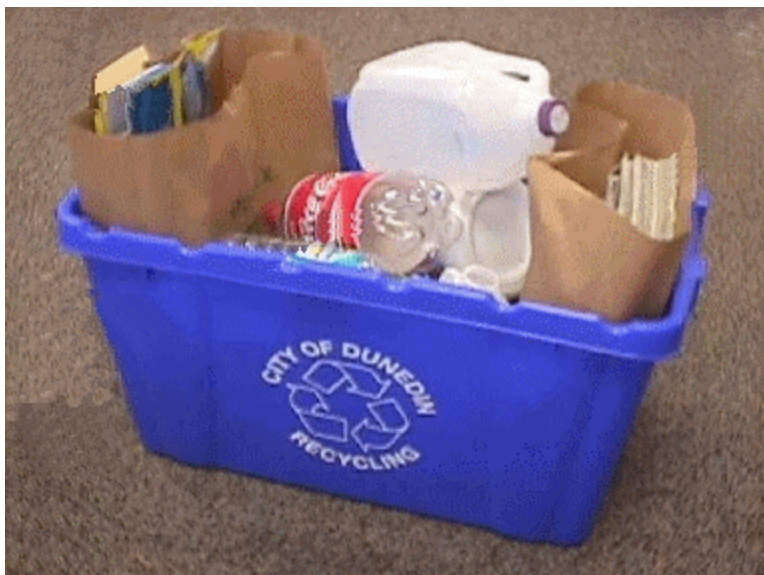




## **CURBSIDE RECYCLING PLAN**

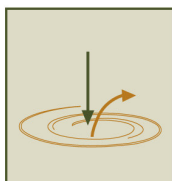
**August 2008**



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**PINELLAS COUNTY**  
**CURBSIDE RECYCLING PLAN**  
**August 2008**

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# SECTION 1

## PURPOSE AND BACKGROUND

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### 1.1 Purpose

Pinellas County is the most densely populated county in Florida with an average of 3,384 residents per square mile and total population of more than 948,000 people.<sup>1</sup> Of the ten most populated counties in Florida, Pinellas County is the only one that does not have a comprehensive residential curbside recycling program. This is in large part because it is the only one of these counties that is not directly involved in residential waste collection either through a collection franchise or a publicly operated sanitation department.

Pinellas County Department of Solid Waste Operations (SWO) retained the services of Kessler Consulting, Inc. (KCI) to assist with developing a plan for implementing residential curbside recycling in the unincorporated county and any municipalities within the county wishing to participate. KCI first compiled information about existing residential recycling programs in the county, including those in each municipality. This is summarized in Section 1.2 of this document. KCI then evaluated various options for establishing a curbside recycling program by considering collection programs and costs, as well as recycling revenues, in other Florida jurisdictions. This information is presented in Section 2. Finally, KCI developed a recommended plan for establishing a curbside recycling program, which is presented in Section 3. This plan also addresses options for municipal participation in the program, including how the County might reimburse municipalities that have their own curbside recycling programs in place.

### 1.2 Existing Recycling Programs in Pinellas County

Approximately 30 percent of Pinellas County's population (280,487 residents) resides in the unincorporated county.<sup>2</sup> Based on data compiled by the Pinellas County Planning Department, there are approximately 78,000 single-family, duplex, triplex, or quadruplex dwelling units in the unincorporated area, which are the types of units that typically receive curbside waste collection service. Solid waste collection in the unincorporated county is by subscription, and the level of service and service fees vary. Five companies currently provide subscription waste collection service and most offer curbside recycling, usually for an additional fee.

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<sup>1</sup> Bureau of Economic and Business Research, University of Florida, "Florida Statistical Abstract 2007."

<sup>2</sup> Bureau of Economic and Business Research, University of Florida, "Florida Statistical Abstract 2007."

Because the County is not directly involved in providing or contracting for waste collection service, limited information is available. Based on a 2008 survey of unincorporated county residents,<sup>3</sup> the median service fee for waste collection and disposal is \$25 per month. Approximately 29 percent of unincorporated county residents subscribe for curbside recycling, and an additional 40 percent would like to have curbside recycling but do not currently have access to it.

Based on a 2007 countywide survey,<sup>4</sup> approximately 57 percent of single family/duplex/triplex residences receive waste collection service from an entity that does not offer curbside recycling or the resident is not aware of this service. The same survey revealed that 69 percent of multi-family residents do not have collection of recyclables available at their complex. Of those residents with service providers that do offer curbside recycling, 79 percent of single-family/duplex/triplex residents and 93 percent of multi-family residents reported participating in the program. This is a strong indication that when recycling is available, the majority of county residents will participate.

Of the 24 municipalities in Pinellas County, 20 have universal curbside recycling (i.e., the solid waste collection service fee is inclusive of curbside recycling), 1 offers subscription service (i.e., residences must sign up and pay extra for curbside recycling), and 3 do not offer curbside recycling. Although only 3 municipalities do not have curbside recycling, they represent nearly 39 percent of municipal residences.

Table 1.1 provides a summary of the municipal curbside recycling programs, and Table 1.2 provides a summary of the recyclable materials collected curbside in each municipality that has a curbside recycling program. Although the City of St. Petersburg does not offer curbside recycling, a private company, St. Pete Recycling Solutions, offers subscription curbside recycling service, independent of the City, for a fee of \$15 per month.

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<sup>3</sup> Research Data Services, Inc., 2008 Pinellas County Solid Waste/Recycling Collection Survey.

<sup>4</sup> Research Data Services, Inc., 2007 Pinellas County Recycling Awareness Survey, September 26, 2007.

**Table 1.1 – Municipal Curbside Recycling Programs and Fees in Pinellas County**

Municipality	Population (a)	Households w/ Curbside Solid Waste Service	Curbside Recycling?	Dual Stream or Curbsort?	Recycling Service Provider	Contract Term	Collection Fee (\$/HH/month) (b)		Payment Method
							Recycle	Total	
Belleair	4,144	1,500	Universal	Curbsort	City of Clearwater	NA	\$2.00	\$28.94	Utility bill
Belleair Beach	1,619	804	Universal	Dual stream	Waste Management	NR	NR	NR	NR
Belleair Bluffs	2,232	655	Universal	Dual stream	Waste Management	60 day notice	\$2.53	\$15.65	Utility bill
Belleair Shore	71	55	Universal	Curbsort	Waste Services	NR	\$1.50	\$13.56	Assessment
Clearwater	110,602	26,800	Universal	Curbsort	City of Clearwater	NA	\$2.01	\$23.49	Utility bill
Dunedin	37,574	12,500	Subscription 1,644 currently	Curbsort	City of Dunedin	NA	\$2.79	\$19.91	Utility bill
Gulfport	12,935	4,613	Universal	Curbsort	City of Gulfport	NA	\$1.50	\$17.55	Utility bill
Indian Rocks Beach	5,345	1,344	Universal	Newspaper only	City of Indian Rocks Beach	NA	NAV	\$13.31	Utility bill
Indian Shores	1,803	304	Universal	Curbsort	Waste Services	expires 12/31/09	\$2.01	\$14.98	Hauler bills
Kenneth City	4,551	963	Universal	Curbsort	Waste Services	expires 12/31/11	\$2.00	\$11.00	Hauler bills
Largo	75,850	16,500	Universal	Curbsort	City of Largo	NA	NAV	\$17.65	Utility bill
Madeira Beach	4,514	1,200	No	NA	NA	NA	NA	\$19.50	NAV
N. Redington Beach	1,509	712	Universal	Curbsort	Waste Services	expires April 2010	\$2.24	\$15.98	Hauler bills
Oldsmar	13,829	4,300	Universal	Curbsort	City of Oldsmar	NA	\$1.59	\$9.27	Utility bill
Pinellas Park	48,835	20,000	Universal	Dual Stream	Waste Management	2003-2013	NAV	\$9.93	Utility bill
Redington Beach	1,583	650	Universal	Curbsort	Waste Services	expires Sept. 2008	NAV	\$16.59	Utility bill
Redington Shores	2,366	669	No	NA	NA	NA	NA	\$12.78	NAV
Safety Harbor	17,838	6,800	Universal	Curbsort	City of Safety Harbor	NA	\$2.77	\$21.39	Utility bill
Seminole	18,716	3,793	Universal	Dual stream	Waste Management	12/1/03-11/30/08	\$1.53	\$11.97	City pays recycling
South Pasadena	5,758	479	Universal	Dual stream	Republic	expires Sept. 2008	NAV	\$10.48	Hauler bills
St. Pete Beach	10,050	187	Universal	Curbsort	Waste Services	2008-2013	NAV	\$12.60	Hauler bills
St. Petersburg	254,225	70,776	No	NA	NA	NA	NA	\$21.76	Utility bill
Tarpon Springs	24,161	8,500	Universal	Dual Stream	Waste Management	10/1/07-9/30/12	\$7.16	\$24.98	Utility bill
Treasure Island	7,505	2,420	Universal	Dual Stream	Waste Management	expires 2011	\$1.70	\$14.19	Utility bill
<b>TOTAL</b>	<b>667,615</b>	<b>186,524</b>				<b>AVERAGE</b>	<b>\$2.38</b>	<b>\$16.41</b>	

(a) Bureau of Economic and Business Research, University of Florida, "Florida Statistical Abstract 2007."

(b) Amount listed is the contract rate for those municipalities that contract for service and the billed rate for those that have municipal sanitation crews.

HH = Households  
 NA = Not Applicable  
 NAV = Not Available  
 NR = No Response

**Table 1.2 – Materials Accepted in Municipal Curbside Recycling Programs**

Municipality	Curbside Recyclables						
	Alum. Cans	Cardboard	Glass	Mixed Paper	Newspaper	1&2 Plastics	Steel Cans
Belleair	X			X	X	X	X
Belleair Beach	X		X		X	X	X
Belleair Bluffs	X		X		X	X	X
Belleair Shore	X		X	X	X	X	X
Clearwater	X			X	X	X	X
Dunedin	X		X	X	X	X	X
Gulfport	X			Piloting	X	X	
Indian Rocks Beach					X		
Indian Shores	X				X	X	
Kenneth City	X				X	X	
Largo	X	X		X	X	X	
N. Redington Beach	X		X	X	X	X	X
Oldsmar	X			X	X	X	X
Pinellas Park	X		X		X	X	X
Redington Beach	X		X	Phone books	X	X	X
Safety Harbor	X			X	X	X	X
Seminole	X			X	X	X	
South Pasadena	X		X		X	X	X
St. Pete Beach	X		X		X	X	X
Tarpon Springs	X		X		X	X	X
Treasure Island	X	X	X		X	X	X

Table 1.3 presents the quantity of fiber (i.e., paper) and commingled containers collected annually per household through curbside recycling programs and through drop-off programs in the 17 municipalities that reported such tonnages to SWO. Drop-off programs require residents to deliver recyclables to designated recycling sites or centers. For example, Pinellas County operates 13 drop-off recycling centers that accept newspaper, cardboard, mixed paper, aluminum and steel cans, and #1 and #2 plastic bottles. Some municipalities have both curbside recycling and drop-off centers. For example, Indian Rocks Beach collects only newspaper in its curbside program, and collects other types of recyclables at its drop-offs. Curbside recycling is more convenient for residents and, as demonstrated in Table 1.3, results in greater recovery of recyclables per household.

**Table 1.3 – Recyclables Recovered Through Curbside and Drop-off Programs, 2007**

Municipality	Curbside Collection			Drop-off Collection		
	Households with Recycling Service (a)	Tons of Recyclables Recovered	Tons per Household	Single-Family Households	Tons of Recyclables Recovered (b)	Tons per Household (c)
Clearwater	26,800	6,581.09	0.25			
Dunedin	1,644	246.75	0.15	11,577	969.74	0.08
Gulfport	4,160	372.37	0.09			
Indian Rocks Beach (d)	1,344	28.00	0.02	1,344	53.88	0.04
Kenneth City	963	50.29	0.05			
Largo	16,500	1,928.54	0.12			
N. Redington Beach	712	40.93	0.06			
Oldsmar	4,122	416.12	0.10			
Pinellas Park	16,530	2,113.32	0.13			
Safety Harbor	6,800	1,238.00	0.18			
Seminole	4,106	562.96	0.14			
South Pasadena	479	79.47	0.17			
St. Pete Beach	3,302	862.73	0.26			
Treasure Island	2,420	392.18	0.16			
Tarpon Springs	8,490	1,158.22	0.14			
Madeira Beach				1,200	49.61	0.04
St. Petersburg				70,776	1,342.98	0.02
Unincorporated County				78,000	1,870.10	0.02
<b>Total / Average</b>	<b>98,372</b>	<b>16,070.97</b>	<b>0.16</b>	<b>164,897.00</b>	<b>4,286.31</b>	<b>0.03</b>

Source: 2007 Municipal Recycling Reports submitted to Pinellas County Department of Solid Waste Operations. Municipalities that did not submit curbside data to SWO are not included in the table.

(a) Total number of households that receive curbside collection, but not necessarily the number that participate.

(b) Drop-off tonnages include fiber and containers only.

(c) Figures may be high; assumes only single-family households use drop-offs, when in reality multi-family residents and businesses also use drop-offs.

(d) Indian Rocks Beach collects only newspaper in its curbside recycling program.

Based on the information provided above, the following conclusions can be drawn about the existing residential recycling programs in Pinellas County:

- More than 70 percent of unincorporated county residents<sup>5</sup> and approximately 39 percent of municipal residents that receive curbside collection of solid waste do not have curbside recycling available to them.
- The average service fee for curbside recycling in the municipalities is \$2.38 per household per month. Service fees range from \$1.50 to \$2.79 per household per month, with the exception of Tarpon Springs, which reports an unusually high fee of \$7.16 per household per month. Most municipalities bill customers for curbside recycling through their utility bills, but in at least six municipalities, the contracted service provider is responsible for billing.

<sup>5</sup> Research Data Services, Inc., 2008 Pinellas County Solid Waste/Recycling Collection Survey.

- In 13 municipalities, residential recyclables are sorted curbside, typically into fiber, plastics, metal containers, and glass (when included). These municipalities are either serviced by Waste Services or their recyclables are delivered to the City of Clearwater’s recycling facility for processing. In 7 municipalities, residential recyclables are picked up in a dual stream: fiber and commingled containers. These municipalities are serviced by either Waste Management or Republic, which deliver the collected materials to recycling facilities capable of processing dual stream recyclables.
- The amount of recyclables recovered per household through curbside recycling programs is more than five times greater than the amount of similar materials collected through drop-off recycling programs.<sup>6</sup>

Based on this background information, a comprehensive curbside recycling program could more than double the number of households that have access to curbside recycling if all municipalities participate. It would also allow some municipalities to switch to dual stream collection rather than curbsorting if they so choose. In addition, the public education that would accompany such a program should increase participation in those municipalities that already have curbside recycling. Overall, the County should realize a significant increase in recovery of residential recyclables, which is further quantified in Section 3.

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<sup>6</sup> These figures include paper and containers that are typically collected in curbside programs, but do not include yard waste and other materials that are accepted at some of the drop-off centers.

## SECTION 2

### ANALYSIS OF COLLECTION AND PROCESSING OPTIONS

To analyze the options for curbside recycling and potential costs to the County, KCI evaluated curbside recycling contracts, fees, and recovery rates in other Florida jurisdictions; recyclables processing contracts and revenue; and options for municipal participation in the County’s curbside recycling contract.

#### 2.1 Curbside Recycling Programs in Other Florida Jurisdictions

To gauge the service fee the County might expect to pay for curbside recycling, Table 2.1 provides information from representative Florida jurisdictions that have contracts solely for recyclables collection (recycling-only), and Table 2.2 presents data from representative jurisdictions that have full-service waste collection contracts. The latter was limited to jurisdictions that were able to separate the fee for curbside recycling from the overall solid waste collection fee. Recycling-only contracts are atypical, and are usually found in jurisdictions where public sanitation crews collect solid waste but a decision is made to contract for curbside recycling.

**Table 2.1 – Recycling-only Collection Contracts**

Jurisdiction	Fee (\$/HH/month)	Collection Method	Multi-Family Recycling Included?	Hauler Retains Commodity Revenue?	Number of Customers	Contract Term
Fort Lauderdale	\$1.96 & \$2.23 (a)	2-stream, bin, 1/week	Verbal agreement to service at same fee as SF	Yes (20% share)	54,800	3/8/06-3/7/09
Fort Myers	\$3.27	2-stream, bin, 1/week	Yes, same service fee as SF or fee of \$15.50/cart/month	No	15,000	2006-2011 2 1-year exts.
Hollywood	\$1.59	Curbsort, bin, 1/week	Yes, collected in 96-gal carts for \$15/month	Yes (share with city)	32,000	2003-2008
Miami-Dade (starts June 2008)	\$1.94	Single stream, cart, every other week	Contract includes expansion to service MF, but not mandated	No	340,800 (3 districts)	6/08-9/15 1 7-yr ext.
Sarasota	\$2.61	2-stream, bin, 1/week	Yes, same service fee as SF	Yes	27,760	1990-2010
St. Augustine	\$2.00	Single stream, bin, 1/week	Yes, same service fee as SF, but utilize 95-gal carts in common area	Yes	5,700	2007-2010 3-year ext.
Winter Haven	\$2.33	2-stream, bin, 1/week	No	Yes	9,770	10/07-9/10
Hernando County	\$2.10	2-stream, bin, 1/week	No	No	38,840	2006-2010

(a) Lower fee includes only newspaper in the fiber stream and higher fee includes mixed paper.

MF = Multi-family

SF = Single-family

HH = Household

**Table 2.2 – Full-service Collection Contracts**

Jurisdiction	Fee (\$/HH/month)	Collection Method	Multi-Family Recycling Included?	Hauler Retains Commodity Revenue?	Number of Customers	Contract Term
Lee County	SF - \$2.38	2-stream, bin, 1/week	95-gallon recycling carts at no additional charge; or curbside garbage and recycling at 75% of SF rate	No	SF - 39,400 (5 districts)	2005-2010
Manatee County (starts Oct 2008)	Area 1 - \$3.06 Area 2 - \$2.50	2-stream, bin, 1/week	Yes, same service fee as SF	Yes	SF - 91,652 MF - 26,348 (2 districts)	10/08-9/16 1 7-year ext.
Palm Beach County (starts Oct 2008)	SF - \$3.10 MF - \$2.38 (a)	2-stream, bin, 1/week	Yes, separate fees for MF containerized service	No	SF - 184,115 MF - 90,769 (11 districts)	10/08-9/13
Sarasota County	SF - \$2.40 MF - \$2.35	2-stream, bin, 1/week	Yes, separate fees for MF service	No	SF - 91,000 MF - 52,000	10/04-9/09 2 5-year exts.
Volusia County	SF - \$2.09	2-stream, bin, 1/week	MF recycling treated as commercial	No	SF - 43,400	1/05-12/11 1 7-year ext.

(a) Weighted average of all districts.

MF = Multi-family

SF = Single-family

Based on the information presented in Tables 2.1 and 2.2, the following conclusions can be drawn:

- Monthly fees per household in the jurisdictions with recycling-only contracts range from \$1.59 to \$3.27, and average \$2.30 in those jurisdictions with weekly collection. In the jurisdictions with full-service contracts, monthly fees for curbside recycling range from \$2.09 to \$3.10 per household, and average \$2.59. These are typical price ranges for Florida. Prices in more recently bid contracts tend to be higher as fuel prices have continued to rise.
- Multi-family recycling is addressed in most of these contracts. Most of these jurisdictions establish a specific per-household or per-cart fee for this service, although the service fee in others is the same as the single-family fee.
- Based on KCI's experience, public entities rarely realize the true market value of recovered materials if they allow the collection service provider to retain commodity revenue. It is generally more advantageous for a jurisdiction to establish a revenue agreement either with the contracted collection service provider or with a separate processing company. Potential recycling revenue from this type of arrangement is discussed in Section 2.3.
- Based on KCI's experience, lower recycling collection fees are typically achieved in full-service collection contracts than in recycling-only contracts. A full-service contract also provides a more cohesive and consistent waste collection system, offers a higher level of service that includes not only curbside recycling but also separate yard waste collection,

reduces the environmental impacts of multiple collection vehicles traversing the same roads, and maintains private sector competition to provide these services. If the County chooses to implement a full-service collection contract in the future, rates in the range of \$15 to \$20 per household per month (for collection and disposal) might be expected for twice per week collection of solid waste, weekly collection of recyclables, and weekly collection of separated yard waste. This is 20 to 40 percent lower than the median service fee of \$25 per month reported in the 2008 survey of unincorporated county residents.<sup>7</sup> Per Section 403.70605, F.S. (the Unfair Competition Act), the County would need to provide three year’s prior notice to companies that might be displaced if the County were to enter into a full-service waste collection contract.

## 2.2 Material Recovery in Other Jurisdictions

To estimate the quantity of recyclables that might be collected through a comprehensive countywide curbside collection program, KCI compiled recovery rates for recyclables from nine Florida jurisdictions that provided this data. A summary of this information is provided in Table 2.3.

**Table 2.3 – Material Recovery Rates in Curbside Programs**

Jurisdiction	Residential Customers	SF &/or MF	Recyclables (tons/year)	Recyclables (tons/HH/year)
Sarasota County	143,820	SF & MF	32,296	0.22
City of Sarasota	16,356	SF & MF	3,348	0.20
Palm Beach County	638,417	SF & MF	108,300	0.17
Volusia County	44,121	SF & MF	6,279	0.14
City of Tallahassee	46,807	SF & MF	6,083	0.13
Seminole County	122,166	SF	15,672	0.13
Hillsborough County	239,590	SF	29,918	0.12
Manatee County	119,006	SF & MF	14,786	0.12
City of Jacksonville	256,422	SF	28,287	0.11

SF = Single-family      MF = Multi-family      HH = Households

Based on the information in Table 2.3, the following conclusions can be drawn about material recovery in the surveyed jurisdictions:

- Recovery rates for recyclable materials range from 0.11 to 0.22 tons per household per year. This is based on the total number of households that are offered service, not the number that participate.

<sup>7</sup> Research Data Services, Inc., 2008 Pinellas County Solid Waste/Recycling Collection Survey.

- Based on KCI’s knowledge of the surveyed jurisdictions, those with effective and ongoing public education programs for recycling have higher recovery rates – up to two times higher, as indicated in the table. For example, Sarasota County directly mails or delivers a recycling guide annually to all of its residents, has current information about recycling on its website, and has an active recycling staff. Pinellas County’s recycling education program has many of these same elements; therefore, recovery rates on the higher end of the range would be anticipated when curbside recycling is implemented.
- Although multi-family recycling programs can be challenging and often are believed to generate fewer recyclables on a per-unit basis, the surveyed jurisdictions that include multi-family residences in their programs have higher per-household recovery rates than those that do not.

### **2.3 Recovered Materials Processing and Marketing**

Pinellas County will also need to decide how materials recovered through curbside recycling will be processed. The options include allowing the collection contractor to arrange for processing or entering into a separate processing contract. In the latter option, the County would certainly receive revenue for the recyclables. In the first option, the County could require a revenue share or let the collection contractor retain all revenue in return for lower collection service fees. Based on KCI’s experience, local governments do not fully realize the value of recovered materials by letting the collection contractor retain all commodity revenue.

The value of recyclable materials is at historically high levels. Strong global demand, increased extraction costs for virgin materials, and supply constraints have helped increase market values for recovered paper, plastic, and metal. While market prices fluctuate, it is widely accepted that prices will remain strong for the foreseeable future due to high fuel prices, overseas market demand, and other underlying supply-demand dynamics. Put simply, gone are the days when public recycling programs must pay to process their recyclables, or just be happy to “get rid” of them at no cost.

As noted in Table 2.4, the estimated value of materials typically recovered through curbside recycling programs, based on current market indices and the percentage breakdown of recovered materials in similar jurisdictions, is approximately \$140 per ton. This is the estimated value of the recovered commodities after separation and processing.

Table 2.5 presents the revenue that various Florida communities are earning for their residential curbside recyclables. The net revenue listed in the table is the “bottom line” revenue paid to

each community after deducting any processing contract costs, such as processing fees, residue disposal charges, and limits on revenue share (this does not include collection costs). Net revenue varies depending on local market competition, distance to end-users, the quantity of materials recovered, commodity values, and other factors. Those jurisdictions included in the table are earning between \$38 and \$74 per ton of recyclables, with Sarasota County recently receiving an offer as high as \$80 per ton.

**Table 2.4 – Estimated Value of Recovered Materials, March 2008**

Material	Market Index (a)	Market Value (\$/ton)	Estimated Material %	Estimated Market Value (\$/ton) (b)
Newspaper	120.00	\$120.00	50.6%	\$60.72
Corrugated cardboard	130.00	\$130.00	17.6%	\$22.87
Mixed paper	102.50	\$102.50	5.5%	\$5.69
Aluminum cans	79.00	\$1,580.00	1.2%	\$19.47
Steel cans	190.00	\$190.00	2.3%	\$4.37
PET bottles	19.00	\$380.00	2.4%	\$9.06
Colored HDPE bottles	28.00	\$560.00	1.2%	\$6.63
Natural HDPE bottles	39.50	\$790.00	1.2%	\$9.52
Flint glass	29.00	\$29.00	5.9%	\$1.72
Amber glass	17.50	\$17.50	4.0%	\$0.69
Green glass	11.00	\$11.00	8.1%	\$0.89
<b>TOTAL</b>				<b>\$141.62</b>

(a) Indexes are those published the first week in March 2008 in the Secondary Fiber Index or Secondary Material Index for the Southeast average, Waste News website.

(b) Weighted average based on the percentage of each material in the typical residential recycling stream.

**Table 2.5 – Recovered Material Revenue (a)**

Jurisdiction	Net Revenue (\$/ton)	Quantity (tons/year)	Collection	Owner	Operator
Jacksonville	\$48.61 (b) (base revenue)	27,500	Dual Stream	Smurfit-Stone	Smurfit-Stone
Tallahassee	\$63.62	10,000	Dual Stream	Recycled Fibers	Recycled Fibers
Broward County	\$58.15	55,800	Dual Stream	WMRA	WMRA
Lee County	\$38.05	41,400	Dual Stream	County	FCR
Sarasota County (2008 RFP)	\$50.11 - \$80.50 (c)	32,000	Dual Stream	FCR, Pratt, WMRA	FCR, Pratt, WMRA
Seminole County	\$74.09	15,700	Dual Stream	County	Waste Management
Volusia County	\$33.82	6,300	Dual Stream	County	GEL Corp.

(a) Based on 2007 data unless otherwise noted.

(b) Based on contract, KCI estimates that the City of Jacksonville should have received approximately \$55 per ton in 2007.

(c) Based on proposals received in March 2008, which are still under review.

Pinellas County recently entered into a contract for transporting and processing recyclables collected at the County’s 13 recycling drop-off centers. The current contractor is paying the County \$77.76 per ton of recyclables, which are now collected in two streams, less the pull charges.

All of the jurisdictions in Table 2.5 collect recyclables in two streams, although the facilities that process the materials from Broward, Orange, and Volusia counties are capable of handling single stream recyclables. Single stream recycling is a promising technology that is becoming widely used in many parts of the country. It allows for automated or manual collection of curbside recyclables in a single container. Currently, three single stream facilities exist in Florida: Orange County’s facility that is operated by Waste Management, Waste Management’s facility in Broward County, and GEL Corporation’s facility in Volusia County. Table 2.6 summarizes the advantages and disadvantages of single stream recycling.

**Table 2.6 – Advantages and Disadvantages of Single Stream Recycling**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>▪ More convenient for residents, which results in higher participation and material recovery</li> <li>▪ No specialized (i.e., compartmentalized) collection vehicles needed, and vehicle payload capacity can be optimized</li> <li>▪ No curbsorting allows more homes to be serviced per route</li> <li>▪ Allows for automated collection, which requires smaller labor force and results in fewer worker injuries</li> <li>▪ Lower collection costs</li> <li>▪ Potential to add more materials to the program</li> <li>▪ Reduction in scavenging if carts are used</li> </ul>	<ul style="list-style-type: none"> <li>▪ Less quality control at the curb, which can result in higher contamination levels</li> <li>▪ Higher processing costs</li> <li>▪ Potential for lower commodity value if contamination is not removed in processing</li> <li>▪ Lower recovery of glass by color</li> <li>▪ Lower per-ton revenue to the local government</li> </ul>

Dual stream recyclables generally provide higher revenue than those collected in a single stream, and the savings in collection costs that should result from single stream collection is sometimes not realized by the community or sufficient to offset the revenue loss. However, KCI has noted a general trend towards single stream with new facilities possible in nearby counties over the next year or two.

Based on Table 2.5, Table 2.6, and other information outlined above, the following conclusions can be drawn about materials processing and marketing:

- The County should reasonably expect to receive revenue in the range of \$50 to \$75 per ton in today's marketplace, either through the collection contractor or through a processing contract separate from the collection contract. Contract terms can be developed that will allow the County to share in significant market fluctuations (e.g., increases or decreases of more than 20 to 25 percent), while protecting the financial interests of the County.
- Although single stream recycling offers numerous advantages, limited single stream processing capacity currently exists in Florida. Therefore, at this time, KCI recommends that dual stream collection be stipulated in the service procurement process, with single stream included as an option. This will enable more vendors to compete and will allow the County to evaluate which option offers the best value for its residents.

The collection and processing options discussed in this section are incorporated into the recommended curbside recycling program plan that follows in Section 3.

## SECTION 3

### RECOMMENDED CURBSIDE RECYCLING PLAN

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Based on an analysis of residential recycling programs in Pinellas County and other parts of the State, as well as recyclables processing options, KCI recommends that the County issue a Request for Proposals (RFP) for curbside collection of recyclable materials in the unincorporated county and in any municipalities within the county that wish to participate in the contract. If a decision to proceed is made by October 2008, a contract for this service could potentially be in place in sufficient time to initiate collection at the beginning of 2010.

This section outlines KCI's recommendations for the curbside recycling program and contract, discusses options for municipal participation in the program, estimates the cost of this service, discusses the environmental impacts of such a program, and presents a proposed implementation timeline.

#### 3.1 Program and Contract Recommendations

Outlined below are recommendations for structuring the curbside recycling program and collection contract. As the RFP and contract are developed, details will need to be further refined.

- Single-family residences: Curbside recycling collection should be provided to all single-family residences, which will need to be defined, in the unincorporated county. For the purpose of the collection contract, KCI recommends that all residential units in dwellings with four or fewer units per dwelling be considered single-family. This is consistent with the County's collection franchise agreement for Lealman.
- Multi-family residences and commercial businesses: The RFP should require vendors to include in their proposals maximum service fees to provide recycling to multi-family residences or commercial businesses. This would *not* mandate that multi-family residences and businesses recycle or give the contractor the exclusive right to provide these services, but it would ensure this service is available to any multi-family complex or business wishing to recycle. The selected contractor could charge less than the maximum service fee in its proposal and would be responsible for billing multi-family and commercial customers. The contractor could provide this service using bins, carts, or commercial containers. Based on data from the County Planning Department, approximately 40 percent of the dwelling units in the unincorporated county are in multi-family complexes.

- Service level and method: The RFP should require prices for weekly collection of recyclable materials in two streams, fiber (paper) and commingled containers, as well as allow proposals for single stream collection.
- Recyclable materials: KCI recommends that the fiber stream consist of all residential mixed paper, including corrugated cardboard, newspaper, magazines, phone books, junk mail, notebook or writing paper, paperboard, and chipboard. The commingled container stream should include aluminum and steel cans, plastic containers coded #1 through #7, glass jars and bottles (all colors), and aseptic containers (i.e., polycoated cartons).
- Recycling bins: The County should consider purchasing recycling bins or carts, whichever is appropriate for the collection method selected. This would be less expensive than if the contractor purchased them, and would ensure the County obtains the bins/carts it desires. The County could also purchase additional bins/carts annually for new customers and for replacements, or place this responsibility on the contractor.
- Contract term: A typical term for a contract of this type is at least five years with renewal options at the County's discretion.
- Service areas: To service the estimated 78,000 customers in the unincorporated county, the County should consider no more than two service areas. If municipalities choose to participate in the contract, the number of service areas will need to be reconsidered.
- Recyclables processing: Prior to issuing the RFP, KCI recommends that the County meet with local recycling processors to determine the capabilities of each and level of interest in receiving the County's residential recyclables. Depending upon the outcome of these discussions, KCI recommends that the County consider issuing an RFP for recyclables processing concurrently with the collection RFP. In addition, the RFP should leave open the option of having the contractor process and market the collected recyclables, and require proposers to provide a bid for the revenue that will be paid to the County for each ton of recyclables collected. The County will then be able to evaluate which option is more beneficial.

### **3.2 Municipal Participation**

Pinellas County intends to finance the curbside recycling program with revenue from the resource recovery system. For the program to be fair and equitable, all municipalities will have the opportunity to participate in one of several ways.

- (1) Municipalities can manage their own curbside recycling programs rather than participate in the County's curbside recycling contract.
  - The County would reimburse these municipalities for the net cost of their curbside recycling programs (collection costs less material revenue) up to the amount of the County's contracted service fee. If the County utilizes more than one collection area, the maximum reimbursable rate would be the average of the service fees in the two service areas. Municipalities would need to submit information documenting their actual net costs for collecting and processing curbside recyclables for County review and approval.
  - Municipally managed curbside recycling programs would not be required to match the County's program, but would need to meet certain minimum criteria, established by SWO, to be eligible for reimbursement. KCI suggests that such minimum criteria be aligned with Florida Statutes, and require that at least four of the following materials be included in the curbside collection program: newspaper, aluminum cans, steel cans, plastic bottles, glass, cardboard, and mixed paper.
- (2) Municipalities can be included in the County's contract from the outset. The benefits of municipal participation include more competitive service fees that generally result from servicing more customers; consistent curbside recycling programs, which reduces customer confusion; and a coordinated, cohesive public education campaign. The County would pay the contracted collection service fee, as well as retain material revenue.
- (3) Municipalities can be allowed to join in the contract at a later date, for example at the expiration of an existing municipal collection contract. At least seven municipalities have collection contracts that extend beyond the proposed start date of October 2009.

### **3.3 Estimated Cost of Service**

Various factors affect the service fee the County might expect to pay for curbside collection of recyclables, including the number and density of customers, proximity to the processing facility, and local market competition for collection and processing. Based on curbside recycling service fees in municipalities within Pinellas County and other Florida jurisdictions, a reasonable service fee would be in the range of \$2.00 to \$3.00 per household per month. To be conservative, Table 3.1 provides a range of estimated countywide program costs assuming the service fee is \$2.50 and \$3.00.

Table 3.1 also estimates the quantity of recyclables the County might expect to recover. The quantity of recyclables collected per household depends on numerous factors, including the types

of materials accepted in each municipal program, the effectiveness of the education campaign, participation rates, and community demographics.

As noted in Section 2.2, those jurisdictions with active public education programs typically achieve higher material recovery rates. Pinellas County utilizes similar public education initiatives as Sarasota County, which has the highest recovery rate of the surveyed jurisdictions. Pinellas County produces and distributes an annual solid waste and recycling directory and has a very informative and user-friendly website. Therefore, if the County implements a program that includes the recyclable materials mentioned in Section 3.1, recovery rates in the range of 0.17 to 0.22 tons per household per year should be achievable.

Table 3.1 also estimates potential revenue for recovered materials. As mentioned previously, revenue in the range of \$50 to \$75 per ton should be achievable. For the purpose of this analysis, a conservative figure of \$50 per ton was utilized.

**Table 3.1 – Estimated Curbside Recycling Costs and Revenues**

	Unincorporated County		Municipalities		Total County	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
Curbside Customers	78,000	78,000	186,600	186,600	264,600	264,600
Assumed Service Fee (\$/HH/month)	\$2.50	\$3.00	\$2.50	\$3.00	\$2.50	\$3.00
Est. Collection Cost (\$/year)	\$2,340,000	\$2,808,000	\$5,598,000	\$6,717,600	\$7,938,000	\$9,525,600
Assumed Recovery (tons/HH/year)	0.22	0.17	0.22	0.17	0.22	0.17
Potential Recovery (tons/year)	17,160	13,260	41,052	31,722	58,212	44,982
Potential Revenue (\$/year, assumes \$50/ton)	(\$858,000)	(\$663,000)	(\$2,052,600)	(\$1,586,100)	(\$2,910,600)	(\$2,249,100)
Est. Net Cost (\$/year)	\$1,482,000	\$2,145,000	\$3,545,400	\$5,131,500	\$5,027,400	\$7,276,500

Based on this analysis, the County should expect to pay between \$2.3 and \$2.8 million annually for curbside collection in the unincorporated county, and an additional \$5.6 to \$6.7 million annually if all municipalities choose to participate in the program. The total estimated annual expenditure for collection would be between \$7.9 and \$9.5 million. Revenue received for recyclables collected as part of this program would be retained by the County solid waste system

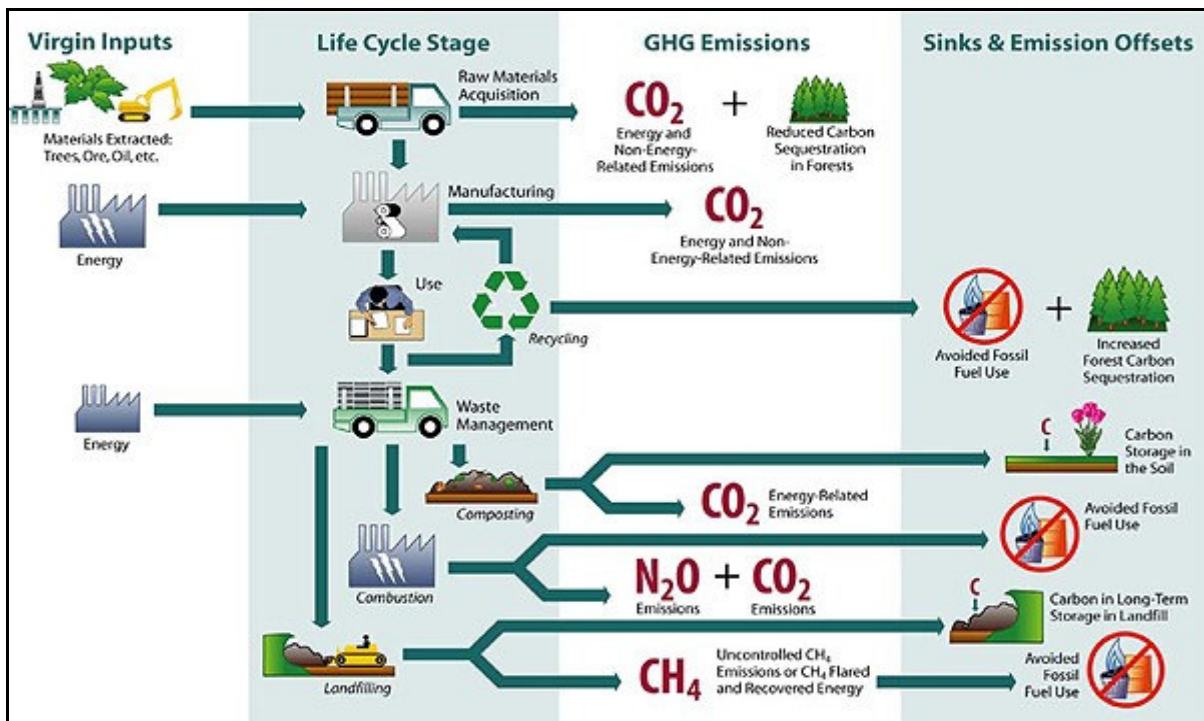
or, for those municipalities managing their own curbside programs, would be netted out of municipal collection costs prior to reimbursement by the County.

### 3.4 Environmental Impacts

Expanding a recycling program is one of the easiest, fastest, and least expensive steps that communities can take to decrease their contributions to greenhouse gas (GHG) emissions and other environmental impacts. The environmental benefits of recycling are found at every stage of a consumer product’s life cycle, from mining of raw materials through use and final disposal. Some of these benefits are realized locally and others globally, for example, benefits such as reduction in GHG emissions may occur elsewhere but are of global importance.

Manufacturing products from recovered materials rather than virgin materials conserves natural resources, results in net reduction of water and air pollutants, and saves energy. Reducing energy use and associated emissions is an important link between recycling and GHG reduction. Figure 3.1 illustrates the four main product life-cycle stages and how each impacts GHG emissions.

Figure 3.1 – Life-cycle of Waste



Source: U.S. EPA

- *Raw Material Acquisition:* Extracting and transporting raw materials entails the combustion of fossil fuels for energy, which results in emissions of carbon dioxide.

- *Manufacture:* The processes that transform raw materials into products require the combustion of fossil fuels for energy.
- *Recycling:* Manufacturing with recycled materials consumes substantially less energy, and when less fuels such as oil, gas and coal are burned to produce energy, less GHG is produced. While recovering recyclables and manufacturing using these recovered materials still requires energy, the associated GHG emissions are offset by the avoided fossil fuel use for raw material extraction and processing. In addition, for products that require wood or paper inputs, recycling reduces the need to cut down trees, increasing carbon sequestration in forests.
- *Waste Management:* All types of waste disposal use energy for transporting and managing the waste, but produce GHG emissions to varying degrees. Combustion releases both carbon dioxide and nitrous oxide and landfilling results in the release of methane from the anaerobic decomposition of organic materials.<sup>8</sup>

According to a recent report to the California Air Resources Board:

“Recycling offers the opportunity to cost-effectively decrease GHG emissions from the mining, manufacturing, forestry, transportation, and electricity sectors while simultaneously diminishing methane emissions from landfills. Recycling is widely accepted. It has a proven economic track record of spurring more economic growth than any other option for the management of waste and other recyclable materials. Increasing the flow through California’s existing recycling or materials recovery infrastructures will generate significant climate response and economic benefits.”<sup>9</sup>

To evaluate the direct impact of a comprehensive curbside recycling program in Pinellas County on energy savings and GHG reductions, KCI utilized the Environmental Benefits Calculator (EBC) developed by the Northeast Recycling Coalition (NERC). The model is based on a lifecycle assessment and incorporates and expands upon elements of the U.S. Environmental Protection Agency (EPA) WASTE Reduction Model (WARM). The EBC uses average coefficients for typical facilities and operating characteristics to provide reasonable estimates without conducting a detailed, site-specific lifecycle assessment. These coefficients are based on

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<sup>8</sup> U.S. Environmental Protection Agency, see: <http://www.epa.gov/climatechange/wycd/waste/lifecycle.html>

<sup>9</sup> Recommendations of the Economic and Technology Advancement Advisory Committee (ETAAC): Final Report on Technologies and Policies to Consider for Reducing Greenhouse Gas Emissions in California, A Report to the California Air Resources Board (February 14, 2008), pp. 4- 15, 4-16.

life-cycle assessments that compare the energy and resources it takes to collect, transport, and manufacture products from recyclables versus the energy and resources needed to extract, refine, transport, and manufacture the same products using virgin materials.

KCI utilized the EBC to run a baseline scenario using FY 2006 recycling data and two projected scenarios: one based on an average recovery rate of 0.17 tons per household per year and the other based on an average recovery rate of 0.22 tons per household per year. The estimated environmental benefits of the increased material recovery from these two scenarios are summarized in Table 3-2. To place the energy savings and greenhouse gas avoidance figures in context, Table 3-2 also provides conversions of environmental benefits into easily understood equivalents. For example, the estimated reduction in GHG emissions is equivalent to removing 10,800 to 16,600 cars from the road each year.

**Table 3.2 – Potential Environmental Benefits of Curbside Recycling Program**

Environmental Impact (assumes curbside recycling throughout county)	Scenario 1 (assumes 0.17 tons/HH/year recovery)	Scenario 2 (assumes 0.22 tons/HH/year recovery)
Total Curbside Recyclables Recovered (tons/year)	45,000	58,200
Additional Curbside Recyclables Recovered (above current recovery; tons/year)	24,700	37,900
GHG Emission Reduction (MTCE)	13,600	20,900
GHG Emission Reduction (equivalent to removing this number of passenger cars)	10,800	16,600
Gas Savings (gallons)	3,154,200	4,847,000
Energy Savings (Million BTUs)	397,900	613,400
Energy Savings (equivalent to powering this number of homes)	3,800	5,800
Forest Carbon Sequestration (equivalent number of seedlings grown for 10 years)	1,094,800	1,682,300

MTCE = metric tons of carbon equivalents

BTU = British thermal units

With regard to the impact of curbside recycling on landfill usage, SWO staff estimated that establishing curbside recycling in those areas not already provided this service would reduce landfill requirements by about 6 to 7 percent annually at the current rate of usage. This would increase to well over 10 percent in the future with the growth of waste deliveries. Given the estimated remaining landfill life of 70 years, this would extend the life of the landfill by more than 6 to 8 years. At the same time, a curbside recycling program will not negatively impact the power generating capabilities of the County’s resource recovery system.

Pinellas County was the first government entity in the State to receive the designation of Green County from the Florida Green Building Coalition. St. Petersburg was the first to receive the Green City designation, and Dunedin has since earned this designation as well. Establishing a countywide curbside recycling program will further demonstrate the County's environmental leadership and substantiate these "green" designations.

By publicizing the environmental benefits of curbside recycling, the County can build additional public and political support for the program and encourage participation.

### **3.5 Proposed Implementation Timeline**

Figure 3.2 presents an estimated timeline for establishing a curbside recycling program. The first steps will be to meet with potential collection and processing service providers and determine the level of municipal participation in the County's curbside recycling contract. The County will then need to issue an RFP for collection service and possibly a separate RFP for processing. A contract should be awarded at least six months prior to the anticipated service start date. This will provide the contractor(s) time to purchase any necessary equipment, distribute containers to customers, prepare final route plans, and other activities that are critical to achieving a smooth transition. The County will be able to use this time to develop and implement a comprehensive education campaign.

In summary, establishing a curbside recycling program is economically viable for Pinellas County and will meet a public demand. According to a 2008 citizen survey, the majority of unincorporated county residents that do not currently have access to curbside recycling desire this service. In fact, 89 percent of respondents felt that curbside recycling is important.<sup>10</sup> It will enhance the County's existing integrated waste management system, and substantiate the County's reputation as an environmental leader and Green County. Given the high demand and strong markets for recovered materials, this is an opportune time for the County to implement this program.

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<sup>10</sup> Research Data Services, Inc., 2008 Pinellas County Solid Waste/Recycling Collection Survey.

**Figure 3.2 – Estimated Timeline for Establishing Curbside Recycling Program**

Action					2009												2010	
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Determine municipal participation; prepare customer estimate; meet with processors	█	█	█															
Make final technical and policy decisions; develop RFP(s) and draft contract(s)				█	█													
Publish RFP(s)						█	█											
Review proposals and submit selection committee recommendation to Board								█	█									
Negotiate final contract										█	█							
Contractor prepares to begin service; County revised ordinance and conducts public education												█	█	█	█	█		
Curbside recycling begins																	█	█