

LEON COUNTY

**INNOVATIVE GRANT PROJECT #IG1-09
FINAL REPORT**

**INCREASED COMMERCIAL AND RESIDENTIAL WASTE
DIVERSION
THROUGH INNOVATIVE PROGRAMS AND CONTRACTS**



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SECTION 1.0 INTRODUCTION

1.1 Background

This project came about as a result of discussions between the City of Tallahassee (City) and Leon County regarding expansion of and improvements to the City's existing commercial recycling collection program. The City had been offering a Mixed Office Paper Program (MOP) recycling collection program to businesses and wanted to benchmark its current services and costs through Resource Management Contracting and pilot a collection program in a consolidated area of the City. As a result, Leon County and the City of Tallahassee submitted an innovative grant proposal entitled *Increased Commercial and Residential Waste Diversion Through Innovative Programs and Contracts* that would allow Leon County and City of Tallahassee to more effectively assist businesses in implementing commercial recycling programs through Resource Management (RM) Contracting and pilot collection programs, provide funding for acquisition of necessary equipment and supplies, and create a model program for use by other counties and cities in Florida beginning a commercial recycling program. In addition to the City and the County, the Palm Beach County Solid Waste Authority was enlisted as the third RM partner to benefit the residential community.

The Florida Department of Environmental Protection (FDEP) funded the project through its 2000-2001 Innovative Recycling/Waste Reduction Grant Program (Grant Project #IG1-09). This document represents the final report for this project.

In addition to the project partners mentioned above, Leon County, through the City of Tallahassee's consultant's subcontract also enlisted the assistance of Kessler Consulting, Inc. (KCI) because of the firm's extensive experience in assisting Florida communities and businesses with planning, evaluating, and implementing comprehensive waste reduction and recycling programs.

1.2 Goals and Objectives

The primary goal of this project was to develop comprehensive waste reduction programs in the commercial and residential sectors. In accomplishing this goal, the project also strived to achieve the following objectives:

- Introduce and evaluate several new contracting and programmatic mechanisms through Resource Management Contracting for the residential and commercial sectors.
- Characterize by SIC Code the business community in Leon County.
- Develop a comprehensive commercial/institutional (C/I) waste reduction program.
 - Split-cart collection program
 - Drop-box Program
- Develop educational outreach guides focusing on waste reduction and environmentally preferable purchasing (EPP).
- Research the potential for a government waste exchange program.
- Expand the County's SWAP Shop Program.
- Expand the County's electronics recycling program.

1.3 Innovation

The Leon County project elements that were intended to contribute to project innovation include:

- Using market mechanisms and incentives to encourage solid waste contractors to provide continually improving waste reduction services to their clients through RM Contracting.
- Using 110-gallon split cart containers for automated co-collection of recyclables at small and medium-sized businesses will be evaluated and piloted.
- Using drop-box collection containers at large institutional locations.
- Assessing the ability to create a government surplus and exchange program for local and state government.
- Creating an expanded SWAP Shop via an Internet Exchange.

1.4 Outreach to Intended Audience

The intended audience includes (1) Residents (2) small-medium size commercial businesses and their employees, (3) government institutions and their employees, and (4) local solid waste managers and recycling coordinators.

(1) Resource Management (RM) Contracting Program

RM Program - Residents in Palm Beach County: The Palm Beach County RM report was intended to assist Palm Beach County staff with preparing their RFP for residential collection and provide incentives to haulers and, therefore, reducing residential collection costs while increasing diversion.

RM Program - Businesses in Leon County: The Leon County RM report was intended to assist Leon County staff with preparing a future RFP for commercial franchise collection services and provide incentives to haulers and, therefore, reducing commercial collection costs while increasing diversion.

RM Program - Businesses in the City of Tallahassee: Tallahassee's RM report was intended to assist the City's Solid Waste Services staff with evaluating its own municipal commercial collection program in order to prepare a pilot commercial recycling program and evaluate costs and waste reduction opportunities.

(2) Commercial Pilot Recycling Collection Program - Businesses:

Small and medium businesses and their employees in the City of Tallahassee were targeted via letter and postcard to sign-up for the free recycling collection service; in addition they were provided with deskside containers and office education material as well as provided waste reduction and EPP guidebooks at a business morning workshop.

(3) Commercial Pilot Recycling Drop-box Program - Government Institutions:

The employees in the Leon County Courthouse and City Hall in Tallahassee were targeted via a morning kick-off event in the foyer of the respective buildings; in addition they were provided with deskside containers and office education material.

(4) A notice of the availability of the Resource Management Contracting manual is being e-mailed or mailed to county solid waste directors and to local recycling coordinators. In addition, the pilot final report will be available through the uploading of this document onto the DEP website.

1.5 Acknowledgments

Leon County would like to thank its program partners, including the City of Tallahassee that implemented the comprehensive commercial collection, outreach and education program and the City businesses that participated in the pilot program. In addition, the County would like to thank the Southern Waste Information Exchange (SWIX), the Tellus Institute, Recycled Fibers and Waste Management. Leon County would also like to thank Kessler Consulting, Inc. for their technical assistance, project management, and report preparation.

SECTION 2.0
PROJECT IMPLEMENTATION

2.1 Equipment and Services

Table 2.1 provides a list of equipment and services that were purchased to assist with this innovative grant project, and how each was utilized.

TABLE 2.1 PURCHASE AND UTILIZATION OF EQUIPMENT AND SERVICES	
Equipment or Service	Utilization
Heavy-Duty Metal Doors	To provide closure for the recycling building and protection from inclement weather.
Ramp for E-building	To allow better handling of incoming electronics from recovery programs.
110 Gallon Split-Cart Recycling Containers	Split-carts utilized for the commercial pilot collection program.
3 Roll-off Containers	Roll-off containers used for collection at City Hall, County Courthouse and the DeLaney Building.
PowerPoint Software	Software utilized by the City Recycling Coordinator to receive and update all education material produced for the commercial pilot.
Harvest Printing/Kinko's/Pip Printing	Printing services utilized to prepare the postcard, WRRC and EPP guides, deskside flyers, and workshop invitations.
Program Display Boards	Boards utilized by the City and County at the recycling kick-off events for the drop-box program.
Postage	Postage utilized to mail all pilot program correspondence, postcards, and workshop invitations.
Office Supplies	Miscellaneous supplies to support the Innovative Grant
Deskside Recycling Bins	Bins used by employees at their desk.
Maintenance/Cleaning Company Recovery Carts and Supplies	Carts and ancillary supplies used by cleaning company employees to collect recyclables and waste at City Hall and the Count Courthouse.
Kessler Consulting, Inc. - consulting services	Coordinate project activities
	Manage the subcontractors' roles and all deliverables – Tellus Institute (RM) and SWIX (SIC report, SWAP Shop, and electronics program).
	Manage the pilot collection programs, drop-box programs, outreach and education programs, and subcontractors' roles.
	Develop all program and educational materials and outreach programs for the pilot collection programs.
	Prepare reports, press releases, and notices.

2.2 Cooperative Effort

This project was a cooperative effort between Leon County, the City of Tallahassee, Palm Beach County, Kessler Consulting, Inc., Tellus Institute, the Southern Waste Information Exchange (SWIX), Recycled Fibers, and commercial businesses in the City of Tallahassee. The equipment and supplies necessary for the pilot were identified and purchased. In addition, various communities in Florida looking to utilize incentivized contracting and/or implement a commercial recycling program could utilize lessons learned from the various studies conducted. The information gathered and experience acquired through the various program elements was used to make RM recommendations and Municipal commercial recycling program recommendations.

2.3 Project Elements and Timeline

This project consisted of eight primary elements. These elements and the project timeline are discussed in the subsections below.

2.3.1 Benchmark and Evaluate Collection Contracts and Programs

The benchmarking study was performed by KCI and Tellus Institute (Resource Management (RM) Partners) for Leon County, the City of Tallahassee and Palm Beach County (RM Participants). This process entailed evaluating baseline costs for various collection, processing, and marketing contracts for vendor services and compensation methods to establish cost and performance benchmarks and to establish program goals, where applicable.

Appendix A details the various documents obtained from the RM Participants to benchmark and evaluate their solid waste and recycling collection contracts and programs. A total of 107 documents were reviewed by the RM Partners, including 19 documents for Leon County, 23 documents for the City of Tallahassee, and 65 documents for Palm Beach County.

The benchmark evaluation was utilized to prepare individual Resource Management Contracting reports for each of the three RM Participants.

2.3.2 Resource Management Contracting (RMC)

RMC is unlike traditional solid waste service contracting in that it compensates waste contractors based on their performance in achieving the organization's waste reduction goals rather than the volume of waste disposed. The primary function of RMC is to create innovative contracting methods to align a waste vendor's incentives with the municipality's/county's waste prevention, recycling, and recovery goals.

The following information details the recommended RM Contracting mechanisms excerpted from the RMC reports for Leon County, the City of Tallahassee and Palm Beach County Solid Waste Authority (SWA).

Leon County- Commercial Sector Recommendations:

RM is still an emerging service model, and the concept is new for most C/I entities and waste and recycling service providers in Leon County. To overcome the above barriers and promote the adoption of RM by the C/I sector, the County must first advocate transparent pricing structures to maximize the savings from diversion. These savings can then be used to create incentives C/I organizations can share with their RM providers. To initiate RM, the County will also need to target the C/I sector through education and outreach.

Recommendation 1: Promote transparent cost structures in the waste and recycling rates paid by C/I organizations.

As mentioned above, the bundled rate structure makes it difficult for C/I entities to recoup cost savings from small waste reduction improvements. Further, it is not known how much C/I organizations are optimizing their level of service (e.g., if containers are typically picked up full, one-half full, or less). Ideally, in the Franchisee Agreement, the County would want to set up a waste fee structure that separates out hauling from disposal. In this way, C/I entities would realize cost savings both from reducing service and from a reduction in the tip fee on the waste they generate. It is probably impractical to have the Franchisee separate hauling from disposal in their rate schedule. Since these containers are small and the waste trucks are on a route where they combine many customers waste to fill

their trucks, it would be too costly to weigh individual loads from each C/I facility. However, the County can promote more transparent pricing in two manners.

1) For waste fees set in the Franchise agreement, the county can establish an on-call fee structure. This is a per pull charge for a given container that is picked up at the customers request. With on-call pick-ups, C/I facilities ensure that containers are picked up when full. Further, on-call service can be easily combined with compactors that have compactors allowing hauling fees to be separated from disposal fees since the compacted waste has a more certain weight. Note that when this fee structure is used in an RM program, it is the RM contractor who monitors the container and calls in the scheduled pick-up. C/I facilities have seen significant cost savings when moving to a larger compacted container as it reduces the number of hauls and allows them to pay the real landfill fee for the weight they are sending to the landfill. Thus, we recommend the County to add an on-call fee structure to the current rate schedule and separate pricing for specific services, such as hauling (\$ per pull), waste disposal (\$ per ton), and container/compactor rental (\$ per month).

2) Current recycling fees are also bundled for collection and recyclable processing and C/I entities do not share any revenue from the sale of recyclables. Recycling fees should be more transparent with separate fees for hauling and any necessary processing. The recycling revenue should be listed separately according to market prices with the revenues going back to the C/I facility. Such a transparent fee structure allows C/I facilities to pay for the recycling service while understanding the economics of secondary commodity markets for recyclables. There are numerous ways to deal with the market risk such that C/I facilities share the risk and benefit more in strong markets and benefit less in weak markets. We recommend C/I entities to negotiate with their recycling haulers to share part of the recycling revenue and provide more details on how to do so in Appendix III and a recently released RM Contracting Manual.¹

¹ U.S. EPA, “Resource Management – Contracting Methods to Improve Resource Efficiency Opportunities”. The manual will be released in May 2003 at the websites of Tellus Institute (www.tellus.org) and EPA WasteWise program (<http://www.epa.gov/wastewise/wrr/rm.htm>).

Recommendation 2: Education and Outreach to the C/I sector

With the appropriate fee structures in place to maximize cost savings that C/I facilities can realize, the remaining barriers to having C/I facilities adopt RM still must be overcome. Appendix III provides recommendations to C/I facilities interested in adopting RM to restructure the compensation structure, and reform the contractor scope of services and relationship. More detail for C/I establishments is provided in a recently developed RM Contracting Manual which provides a step by step approach for interested C/I facilities to evaluate RM, baseline their total waste and recycling costs, issue an RFP and design an RM program. While this manual provides valuable technical assistance, the County will need to take an initial role to educate C/I facilities about the model. We recommend several pilot programs to assist interested C/I entities to better characterize baseline waste and recycling service levels, and identify total system costs. Following the baseline exercise, interested C/I organizations should be given the RM manual and limited technical assistance to develop their specific RM program, including preparation of RFP, RM service solicitation and implementation. Such demonstration projects play a crucial role to illustrate the viability of the innovative RM contracting model and stimulate demand for RM service. Additionally, these demonstration projects together with other outreach activities, such as workshops, can effectively send the correct market signals so that potential RM providers within the county understand market demand for RM services and make the transformation to become Resource Managers.

Further, we recommend the County to first engage large C/I waste generators who have not been aggressively pursuing waste minimization to participate in the pilot programs. The high contract value of a large waste generator in combination with low diversion level will ensure ample untapped opportunities for recycling and waste reduction are available. The success of the pilot program can demonstrate the viability of the RM model and stimulate the interest of both potential RM customers and suppliers. As the RM model is better adopted and the capacity of suppliers in providing RM service is developed, small and medium size C/I entities can launch their own RM programs with less initial upfront costs to identify experienced providers or educate their suppliers. Our experience is that once RM takes hold and is successful at pilot organizations, local RM contractors will actively promote such services to new customers so that wide adoption of the model occurs through normal market forces.

City of Tallahassee – Commercial Sector Recommendations:

RM presents a cost-effective market-based mechanism through which government, commercial and institutional (GCI) entities can utilize the expertise of their RM contractor to improve waste diversion without increasing waste management cost. Our analysis points to the high potential of RM contracting in enhancing GCI waste diversion in the City of Tallahassee. Yet, it is believed that the following factors hinder a wide diffusion of RM practices in the GCI sector in Tallahassee:

The fees for waste hauling services provided by SWS are mostly based on a bundled fee structure, i.e. container rental, hauling and disposal fees all aggregated in a single service fee per pick-up or per month. Therefore, waste generators can only capture cost savings when one complete haul is eliminated.

There are no direct financial incentives for GCI facilities to pursue recycling - all GCI entities participating in recycling do not receive any revenue from recyclables collected. In fact, there are “disincentives” to recycle for GCI entities that pay a fixed monthly waste collection fee and a recycling fee assessed on a per-pull basis.

There is a lack of agreement between SWS and Recycled Fibers on the type of recyclable commodities collected from GCI facilities that incur processing cost or generate revenue. This makes it difficult for SWS to keep track of financial benefits from increased GCI recycling activities, which can be channeled back to GCI entities.

The RM concept is still relatively new to most GCI entities and waste and recycling service providers. Even if there are potential suppliers that have the ability, expertise and willingness to provide RM-type services, and waste generators that want to utilize this approach to enhance waste diversion, they might not be familiar with how to structure their contracts according to the RM principles.

In view of the above challenges, we recommend the following steps to enhance adoption of RM by GCI entities.

Recommendation #1: SWS to establish a better understanding of the cost and revenues of recycling

SWS should establish a clear fee and revenue structure with Recycled Fibers on recyclable processing and sales. By doing so, SWS can track processing costs and recycling revenue more effectively, and can better determine the financial benefits from increased recycling.

Recommendation #2: SWS to establish a more transparent price structure for waste and recycling collection services

In order to send a correct signal to GCI generators on waste diversion, and to allow cost savings from avoided disposal to be channeled back to waste generators, SWS should establish a more transparent fee structure. For instance, waste service fees should be broken down into collection and disposal fees, with collection fee assessed on a per-pull basis, and disposal fee assessed on a per ton basis. Likewise, the recycling service fees need to reflect the true cost of service and should be separated into collection and processing fees. A transparent fee structure allows GCI entities to maximize cost savings that can be recouped from increased diversion.

Recommendation #3: Undertake pilot programs with GCI facilities

An analysis was performed on the impacts of higher diversion on waste and recycling service costs on an aggregated level. An organization-specific baseline is necessary for each organization interested in implementing RM to more accurately assess the potential of the RM approach to enhance efficient use and recycling of useful materials.

The City can undertake pilot programs with interested GCI facilities to more accurately characterize their baseline contract agreements, waste and recycling service levels, and quantify total waste management and recycling costs. The baseline information is important to make the case to the GCI entities that RM is a cost-effective solution to increase diversion. If an organization decides to launch its own RM program, such baseline can be used for defining the scope of an RM program, determining the RM program goals and formulating a compensation structure.

Given the fact that the RM approach to contracting is still a foreign idea for many GCI entities and waste and recycling contractors in Florida, these pilot programs should also provide direct contracting assistance to pilot organizations. This would include defining the scope of services, drafting the RM Request for Proposal (RFP), and selection of RM contractors.

Recommendation #4: Conduct Workshops for GCI entities and suppliers to introduce the RM contracting approach:

While most organizations in Tallahassee contract for solid waste service, very little has been done to address how contractual relationships can be used to enhance cost-effective resource efficiency. A workshop, targeting GCI entities and waste and recycling service providers, can be arranged prior to the pilot programs to introduce the RM concept and standard contracting practices. A RM contracting manual that provides step-by-step guidance to develop an RM program can be distributed to all workshop participants. This workshop can also be extremely helpful in recruiting interested GCI entities to participate in the pilot programs.

After completion of pilot programs, a follow-up workshop can be conducted for GCI entities and service providers to disseminate results of pilot programs, and share lessons learned on ‘model’ RM contracting techniques. These two workshops and contracting assistance resources can serve two purposes: to stimulate demand for RM services, and establish supplier capacity for providing RM services.

Palm Beach County - Residential Sector Recommendations:

Under RM, performance bonuses to franchised haulers are financed with savings from avoided disposal fees and increased recycling revenue. Based on communication with SWA and KCI, exactly how the SWA can pay franchisee haulers with savings from increased diversion is still an unresolved issue. At the SWA, such savings currently go into a reserve fund. According to SWA bylaws, savings from the “disposal” side of resident rates, which include reduced landfill operating costs and increased recycling revenue, cannot be transferred to franchised haulers. SWA can only pay franchised haulers from the pre-set collection fees charged to residents. If the SWA wants to incorporate RM

concepts into its franchised agreements, a method to compensate franchised haulers must be established.

Two options were discussed to allow the SWA to compensate franchised haulers from diversion savings. First, the SWA can seek to change its bylaws (or use an existing mechanism or create a new mechanism to let monies flow from disposal to collection accounts) to allow for a portion of savings from increased diversion to be paid back to franchised haulers in the form of a performance bonus.

Alternatively, the SWA could seek to incorporate the performance bonus into the collection assessment assuming that haulers will reach diversion targets. This would in effect tack on the performance bonus at the beginning of the year but would only be paid to franchise haulers *if* they meet certain diversion targets above the current diversion rate. This may be analogous to using the reserve fund to buy down increases in collection fees. We have calculated the per household unit savings that will accrue if diversion targets are met; this per household unit savings is the amount by which SWA would add onto base collection fees charged to residents. While it is unclear whether this would also necessitate a change in the bylaws of SWA, we wanted to provide an indication of how such performance bonus could be budgeted. A variation on the second option is for the SWA to establish a formula that calculates verified savings and to apportion all or a part of these savings back to franchised haulers.

Recommendation #1: RM Contract Language for SWA Franchise Contracts:

The text below has RM type language in one section. If so used by SWA, it was recommended that it be inserted after the current Section 6, Charges, Rates and Level of Service in their residential collection contract. In doing so, the SWA can use the RM incentives without changing any other aspects of the contract. If the franchised haulers don't meet performance targets, they simply continue to get paid as they do now. If they do help improve diversion to the established performance targets (thus saving money), the SWA needs to establish a method to compensate the franchised haulers. The savings come from avoided landfill tip fees (in this case, these are reduced variable operating costs) and increased recycling revenue resulting from increased diversion.

Note that the text below was only for exemplary purposes to the SWA so they could ultimately decide on the particular performance bonus, diversion targets, and reporting requirements

Recommendation #2: Purpose of RM incentives

The SWA is committed to increased recycling. The purpose of this section is to outline how the SWA would like to provide further incentives to the successful bidders to help Palm Beach County residents achieve higher recycling rates. Franchised haulers are a critical component of the success of residential recycling. Haulers are in a perfect position to help increase residential recycling because they are at the front line providing collection service to households. For instance, haulers are in the best position to identify and report to the SWA any obstacles encountered during recyclable collection because they are the only ones close to “the curb”. With a better understanding of the potential/actual barriers to waste diversion within each residential community in each district, the Recycling Department of the SWA could design and target district community-specific education programs. This could allow the SWA and haulers to more effectively promote recycling/waste diversion activities in low participating districts targeting curbside outreach and education programs to a specific residential community’s needs. Haulers are the primary individuals who have regular access to residents and can improve service by replacing damaged recycling containers promptly, and by assisting the SWA with distribution of educational materials to individual households. This section outlines the financial incentives the SWA is prepared to offer franchise haulers who assist the SWA in meeting specified recycling targets. Note that these incentives in no way affect the base payment structure detailed in the full RM report provided to the SWA.

Recommendation #3: Performance Guarantees And Compensation

The Authority seeks to make its franchised haulers partners in meeting greater diversion for county residents. As such, the SWA is prepared to share an equal portion of the savings that result from increased diversion. Based on a current diversion level of 15%²,

² All calculations and assumptions to estimate the base residential recycling rate are included in the full report. If SWA pursues RM, the project team recommends the SWA and franchised haulers verify and mutually agree upon a baseline residential diversion rate. This baseline is then used to establish diversion

the SWA sets the following diversion targets and proposes the following performance bonus for the first three years of the contract if the targets are met:

Table 2.2 SWA Diversion Targets

Year	Diversion target	Savings shared between SWA/Franchisee
Base Year	15%	NA
Year 1 of Contract	18%	50/50
Year 2 of Contract	21%	50/50
Year 3 of Contract	24%	50/50
Notes:		
<ol style="list-style-type: none"> 1 The SWA can revise target diversion rates. The above rates are consistent with savings projections in the report. 2 The shared savings split can be anything SWA ultimately chooses. 3 Savings are estimated in the full report. In lieu of savings, the SWA can provide a formula to calculate savings and specify a predetermined split so that the bonus incentive is based on actual savings realized. 		

Should the Franchisee reach diversion targets a year earlier (e.g., year two diversion target of 21% is reached in the first year), the franchisee is entitled to 60% of the savings. New diversion targets and shared savings percentages will be revisited at the end of Year 3.

Recommendation #4 - Reporting and validation of diversion rates and targets:

On either a quarterly or monthly basis, the franchisee shall provide a comprehensive report to the Authority that includes activities regarding recycling efforts, waste minimization efforts, and records of waste and recycling levels. Included in the monthly reports should be a review of activities the contractor has performed per Section 9, Public Awareness Program, as well as a log of the number of bins replaced, (*include other pertinent data that indicates their activity with residents*). The quarterly reports are also an opportunity for the contractors to communicate to the SWA particular barriers to recycling or specific problem areas. The contractor should provide suggestions or improvements so the SWA can work with the contractor to devise a plan to overcome any barriers. This may include targeted outreach or other plans to facilitate residential recycling and waste diversion.

targets, measure progress towards those diversion targets and calculate cost savings from diversion that finance the performance bonus.

At the beginning of a new contract period where RM incentives are used, the SWA and its franchised haulers need to verify and mutually agree upon a baseline residential diversion rate. At the end of each year, the contractor and the SWA will mutually agree to the calculation of the end of year diversion rate for comparison to the baseline rate.

2.3.3 SIC Code Report

As a project partner, the Southern Waste Information Exchange (SWIX), was subcontracted by KCI to prepare the Standard Industrial Classification code report for Leon County. The purpose of the report was to classify businesses by the SIC system. The information in the report was utilized to assist the project team in developing the C/I recycling program and identifying the largest business industry segments countywide.

Appendix B contains a copy of the full report.

2.3.4 Pilot Commercial Recycling Program – Split Cart Program

PILOT OVERVIEW

On February 26, 2001 the Florida Department of Environmental Protection awarded an Innovative Grant to Leon County (County). Prior to the grant award, the City of Tallahassee (City) Solid Waste Services Department partnered with the County to pay for the preparation of the grant proposal to meet its program development objective for potential expansion of its existing commercial recycling collection services and to pilot a split-cart collection program. The County and City agreed to have Kessler Consulting, Inc. (KCI), the City's consultant, coordinate and manage the implementation of the grant deliverables. Other components of the grant project were analysis of resource management contracting for Palm Beach and Leon County as well as the City of Tallahassee, a countywide SIC code report, government surplus exchange assessment, and expansion of the County's existing electronic recycling program and the existing County Swap Shop. The following information details the pilot program objective, methodology, analysis, results, and expansion recommendations.

PILOT OBJECTIVE

The City of Tallahassee's Solid Waste Service Department (SWS) provides waste collection services to approximately 4,950 government/commercial/institutional establishments. A small percentage of accounts currently subscribe to SWS for mixed office paper recycling. As part of its efforts to expand service options and increase waste diversion, SWS undertook a commercial/institutional recycling collection pilot project.

The objective of the C/I recycling collection pilot was to test automated collection of recyclables at small and medium-sized businesses utilizing 110-gallon split containers. The pilot was one of component of a comprehensive effort to increase commercial waste diversion funded through a FDEP innovative grant.

PILOT PROGRAM METHODOLOGY

This section describes the tasks that the project team undertook to conduct the pilot study.

Identify Pilot Routes

Two areas of the City were identified for the split-cart pilot study, totaling approximately 250 businesses that received waste services from the SWS. The Capital Medical Area consists of 176 businesses (primarily medical services) with an estimated 1,185 employees. The Metropolitan Blvd. Area consists of 76 businesses (legal, consulting, real estate, etc.) with an estimated 560 employees. SWS identified the areas as representative of the small business community in the city. Pilot routes were established in these areas.

Identify Materials Recovery Program and Processing Source

Different categories of office paper were targeted on the two pilot routes. Participants on the Capital Medical route were instructed to recycle mixed office paper, i.e., including colored and white paper. Participants on the Metropolitan route were instructed to recover white office paper only. Participants on both routes were instructed to recover commingled containers (e.g., glass, plastics, and aluminum). Unacceptable paper for both routes included newspaper, magazines, paperboard, boxboard, cardboard, tissue and towel paper, etc. Shredded paper was accepted.

The project team decided to target different types of paper in order to assess the impact on quantities recovered and customer's satisfaction. White office paper is more valuable than mixed office paper. So a program that targets a higher fiber grade can generate more recycling revenue and thus reduce the cost to provide recycling services to businesses. However, white paper accounts for only a portion of the recyclable paper generated by businesses. So recovery rates may be lower, more waste may be disposed, and businesses may find it inconvenient to separate white paper only in comparison to a program that accepts all types of recyclable paper. A mixed office paper program generally has the potential for a higher recovery.

Recycled Fibers (RF), the existing contracted processor for the City's residential recyclables was used as the facility to receive the pilot recyclable material (paper and commingled containers) for processing and marketing.

Commingled Unloading at RF



Paper Unloading at RF



Conduct Pre-pilot Waste Assessment

Before beginning the pilot program, the project team conducted a visual assessment of waste composition from the pilot routes. For two weeks, the City's collection trucks were weighed to determine how much waste each route generated. The team then examined the loads of waste and visually determined the composition of the waste to assess how much targeted recyclables were present in the waste.

Solicit Participants

The project team developed an invitation letter and self-return postcard and mailed copies to all businesses on the pilot routes to solicit participation. A total of 48 businesses initially signed up for the pilot - 29 on the Capital Medical route and 19 on the Metropolitan Route.

After the pilot collection began, a second solicitation was sent out to non-participants, which yielded nine and six additional participants on the Capital Medical and Metropolitan routes, respectively.

During the course of the pilot collection five businesses requested to stop participating – all of them were on the Metropolitan route. Reasons for their departure are discussed in the Results and Analysis section of this report.

Educate Participants

The project team developed educational materials for pilot program participants. These consisted of a desk-side flyer and brochure designed to educate participants about the proper material to recycle. Education materials were hand-delivered to participating businesses along with their collection containers. The project team also provided participants with promotional materials, including a recycling poster and office promotionals marked with the City recycling logo. In addition, a workshop was held at Chez Pierre at the end of the pilot for participants to transfer from the pilot to continued service and to be further educated on waste reduction and environmentally preferable purchasing techniques in the office. Appendix C contains samples of these education materials.

Procure Collection Containers

The project team procured two types of containers for the C/I pilot: deskside recycling bins for use inside the office by individual employees and 110-gallon split-carts for use outside at each participating business to consolidate recycled paper and commingled containers for collection by the City.

The deskside recycling bins are small enough to easily fit under or beside work desks. The bins included an adjustable divider so that participants could keep paper and container separate at the deskside.

Office Deskside Collection Bin



The 110-gallon split-carts are compatible with the City's automated split body trucks. The carts are divided vertically into two compartments of equal capacity. Labels were placed on them to indicate which materials should be dumped into each compartment, e.g., paper versus commingled containers.

Commingled Compartment



Paper Compartment



Start Pilot Collection

The pilot collection program began the week of April 28, 2003. The startup involved five major tasks as outline below.

1. Notification to participants of starting date – The project team distributed letters to all participating businesses notifying them of the important dates and procedures

- for starting up the pilot. These included delivery of deskside containers and educational material for proper recycling, beginning in-house recycling, and beginning of City collection services.
2. Distribution of split-carts – City staff distributed the split-carts to all participating businesses. This task also included retrieving existing recycling carts and replacing them with split-carts at several businesses that had previously participated in the City’s mixed office paper recycling program.
 3. Distribution of deskside containers and educational material to office contact– Over the course of two days, project partners visited every participating business to deliver deskside bins and educational materials, answer questions regarding the pilot; and check for proper placement of the split-carts. Deskside bins were provided for every employee. Extra bins were also provided for copy machines and break rooms when requested.
 4. Training City collection crew – The project team developed data collection forms and instructional material for the City collection crew responsible for servicing the pilot routes. The crew was familiarized with the location of pilot participants, collection procedures, and proper use of the data collection forms. Daily data regarding number of setouts, time on route, and weight of recyclables were included on the data collection forms. Of particular concern was to have procedures established to handle improper setout and/or contamination of recyclables. Forms were provided to the collection crew so that participants could be informed of improper setouts.
 5. Oversee initial collection days – The project team worked with the crew during the first week of collection to ensure that proper collection procedures were followed and to address any logistical and operational problems.

Monitor Collection Operations

During the course of the six-month pilot collection, the project team periodically monitored setouts, collection operations, and quality of recyclables recovered. Daily data collection forms completed by the SWS crew were compiled in a spreadsheet.

Conduct Post-pilot Visual Waste Assessment

During the last month of the pilot, the project team performed a second visual waste assessment of the solid waste from the pilot routes. The same methodology was used to estimate the quantity of targeted recyclables remaining in the waste stream. Unlike the pre-pilot assessment that looked at the waste from all businesses on the pilot routes, the post-pilot assessment looked only at the waste from pilot program participants to gauge the effectiveness of the program.

Conduct Post-Pilot Survey

The project team surveyed all pilot participants to evaluate their opinions about various aspects of the pilot. The survey requested opinions regarding the targeted recyclables, the deskside containers, the educational materials, the split-carts, as well as general suggestions on how to improve the service.

Pilot results for many of these areas are discussed in the results and recommendations section of this section.

PROGRAM COLLECTION AND PROCESSING OPERATIONS

Collection

Each participating business was asked to designate a single person to serve as their office recycling contact person. This person received and distributed the deskside bins and educational materials and was the point-of-contact for all office employees regarding the program. They were also asked to periodically inspect the split-cart to ensure it was being used properly. Each business developed its own method for collecting recyclables into the split cart. In some cases, individual employees were responsible for bringing their own bins to the split cart, while other businesses had janitorial services perform the task.

SWS designated a single truck and driver (Theonzie Daniels) to collect split carts from the pilot routes. Weekly collection was provided on Tuesday for the Metropolitan route and Thursday for the Capital Medical route. Split carts were typically placed next to the business's garbage barrel. SWS does not require businesses to roll their split carts out to

the curb. Therefore, the SWS crew did not have direct access to carts preventing fully automated collection. Instead, the SWS driver rolled split carts to the curb and emptied them using the truck's external hydraulic controls. The driver then wheeled the carts back to their location by the building.

SWS Collector Servicing Split-Cart



Processing

Recyclables from the pilot project were delivered to Recycled Fibers, the City's residential processing and marketing contractor. The collection truck weighed into the facility, dumped the paper, re-weighed, then dumped the commingled, and then weighed out. This provided separate weights for paper and commingled containers for each route. Recycled Fibers agreed to handle the pilot route recyclables for no charge.

During the course of the pilot it was observed that commingled weights were very low – sometimes leading to zero and negative weights at the scale due to the scales 20-pound accuracy limit. Towards the end of the pilot, the project team decided to consolidate commingled containers for several weeks in the collection truck, in order to obtain a more accurate weight for the commingled.

PILOT PROGRAM ANALYSIS AND RESULTS

Participation

Participation in the pilot program is summarized as follows for each route in the Table:

Table 2.3 Participation Rates by Route

	<i>Capital Medical</i>		<i>Metropolitan</i>	
	<i>Businesses</i>	<i>Employees</i>	<i>Businesses</i>	<i>Employees</i>
Total on route	176	1,185 (est.)	76	560 (est.)
Participants	38	274	25	201
Drop-outs	0	0	5	41
Net Participants	38	274	20	160
Participation Rate	22%		26%	

The Metropolitan route had a higher participation rate at 26%, a 4% higher rate than the Capital Medical area.

Recovery

Each collection day, the SWS driver inspected each split cart and collected only those that had recyclables placed in them and recorded the number of carts collected from each route. The average daily setout rate of recyclables was 47% and 40% on the Metropolitan and Capital Medical routes, respectively.

During the course of the 6-month pilot a total of 6.1 tons of recyclables were recovered. The following table provides detail on total recovery and average per setout.

Table 2.4 Total Recovery and Average Per Setout

	<i>Capital Medical</i>	<i>Metropolitan</i>
<i>Setout Rate:</i>	40%	47%
<i>Paper Recovery:</i>		
Total	4,720 lbs	5,760 lbs
Average per Setout	12.3 lbs	21.7 lbs
<i>Commingled Recovery:</i>		
Total	1,360 lbs	380 lbs
Average per Setout	3.6 lbs	1.4 lbs
<i>All Recyclables:</i>		
Total	6,080 lbs	6,140 lbs
Average per Setout	15.9 lbs	23.2 lbs

Note: Numbers may not add due to rounding.

These results contradict expectations. Capital Medical route had more participating businesses, more employees, and a wider range of targeted paper (mixed office paper). Therefore, we anticipated that total and per setout paper recovery would be greater on Capital Medical than on the Metropolitan route, but this was not the case. The Metropolitan area had a higher participation, recovery, and set-out rate. A possible reason is that the participants on the Metropolitan route generate and/or separated more paper per employee. In addition, the Metropolitan route may be utilizing a higher concentration of white office paper for correspondence.

With regards to commingled containers, recovery and average pounds per set out were much higher on Capital Medical versus Metropolitan. There is no readily apparent reason for the wide difference between the two routes, other than to surmise that the Capital Medical route participants generated and/or separated more commingled containers per employee. Additionally, this route may also purchase and consume more commingled containers in the work environment than the Metropolitan route participants.

The quantity of waste disposed by pilot participants could not be tracked during the pilot because pilot participants were located within larger, standard collection routes and to service these participants strictly for solid waste collection would have been too costly. Therefore, it is not possible to directly calculate the diversion rate achieved.

However, waste disposal was measured for two weeks near the end of the pilot as part of a visual waste assessment as described in Table 2.5 below. During the two weeks, pilot participants disposed on average 1.935 tons per week of refuse. Therefore, the pilot participants diverted an estimated 11 percent of their waste as Table 3.0 depicts. This estimated 11% diversion occurred without any ongoing educational outreach to the business participants.

Table 2.5 Estimated Diversion

Average waste disposal	1.935 tons/week
Length of pilot	* 26 weeks
Estimated waste disposal	= 50.31 tons
Recyclables recovered	6.1 tons
Estimated Diversion Rate	10.8%

Time & Motion Assessment

Each collection day, the SWS driver recorded the time when he began and finished the route. This did not include time traveling from SWS to the route, delivering recyclables to Recycled Fibers, and returning to SWS. If the driver left the route before completing it or was delayed on-route due to mechanical or other problems, this non-productive time was recorded.

Table 2.6 summarizes average collection times for the pilot routes:

Table 2.6 Average Collection Time Data Per Route

	<i>Capital Medical</i>	<i>Metropolitan</i>
Average time on-route (min:sec)	64:44	42:16
Average number of pick-ups	14.2	9.8
Average time per pick-up (min:sec)	4:34	4:18

In general, split carts on the Capital Medical route required more time to collect because the driver spent more time rolling the carts to and from the truck for collection. This is due to the fact that a higher percentage of the carts were located farther away from the truck and on uneven terrain compared to the Metropolitan route as depicted in the photo in the *Collections* section of the report. Additionally, the slightly lower setout rate on Capital Medical route means greater travel time between stops, which can increase the average time per stop.

Material Quality Assessment

The project team periodically visually inspected the quality of recycled paper and commingled containers after being delivered to Recycled Fibers. In addition, the driver inspected split carts at the business location prior to collecting the materials in the carts. If a split cart was too contaminated to be recycled, the driver gave the customer a non-collection notice and the split cart was emptied by a SWS refuse truck.

Based on the project team's observations, material quality was consistent and acceptable for processing. Initially there was some degree of cross-contamination (containers mixed in with fiber), which appeared to occur during the emptying of the split carts into the truck and when tipping the truck at Recycled Fibers, but this issue was resolved as soon as it was discovered.

Waste Reduction Impact

The project team conducted visual waste composition assessments before the pilot started and again during the final month of the pilot. The purpose of this was to assess the impact of recycling on the composition of waste. For two weeks in April 2003, city crews collected all waste from the pilot routes separately. The project team conducted visual waste assessments for each load to estimate waste composition on a volumetric basis. Then in October 2003, city crews collected waste from pilot participants only and the project team assessed waste composition again. The results are provided in the Table 2.7.

Table 2.7 Visual Waste Assessments

<i>Material</i>	<i>Pre-pilot composition</i>	<i>Post-pilot composition</i>
Newspaper	0.9%	3.2%
Cardboard containers	6.3%	10.0%
Office paper	38.4%	10.0%
Other paper	27.7%	10.8%
Plastic bottles	1.6%	3.4%
Other plastics	1.5%	25.0%
Steel cans	0.2%	0.0%
Other ferrous	0.0%	0.0%
Aluminum cans	0.8%	1.6%
Other Non-ferrous	0.0%	0.0%
Glass containers	0.0%	1.0%
Other glass	0.0%	0.0%
Textiles	0.6%	0.0%
HHW/Electronics/Fluorescents	0.5%	0.6%
C&D debris	3.0%	0.0%
Medical waste	10.4%	13.8%
Food waste	3.8%	7.2%
Other waste	4.2%	13.4%
Total	100%	100%

Given the limited sampling and qualitative nature of visual assessments, variations in the results can be expected. Nonetheless, the large drop in office paper from 38.4% to 10.0% confirms that the pilot program diverted a significant percentage of the office paper. While the amount of commingled containers appears to be greater post-pilot versus pre-pilot, this may be explained by normal variations in waste composition and the assessment methodology. This result appears to be consistent with the recovery data described above; paper was the predominant material diverted by participant while container recovery was very low. The City should perform a full-scale commercial waste composition study in order to provide better characterization results than the visual assessment performed in this pilot.

Participant Survey Feedback

During the final month of the pilot, the project team distributed a survey to all participants to gather their opinions about the pilot program. The surveys were distributed via email to the contact person at each participating business with a cover letter requesting that they distribute the survey to everyone in their office. Completed surveys could be returned by email or fax to SWS.

The response rate was much lower than anticipated. Only nine surveys were returned despite the team's efforts to make it as convenient as possible. Nevertheless the returned surveys provide very important feedback that should affect future C/I program design and operations.

Type of survey respondent:

3 from Metropolitan Blvd – 33.3%

3 from Capital Medical Blvd – 33.3%

3 did not answer – 33.3%

What is your overall opinion of the pilot program?

5 were pleased or very pleased – 55%

3 were displeased or very displeased – 33%

1 had no opinion – 11%

What is your opinion of the office paper targeted for recycling?

9 not enough types of paper were targeted for recycling – 100%

What is your opinion of the brochure and list of recyclables provided by the City?

8 received enough educational material – 89%

1 received no educational material – 11%

Was the educational material helpful or not?

5 found the materials clear and helpful 55%

3 did not answer – 33%

1 commented there were too many requirements – 11%

What is your opinion of the personal deskside recycling bin?

3 found them to be too small – 33.3%

3 found them to be a good size – 33.3%

3 did not use the bins (did not need them or had existing bins) – 33.3%

What is your opinion of the split cart

6 were pleased or very pleased – 66%

1 was displeased or very displeased – 11%

2 had no opinion and 1 did not answer – 22%

What frequency of split cart collection do you think you need

7 said that weekly pickup is fine – 78%

2 said less frequency pickup would be fine – 22%

General comments:

The primary comment (5 of 7 comments received) is that they want to recycle all types of paper and that designated recyclables be consistent with those for residential (i.e., newspaper and magazines).

One respondent stated the need for a way to recycle large cardboard. One respondent stated that the collection service was messy, with paper left on the ground.

The following provides an overview of the major findings from the survey respondents (pilot participants).

- Overall, over half of the respondents were pleased with the pilot program.
- The majority, 100% of respondents stated that not enough types of paper materials were targeted for recycling during the pilot program.
- Most respondents felt enough education material was distributed to them.
- Approximately one-third of respondents found deskside collection bin to be the proper size, the other third found them to be too small, while the remaining third did not use the bins for various reasons as described above.
- Most respondents, 78% felt one time per week collection for the split carts as sufficient service.

PROGRAM CONCLUSIONS

Based on the results of the pilot project, the team reached the following conclusions:

The pilot project demonstrated that commercial recycling service for small and medium size businesses is feasible in Tallahassee. Businesses are willing to participate, and employees are willing to separate office paper and commingled containers.

The split cart collection method is technically viable. As with the residential split cart program, the carts and trucks are able to separate fiber and containers.

If offered to other commercial customers, SWS should target mixed office paper and not high-grade white paper only. Although high-grade paper is more valuable to recycling markets, it was clear that customers strongly preferred a program that accepts all types of office paper. Some participants on the Metropolitan route, including some who dropped out of the program, expressed frustration at this separation limitation.

The quality of recovered fiber and containers is acceptable to the local market. While there was a limited degree of cross-contamination of fiber and containers when tipped at the recycling facility, the level of contamination was within acceptable parameters.

The number of businesses that joined the pilot program was lower than anticipated (22 to 26%). Higher levels of participation in a full-scale program will be needed in order to have a significant impact on commercial waste diversion.

Charging a fee may increase participation in the program. Oftentimes, especially in the business sector, there is a higher perceived value of a service when there is at a minimum a nominal charge for a product or service.

While the pilot program reduced the amount of recyclable office paper in participant's waste, significant amounts of targeted materials (office paper and commingled containers) still remain in their waste. Several possible reasons for this exist. Based on previous experience, the primary factor was that there was no ongoing outreach or media campaign targeting businesses to support the initial kick-off of the recycling program as the pilot progressed. Secondary factors could include: unwillingness of individual employees to separate recyclables, lack of awareness about the specific materials targeted for recycling, and/or absence or inconvenience of recycling bins relative to where and when recyclables are generated.

While not targeted for the pilot program, newspaper and cardboard were noted in the waste stream.

Commingled container recovery was low. The post-pilot waste assessment found plastic bottles, aluminum cans, and glass bottles represented an estimated 6% of the volume of waste. Possible reasons for the apparently low recovery rate include differing consumer purchasing habits for containers, lack of participation, lack of awareness, and/or absence or inconvenience of recycling bins. Another factor may have been the deskside bins. Although the bins allowed for separation of commingled materials and paper, if the office contact did not clearly explain the dual purpose of the bin, employees may not have known containers were acceptable in the program.

PROGRAM RECOMMENDATIONS

Participation and Recovery Rate Expansion

If the City wishes to proceed with expanding commercial recycling collection services to its customers, the following recommendations are offered:

- ❑ Increase participation rate: All customers on the pilot route were sent promotional information asking them to sign up for the pilot project. Participation rates of 22% and 26% were achieved (percentage of businesses joining the pilot), which is significantly lower than participation rates achieved for residential programs. Higher participation rates will improve collection productivity (e.g., more pick-ups and more tons per crew hour) and increase waste diversion. Possible options for increasing participation rate include:
 - ❑ Broad-based multi-media public awareness campaign to promote workplace recycling;
 - ❑ Promoting the link between recycling at home and recycling at work;
 - ❑ Targeted public awareness and promotional materials aimed at specific business sectors;
 - ❑ Implementing a mandatory business recycling ordinance; and
 - ❑ Bundling recycling service with all types of commercial waste service so that all customers have access to recycling, and pay for it as part of their basic service cost.

Increase recovery rate: Recovery rate (the amount of targeted recyclables that are separated for recycling by participant), while not directly measured in the pilot, appear to be relatively low. Overall diversion achieved during the pilot is estimated at approximately 11%. Significant amounts of the targeted recyclables were found in waste at the end of the pilot. Increased recovery of recyclables will improve collection productivity (e.g., more pounds per set out and more tons per crew hour) and increase waste diversion. Some possible strategies to increase recovery include the following:

- ❑ Improved and more comprehensive education and promotional materials for individual employees;

- ❑ Provision of large recycling bins for high-volume generation points, such as copier stations, networked printers, and employee break rooms;
- ❑ Free technical assistance to commercial customers;
- ❑ Evaluate the use of the deskside bins for office paper collection only and central bins located in break rooms, kitchens, and conference rooms for commingled container recovery.

Increase collection efficiency: The time required for the SWS crew to service each customer is very long due to the fact that each split cart must be wheeled out to the street and the collection truck, emptied, and then wheeled back. In some case, the crew walks all the way to a split cart only to find that it is empty. This level of back-door service is exceptionally high and is the primary reason that the time per pick up is so high. Based on the pilot operations, a SWS crew would be able to pick up only about 90 to 100 split carts per day, assuming 7 hours on-route. Therefore, increased efficiency (i.e., less time per pick up) must be achieved in order to expand the program and ensure that it is cost effective. Some options for increasing collection efficiency include:

- ❑ Require customers to place split carts at curbside where the automated vehicle can service them;
- ❑ Charge a separate fee for continued back door service;
- ❑ Change the location of split carts to be closer to curbside and require that business bring their recyclables to the split cart; and
- ❑ Utilize/purchase a collection vehicle that is smaller and more maneuverable.

PILOT ASSESSMENT FOR CITYWIDE EXPANSION

One purpose of the pilot project was to establish the information needed to assess the potential impacts of citywide commercial recycling service for small and medium size businesses. The pilot program focused on assessing the impact of recycling for barrel-service customers and not the City's dumpster-service customers. Therefore, the assessment presented below focuses on the City's barrel-service customers and the potential impact of providing them with split-cart recycling service.

Benchmarking Current Refuse Collection Operations and Costs

SWS compiled operational data for FY 2002 as summarized in the following bullet points:

- ❑ 1,458 barrel-service customers (700 rear-loader and 758 side-loader)
- ❑ 1,708 barrels (90-gallon roll-carts).
- ❑ 1,702 barrels are collected twice weekly.
- ❑ 3 customers representing 6 barrels get more frequent collection (i.e., three, five, or six times per week).
- ❑ The SWS utilizes semi-automated rear-loaders and automated side-loaders.
- ❑ 2 routes per day on four days each week for the rear loaders (eight day-routes per week).
- ❑ 10 day-routes per week for the side loaders (these routes include both residential and commercial customers).
- ❑ Barrel-service collection crews work 7,842 hours in the year.
- ❑ The rear-loader customers discarded 1,954 tons of refuse.

Although tonnage is not measured for the side-loader customers, they discarded an estimated 1,895 tons assuming that they discard the same amount of waste per barrel as do rear-loader customers. Total estimated refuse discards equals 3,849 tons.

SWS compiled cost data for FY 2002 that included the following key items for barrel service:

- ❑ Total direct cost = \$410,564.
- ❑ Total indirect cost = \$187,182.
- ❑ Total cost = \$597,746 including disposal.
- ❑ Estimated disposal cost for 3,849 tons at \$29 per ton = \$111,621 (per-ton disposal cost is based on SWS figures for rear-loader service as follows: \$56,656 disposal cost for 1,954 tons of refuse).
- ❑ Total net cost = \$486,125.
- ❑ Cost per crew hour = \$70 per hour.

Note: SWS calculated its cost per crew hour to be \$62. However, based on KCI's experience the SWS's estimated crew cost per hour is low compared to industry norms. Therefore, we have revised the benchmark to equal \$70 per hour based on the following approximate figures: \$10 per hour capital depreciation, \$35 per hour for vehicle operation and maintenance, and \$25 per hour for an equipment operator.

Benchmarking Recycling Operations and Costs

The pilot program and the current barrel service provide the basis for estimating potential operational and cost parameters. It is assumed that recommendations, like those offered above, are implemented to increase the diversion rate and improve collection efficiency. Specifically, we assumed that the following operational and cost parameters could be achieved for a split-cart recycling service:

- ❑ 75% participation of barrel-service customers, or 1,094 recycling customers.
- ❑ 25% diversion of refuse to recycling, or 873 tons per year of recyclables.
- ❑ 85:15 breakdown of mixed office paper and commingled containers (weight basis), or 742 and 131 tons, respectively.
- ❑ One split-cart per participating customer at a purchase cost of \$90 per cart and a 10-year life expectancy.
- ❑ Collection productivity (measured as time to service each customer's split cart) equal to that of the current barrel service.
- ❑ Cost per crew hour = \$70 per hour (see above note).
- ❑ Revenue for recyclables = \$15 per ton.

Two recycling alternatives were assessed: once weekly collection and once every other week (bi-weekly) collection. Utilizing a spreadsheet-based computer model, it was estimated that weekly split-cart service would require two crews while bi-weekly service would require one crew.

Refuse Operations and Cost Alternative

Implementation of split-cart recycling for barrel-service customers provides the SWS with the opportunity to realize some savings in the barrel service.

Diversion of mixed office paper and commingled containers will reduce the amount of refuse disposed and thus the refuse disposal cost.

Given relatively small number of barrel-service customers and collection routes, SWS will not be able to reduce the number of barrel-service collection crews and still provide the same level of service (e.g., twice weekly for most customers).

With the addition of a recycling service that targets a large fraction of the commercial waste stream, SWS may be able to reduce standard barrel collection frequency to once weekly (in essence converting one of the barrel services).

Two refuse collection alternatives were assessed to estimate the number of refuse crews required and potential costs: 1) continuation of twice-weekly service and 2) reducing frequency to once weekly. Both alternatives assume that recycling service is provided as described in the preceding section.

Collection Alternatives for Citywide Expansion

The following Table 2.8 summarizes the potential operations and costs for current barrel service, two-barrel service alternatives, and two split-cart recycling service alternatives. It includes information on:

- ❑ Customers
- ❑ Collection Frequency
- ❑ Container Types
- ❑ Waste Tonnage
- ❑ Diversion
- ❑ Recycling Tonnage
- ❑ Collection Crews
- ❑ Vehicle Types
- ❑ Operation Time and Labor
- ❑ Tipping Fee
- ❑ Recycling Revenues
- ❑ Total Costs

Table 2.8 Collection Alternatives for Solid Waste Services

	<i>Refuse Collection</i>			<i>Recyclable Collection</i>	
	<i>Current</i>	<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 1</i>	<i>Alternative 2</i>
Number of Customers	1458	1458	1458	1094	1094
Collections Per Week	2	2	1	1	0.5
Container Type	90-gal cart	90-gal cart	90-gal cart	110-split cart	110-split cart
Refuse Tons - current	3491				
Refuse Tons - 25% diversion		2618.25	2618.25		
Recyclable Tons				872.75	872.75
Number of Collection Crews					
Rear Loader	2	2	1		
Side Loader	2	2	1	2	1
Collection Hours per Week	40	40	40	40	40
Crew Cost per Hour	\$70	\$70	\$70	\$70	\$70
Tip Fee/Recyclable Revenue	\$29	\$29	\$29	(\$50)	(\$50)
Collection Cost	\$582,400	\$582,400	\$291,200	\$291,200	\$145,600
Disposal Cost	\$101,239	\$75,929	\$75,929		
Recycling Revenue				(\$43,638)	(\$43,638)
Split-cart Cost				\$12,751	\$12,751
Total Cost	\$683,639	\$658,329	\$367,129	\$260,314	\$114,714

Projected Annual Customer Costs for Commercial Recycling Service

Based on this assessment, providing weekly split-cart recycling service to barrel customers would cost approximately \$260,000 per year; bi-weekly service would cost approximately

\$115,000 per year. Based on a subscription rate of 1,094 customers, these costs equal \$237 and \$105 per customer per year, respectively.

Refuse Collection Services Savings

Potential savings in refuse collection service would be approximately \$25,300 per year due to reduced disposal costs. Savings of approximately \$291,000 may be possible if collection frequency is reduced to once per week, which would fully offset the cost for providing weekly split-cart service. In other words, based on this assessment, SWS could provide barrel service customers with weekly refuse and recycling service for less than the current cost of twice weekly refuse service.

Additional In-depth Operational and Rate Analysis

It is important to acknowledge that this assessment is based on a number of assumptions and approximations, e.g., participation rate, collection efficiency, diversion rate, crew costs, recycling revenue, etc. Therefore, it is recommended that SWS pursue a more in-depth feasibility study of citywide commercial recycling within a broader operations and rate analysis of all SWS collection services (residential and commercial).

The objectives of the recycling component of such a study would be to identify recycling service scenarios for commercial dumpsters accounts (split-carts are not necessarily appropriate for all such customers), perform a commercial waste composition analysis, benchmark commercial recycling program performance in other jurisdictions, perform limited time-motion analysis of current commercial collection services, develop specific recommendations for improving collection efficiency and cost effectiveness, evaluate the impacts of the residential recycling collection program costs to the commercial program, and determine service requirements and costs for various recycling service alternatives.

2.3.5 Pilot Institutional Recycling Program – Drop-box Program

Three drop-box pilot programs were convened in 2003. Prior to the initiation of the pilots, site assessments were performed. The site assessments for the County Courthouse and

City Hall, two government institutions and the DeLaney Building, a private building, are listed below.

County Courthouse- Leon County

Purpose of the June 27th and July 25th Site Visits:

Kessler Consulting, Inc., (KCI), staff conducted two site visits at the request of Leon County. Currently Leon County is involved in an Innovative Grant program that involves preparing a drop-box program. The Leon County courthouse was one of the three sites chosen. The current recycling drop-box program is in a rudimentary stage and needs to be upgraded and promoted to County staff in order to recover more recyclable material and divert material generated by government employees from the County landfill.

Overview of the County Courthouse Facility:

The courthouse building houses multiple County government offices. The courthouse generates approximately 80 tons/year of MSW and recovered approximately 20 tons/year of recyclables. The cost to store in the compactor, collect, and dispose of its MSW was \$9,681.44 from October 15, 2002 – June 24, 2003.

There are a total of six floors in the County Courthouse including a parking garage below the first floor. There are approximately 17 departments employing an estimated 646 employees. A summary of the departments and staff count during the walk-through is depicted on Attachment A and further detail is listed below.

Level P3:

- MIS: 63 employees (generate very little paper waste)
- Total # of employees: 63

1st Floor:

- Property Appraiser: 50 employees
- Tax Collector: 10
- Total # of Employees on the 1st Floor: 60

2nd Floor:

- Clerk of Courts: 158 employees
- Food Services: 3 (no office paper)
- Human Resources for Board: 9
- County Attorneys Office: no one available – call Marcia for information (487-1008) number of employees, current recycling practices
- Total # of Employees on the 2nd Floor: 170

3rd Floor:

- Court Administration: 100 employees
 - Court Admin also generates large quantities of books annually. They have a haphazard program for book recycling in recent years.
- Bailiffs Unit: 30
- Elections Commission: 13
- Total # of Employees on the 3rd Floor: 143

4th Floor:

- Public Defender: 85 employees
- The Public Defender does summer purging of files that generate large amounts of card stock and paper.
- Probation: 17
- State Attorney: 75
- Total # of Employees on the 4th Floor: 177

5th Floor:

- County Administration: 4 employees
- Public Services: 9
- OMB: 6
- County Commissioners: 14
- Total # of Employees on the 5th Floor: 33

Overview of the Current Solid Waste & Recycling Practices:

The current solid waste and recycling generation, collection, and education programs needed to be benchmarked in order to make recommendations to improve the current program. The following information provides the status of the current solid waste and recycling practices in the building.

Current Solid Waste Practices:

- Facilities Management (FM) staff believes the Public Defenders office is the largest generator of waste (including office paper).
- The janitorial service (R & R Services, under contract to Facilities Management) has two FT employees on site during the day that do very little waste collection and handling. The night crew of approximately 6 people does most of the waste handling.
- Solid waste handling: At night, the janitorial service empty deskside waste bins and place waste into trash chutes located on each floor. There is a 15-yard compactor located on the lower street level of the building. There are frequent problems with waste bridging in the chute. Recent problem with electronic eye has been fixed. The compactor is hauled out 3 times per week.

Current Recycling Practices:

- Some employees have deskside recycling bins for office paper. A significant number of employees do not have deskside bins.
- Employees empty their deskside bins into recycling barrels. However, some offices have no barrels.
- Many are using old cardboard boxes and copy paper boxes for recycling. Many barrels do not have signs.
- Office Paper handling: At night, the janitorial service is supposed to empty paper barrels into a drop box located on the lower street level of the building. The waste paper container is hauled by County Recycling to Recycled Fibers on average once per month. There is no revenue received or tip fee paid.

- Cardboard: Janitorial service is supposed to collect, flatten and stack cardboard next to the small vertical baler. Facilities Management staff bale OCC and periodically haul it to market. Estimated production 3 to 4 bales per month. According to FM, they average 1.5 tons per month and receive \$10 per ton for OCC.
- Aluminum cans: the daytime janitorial staff collects aluminum cans from dedicated bins located in several locations. They sometimes scavenge cans from trash bags as well.
- Low recovery: Based on preliminary assessment, it appears that significant amounts of office paper are disposed. The janitorial service probably throws a significant amount of separated paper down the trash chutes because they have no incentive to carry it down to the drop box.

Program Recommendations and Next Steps:

The program at the County Courthouse needs to become a comprehensive program that includes the following components:

- ❑ A Waste Reduction “Green Team” comprised of representatives from each department as well as a management representative from the cleaning contractor.
- ❑ Comprehensive and ongoing education program for employees, including a preliminary outreach kick-off, education materials, deskside bins, and county promotionals.
- ❑ Comprehensive and ongoing education program for cleaning staff, including a preliminary outreach kick-off, education materials, and county promotionals.
- ❑ Investigate the potential for a revenue share of the paper and aluminum can materials with the cleaning company.
- ❑ Regular maintenance on the garbage chute to avoid jamming and equipment downtime.
- ❑ Investment in recycling ancillary equipment, including centralized collection centers, signage, and storage carts.

City Hall- City of Tallahassee

Purpose of the June 27, 2003 Site Visit:

Kessler Consulting, Inc., (KCI), staff conducted one site visit at the request of the City of Tallahassee Solid Waste Services Department (SWS). Currently the City SWS is involved in an Innovative Grant program in partnership with Leon County that involves initiating a drop-box recycling program. City Hall is one of the three sites chosen. The current recycling drop-box program at the facility is well organized and only needs to be reenergized and re-promoted to City staff. By re-promoting the program, it's likely more recyclable material will be recovered and diverted by government employees from the community landfill. City Hall is probably the most visible public building in the City limits and extra care needs to be taken to ensure that the maximum amount of recyclables are being recovered by City employees.

Overview of the City Hall Facility:

The City Hall building houses multiple government offices and public sector tenants. City Hall recovers approximately 23.1 tons/year of office paper and cardboard. There were no records available regarding the quantity of waste disposed. City Hall pays approximately \$3,500 annually for waste collection and disposal.

City Hall has approximately 130,000 square feet of office space and 150,000 total square feet including a parking garage below the first floor. There are approximately 20 departments employing 500 full-time and part-time employees. A summary of departments and staff levels is listed below.

Basement:

- Building Maintenance: 20
- Treasurer Clerk: 2
- Total = 22 employees

1st Floor:

- Information System Services: 35
- Utility Customer Service: 50
- Treasurer Clerk: 24
- Traffic Engineering: 22
- Human Resources: 21
- Customer Service: 3
- Total = 155 employees

2nd Floor:

- City Attorney: 22
- Communications: 13
- Information System Services: 23
- Treasurer Clerk: 26
- Total = 84 employees

3rd Floor:

- Utility Business Services: 20
- Public Works: 68
- Human Resources: 2
- Treasurer Clerk: 1
- Economic Development: 10
- Procurement: 26
- Equity and Workforce Development: 7
- Total = 134 employees

4th Floor:

- Planning: 36
- Management and Administration: 15
- City Manager's Office: 13

- Accounting and Payroll: 31
- City Auditor: 7
- City Commission: 14
- Total = 116 employees

Total City Employees = 511

Overview of the Current Solid Waste & Recycling Practices:

The current solid waste and recycling generation, collection, and education programs needed to be benchmarked in order to make recommendations to improve the current program. The following information provides the status of the current solid waste and recycling practices occurring in the building.

Current Solid Waste Practices:

- ❑ City Hall utilizes an 8-yard dumpster serviced three times per week for MSW collection, at the time of the meeting City reports incorrectly showed the service as five-times per week.
- ❑ Solid waste handling: At night, the City employed a building services crew which empty waste bins and place waste into trash carts. These carts are dumped into the 8-yard dumpster nightly.
- ❑ The building is clean and efficiently run.

Current Recycling Practices:

- ❑ Collection Containers: Two covered drop-box containers are located in the parking garage of City Hall. These containers are locked to deter contamination and illegal dumping.
- ❑ Office Paper Program:
 - Employee Participation: The majority of employees have deskside recycling bins for office paper. Employees are instructed to place mixed office paper

into these deskside bins. Building services keeps a small supply of bins on site for distribution to new employees.

- Office Paper Handling: At night, the building service staff empty the deskside paper bins for recycling into a drop box located in the covered parking garage of the building. The paper container is hauled by City SWS to Recycled Fibers on average of once per month. There is no revenue received or tip fee paid for recyclables.
- Recycling stations: These stations are located on every floor of the building directly across from the elevators. These stations contain 3 compartments for commingled beverage containers, mixed office paper, and cardboard.
- Copy Rooms: Each department has an area for copier equipment that contains an office paper central container. These containers are emptied by building services staff in the evening.
- Corrugated Cardboard Containers: City building services staff collect flattened boxes and place them into one of the two recycling drop-boxes located in the parking garage. Cardboard cannot go in the drop-box without being flattened due to the slot in the container.
- Commingled Beverage Containers: Employees are instructed to place recyclable plastic, glass, and aluminum beverage containers into the correct compartment of the recycling station. Building services staff collects beverage containers from the recycling stations for storage into the correct compartment of the drop-box container. At the time of the assessment the container was locked and there was no commingled material in the separate compartment of the drop-box.
- Education Material: New material is needed for employees and building services staff.
- Medium Recyclable Recovery Levels: Based on preliminary assessment, it appears that significant amounts of office paper are recovered, but we anticipate that much more paper could be recovered.

Program Recommendations and Next Steps

The program at City Hall needs to become a comprehensive program that includes the following components:

- Convene a Waste Reduction “Green Team” comprised of representatives from each department, the City Recycling Coordinator, and the Building Services Superintendent. The team needs to meet on a quarterly to twice per year basis. In addition, it would be good to include representatives from the City’s Energy and Water Conservation departments on this team.
- Develop a comprehensive and ongoing education program for employees, including:
 - Preliminary outreach kick-off event
 - Education materials
 - Deskside bins during employee orientation
 - City promotionals
- Distribute a letter from the Mayor to all employees prior to the kick-off demonstrating his support and requesting employee participation.
- Develop comprehensive and ongoing education program for cleaning staff, including:
 - Preliminary outreach kick-off event
 - Instructional materials
 - City promotionals
- If possible, investigate the potential for utilizing the revenue share of the paper and aluminum can materials for an annual employee appreciation day on Earth Day; provide sodas, desserts, city recycling promotionals, etc.
- Investment in recycling ancillary equipment, including centralized collection centers, signage, and storage carts.

Delaney Building – City of Tallahassee

Purpose of the July 27, 2003 Site Visit:

Kessler Consulting, Inc., (KCI), staff conducted one site visit at the request of the City of Tallahassee Solid Waste Services Department (SWS). Currently the City SWS is involved in an Innovative Grant program in partnership with Leon County that involves initiating a drop-box recycling program. The DeLaney Building is one of the three sites chosen. Senator Graham's office employees located on the 3rd floor of this building are the only tenants utilizing the recycling drop-box at this location. The building was built by Parrish Builders. By targeting the non-participants in this building, more recyclable material will be recovered and diverted from the community landfill. This building is a good example to pilot for a private multi-tenant office building.

Overview of the DeLaney Building:

The DeLaney Building is a privately-owned, multi-tenant commercial office complex that houses private businesses.

There are a total of three floors in the DeLaney Building plus a large uncovered parking lot. There are approximately seven businesses employing an estimated 74 employees. A summary of the business occupants and staff count during the walk-through is depicted on Attachment A and further detail is listed below.

First Floor:

- Suite 1A: The LPA Group
- Employees: 6
- Suite 1B: The Xerox Document Company
- Employees: 20

Second Floor:

- Suite 2A: Chipola Capital Corporation
 - Employees: 4
- Suite 2A: J Kinson Cook

- Employees: 2
 - Suite 2B: Technisource
 - Employees: 4
 - Suite 2D: Ben Johnson & Associates, Inc.
 - Employees: 8

Third Floor:

- Occupant: Office of Senator Bob Graham
 - Employees: 30

Overview of the Current Solid Waste & Recycling Practices:

The current solid waste and recycling generation, collection, and education programs needed to be benchmarked in order to make recommendations to improve the current program. The following information provides the status of the current solid waste and recycling practices occurring in the building.

Current Solid Waste Practices:

- The Delaney building utilizes dumpster service 1x/week for MSW collection.
- The dumpster needs to be locked because a lot of illegal dumping occurs from the neighboring residential community. A lock provided to the facility manager by City SWS would help deter contamination and illegal dumping. The SWS driver would also need a key for the lock when servicing the container.
- Solid Waste Handling: The facility manager empties waste bins and places waste into trash carts in the evening. These carts are dumped into the dumpster nightly.
- The building is clean and efficiently operated.

Current Recycling Practices:

- Collection Containers: One covered drop-box containers is located in the parking lot.

- Office Paper Program:
 - Employee Participation: The majority of employees have deskside recycling bins for office paper. Employees are instructed to place mixed office paper into these deskside bins.
 - Office Paper Handling: At night, the facility manager empties the deskside paper bins for recycling into a drop box located in the parking lot of the building. The paper container is hauled by City SWS to Recycled Fibers on average 2-3x per month. There is no revenue received or tip fee paid for recyclables.
 - Recycling stations: One central recycling station is needed in this building for staff and guests. The facility manager would empty the station containers in the evening.
 - Copy Rooms: The copy rooms need to be upgraded with centralized containers for paper. The facility manager would empty these containers in the evening.
- Corrugated Cardboard Containers: Employees collect flattened boxes and place them in a central location for the facility manager. The facility manager transports the boxes to the recycling drop-box located in the parking lot. Cardboard cannot go in the drop-box without being flattened due to the slot in the container.
- Commingled Beverage Containers: The Facility Manager collects beverage containers from the rudimentary recycling stations and places them in the correct compartment of the drop-box container. These containers could be collected and placed in the recycling station in the future.
- Education Material: New material is needed for employees and building services staff.
- Low – Medium Recyclable Recovery Levels: Based on preliminary assessment, it appears that a mediocre amount of office paper are recovered, but we anticipate that much more paper could be recovered if the additional tenants were participating in the program.

The staff of Senator Graham’s office, a tenant in the building, had handling questions regarding the following recyclable material and staff provided answers after follow-up to Recycled Fibers.

- Envelopes with plastic windows are recyclable

- The light-brown irradiated paper is not recyclable
- Dry, paper cups with no residue are recyclable as long as they are not waxed covered paper cups
- Paper, either shredded or non-shredded should not be placed in the roll-off bin.

Program Recommendations and Next Steps:

The waste reduction and recycling program at the DeLaney Building needs to become a comprehensive program that includes the following components:

- Convene a Waste Reduction “Green Team” comprised of representatives from each business in the building, the City Recycling Coordinator, and the Facility Manager. The team needs to meet on a twice per year basis.
- Develop a comprehensive and ongoing education program for employees, including:
 - Preliminary outreach kick-off event in the foyer of the building in the morning as employees come to work
 - Education materials
 - Deskside bins during employee orientation
 - City promotionals
 - A letter from the Mayor should be sent to all businesses prior to the kick-off demonstrating his support and requesting business participation.
- Develop comprehensive and ongoing education program for facility management, including:
 - Preliminary outreach kick-off event
 - Instructional materials
 - City promotionals

If possible, investigate the potential for utilizing the revenue share of the paper and aluminum can materials for an annual employee appreciation day on Earth Day; provide sodas, desserts, city recycling promotionals, etc. Investment in recycling ancillary equipment, including centralized collection centers, signage, and storage carts is important.

Drop-Box Program Educational Outreach and Participation

On October 1st, 2nd and 3rd of 2003, recycling kick-offs were held at the County Courthouse, City Hall, and Delaney Building, respectively. City and County Recycling staff and Kessler Consulting, Inc were on hand to answer questions, provided educational material about the recycling program and material accepted as well as distributed deskside recycling containers. The table below details the participation by employees and the educational material and recycling bins distributed.

Table 2.9 Drop-box Recycling Kick-off Data

Innovative Recycling Grant			
Drop-off Recycling Kick-off Events			
Building	Sign-Ins	Deskside Bins Distributed	Education Material Distributed
County Courthouse	343	440	440
City Hall	159	195	195
DeLaney Building	20	20	20
Total	522	655	655

Kick-off Table-top Display



Recovery Tonnage

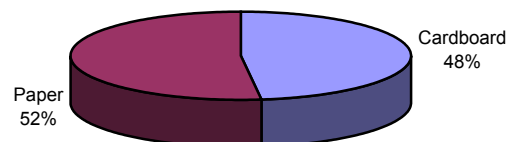
The following information conveys the amount of tonnage recycled for the duration of the pilots for each facility:

The **County Courthouse** recovered 12 tons of cardboard and 13 tons of paper from October 2002 – May 2003. The picture below shows courthouse employees at the kick-off event and the chart depicts the breakout of the fiber recovered.

Courthouse Kick-off Registration

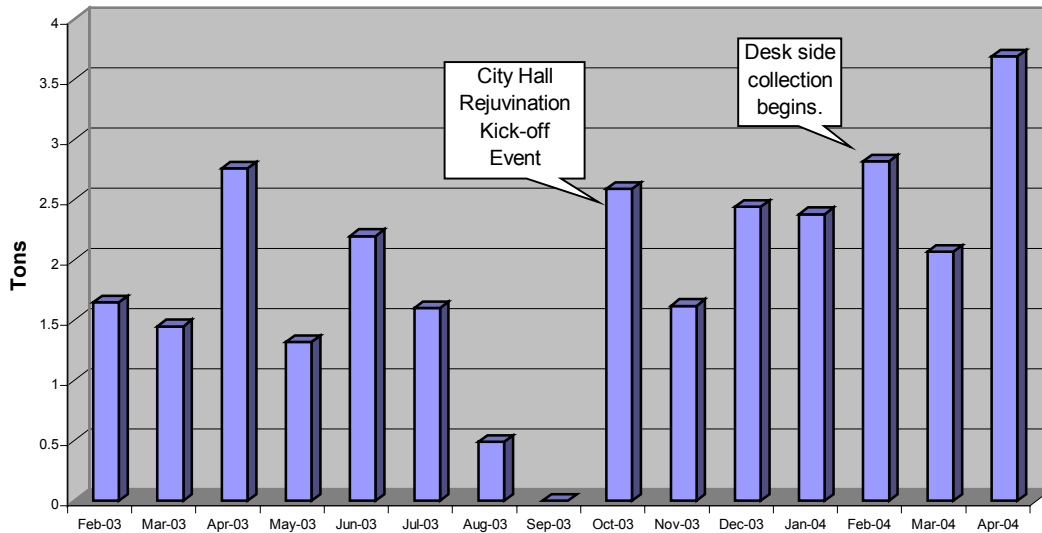


Figure 2.1 County Courthouse Paper Recovery



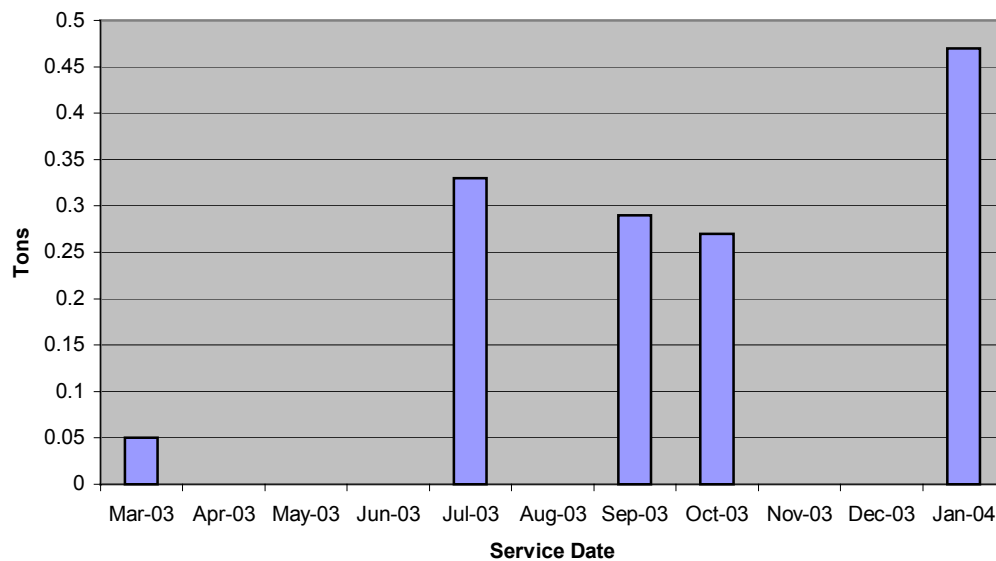
City Hall recovered 29.08 tons of fiber material from February 2003 - April 2004 as depicted in the chart below.

Figure 2.2 City Hall Paper Recycling



The **DeLaney Building** recovered 1.41 tons of fiber material from March 2003 – January 2004. The information is depicted in the chart below.

Figure 2.3 DeLaney Building Office Paper Program



2.3.6 Electronics Program

As a project partner, the Southern Waste Information Exchange (SWIX), was contracted by Leon County to hold an electronics recovery program as a part of its annual Earth Day event. Appendix D contains a copy of this project element in the report.

In addition, Appendix E provides an overview of the Leon County electronics drop-off collection programs including its rural round-up and mobile electronics program. A total of 37 collection events were held in 2003 recovering approximately 289 tons of electronics.

2.3.7 SWAP Shop

Prior to the award of the project, Leon County owned and operated a Hazardous Waste SWAP Shop at its Solid Waste Management Facility on Apalachee Parkway. The existing SWAP Shop is a drop-off separation point for hazardous waste to prevent pollution generation. The service to businesses requires an appointment and a fee is charged for the disposal services of flammable, corrosive, toxic, and ignitable materials.

In order to expand the SWAP Shop as an element of the project, Kessler Consulting subcontracted with the Southern Waste Information Exchange (SWIX) to develop an Internet Based SWAP Shop. Appendix F contains copies of the pages on this site located at www.swix.ws/SwapShop/HHW.cfm

2.3.8 Government Surplus and Auction Assessment

This program element relates to an audit and evaluation of State government obsolete equipment and furniture salvage and auction programs and the determination of quantity and management of unsold materials.

Overview of City of Tallahassee Surplus Auction

A City of Tallahassee surplus auction was held on October 26 and October 27, 2001 at 2641 Municipal Way in Tallahassee. The auction was scheduled each day from 10:00 a.m. to 4:00 p.m. and was conducted by Wayne Evans Auction Company, Inc.—a full service

auction company with offices in Columbus, Charlotte, Atlanta, Tallahassee and Houston. Wayne Evans Auction Company, Inc. is licensed to conduct auctions in eight states and works frequently with governmental entities. During the month following the Tallahassee auction, Wayne Evans Auction Company conducted events for the City of Greensboro, North Carolina, the State of Georgia, and the City of Jackson, Mississippi. The company also maintains a web site to promote available assets at upcoming sales events (www.weaci.com).

Auction, Day 1

Inventory on October 26, 2001 consisted of items confiscated by the Police Department and included electronic equipment of all kinds, jewelry, clothing, tools, sporting goods, books, CDs, and an especially large number of pagers. Electronic equipment included computers, TVs, stereos, cameras, cordless phones, and car stereos. All items were available for inspection at 8:00 a.m. and most of the sale items for the day were displayed on tables under a large tent, which had been erected for the occasion. However, electrical hook-ups were not available for auction participants to test electronic equipment prior to the event. A total of 524 items were listed for sale, however, numerous items were “bundled” to facilitate the pace of the auction. The event was completed approximately one and a half hours early. The terms of sale stated that everything would be sold “as is, where is” with no guarantees of any kind. All items were sold.

Auction, Day 2

Inventory on October 27, 2001 consisted of City of Tallahassee office equipment such as copiers, printers, computer components, furniture, and laptop computers as well as City fleet vehicles which included cars, vans, SUVs, pick-up trucks, dump trucks, commercial mowers fire equipment, backhoes, limb loaders, and miscellaneous other equipment. A pre-sale survey of vehicle inventory revealed several vehicles with flat tires and other

safety deficiencies. Since auction rules require every vehicle to be removed on sale day, a more accessible area might have been helpful for wreckers and towing units to maneuver. A review of auction items on the morning of October 26th KCI noted considerable moisture on the office equipment and other components, which had been left, uncovered outside. The amount of water on much of this equipment was sufficient to have caused significant if not total damage to the units.

Overview of Leon County Surplus Auctions

In addition, Leon County also conducts surplus auctions “as needed”, which usually translates into one or two auctions per year. Surplus materials are accumulated from every department under the Board of County Commissioners except the Sheriff’s Department. These sales consist mostly of vehicles and old furniture in “non marketable” condition which results in significant volumes of materials being landfilled. Computers are sold at separate “computer sales” which occur three or four times a year when MIS departments determine that units are no longer efficient or usable.

The County auctions are conducted by an outside firm on a “buyers premium” basis, which means that the buyer must pay an add-on fee (usually 10 percent) to the bid price. The add-on fee goes to the auction company. Revenue from these sales is not significant

Recommendations:

- Provide electrical hook-ups for pre-sale testing by auction participants. All items were sold “as-is” which potentially lowers the levels at which items are bid. An item that is known to work will likely derive greater value.
- Office equipment and computer components should be stored in a warehouse facility or completely covered with tarps prior to the event. Electricity access

should also be provided for these items so auction participants can evaluate operational capabilities prior to the bidding process.

- Provide easier access for towing to vehicles that are inoperable.

2.3.9 Program Outreach

This report along with the relevant planning information, implementation procedures, and project results as well as the documentation in the Appendices provide comprehensive information to implement a commercial-institutional split-cart and/or drop-box program. It can greatly assist with the transfer of program innovations to other Municipalities or Counties in Florida who want to expand or begin a program for this sector. In addition, notification about the program documents and results is being distributed through the following venues:

- The Resource Management Contracting Manual will be distributed to those participants who requested it at the workshops held at RFT and SWANA.
- An electronic version of all the documents will be sent to the DEP including the commercial pilot program timeline/program plan as part of the final project deliverables for inclusion on the agency's website.
- All of the program partners will receive a copy of the final report, including Leon County, Palm Beach County SWA, the City of Tallahassee, the Southern Waste Information Exchange (SWIX), and Kessler Consulting, Inc.
- An article about the project and its results is under development.

- Project abstracts will be submitted for presentation at upcoming State and National conferences.

2.3.10 Project Timeline

Table 2.10 presents the completion schedule of the nine primary project elements.

TABLE 2.10 PROJECT TIMELINE		
Project Element	Initiation Date	Completion Date
Program and Cost Benchmarking	June 2001	March 2003
RM Contracting	January 2002	April 2004
SIC Code Report Preparation	May 2001	July 2002
Commercial Split-Cart Pilot Program	January 2003	November 2003
Commercial Drop-box Pilot Program	January 2003	December 2003
Electronics Program	January 2003	Will Continue
SWAP Shop Expansion	June 2003	Will Continue
Government Surplus Exchange Assessment	May 2001	January 2002

2.4 Problem Resolution

Development and implementation of four of the project program elements either took longer than anticipated or had a modified outcome during the duration of the project. The resolutions to these challenges are described below.

A total of two RM contracting forums were held in conjunction with Recycle Florida Today (RFT) and the Florida Sunshine Chapter of SWANA instead of two at each RM participant's location (six workshops). Due to budgetary constraints and the project team's decision to target a larger and broader audience to promote RM Contracting, the workshops were held with these associations' annual conferences.

Development and initiation of the pilot program took a full year to begin due to the temporary transfer of the City's Solid Waste Service Recycling Coordinator to a temporary special project. For these reasons, project period extensions were requested and granted by FDEP. But with the return of the Recycling Coordinator in the second year of the project, planning was initiated and a six-month split-cart pilot collection program occurred.

From the early stages of project proposal development to the award and implementation process, the County entered into an electronics processing agreement with Goodwill Industries, so the processing did not occur with UNICOR since the City secured this arrangement as a part of a separate electronics grant received from the DEP.

A SWAP Shop was not piloted by Leon County at its Solid Waste Disposal Facility, but instead a more user friendly Internet SWAP Shop was developed to increase countywide program exposure and material exchange.

SECTION 3.0 PROJECT RESULTS

3.1 Project Accomplishments

This innovative grant project resulted in the following accomplishments:

- ❑ A baseline benchmarking for Leon County and the City of Tallahassee.
- ❑ Development of RM Contract language for the SWA.
- ❑ Implementation of a six-month split-cart pilot collection program for small and medium businesses.
- ❑ Implementation of a comprehensive drop-box collection program for two large government administration buildings and one multi-story commercial building.
- ❑ Development of the following education materials:
 - RM Contracting Manual
 - Business Waste Reduction Guide
 - Business EPP Guide
 - Business Workshop and Relevant Materials
- ❑ Coordination and Implementation of an Earth Day Event to capture electronics.
- ❑ Development of an web-based SWAP Shop Program
- ❑ Assessments of Government Surplus Equipment

3.2 Advanced Technologies

The technologies utilized in this project are not in themselves advanced, but their application in this project was unique for Florida. For example, the use of an innovative, alternative contracting mechanism to increase recovery and waste reduction efforts through Resource Management Contracting was evaluated. The utilization of a split-cart containers allowed for the collection of fiber and commingled containers from small and medium businesses. In addition, a web-based SWAP Shop was created from a rudimentary collection facility at the County's landfill.

3.3 Potential for Increased Material Recovery

The potential for increased material recovery was evaluated as follows through the RM Contracting Reports. The information for Leon County, the City of Tallahassee and Palm Beach County Solid Waste Authority are presented in the information below.

For *Leon County*, the tables below describe the costs implications for a single commercial business that is either currently recycling or not recovering any materials.

Table 3.1: Cost Implications of Enhanced Recycling for a Single C/I Entity that IS Currently Recycling

	Baseline (0%)	Scenario 1 (15%)	Scenario 2 (25%)	Scenario 3 (35%)
Monthly Waste Volume (cy)	41.57	28.97	20.57	12.16
Monthly Recycling Volume (cy) - 60% OCC, 40% MOP	0.00	12.60	21.00	29.40
Monthly Waste Tonnage (t)	8.31	7.07	6.24	5.40
Monthly Recycling Tonnage (t)	0.00	1.25	2.08	2.91
Waste Service Level	6-cy; 2x	8-cy; 1x	6-cy; 1x	4-cy; 1x
Recycling Service Level		4-cy; 1x	6-cy; 1x	8-cy; 1x
Monthly Waste Collection Fee	\$314	\$244	\$200	\$153
Monthly Recycling Collection Fee	\$0	\$26	\$32	\$35
Total Annual Waste and Recycling Fees	\$3,764	\$3,244	\$2,789	\$2,255
Cost Savings on Waste and Recycling Collection Fees		\$519	\$975	\$1,509
Cost Savings as % of Total Baseline Service Fees		14%	26%	40%
<i>Cost Savings Include Recycling Revenue</i>				
Monthly Recycling Revenue	\$0	\$21	\$35	\$49
Annual Recycling Revenue	\$0	\$254.40	\$424	\$594
Cost Savings from Collection Fees + Recycling Revenue		\$774	\$1,399	\$2,102
Cost Savings and Recycling Revenue as % of Total Baseline Service Fees		21%	37%	56%

Table 3.2: Cost Implications of Enhanced Recycling for a Single C/I Entity that IS NOT Currently Recycling

	Baseline (0%)	Scenario 1 (15%)	Scenario 2 (25%)	Scenario 3 (35%)
Monthly Waste Volume (cy)	41.57	28.97	20.57	12.16
Monthly Recycling Volume (cy) - 60% OCC, 40% MOP	0.00	12.60	21.00	29.40
Monthly Waste Tonnage (t)	8.31	7.07	6.24	5.40
Monthly Recycling Tonnage (t)	0.00	1.25	2.08	2.91
Waste Service Level	6-cy; 2x	8-cy; 1x	6-cy; 1x	4-cy; 1x
Recycling Service Level		4-cy; 1x	6-cy; 1x	8-cy; 1x
Monthly Waste Collection Fee	\$314	\$244	\$200	\$153
Monthly Recycling Collection Fee	\$0	\$26	\$32	\$35
Total Annual Waste and Recycling Fees	\$3,764	\$3,244	\$2,789	\$2,255
Cost Savings on Waste and Recycling Collection Fees		\$519	\$975	\$1,509
Cost Savings as % of Total Baseline Service Fees		14%	26%	40%
<i>Cost Savings Include Recycling Revenue</i>				
Monthly Recycling Revenue	\$0	\$21	\$35	\$49
Annual Recycling Revenue	\$0	\$254.40	\$424	\$594
Cost Savings from Collection Fees + Recycling Revenue		\$774	\$1,399	\$2,102
Cost Savings and Recycling Revenue as % of Total Baseline Service Fees		21%	37%	56%

For the *City of Tallahassee*, the following two tables depict the collection cost implications for increased waste diversion from commercial establishments.

Table3.3: Impacts on Waste and Recycling Collection Costs with Increased Diversion Rate for Scenario I

(181 commercial/industrial entities using FEL waste container service and 8-cy OCC recycling service)

	Baseline (4%)	Scenario 1 (8%)	Scenario 2 (12%)	Scenario 3 (16%)
Total Annual Waste Tonnage	31,898.9	30,569.8	29,240.6	27,911.5
Total Annual Waste Collection Cost (1)	\$501,485.9	\$377,452.2	\$316,413.2	\$253,347.0
Total OCC Tonnage (2)	1329.12	2658.24	3987.36	5316.48
Total Recycling Collection Cost	\$22,616.0	\$44,480.0	\$66,888.0	\$88,696.0
Total Waste and Recycling Cost	\$524,101.9	\$421,932.2	\$383,301.2	\$342,043.0
Cost Savings from Baseline		\$102,169.7	\$140,800.7	\$182,058.9
Cost Savings as % of Total Baseline Service Cost		20%	27%	35%
Annual Recycling Revenue (3)	\$13,291.2	\$26,582.4	\$39,873.6	\$53,164.8
Cost savings for Waste Generators (Changes in cost + recycling revenue)		\$115,460.9	\$167,383.1	\$221,932.5
Cost savings as % of Total Baseline Service Cost		22%	32%	42%

Notes:

1. Estimated based on the breakdown of waste services by account recycling rates. Assumes that waste container is 80% full at the time of pick-up, and density of uncompacted and compacted waste is 0.225 t/cy and 0.375 t/cy respectively.
2. Assumes that only OCC is captured in recycling, and the density of uncompacted and compacted OCC is 0.075t/cy and 0.2 t/cy respectively.
3. Assumes that the price of OCC is \$10/ton.

Table 3.4: Impacts on Waste and Recycling Collection Costs with Increased Diversion Rate for Group Scenario II

(Commercial/industrial entities using FEL waste container service and other recycling services, as well as government facilities that use FEL waste collection services)

	Baseline (4%)	Scenario 1 (8%)	Scenario 2 (12%)	Scenario 3 (16%)
Total Annual Waste Tonnage (1) (2)	352,819.0	338,118.2	323,417.4	308,716.6
Total Annual Waste Collection Cost	\$5,514,579.7	\$4,176,553.7	\$3,433,798.8	\$2,588,697.9
Total OCC and MOP Tonnage (3)	14,925.4	30,679.9	48,111.7	67,203.6
Total OCC and MOP Volume				
Total Recycling Collection Cost (4)	\$18,816	\$18,816	\$18,816	\$18,816
Total Waste and Recycling Cost	\$5,533,395.7	\$4,195,369.7	\$3,452,614.84	\$2,607,513.92
Cost Savings from Baseline		\$1,338,026.0	\$2,080,780.9	\$2,925,881.8
Cost Savings as % of Total Baseline Service Cost		24%	38%	53%
Annual Recycling Revenue (5)	\$179,105.2	\$368,158.9	\$577,340.1	\$806,443.3
Cost savings (Changes in cost + recycling revenue)		\$1,527,079.8	\$2,479,015.8	\$3,553,220.0
Cost savings as % of Total Baseline Service Cost		28%	45%	64%

Notes:

1. Assumes that containers are 80% full at the time of pick-up.
2. Assumes that density of uncompacted and compacted waste is 0.225 t/cy and 0.375 t/cy respectively for all scenarios, the density of uncompacted and compacted OCC is 0.075 t/cy and 0.2 t/cy respectively, and the density of uncompacted and compacted MOP is 0.19 t/cy and 0.2 t/cy respectively.
3. Assumes that only OCC and MOP are captured in recycling, and the proportion of OCC and MOP in recyclables is 9:1.
4. Annual recycling collection costs equal to the total recycling collection cost paid by the 112 entities that use 90-gal MOP barrels. Since these 112 entities pay a fixed monthly fee of \$14/month, the total recycling cost thus equals to $\$14 \times 112 \times 12 = \$18,816$.
5. Assumes that the price of OCC and MOP is \$10/ton and \$30/ton respectively.

For *Palm Beach County*, the table below describes the potential cost savings from increased diversion for the SWA’s residential franchise districts.

Table 3.5: Summary of Potential Cost Savings from Increased Diversion Rate
 (Based on 2000/01 tonnage data and recycling market price as of December 2001)

Scenarios	Overall Diversion Rate	Tonnage of Materials Recovered	Avoided Landfill Cost	Avoided Incineration Cost	Revenue	Recycling Facility Operating Costs	Savings From Baseline
Baseline (FY00/01)	14.9%	41,366	\$131,599	\$189,783	\$1,971,000	(\$1,628,950)	NA
Scenario 1	18.0%	50,088	\$159,348	\$229,802	\$2,448,223	(\$1,972,441)	\$201,500
Scenario 2	21.0%	58,232	\$185,255	\$267,163	\$3,020,053	(\$2,293,115)	\$515,923
Scenario 3	24.0%	66,566	\$211,770	\$305,402	\$3,598,224	(\$2,621,327)	\$830,638

3.4 Technology Transfer

The information gained from this project is clearly transferable to any Municipality or County in Florida. The creation of the *Waste Reduction and Recycling Guide* and the *Environmentally Preferable Purchasing Guide for Businesses* will greatly enhance the ability to transfer project results to other communities. In addition to outlining the steps necessary to plan a commercial recycling plan, this report provides a wealth of information to be utilized by businesses and government agencies for implementing commercial and residential Resource Management Contracting concepts into procurement practices. The Resource Management Contract Manual will be made available to Counties or Cities.

3.5 Cost-Effectiveness

Table 3.6, *Costs by Project Element*, summarizes the costs of the project, including grant fund expenditures and in-kind contributions for each project element.

Project Element	In-Kind	Grant Funds	Total
Program Benchmarking	\$27,000	\$78,500	\$105,500
RM Contracting Mechanisms	\$88,000	\$41,000	\$129,000
SIC Code Report	\$12,500	\$5,000	\$17,500
Split-Card Pilot Collection Program	\$57,050	\$113,272	\$170,322
Drop-box Pilot Collection Program	\$24,450	\$48,545.14	\$72,995.14
Electronics Program	\$10,000	\$19,716	\$29,716
SWAP Shop Program	\$15,000	\$13,184.05	\$28,184.05
Government Surplus Equipment Auction and Exchange	\$8,000	\$5,000	\$13,000
Report Preparation	\$12,000	\$13,915.94	\$25,915.94
Project Administration	\$14,000	41,747.83	\$55,747.83
Total	\$268,000	\$379,880.96	\$647,880.96

3.6 Nontraditional Materials

The most significant “nontraditional” material included in this project is high-grade office paper. Diversion of this material can significantly impact the cost-effectiveness of a waste reduction program. Most commercial office paper programs are mixed office paper programs so that higher volumes of materials can be recovered and greater waste diversion tonnages achieved. Ironically, the Metropolitan pilot route collected more paper than the Capital Medical pilot route even though the Metropolitan route collected only high-grade paper.

3.7 Recommended Next Steps

Although this report marks the completion of the innovative grant project, it also represents a starting point for expanding commercial waste reduction programs in the City of Tallahassee and Leon County. In addition, rethinking contracts and RFP’s utilizing RM

Contracting incentives and language could help to increase waste diversion from residents and commercial establishments. In addition, it allows for the continuation of the electronics programs and web-based electronics SWAP Shop.

In conclusion, based on the analyses conducted through this project, innovative commercial and residential waste diversion programs offer Florida counties and municipalities tremendous program expansion and waste reduction opportunities. Encouraging and assisting with establishment of such programs through the material provided in this report should provide not only valuable environmental benefits but also increased recycling revenues for recyclable commodities.

APPENDIX A

APPENDIX B

APPENDIX C

APPENDIX D

APPENDIX E

APPENDIX F