

Appendix A
GLOSSARY

(This page intentionally left blank.)

| | |
|--|--|
| Aluminum Cans | Beverage containers made from aluminum. |
| Broker | Individuals or establishments that purchase a recycled commodity, other than an end-user or processor, for purpose of commodity resale. Both collectors and processors may use brokers to sell recyclable materials to end-users. |
| Brown Glass (Amber) | All brown glass food, beverage, wine, liquor and beer containers. |
| Clear Glass (Flint) | All clear glass food, beverage, wine, liquor and beer containers. |
| Collectors | Establishments that pick-up or transfer materials through a curbside recyclable materials collection, drop-off recyclable materials collection, redemption centers, and/or commercial on-site collection. This category may include for-profit organizations, non-profit organizations, and local governments. |
| Commodity Flow Analysis | An analysis of the quantities of recyclable materials that are collected, processed and consumed in a region. |
| Construction and Demolition (C&D) Waste | Waste building materials including, metals, and rubble which result from construction or demolition of structures. Such waste shall also include asphalt, asphalt shingles, concrete, drywall, carpet, carpet padding, bricks, mortar, etc. Wood should be sorted into the wood categories. |
| Direct Values | Economic change measured at the firm level where the various recycling activities occur. |
| Economic Impact | A place where a discernible and measurable change in economic activity in a region is occurring. |
| Economic Value | The sum of all direct, indirect, and induced values in a category yields the total economic value. If that economic value represents a discernible net gain or loss in regional production, that economic value has an economic impact. |

Appendix A

| | |
|--|--|
| Electronics | Includes computers and peripherals (central processing units – CPUs, keyboards, monitors), televisions, VCRs, stereos, cell phones, and other end-of-life electronics. |
| End-Users | Establishments that use recyclable materials as feedstock in the production of a new product that is placed into the stream of commerce. This category may include paper-mills, steel mills, etc. This category does not include companies which generate recycled materials internally and reuse these materials. |
| Equipment Manufacturers | Establishments that manufacture equipment used solely for the purpose of collection and/or processing of recyclable materials for recovery and reuse. |
| Ferrous Non-Container Scrap | Includes all non-vehicle (auto/truck) scrap such as sheet metal products, pipes, miscellaneous metal scraps, and other magnetic metal items. |
| Food Waste | Food preparation wastes, food scraps, spoiled food. |
| Green or Blue Glass | All green or blue glass food, beverage, wine, liquor and beer containers. |
| High Density Polyethylene (#2 - HDPE) | Plastic containers such as milk jugs, shampoo bottles, and laundry detergent bottles coded #2. |
| High Grade Office Paper | High grade white paper including bond, photocopy or notebook paper, continuous form computer paper, and colored ledger paper primarily from offices. |
| Indirect Values | Inter-industry linkages as measured by purchases of intermediate commodities or industrial inputs or purchases of goods and services by industries supporting recycling activities as a result of the recycling activities undertaken by other firms/organizations. Also called industrial inputs. |
| Induced Values | Economic change stemming from personal consumption or household values that results from the direct recycling activity and the inter-industry linkages. Also called household values. |
| Input-Output (I-O) Econometric Model | Highly detailed accountings of the flow of commodities and finished goods among industries and, ultimately, to final consumers. |

| | |
|---|---|
| Labor Income | The value of all wages, salaries and salary-like benefits paid to workers. Also includes the normal payments to ownership and management that are made to sole proprietors. |
| Low Density Polyethylene (#4 - LDPE) | Flexible plastic packaging including sheet film plastic, bread bags, clothing, furniture, carpet, and flexible squeeze bottles, (e.g. honey, mustard) coded #4. |
| Magazines | All magazines plus promotional materials printed on slick paper. |
| Mixed Glass | Unknown breakdown of clear, brown, green and/or blue glass. |
| Mixed Plastics | Unknown breakdown of plastic containers #1 - #7 and other plastic items such as molded toys, extruded pipes and hoses, clothes hangers, etc. |
| Multiplier | A measure that represents the value of an economic change in the industry being analyzed. |
| Non-Ferrous Non-Container Scrap | Includes all non-vehicle (auto/truck) scrap such as brass, copper, or other non-magnetic metal. |
| Non-Recyclable Paper | Paper products including waxed, plastic, or metal coated paper, napkins, paper towels, frozen food packaging, tissues, paper plates and cups, and pizza boxes. |
| Old Corrugated Containers (OCC) | Uncoated cardboard boxes with a wavy core and not contaminated with other materials such as a wax or plastic coating wood. Includes brown paper bags. |
| Old Newspaper (ONP) | Black and white newspaper including other paper normally distributed inside a newspaper such as colored advertisements, comics, fliers, and tabloids. |
| Organics | Related to or derived from living organisms. |
| Other Organic By-Products | Includes manures, biosolids, industrial by-products, etc. |
| Other Paper (Other Grades and Mixed) | Paper other than ONP, OCC and Office Paper. Includes box board (such as cereal boxes and egg cartons), envelopes with and without windows, toilet paper cores and other mixed recyclable paper. |

Appendix A

| | |
|--|--|
| Own-Source Revenues | Own-source revenues reflect all property, income, sales, and business taxes; all charges for services; and all miscellaneous revenue sources and are the elements of state and local finance that are directly linked to area economic activity. |
| Polyethylene Terephthalate (#1 - PET) | Plastic soft drink and water bottles, beer bottles, mouthwash bottles, peanut butter and salad dressing containers, etc. coded #1. |
| Polypropylene (#5 - PP) | Flexible and rigid plastic packaging including ketchup bottles, yogurt containers, margarine tubs, medicine bottles, etc. coded #5. |
| Polystyrene (#6 - PS) | Rigid or foam plastic packaging including compact disc jackets, meat trays, egg cartons, aspirin bottles, cups, plates, etc. coded #6. |
| Polyvinyl Chloride (#3 - PVC) | Flexible and rigid plastic including medical tubing, wire and cable insulation, clear food packaging, and shampoo bottles coded #3. |
| Processors | Establishments that bale, crush, pelletize, de-manufacture, compost, or otherwise change the form of the recyclable material for sale to an intermediate market or end manufacturer. This category may include materials recovery facility operators, scrap metal dealers, etc. |
| Remanufacturing/Reuse Industry | Individuals or establishments that remanufacture and/or return products to the stream of commerce in their original form or function. This category may include those establishments that remanufacture computer and electronic appliances, used motor vehicle parts, tires (e.g., tire retreaders), wood (e.g., pallet rebuilders), and other materials such as toner cartridges. Also includes retailers that sell used merchandise (e.g., thrift stores). |
| Steel Cans | Food and beverage containers composed primarily of steel or tin, including bi-metal (aluminum and steel) cans. |
| Tires | Used automobile and truck tires, intended for scrap, not for retreading. |
| Total Industrial Output | A measure of gross sales. |

| | |
|--------------------------|--|
| Total Value Added | All income from employee compensation, payments to sole proprietors, income from investments, and indirect tax payments to governments (sales, excise, and use taxes) that are part of the production process. |
| Wood Waste | Includes non-yard wood by-products such as construction demolition, pallets, stumps/tree trunks, sawdust, sawmill scrap, and manufacturing scrap. |
| Yard Trimmings | Includes trimmings such as grass clippings, leaves, garden debris, brush, and trees. Yard waste does not include tree stumps. |

(This page intentionally left blank.)

Appendix B
2007 STUDY RECYCLING SURVEYS

(This page intentionally left blank.)



STATE OF IOWA

THOMAS J. VILSACK, GOVERNOR
SALLY J. PEDERSON, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. VONK, DIRECTOR

November 22, 2006

«org_name»
«contact»
«org_add»
«city_add», «state_add» «zip_add»

Dear «contact»:

Iowa's recycling industry has grown substantially over the last ten years. To measure the benefits of recycling activities on Iowa's economy the Department of Natural Resources has commissioned an update of the *Economic Impacts of Recycling in Iowa* studies completed in 1996 and 2001.

Since the release of the first studies, the numbers of collectors, processors and end users comprising Iowa's recycling industry continue to increase. By updating the economic impact study this year, we will be better positioned to assist businesses like yours by working for additional markets for recyclable materials, fine-tuning our business and technical assistance, and promoting the major role Iowa's recycling industry plays in the Iowa economy. The results of the enclosed survey will allow us to improve current statewide programs of the Department of Natural Resources like Pollution Prevention Services, Iowa Waste Exchange (IWE) and the Solid Waste Alternatives Program (SWAP). These three programs in 2005 saved Iowa businesses \$5+ million and invested \$3 million dollars in Iowa's recycling industry.

Because you are an important member of Iowa's recycling industry, we are asking you and other recyclable materials manufacturers, collectors, processors, end-users and remanufacturers around the state to help us update the 1996 and 2001 economic impact studies by completing the enclosed survey. **Individual survey responses will be held confidential.**

We appreciate your participation in this important study and thank you in advance for completing the enclosed survey. You may fax your completed survey to (651) 994-8396, attention Mary Chamberlain, or mail the completed survey to: Mary Chamberlain, R. W. Beck, Inc., 1380 Corporate Center Curve, Suite 305, St. Paul, MN 55121. **Please respond by December 22, 2006.** If you have any questions regarding the survey, please contact Jeff Geerts, Department of Natural Resources Energy and Waste Management Bureau, at (515) 281-8176 or Mary Chamberlain at (651) 994-8415.

An electronic version of the survey is also available for your convenience. If you would like a copy, please send an e-mail to mchamberlain@rwbeck.com or call Mary Chamberlain at the number above.

Thank you again for your valuable contribution toward the future of Iowa's recycling industry.

Sincerely,

A handwritten signature in blue ink, appearing to read "Liz Christiansen".

Liz Christiansen, Deputy Director
Iowa Department of Natural Resources

(This page intentionally left blank.)

Economic Impacts of Recycling in Iowa Survey

Please verify the information on the label below and make any necessary changes. **Survey results are confidential;** public results will be released *only* in aggregate form.

Please forward the completed survey to R.W. Beck at fax number (651) 994-8396 or mail your survey to R.W. Beck, 1380 Corporate Center Curve, Suite 305, St. Paul, MN 55121. If you would like to receive an electronic copy of the survey in which you can type your responses and return it via e-mail, please send an e-mail to mchamberlain@rwbeck.com or call Mary Chamberlain at the number below. If you have any questions related to this survey, please contact Mary Chamberlain at (651) 994-8415. Thank you in advance for taking the time to complete this survey.

Contact Information

Contact:

Organization:

Address:

City:

State:

Zip:

Phone:

Fax:

E-mail:

Economic Impacts of Recycling in Iowa Survey

(continued)

Survey Directions

There are seven sections to this survey. Please read the following categories to determine what sections of the survey apply to your business.

You previously identified yourself as one or more of the following: collector, processor, end-user, broker, recycling equipment manufacturer, and/or involved in remanufacturing/reuse. These activities are defined below and examples of each can be found at the top of each survey.

1. **COLLECTORS** include establishments that pick-up or transfer materials through curbside recyclable materials collection, drop-off recyclable materials collection, redemption centers, and/or commercial on-site collection. If you are a collector, please complete Section 1 (pink section) of this survey.
2. **PROCESSORS** include establishments that bale, crush, pelletize, de-manufacture, compost, or otherwise change the form of the recyclable material for sale to an intermediate market or end manufacturer. If you are a processor, please complete Section 2 (blue section) of this survey.
3. **END-USERS** include establishments that use recyclable materials as feedstock in the production of a new product that is placed into the stream of commerce. If you are an end-user, please complete Section 3 (ivory section) of this survey.
4. **BROKERS** include individuals or establishments that purchase a recycled commodity, other than an end-user or processor, for the purpose of commodity resale. If you are a broker, please complete Section 4 (green section) of this survey.
5. **REMANUFACTURING/REUSE INDUSTRY** includes individuals or establishments that remanufacture and/or return products to the stream of commerce in their original form or function. If you are in the remanufacturing or reuse industry, please complete Section 5 (yellow section) of this survey.
6. **EQUIPMENT MANUFACTURERS** include establishments that manufacture equipment used solely for the purpose of collection and/or processing of recyclable materials for recovery and reuse. If you are an equipment manufacturer, please complete Section 6 (purple section) of this survey.

All respondents should complete Section 7 (white section) of this survey.

PLEASE NOTE: The survey asks for information related to the import and export of materials. It is important to the results of the study that the quantities bought and sold are correctly categorized as either in-state or out-of-state.

Economic Impacts of Recycling in Iowa Survey

SECTION 1: COLLECTORS

Please complete this section if you are a collector. Collectors include establishments that pick-up or transfer materials through curbside recyclable materials collection, drop-off recyclable materials collection, redemption centers, and/or commercial on-site collection.

| | |
|---|--|
| Employment Information: | 2005 Number of Employees: ^[1] _____ Employees |
| | 2005 Payroll: ^[2] \$ _____ |
| <i>[1] Pertains to employees or full-time-equivalent employees who are directly involved in COLLECTION of recyclable material.</i> | |
| <i>[2] Payroll includes salary, hourly pay, and benefits received in lieu of cash payments for employees directly involved with recyclable materials collection activities.</i> | |

Economic Impacts of Recycling in Iowa Survey

Section 1, Collector Survey (continued)

Please complete the following tables for the recyclable materials that your organization collects. Please include information for calendar year 2005.

| Materials Collected For Recycling | | | | | |
|---------------------------------------|--|---|-------------------------|---------------------------------|---|
| Materials | 2005 | | | | |
| | Material Quantities | | | | \$/Ton Average Price Received (from Buyer) |
| | Iowa Suppliers | | All Suppliers | Tons Exported out of Iowa | |
| | Residentially Generated Tons Collected ^[1] | Commercially Generated Tons Collected ^[2] | Total Tons Collected | | |
| PAPER | | | | | |
| Old Newspaper (ONP) | | | | | |
| Old Corrugated Containers (OCC) | | | | | |
| High Grade (Office Paper) | | | | | |
| Other Paper (Other grades and Mixed) | | | | | |
| TOTAL | | | | | |
| PLASTICS | | | | | |
| Polyethylene Terephthalate (#1 - PET) | | | | | |
| High Density Polyethylene (#2 - HDPE) | | | | | |
| Polyvinyl Chloride (#3 - PVC) | | | | | |
| Low Density Polyethylene (#4 - LDPE) | | | | | |
| Polypropylene (#5 - PP) | | | | | |
| Polystyrene (#6 - PS) | | | | | |
| Mixed Plastics (unknown breakdown) | | | | | |
| TOTAL | | | | | |
| GLASS | | | | | |
| Clear (Flint) | | | | | |
| Brown (Amber) | | | | | |
| Green or Blue | | | | | |
| Mixed | | | | | |
| TOTAL | | | | | |
| METALS | | | | | |
| Steel Cans | | | | | |
| Aluminum Cans | | | | | |
| Ferrous Non-Container Scrap | | | | | |
| Non-Ferrous Non-Container Scrap | | | | | |
| TOTAL | | | | | |

Economic Impacts of Recycling in Iowa Survey

Section 1, Collector Survey (continued)

| Materials Collected For Recycling | | | | | |
|---|--|---|-------------------------|---------------------------------|---|
| Materials | 2005 | | | | |
| | Material Quantities | | | | \$/Ton Average Price Received (from Buyer) |
| | Iowa Suppliers | | All Suppliers | | |
| | Residentially Generated Tons Collected ^[1] | Commercially Generated Tons Collected ^[2] | Total Tons Collected | Tons Exported out of Iowa | |
| Percent of Ferrous Non-Container Scrap Metal derived from automobile scrap | | | | | |
| Percent of Non-Ferrous Non-Container Scrap Metal derived from automobile scrap | | | | | |
| WOOD^[3] (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | |
| Total Wood | | | | | |
| TOTAL | | | | | |
| CONSTRUCTION & DEMOLITION (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | |
| Asphalt | | | | | |
| Concrete | | | | | |
| Drywall | | | | | |
| Carpet | | | | | |
| Carpet Pad | | | | | |
| Asphalt Shingles | | | | | |
| TOTAL | | | | | |
| ORGANICS (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | |
| Food | | | | | |
| Yard Trimmings ^[4] | | | | | |
| Other Organic Bi-Products ^[5] | | | | | |
| TOTAL | | | | | |
| ELECTRONICS (Please indicate if quantities reported are units rather than tons.) | | | | | |
| Total End-of-Life Electronics ^[6] | | | | | |
| TIRES | | | | | |
| Total Tire Scrap | | | | | |
| TOTAL | | | | | |
| <p>[1] Represents only materials collected that were generated by households.</p> <p>[2] Represents only materials collected that were generated by business, industry, or institutions.</p> <p>[3] Includes non-yard wood bi-products such as construction demolition, pallets, stumps/tree trunks, sawdust, sawmill scrap, and manufacturing scrap.</p> <p>[4] Includes trimmings such as grass clippings, leaves, garden debris, brush, and trees. Yard trimmings do not include tree stumps.</p> <p>[5] Includes manures, biosolids, industrial by-products, etc.</p> <p>[6] Includes computers and peripherals (central processing units – CPUs, keyboards, monitors), televisions, VCRs, stereos, cell phones, and other end-of-life electronics.</p> | | | | | |

Economic Impacts of Recycling in Iowa Survey

Section 1, Collector Survey (continued)



END OF SECTION 1, COLLECTOR SURVEY.

THANK YOU FOR TAKING THE TIME TO COMPLETE THE COLLECTOR SECTION OF THIS SURVEY.

PROCEED TO SECTION 2 (BLUE SECTION) IF YOU ARE A PROCESSOR.

PROCEED TO SECTION 3 (IVORY SECTION) IF YOU ARE AN END-USER.

PROCEED TO SECTION 4 (GREEN SECTION) IF YOU ARE A BROKER.

PROCEED TO SECTION 5 (YELLOW SECTION) IF YOU REMANUFACTURE OR REUSE MATERIALS.

PROCEED TO SECTION 6 (PURPLE SECTION) IF YOU ARE AN EQUIPMENT MANUFACTURER.

ALL RESPONDENTS SHOULD COMPLETE SECTION 7 (WHITE SECTION) OF THIS SURVEY.

Economic Impacts of Recycling in Iowa Survey

SECTION 2: PROCESSORS

Please complete this section if you are a processor. Processors include establishments that bale, crush, pelletize, de-manufacture or otherwise change the form of the recyclable material for sale to an intermediate market or end manufacturer.

| | |
|---|---|
| Employment Information: | 2005 Number of Employees: ^[1] _____ Employees 2005 Payroll: ^[2] \$ _____ |
| <i>[1] Pertains to employees or full-time-equivalent employees who are directly involved in PROCESSING of recyclable materials only.</i> | |
| <i>[2] Payroll includes salary, hourly pay, and benefits received in lieu of cash payments for employees directly involved with recyclable materials processing activities.</i> | |

Economic Impacts of Recycling in Iowa Survey

Section 2, Processor Survey (continued)

Please complete the following tables for the recyclable materials that your organization processes. Please include information for calendar year 2005.

| Materials Processed For Recycling ^[1] | | | | | |
|--|----------------------|--------------------|--------------------|--|--------------------------|
| Materials | 2005 | | | | |
| | Material Quantities | | | Average ⁽²⁾ Price (\$) Per Ton | |
| | Total Tons Processed | | | Paid (to suppliers) | Received (from buyer) |
| | Iowa Suppliers | Other Suppliers | Total Suppliers | | |
| PAPER | | | | | |
| Old Newspaper (ONP) | | | | | |
| Old Corrugated Containers (OCC) | | | | | |
| High Grade (Office Paper) | | | | | |
| Other Paper (Other grades and Mixed) | | | | | |
| TOTAL | | | | | |
| PLASTICS | | | | | |
| Polyethylene Terephthalate (#1 - PET) | | | | | |
| High Density Polyethylene (#2 - HDPE) | | | | | |
| Polyvinyl Chloride (#3 - PVC) | | | | | |
| Low Density Polyethylene (#4 - LDPE) | | | | | |
| Polypropylene (#5 - PP) | | | | | |
| Polystyrene (#6 - PS) | | | | | |
| Mixed Plastics (unknown breakdown) | | | | | |
| TOTAL | | | | | |
| GLASS | | | | | |
| Clear (Flint) | | | | | |
| Brown (Amber) | | | | | |
| Green or Blue | | | | | |
| Mixed | | | | | |
| TOTAL | | | | | |
| METALS | | | | | |
| Steel Cans | | | | | |
| Aluminum Cans | | | | | |
| Ferrous Non-Container Scrap | | | | | |
| Non-Ferrous Non-Container Scrap | | | | | |
| TOTAL | | | | | |

Economic Impacts of Recycling in Iowa Survey

Section 2, Processor Survey (continued)

| Materials Processed For Recycling ^[1] | | | | | |
|---|----------------------|--------------------|--------------------|--|--------------------------|
| Materials | 2005 | | | | |
| | Material Quantities | | | Average ⁽²⁾ Price (\$) Per Ton | |
| | Total Tons Processed | | | Paid (to suppliers) | Received (from buyer) |
| | Iowa Suppliers | Other Suppliers | Total Suppliers | | |
| Percent of Ferrous Non-Container Scrap Metal derived from automobile scrap | | | | | |
| Percent of Non-Ferrous Non-Container Scrap Metal derived from automobile scrap | | | | | |
| WOOD^[3] (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | |
| Total Wood | | | | | |
| TOTAL | | | | | |
| CONSTRUCTION & DEMOLITION (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | |
| Asphalt | | | | | |
| Concrete | | | | | |
| Drywall | | | | | |
| Carpet | | | | | |
| Carpet Pad | | | | | |
| Asphalt Shingles | | | | | |
| TOTAL | | | | | |
| ORGANICS (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | |
| Food | | | | | |
| Yard Trimmings ^[4] | | | | | |
| Other Organic Bi-Products ^[5] | | | | | |
| TOTAL | | | | | |
| ELECTRONICS (Please indicate if quantities reported are units rather than tons.) | | | | | |
| Total End-of-Life Electronics ^[6] | | | | | |
| TIRES | | | | | |
| Total Tire Scrap | | | | | |
| TOTAL | | | | | |

[1] Represents materials baled, crushed, pelletized, or a change in the form of the recyclable material for the purpose of resale.

[2] Represents the annual average of the price paid to generators and collectors for material(s) and the average annual price received from processors or end-users for the sale of material(s).

[3] Includes non-yard wood bi-products such as construction demolition, pallets, stumps/tree trunks, sawdust, sawmill scrap, and manufacturing scrap.

[4] Includes trimmings such as grass clippings, leaves, garden debris, brush, and trees. Yard trimmings do not include tree stumps.

[5] Includes manures, biosolids, industrial by-products, etc.

[6] Includes computers and peripherals (central processing units – CPUs, keyboards, monitors), televisions, VCRs, stereos, cell phones, and other end-of-life electronics.

Economic Impacts of Recycling in Iowa Survey

Section 2, Processor Survey (continued)



END OF SECTION 2, PROCESSOR SURVEY.

THANK YOU FOR TAKING THE TIME TO COMPLETE THE PROCESSOR SECTION OF THIS SURVEY.

PROCEED TO SECTION 3 (IVORY SECTION) IF YOU ARE AN END-USER.

PROCEED TO SECTION 4 (GREEN SECTION) IF YOU ARE A BROKER.

PROCEED TO SECTION 5 (YELLOW SECTION) IF YOU REMANUFACTURE OR REUSE MATERIALS.

PROCEED TO SECTION 6 (PURPLE SECTION) IF YOU ARE AN EQUIPMENT MANUFACTURER.

ALL RESPONDENTS SHOULD COMPLETE SECTION 7 (WHITE SECTION) OF THIS SURVEY.

Economic Impacts of Recycling in Iowa Survey

SECTION 3: END-USERS

Please complete this section if you are an end-user. End-users include establishments that use recyclable materials as feedstock in the production of a new product that is placed into the stream of commerce.

| | |
|--|---|
| Employment Information: | 2005 Number of Employees: ^[1] _____ Employees 2005 Payroll: ^[2] \$ _____ |
| <p><i>[1] Pertains to employees or full-time-equivalent employees who are directly involved in END-USE production using recycled materials as the primary feedstock.</i></p> <p><i>[2] Payroll includes salary, hourly pay, and benefits received in lieu of cash payments for employees directly involved in end-use production using recyclable materials.</i></p> | |

| | |
|---|---------------------------------------|
| Sales Information: | 2005 Gross Sales ^[3] _____ |
| <p><i>[3] Pertains solely to sales of recycled content product(s) absolute dollars.</i></p> | |

Economic Impacts of Recycling in Iowa Survey

Section 3, End-User Survey (continued)

Please complete the following table for the processed recyclable materials purchased by your firm specifically as feedstock in the production of a product. Please include information for calendar year 2005.

| Recycled Materials Used in Manufacturing | | | | | |
|--|--|--|--|-------------------------|---|
| Materials | 2005 | | | | |
| | Material Quantities | | | | Average ^[3] Price (\$) Per Ton |
| | % of Total Inputs that are recycled materials | Tons Purchased In-state ^[1] | Tons Purchased Out-of-State ^[2] | Total Tons Purchased | Paid (to processors) |
| PAPER | | | | | |
| Old Newspaper (ONP) | | | | | |
| Old Corrugated Containers (OCC) | | | | | |
| High Grade (Office Paper) | | | | | |
| Other Paper (Other grades and Mixed) | | | | | |
| TOTAL | | | | | |
| PLASTICS (no regrind) | | | | | |
| Polyethylene Terephthalate (#1 - PET) | | | | | |
| High Density Polyethylene (#2 - HDPE) | | | | | |
| Polyvinyl Chloride (#3 - PVC) | | | | | |
| Low Density Polyethylene (#4 - LDPE) | | | | | |
| Polypropylene (#5 - PP) | | | | | |
| Polystyrene (#6 - PS) | | | | | |
| Mixed Plastics (unknown breakdown) | | | | | |
| TOTAL | | | | | |
| GLASS | | | | | |
| Clear (Flint) | | | | | |
| Brown (Amber) | | | | | |
| Green or Blue | | | | | |
| Mixed | | | | | |
| TOTAL | | | | | |
| METALS | | | | | |
| Steel Cans | | | | | |
| Aluminum Cans | | | | | |
| Ferrous Scrap | | | | | |
| Non-Ferrous Scrap | | | | | |
| TOTAL | | | | | |

Economic Impacts of Recycling in Iowa Survey

Section 3, End-User Survey (continued)

| Recycled Materials Used in Manufacturing | | | | | |
|---|--|--|--|-------------------------|---|
| Materials | 2005 | | | | |
| | Material Quantities | | | | Average ^[3] Price (\$) Per Ton |
| | % of Total Inputs that are recycled materials | Tons Purchased In-state ^[1] | Tons Purchased Out-of-State ^[2] | Total Tons Purchased | Paid (to processors) |
| Percent of Ferrous Non-Container Scrap Metal derived from automobile scrap | | | | | |
| Percent of Non-Ferrous Non-Container Scrap Metal derived from automobile scrap | | | | | |
| WOOD^[4] (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | |
| Total Wood | | | | | |
| TOTAL | | | | | |
| CONSTRUCTION & DEMOLITION (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | |
| Asphalt | | | | | |
| Concrete | | | | | |
| Drywall | | | | | |
| Carpet | | | | | |
| Carpet Pad | | | | | |
| Asphalt Shingles | | | | | |
| TOTAL | | | | | |
| ORGANICS (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | |
| Food | | | | | |
| Yard Trimmings ^[5] | | | | | |
| Other Organic Bi-Products ^[6] | | | | | |
| TOTAL | | | | | |
| TIRES | | | | | |
| Total Tire Scrap | | | | | |
| TOTAL | | | | | |
| <p>[1] Represents Iowa-processed recycled materials purchased by Iowa End-Use manufacturers for use as a feedstock in an Iowa production facility.</p> <p>[2] Represents out-of Iowa processed recycled materials purchased by Iowa End-Use manufacturers for use as a feedstock in an Iowa production facility.</p> <p>[3] Represents the annual average of the price paid to processors and/or collectors for recycled material(s).</p> <p>[4] Includes non-yard wood bi-products including construction demolition, pallets, brush, stumps/tree trunks, sawdust, sawmill scrap, and manufacturing scrap.</p> <p>[5] Includes trimmings such as grass clippings, leaves, garden debris, brush, and trees. Yard trimmings do not include tree stumps.</p> <p>[6] Includes manures, biosolids, industrial by-products, etc.</p> | | | | | |

Economic Impacts of Recycling in Iowa Survey

Section 3, End-User Survey (continued)



END OF SECTION 3, END-USER SURVEY.

THANK YOU FOR TAKING THE TIME TO COMPLETE THE END-USER SECTION OF THIS SURVEY.

PROCEED TO SECTION 4 (GREEN SECTION) IF YOU ARE A BROKER.

PROCEED TO SECTION 5 (YELLOW SECTION) IF YOU REMANUFACTURE OR REUSE MATERIALS.

PROCEED TO SECTION 6 (PURPLE SECTION) IF YOU ARE AN EQUIPMENT MANUFACTURER.

ALL RESPONDENTS SHOULD COMPLETE SECTION 7 (WHITE SECTION) OF THIS SURVEY.

Economic Impacts of Recycling in Iowa Survey

Economic Impacts of Recycling in Iowa Survey

SECTION 4: BROKERS

Please complete this section if you are a broker. Brokers include individuals or establishments that purchase a recycled commodity, other than an end-user or processor, for the purpose of commodity resale.

| | |
|---|---|
| Employment Information: | 2005 Number of Employees: ^[1] _____ Employees 2005 Payroll: ^[2] \$ _____ |
| <i>[1] Pertains to employees or full-time-equivalent employees who are directly involved in BROKERING of recyclables only.</i> | |
| <i>[2] Payroll includes salary, hourly pay, and benefits received in lieu of cash payments for employees directly involved with brokering activities.</i> | |

| | |
|--|---------------------------------------|
| Sales Information: | 2005 Gross Sales ^[3] _____ |
| <i>[3] Pertains solely to sales of recyclable materials in absolute dollars.</i> | |

Economic Impacts of Recycling in Iowa Survey

Section 4, Broker Survey (continued)

Please complete the following table for the materials that your organization brokers. Please include information for calendar year 2005.

| Materials Brokered ^[1] | | | | | | | |
|---------------------------------------|-------------------------|-----------------------------------|-------------------------|----------------------|---------------------------------|------------------------|---|
| 2005 | | | | | | | |
| Materials | Material Quantities | | | | | | Average ^[2] Price (\$) per Ton |
| | Tons Bought In-State | Tons Bought Outside of Iowa | Total Tons Purchased | Tons Sold In Iowa | Tons Sold Outside of Iowa | Paid (for material) | Received (from buyer) |
| PAPER | | | | | | | |
| Old Newspaper (ONP) | | | | | | | |
| Old Corrugated Containers (OCC) | | | | | | | |
| High Grade (Office Paper) | | | | | | | |
| Other Paper (Other grades and Mixed) | | | | | | | |
| TOTAL | | | | | | | |
| PLASTICS | | | | | | | |
| Polyethylene Terephthalate (#1 - PET) | | | | | | | |
| High Density Polyethylene (#2 - HDPE) | | | | | | | |
| Polyvinyl Chloride (#3 - PVC) | | | | | | | |
| Low Density Polyethylene (#4 - LDPE) | | | | | | | |
| Polypropylene (#5 - PP) | | | | | | | |
| Polystyrene (#6 - PS) | | | | | | | |
| Mixed Plastics (unknown breakdown) | | | | | | | |
| TOTAL | | | | | | | |
| GLASS | | | | | | | |
| Clear (Flint) | | | | | | | |
| Brown (Amber) | | | | | | | |
| Green or Blue | | | | | | | |
| Mixed | | | | | | | |
| TOTAL | | | | | | | |
| METALS | | | | | | | |
| Steel Cans | | | | | | | |
| Aluminum Cans | | | | | | | |
| Ferrous Non-Container Scrap | | | | | | | |
| Non-Ferrous Non-Container Scrap | | | | | | | |
| TOTAL | | | | | | | |

Economic Impacts of Recycling in Iowa Survey

Section 4, Broker Survey (continued)

| Materials Brokered ^[1] | | | | | | | |
|---|----------------------------|--------------------------------------|-------------------------|-------------------------|------------------------------------|------------------------|---|
| 2005 | | | | | | | |
| Materials | Material Quantities | | | | | | Average ^[2] Price (\$) per Ton |
| | Tons Bought In-State | Tons Bought Outside of Iowa | Total Tons Purchased | Tons Sold In Iowa | Tons Sold Outside of Iowa | Paid (for material) | Received (from buyer) |
| Percent of Ferrous Non-Container Scrap Metal derived from automobile scrap | | | | | | | |
| Percent of Non-Ferrous Non-Container Scrap Metal derived from automobile scrap | | | | | | | |
| WOOD ^[3] (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | | | |
| Total Wood | | | | | | | |
| TOTAL | | | | | | | |
| CONSTRUCTION & DEMOLITION (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | | | |
| Asphalt | | | | | | | |
| Concrete | | | | | | | |
| Drywall | | | | | | | |
| Carpet | | | | | | | |
| Carpet Pad | | | | | | | |
| Asphalt Shingles | | | | | | | |
| TOTAL | | | | | | | |
| ORGANICS (Please indicate if quantities reported are cubic yards rather than tons.) | | | | | | | |
| Food | | | | | | | |
| Yard Trimmings ^[4] | | | | | | | |
| Other Organic Bi-Products ^[5] | | | | | | | |
| TOTAL | | | | | | | |
| TIRES | | | | | | | |
| Total Tire Scrap | | | | | | | |
| TOTAL | | | | | | | |
| <p>[1] Represents recycled materials purchased for the purpose of commodity resale.</p> <p>[2] Represents the annual average of the price paid to generators/processors upon purchase of material(s) and the average annual price received from end-users.</p> <p>[3] Includes non-yard wood bi-products such as construction demolition, pallets, stumps/tree trunks, sawdust, sawmill scrap, and manufacturing scrap.</p> <p>[4] Includes trimmings such as grass clippings, leaves, garden debris, brush, and trees. Yard trimmings do not include tree stumps.</p> <p>[5] Includes manures, biosolids, industrial by-products, etc.</p> | | | | | | | |

Economic Impacts of Recycling in Iowa Survey

Section 4, Broker Survey (continued)



END OF SECTION 4, BROKER SURVEY.

THANK YOU FOR TAKING THE TIME TO COMPLETE THE BROKER SECTION OF THIS SURVEY.
PROCEED TO SECTION 5 (YELLOW SECTION) IF YOU REMANUFACTURE OR REUSE MATERIALS.
PROCEED TO SECTION 6 (PURPLE SECTION) IF YOU ARE AN EQUIPMENT MANUFACTURER.
ALL RESPONDENTS SHOULD COMPLETE SECTION 7 (WHITE SECTION) OF THIS SURVEY.

Economic Impacts of Recycling in Iowa Survey

SECTION 5: REMANUFACTURING / REUSE

Please complete this section if you remanufacture or reuse recyclable materials. Remanufacturers and reuse establishments include those that remanufacture computer and electronic appliances, used motor vehicle parts, tires (e.g., retreaders), wood (e.g., pallet rebuilders), and other materials such as toner cartridges. Also includes retailers that sell used merchandise (e.g., thrift stores).

| | |
|--|--|
| Employment Information: | 2005 Number of Employees: ^[1] _____ Employees |
| | 2005 Payroll: ^[2] \$ _____ |
| <p>[1] Pertains to employees or full-time-equivalent employees who are directly involved in REMANUFACTURING AND REUSE of recyclable materials only.</p> <p>[2] Payroll includes salary, hourly pay, and benefits received in lieu of cash payments for employees directly involved with recyclable materials remanufacturing and reuse activities.</p> | |

| | |
|--|---------------------------------------|
| Sales Information: | 2005 Gross Sales ^[3] _____ |
| <p>[3] Pertains solely to sales of remanufactured or reused materials in absolute dollars.</p> | |

Economic Impacts of Recycling in Iowa Survey

Section 5, Remanufacturing/Reuse Survey (continued)

Please complete the following tables for the recyclable materials that your organization remanufactures or reuses. Please include information for calendar year 2005.

| Recyclable Materials Remanufactured/Reused ^[1] | | | | | |
|---|----------------------------------|-----------------|-----------------|------------------------|-----------------------|
| Materials | 2005 | | | | |
| | Material Quantities | | | Average ⁽²⁾ | |
| | Total Tons Remanufactured/Reused | | | Price (\$) Per Ton | |
| | Iowa Suppliers | Other Suppliers | Total Suppliers | Paid (to suppliers) | Received (from buyer) |
| COMPUTERS & ELECTRONICS | | | | | |
| Computer Monitors | | | | | |
| Computer Peripherals ^[3] | | | | | |
| Televisions | | | | | |
| Cell Phones | | | | | |
| Other End-of-Life Electronics | | | | | |
| USED MOTOR VEHICLE PARTS | | | | | |
| Ferrous Scrap | | | | | |
| Non-Ferrous Scrap | | | | | |
| TOTAL | | | | | |
| RETAIL USED MERCHANDISE | | | | | |
| Clothing and Textiles | | | | | |
| Other reused goods | | | | | |
| TIRE RETREADERS | | | | | |
| Tire Total | | | | | |
| TOTAL | | | | | |
| WOOD REUSE ^[4] <i>(Please indicate if quantities reported are cubic yards rather than tons.)</i> | | | | | |
| Pallet Wood Reused | | | | | |
| All Other Wood Reused | | | | | |
| TOTAL | | | | | |
| OTHER REUSE | | | | | |
| | | | | | |
| TOTAL | | | | | |
| <p>[1] Represents used materials and remanufactured materials prepared for the purpose of being returned to the stream of commerce in their original form or function.</p> <p>[2] Represents the annual average of the price paid to suppliers per material category and the average annual price received from buyers for the sale of material(s).</p> <p>[3] Includes central processing units (CPUs), keyboards, mice, speakers, etc.</p> <p>[4] Includes non-yard wood bi-products such as construction demolition, pallets, stumps/tree trunks, sawdust, sawmill scrap, and manufacturing scrap.</p> | | | | | |

Economic Impacts of Recycling in Iowa Survey

Section 5, Remanufacturing/Reuse Survey (continued)



END OF SECTION 5, REMANUFACTURING/REUSE SURVEY.

PROCEED TO SECTION 6 (PURPLE SECTION) IF YOU ARE AN EQUIPMENT MANUFACTURER.

ALL RESPONDENTS SHOULD COMPLETE SECTION 7 (WHITE SECTION) OF THIS SURVEY.

(This page intentionally left blank.)

Economic Impacts of Recycling in Iowa Survey

SECTION 6: EQUIPMENT MANUFACTURERS

Please complete this section if you are an equipment manufacturer. Recycling equipment manufacturers include establishments that manufacture equipment used solely for the purpose of collection and/or processing of recyclable materials for recovery and reuse.

| | |
|---|---|
| Employment Information: | 2005 Number of Employees: ^[1] _____ Employees 2005 Payroll: ^[2] \$ _____ |
| <p>[1] Pertains to employees or full-time-equivalent employees who are directly involved in manufacturing equipment that is used by recycled material collection and/or processors.</p> <p>[2] Payroll includes salary, hourly pay, and benefits received in lieu of cash payments for employees directly involved with manufacturing equipment that is used by recycled material collectors and/or processors.</p> | |

| | |
|--|---------------------------------------|
| Sales Information: | 2005 Gross Sales ^[3] _____ |
| <p>[3] Pertains solely to sales of equipment used in the collection and/or processing of recyclable materials in absolute dollars.</p> | |

Economic Impacts of Recycling in Iowa Survey

Section 6, Equipment Manufacturer Survey (continued)

Please complete the following table for the recycling-related equipment that your organization manufactures. Please include information for calendar year 2005.

| Equipment Manufactured for Use in Recycling Collection and Processing | | | | |
|--|----------------------------------|-----------------------|--|---------------------------------|
| Equipment Manufactured | 2005 | | | |
| | Units Produced ^[1] | Units Sold In Iowa | Units Exported out of Iowa for Sale | Total Sales (\$) ^[2] |
| VEHICLES | | | | |
| Trucks | | | | |
| Skid Loaders | | | | |
| Front Loaders | | | | |
| Trailers | | | | |
| Other Vehicles | | | | |
| CONTAINERS | | | | |
| Curbside Recyclable Type Containers | | | | |
| Drop-Off Type Containers | | | | |
| Other Containers (Please List Below) | | | | |
| PROCESSING EQUIPMENT | | | | |
| Balers | | | | |
| Shredders | | | | |
| Grinders | | | | |
| Glass Crushers | | | | |
| Plastics Processors (Pelletizers, etc.) | | | | |
| Commingled Recyclables Handling Equipment | | | | |
| OTHER (Please List) | | | | |
| | | | | |
| | | | | |
| [1] Includes the number of units of equipment produced that are used in the recycling industry to collect and/or process recyclable materials. | | | | |
| [2] Represents the total sales in absolute dollars per equipment category. | | | | |



END OF SECTION 6, EQUIPMENT MANUFACTURER SURVEY.

THANK YOU FOR TAKING THE TIME TO COMPLETE THE EQUIPMENT MANUFACTURER SECTION OF THIS SURVEY.

ALL RESPONDENTS SHOULD COMPLETE SECTION 7 (WHITE SECTION) OF THIS SURVEY.

Economic Impacts of Recycling in Iowa Survey

SECTION 7: GENERAL OPINION QUESTIONS

1. In collecting, processing, buying, and/or selling recyclables, are you experiencing any specific barriers, for example, adequate supply, quality of supply, excessive transportation costs, etc.?

2. What types of recycling businesses would you like to see expanded or created in the State?



END OF SECTION 7, GENERAL OPINION QUESTIONS.

THANK YOU FOR PARTICIPATING IN THE SURVEY.

(This page intentionally left blank.)

GREENHOUSE GAS EMISSIONS – PER TON
ESTIMATES FOR ALTERNATIVE MANAGEMENT
SCENARIOS

(This page intentionally left blank.)

GREENHOUSE GAS EMISSIONS – PER TON ESTIMATES FOR ALTERNATIVE MANAGEMENT SCENARIOS

| Table C-1 Per Ton Estimates of GHG Emissions for Alternative Management Scenarios | | | | | |
|--|-----------------------|-----------------|-------------------|------------------|------------------|
| Material | Source Reduced (MTCE) | Recycled (MTCE) | Landfilled (MTCE) | Combusted (MTCE) | Composted (MTCE) |
| Aluminum Cans | (2.24) | (3.70) | 0.01 | 0.02 | NA |
| Steel Cans | (0.87) | (0.49) | 0.01 | (0.42) | NA |
| Copper Wire | (2.00) | (1.34) | 0.01 | 0.01 | NA |
| Glass | (0.16) | (0.08) | 0.01 | 0.01 | NA |
| HDPE | (0.49) | (0.38) | 0.01 | 0.25 | NA |
| LDPE | (0.62) | (0.46) | 0.01 | 0.25 | NA |
| PET | (0.57) | (0.42) | 0.01 | 0.30 | NA |
| Corrugated Cardboard | (1.52) | (0.85) | 0.11 | (0.18) | NA |
| Magazines/third-class mail | (2.36) | (0.84) | (0.08) | (0.13) | NA |
| Newspaper | (1.33) | (0.76) | (0.24) | (0.20) | NA |
| Office Paper | (2.18) | (0.78) | 0.53 | (0.17) | NA |
| Phonebooks | (1.72) | (0.72) | (0.24) | (0.20) | NA |
| Textbooks | (2.50) | (0.85) | 0.53 | (0.17) | NA |
| Dimensional Lumber | (0.55) | (0.67) | (0.13) | (0.21) | NA |
| Medium Density Fiberboard | (0.60) | (0.67) | (0.13) | (0.21) | NA |
| Food Scraps | NA | NA | 0.20 | (0.05) | (0.05) |
| Yard Trimmings | NA | NA | (0.06) | (0.06) | (0.05) |
| Grass | NA | NA | (0.00) | (0.06) | (0.05) |
| Leaves | NA | NA | (0.05) | (0.06) | (0.05) |
| Branches | NA | NA | (0.13) | (0.06) | (0.05) |
| Mixed Paper, Broad | NA | (0.96) | 0.09 | (0.18) | NA |

Appendix C

| Table C-1 Per Ton Estimates of GHG Emissions for Alternative Management Scenarios | | | | | |
|--|-----------------------|-----------------|-------------------|------------------|------------------|
| Material | Source Reduced (MTCE) | Recycled (MTCE) | Landfilled (MTCE) | Combusted (MTCE) | Composted (MTCE) |
| Mixed Paper, Resid. | NA | (0.96) | 0.07 | (0.18) | NA |
| Mixed Paper, Office | NA | (0.93) | 0.13 | (0.16) | NA |
| Mixed Metals | NA | (1.43) | 0.01 | (0.29) | NA |
| Mixed Plastics | NA | (0.41) | 0.01 | 0.27 | NA |
| Mixed Recyclables | NA | (0.79) | 0.04 | (0.17) | NA |
| Mixed Organics | NA | NA | 0.06 | (0.05) | (0.05) |
| Mixed MSW | NA | NA | 0.12 | (0.03) | NA |
| Carpet | (1.09) | (1.96) | 0.01 | 0.11 | NA |
| Personal Computers | (15.13) | (0.62) | 0.01 | (0.05) | NA |
| Clay Bricks | (0.08) | NA | 0.01 | NA | NA |
| Concrete | NA | (0.00) | 0.01 | NA | NA |
| Fly Ash | NA | (0.24) | 0.01 | NA | NA |
| Tires | (1.09) | (0.50) | 0.01 | 0.05 | NA |