



**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



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) occurring 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 occurring 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.