

## Section 4

# CURRENT RECYCLING PROGRAM

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### 4.1 Goals and Objectives of Recycling Program Improvements

We have had discussions with County staff regarding the County's goals and objectives in identifying possible improvements to the recycling program.

First, the County's recycling program must continue to meet or exceed the state-mandated recycling goal of 20 percent. The County is currently exceeding this goal, and wants to ensure that any possible changes will not result in a failure to meet the goal.

Second, given that the County is exceeding the recycling goal set by Maryland Department of the Environment, the County feels it is most appropriate to focus on strategies that improve recycling programs by either: cost effectively increasing the quantity recycled, or increasing efficiency/decreasing the costs of the recycling program. The County does not believe that implementing costly enhancements to the recycling program at this time is in the County's best financial interests based on other financial demands on the County.

### 4.2 Suggestions for Recycling Program Enhancement/Modification

Although the County is already exceeding its recycling goals, the County is being pro-active in seeking means to streamline and/or improve its recycling programs. Following are some suggestions that the County might consider implementing in order to improve the recycling programs currently provided to County businesses and residents. Suggestions include relatively low cost and/or easy to implement strategies (which are presented first), as well as some more complex, longer-term strategies for consideration.

#### Obtain Additional Data About Recycling Programs

Because the County's residents are served by private haulers via a subscription-based system, the County does not have access to some recycling data, such as participation rates. Finding ways to obtain additional data would help the County prioritize potential changes and improvements to their programs. Some ways in which the County might consider enhancing data collection are described below.

- **Attempt to track number of households that subscribe to curbside recycling.** The County could once again try to obtain data from the haulers pertaining to the number of households that subscribe to curbside recycling. This would help the County understand whether there is a need for additional drop-off facilities, and whether interest in curbside recycling is increasing, particularly as other program enhancements are made. It should be noted that private haulers are often reluctant to provide this information on a voluntary basis. We have been informed that the County has experienced difficulties in the past when trying to obtain this information. Therefore, the County might also consider making it a requirement for haulers to report the number of households subscribing to recycling as a stipulation of obtaining a license. This would allow the County to obtain better data at no additional cost to the County.
- **Track true costs of recycling.** Currently, the County does not track the true costs of the recycling system, even for County-level costs. The wages of laborers who work at the drop-off sites, for example, are included in the solid waste budget, not the recycling budget. This makes sense operationally, however the County could, at a minimum, estimate the true cost of the recycling program by apportioning labor and benefits at the drop-off site to the recycling program, to quantify a baseline cost of the program. This will help the County establish whether there is a need to implement program enhancements or streamline operations, and/or measure the impact of program enhancements. This could be accomplished at relatively little additional cost to the County.
- **To the extent possible, maintain consistent information on an annual basis.** We note that MDE has changed the forms on which information is provided by the County. This lack of consistency by MDE has resulted in changes in the information the County reports each year which may be a challenge for the County in comparing information year to year.

## Improve Education/Outreach

To the extent that resources permit, the County should take advantage of specific opportunities to improve education and outreach. Most of these can be accomplished at low cost to the County. They are explained below.

- **Make recycling education materials more prominent on the County's web site.** Currently, finding basic information about recycling in the County via the web site is most effectively done through a search on the word "recycling" or by looking under services at "solid waste." The County should consider making recycling information more prominent by developing a drop-down item under the "services" category for recycling, specifically. This will make information easier to find, and send a stronger message about the County's commitment to recycling. In addition, the County might consider linking their web site to the municipal web sites, so that information can be easily found by residents. This strategy is low cost, and has the ability to reach nearly all residents immediately.
- **Work with utilities to ensure new residents are informed.** The County should work with the utility departments to ensure that as new residents sign on for other

utility services, such as water, they are provided with information pertaining to recycling programs. This could be done at low cost to the County.

- **Work cooperatively with municipalities.** The County should work cooperatively with municipal recycling coordinators. Meeting regularly – on a monthly basis, for example - to discuss recycling issues, brainstorm potential solutions to these issues, and share education and outreach strategies and materials, would benefit all citizens of the County, and expand limited resources. This could be done at low cost to the County.
- **Maintain focus on fiber.** Under the current contract, the County is receiving considerable revenues for fiber. The County should maintain its commercial outreach campaign to target fiber-rich environments. Mid-sized department stores (as large box stores tend to backhaul cardboard to their warehouses), liquor stores, and institutions are large generators of cardboard. Office buildings, schools, and municipal offices are large generators of mixed paper and newspapers. Based on the potential increase in revenues, this should be a cost effective effort for the County to continue to pursue.

## Consider Changing the Hauler Licensing Requirements

There are several ways in which the hauler licensing requirements could be changed so as to lead to increased recycling participation, reduced costs of recycling for the residents or improved program cost-effectiveness. The County’s attorney would have to ensure that licensing requirements discussed below meet all requirements. Potential changes to licensing requirements are described below.

- **Require haulers to offer recycling only every other week.** Currently, haulers in the County are required, as a condition to receive a license, to offer residents and commercial entities recycling every week. In rural areas of the County, it may be relatively expensive (e.g., not cost-effective) to offer collection of recyclables on a weekly basis. This means that haulers must charge a relatively high cost to provide this service, and residents are then less likely to request (and pay for) curbside recycling. If haulers were only obligated to offer this service every-other week, they could offer this service at a less costly rate. The County could meet with haulers and discuss current rates, and what rates on an every-other-week basis would likely be. This would help ensure that cost savings are at least partially passed along to the residents. This could be a “win-win” strategy, as customers would be offered curbside collection at a lower rate, haulers would most likely have more subscribers per route, making the route more cost-efficient, and the County would likely see recycling increase, which results in more revenues (in revenue shares for fiber recyclables) and a higher recycling rate. The every-other week stipulation for licensure could be implemented Countywide, or in the unincorporated areas of the County only. Less frequent collection schedules may create the need for additional or larger containers for households to use to store the increased amount of recyclables that accumulate between collections. At minimum, most residents would need an additional recycling bin. Two-wheeled carts with attached lids, ranging in size from 35 to 96 gallons, are

also commonly used for this purpose, although at a higher cost (approximately \$40-\$45 each vs. \$8-\$10 for traditional 18-gallon curbside bins). Some residents, however, see wheeled carts as easier to handle and bring to the curb.

- **Consider requiring haulers to offer curbside OR drop-off recycling.** In rural areas, particularly under a subscription program, haulers may find that providing curbside collection is costly, and may therefore charge a relatively high price for this service. To the extent that residents in the unincorporated areas do not subscribe to recycling, it might make sense for the County to consider changing the licensing requirement such that in the unincorporated areas, haulers have to provide drop-off or recycling services. This would not be recommended if all or most haulers are including curbside recycling services in their refuse hauling rates, nor would it be recommended if the County thought illegal dumping would be problematic. It is likely that haulers would work cooperatively to provide drop-off programs in various parts of the County.
- **Require haulers to offer pay-as-you-throw options.** As a condition of licensure, the haulers could be required to offer their residents a pay-as-you-throw option. A pay-as-you-throw option would mean that residents can choose to pay for only the disposable waste they generate, plus a base fee for recycling and to have service provided in general. The following describes pay-you-throw programs in more detail. This would provide a financial incentive for residents to recycle their waste, as recyclables would be collected for no additional charge (e.g., included in the base fee, in the case of a “hybrid” program).

Collection costs represent a significant portion (approximately 40 to 60 percent) of the cost of providing curbside recycling services. The cost of collection includes the labor and vehicle costs involved with driving to a given route, collecting the materials from the curb, and transporting those materials back to a material recovery facility. Consequently, many of the cost-saving measures that have been implemented by communities across the country have been aimed at improving collection efficiency.

- **Require haulers to include recycling costs in the cost of collection.** Some communities require haulers not only to offer residents recycling, but to provide all residents with this service, and charge them for it. Recycling is more cost-effective when participation is high, therefore this would improve the economics of curbside recycling. One hauler, BFI, is known to be doing this. In the unincorporated areas, they charge residents a flat fee (or a slightly higher fee if they use a 95-gallon wheeled cart) for both refuse collection and recycling. While some haulers are known to be offering customers a “bundled rate,” making this a condition of licensure would ensure that all do. Alternatively the County could encourage other haulers to do this, without making it a requirement of licensure.

## Manage Collection More Regionally

Although municipalities currently have contracts for the collection of MSW, residents residing in the unincorporated areas of the County hire their own haulers on an individual basis. This means that there is a significant potential opportunity to

increase the economies of scale through multi-jurisdictional cooperation, or through including some or all of the unincorporated areas in the contracts. If the County were to consider a more centralized approach to delivering curbside services, efficiencies gained by economies of scale could potentially accrue to its residents in the form of a reduced service fee. Even if no other changes in the program were made, centralizing the provision of curbside recycling and refuse collection in the County would likely result in a lower per-household cost. In addition, this type of system results in less wear and tear on roads and fewer emissions from collection vehicles. It also allows more simple implementation of program upgrades in the long term.

Table 4-1 illustrates variations in average costs that were observed in a comparison survey of individual subscription (e.g., open), municipal, and contracted solid waste collection systems. This survey was conducted four years ago by Beck, and included communities within Pennsylvania. It is likely that the costs have increased since the survey was conducted. However, based on the results it is clear that, on average, the cost per household for contracted collection is significantly less than for individual subscription programs, which are so prevalent in the County.

Table 4-1  
 Example of Savings in Total Average Cost  
 (Pennsylvania Households) <sup>(1)</sup>

Options	Annual Cost per Household	Quarterly Cost per Household	Monthly Cost per Household
Subscription System	\$192.00	\$48.00	\$16.00
Municipal Collection	\$140.00	\$35.00	\$11.70
Contract Collection	\$123.00	\$31.50	\$10.50

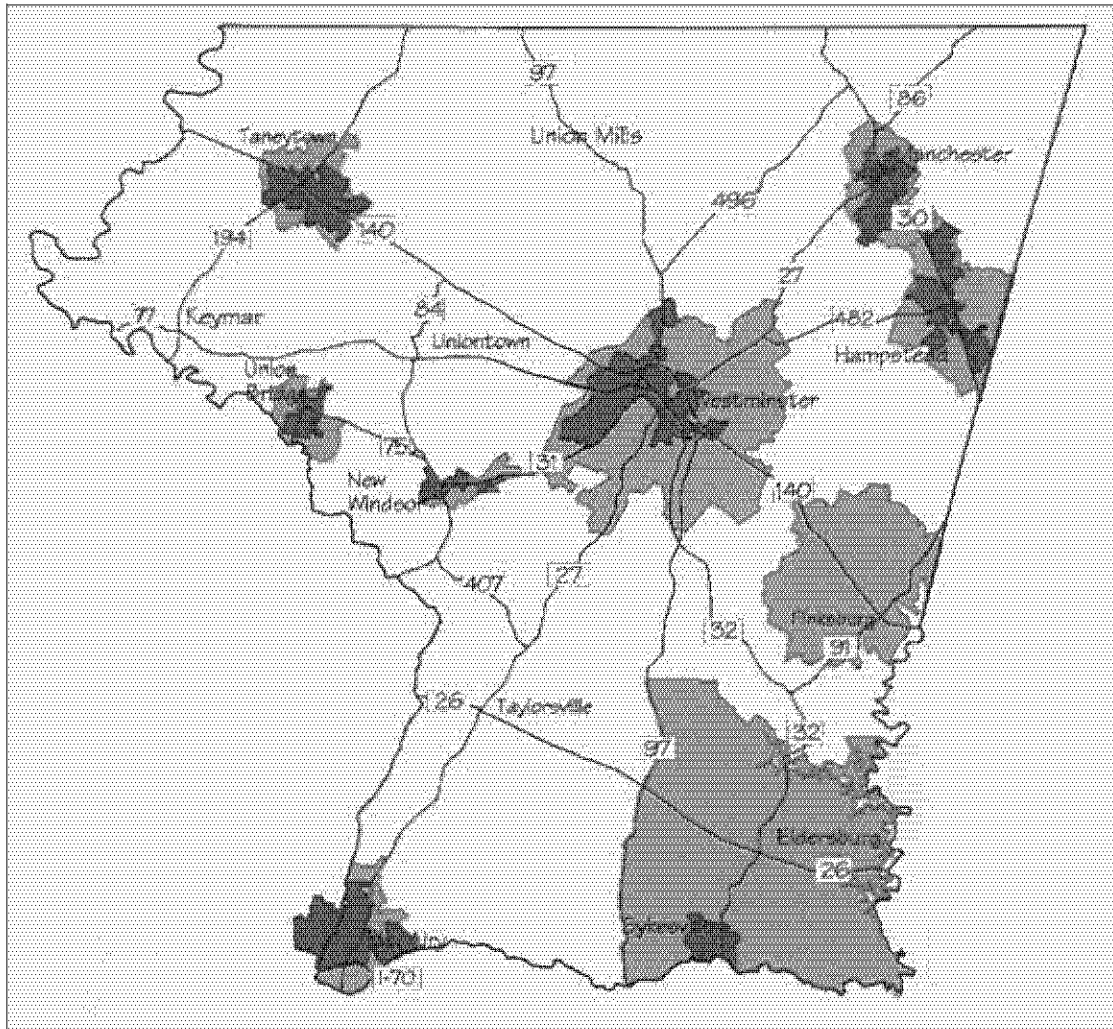
(1) Source: Survey conducted by Beck in 2001.

There are several ways in which collection could be managed more regionally/comprehensively throughout the County. They are described below.

- Include entire community planning area in collection contracts.** For planning purposes, the County has developed Community Planning Areas. These areas generally include the municipalities and the area surrounding the municipalities. The County might consider encouraging municipalities to include the entire Community Planning Area in their collection contracts. This would ensure that more residents have curbside recycling, as well as curbside refuse collection. This would likely have to occur at the end of a collection contract. The County solicitor would have to ensure that this is legally plausible.

Figure 4-1 shows the Community Planning Areas and municipalities in the County.

Figure 4-1  
Community Planning Areas and Municipalities in Carroll County



Source: County Planning Department

The advantage of this approach is that it would likely improve collection efficiencies for haulers and would likely result in reduced rates for those who are located within the planning areas but are outside of the municipality. The disadvantage is that including non-municipal residents may be administratively challenging, and there are still many other households that remain in the “open” system and who therefore do not benefit from lower rates, and where efficiencies to haulers are not realized.

- **Divide the County into regions and contract collection by region.** Under a contract collection system, it is possible to establish more than one service area, which could include residential and/or commercial collection services. Communities typically award collection contracts through a competitive procurement process. The contracts establish a scope of services, terms, and conditions.

Similar to franchises, collection contracts can be:

- **Exclusive or non-exclusive:** In an exclusive contract, the contractor would be the only acceptable service provider for the designated services, in the designated service area(s). In a non-exclusive contract, the multiple contractors would be authorized to compete within the designated service territory.
- **Mandatory or non-mandatory:** In a mandatory contract arrangement, all customers would be required to use the contracted services. In a non-mandatory system, those customers that elected to receive the services would be required to use the designated contractor(s).
- **Include some or all services and/or sectors:** The collection contract could address all collection services to all sectors or be limited to a specific generating sector (e.g., residential) or waste stream (e.g., bulky waste, etc.). In some communities, for example, only refuse collection or only recycling collection is provided under contract, and in some cases refuse and recycling collection services are both provided under the same contract.

It is most common for the governing jurisdiction (i.e., County) in a contract system to bill customers directly and bear the administrative burden and costs of billing, collections, customer turnover, and complaint management.

Contracts may be short-term (e.g., one to three years) or longer-term (e.g., five to 10 years). Based on research reported by the Solid Waste Association of North America, contract terms that more closely approximate the useful life of vehicles (e.g., seven years, on average) tend to result in lower contract rates.

Contract systems have all of the same benefits as franchise systems. In addition, contract systems also provide more control to the community to manage their solid waste — making it easier to implement waste reduction programs, and directing the flow of waste to publicly owned disposal facilities. The primary drawback that is cited for contract systems is that once the contract is granted, there is no further competition among solid waste collection service providers, for the length of the contract. In some instances, it has been argued that the successful contracted hauler may drive other haulers (usually smaller haulers) out of business, and raise prices after the contract expires, leaving no remaining haulers to compete. Additionally, once a hauler obtains a contract, there may be reduced incentive to focus on customer service.

The County could consider the strategy of defining service territories, potentially through a competitive bidding process. The first step would be to divide the County into logical geographic areas that would provide a balanced workload. Next, the County would conduct a competitive procurement process to select one lowest and best bid for each region, to provide separate curbside collections of solid waste and recyclables. The County could consider doing this for both solid waste and recycling, or just for recycling.

### Implement Franchised Waste/Recycling Collection

As indicated above, most residents have subscription service in the County. Because haulers are not required to charge residents for recycling (and residents are not

required to recycle), many households likely do not subscribe to curbside recycling. Some communities ensure a more consistent level of service and fees among households by franchising waste/recycling collection. Implementing a county-wide franchising system would entail dividing the County into geographic regions, and either assigning through a negotiated process, or competitively procuring a hauler for each region. In many cases municipal crews can also bid on a service territory. In some cases territories are established based on the haulers' current market shares.

A franchise is a “grant” that gives one or more haulers in a territory the right to provide collection services for one or more customers. Through franchising waste collection, the County could require haulers to comply with one or more of the following requirements to receive a franchise:

- Requirements for managing white goods and bulky materials;
- Evidence of financial responsibility (e.g., financial strength, insurance, and performance bonds);
- Compliance with all applicable laws; and
- Penalties for violations of hauler licensing requirements

Again, with an exclusive franchise collection only one hauler serves each region. In some communities there are non-exclusive franchises where the resident can select the hauler of their choice, as long as the hauler has a franchise in the County. Table 4-2 highlights the advantages and disadvantages of a subscription-based system versus a competitively procured and negotiated franchise systems and contract systems. In a competitive system one hauler receives the franchise, and in a negotiated franchise system, through a negotiated agreement, the jurisdiction negotiates with more than one hauler to provide collection services.

Table 4-2  
Advantages and Disadvantages of Subscription, Franchise, and Contract Systems

Service Delivery Option	Advantages	Disadvantages
Subscription-Based	<p>Maximum customer choice</p> <p>Very limited government involvement – low administrative cost impacts</p> <p>Provides opportunities for small haulers</p> <p>Competition is assumed to ensure lower costs to customers (though costs may actually higher than in “organized” systems)</p>	<p>Increased air pollution and road impacts from multiple haulers serving a community</p> <p>Neighborhood aesthetic impacts</p> <p>Lack of uniformity in service levels</p> <p>Low ability to enforce policies/goals and improvements</p> <p>Higher costs to ratepayers because of routing inefficiencies</p> <p>No financial assurance generally provided, unless if required by licensure</p>
Competitively Procured Franchise System	<p>Competitive bid process can result in low rates</p> <p>Service providers selected on the basis of technical and financial ability to provide the requested services</p> <p>Contract items often include penalties/remedies for poor or non-performance</p> <p>Financial assurance provided</p>	<p>Small haulers may not be able to compete with larger regional or national service providers</p> <p>Costs of procurement</p> <p>Potential disruption to customers resulting from change in winning hauler</p> <p>Transition costs (start-up time for learning new routes, etc.)</p> <p>Potential quality of service issues due to “low-ball” pricing</p>
Negotiated Agreements	<p>Existing haulers may have best knowledge of service areas, customer needs, etc.</p> <p>Minimal disruption associated with changing contractors</p> <p>Avoids costs of conducting a formal procurement process</p> <p>Financial assurance provided</p>	<p>Could still have numerous haulers serving a small geographic area;</p> <p>Rates may not be competitive (for example, a 1994 study conducted by the Minnesota Attorney General’s office revealed that negotiated rates were 17% to 49% higher than rates that had been competed)</p> <p>More difficult to manage poor performance or non-performance</p>

Table 4-2  
Advantages and Disadvantages of Subscription, Franchise, and Contract Systems

Service Delivery Option	Advantages	Disadvantages
Competitively Bid Contract System	<p>Jurisdiction has more control over flow of waste and recyclables than under franchise or open systems</p> <p>Efficiencies are gained by having one hauler service each region, which generally result in lower costs to residents</p> <p>Contract items often include penalties/remedies for poor or non-performance</p> <p>Competitive bid process can result in low rates</p> <p>Financial assurance provided</p>	<p>Small haulers may not be able to compete with larger regional or national service providers</p> <p>Costs of procurement</p> <p>Potential disruption to customers resulting from change in winning hauler</p> <p>Transition costs (start-up time for learning new routes, etc.)</p> <p>Potential quality of service issues due to "low-ball" pricing</p>

Of course, the County would have to consider the timing of current municipal contracts if they were to seriously consider most of the above options. Similarly, if the County does give further consideration to the consolidation of services, a public information program would definitely be needed to fully communicate any changes that might occur, explain the benefits, and encourage participation. Involving customers and haulers and getting their feedback at the very early stages of planning such a process is crucial.

One benefit of the County centralizing the control of collection programs is that, once implemented, it makes it much easier to implement technology upgrades or other types of program improvements. In the recycling industry, one change being made in many geographic areas is a change from dual-stream (or multiple-stream) recycling to single-stream recycling. In dual-stream recycling, materials are sorted at the curb into two streams – usually fibers and commingled containers. Some programs sort materials into even more streams – which is time-consuming (and costly) on the collection side, but makes sorting easier at the MRF. Single-stream recycling, and its advantages and disadvantages, are discussed below.

### Single-Stream Recycling System

Single-stream recycling requires the implementation in tandem of changes in both collection and processing components of the recycling system. As the name implies, residents may commingle all of their recyclables while in storage between collections. The collection personnel no longer need to spend time placing paper/fiber in one compartment of the collection vehicle and containers in the other section. This can speed up the collection process, potentially reducing the number of trucks/crew needed, and therefore reducing labor and capital costs.

As mentioned above in the discussion of the use of wheeled carts, the implementation of a single-stream recycling system also requires the availability of a material recovery facility that is able to accept and process recyclables that are collected in a single stream. Such a system has special processing equipment that can separate fiber materials from containers. Some sorting equipment can also separate different grades of paper automatically. When single-stream recycling is implemented with carts, then it makes it possible to implement automated collection.

- **Automation of Collection Service:** Two types of collection automation are generally recognized: semi-automated and fully-automated. In both cases, residents must use wheeled carts (as described above) to set out their recyclables. Additionally, both methods use mechanical means to lift and empty the carts into the collection vehicle.
- **Semi-automated:** This approach uses a hydraulic lifting device which is usually attached to the rear of the collection vehicle, typically a rear-loading garbage truck. The collector wheels the cart from the curbside to the rear of the truck and positions it to be lifted mechanically and emptied into the vehicle's hopper. The worker then returns the cart to the curbside. These lifts can also be used on certain side-loading collection vehicles.
- **Fully-automated:** Fully-automated collection involves the use of a specialized collection vehicle designed for operation by only one person. The vehicle is equipped with a mechanical articulated arm that is used to empty the cart into the collection vehicle. The driver pulls the vehicle to the curb where the resident has placed the cart. Using controls in the cab, the driver moves the vehicle's collection arm to grasp the cart and empty it into the truck, then replace it on the curbside.

Collection performed by one-person fully automated trucks can significantly reduce the cost of collection, although it requires a significant investment in new collection vehicles. It is especially suited for less dense areas and areas that have adequate room in the public right-of-way for the collection process.

As mentioned above, both semi- and fully automated collection systems require the use of wheeled carts and single-stream processing at the MRF, since all materials are commingled.

## Advantages and Disadvantages to Single Stream/Automated Collection

Collection of recyclables as a single stream in comparison to dual-stream collection has potential advantages and disadvantages that must be considered. Based on experience widely reported in the trade press to date, single-stream collection offers the following potential benefits:

- Easier and more convenient for residents as no material separation is required;
- Increased recyclable material capture rates due to increased storage space for more types and volumes of materials (if carts are used);

- Reduction in scavenging (if carts are used);
- Protection of all types of fiber from precipitation (if carts are used);
- Less scattering and littering from wind (if carts are used);
- Ability to use high capacity/high compaction collection vehicles, including automated collection vehicles in some areas;
- Reduction in number of laborers required (if collection is automated);
- Work conditions that are less strenuous and reduce worker exposure to the elements and risk, increasing the applicant pool and reducing worker turnover and injury rates (if collection is automated);
- Improved collection efficiencies (higher set out rates (Jaako Poyry Consulting and Skumatz Research Associates, 2004, as presented in, "One Size Won't Fit All," Resource Recycling, July, 2004, p. 47, by Resource Recycling Editorial Staff), reduced seconds per stop, more weight per stop); and
- Potential to use the same collection vehicles for refuse and recyclables, or at least share "spares."

In addition, larger containers have provided some communities with ample storage for two weeks' worth of recyclables. This facilitates the potential switch to bi-weekly collection, which can result in significant cost savings.

Disadvantages of single-stream collection compared to dual-stream or multi-stream collection include:

- Less quality control at the curb when automated collection is used;
- Low recovery of glass by color due to higher glass breakage from collection vehicle compaction;
- Increased potential for recovered materials contamination, especially of paper with glass shards and plastic film;
- Loss of some fraction of recyclable materials due to cross over contamination (e.g., plastic bottles ending up in paper bales);
- Potentially lower value of recovered materials due to failure to meet end market material specifications;
- Increased contamination of recyclables if automated collection has inadequate monitoring; and
- Higher vehicle maintenance costs (for automated collection vehicles).

Since the County does not bear any direct costs to operate curbside collections, investment in the types of improvements described above would not provide savings to the County budget. In addition, the County does not presently control or specify how the services are delivered. However, this information is presented so that the County can keep the possibility of single-stream in mind for the long-term, and understand some of the factors that would make delivery of this type of service more likely to be implemented.

## 4.3 Summary

In summary, we are of the opinion that the County could make the following changes which would be of a relatively low cost but should help the County more efficiently manage its recycling program.

1. Obtain better data on the current recycling program
  - a. Track the number of households that subscribe to curbside recycling.
  - b. Keep better records of the actual cost of recycling.
  - c. Maintain a more consistent method of reporting MRA statistics.
2. Improve Education/Outreach
3. Change the Hauler Licensing Requirements to increase recycling or reduce the cost of recycling

Other options for consideration which would require more effort on the part of the County include:

1. Manage the collection function on a more regional basis
  - a. Utilize the County's Community Planning Areas in establishing collection contracts
  - b. Divide the County into regions and contract collection by region
2. Develop franchise areas for the collection of solid waste recyclables
3. Consider Single Stream Collection of recyclables