

**Florida Department of Environmental Protection
INNOVATIVE RECYCLING AND WASTE REDUCTION GRANT
APPLICATION FORM**

Project Information (on applicant letterhead)

- 1) **Applicant Name:** Okaloosa County
- 2) **Primary contact person:** Jim Reece
- 3) **Complete Address:** 84 Ready Avenue
Ft. Walton Beach, FL 32543
- 4) **Telephone Number(s) (including SunCom number):** (850) 651-7395
- 5) **E-mail address:** jreece@co.okaloosa.fl.us
- 6) **Project Title:** The Calm Before the Storm: End-Markets for Storm Debris
- 7) **Grant Request Amount:** \$ 288,000
- 8) **Length of project (months):** 18 months

Authorizing Signature

Title

Date

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)

Okaloosa County generated 500,000 cubic yards of storm debris from Hurricane Ivan in 2004. None of the material was recyclable due to plastic contamination. On an annual basis the County generates 120,000 - 150,000 cubic yards of yard waste and storm debris. Currently, 12,000 – 18,000 cubic yards is used for landfill cover at the North County Baker landfill. The remaining 108,000 – 132,000 cubic yards is sent to the Wright Landfill for landfill cover, erosion control and contour development. This material is not recyclable due to plastic bag contamination. The County seeks a better solution for material through organics recycling.

The objective of this project is to remove plastic bags from ground yard waste and typical storm debris to increase the beneficial use of organic material for better marketability. Additionally, the fundamental backbone of this project will be evaluating and leasing and/or purchasing processing equipment that effectively removes plastic bags from ground yard waste and storm debris. Once a quality product has been created, a full market analysis will be conducted to identify potential beneficial use markets. In the market analysis, the County will evaluate all potential local and regional markets, including a local end market with GeoHay™ - a local manufacturer of erosion and sediment control products. The County will demonstrate a process through GeoHay™ that will use contaminant free ground yard waste and storm debris instead of synthetic material for a new product called the *GeoWattle*. A public demonstration event for local government representatives will also be held for those in the solid waste, recycling, and organics industry to observe and evaluate the equipment and local end-market in action. Lastly, the County will also participate in the FEMA Public Assistance Pilot Program with regards to finding incentives to encourage recycling of storm debris. All of these initiatives will allow the County to be prepared to process local material from a possible major hurricane or storm.

PROJECT DESCRIPTION

(1 page)

The objective of this project is to remove plastic from ground yard waste and storm debris to increase the beneficial use of the material for better marketability. Okaloosa County will procure and/or lease processing equipment that effectively separates plastic bags from vegetation to create quality material that will increase organics recycling and will assist with building local market infrastructure. The program description and plan is outlined below.

Equipment Research, Evaluation, and Comparison: The County will conduct extensive research on innovative equipment that separates contaminants such as plastic bags from ground yard waste and storm debris. The County plans on researching processing equipment, such as Star Screens and equipment used in the peanut farming industry. The Komptech Multi-Star L3 is an innovative type of Star Screen that has proven to be very successful, and the County is interested in testing this equipment or similarly proven equipment further. We will utilize the Florida Organics Recycling Center for Excellence (FORCE) equipment and technology database, as well as research a variety of equipment vendors and manufacturers. Using information gathered, we will identify and evaluate innovative processing systems.

Procure Appropriate Equipment: Once the equipment is identified the County will work with the manufacturers to procure and/or lease the appropriate processing system. The equipment will be analyzed and tested for a duration of time that allows for representative sampling and demonstration/usage of the equipment to gather sufficient data.

Beneficial Market Analysis: We will conduct research to identify potential local and regional beneficial use markets, other than biomass or boiler fuel. Additionally, the County will partner with GeoHay™, a company that seeks to replace the synthetic feedstock in its existing manufacturing process for their *GeoWattle* product with recycled mulch from yard waste and storm debris. By switching to this feedstock, the company will be cost-competitive with its reusable *GeoWattle* product on the West Coast of the US. The company has been in business for four years. The County will partner with GeoHay™ by potentially providing ALL of its contaminant free ground yard waste and storm debris for use in the *GeoWattle*.

Equipment and Local Market Demonstration Event: The County will host a state-wide public demonstration event for those in the solid waste, recycling, and organics industry to observe and evaluate the equipment in action. We will supply data and evaluation information materials to all attendees. The equipment will be utilized for a period of time to gather data before the demonstration event takes place. In conjunction with this demonstration event, we will hold a local market tour of GeoHay's™ facility or incorporate a GeoHay™ presentation as a part of the demonstration event.

FEMA Public Assistance (PA) Pilot Program: County will participate in the FEMA Pilot once our Disaster Debris Management Plan is approved, which is expected to occur this fall. We have modified our plan to incorporate storm debris recycling. Processing equipment and end-markets will help us better achieve the provision in the FEMA Pilot that encourages debris recycling, as well as allow the County to retain any potential revenue from recycling. Potential market revenue sources will be evaluated in the market analysis.

Education and Outreach: With the results from the equipment evaluation and research the County will be able to produce an equipment directory and local market analysis report, which will be distributed in PDF format to local recycling coordinators, solid waste managers, and storm debris representatives/managers in local government. A PowerPoint presentation at local state-wide solid waste, recycling and organics conferences will also be conducted. We will also develop two brochures targeting residents and landscape companies on the impacts of plastic bags on the mulch process. The County will work with DEP staff to submit its model program to EPA, DEP, and FEMA agencies that hold educational seminars and workshops to local government.

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 and up to 20 points for meeting two. Note: applicant may adjust space used to address each sub-criteria.

Sub-criteria 1 – Novel application of an existing technology or process.

Processing equipment that effectively separates plastic bags from yard waste and storm debris is a new technology for Okaloosa County. Currently, a majority of the material is ground in tub grinders and utilized within the landfill for cover, erosion control, and contour development, rather than recycled due to the invariable cost of separation and contamination issues. The character of the material makes plastic film separation often difficult in the initial screening process, however, innovative technologies such as Star Screen Separators have proven to be highly successful in removing plastic debris from ground material. Star Screen Separators are regarded as one of the most effective separation methods for organic waste. Okaloosa County will lease and/or purchase and evaluate such equipment to determine the durability and effectiveness of processing significant quantities of yard waste and storm debris through a pilot study.

The Komptech Multistar L3 is an innovative Star Screen Separator that works in combination with an air classifier to effectively separate contaminants from vegetative debris. The machine was tested and evaluated for a short period of time at the one day Demonstration Event hosted by Seminole County and funded by Florida Organics Recycling Center for Excellence (FORCE) and the Florida Department of Transportation in January 2007. The County intends to lease and/or purchase, utilize and evaluate this equipment for a longer duration of time that allows for representative sampling and demonstration/usage of the equipment to gather additional localized data. To the best of our knowledge no other jurisdictions in Florida are currently using this type of technology that successfully removes contaminants, such as plastic film. Therefore, this technology and process is not only novel for our jurisdiction, it is also novel for the state of Florida.

Sub-criteria 2 – Overcoming obstacles to recycling/waste reduction in new or innovative ways.

The County generates approximately 120,000 – 150,000 cubic yards of yard waste and storm debris annually. Applying innovative equipment that removes contamination debris such as plastic bags would overcome two major obstacles – 1) material quality and 2) marketability. Through a market feasibility study, the County will work with GeoHay™ to establish a local market that will take **ALL** of the counties clean yard waste and storm debris and avoid land application and disposal of the material. By switching from the synthetic feedstock currently used inside the *GeoWattle* sediment and erosion control device and moving to yard waste and storm debris, the manufacturer will be able to expand its market penetration by producing a more cost-competitive product. In other words, this new erosion and sediment control product will become more cost effective and will become more marketable. Not only will an obstacle be overcome for the County by successfully recycling organics, but one will be overcome for the local manufacturer. The manufacturer currently has a distribution relationship with one of the largest vendors to the Department of Transportation in over 38 states: therefore, there is tremendous opportunity to push the supply side of this product.

Criteria 2: TARGETS

(1 page)

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(10 Points) Demonstrate innovative processes to collect and recycle or reduce materials targeted by DEP. Note: if the proposed project also includes materials other than those targeted by DEP, the project will receive less than the maximum 10 points allocated for the criteria.

The project will demonstrate innovative processes to collect and recycle the following targeted materials: Annual debris from significant thunderstorms and tropical storms, unexpected hurricane storm debris, annual generation of yard waste, and land clearing debris from construction and demolition facilities.

Florida's 2004 and 2005 hurricane season generated an overwhelming amount of disaster debris. An estimated 40,287,948 cubic yards of disaster debris in 2005 and 44,560,679 cubic yards in 2004 were removed from the State during the back-to-back storm seasons.¹ Nearly 90 percent of the debris was burned or landfilled, while beneficial (recycling, composting, mulching, etc.) use was very limited.

To that effect, 500,000 cubic yards of storm debris were generated in Okaloosa County from Hurricane Ivan in 2004. Unfortunately, due to the lack of processing equipment the County was unable to recycle this material. All of the storm debris from Ivan went to the Telogia Plant and Dart Container for boiler fuel; however, this market will no longer take the County's vegetative debris due to plastic contamination. The potential exists in future hurricane seasons to generate massive amounts of storm debris, with the assistance of this project we would be prepared in advance for this likely event.

It is our objective to collect and recycle all yard waste and storm debris with the assistance of processing equipment to generate quality and marketable material. Having local markets and backup regional markets in place will expedite future storm debris collection and ensure that a majority of the material is recycled rather than disposed of. Implementing processing equipment that reduces contaminants in storm debris will not only allow Okaloosa County to overcome a major obstacle, it will also lend itself as a model for other jurisdictions around the State. The project results will help resolve the State-wide problem of how to process massive quantities of contaminated storm debris from the inevitable storms and hurricanes impacting the state of Florida. To the best of our knowledge no other jurisdiction in the state of Florida is currently implementing processing equipment to reduce contaminants for yard waste or storm debris.

Yard waste is the largest percentage of the recyclables waste stream in Okaloosa County, with 37.4 percent. We typically generate over 120,000 – 150,000 cubic yards of yard waste and storm debris annually. Currently 12,000 – 18,000 cubic yards per year of yard waste is used for landfill cover, while the remaining 108,000 – 132,000 cubic yards of yard waste are sent to the Wright landfill for cover, erosion control, and contour development. Yard waste and storm debris in Okaloosa County is generated faster than we are able to utilize within the landfill, currently the County has a stockpile of 100,000 cubic yards. This product is not even usable as a biofuel product, due to plastic contamination. Processing this debris to create a clean marketable product will allow the County to participate in organics recycling, therefore, recycling the largest percentage of the recyclables waste stream in the County.

¹ Based on data gathered from Sumter County on the 2004/2005 hurricane season and confirmed by the DEP.

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:** Producing a quality and marketable mulch/compost product will essentially reduce waste and promote organics recycling of vegetative material, therefore, diverting material from disposal or land application. Using mulch/compost is also a form of resource conservation, by avoiding the use of commercially manufactured synthetic products such as plastic silt fencing and carpeting which are made from virgin materials.
- **Toxicity:** This project will reduce contaminants in ground yard waste and storm debris such as plastic bags. Currently, local government yard waste is given free to public, however, due to contamination issues such as plastics, the quality is of a low grade and unmarketable. Higher value added products, such as clean mulch and compost have **physical** (erosion and sediment control, reduces storm water run-off, improves water-holding capacity, reduces bulk density, etc.), **chemical** (provides nutrients, stabilizes pH, etc.), and **biological** (provides soil biota, suppresses plant diseases, etc.) benefits.

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

Reducing contamination of yard waste and storm debris will increase the marketability and beneficial use of the end product. This will in turn improve the value of the material and help improve and expand the organics recycling industry in Florida. Clean uncontaminated mulch/compost has a stronger market value, while contaminated materials have none. The market analysis will potentially identify existing, expanding, and new markets for Okaloosa County, leading to numerous economic benefits, including disposal cost savings, potential revenue source, preservation of landfill capacity, expanded markets, and economic development of these markets.

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

The project will demonstrate cost-effectiveness by receiving payback from selling marketable material. To date, ground yard waste and storm debris has been a cost in both using up valuable Class III landfill space and processing fees in Okaloosa County and has not generated any revenue. The County generates on average 20,000 tons of yard waste on an annual basis. If 98 percent (estimating a 2 percent contamination level) of that debris is processed using innovative equipment, such as the Komptech Multistar L3 or similar proven equipment to generate a clean marketable commodity, it would only take 4.7 years to payback the full purchase price of referenced equipment totaling \$450,000.² This project will also exhibit cost-effectiveness by diverting yard waste and storm debris from disposal, therefore, increasing and conserving valuable landfill space.

Based on FEMA estimates the 2004 hurricane season cost Okaloosa County \$33,626,204 in debris clean-up, which was eligible for reimbursement by FEMA's Public Assistance program. This project could potentially reduce debris management costs to FEMA, the State, and local governments by diverting disaster debris from disposal and for recycling. This project will also increase the cost-effectiveness by partnering with Florida Organics Recycling Center for Excellence (FORCE) and working with private sector vendors and end-users that have experience and resources related to this work.

² Based on an average \$18 bulk retail yard waste compost price for the state of Florida. Composting News, May 2007

Criteria 4: SUSTAINABILITY:

(1 page)

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

This project will be sustainable for the following reasons:

Existing Annual Yard Debris and Typical Storm Material: Developing an ongoing recycling program for yard waste and storm debris will help sustain local markets, as well as enhance the organics industry both state-wide and regionally. The project will also allow the County to be prepared for storm debris from a major hurricane with a Disaster Debris Management Plan that includes recycling, as well as participation in the FEMA Public Assistance Pilot Program which encourages storm debris recycling.

Payback Period: If the cost analysis described on page 6 of this proposal is obtainable, the County will procure or long term lease processing equipment to generate a sustainable compost and mulch program. This project will also have enough capacity to take in vegetative materials regionally, allowing for the preservation and conservation of valuable regional landfill space. The County and neighboring jurisdictions currently have a cost deficit by disposing of yard waste and storm debris in landfills. Removing contaminants from vegetative material creates a value added product that becomes a benefit rather than a cost.

FEMA PA Pilot Program: Additionally, the County plans to participate in the FEMA Pilot program as early as this fall. We have updated our Disaster Debris Management Plan to include recycling as a priority over incineration and landfill. The Pilot program allows Counties to retain their revenue from recycling hurricane debris.

Florida Tropical Storms and Hurricanes: In the likely event of a hurricane, and with the support of processing equipment to reduce contaminants from vegetative debris, the County will have a plan and markets in place to recover and recycle such material. The state of Florida has a consistent supply of yard waste and storm debris due to the nature of its sub-tropical climate. In effect, there will be storms and hurricanes in the future and no shortage of storm debris to manage, therefore, this project is inherently sustainable.

Potential Material Revenue Share: The County will analyze revenue share potential from local and regional markets for the feedstock material through clean yard waste and debris material.

Local Market: The County will partner with GeoHay™, a previous successful Innovative Grant recipient, who is manufacturing a new erosion control product out of recycled yard waste and storm debris. The four year old company is now manufacturing an innovative erosion control product called a *GeoWattle*. This 100 percent biodegradable product uses contaminant free ground yard waste and storm debris materials to create erosion control products that also acts as a natural filtering system. Through discussions with GeoHay™ we are estimating they will be able to take all of the County's clean ground yard waste and storm debris on an annual basis.

Board of County Commissioners (BOCC) Commitment: The Recycling Coordinator went before the Okaloosa County BOCC on July 10, 2007 to present this grant project. The BOCC unanimously approved the project ensuring the future of promoting organics recycling in Okaloosa County.

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).

As a part of this project Okaloosa County will host a state-wide public demonstration event featuring innovative processing equipment that effectively separates contaminants such as plastic bags from yard waste and storm debris. This demonstration event will enable those in the solid waste, recycling, and organics industry to observe and evaluate the equipment in action. The County will supply data and evaluation information materials to all attendees. In order to ensure participation within the industry, we will invite members from Recycle Florida Today (RFT), SWANA Florida Chapter, Florida Department of Transportation (FDOT), Florida Department of Environmental Protection (DEP), Southern Waste Information Exchange (SWIX), FEMA, etc.

The results of this demonstration event and overall project will be applicable to every city and county in the state of Florida. We will ensure that results of this project will be made available to all jurisdictions that manage yard waste and storm debris.

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

The technology analysis, equipment directory, brochures, and other educational and outreach materials developed for this project will be made available through Okaloosa County's, DEP's and/or Florida Organics Recycling Center for Excellence's websites. Hard copies will also be made available upon request.

The County will also conduct PowerPoint presentations outlining the results of this project at local state-wide solid waste, recycling, and organics conferences, such as SWANA Florida Sunshine Chapter, RFT, and U.S. Composting Council (USCC).

Okaloosa County will provide FEMA with the grant results for their use and reference. Results will also be offered to UF/TREEO as a part of their training program such as the FEMA Debris Management Course and other compost/mulch programs.

Criteria 6: 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 in-kind match consists of 40% of the total project costs.

In-kind Contributors:

Jim Reece, Recycling Coordinator, Okaloosa County, (850) 651-7395, \$78,000

Jim Reece will serve as the Grant Manager and will facilitate all facets of the project.

Mike Mikell, President, GeoHay™ Industries, (850) 682-7595, \$55,000

GeoHay™ will provide support as an end market for organics recycling.

George Hunyadi, Sales, Komptech, (614) 578-1459, \$55,000

The selected vendor will provide technical support on purchasing and/or leasing processing equipment, as well as provide an in-kind equipment pilot discount.

Sandra Howell, Co-Director, FORCE, (800) 566-4413, \$3,000

FORCE will provide equipment directories and educational resources on organics recycling as needed.

FEMA Representatives, \$2,000

Two FEMA representatives were contacted and were not willing to have their names listed on the grant as a project partner. However, they will help support the FEMA Public Assistance Pilot Program as necessary.

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).

Applicant: Okaloosa County					Project Title: The Calm Before the Storm: End-Markets for Storm Debris						
Budget											
(1) Tasks	Categories								Local Match		(12) Total Grant Request
	(2) Personnel	(3) Travel	(4) Equipment	(5) Supplies	(6) Contractual	(7) Construction	(8) Other	(9)* Total Budget	(10) In-Kind Match	(11) Cash Match	
Equipment research, evaluation, and comparison	\$9,000.00				\$10,000.00			\$19,000.00	\$9,000.00		\$10,000.00
Procure or lease appropriate equipment	\$15,000.00		\$250,000.00	\$5,000.00	\$5,000.00			\$275,000.00	\$67,500.00		\$207,500.00
Equipment demonstration event	\$20,000.00			\$8,000.00	\$10,000.00			\$38,000.00	\$24,000.00		\$14,000.00
Beneficial market analysis	\$35,000.00		\$20,000.00	\$10,000.00	\$12,000.00			\$77,000.00	\$65,000.00		\$12,000.00
Eduation and outreach	\$15,000.00			\$5,000.00	\$15,000.00			\$35,000.00	\$17,500.00		\$17,500.00
Quarterly and final reports	\$4,000.00				\$15,000.00			\$19,000.00	\$4,000.00		\$15,000.00
Project management	\$6,000.00				\$12,000.00			\$18,000.00	\$6,000.00		\$12,000.00
TOTALS	\$104,000.00	\$0.00	\$270,000.00	\$28,000.00	\$79,000.00	\$0.00	\$0.00	\$481,000.00	\$193,000.00	\$0.00	\$288,000.00

* NOTE: Column 9 is the total of columns 2 through 8. It also should equal the total of columns 10 through 12

Percentage Match 40.12%

