

SECTION 1 PROJECT OVERVIEW

INTRODUCTION

R. W. Beck, Inc, in conjunction with Ames Economic Associates and Andrew Reamer & Associates was retained by the ReCycle Iowa Program (joint venture of the Iowa Department of Natural Resources and Iowa Department of Economic Development) to study the economic impacts of recycling on Iowa's economy. Specifically, the objectives of the Economic Impacts of Recycling Study (Study) were two-fold:

- measure the current economic impacts of recycling activities (collectors, processors, brokers, end-users, and recycling equipment manufacturers) on Iowa employment, income, and tax revenue; and
- identify specific recyclable material market development opportunities that maximize beneficial economic impacts upon the state of Iowa's economy.

KEY DEFINITIONS

Prior to initiating the study, the definitions for a set of key terms were agreed upon by the R. W. Beck Project Team and ReCycle Iowa Program staff. These definitions provide a baseline for initiating the Study analysis

RECYCLING ACTIVITIES

The following definitions, based upon the definitions provided in the Recycled Iowa Program Request for Proposals and R. W. Beck's experience, were used for this Study:

Collectors: Organizations which pick-up or transfer materials through a curbside recycling program, a drop-off recycling program, or on-location at commercial and industrial sites. This category may include for-profit organizations, non-profit organizations, local governments, and redemption centers.

Processors: Organization or company which prepares by changing the form of the material(s) to be delivered to an intermediate market or the end-manufacturer. Processing may include baling, shredding, crushing,

pelletizing and granulating. This category may include materials recovery facility operators, scrap metal dealers, etc.

End-Users: Manufacturers who use recyclable materials as feedstocks to produce a new product. This category may include paper-mills, steel mills, etc. This category does not include companies which generate recycled materials internally and reuse these materials. In addition, it does not include firms which have limited historical linkages with processors and use a limited amount of recycled materials in their manufacturing processes.

Broker: A purchaser of a recycled commodity, other than an end-user or processor, that purchases the commodity for purpose of commodity resale. Both collectors and processors use brokers to sell recyclables to end-users.

Recycled Equipment Manufacturers: Companies which manufacturer recycling-related equipment including but not limited to vehicles, shredders, grinders, conveyors, and containers. These companies are perceived as composing a unique, well-defined niche within the Iowa economy.

MATERIAL TYPE

Commodity material types selected for this study include paper, plastics, glass, metals and wood waste. The types of materials within each commodity group targeted for this study included the following:

PAPER			
Corrugated Cardboard (OCC)	Old Newsprint (ONP)	High Grade	Other Paper

PLASTICS						
PET (#1)	HDPE (#2)	PVC (#3)	LDPE (#4)	PP (#5)	PS (#6)	Mixed Plastics

GLASS				
CONTAINER				NON-CONTAINER
Clear (flint)	Brown (amber)	Green/Blue (emerald)	Mixed Glass	Generated by End-Users

METALS			
CONTAINER		NON-CONTAINER	
Steel Cans	Aluminum Cans	Ferrous	Non-Ferrous

WOOD WASTE						
Construction and Demolition (C&D)	Pallets	Brush (non-yard waste)	Stumps/ Tree Trunks	Sawdust	Saw Mill Scrap	Manufacturing Scrap (i.e., furniture)

ECONOMIC MEASURES

The economic impacts upon Iowa's economy will be estimated using the following measures:

- earnings
- proprietor incomes
- total value added
- gross sales/output
- number of jobs

These outputs will be characterized as:

- direct impacts (firm specific);
- indirect impacts (inter-industry linkage as measured by the purchase of intermediate commodities);
- induced impacts (personal consumption); and
- total impacts (the sum of direct, indirect, and induced).

In addition, total income and job multipliers will be generated for various recycling activities by commodity type. A multiplier is calculated by dividing the total effects (impacts) by the direct effects (impacts).

KEY ASSUMPTIONS

The following key assumptions are critical to the Study's analysis:

- The estimated current impacts are based solely on 1995 calendar year data from Iowa recycling businesses and organizations.

- The estimated economic impacts represent only the extent of the recycling activities documented through the Study survey process. Because it is unlikely that 100% of all the activity was documented, the estimated measures are likely to underestimate the overall economic impacts.
- All brokering activities are subsumed within the prices paid for recycled products by processors or within the prices received by processors for their commodities.
- All benefits accruing at the collection level are marginal; incremental values in excess of the normal labor and capital investment required to initially collect and dispose of recyclables in landfills.
- The processor level is the point at which initial value is added to the recycled commodities.
- The economic impact analysis does not account for potential displacement of materials as a result of the substitution of recyclable materials processing for virgin material extraction (i.e., mining, forestry, etc.).
- The economic analysis does not account for the avoided disposal costs of the recyclable materials.
- The economic analysis for end-users measures the economic "importance" of the recycling industry to Iowa's economy, as opposed to a measure of the current economic impacts.
- The expenditures for state government estimated in the fiscal impact analysis only include direct transfer payments to local governments resulting from economic growth.
- Forward or parallel relationships between end-users are not accounted for in the analysis. Therefore, the analysis estimates impacts characterizing the relationship between the collectors, processors, and end-users.

APPROACH

The Study approach included the following tasks:

- a review of existing recycling data;
- a survey of recycling businesses and communities to gather primary data;
- conduct econometric modeling to measure the current economic impacts;
- conduct additional econometric modeling to measure the current fiscal impacts;
- identify viable opportunities to promote recycling market development; and
- recommend market development initiatives.

Section 2 through 7 of this report address each of the tasks identified above.