

# **Florida Department of Environmental Protection Innovative Grant Program**

## **Final Report Grant Number IG1-07**

### **Process Recycled Drywall (Gypsum), Glass, and Paper for Use in Manufacturing a Commercial Product**

This final report summarizes the subject project based on requirements outlined on subsection 8 of Part II, Grant Conditions, Grant Agreement IG1-07 between Gadsden County and the Florida Department of Environmental Protection (FDEP). The contents of this report, where possible, specifically follow each of the items/information required by the line items found in subsection 8 of the Grant Conditions for this report (see Appendix A attached to this report for a copy of subsection 8 of Grant Conditions).

#### **A. Introduction**

CDS Manufacturing, Inc. (CDS) is a Florida-based company currently manufacturing and marketing “cast stone” and architectural pre-cast products that are used primarily in commercial construction projects. It is located in Quincy (Gadsden County), Florida. The company has 200 established specialty-customers across the U.S. and Canada. One product, generally used as wall panels, includes a mix of gypsum, paper and other materials. The company has also developed a line of wall tile products utilizing crushed glass. In 2000, Gadsden County received an Innovative Recycling Grant from the FDEP to supply high quality recycled materials to CDS, to replace, in part, the virgin materials used by CDS to manufacture the above described product.

The Southern Waste Information Exchange, Inc. (SWIX), a not for profit organization that regularly works with the FDEP, is also a partner in this project. SWIX was called in by CDS to perform a waste assessment of their company’s operations. CDS wanted to make sure that they were minimizing their waste streams from their manufacturing processes. However, SWIX found that CDS did not produce large waste streams of any kind for recycling purposes. Rather, SWIX suggested to CDS that they substitute used or secondary materials for their virgin materials input for their manufacturing process (i.e., used drywall for virgin gypsum, used paper for virgin paper, and glass cullet instead of virgin sand or similar aggregate).

Subsequent to the inception of the grant, CDS became aware of additional post consumer materials through the SWIX that even further enhance their product lines.

These include reclaimed water from an industrial equipment manufacture and fiberglass waste.

The goal of this project and on-going partnership is to reduce and ultimately replace the use of virgin materials used by CDS with collected and processed materials (i.e., recycled paper, drywall and glass) from Gadsden County and vicinity. The project creates a local market for difficult to recycle materials, as well as, provides numerous economic and environmental benefits. Furthermore, as the business continues to expand, the demand for additional recycled feedstock will continue to grow.

The project is innovative since no other company or organization in Florida has been identified as using the specific materials being utilized in this project (glass, paper, and drywall) for the manufacture of Cast Stone and Architectural Precast products. Especially ground-breaking is the use of used drywall and glass cullet instead of virgin gypsum and sand for manufacturing an existing product line being sold on a nationwide basis. Also novel is the development of in-county markets for recyclable materials through the manufacture of new products by a local manufacturer.

Formal presentations about this project have been made at the 2000 Recycle Florida Today, Inc. (RFT) conference, the 2001 Southeast Recycling Conference and Trade Show, and at four Pollution Prevention workshops in 2001 within Florida industrial parks. Additional presentations are planned at Solid Waste Association of North America (SWANA) recycling symposia in Florida and elsewhere during 2003 and at RFT's 2003 Annual Conference. Several magazine articles are being proposed for future issues of Resource Recycling, the Florida RFT and SWANA newsletters, and U.S. Environmental Protection Agency's (EPA) WasteWise publication.

## **B. Implementation of the Project**

### Equipment

Equipment purchased for this project using Innovative Grant Funds included:

1. Three Headed Polisher/Grinder
2. Belt Sander and Dust Collection System
3. Mixer
4. Tables and Rubber Molds
5. Forklift
6. Drywall Shredder/Grinder

Although the original grant application called for the purchase of a glass grinder/tumbler, this equipment was not purchased because, in order to size the glass appropriately for CDS Manufacturing, the cost of this equipment became prohibitive. Also, the original

grant application called for the purchase of Containers. Gadsden County found a supply of Gaylord boxes to serve as appropriate storage for materials and thus containers were not purchased for the project. Instead of the glass grinder/crusher, Gadsden County purchased a three-headed polisher/grinder.

The following describes the purpose/use of this equipment in project implementation:

The forklift is used at Gadsden County recycling center site for moving/placing various containers and equipment related to project. In addition, the drywall shredder/grinder is used at the County recycling center to prepare used drywall to CDS specifications for use in their mixers for manufacturing wall tile.

The mixer (like a large commercial kitchen blender) is used to mix any virgin and/or recycled materials used for product manufacture. The drywall shredder is used by the County to size used drywall parts and sheets to CDS specifications for use in the mixers with other materials.

Finally, the belt sander and dust collection system is used to smooth the decorative wall panels made from recycled materials to specifications acceptable to purchasers.

#### Cooperation with Other Counties

Gadsden County's recycling facility is the processing and transfer site for various recyclable materials collected in a large multi-county region of Florida, including Wakulla County, Liberty County, Madison County, Bay County, and Jefferson County. Some of the recycled paper used by CDS in the manufacture of Caste Stone and Architectural Precast came from these counties, but a majority of the recycled paper for the project has come from Gadsden County. Glass for the project has come from Leon County. Used drywall has come from counties other than Gadsden also.

#### Project Components/Timelines

Attachment B depicts the various tasks/components and schedule for this project. The project was extended six months (July 1, 2002 to December 31, 2002) in order to allow more processing of recycled materials (see Appendix C for copy of extension letter). The processing and use of recycled materials used in this project was delayed because of an administrative holdup in ordering and start up of equipment.

#### Problems Encountered/Resolved

The biggest problem experienced by this project has been time delays associated with local government equipment purchasing policies and regulations and the delivery and activation of equipment necessary for processing/storing/transferring recycled materials to CDS. This problem was specifically addressed by approaching the FDEP for a

project extension for six months, in order to allow CDS/Gadsden County to process and use more recycled materials for product manufacture.

## **C. Project Results**

### *1. Project Goals and Objectives*

The general goal of the project, that is, using recyclable materials instead of virgin materials (i.e., gypsum, paper, and glass) to produce an existing product line (i.e., decorative wall tile) was met successfully. The resulting “green” (i.e., decorative wall tile containing recycled material content) product has been acceptable to various retail/commercial customers for use in construction. The green” product has been accepted enthusiastically by customers of CDS, especially because of its recycled content.

In addition, the sub-goals or objectives of the project, namely saving CDS manufacturing costs by substituting recycled materials for virgin materials, conserving natural or virgin resources/energy, and creating local and regional markets for the project’s designated used materials (i.e., drywall, glass, and paper) were met. Appendix D documents cost savings accruing to CDS as a result of the project and the documented tons of materials that were marketed to CDS from Gadsden and other counties involved.

### *2. How Project Demonstrated Technologies Not in Common Use in Florida or Jurisdictions of Similar Size*

Utilizing equipment listed in Section B, this project processed used drywall, mixed glass cullet, and recycled paper to manufacture a decorative wall tile product that formerly was manufactured using exclusively virgin materials (i.e., gypsum and paper--- no glass was used before this project started).

As stated in the Introduction Section of this report, no other jurisdiction of any size in Florida and no other wall tile manufacturer in the state was found (based on research prior to submitting Innovative Grant proposal to FDEP) to be manufacturing decorative wall tile using this process or equipment. Therefore, this project truly presented a unique and innovative approach for the recycling of glass, drywall, and paper for the purpose of manufacturing an existing product using recycled materials instead of similar virgin materials.

3. *How Project Successfully Led to Greater Use of Recycled Materials and Created a More Recyclable or Marketable Product*

This project created a recycling market for 34 tons of drywall, 826 tons of mixed glass cullet, 175 tons of paper, 1,210 gallons of recycled water, and 2 tons of surplus fiberglass. In addition, CDS's Cast Stone and Architectural Precast products containing recycled materials, according to the President of CDS, were responsible for preventing much steeper declines in overall product sales from the company during 2002. This was a product that, previous to implementation of this project, was made almost exclusively of virgin material resources. Because of the Innovative Grant, CDS has been able to increase the percentage of all Cast Stone products that contain recycled content (currently 50% of all Cast Stone products contain some recycled materials).

In order to capitalize on the success and market acceptance of products containing recycled content, CDS created and trademarked "CDS Green" Stone. In the last few months, no less than 50% of ALL product inquiries to CDS have been for the CDS "CDS Green" Stone product. Lastly, in a time of highly competitive market share shrinkage (because of the economic slowdown/recession during the past few years on a nationwide basis), the Innovative Grant and creation of "CDS Green" Stone product placed a "spotlight" on CDS that would have never happened otherwise.

4. *Project Transferability*

This project's technology, that is, the equipment that was successfully used to process recyclable materials to size and density specifications needed by the manufacturer (CDS) for use as a raw material input to its process in making decorative wall tile, is directly transferable to any other company, government, or individual in Florida or elsewhere that is interested in manufacturing a similar product. What is NOT transferable is the specific DESIGN of recyclable materials and processing time needed to successfully produce CDS's exact product. This is proprietary information.

Another aspect of this project that is straightforward in terms of transferability is the concept itself of using various used or recycled materials as a substitute for virgin materials in order to produce a product. This particular concept is very important in order to encourage more manufacturers in Florida, and elsewhere, to use recycled content in their products. Doing this has three related benefits:

- a) a potential for direct savings by the company/individual that uses lower priced or free used or recyclable materials as a substitute for higher priced virgin material inputs,
- b) the positive impact that using recycled materials has on the sustainability and growth of used material markets, and

- c) the positive environmental and materials resource conservation impacts of using materials that might otherwise have to be disposed of in landfills unless a secondary use is found for them.

5. *Improvements in Recycling Program Cost Effectiveness and Efficiency*

- a) Table A contains the total final dollar outlay for the project by component:

**Table A**

<b><u>Project Component</u></b>	<b><u>Grant Cost</u></b>	<b><u>Gadsden Match</u></b>	<b><u>CDS Match</u></b>	<b><u>SWIX Match</u></b>	<b><u>Grand Total</u></b>
Equipment	\$193,711.03	55,645.00	32,892.80	1,130.00	283,378.83
Site Prep & Equipment Installation	\$ 16,354.75		5,671.08		22,025.83
County Facility Startup & Installation		4,215.17			4,215.17
CDS Startup/Installation			5,243.71		5,243.71
Data Collection/Analyses	\$ 5,000.00		6,641.92		11,641.92
Feedstock Collection	\$ 1,010.00	7,500.00			8,510.00
Project Concept Transfer	\$ 9,297.56		37,448.45	7067.50	53813.51
Project Management/Administration	\$ 18,500.00		29,818.53	97.08	48,415.61
Reports/Deliverables	\$ 15,000.00		2,873.44		17,873.44
Operating Supplies	\$ 7,280.94				7,280.94
<b>Grand Total</b>	<b>\$266,154.28</b>	<b>\$67,360.17</b>	<b>\$120,589.93</b>	<b>\$8,294.58</b>	<b>\$462,398.96</b>

b) Table B contains a summary of the public versus private project expenditures:

**Table B**

	FDEP (public)	Gadsden County (public)	CDS (private)	SWIX (private)
Innovative Grant	\$266,154.28			
Cash Match		\$55,645.00	\$53,259.37	
In-Kind Match		\$11,715.17	\$67,330.56	\$8,294.58
Totals	\$266,154.28	\$ 67,360.17	\$120,589.93	\$8,294.58
<b>State Grant Total:</b>	<b>\$266,154.28 (58% of total project costs)</b>			
<b>Private Sector Match Total:</b>	<b>\$128,884.51 (28% of total project costs)</b>			
<b>Local Gov't Match Total:</b>	<b>\$67,360.17 (14% of total project costs)</b>			
<b>Total Project Costs:</b>	<b>\$462,398.96</b>			

As can be seen from Table B above, 42% of total project costs came from sources other than the grant itself (private sector partners, CDS Manufacturing, Inc. and SWIX plus matching funds provided by grant recipient, Gadsden County). The original grant application called for a total of 40% of total project costs to come from local and private sector sources associated with this project and these final figures indicate that local support exceeded that proposed local support funding.

c) Tipping fees avoided by project as a result of waste diversion and source reduction:

According to Gadsden County, tipping fees at it's landfill have risen to \$60/ton. Based on an estimated total tonnage of recycled materials used during the project period of 1,037 tons (i.e., drywall, paper, glass), this results in an estimated \$62,220 in avoided tipping fees from this project.

d) Cost/Benefit Ratio of Project—Costs versus Benefits Received

For the purposes of this analysis, the total costs of the project are assumed to be the costs of the State grant itself, or \$266,154.28. The costs associated with “matching” this grant from the project partners (i.e., Gadsden County, the local government grant recipient, CDS Manufacturing, Inc. and SWIX the two private partners) are considered “opportunity costs” or actual benefits of the project since these matching funds would not have been provided or expended if the grant had not been received.

Therefore, the formula used for estimating the total Cost/Benefit Ratio for this project is:

State grant costs (\$266,154.28) / a) matching funds (both in-kind and cash) provided by both public and private project partners + b) tipping fee avoided costs + c) employee wages and benefits savings related to efficiencies resulting from new equipment that became operational during this project + d) estimated financial impact of saving / conserving natural resources and energy by using recycled materials for product manufacture + e) financial savings to CDS from using recycled materials instead of virgin materials + f) the estimated financial cost savings of not landfilling (i.e., additional landfill space or volume resulting from NOT burying 1,037 tons of materials) all used or recycled materials used to manufacture new products = cost/benefit ratio.

Substituting numbers for each of the narrative items listed in the above formula gives us:

\$266,154.28 divided by: a)\$196,244.45 + b)\$62,220 + c) \$101,645.40 + d) \$203,246.10 + e) \$436,800 + f) \$37,500 = \$1,037,656.  
 $\$266,154.28 / \$1,037,656 = 3.9$ .

**The resulting cost/benefit ratio using the analysis above is therefore approximately 4:1.** That is, for each dollar invested by the State using the innovative grant to Gadsden County, \$4 was invested and/or saved by project partners. This ratio does NOT include any assumed environmental benefits from not landfilling 1,037 tons of materials that would have otherwise been buried.

e) How project collected and recycled nontraditional materials and enhanced their marketability/availability to end markets.

This project used waste drywall materials (a nontraditional material) in the manufacture of an existing and new product line by an existing manufacturer. Other nontraditional materials used included recycled wastewater and waste fiberglass. Although the amount of used drywall used by the project during the project period was relatively small (34 tons), it is expected that because of the project and the lessons learned during its conduct, used drywall will continue to be used by CDS, in cooperation with Gadsden County. In addition to the nontraditional materials used, the traditional materials of used/recycled paper and glass cullet were used during the project. It should be pointed out that there were NO local markets existing in Gadsden or surrounding counties before this project for used drywall, glass, fiberglass, or reclaimed water. This project therefore was solely responsible for creating a local end user market for a large majority of all materials recycled. Without this project, some of these materials (e.g., drywall scrap) would not have had any end uses and would have to be landfilled. Other more traditional materials like paper and glass would have had to have been transported, at high cost, to distant end use markets in Georgia, Alabama, or other parts of Florida.

In addition, the 1,037 tons of drywall, glass and paper recycled through this project helped Gadsden County to meet it's 30% recycling/waste reduction goal as required by State of Florida law.

The project also created high value end products (i.e., Cast Stone (decorative wall tile) and Architectural Precast) from the materials recycled as opposed to a low value product/material (for example, road base material).

As can be readily seen from all of the above, this project has resulted in significant benefits to the State of Florida, Gadsden County, and CDS Manufacturing, Inc. Most importantly, however, are the benefits that will CONTINUE to accrue to the State, Gadsden County and CDS Manufacturing because the use of recycled materials will continue into the foreseeable future now that the "infrastructure" (that is, the equipment purchased by the grant and the business partnerships formed) is in place and available for use. This is a project that can also be potentially replicated, using the same or different materials, by various manufacturers and counties throughout the State of Florida. The formula for additional projects of this kind to be implemented includes: entrepreneurial manufacturer/individual, technical assistance to business/industrial sector to identify possible use of recycled materials in existing or new products, a willing County or City to take lead in applying for grant funds, and the State of Florida's continued support through Innovative or other grant program funds.

## **Apendix A**

### **Innovative Grant Conditions**

- b) Property numbers will be assigned to any equipment purchase(s) over \$1000 (ref. paragraph 17) and provided in the reimbursement request. Include a properly completed Property Reporting Form (Attachment C) and attach copies of invoices or receipts to document the purchases to the form.
  - c) Consultant invoices shall include the number of hours, rate, and a detail of how time billed was essential to the project. The summary shall also state a total dollar amount of the invoices being submitted for reimbursement minus the DEP's 5% withholding amount.
  - d) Any changes to the Scope of Services budget (attachment D) must be requested in advance of expenditure through submission of a change order request. The DEP Project manager must approve any budget changes.
6. The Department's Project Manager is: **Peter Goren, (850) 487-9532**  
The Grantee's Project Manager is: **Herbert C. Chancey, (850) 875-8658**  
All matters shall be directed to the Project Managers for appropriate action or disposition.
7. The progress reports submitted in conjunction with the reimbursement requests shall clearly state the activities undertaken during the reporting period, activities anticipated for the next reporting period, problems encountered and problem resolutions, a financial summary of the project (including matching and in-kind services), and any schedule updates. In addition to the progress reports required above and any deliverables specified in the Scope of Services (attachment D), a final report shall be submitted to the Department no later than **July 1, 2002**, 30 days from the date the grant ends, **May 31, 2002**.
8. The Final report should be presented in a technical or scientific manner. It should be able to stand on its own so individuals with first time knowledge of the project might understand it. The final report shall be submitted in hardcopy and MS Word or PDF electronic format and include but not be limited to the following information:
- a) An introduction briefly describing this project and the contents of the final report. It should also include but not be limited to the following:
    - 1. The background of how this project came about.
    - 2. The objectives or goals of the project.
    - 3. What made this project innovative?
    - 4. The proposed audience and date for the formal presentation about the project at an appropriate state or national workshop. Are any published articles in recognized trade journal or professional journals planned?
  - b) The implementation of the project including, but not limited to the following:
    - 1. What equipment and/or services were purchased and how it was utilized.
    - 2. How the project demonstrated and/or implemented a cooperative recycling effort with other counties in the region.
    - 3. A description of the various elements or components and a project timeline.
    - 4. Problems encountered during the project and how they were resolved or addressed.
  - c) The project results including, but not limited to, the following:

1. How the objectives or goals were or were not met for this project.
2. How this project demonstrated or utilized advanced technologies or processes which are not in common use on a statewide basis in jurisdictions of similar size or demographics.
3. How this project led to greater quantities of recovered materials and/or created a product that is more recyclable and/or marketable.
4. The transferability of the technology or processes realized from this project and how it was or will be applicable to other communities, businesses or individuals.
5. A detailed analysis and discussion of how this project resulted in substantial improvements in recycling program cost effectiveness and efficiency as measured against statewide average costs for the same or similar programs. Include the following:
  - a. Total dollar figures of the various elements or components of the project, including administration, equipment, operations, advertising, education and any other expenses incurred during the project.
  - b. Project expenditures categorized for both the public versus private sectors and the sources of project funding comparing the county (including in-kind services) versus the innovative grant.
  - c. Tipping fees avoided as a result of waste diversion/reduction.
  - d. A cost/benefit ratio for the project comparing the cost of project versus the benefits that were achieved. Include any assumptions made in deriving this information. Discussion should include the following:
    1. Avoided material tonnages and space (in cubic yards) at area landfills.
    2. Possible impacts made conserving natural resources.
    3. Cost per capita and per ton of specific material(s) recovered or recycled as part of this project.
  - e. How the project has collected and recycled nontraditional materials, and enhanced their marketability and availability to end markets.
9. The Grantee shall maintain books, records and documents directly pertinent to performance under this Agreement in accordance with generally accepted accounting principles consistently applied. The Department, the State, or their authorized representatives shall have access to such records for audit purposes during the term of this Agreement and for three years following Agreement completion. In the event any work is subcontracted, the Grantee shall similarly require each subcontractor to maintain and allow access to such records for audit purposes.
10. In addition to the provisions contained in paragraph 9 above, the Grantee shall comply with the applicable provisions contained in **Attachment B, Special Audit Requirements**. A revised copy of **Attachment B, Exhibit-1**, must be provided to the Grantee with each amendment that authorizes a funding increase or decrease. The revised Exhibit-1 shall summarize the funding sources supporting the Agreement for purposes of assisting the Grantee in complying with the requirements of **Attachment B**. If the Grantee fails to receive a revised copy of **Attachment B, Exhibit-1**, the Grantee shall notify the
11. Department's Contracts Administrator at 850/922-5942 to request a copy of the updated information.

## **Appendix B**

### **Project Tasks/Components and Schedule**

**Project Budget & Timeline**  
**Process Recycled Drywall (Gypsum), Glass, and Paper for Use in Manufacturing a Commercial Product**

Project Task	Grant Funds	Gadsden Co. In-kind	CDS Mfg. In-kind	SWIX In-kind	Project Costs	Timeline (Months)													
						1	2	3	4	5	6	7	8	9	10	11	12		
Equipment Purchases	\$220,000	\$50,000	\$32,500		\$302,500														
Site Preparation and Equipment Installation	\$7,000		\$5,000		\$12,000														
Gadsden County Facility Start-up and Operation	\$2,000	\$2,500			\$4,500														
CDS Facility Start-up and Operation	\$1,500		\$5,000		\$6,500														
Data Collection and Analysis	\$5,000			\$2,500	\$7,500														
Feedstock Collection	\$5,000	\$2,500	\$5,000		\$12,500														
Project Concept Transfer	\$10,000	\$1,000	\$7,500	\$5,000	\$23,500														
Manage & administer project	\$15,000	\$2,500	\$60,000	\$2,500	\$80,000														
Prepare quarterly and finals reports	\$15,000	\$2,700	\$2,500	\$1,500	\$21,700			X			X			X					X
<b>Total Funds Requested</b>	\$280,500				\$280,500														
<b>Total Matching Funds</b>		\$61,200	\$117,500	\$11,500	\$190,200														
<b>Total Project Costs</b>	\$280,500	\$61,200	\$117,500	\$11,500	\$470,700														

X = Project Report

Notes:

1. Matching funds represent 40% of the total project costs.
2. Gadsden County will contract with SWIX as explained in the proposal.
3. Budget Justification: The full amount of this grant request should be funded in order to support this innovative public-private partnership, that will expand recovered material markets in Gadsden County. Without full funding, the project results will be negatively affected.

## **Appendix C**

### **Project Extension Letter**

March 4, 2002

Peter Goren  
Department of Environmental Protection  
Bureau of Solid & Hazardous Waste  
2600 Blair Stone Road, MS #4570  
Tallahassee, FL 32399-2400

Re: **Request for Time Extension**  
**Gadsden County's Innovative Recycling Project # IG1-07**

Dear Peter:

The Process Recycled Drywall (Gypsum), Glass, and Paper for Use in Manufacturing a Commercial Product project is progressing as planned except for unexpected delays in evaluating equipment alternatives for this project and the development of appropriate equipment specifications. I am, therefore, writing to request a seven month extension of the project period.

As reported in our first progress report (covering period from May 31, 2001 to August 31, 2001), equipment listed in the original proposal for this project had not yet received, even though purchase orders had been approved and submitted. The project's second progress report (being mailed to you under separate cover) indicates that all equipment, except for Dry Wall Shredder, has been received and installed. The Dry Wall Shredder has been ordered and is expected to be received, installed and operational during the project's third scheduled reporting period (i.e., between November 30, 2001 and February 28, 2002). The Drywall Shredder is integral to the original goals and objectives of this project, as is the need for adequate time to run recycled materials through the equipment for new product manufacturing purposes and the recovery of recycled material tonnages by CDS as stated in the proposal.

The project was originally scheduled to end on May 31, 2002 with the final report due on that date, along with a Project Case Study Summary. Gadsden County requests that the project be extended until the 15<sup>th</sup> of December 2002, with the following revised reporting schedule:

<u>Reporting Periods</u>	<u>End Date</u>	<u>Report &amp; Invoice Due Date</u>
Work Period 1	August 31, 2001	September 17, 2001
Work Period 2	November 30, 2001	December 17, 2002
Work Period 3	February 28, 2002	March 15, 2002
Work Period 4	May 31, 2002	June 17, 2002
Work Period 5	August 31, 2002	September 17, 2002
Work Period 6	November 30, 2002	December 15, 2002

We believe that this extension will provide adequate time to complete the project scope as outlined in our original proposal. The revised reporting schedule outlined above includes two additional progress reports than was originally required. The final report and Period 6 Progress Report would be combined for delivery on November 30, 2002 and Project Case Study Summary would be delivered separately on December 17, 2002.

Please feel free to contact me if you have any questions or would like additional information regarding our request.

Sincerely,

Herb Chancey  
Gadsden County Recycling Coordinator

Xc: Ray Moreau, SWIX  
Clayton Sembler, CDS  
Gene Jones, SWIX

## Appendix D

### Summary of Cost Savings and Revenue Earned by CDS Manufacturing, Inc.

	Rate	Hours	Annual Savings	24 Month Project Cost Savings and Revenue
<b>Labor:</b>				
Glass Crusher & Sorter	\$8.00	2,080	\$16,640.00	\$33,280.00
Glass Crusher & Sorter	\$8.00	1,040	\$8,320.00	\$16,640.00
Sander	\$8.00	1,040	\$8,320.00	\$16,640.00
Sander	\$8.00	1,040	\$8,320.00	\$16,640.00
Payroll Taxes	8.50%			\$7,072.00
Workers Compensation	8.67%			\$7,213.44
Overhead	5.00%			\$4,160.00
Glass Cullet	\$132.15	826 Tons		\$109,155.90
Gypsum/Drywall	\$240.00	34 Tons		\$8,160.00
Paper	\$491.03	175 Tons		\$85,930.25
Fiberglass	n/a	2 Tons		n/a
Reclaimed Water	n/a	1,210 Gallons		n/a
Mixer & Mold Revenue			\$218,400.00	\$436,800.00
<b>TOTAL SAVINGS &amp; REVENUE INCREASES</b>				<b>\$741,691.59</b>