

FY2006-2007 Innovative Grant Application

- 1) Applicant Name: Leon County (in partnership with FSU/FAMU School of Engineering, and SWIX)**
- 2) Primary contact person: Adam Schlachter, Recycling Coordinator**
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- 6) Project Title: Development of a web based GIS information portal focused on the increased beneficial reuse of recyclable materials with a focus on traditional and non-traditional local disposal options.**
- 7) Grant Request Amount: \$200,000**
- 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.)
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Currently there is no statewide system for mapping and tracking solid waste facilities in Florida. With increases in technology and the broad use the internet, the establishment of a comprehensive website to provide information on solid waste facilities and waste management related research projects throughout Florida is needed. Using GIS technology, this portal would show the locations of all types of Solid Waste Facilities including (but not limited to) landfills, waste to energy facilities, recycling centers, household hazardous waste centers, MRF's, tire processors, etc. It would allow the general public to find convenient local disposal facilities and get directions to them. In addition, the portal will allow research organizations to post their waste management related projects. There are many ongoing engineering projects focusing on various waste streams as input/feedstock. The portal can be used to help local businesses reduce disposal costs by finding research projects that need their waste. It will facilitate a shift of material from the waste stream to more beneficial reuse projects. As these projects move forward, the research team can post their findings and get feedback from people all over the state. Throughout the process, challenges and successes can be highlighted by the research team. Once the research project concludes it will go through a peer review process to assimilate the data into a cohesive package. This final step will allow for projects to be replicated more easily by compiling the findings into one central repository of information that other researchers can access. Successful programs will be able to be more easily implemented and help to facilitate growth of beneficial reuse statewide.

PROJECT DESCRIPTION

(1 page)

Florida, as well as every other state, is producing large quantities of materials that can be reused/recycled rather than landfilled. One of the main areas where this is highly applicable is in the Construction & Demolition (C&D) industry. Many C&D materials have beneficial reuse properties after their initial use. Applications of particular interest exist in the transportation, construction, and environmental sectors, where large quantities of earthen materials are used for earth fills, hydraulic barriers, and pavement system aggregates. At the same time, there are several innovative applications such as brick and block making, mortar and concrete mixes, agricultural soil amendments, and many other alternatives associated with small-scale uses. Projects that beneficially use C&D debris are being conducted throughout the United States. However, an informational database has not been compiled that describes projects where C&D materials have been used, methods and specifications that have been used, lessons learned, and gaps in knowledge base that require additional research and development. One of the major uses of this portal would be for the transfer of research knowledge. The portal will have the relevant contact information and technical resources for each project that is uploaded.

In addition, often times local governments are asked to provide data for their customers on various disposal facilities. This portal would allow anyone to input a starting location and other criteria, to find all of the local solid waste facilities that match. The criteria would be user defined and easily changed to match varying needs. In certain instances, this portal could be used to help residential customers find reuse options or sources of material (i.e. Paint from HHW programs, mulch from yard waste programs, etc.) As new companies input their information into the system, they would become available to the any of the system's users.

Local businesses would also be able to use the portal to determine if local area research projects exist that can use the material they are generating as feedstock for their experiments. This information allows businesses to reduce their disposal costs and increase the amount of material they are recycling. The impact throughout the state could be significant if businesses are able to find matching projects.

One of the main functions of the portal will be a comprehensive system for tracking the research projects in the system. As part of the system, the research documentation will be made available to anyone who is registered. The information will include the challenges the researchers face as well as their successes. As project information becomes available, other parties who use the information for their own experiments can post their challenges & successes. As phases of the research are completed, the information will then undergo a peer review process which will assimilate the data in one area. This will allow others to access the completed data and evaluate the results objectively and determine whether or not it will work for their needs. This peer review process will be ongoing until the research is complete.

The objective behind making this information available in a web based portal format is so that the technologies being studied are immediately transferable. This will benefit the state in many ways. It will allow any research team access to current research on the ever present issue of waste disposal options. They will be able to evaluate the data from each project to see if they can implement it in there area, thus adding to the knowledge base being developed. It will go a long way in providing more information to evaluate the return on investment potential of waste related projects. This is useful to both private business and local governments. It will also allow for more beneficial reuse of materials rather than disposal.

The project team working on the development of the portal consists of Leon County, the Southern Waste Information Exchange and the FSU/FAMU School of Engineering. Each of the partners will be contributing information and resources to the initial database as well as working on the development. At the conclusion of the project, FDEP can assign the future maintenance and responsibility of the site to their designate.

Criteria 1: TECHNOLOGIES

(1 page)

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(35 points) 0-15 points for meeting one of the following sub-criteria, up to 10 more points for meeting two, and up to 10 more 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

There is currently no GIS based system in the State of Florida showing all the Solid Waste Facilities. This system would create a comprehensive list of facilities that are operating throughout the state and make them accessible to all the customers of local government systems. In addition the system would show current research programs with a focus on beneficial reuse. The compilation of this information will help to promote projects where waste can be used as raw material. This has the added benefit of helping local businesses reduce their disposal costs as well as increase their recycling.

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

This proposal aims to create the first statewide web-based GIS system in the State of Florida that focuses on Solid Waste Facilities. This will provide increased visibility to local government systems and companies by showing users the closest means of managing their waste. It will show recycling opportunities as well as other options. By providing this alternative data, it will allow beneficial reuse as an option that companies may not have known about prior to using the system.

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

The obstacles being addressed by this project include:

- Demonstrating the technical soundness of creating a statewide, web-based GIS system for Solid Waste Facilities.
- The general difficulty of achieving a sustainable “win-win” public/private sector partnership that combines the resources of industry and government to reach recycling and resource conservation goals.
- Converting facility address locations to latitude/longitude coordinates for mapping purposes.

The project helps to overcome the above outlined obstacles by:

- Providing valuable location information for the public and private sectors in the state.
- The reports outlining results associated with this project will be public documents and available to other businesses and industries for their review and use.
- FDEP will have the ability to use this site as a tool within their own internet framework or as a separate entity for regulatory uses, such as permit tracking, waste data tracking and other functions that the department can design.
- It will provide a framework to encourage economic development within the industry due to the focus on local markets as means of disposal, leading to decreased operational costs for businesses using the system.

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, 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.

Creation of this portal will provide a system where companies can find ways to reuse their waste by providing it as feedstock to ongoing research projects around the state. Additionally, it will allow local government systems to accomplish the same objective. One of the areas we will focus on in the initial creation of the portal is the C&D industry. It will address C&D in the following ways:

- The successful applications of C&D wastes will be described and target markets where these projects can be replicated will be identified.
- Areas where research needs to be conducted will be identified and those areas where sufficient technology exists for beneficial use will be described. Thus research sponsored by the Florida Center for Solid and Hazardous Waste Management can focus on issues that need to be addressed, instead of topics that have already been studied by others. Also, researchers will be able to focus their efforts on practical problems that need to be resolved for beneficial use to grow.
- Successful specifications and construction methods will be summarized and synthesized where possible. This will allow ready to use specifications and methods to be used by design engineers and contractors. It will promote confidence in beneficial reuse by providing reviewed, collected data with all of the challenges and successes that provided the end results.
- The database will be available to any agency such as the Department of Transportation and others, so they can have a current source of projects showing beneficial reuse of C&D materials. This will help alleviate the hesitancy of the DOT to incorporate C&D materials into their projects. Obtaining the confidence of DOT is essential for transferring successful applications, since local governments rely on DOT methodology to complete projects.
- This project will provide a “one-stop” shop for beneficial reuse projects using C&D materials. It will contain start to finish documentation of the process, contact information and tools for easy replication.

In addition to the C&D uses, the general public will have access to the locations of all Solid Waste Facilities throughout the state in a comprehensive, GIS driven system. This will allow local governments to leverage technology to help their customers to locate facilities for their disposal needs.

Criteria 3: BENEFITS

(1 page)

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(35 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 (15 points)

- **Methodology**

The development of a web-based GIS system containing real-time information on beneficial reuse of materials can have a significant environmental impact. Users will be able to access alternative disposal methods and increased opportunities for recycling. By focusing on recycling and waste reduction we are helping to prolong the efficiency the state's existing solid waste facilities.

- **Toxicity**

This system has the ability to provide various ways for the users to correctly dispose of materials that could be toxic if not handled in the proper manner. By providing the locations of Household Hazardous Waste drop-off locations, residents can easily find out the closest location to bring their waste. There is potential for research projects, focusing on toxic materials, to be entered into the system. This would provide easy disposal methods for specific materials that may otherwise pollute the environment.

Sub-criteria 2 – Economic Benefits (10 Points)

The economic benefits of this system are broad. Companies that actively use the system will see a reduction in their disposal costs. Additionally, by providing a comprehensive GIS tracking of Solid Waste Facilities, it will increase the visibility of local programs. This system indirectly offers marketing to companies engaged in the solid waste management business. It will also foster cooperation and potential cost savings to the research projects happening around the State. The system will work to identify potential areas of the state and items that are needed to accomplish the research that is being executed. This will help to develop reuse markets for both short and long term projects.

Sub-criteria 3 – Cost Effectiveness (10 Points) Includes, but not limited to cost reduction, payback period, sustainability, and cost-effectiveness.

This project combines the three areas that will be most able to utilize the end result: local government, industry and higher education/research institutions. The cost savings for local government are varied. The system will provide one cohesive place to send their residents for information on programs/facilities in their area. This decreases marketing costs for advertising local programs. Industry will be able to better manage disposal costs through recycling materials rather than disposing of them. It will also lead to a reduction in acquisition costs for materials to execute research projects. This system will allow participants to start reducing costs fairly quickly. Once the system is online, participants can enter data quickly and it's immediately available throughout the system. Once the system is active, the ongoing costs are minimal. As projects are added the content will be relevant and current. The peer review process will make the portal a destination for uses of the information. Each of the partners has existing sources of data that will be used to create the portal. This efficient use of resources will provide a comprehensive destination for its users.

Criteria 4: 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)

Once the project is designed and implemented it can be used as a “model” to transfer. The nature of an internet portal is one of transferability. By placing the portal in the public domain, limited access will be available to anyone searching for it. There can be various levels of access that will increase or decrease the immediate transferability of the information contained within. Upon completion of the project, the maintenance and management of the portal can be transferred to FDEP or their designate, for statewide implementation.

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

All of the partners in this program, Leon County, SWIX and the FSU/FAMU School of Engineering will, upon request, be available to provide presentations and written materials about the project to interest groups such as FDEP, SWANA’s Sunshine Chapter, the National Association of Counties, Recycle Florida Today Inc and local/regional economic development councils. A power point presentation outlining the development and use of the system will be developed to help in the marketing.

With hundreds of active Solid Waste Facilities in the State of Florida there is great potential for this project to help transfer knowledge, data and processes to help with better beneficial reuse of materials. The project aims to tap the resources of the partners such as the FSU Service Learning program and other means, to establish a mentoring program that will provide technical and implementation assistance to small counties as well as larger ones.

Throughout the process all of the necessary information will be collected to compile a case study to outline the steps in establishing this partnership as well as identifying suggested resources to help strengthen the program in all areas. In addition to the case study, satellite websites will be created or updated providing links and information to the primary site of the portal. Potential partners to help disseminate the information will include Leon County, SWIX, RFT, SWANA, FDEP, FSU, FAMU and regional or local business and economic development journals.

In addition, information exchange will be encouraged through the pursuit of article placement in solid waste publications in the state such as American City and County, RFT’s newsletter, national trade journals and publications and appropriate business and economic development journals.

Summary of transferability activities:

- Two presentations after project completion to regional or local economic development councils.
- Case study compilation/power point presentation development for use in workshops, websites and information sessions.
- Website compiling all of the information/reports related to the project by SWIX, Leon County, FSU/FAMU School of Engineering and FDEP.
- Trade journals about the project.

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**

As the budget reflects, there is a 24% match of the \$200,000 budget request. Project partners are dedicated to this project and are confident that the creation of this GIS system will help to promote beneficial reuse around the State and help to improve the long term care of the environment.

In kind matches consist of faculty time devoted to the project while Kamal Tawfiq and Tarek Abichou are on their regular 9 month appointments. Leon County in kind matches will be in time, marketing, and training involved in the promotion of the system once it's online. SWIX's in kind matches will consist of equipment and time for helping to transfer the technology once the system is functional.

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/InnovativeGrants2006-07.htm).