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Final Report

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Waste Reduction Section

**Innovative Grant #SW159
Regional Paper Project**

*Cooperative Recycling with Gadsden,
Jefferson, Madison, Taylor and Wakulla
Counties*

July 28, 1999

A. Introduction

Background

This recycling project has been conducted as a joint effort by Gadsden, Jefferson, Madison, Taylor and Wakulla counties. The project was initially created in response to the Florida Department of Environmental Protection's Request for Proposals for Innovative Recycling Projects.

This group of counties have been doing cooperative marketing of recyclables for over four years prior to the project and established a good working relationship among themselves. Recognizing that they are at a fundamental economic disadvantage when it comes to marketing materials individually, the counties have joined forces to utilize benefits derived from partnerships. Gadsden County has marketed newsprint, magazines, plastics, aluminum, steel cans and glass from the other four counties. This has improved access to markets and improved prices for materials sold.

The cooperative group was awarded \$300,000 of Innovative Grant Funds to broaden recycling efforts to include all fiber in the residential and commercial waste streams.

Goals & Objectives

Funds will be used to upgrade processing facilities in Gadsden County and add collection containers, bulk storage facilities and material movers in the other four participating counties.

Paper will be collected as mixed residential and mixed commercial waste. This will be incorporated into the current collection of newsprint and cardboard. Fiber will be graded into two high grades, two medium grades, cardboard and newsprint. The separation process will allow for six separations with residue the default, and last material to leave the conveyor.

Gadsden County currently uses some inmate labor for processing recyclables. This proposal incorporates the use of Work and Gain Economic Sufficiency (WAGES) personnel through the Welfare Reform Act. The WAGES workers will be grading and sorting paper on the conveyor system.

Over the course of the next five years, this cooperative group hopes to see over \$5,000,000 in avoided tipping fees and revenues from the sale of materials. This amounts to avoided tipping fees of over a quarter million dollars and revenues of approximately \$345,000 annually. For the investment of an additional \$300,000 which represents 5% of the anticipated savings in dollars, five rural counties will positively impact North Florida's solid waste disposal and boost recycling through cooperative effort. This project will also demonstrate the transferability of the technology to both rural areas and urban centers.

Project Innovations

Gadsden County, the host county, along with Madison, Jefferson, Taylor, and Wakulla counties, propose forming a regional cooperative to increase the recycling of fiber products from the solid waste stream. Currently, these counties, hereafter called the Group, have minimal paper collections other than newsprint and some cardboard. Having established

programs for the traditionally recycled materials, the infrastructure is in place in each of the five counties to expand those programs, The additions of all fiber is proposed for this Innovative Grant Fund.

In the aggregate, over \$1,000,000 will be saved annually with the incorporation of four more grades of paper into the recycling process. Additionally, more than 10,000 tons of fiber can be diverted from the waste stream on a yearly basis. The savings that can be realized is actually more when you consider that Gadsden, Jefferson, Taylor and some of Wakulla solid waste is transferred out of county regional landfills. Madison County accepts waste from Jefferson and Taylor counties. Wakulla County transfers some of its waste to Bay County and Gadsden County solid waste goes to Jackson County.

Paper is collected in each county as mixed office or mixed residential waste. Each county will have semi-trailers on site to store collected fiber. The trailers, filled with Gaylord boxes of paper, will be shuttled to Gadsden County on a regular basis. Here the Gaylord's will be tipped and paper graded into two high grades and two medium grades along with newsprint and corrugated cardboard.

This separation will be accomplished with the of WAGES (Work and Gain Economic Sufficiency) personnel through the Welfare Reform Act. WAGES provides child care, Worker's Comp, Medicaid and some transportation in order to offer job training for their program participants. The local WAGES coordinator is very excited about this opportunity for these participants. Collecting all six grades of paper together makes public education more consistent and interchangeable among the five counties. Additionally, the program will be marketed toward increasing paper products collected and recycled at the curb and commercially.

Gadsden County has served as a host county for marketing materials from the other counties for over four years. This has proven beneficial for everyone. Among materials that have been successfully bulked, processed and marketed are glass, cans and bottles, newspaper, magazines and plastic. Gadsden County processes approximately 65% of its own material and 35% from the other counties.

This cooperative will work to standardize public education efforts making all messages consistent, therefore, able to use the same collateral materials among all the counties. Advertising placement can be done in publications that cross county boundaries since three of the counties are contiguous - and share the same landfill.

The existing facilities in Gadsden that has been used for both fiber and commingled separation can be modified to handle the various materials from the other counties. The addition of a covered, partially enclosed work area for processing commingled materials will enable the existing processing plant to be dedicated to fiber processing. The existing building is covered and has access to loading docks and storage space

for the specific purpose of keeping high grade paper bales out of the weather to preserve the integrity of the material for marketing purposes.

Estimates of material throughput indicate that approximately 600 tons processed the remainder of 1999. By June 2000, the full benefit of this grant will be realized as the program moves toward enterprise funded sustainability.

Paper brokers have been encouraging suppliers of feed stock away from mixed paper bales for some time. While it was advantageous from a waste diversion standpoint several years ago to collect the greatest amount of material even if it was of poor quality, it is better for suppliers to now sort and grade paper to maximize marketability and therefore revenues.

This endeavor provides for the collection, grading and processing of six fiber grades. Beyond the capital costs of retrofitting the existing facility, relocation of the commingled processing area, labor and operational costs are expected to be minimal. Inmate labor currently processes material. The commingled processing will still be done by inmates. The WAGES participants will be trained to do paper grading and processing.

Semi-trailers, collection containers and pallet jacks as well as material storage containers were purchased for each county. The trailers when loaded with material will be shuttled to Gadsden County to be sorted and processed. The trailers will be rotated out on an as needed basis. This will maximize the efficiency of the transportation network and reduce our costs.

In summary, the group has used the Innovative Grant funds to add "other paper" to the recycling programs in the five counties. These funds have enabled us to separate paper and commingled materials processing. This will allow the use of inmate labor to continue to sort and bale commingled materials and the use of WAGES participants to grade paper materials from this five county cooperative. This proposal is innovative in its use of two separate labor sources, two separate facilities to process recyclables (paper and commingled) and one host county marketing materials for the four other co-op counties, and potentially more rural counties in North Florida.

A formal presentation about the project to an appropriate state workshop should be held at some point in the future. This project was proposed as a five year plan to try and improve recycling in the region and as such is still being implemented. This will be the first full year with the area schools as well as many new businesses participating for the first time. There are no articles planned at this time but could be considered in the future.

B. IMPLEMENTATION.

Equipment and Services

An important objective of the project was the purchase of a truck and six trailers for transport and storage of fiber materials for processing. A Marathon horizontal baler was chosen to increase baling capabilities along with an Allegheny paper shredder to improve processing. A box dumper was purchased to move material from boxes to the conveyor for grading and then shredding if necessary. Recycling bins and the "Bag-It" system were purchased and distributed for paper

collection among the counties. Eco-Partners publications, "Trash Talk" and "One Man's Trash", were selected to educate and advertise our new paper project to residents. Brochures and posters along with PSA's for radio and TV have been prepared to further promote our project.

Regional Cooperative Recycling

Gadsden, Jefferson, Wakulla, and Taylor counties have been acting as a cooperative on an informal basis for over four years. Madison County joined them last year. The Recycling Coordinators have established a good working relationship that is now formalized through Interlocal Agreements. This demonstrates the willingness to work together maximizing the positive aspects of cooperative marketing. This five county cooperative has the potential to expand to include other counties.

The recycling of nontraditional, "Other Paper" is easily transferable to other areas of the state. It can work with large counties as well as rural counties. Nation wide, it is reported in the "The Minnesota Project" by Lola Schoenrich, published in April 1994, that in 1992 there were only 15 cooperative recycling programs nationwide. In 1994 that had grown to over 50. This proves that regional efforts are successful and serve their participants well.

This cooperative has seen proof of this in several ways. There is good quality control with one central processor. There is good tracking on materials in and shipments out facilitating payment tracking efficiency. The host communicates with the buyers, making it one stop shopping for bulk materials rather than buyers dealing with five individuals and having five different quality of materials issues.

WAGES programs exist in all areas of the state. There is always a need to have job training programs and this is a good one. Paper grading and sorting is not difficult, but it can be used to teach good work habits and give some experience needed to be able to attain productive employment. The WAGES program in Gadsden County is excited to be working with us.

The Innovative Recycling Paper Project is regional in nature, covering five counties in North Florida. It will serve the residents and businesses of these five counties well. Also, it can divert a large portion of the existing waste stream into a recycling program that is easy and convenient.

A timetable for implementing this project is as follows:

| | |
|---------------------------------|--------------|
| Grant Award | 5/98 |
| Supplies purchased | 7/98-6/99 |
| Material Collection Began | 10/98 |
| Media & Public Awareness | 10/98-9/2000 |
| Processing Area Improvements | 3/99-9/2000 |
| Interlocal Agreements completed | 3/99 |
| Supplies distribution completed | 5/99 |
| Material grading began | 5/99 |
| Baler Installation | 5/99 |
| Truck & Trailer acquisition | 5/99 |
| Other equipment installed | 5/99 |
| Grant final reimbursement | 6/99 |
| Contract SW159 completed | 8/99 |
| Great Paper Project w/schools | 8/99 |

PSA's TV & Radio 10/99
 Interlocal Agreement evaluation 3/2003

Problems Encountered

Talquin Electric - power requirements
 Baler - delays in production
 Baler - Installation(electrical)
 Truck - delay in production
 Gadsden Animal Control Program startup under Solid Waste Dept.
 Gadsden Animal Control Shelter - linked to Recycling Facility siting request- causing delays in site approval

C. Project results

As outlined earlier, the general goal of the project is to improve regional recycling efforts among the participating counties in the region. This goal was accomplished by meeting specific measurable objectives and setting up the framework to continue implementation and monitoring on an on-going basis.

The following table lists the Goals of the project objectives and whether the Goals were fully achieved or partially achieved.

TABLE 1.

| GOAL | FULLY ACHIEVED | PARTIALLY ACHIEVED |
|--|----------------|--------------------|
| \$1,000,000 being saved annually with incorporation of four more grades of paper into the recycling process. | NO | YES |
| 10,000 tons of fiber diverted from the waste-stream on a yearly basis | NO | YES |
| Addition of a covered, partially enclosed building | NO | YES |
| Reduce/minimize operational costs | YES | |

The following table lists the objectives of project and whether the Goals were fully achieved or partially achieved.

TABLE 2.

| Objective | Fully Achieved | Partially Achieved |
|---|----------------|--------------------|
| Trailers purchased for storage of fiber during transport. | YES | |
| Shuttle of fiber to Gadsden County | YES | |
| Retrofitting the existing facility. | YES | |
| Relocation of the commingle processing area | YES | |
| Continued use of inmate labor | YES | |
| Begin using WAGES personnel | YES | |

Utilization of Advance technologies.

An important aspect of this project was the utilization of advanced technologies or the creation of a process that is not in common use on a state-wide basis for a similar jurisdiction. To address this portion of the project the proposal designed

This proposal has several elements that are unique to the participating cooperative. There is an urban county (Leon) in the middle of this cooperative, which manages its program independently with no plan to regionalize. During the project initial year, Jackson and Liberty County were invited to join the cooperative, as of the time of the Report, both counties have shown interest in the regional effort. Leon has chosen not to participate.

There is no other venture like the Cooperative in the state. Collecting a very low grade of paper maximizes diversion from the waste stream and saves counties extremely large blocks of landfill space. This also saves costs associated with landfilling.

TABLE 3. Tons of paper collected @ 50% recovery per county

| PARTICIPATING COUNTY | TONS OF PAPER @ 50% OF RECOVERY |
|----------------------|---------------------------------|
| Gadsden | 4,320 |
| Jefferson | 1,027 |
| Madison | 4,918 |
| Taylor | 1,554 |
| Wakulla | 1,187 |
| Totals | 13,006 |

Using the grant to cover major capital outlay costs, the continuation of the paper recovery and upgrading program over time, has begun to sustain itself. Paper buyers are demanding improved quality and higher grades of paper with minimal contamination. The buyers are becoming selective and rejecting some loads at the mills when out-throws exceed receipt standards.

The project has allowed the cooperative to upgrade the materials once they are collected from individuals and businesses will ensure better acceptance from buyers and greater diversion of solid waste.

Taking this material, adding value by upgrading the quality and increasing the quantity by forming a cooperative for consistent collection, is innovative. This enables a central clearinghouse to communicate with buyers. It reduces shipping costs to end markets. It allows each participating county to maximize its R&E dollars in term of public education and advertising. And, it ensures a consistently clean, reliable product for feed stock by mills.

The infrastructure for intracounty collection presently exists and has been improved by the grant. The bargaining power of the coop exists and has been demonstrated by this project. The Cooperative was successful during the project to incorporate fiber into the recycling stream and upgrading it to various higher grades that has produced more revenue to the participating local governments. The creation of revenue is viewed by the participating local governments as incentive to proceed with recycling programs. Some counties have been struggling with funding for continuation of programs because of the uncertainty of future R&E funds. This one shot of capital and short-term operation funds has energized local government officials, strengthening programs and increasing materials recycled. This project has enabled the Cooperative to produce the desired FEDP program goal.

Technology Transfer

Mixed waste paper has become costly for many communities that added it to their programs when paper prices skyrocketed several years ago. It is very difficult to discontinue a program once it has begun. The public education is a nightmare. The project, can be used by one city or county or a regional cooperative, can take mixed waste and improve its marketability by separating it into materials with higher value. Therefore, we believe that this project will demonstrate very effectively that it can be transferred to those areas which are currently experiencing difficulties in marketing mixed waste paper.

The technology demonstrated by the project is easily transferable. The concept of expanding the existing paper collection portion of existing residential programs to include all "other paper" into the newspaper is simple to do. Commercial paper collection programs for business and industry can be added to other programs as well. The regional program takes a costly segment of the waste stream and upgrades it into several more valuable commodities that become revenue producers for the participants. These higher grades of paper are bought by mills and reprocessed. This portion of the waste stream exists in every county in the state.

As in the project, a host county should be chosen, utilizing the same type conveyor system to sort and grade a very poor, large item, mixed paper waste, into several higher grades adding value and greater marketability. The host county could also utilize WAGES employees from

the County. WAGES programs are in every county in the state. While the setting up of the system may not occur in the first year of the program, the foundation can begin for recruiting the WAGES workers.

The Project uses technology that is readily available and easily transferable to any local government in the state. It uses a portion of the waste stream that exists in every landfill in the state. It also takes advantage of the Welfare Reform Act program that will underwrite portions of the labor costs while offering job training and experience to its participants.

Analysis of project results

To understand how this Project resulted in improvements in cost effectiveness and efficiency as measured against statewide average costs for the same or similar programs a survey was obtained of costs statewide. Results of the project were then compared to state wide numbers.

Cost Effectiveness

The project when completed, with a state investment of \$300,000 is projected to yield over 166% return over a five year span. When fully implement, the five participating counties can save over \$1 million dollars a year through avoided tipping fees and higher revenues.

Four of the five counties currently use transfer facilities to ship garbage out of county. The use of transfer facilities will continue to drive the cost of solid waste disposal up. Each county has indicated in their annual reports to FADE that "Other Paper" is a major component of their respective waste streams. Table C in the project description indicates each county's waste stream and paper percentages.

If only 50% of the available paper is recovered, using an average of \$53.00 per ton (See Table B in Project Description) for paper sales, revenues will amount to over \$685,000 per year. This is a realistic recovery rate and is in addition to the newsprint and corrugated cardboard collected currently.

"All Paper" is an easy commodity to incorporate into the existing commercial and residential recycling programs in each county. There will be additional pulls of drop-off containers and incorporation of additional routes for curbside collection but that is good. Most program participation is waning. This will create new interest.

This grant represents \$.04 per ton of anticipated paper collected the first year, with anticipated revenues more than double the grant amount in the first full year of collection. North Florida rural counties are not readily accessible to mills. By increasing leverage in the marketplace, rural counties can get greater returns on their individual and collective efforts. Cooperative marketing will sustain local programs where individually they may cease to exist. Momentum will accelerate, as this program expansion proves successful.

Table 4, Public/Private expenditures lists the differences public vs. private investment

TABLE 4. Project expenditures

| PROJECT COMPONENT | PUBLIC INVESTMENT | PRIVATE INVESTMENT | FUNDING SOURCE |
|-------------------|-------------------|--------------------|-----------------|
| Administration | \$ 30,000.00 | 0 | FDEP Grant |
| Equipment | 185,466.00 | 0 | FDEP Grant |
| Operations | 50,000.00 | 0 | Gadsden Co. BCC |
| Education | 36,500.00 | 0 | FDEP Grant |
| Supplies | 12,577.00 | 0 | FDEP Grant |
| Other expenses | 15,832.38 | 0 | FDEP Grant |
| Total investment | \$330,375.38 | | |

TABLE 5. Tipping fees avoided

| COUNTY | TONS OF PAPER @ 50% recovery | TIPPING FEE/TON | AVOIDED TIPPING FEE |
|-----------|------------------------------|-----------------|---------------------|
| Gadsden | 4,320 | \$52.00 | \$224,640.00 |
| Jefferson | 1,027 | 31.50 | 32,350.00 |
| Madison | 4,918 | 40.17 | 19,756.06 |
| Taylor | 1,554 | 52.17 | 81,072.18 |
| Wakulla | 1,187 | 85.00 | 100,895.00 |
| Totals | 13,006 | AVG FEE \$52.16 | \$458,713.74 |

Nontraditional Materials

Traditional recyclables are aluminum cans, plastic bottles, glass jars, steel cans and newsprint. Other types of paper, computer printout, white ledger, magazines, sorted office waste, corrugated and paper board are considered nontraditional by FDEP.

Paper has shown a decline in Florida's solid waste composition over the last seven years. While more paper than ever is being recycled, it still is the second highest category behind construction and demolition debris in our waste stream today.

During the project year, the Cooperative collected paper from homes and businesses in the five county area. Paper that was not contaminated with food, or has a coating of any kind is recyclable and was part of the fiber stream. This concept was easy to grasp by participants and to accomplish.

Once the paper had been diverted from the waste stream in each county, it was be hauled to the host county, where it was sorted and graded. By upgrading, and cleaning the mixed paper coming in, it has a greater value at the mill, thereby producing more revenue for the cooperative.

The three categories of office paper, other paper and corrugated made up an average of 27% of the waste stream of the participating five counties. Gadsden is the highest with 36% paper waste. Wakulla is the lowest with 21% paper waste. In each of the five counties the "Other Paper" category is the largest category in the MSW compositions. This

"Other paper category has the largest potential for diversion from the waste stream.

The five rural counties in this cooperative have correction facilities, industry and commercial centers (small towns) as well as residential areas. Each county recycling coordinator will use special container for commercial collection of fiber. Residents will be encouraged to use paper bags to recycle paper from their homes. By collecting the lowest grade of paper, but still clean and dry, it can be sorted to attract higher prices at markets.

A number of years ago, when paper prices were high, many counties incorporated residential mixed paper into their residential recycling programs. This flooded markets with low grade of paper that has since been unrecyclable buyers refusing to pay for the product. The project took the residential mixed waste paper, sorted it into five additional grades and marketed it at the highest possible grade prices. By default, some paper was residential waste paper, but was marketed to a pelletizing plant in a nearby county and used as a fuel source.

Traditional fiber recycling has been limited to newsprint. Newsprint holds its value and is easy to recycle. The incorporation of all other dry, uncoated paper was easy to understand and promote, and was easy to collect, incorporating it into existing curbside and drop-off center collection.

Nontraditional paper, (ie. computer print out and white ledger) is found more often in homes. Businesses depend on computers for everything from making change to bookkeeping and accounting. This was shown to be true during the project. Taking a waste product and turning it into a product that has increases in value because of the sorting process, has allowed the Cooperative to increase revenues to sustain programs.

In closing, the Cooperative has demonstrated that small governments using innovative approaches to recycling can help to reduce the wastestream significantly in a regional area.