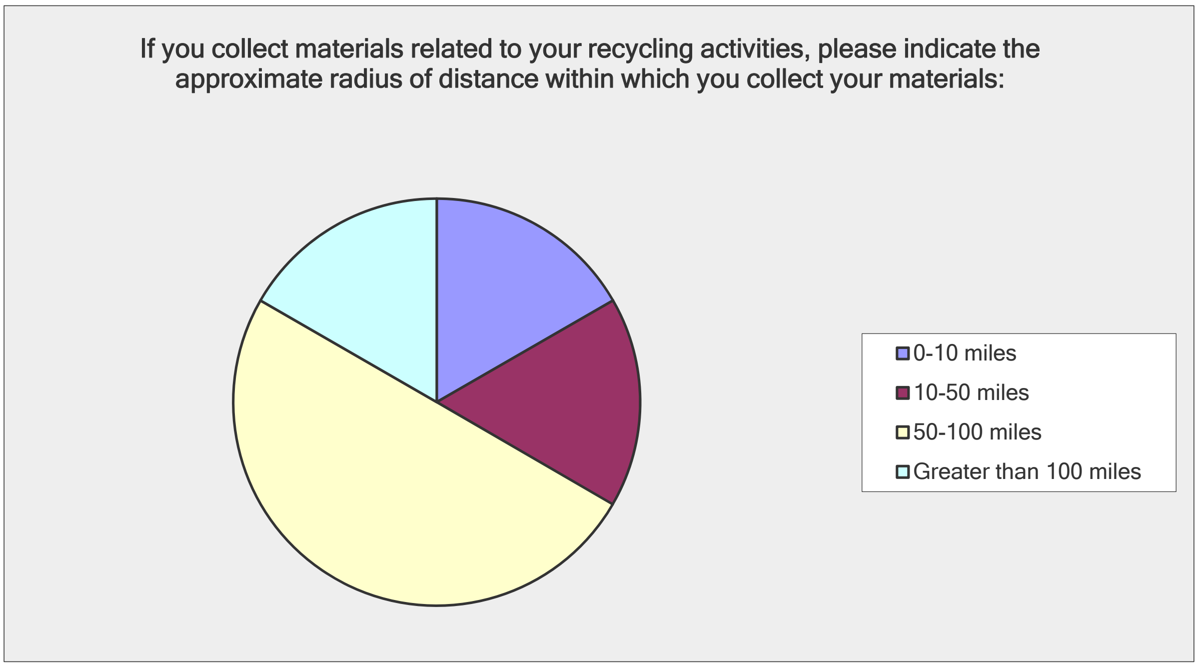


Economic Study of Recycling in Colorado-Reuser

Do you have knowledge of, or believe that there is a demand for your recycled materials within the state of Colorado?		
Answer Options	Response Percent	Response Count
Yes	71.4%	5
No	28.6%	2
	answered question	7
	skipped question	0

Economic Study of Recycling in Colorado-Reuser

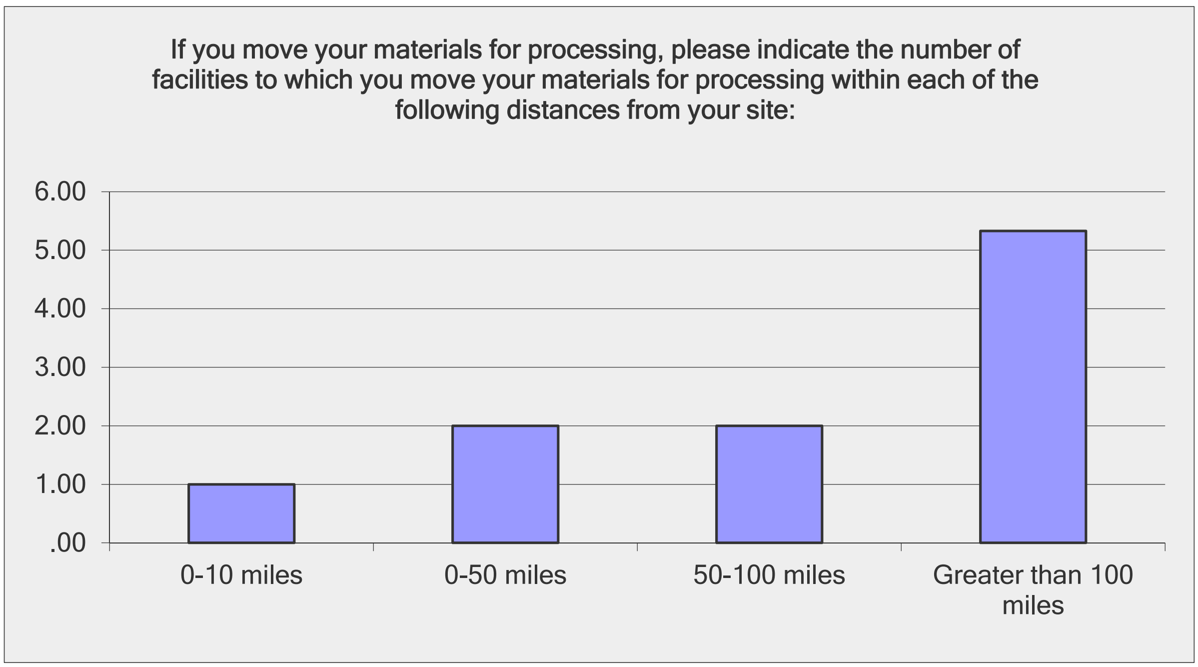
If you collect materials related to your recycling activities, please indicate the approximate radius of distance within which you collect your materials:		
Answer Options	Response Percent	Response Count
0-10 miles	16.7%	1
10-50 miles	16.7%	1
50-100 miles	50.0%	3
Greater than 100 miles	16.7%	1
	answered question	6
	skipped question	1



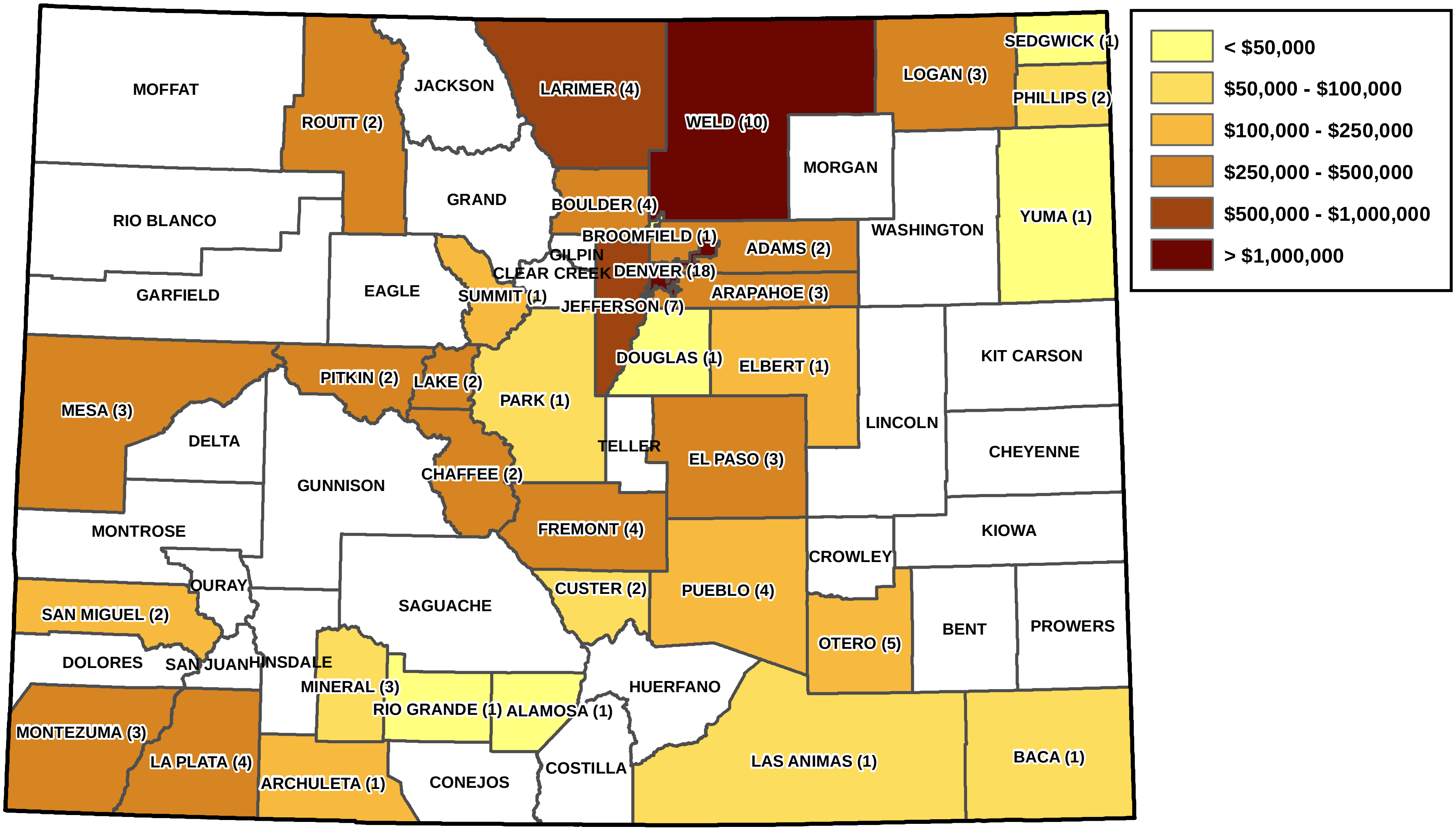
Economic Study of Recycling in Colorado-Reuser

If you move your materials for processing, please indicate the number of facilities to which you move your materials for processing within each of the following distances from your site:

Answer Options	Response Average	Response Total	Response Count
0-10 miles	1.00	3	3
0-50 miles	2.00	6	3
50-100 miles	2.00	4	2
Greater than 100 miles	5.33	16	3
		answered question	3
		skipped question	4



RREO Grant Program: Funds Distributed by County, FY2009-2015



( ) = Number of Grant Projects Per County