

Escambia County Innovative Grant Proposal
REGIONAL ELECTRONICS RECYCLING AND REMANUFACTURING PROJECT

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Project Abstract: It is estimated that by the year 2004, there will be more than 315 million obsolete computers in the U.S. destined for disposal. Recent estimates suggest that more than 160,000 computers have already been discarded into Florida landfills. These disposal figures are projected to increase to 420,000 by 2005. In addition, we have only recently become aware of the environmental risks (e.g., air and groundwater contamination) posed by landfilling or incinerating electronic components. With these staggering facts, it is quite easy to understand that the nation, including Florida, faces a significant issue in developing an infrastructure to recycle or properly dispose of electronic components.

Escambia County is proposing a regional project to implement an innovative electronic product collection and recycling infrastructure in Escambia, Okaloosa, and Santa Rosa Counties. The project will target the collection of computer components and television sets. Escambia, Santa Rosa, and Okaloosa Counties (Project Team) will partner with the Federal Correctional Institute's Unicolor Recovery, Inc. (URI) in Marianna, Florida, the Waterfront Rescue Mission (WRM), and potentially local technical colleges to collect, remanufacture, and recycle electronic components. Included below is a summary of the proposed project methodology.

Electronics Collection/Promotion: Obsolete electronics will be collected from three primary sources: (1) weekend collection events (in association with Household Hazardous Waste (HHW) collection events) using mobile collection trailers, (2) partnerships with local electronics/TV repair shops, charity stores (e.g. WRM, Goodwill, etc.), and retail stores (Circuit City, etc.), and (3) stationary (manned) drop-offs located adjacent to County solid waste facilities. The project will also include a promotional campaign that will encourage residents/businesses to participate in the weekend collection events and/or use either the County drop-off locations or partner TV/electronic repair shops or charity stores (that have agreed to serve as drop-off locations). The counties will be responsible for collecting unrepairable electronics from partner repair shops and charity organizations. We will also conduct a regional meeting at the outset of the collection program to encourage other Northwest Florida communities to participate in the project.

Electronics Segregation: Electronics collected as part of the program will be inventoried and segregated by WRM - a local not for profit agency. Staff from WRM will segregate the collected materials into two streams: (1) components suitable for repair/remanufacturing, and (2) components with no additional useful life to be demanufactured/recycled. Computers and monitors beyond repair will be collected in trailers for transport to URI Marianna. Televisions beyond repair will be transported to a URI facility in Elton, Ohio.

Electronics Remanufacturing: Computers and televisions will be remanufactured by WRM (with possible assistance from local technical schools). Based on a recommendation from URI, computers will be upgraded to a minimum level of performance (likely a Pentium 266 or higher, 32 MB RAM, 2 GB hard drive, and New Deal or MS Office software). Components that are remanufactured will be made available for sale through WRM's retail stores, to the public school system, the Counties, resellers/remanufacturers, and potentially the public.

Electronics Recycling: Computers and monitors that do not meet the criteria for remanufacturing will be transported to URI Marianna for recycling. Once at URI, components are disassembled and recycled. URI estimates that they are capable of recycling as much as 90% of a computer.

URI's Marianna location is not capable of recycling TVs and monitors at this time. As a result, TVs will be shipped directly from the counties to URI's Elton, Ohio facility - which is set up specifically for televisions and monitors. As part of this project, the Counties and URI will examine the capital and supply/market requirements to institute

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TV and monitor recovery in Marianna. We hope that this project may serve as the catalyst for initiating TV recovery at URI Marianna to serve the Project area of Florida.

TECHNOLOGIES OR PROCESSES

As requested in FDEP's request for full proposals, the sections that follow include a brief explanation of why we believe that this project should score highly in each of the three areas below.

NOT IN COMMON USE IN FLORIDA

The Project Team performed a fairly extensive review to determine the prevalence of electronics recovery programs in Florida. This review included:

- Meetings and discussions with FDEP staff on existing programs throughout the state;
- Discussions with URI staff on current sources of material;
- Reviewing various state and national reports on electronics recycling (e.g., SWIX report, svtc website, Carnegie Mellon report, etc.); and,
- Detailed discussions with staff from Hillsborough County on the pros and cons of their program.

Based on this research, we feel that our project is unique. It is unique for the following reasons:

- 1. Regional Effort:** Based on our research, the majority of the electronics recycling programs that do exist in Florida are either private sector or single municipality efforts. This proposed project represents a three-County partnership (and may ultimately include additional Northwest Florida counties).
- 2. Partnership with Federal Prison System:** The project utilizes the federal prison system (URI) to transport and process materials generated from collection programs (at no charge to the program).
- 3. Mobile Collection Units/Partnership with HHW program:** We will partner the electronics collection program with existing HHW collection events throughout the tri-county area using mobile tractor-trailer collection drop-offs.
- 4. Training Opportunities Provided:** Through our partnership with the WRM, unskilled workers will be trained in electronics repair and remanufacturing. As a result, this program will serve as a source for skilled workers in the local economy.
- 5. Partnership with Repair Shops:** Our project will partner with local electronics repair shops and charity organizations (e.g., WRM) to serve as collection (and repair) points for old electronics.
- 6. Program includes Televisions (and Monitors):** Based on our research, few electronics recycling programs have been willing to "tackle" television sets. We believe this attribute alone makes this proposed project unique.

NOVEL APPLICATION OF EXISTING TECHNOLOGY

This proposed project represents a novel application of an existing technology in two important areas:

Utilization of Existing HHW Collection Infrastructure: This project will utilize the partner counties existing HHW collection program which uses mobile collection to also serve the function of an electronics collection program. Recently, Escambia, Santa Rosa, and Okaloosa Counties have experienced overwhelming success with mobile HHW collection events. Using a truck and trailer combination, with the trailer modified to include increased safety measures (e.g., waste containment and fire suppression) increased program visibility and participation has been achieved. Okaloosa County has received praise at local and national conferences on the use of their trailer as part of the HHW program.

Utilization of WRM and URI: This project will utilize WRM's existing facilities, training programs, and infrastructure to develop a computer/television recovery infrastructure for Northwest Florida. WRM is a local not-for-profit agency that collects and refurbishes goods for sale at their salvage center retail stores.

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For URI, this project represents one of their first attempts at expanding their supply chain to municipal collection programs. To date, URI's supply has largely been limited to obsolete equipment provided by state government. Utilization of this existing infrastructure for processing materials from municipal recycling programs should help to improve the economies of scale of URI's operations.

OVERCOME OBSTACLES IN NEW/INNOVATIVE WAYS

While we believe that there are many obstacles to establishing an electronics collection program in Northwest Florida, for the sake of brevity, we have detailed below what we feel are the two primary obstacles. We have outlined additional obstacles in a bulletized fashion below.

Obstacle #1: Rural Nature of Northwest Florida Hinders Electronics Recycling. Electronics recycling programs in Florida have largely been limited to larger, more urban counties.

Proposals Efforts to Overcome Obstacle: We believe that the unique nature of our partnership with the three sponsor counties HHW collection programs, WRM (which operates collection/salvage operations in Escambia, Santa Rosa, Okaloosa, and Walton counties), and URI will serve to develop a recovery infrastructure for electronic components in the Florida Panhandle. Without this partnership, developing a sustainable electronics recycling program would be difficult.

Documentation Supporting Newness or Innovation of Methods: Based on our understanding from conversations with FDEP staff, URI staff, and recycling staff from other Florida municipalities that have attempted electronics recycling programs, most electronics recovery programs have been performed well in densely populated regions. In addition, we are not aware of any Florida counties that have partnered with their HHW collection programs to hold collection events. We believe that this is a highly cost effective and sustainable method of collection.

Obstacle #2: Inadequate Regional Markets for Old Televisions. Based on our conversations with URI, the only real markets for old televisions are located in Northeast and Central Florida.

Proposals Efforts to Overcome Obstacles: A goal of this project is to enable URI Marianna to begin processing large quantities of old televisions. We will conduct an economic analysis to evaluate the capital equipment, manpower, and supply required to develop the infrastructure to recycle televisions at URI Marianna. If there were any old televisions collected for recycling in Northwest Florida, at present they would either need to be shipped to central or northeast Florida, or sent to the URI Elton location, a facility designed for television and monitor recycling.

Documentation Supporting Newness or Innovation of Methods: Based on our research and conversations, there are no markets for old televisions in Northwest Florida.

Other Obstacles to Establishing an Electronics Recovery Program in Northwest Florida include:

- Without the energy and funding supplied from this grant, the short-term possibility of developing an electronics recycling program in Northwest Florida is limited.
- Without the use of a regional program and partnership with County HHW collection programs, generating sufficient supplies of old electronics to allow for cost-effective recovery would be difficult.

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BENEFITS/COST-EFFECTIVENESS

The Project Team believes that this proposed project brings significant environmental and economic benefits to Florida. In addition, as a result of the unique partnership arrangement of this project, we believe that the sustained recovery program that will be created from this project will be one of the most cost-effective electronics recycling programs in the nation. Included in the sections that follow is supporting documentation for our beliefs.

ENVIRONMENTAL BENEFITS

Recently, much news has been made over the potentially harmful environmental effects that disposal of certain electronic components can have. This project seeks to mitigate the environmental impact of disposal of electronic components via the establishment of remanufacturing and recycling systems.

Methodology: Remanufacturing/reuse will be the preferred method of processing used and discarded electronics collected as part of this project. Recycling will be an alternative approach to the extent that collected materials cannot be remanufactured or reused. URI estimates that they are capable of recycling as much as 90% of a computer.

Toxicity: This project seeks to significantly reduce the quantity of highly toxic materials entering Northwest Florida landfills. According to the svtc website, electronic components constitute 40 percent of lead found in landfills. Other toxic materials commonly found in electronic components include cadmium, mercury, brominated flame retardents, and chromium. The proposed project will greatly reduce the quantity of heavy metal containing devices from going into Escambia, Okaloosa, and Santa Rosa Counties landfills and reduce the potential accumulation of toxic elements in groundwater, or surface water (e.g., lead).

ECONOMIC BENEFITS

Perhaps the most significant benefit of this proposed project is the job creation and training that it will provide. Included below is a summary of the economic benefits that this project will provide.

Job Creation: We anticipate that our non-profit partner, the WRM, will need to hire several staff persons to provide material segregation and remanufacturing support. We further anticipate that this project could result in additional jobs at other partner locations. For example, a significant number of jobs could result to the extent that, via this project, URI establishes an infrastructure to recycle televisions in Marianna.

Training for Unskilled Labor: One of the primary initiatives of WRM is to provide training to unskilled workers. As a result, this project will provide a skill to individuals that desperately need the assistance. In addition, the local economy will be provided a training program to produce skilled workers.

Economies of Scale/Sustainability: Another important economic benefit that this project provides is additional material to support the continued operation of WRM and URI. Both of these operations are completely self-sufficient, requiring large volumes of goods to support the program financially.

COST EFFECTIVENESS

Improvement in Cost: We believe this project will result in a substantial improvement in cost as compared to the cost of electronics recycling in many other parts of the state for the following reasons:

1. **Joint Electronics/HHW Collection Events:** The proposed scope of this project calls for electronics collection events to be held in conjunction with HHW collection events. Additionally, repair shops and charity organizations, at no cost to the program, will perform other collection activities within the counties.
2. **Partnership with Non-Profit Agencies:** Through the use of two non-profit agencies, the cost per recycled/remanufactured component will be substantially reduced. As an example, private sector companies typically charge \$5 to \$20 per component accepted for recycling. URI will collect and process computers and monitors at no cost to the program.

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Payback Period: The Project Team believes that establishing an electronics recovery program in Northwest Florida will pay immediate dividends. Given the avoided cost of computer and monitor recycling as a result of our relationship with URI, we believe the payback period for this project will be relatively short. Like most recycling programs, this project may not result in significant revenue generation. However, it will play a major role in developing a sustainable market for electronics scrap, something that Northwest Florida needs.

Sustainability of the Program: We believe that this project will provide a jump-start to an electronics recycling program that will be sustainable over the long term. One of the primary reasons that we are confident in the long-term sustainability of this program is the commitment that our project partners have made to electronics recovery. Escambia County was very interested in electronics recovery even prior to this grant opportunity. Most importantly, URI is committed to working with the Counties in Northwest Florida to expand the electronics recovery network that has already been established.

Cost Effective Use of Program Resources: This project is cost effective for two primary reasons:

1. **Three County Effort** - The project represents a three county regional effort, which maximizes the number of residents and businesses it could impact. In addition, we hope to encourage other Northwest Florida counties (such as Walton and Bay) to participate in the project.
2. **Partnerships with Non-Profit Agencies:** The project includes partnering with a major federal agency that will provide no-cost recycling services.

TRANSFERABILITY

The Project Team strongly believes that this project can be transferred to all counties in Florida, particularly north Florida counties that are in reasonably close proximity to URI Marianna. In addition to Escambia, Santa Rosa, and Okaloosa Counties, WRM (our proposed remanufacturing partner) also has facilities in Walton County and southern Alabama.

Transferability of Technology and Processes

We believe that all Florida communities will benefit significantly from this project.

1. We will encourage other Northwest Florida cities and counties to participate in this program.
2. The project will be carefully documented with reports and a project web site – providing a how-to manual for other Florida communities to implement an electronics recovery program.
3. The project will attempt to develop improved local markets for televisions and monitors – something that all Florida counties could benefit from.

How Will the Program Promote Transferability.

The FDEP Selection Criteria for Transferability indicates that projects that plan and budget for the mentoring of other Florida counties and communities will receive higher scores. We believe that the plan outlined below provides a significant opportunity for other communities to participate in this project and potentially implement their own electronics recycling programs.

1. **Regional Technical Advisory Group (TAG) to include Non-Partner Communities:** In order to encourage the participation of other Florida communities, companies, and other interested parties, we will conduct periodic TAG meetings that will serve as an educational process for partner and non-partner parties. These meetings will be similar in nature to the TAG meetings facilitated by Dr. Tim Townsend as part of the Drywall Recycling Innovative Grants.
2. **Project Website** – The Project Team will maintain a website that will track the progress of the project and ultimately serve as a “how-to” guide for other communities interested in implementing electronics collection programs. At the conclusion of the project, the website will include:
 - Photographs (and other visuals) on various milestones of the project;
 - A how-to manual for other communities interested in implementing electronics collection;
 - A list of markets (including a link to the SWIX website) and specifications for various types of old electronic equipment;
 - A list of reference documents and links to other valuable information on electronics recycling in Florida; and
 - A list of Florida contacts that could potentially assist them in implementing an electronics recycling program.
3. **Technical Assistance:** Project Team staff will provide technical assistance to other Florida communities interested in participating in the program. We will be available for periodic site visits (to North Florida communities), assistance in arranging program logistics, and other general technical assistance.

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LOCAL SUPPORT

The Counties and project partners are proposing to support the project by providing \$56,400 in local matching funds, or 13.8 percent of the total project cost. Matching funds will include: (1) use of County-owned trucks and trailers for collection events, (2) donated time from project consultants during collection events; and (3) providing collection containers and service for electronics collection containers.

Included in the table below is a summary of the in-kind matching funds proposed.

Cost Item	In-Kind Match
County Staff Matching	\$8,200
Consultant Fees Donated	\$3,200
County Infrastructure	\$25,000
URI Demanufacturing	\$20,000
Total Matching Funds	\$56,400

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PROPOSED PROJECT BUDGET AND TIMELINE

Escambia County is requesting an innovative grant in the amount of \$350,000 to implement the project as described above. Santa Rosa and Okaloosa Counties are project partners – however all funding will be received and expended by Escambia County. The table below details the proposed costs associated with this project.

PROJECT BUDGET BREAKDOWN

Project Task	Labor ^[1]	Equipment /Infrastructure Expenses	Advertising/ Promotions	Misc. Expenses	Total
Project Management	\$15,938			\$305	\$16,243
Quarterly Mobile Collection	21,831	75,000 ^[2]		545	97,376
Repair Shop Collection	10,855			155	11,010
County Drop-Off Collection	7,455			155	7,610
Promotion/Advertising	13,983		15,000	3,855	32,838
Local Hauling	4,273	15,385 ^[3]		115	19,773
Remanufacturing/Recycling	41,429	89,000 ^[4]		452	130,881
TAG Meetings/Website/Tech Assistance	16,002	4,000		455	20,457
Data Collection/Report	13,434			377	13,811
Total Grant Request	145,200	183,385	15,000	6,415	350,000
Matching Funds	8,200	45,000	3,200		56,400
Total Project Budget	\$153,400	\$228,385	\$18,200	\$6,415	\$406,400

- ^[1] Includes County labor, engineering consultant labor, WRM labor, and temporary labor.
- ^[2] Includes the purchase of additional semi-trailer for mobile collection events.
- ^[3] Includes cost of upgrades to drop-off facilities, purchase of roll-off containers, hauling
- ^[4] Includes cost of new parts, operating system software, other software, tools, etc. that will be required to remanufacture electronics.

Escambia County fully intends for this grant study to be sustainable beyond the completion of this grant study. The full grant dollars are required to ensure that the necessary collection, recycling, and remanufacturing infrastructure is put into place and tested prior to the electronics recycling program becoming self-sufficient.

TIMELINE

We anticipate that this project will require approximately 24 months to complete. Included below is the proposed project timeline.

	Calendar Year 2001								Calendar Year 2002								Calendar Year 2003							
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Regional Meeting																								
Mobile Collection Events																								
Remanufacturing																								
Recycling																								
Project Report																								
Technical Assistance																								