

**Florida Department of Environmental Protection
FY 2007-08 INNOVATIVE GRANT APPLICATION FORM**

Project Information (on applicant letterhead)

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| 1) Applicant Name: | Leon County |
| 2) Primary contact person: | Adam Schlachter |
| 3) Complete Address: | Department of Public Works
Solid Waste Division
7550 Apalachee Parkway
Tallahassee, FL 323211 |
| 4) Telephone Number(s)
(including SunCom number): | 850-606-1823 |
| 5) E-mail address: | SchlachterA@leoncountyfl.gov |
| 6) Project Title: | The Use of Cathode-Ray Tub (CRT)
Glass in the Manufacturing of Pre-stress and
Pre-cast Concrete Products |
| 7) Grant Request Amount: | \$107,500 |
| 8) Length of project (months): | 12 |

Authorizing Signature

Title

PROJECT ABSTRACT

(No more than 20 lines. Every word over 20 lines will constitute a one point deduction.)
(do not delete the instructions on this page)

This proposed project would research the use of waste Cathode-Ray Tube (CRT) glass in the manufacturing of pre-stress and pre-cast concrete products. The project will provide applicable results related to stress and manufacturing standards using waste material in manufacturing. In addition, toxicity data will be reported to document the potential leachability of lead from waste CRT glass after the glass has been encapsulated in concrete.

PROJECT DESCRIPTION

(1 page)

This Project is based on a cooperative effort between Leon County, the Southern Waste Information Exchange, Inc., Creative Recycling Systems, Inc., CDS Manufacturing and the Center for Biomedical & Toxicological Research at Florida State University.

This proposed project would research the use of waste Cathode-Ray Tube (CRT) glass in the manufacturing of pre-stress and pre-cast concrete products. The project will provide applicable results related to stress and manufacturing standards using waste material in manufacturing. In addition, toxicity data will be reported to document the potential leachability of lead from waste CRT glass after the glass has been encapsulated in concrete.

Criteria 1: TECHNOLOGIES or PROCESSES

(1 page)

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(20 points) The range of scoring is between 0 and 20 points, with up to 10 points for meeting one of the following sub-criteria, up to 15 points for meeting two, and up to 20 points for meeting all three. Note: applicant may adjust space used to address each sub-criteria.

Sub-criteria 1 – Not in common use in Florida.

The use of waste CRT glass in pre-stress or pre-cast concrete is not currently taking place anywhere else in Florida.

Sub-criteria 2 – Novel application of an existing technology or process.

This project is novel in that it proposes to utilize existing technology to provide a market for processed waste CRT glass to make a current product line (pre-stress and pre-cast concrete) at an existing manufacturing facility. It is also novel in that there is already a large commercial market for the products (e.g., septic tank vaults and concrete construction poles) to be made from this material. In addition, the nature of the product allows for increased future use of recycled content in the manufacturing process (encouraging buy-recycled purchases by both the private and public sectors).

The project will investigate the technical feasibility of using waste CRT glass to replace virgin materials in the production of pre-stress and pre-cast concrete for residential and commercial construction applications.

Sub-criteria 3 – Overcoming obstacles to recycling/waste reduction in new or innovative ways.

The obstacles being addressed by this project include:

- Demonstration of the technical soundness of using waste materials in the production of residential and commercial construction applications (i.e., pre-cast concrete) that has not been done before.
- Lack of any available markets at present for waste CRT glass.
- Provision of another recycled content product for purchase by both governmental and private sector entities.
- Eliminating the leaching of toxic lead present in the feedstock (CRT glass).
- Successfully marketing this product if lead is eliminated as an environmental concern.

The project will help to overcome the above outlined obstacles by:

- Providing markets for a waste material that does not currently have end use markets in Florida.
- Educating potential market outlets for the final products.
- Soliciting support from environmental and trade associations.
- Seeking endorsements from professional associations to promote the use of these products.

Criteria 2: TARGETS

(1 page)

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(10 Points) Demonstrate innovative processes to collect and recycle or reduce these targeted materials/sectors: Construction and Demolition Materials, Commercial/Institutional Sectors, Hurricane Debris, Pay-As-You-Throw and Waste Tires. Note: if the proposed project also includes materials/sectors other than those targeted by this criteria, the project will receive less than the maximum 10 points allocated for the criteria.

Waste CRT glass falls within the targeted materials identified in the innovative grant requirements, and is a material that has strong potential to be a viable raw material in commercial products. According to DEP data, there are approximately 2.5 to 3 million CRTs generated from TVs and computer monitors that are being disposed of on an annual basis in Florida.

Criteria 3: BENEFITS/ COST-EFFECTIVENESS

(1 page)

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(25 points) Demonstrate the potential economic, environmental, and cost-effectiveness of the program's approach. Note: applicant may adjust space used to address each sub-criteria.

Sub-criteria 1 - Environmental Benefits (5 points).

- Methodology

This project will enhance resource conservation through the reduced use of virgin materials in the manufacture of existing and newly developing concrete product lines at CDS, as well as increasing potential for recycling of a waste stream that currently is being disposed of by conventional means (e.g., landfills).

- Toxicity

For waste CRT glass alone, particularly in crushed form, the potential toxicity would be high. This material contains potentially harmful amounts of lead that represent a threat to be the public health and the environment in Florida. Encapsulation of the crushed glass into a concrete matrix is expected to dramatically reduce the leaching potential.

Sub-criteria 2 – Economic Benefits (5 Points).

- This project will lead to job growth in an existing manufacturing enterprise, will increase product choice in the State for recycled content pre-cast concrete products, and will assist in increasing Florida's currently low manufacturing industry profile. It will also enable CDS to continue and possibly increase its direct economic impact in the region. This could also lead to lower E-waste collection costs.

Sub-criteria 3 – Cost-Effectiveness (15 Points).

- This project will improve market economics for a waste material.
- This project will be self-sustaining as it should demonstrate the technical feasibility of using recovered materials in the concrete manufacturing process.
- The overall costs of recycling and waste reduction could be substantially reduced on a statewide basis using this project as a "model" for other rural and urban communities.
- The project will make the most cost-effective use of vendors, subcontractors, products and other program resources because of the partnership between Leon County and an existing product manufacturer. CDS will provide the end-use market for the recyclables collected and processed in Leon and other surrounding counties. The proposed project team for this effort has an existing track record for using waste materials that are difficult to recycle in a manufactured product.

Criteria 4: SUSTAINABILITY:

(1 page)

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(25 points) Demonstrate the sustainability of the proposed program.

This project enhances the development of a market for waste CRT glass through the use of an existing sustainable manufacturing process (i.e., pre-stress and pre-cast concrete products). This waste CRT glass would serve as a source of aggregate in the manufacturing process, thereby saving virgin material costs as well as developing an end market for a material that does not presently have one in the state of Florida. With approximately 2.5 to 3 million CRTs generated from TVs and computer monitors that are being disposed of on an annual basis in Florida there is a sufficient supply of material to continue to be available for use as an aggregate substitute.

Criteria 5: TRANSFERABILITY

(1 page)

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(10 Points) Demonstrate transferability of technology and processes and specify how the project will promote transferability. Note: applicant may adjust space used to address each sub-criteria.

Sub-criteria 1 – Transferability of technology and processes (5 points).

This project will be readily transferable to other areas of the State that have manufacturing capability and which use virgin materials that could be replaced by secondary or recyclable materials. Project results are also be “transferred” through an existing network of economic development and recycling organizations in the State.

The environmental and economic benefits outlined earlier in this proposal could also be easily “transferred” to other jurisdictions throughout the State that are interested in investigating natural “matches” between potential sources and specific manufacturers that use certain virgin materials for which recyclable materials generated by residents and businesses throughout the State could be substituted.

Sub-criteria 2 – How project will promote transferability (5 points).

Upon request, Leon County, SWIX, CRS, CDS Manufacturing and the CBTR at Florida State University will team up to provide presentations and written materials about the project to interest groups like FDEP, Florida Sunshine Chapter of SWANA, Recycle Florida Today, Inc., and local/regional economic development councils.

Essential to technology transfer will be a compilation of a case study designed to outline the steps taken in establishing this particular public/private partnership, as well as suggested resources that would benefit such a program in other areas. In addition, web sites will be targeted to assist with program information dissemination and to provide links to the primary site that will have detailed information about the project. Potential partners in the web site information sharing will include Leon County, SWIX, RFT, SWANA, FDEP, and regional or local economic development councils throughout the State.

In addition, information exchange will be encouraged through the pursuit of article placement in solid waste publications in Florida and elsewhere, such as the RFT newsletter, national trade journals and publications, and appropriate business and economic development journals.

Summary of project transferability activities:

- Two presentations after project completion to regional or local economic development councils.
- Written case study compilation for use in workshops, presentations, and web sites.
- Web site posting of all information / reports related to this project by SWIX, FDEP, Leon County, Florida Chamber of Commerce, local and regional economic development councils, RFT, SWANA.

Criteria 5: LOCAL SUPPORT

(1 page)

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(10 Points) Demonstrate local support for the proposed project in commitment of cash or in-kind matching funds. Please provide the name, address and phone number of ALL contributors.

- **00 points** **0% up to and including 1% of total project cost**
- **01 points** **Greater than 1% up to and including 10% of total project cost**
- **02 points** **Greater than 10% up to and including 20% of total project cost**
- **03 points** **Greater than 20% up to and including 30% of total project cost**
- **04 points** **Greater than 30% up to and including 40% of total project cost**
- **05 points** **Greater than 40% up to and including 50% of total project cost**
- **06 points** **Greater than 50% up to and including 60% of total project cost**
- **07 points** **Greater than 60% up to and including 70% of total project cost**
- **08 points** **Greater than 70% up to and including 80% of total project cost**
- **09 points** **Greater than 80% up to and including 90% of total project cost**
- **10 points** **Greater than 90% up to and including 100% of total project cost**

The total requested grant funding for this project is \$107,500. The project will generate matching (i.e., cash and in-kind contributions) of \$60,000 or 36% of the total project costs of \$167,500.

Project Contributors and Contact Numbers

Leon County	Adam Schlacter	850-606-1823
SWIX	Gene Jones	850-386-6280
CBTR	Chris Teaf	850-644-5524
CDS Manufacturing, Inc.	Clayton Sembler	850-875-4651
Creative Recycling Systems, Inc.	Jon Yob	813-621-2319

BUDGET

(1 page using Budget Table Template)
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Describe the project's budget allocated by task and budget categories per the Budget Table Template available from DEP's Innovative Grants web site in Microsoft Excel digital format (www.dep.state.fl.us/waste/categories/recycling/pages/InnovativeGrants2007-08.htm).