City of Lawrence
Public Works Department
MEMORANDUM

TO: David L. Corliss, City Manager
Chuck Soules, Public Works Director

FROM: Tammy Bennett, Assistant Public Works Director
Bob Yoos, Solid Waste Manager
Kathy Richardson, WRR Operations Supervisor

CC: Sustainability Advisory Board
Cynthia Boecker, Assistant City Manager

DATE: September 1, 2009

Attached is a draft 12 month pilot program recommendation for a subscriber based curbside recycling program for your review and consideration.

**Background information:**

In July 2009, the Lawrence City Commission established the following goal statement:

> Facilitate public discussion and review of possible city sponsored curbside recycling program, including explore feasibility of a pilot program and in-depth review of possible program costs and benefits.

The Sustainability Advisory Board has also expressed long-standing interest in establishing a more robust curbside recycling program either operated by or contracted through the City.

The matrix attached outlines a variety of options to expand convenient recycling opportunities for Lawrence residents. The expansion of recycling options can be designed to meet a number of goals, and the matrix addresses options for different goal statements, presenting some of the advantages and disadvantages of each.

**Recommendation:**

The pilot project suggested for possible roll-out in 2010 is a city-operated subscription service that would be priced competitive with market rates. Many of the details will be determined, but the preliminary program structure is outlined on page 2 of this memo. Other options are also listed to facilitate and stimulate discussion of curbside recycling in Lawrence.

**Action Request:**

Public Works staff will present the pilot project and attached matrix with the Sustainability Advisory Board at their meeting in September. Curbside providers will also receive information that this will be a topic of discussion at the September meeting.

# Recycling discussion matrix

| **PILOT PROGRAM RECOMMENDATION** | | |
|---|---|---|
| | | |
| **City subscription service, bi-weekly, 12 month pilot** (collection and material processing) | | |
| | How it might look | Bi-weekly residential curbside collection for a fee, by subscription, provided by the City of Lawrence.<br>Pilot program would be limited to the number of households that could be handled by one truck (initial estimate is 2500 maximum) |
| | How to accomplish | ▪ Keep rear load refuse truck that would have been traded in 2010 and dedicate to the recycling pilot<br>▪ Hire 3 staff persons (2 would be temporary full time, with a regular full-time operator for the truck)<br>▪ Recycling truck will operate 4 days per week with two person crew<br>▪ Materials would be taken to closest possible material recovery facility by agreement (likely Deffenbaugh in Edwardsville)<br>▪ Administrative staff would be required for establishing and coordinating new services (customer service, billing, inquiries). 50% time would be required for curbside account set ups, coordination. Other 50% time would administrative tasks for WRR (HHW appointments, compost access for landscapers, special events organization) [note, the division has a request pending to fill existing part-time temp for these tasks]<br>▪ Subscription service would be billed through utility bills, similar to the way roll-out trash carts are currently managed<br>▪ Monthly fee would be set initially to minimize advantage or disadvantage over the private companies currently providing services (e.g., at market rate roughly) -- $10 per month (tbd) |
| | Advantages | ▪ Provide 12 months of real data on all costs and advantages<br>▪ Pilot program could be implemented relatively quickly but does not commit community one way or another<br>▪ Does not require all rate-payers to pay for curbside but gives the option to those who want it<br>▪ Will have least impact considered to the value or business of private companies providing services (curbside collection or drop-off / processing)<br>▪ Good opportunity to “ramp up” to some of these services<br>▪ In years 2 and beyond, costs will be adjusted to capture program costs more accurately, once minimum customer base is established |
| | Disadvantages | ▪ Still a subscription based service<br>▪ Competes directly with existing businesses (curbside & drop-off)<br>▪ Does not realize the efficiencies of collecting from every house<br>▪ Using older vehicle, and no back up equipment<br>▪ Setting rates by market in first year, not cost of services<br>▪ Distance to the closest facility is 35 miles one-way. |
| | IF it works well | ▪ Can chose to expand the services on an incremental basis as business demands. For instance, in 2011, would move temporary employees to regular payroll, add one additional truck and one crew (driver / loader) |
| | IF it doesn’t work | ▪ Phase out subscription services. End temporary employees or reassign to vacant positions. Sell rear-load truck, as had originally been planned |

| ALTERNATIVES | | |
|---|---|---|
| **Goal assumption**: The City Commission plans to establish curbside recycling for single family residential customers city-wide. | | |
| Long term recommendation: The City will ensure access to the most reliable services if the city operates its own material recovery facility. Control of materials collected, marketing, operations. (3 to 5 years) | | |
| **City curbside program** (collection and material processing) | | |
| | How it might look | City would have collection equipment and a local material recovery facility for processing materials collected. Some very rough cost estimates are included in the report attached.<br>Cost estimates provided in attached report, depending on how program is structured. |
| | Advantages | ▪ Will provide most secure program for long-term recycling by building and managing our own material recovery facility<br>▪ Maintain control of program—Items collected<br>▪ Customer service will be high – single point of contact (city) for recycling and solid waste<br>▪ |
| | Disadvantages | ▪ Cost of capitalization and start up (facility, equipment, staffing)<br>▪ Amount of time for implementation (locating facility, constructing, installation of equipment, etc.) |
| **City curbside program** (collection only, delivering materials to established material recovery facility) | | |
| | How it might look | City would have collection equipment and staffing for curbside collection of materials. Loads would be hauled to contracted material recovery facility, such as the Deffenbaugh facility in Edwardsville.<br>Cost estimates provided in attached report, depending on how program is structured. |
| | Advantages | ▪ Less expensive start up. Will require capitalization of equipment and some staffing, but not facility<br>▪ Customer service will be high – single point of contact for recycling collection and solid waste |
| | Disadvantages | ▪ Distance to the closest facility is 35 miles one-way. Estimated time per load to deliver is 1 hour 40 minutes (round trip including dump time)<br>▪ Cost of capitalization and start up (equipment only)<br>▪ Will not control material streams since we don't manage final outlet |
| **Private curbside program** (collection and material processing) by RFP | | |
| | How it might look | City would contract for turnkey curbside collection services with a private company. |
| | Advantages | ▪ Fastest implementation<br>▪ Least expensive for start up, utilizing equipment and facilities of contracted company<br>▪ External validation of costs and expenses |
| | Disadvantages | ▪ Customer service not integrated<br>▪ Do not control program (materials collected or customer service)<br>▪ Distance to the closest facility is 35 miles one-way |
| **Private curbside program ++** (collection and material processing) by RFP plus $2-3 fee per month for long-term funding of local material recovery facility | | |
| | How it might look | City would contract for turnkey curbside collection services with a private company. Additional fee would be added to monthly billing to build funds to finance construction of local material recovery facility. |

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|---|---|---|
| | | Local facility would benefit community whether collection services are completed with city crews or contracted. |
| | Advantages | ▪ Fast implementation<br>▪ Less expensive (like contracting) but builds solid funding structure for long-term sustainability of programs<br>▪ External validation of costs and expenses |
| | Disadvantages | ▪ Same disadvantages as private curbside program, but with an eye toward increasing sustainability of programming long-term |
| **Private curbside program – multiple companies** (collection and material processing) | | |
| | How it might look | Several options on structure such as dividing community into designated areas and assigning collectors to areas |
| | Advantages | ▪ Supports local, existing businesses with established customer bases<br>▪ Citizens have options for vendors, IF contractors are not assigned designated areas |
| | Disadvantages | ▪ Lose economy of scale<br>▪ Must verify contractors have established, reliable outlets for materials<br>▪ May be chaotic from customer service perspective (who manages calls, who manages complaints)<br>▪ Varying levels of service<br>▪ Difficult to manage / monitor outlets and processing<br>▪ Dependent on multiple small companies, most of whom depend on other companies for materials outlets<br>▪ Challenge to handle monthly billing processes |
| | | |
| **Goal assumption**: The City Commission wants to increase the convenience and access to recycling opportunities, without implementing full curbside program. | | |
| **Partner with local curbside companies to promote services** | | |
| | How it might look | City would provide promotional services for curbside companies. Information on curbside collection companies would be distributed regularly with utility billing so residents who wish to contract for services have the information readily available. Information also provided through the media (LJW and UDK) to cover residents who do not receive utility bills. |
| | Advantages | ▪ Minimal cost to city but provide residents with information they want on curbside collection companies<br>▪ Supports local, existing businesses with established customer bases |
| | Disadvantages | ▪ Dependent on multiple small companies, most of whom depend on other companies for materials outlets<br>▪ Subscription only service may not meet goals to increase curbside collection for "maybe" recyclers (those who might put out recycling if they were already paying for it and it was collected at the curb)<br>▪ Differential in services, materials collected and pricing |
| **Expanded drop off locations for recyclables** | | |
| | How it might look | Variety of possibilities such as:<br>▪ duplication of Wal-Mart style drop-off facility in one or more additional locations<br>▪ contract placement of multiple-material collections containers (example at Wal-Mart parking lot off Wanamaker in Topeka) |

| | | |
|---|---|---|
| | Advantages | ▪ Increased convenience over current system (more drop off locations)<br>▪ Public would not feel "dependent" on Wal-Mart or 12th St Bargain Center for recycling |
| | Disadvantages | ▪ Cost if constructing Wal-Mart style collection facilities (facility, equipment, staffing)<br>▪ No centralization of materials that would maximize possible revenues<br>▪ Drop-off sites (unstaffed) become dumping grounds for other materials<br>▪ Code compliance (site planning, aesthetics) for multiple sites<br>▪ Shipping materials from multiple drop-off sites with no central material recovery facility |
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## ATTACH:

Matrix from rate study

Olathe program description

Evaluation of Solid Waste Diversion Strategies report

## attachment info from rate study

Comparison of Residential Solid Waste Rates and Services for 2010

Information current as of May 2009

| City | Once a Week Trash Collection proposed 2009 Increase | Yard Waste | Tire Collection | Bulk Item Collection | Appliance Disposal | Curbside recycling | Public / private | Curbside fee |
|---|---|---|---|---|---|---|---|---|
| **Lawrence** | $13.10 (2009 Rate)<br>$13.76 (5% increase proposed for 2010) | Free | Free | Free | Free | yes | private | varies<br>$12 to $15 / month |
| **Columbia** | $14.42 (2009 Rate)<br>(No increase proposed for 2010) | Free | No | Free | $10.00/item | yes | public | included (landfill fees subsidize) |
| **Emporia** | $12.79 (2009 Rate)<br>$14.07 (10% increase proposed for 2010) | No | $2.51-5.40/tire | No | $22.80/item | yes | private | $15 / month |
| **Leavenworth** | $15.09 (2009 Rate)<br>$16.30 (8% increase proposed for 2010)<br>(Also property tax subsidy) | No | Free | Free | Free | No | na | na |
| **Manhattan (Private Haulers)** | $18.00 (2009 Rate)<br>(possible increase for 2010) | No | $10.00 to 25.00/tire | $10.00 to 50.00/item | $40.00/item | No | na | na |
| **Newton** | $18.75 (2009 Rate) | No | $6.00/tire | $15.00 per item | $20.00 per item | yes | public | included & mandatory |
| **Olathe** | $16.00 (2009 Rate)<br>$18.50 (15.7% increase proposed for 2010) | Free | $5.00/tire | $16.00/15 min. | $30.00/item | yes | public | $3.29 (2009)<br>free (2010) |
| **Overland Park (Private Haulers)** | $13.75 - 18.00 (2009 Rate) | $40.00 per year | Up to $35.00 per tire | $35.00 and up / item | $60.00-75.00/item | varies by vendor | private | $2.95 / mn |
| **Salina** | $12.60 - 14.91 (2009 Rate) | Free | Up to $22.00 per tire | $20.10 and up | No | yes | public | $10 initial + $4.90 / mn |
| **Shawnee County** | $11.44 - 16.50 (2009 Rate)<br>(5% increase possible for 2010) | No | No | Free<br>(1 item/week) | $45.00 minimum charge | yes | private | varies<br>$15 / month |
| **Wichita (Private Haulers)** | $17.00 - $19.80 (2009 Rate) | No | No | $20.00 to 100.00/item | No | yes | private | $4.50 / mn and up |

# CITY OF OLATHE PROGRAM

City of Olathe operated a subscription based curbside recycling program for 12 years. The subscription service provided curbside recycling to approximately 1/3 of households, and was subsidized by the regular single family residential trash rate.

Solid waste is collected in Olathe and transported to Hamm's Landfill through a public / private partnership transfer station. The city currently pays approximately $30 per ton for solid waste at the transfer point. The transfer station is reaching capacity. The community must rebuild or expand the transfer station or decrease waste managed through it. The City of Olathe commissioned a study of alternatives and recommendations from RW Beck. Based on that analysis, in 2010, Olathe will move to a citywide program. The citywide program will delay the reconstruction or expansion of the transfer station.

**RW Beck Study:** Scope of services and results can be attached. The RW Beck Study was $53,500 for the initial 6 phases, with the final 3 phases being charged on a per hour basis.

**How the city-wide program will be implemented:**

- The city is transitioning 5 vehicles currently assigned to weekly curbside recycling collection *by subscription* to bi-weekly citywide curbside collection.
- The city is adding one truck and operating by re-assigning out of service side-load trucks to the recycling function rather than trading it in.
- There will be a total of six trucks assigned – 4 side-loaders and 2 curb-sorters.
- The side-load trucks will transport collected materials directly to Deffenbaugh, roughly 10 miles.
- The curb-sorters are less efficient at the single stream collection. Material from the curb-sorters will be transferred to 40-yard roll-off containers to be transported to Deffenbaugh.
- Total trip time per load transported: 1 hour
- Estimated revenue from materials dumped at the material recovery facility: $25 / ton
- Containers: using 65-gallon containers provided by the city of Olathe
- Long-term goal is to build a material recovery facility for municipal recycling. The City of Olathe will complete an RFP in 2010 for a MRF and transfer station operations. They might be interested in partnering with other communities along the K-10 corridor, if other communities were willing to make the commitment to the MRF.

**Description of solid waste program for 2010:**

- Single family residential rates in 2010 will be $18.50 per month. The residential rate will include:
  - Once a week collection of trash from a 90-gallon cart
  - Once a week collection of yard waste
  - Bi-weekly collection of single-stream recycling using 65-gallon cart (no glass)
- Fees for additional services. Any item that cannot fit inside a 90 gallon cart is considered a bulk item. Bulk items are charged as follows:
  - $17.50 minimum per stop, up to 15 minutes of collection time
  - $30 per item containing Freon (air conditioner, refrigerators)
- Solid Waste Connection fees. The city requires a one-time solid waste connection fee of $170 per water meter. The fee covers the initial capital outlay for the carts provided for trash and recycling services, plus 1/2000 of a truck. The solid waste connection fees were implement in 2007, in conjunction with a new rate model developed by RW Beck.

# EVALUATION OF WASTE DIVERSION STRATEGIES FOR LAWRENCE 2009 UPDATE

## Introduction

The city's Sustainability Advisory Board asked the Solid Waste Division in 2008 to commission a survey on recycling. Those results were reviewed by the City Commission. The City Commission and City Manager's Office requested an update of the waste diversion strategies and costs presented in 2004.

The Solid Waste Division looked at waste diversion strategies for Lawrence in 2004 and concluded in that report that the current recycling strategy should be continued and expanded on. Recycling opportunities, both public and private, had achieved a 34 percent recycling rate in 2003 which was believed to be the highest in the state and higher than typically achieved utilizing curbside collection of recyclables. Specific recommendations in the 2004 report were:

1. Support for a statewide beverage container deposit law ("bottle bill") which would remove glass, plastic and aluminum beverage containers from the waste stream;
2. Expand newspaper, cardboard and office paper recycling programs to additional entities (such as schools) and provide additional drop-off sites;
3. Increase recycling of wood waste at the city's compost facility; and
4. Increase public education on waste reduction.

### Recycling Program Expansions Since 2003

Paper recycling through city programs has increased from 1,461 tons in 2003 to 2,111 tons in 2008. Two mixed paper drop-off sites were added to the city drop-off program in 2007 and five additional mixed paper sites were added in 2008. The total number of city-operated drop-off sites for paper increased to eleven in 2008.

Brushy waste and tree trimmings were added to yard waste collections in 2008 and are converted to compost or mulch.

Two electronics drop-off events were provided in 2008. More than 56 tons of electronics were diverted from the landfill by 1,189 participants.

Waste reduction has been a focus for educational events by city staff. The staff is a sponsor for the annual Earth Day event and has sponsored the Lawrence Energy Conservation Fair as well as attended numerous other events or organizational meetings.

A survey of Lawrence residents was commissioned in 2008 to gather input to help better understand the recycling needs of the community. Seventy-three percent (73%) of those surveyed indicate they currently recycle utilizing the mix of public and private recycling opportunities.

## Evaluation of City-Operated Curbside Collection of Recyclables

Currently five privately operated businesses offer curbside collection of recyclables in Lawrence. Three of these have been in operation since 2003 or longer. A sixth has recently applied for registration to collect recyclables from the curbside in Lawrence. Residents can choose whether to

subscribe to these services for a monthly fee. Several levels of services offered at varying price points (generally $7-16 per month) are available from these businesses.

Recently the Sustainability Advisory Board requested an update on curbside collection of recyclables. The Board specifically wanted to see an evaluation of city-wide curbside collection provided by the Solid Waste Division or city-wide curbside collection provided by private providers.

Cost estimates were developed for providing curbside collection of recyclables utilizing city resources. Curbside collection could be provided primarily to 20,000-22,000 one to four-unit houses (out of approximately 37,800 total housing units). Larger complexes are typically served by containers (dumpsters) and not suitable for curbside collection. Some neighborhoods would not be able to receive curbside collection of recyclables because they too are served by containers (e.g. Oread Neighborhood) due to the high density of housing and parking needs.

Materials collected for recycling would likely be fibers (newspaper, mixed paper, etc.), steel and aluminum cans, and plastic (PETE, HDPE) containers. Staff does not recommend the curbside collection of glass due to negative markets and high cost of handling.

## Cost

Two cost estimates were developed (see attachments) for curbside collection: one for a city-operated collection and operation of a Material Recovery Facility (MRF) for processing (sorting, baling, contaminant removal, loading onto transport trailers, etc.) and one for city-operated collection and direct daily transportation to the Deffenbuagh Industries Material Recovery Facility in Edwardsville, Kansas. That is the only MRF in the area. Estimates for both scenarios were developed for weekly or biweekly collection of recyclables (see table below).

**COST COMPARISONS FOR CITY-OPERATED CURBSIDE COLLECTION OF RECYCLABLES**

| | City-operated MRF | | Transport to Edwardsville MRF | |
|---|---|---|---|---|
| Collection frequency: | Weekly | Biweekly | Weekly | Biweekly |
| Cost/year (over 7 years) | $3,704,005 | $2,830,604 | $3,516,952 | $2,406,389 |
| Cost/household/year (1) | $168 | $129 | $181 | $121 |
| **Cost/household/month** | **$14.00** | **$10.75** | **$15.11** | **$10.10** |

(1) City-Operated MRF: **AVERAGE COST PER YEAR (attachment i)** *plus* **AVERAGE COST PER YEAR (attachment ii)** *divided by* 22,000

Transport to Edwardsville: **AVERAGE COST PER YEAR (attachment i)** *plus* **AVERAGE COST PER YEAR (attachment iii)** *divided by* 22,000

Note: Typically fewer recyclables are collected with biweekly collection than with weekly collection

While the lowest cost estimate is for collecting recyclables biweekly and transporting the recyclables to Edwardsville, that alternative carries more uncertainty. Volatile fuel prices could increase that cost significantly as the miles driven per vehicle are more than doubled. Vehicles will have to be replaced more frequently due to higher mileage and increased wear and tear. More personnel and

vehicles may be needed because a significant portion of the work day will be dedicated to driving to and from the MRF rather than collecting recyclables. Perhaps the greatest risk is that we would be dependent on a privately owned facility that may not always want our recyclables or may ask for payment for taking those recyclables. Since we would be delivering loose, unprocessed recyclables with a high possibility of contaminants in relatively small loads, the operators of the MRF may not find our material desirable, especially in a down market such as we are in now. The result would be that we have no market for our recyclables and would instead find ourselves with an accumulation of recyclables and likely discontinuing their collection. We would also receive much lower revenues due to delivering unprocessed, loose recyclables.

**Benefit**

The single greatest benefit would be that of convenience to the household but they would pay the monthly rate to receive that benefit. Currently, we estimate that 2,000-3,000 households choose to pay one of the five privately-operated collection businesses for the convenience of having their recyclables collected at the curbside.

It is important to remember, but often misunderstood, that a great deal of the material that would be collected with a curbside collection program is already being collected through existing programs in Lawrence. A curbside collection program would greatly reduce the amount of material being collected at the Wal-Mart Community Recycling Center, the 12th and Haskell Recycling Center, by private curbside recycling businesses (they would be out of business), and through the city-operated drop-off facilities.

The actual increase in material recycled with a city-operated curbside collection program is likely to be less than 2,000 tons in addition to the 20,414 tons recycled in 2007. The additional tonnage would largely be paper that is not currently being recycled.

## Contracted Curbside Collection of Recyclables to a Private Provider

The city could choose to put out a Request for Proposals (RFP) for a private provider for curbside collection services. A private company should provide turnkey services taking responsibility for collection, processing, marketing and also customer service responsibilities. There are several large companies within the region that have the capability of providing such services.

There are currently five privately owned small businesses that provide curbside collection of recyclables to customers that choose to subscribe to their services in Lawrence. These businesses utilize existing drop-off sites (Wal-Mart, 12th and Haskell Recycling Center, Lonnie's recycling, and city-operated drop-off sites) to deposit the recyclables they collect. It is staff's opinion that none of these small proprietors would have the resources to provide turnkey service to 22,000 households.

Staff also believes that if a program for curbside collection were to be pursued, the option of using a qualified private provider would be the preferred option. The provider would assume all costs and risks and the city would have a known cost depending on what was agreed on in a contract. It is likely that the costs would be lower than if the city operated the program because large recycling providers already have personnel, equipment, infrastructure, implementation experience and more leverage in recycled materials markets.

## Issues and Concerns

### Recycling Markets

Markets for recyclables, similar to the stock market, can be highly volatile. Currently recycling markets are at historic lows. For this reason, it is not good policy to develop programs expecting revenues for sales of recyclable materials to pay for the programs. In fact, some markets, glass for example, are negative meaning that one must pay to get rid of the material. Many communities have discontinued collection of glass. Mixed paper is also a dead market currently. Paper mills are not purchasing mixed paper at this time due to low demand for products.

### Customer Satisfaction

It is difficult to predict what the level of customer satisfaction would be with different recycling scenarios. The 2008 Recycling Survey revealed that 72 percent of Lawrence citizens currently recycle which is a very high number. It also indicated that 59.6 percent of citizens would pay $6.00 per month for curbside collection of recyclables. However, as the price went above $6.00, willingness to pay went down. Only 45.2 percent were willing to pay $9.00, 21.8 percent were willing to pay $12.00 and 15.5 percent were willing to pay $15.00.

The 2007 Citizen Survey indicated 86 percent of residents were satisfied with residential trash service which was termed a very high rating.

## Variable Rate Pricing for Residential Trash

Variable rate pricing, commonly referred to as “pay-as you-throw” (PAYT) is used in many communities. Under PAYT, residents are usually charged by the number of cans or bags they set out for collection. PAYT is most common in communities faced with long hauls to the nearest disposal site or those with relatively little space left in the local landfill, both of which can create very high disposal costs.

Commercial collection rates in Lawrence are already under a variable rate system since the monthly fee is based on the size of dumpster and the frequency of collection for each customer. Those rates are set to include the cost of providing current recycling services to commercial entities.

Residential rates are the same for each ratepayer but they cover much more than the cost of trash disposal. They also pay for bulky item collection, tire collections, white goods collection and Freon recovery, residential recycling drop-off sites, the household hazardous waste facility, yard waste collection and composting, a portion of the electronics collection events, and waste reduction and public education and outreach efforts.

There is almost no direct correlation with the amount of material disposed of in the landfill and the monthly residential trash rate. In 2008, actual disposal fees were ten percent (10%) of the residential fee. The other 90 percent supported the personnel and equipment necessary to provide scheduled collection to each home, the above mentioned recycling programs, and overhead and administration costs.

## Reliability of Analysis

The Solid Waste staff has confidence that the analysis options and estimates of costs contained in this report are reasonably reliable. However, detailed estimates for construction and real estate costs were not conducted. In addition fuel costs are predicted to be potentially highly volatile in the future. If curbside collection of recyclables or variable rate pricing options were to be considered further, we would recommend a third party analysis be provided by a professional solid waste consultant that would focus on the feasibility of curbside recycling and PAYT including, but not limited to:

- cost;
- benefits;
- and implementation.

## Plans for Increased Waste Diversion

### Source Reduction

The Solid Waste Division supports and encourages product stewardship to reduce materials in the waste stream such as a state-wide beverage container deposit law (bottle bill) which would create take-back programs that would remove beverage containers from the waste stream reducing collection, disposal and recycling costs, and reduce litter. Stores that will take back used electronics or other goods are other examples of product stewardship.

Public education and outreach programs have been put into place although funding was reduced in 2008 due to fiscal restraints. We hope to expand on these when possible.

### Recycling

The Division is continuing the increase in paper recycling through city drop-off sites and commercial collection programs. Current market constraints have slowed the expansion.

Additional electronics collection events are planned for 2009.

Public education is seen as a key to increased recycling as more people become aware of existing recycling opportunities and the positive environmental benefits from recycling.

**attachment i**

**ESTIMATED COSTS FOR CURBSIDE COLLECTION OF RECYCLABLES**

(Present year 2009 dollars; cost of debt or bonds not included)

**Note: Does not include costs of a Materials Recovery Facility or transportation to a nearby Material Recovery Facility (MRF)**

| **COLLECTION COSTS** | **Weekly Collection** | | **Biweekly Collection** | |
|---|---|---|---|---|
| Start-Up Costs | | | | |
| Collection vehicles | $4,000,000 | $200,000 ea. plus 3 standby | $2,200,000 | $200,000 ea.plus 2 standby |
| Field Supervisor vehicles | 66,000 | 3 vehicles @ $22,000 ea. | 44,000 | 2 vehicles @ $22,000 ea. |
| Recycling containers | 900,000 | 45,000 @$20 ea. | 1,360,000 | 68,000 @ $20 ea. |
| Miscellaneous | 50,000 | Computers, radios,etc. | 45,000 | Computers, radios,etc. |
| Operations facility/land | 750,000 | Office, parking, crew area | 750,000 | Office, parking, crew area |
| SUBTOTAL | $5,766,000 | | $4,399,000 | |
| Annual Operational Costs | | | | |
| Operator I | $1,064,000 | 19 @ $56,000 incl/benefits | $616,000 | 11 @ $56,000 incl/benefits |
| Field Supervisor | 180,000 | 3 @ $60,000 incl/benefits | 120,000 | 2 @ $60,000 incl/benefits |
| Laborer | 90,000 | 2 @ $45,000 incl/benefits | 90,000 | 2 @ $45,000 incl/benefits |
| Administrative Support position | 45,000 | $45,000 incl/benefits | 45,000 | $45,000 incl/benefits |
| Collection vehicle fuel | 210,834 | $14,040 fuel/collection vehicle | 111,618 | $14,040 fuel/collection vehicle |
| Collection vehicle maintenance | 174,600 | $9,700 maint. ea. | 106,700 | $9,700 maint. ea. |
| Supervisor vehicle fuel/maintenance | 9,000 | $2,000 fuel; $1,000 maint. ea. | 6,000 | $2,000 fuel; $1,000 maint. ea. |
| Recycling container replacement | 160,000 | 8,000 @ $20 ea. | 160,000 | 8,000 @ $20 ea. |
| Education/promotion | 30,000 | Newspapers, radio, fliers, etc. | 30,000 | Newspapers, radio, fliers, etc. |
| Utilities, overhead | 12,000 | Gas, electrical, custodial, etc. | 12,000 | Gas, electrical, custodial, etc. |
| Miscellaneous | 25,000 | Uniforms, office supples, etc. | 25,000 | Uniforms, office supples, etc. |
| Contingency | 75,000 | Unexpected expenses | 75,000 | Unexpected expenses |
| SUBTOTAL | $2,075,434 | | $1,397,318 | |
| **TOTAL COSTS OVER 7 YEARS** | $20,294,038 | | $14,180,226 | |
| **AVERAGE COST PER YEAR** | $2,899,148 | | $2,025,747 | |

Assumptions

Households participating (excludes multi-family complexes of 3 or more units): 22,000

One person collection vehicle with curbside sorting

| | | |
|---|---|---|
| Cost of fuel/gallon (in dollars) | 3.18 | (Source: Department of Energy/EIA, December, 2008) |
| Actual collection time/day (hours) | 7 | |
| Stops/route/day - weekly: | 320 | |
| Collection vehicles/day - weekly: | 17 | (hybrid vehicles) |
| Stops/route/day - biweekly: | 300 | |
| Collection vehicles/day - biweekly: | 9 | (hybrid vehicles) |

Four routes/week/collection vehicle

225 miles/week/collection vehicle = 11,700 mi./yr.

Collection vehicle gets 3.0 mpg on route

Costs amortized over 7 years

**attachment ii**

**ESTIMATED COSTS FOR MATERIAL RECOVERY FACILITY**
(Present year 2009 dollars; cost of debt or bonds not included)

**CAPITAL COSTS**

| | | |
|---|---|---|
| Processing Building | $1,040,000 | In addition to office/crew area |
| Supervisor vehicle | 22,000 | 1 vehicle @ $22,000 |
| Processing Equipment | 900,000 | Balers, forklifts, conveyors, etc. |
| Miscellaneous | 25,000 | Computer, safety equipment, etc. |
| SUBTOTAL | $1,987,000 | |

Annual Operational Costs

| | | |
|---|---|---|
| Laborers | $270,000 | 6 @ $45,000 incl/benefits |
| Supervisor | 60,000 | 1 @ $60,000 incl/benefits |
| Administrative Support position | 45,000 | $45,000 incl/benefits |
| Processing equipment maintenance | 20,000 | Fuel, lubricants, moving parts, etc. |
| Supervisor vehicle fuel/maintenance | 3,000 | $2,000 fuel; $1,000 maint. |
| Utilities, overhead | 48,000 | Gas, electric, custodial, etc. |
| Contingency | 75,000 | unexpected expenses |
| SUBTOTAL | $521,000 | |

| | |
|---|---|
| **TOTAL COSTS OVER 7 YEARS** | $5,634,000 |
| **AVERAGE COST PER YEAR** | $804,857 |

Assumptions

| | |
|---|---|
| Cost of fuel/gallon (in dollars) | 3.18 |
| Costs amortized over 7 years | |

**attachment iii**

**ESTIMATED COSTS FOR TRANSPORTATION OF RECYCLABLES TO A NEARBY MATERIALS RECOVERY FACILITY (MRF)**

Closest MRF is the Deffenbaugh facility in Edwardsville, KS

(Present year 2009 dollars; cost of debt or bonds not included)

| **ADDITIONAL COSTS** | **Weekly Collection** | | **Biweekly Collection** | |
|---|---|---|---|---|
| Start-Up Costs | | | | |
| Collection vehicles | $600,000 | $200,000 ea. | $400,000 | $200,000 ea. |
| Collection vehicle replacement | $3,300,000 | 20 @ $220,000 ea. (0.75 cost*) | $1,815,000 | 11 @ $220,000 ea. (0.75 cost*) |
| SUBTOTAL | $3,900,000 | | $2,215,000 | |
| Annual Operational Costs | | | | |
| Operator I | $168,000 | 3 @ $56,000 incl/benefits | $112,000 | 2 @ $56,000 incl/benefits |
| Collection vehicle fuel | 205,810 | $9,707 fuel/collection vehicle | 113,195 | $9,707 fuel/collection vehicle |
| Collection vehicle maintenance | 100,000 | $5,000 maint. ea. | 55,000 | $5,000 maint. ea. |
| Turnpike tolls | 33,280 | One trip/day | 18,304 | One trip/day |
| Contingency | 25,000 | Unexpected expenses | 25,000 | Unexpected expenses |
| SUBTOTAL | $532,090 | | $323,499 | |
| **TOTAL COSTS OVER 7 YEARS** | $7,624,627 | | $4,479,495 | |
| **AVERAGE COST PER YEAR** | $1,089,232 | | $639,928 | |

Assumptions with transportation of recyclables to a nearby MRF

Households participating (excludes multi-family complexes of 3 or more units): 22,000

One person collection vehicle with curbside sorting

| | | |
|---|---|---|
| Cost of fuel/gallon (in dollars) | 3.18 | (Source: Department of Energy/EIA, December, 2008) |
| Actual collection time/day (hours) | 6 | |
| Stops/route/day - weekly: | 275 | |
| Additional coll. vehicles - weekly: | 3 | (hybrid vehicles) |
| Stops/route/day - biweekly: | 250 | |
| Additional coll. vehicles - biweekly: | 2 | (hybrid vehicles) |

Four routes/week/collection vehicle

Additional 280 miles/week/collection vehicle = 14,560

mi./yr.

Collection vehicle gets 5.4 mpg on highway
Turnpike toll per round trip $8.00
* Collection vehicles replaced every 4 years (allocate 0.75 of cost to 7-year analysis)
Costs amortized over 7 years