

DRAFT Report

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# La Crosse County Solid Waste and Recycling Collection Evaluation

Project I.D.: 10L001.22

La Crosse County Solid Waste Department

September 2010





August 24, 2010

Mr. Hank Koch, P.E.  
Solid Waste Director  
La Crosse County Solid Waste Department  
6500 State Road 16  
La Crosse, WI 54601

Dear Mr. Koch:

RE: Solid Waste and Recycling Collection Evaluation

This letter transmits a “complete working draft” of the Solid Waste and Recycling Collection Evaluation report.

I look forward to meeting with you and other representatives of the La Crosse County area to discuss the report, receive comments, and then finalize the report to meet your needs.

Thanks.

Sincerely,

Foth Infrastructure & Environment, LLC

Warren Shuros  
*Senior Project Manager*



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La Crosse County Solid Waste and Recycling Collection  
Evaluation

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# La Crosse County Solid Waste and Recycling Collection Evaluation

Project ID: 10L001.22

Prepared for  
La Crosse County Solid Waste Department  
6500 State Road 16  
La Crosse, WI 54601

Prepared by  
Foth Infrastructure & Environment, LLC

September 2010

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La Crosse County Solid Waste and Recycling Collection  
Evaluation

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# La Crosse County Solid Waste and Recycling Collection Evaluation

## Executive Summary

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### Introduction

The goal and objectives of this evaluation are to inform La Crosse Area City and County policy makers about the potential options available for future solid waste and recycling collection services and to provide descriptions about the pros and cons of each option. A key part of the evaluation is to provide information related to funding options that do not rely on local government general funds. The report addresses issues related to customer service, sustainability, and coordination of services among different local governmental bodies.

This report does not provide specific recommendations, but rather is intended to provide information to facilitate discussion by local elected officials. While the focus is on the Cities of La Crosse and Onalaska, much of the information in the report is applicable to other municipalities in the County and the other public entity participants in the La Crosse County Disposal System.

The report focuses on residential collection issues and does not address commercial solid waste collection or dwell on processing and disposal facilities such as the Xcel Refuse-derived Fuel (RDF) Facility or the La Crosse County Landfill Complex.

The report includes sections covering the following topics:

- ◆ Existing System Description – Highlights of the existing residential collection systems in the Cities of La Crosse and Onalaska as well as an overview of the rest of La Crosse County.
- ◆ Trends – Current trends in solid waste collection such as automated collection, single-stream recycling, separate food waste collection, and incentive approaches.
- ◆ Benchmarking – Reviewing what other communities have done and how La Crosse communities compare.
- ◆ Carbon Footprint – Estimating the impact of increased recycling on greenhouse gas emissions.
- ◆ Collection Technology Options descriptions and pros/cons – Automated collection, Single-stream vs Dual Stream recycling plus System options such as coordinated collection by multiple municipalities.

- ◆ Funding Option descriptions and pros/cons – Addressing general fund and user fee approaches including “pay as you throw” (PAYT).
- ◆ Governance Approaches – Addressing options from status quo to multi-governmental coordination.

## Existing System

Key observations from the description of the existing systems include:

- ◆ Residential solid waste collection is typically a municipal government function that is managed by the municipalities in La Crosse County primarily via contracts with various local hauling companies. Each of the municipalities handles their program independently of other local municipalities in the La Crosse area.
- ◆ La Crosse County involvement in collection is limited to household hazardous materials delivered to the County’s Household Hazardous Materials Facility and the citizens’ drop-off area for solid wastes, both located at the Landfill Complex.
- ◆ The recycling Responsible Unit (RU) status is handled by each municipality in the County with minimal coordination of services between the municipalities.
- ◆ Grant funding from the State of Wisconsin Department of Natural Resources (DNR) for recycling covers only about one-third of the costs of the local recycling programs for each municipality.
- ◆ The vast majority of the municipalities in La Crosse County fund their solid waste and recycling program services via their general funds rather than user fees. In 2009, solid waste and recycling services required general funds of just under \$1.9 million in the City of La Crosse and just under \$900,000 in the City of Onalaska. Three municipalities in La Crosse County have user fees – two through bag sales and one via the Water Bill.
- ◆ Collection service is typically performed manually in La Crosse County municipalities using rear load packer trucks with garbage collection provided weekly and recycling every other week.
- ◆ There are several drop-off sites located around the County, but there is a definite lack of consistency in operating hours and the types of materials collected.
- ◆ There is current pressure to make changes in how solid waste and recycling services are funded and in the extent of recycling service provided, as evidenced by the changes that occurred during the preparation of this report (additional recyclables added in the City of La Crosse and the discontinuance of bulky waste and yard waste collection funding by the City of Onalaska).

## Trends and Technology Options

Five trends were described including:

- ◆ Automated collection
- ◆ Single-stream recycling collection and processing
- ◆ Separate food waste collection
- ◆ “RecycleBank”
- ◆ Revenue Sharing

**Automated Collection:** Automated collection trucks use a robotic arm that clamps around the rolling cart, lifts it to dump into the truck hopper, and sets the cart down at the same spot. Standardized carts are essential to automated collection. The carts come in different sizes and are easily wheeled by residents to the curb. Residents find the carts very easy to use; therefore, very convenient.

Automated collection is becoming more and more common and it is a clear and undeniable trend in both private and municipal operations. Cities in Wisconsin that have automated include in and around Madison, Portage County, as well as some cities in the Green Bay area. Much of the area of the Twin Cities in Minnesota is automated as well as the major metropolitan areas in Iowa. Private companies, particularly the large, national companies have moved to automated collection.

Automated collection requires special trucks with the robotic arm and the standardized, wheeled carts. There is a significant capital cost associated with implementation of automated collection, particularly for the carts. While the long-term savings in operating costs and increased collection productivity can be significant and save money over time, the up-front capital costs can be a barrier to implementation.

### Pros and Cons for Automated Collection

Pros	Cons
<ul style="list-style-type: none"><li>◆ Increased convenience to residents with wheeled carts and attached lid</li><li>◆ More efficient for the haulers (less labor, more productive collection)</li><li>◆ Less manual lifting, reducing injuries and workmen’s compensation costs</li><li>◆ Neighborhoods look orderly on collection day</li><li>◆ Less chance of litter or vectors</li><li>◆ Easy application of unit based pricing with 30, 60, or 90 gallon carts</li></ul>	<ul style="list-style-type: none"><li>◆ High start up costs associated with purchase of trucks, carts and education</li><li>◆ Higher maintenance costs – truck, arm repair and cart inventory</li><li>◆ Some residential areas may lack full access to curb line and lifting height clearance (alleys)</li><li>◆ For automated recyclables collection using side loaders, lack of visual inspection by the driver for contaminants.</li></ul>

**Single-stream Recycling Collection and Processing:** Single-stream recycling is defined as the process of collecting and processing recyclables in a combined form (paper, cans, bottles all mixed together). This system is different than “dual stream” where the various paper types are separated from the containers by generators and kept separate during collection. There has been and continues to be a significant trend toward single-stream. Recycling collection in the La Crosse area is currently handled as a dual stream.

Taking advantage of single-stream entails automating recyclables collection including the automated truck and the rolling carts. Therefore, the pros and cons noted above for automated collection apply. In addition, following are some other characteristics of single-stream recycling.

### Pros and Cons of Single-Stream Recycling

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Improved convenience offered to residents (higher capacity, wheeled cart; only one sort: solid waste from recyclables)</li> <li>◆ Improved truck capacity utilization due to only one material category per truck</li> <li>◆ Improved fleet utilization since the same type of automated truck can be used to collect refuse, recyclables, or yard waste.</li> <li>◆ Potential to add more items to list of acceptable materials collected (e.g., additional grades of paper or plastic)</li> <li>◆ Increased quantities of recyclables collected</li> <li>◆ Residents like the convenience, aesthetics and standardized “look”</li> </ul>	<ul style="list-style-type: none"> <li>◆ High start up costs associated with purchase of trucks, carts and education program</li> <li>◆ Increase capital and operating costs of higher-tech MRF for processing fully commingled recyclables</li> <li>◆ Greater risk of product contamination due to automated cart lifting/dumping system and more broken glass</li> </ul>

**Separate Food Waste Collection:** Food waste can be a fairly significant portion of the residential solid waste stream that is disposed. It was estimated at 13.4% of the residential wastes from a DNR source for this report. Some communities are focusing on food wastes as the next, significant material to divert from disposal and recover for beneficial use. Dozens of new programs are being implemented around the U.S. Dane County, Wisconsin recently started a feasibility study for “source separated organics.”

Due to odor considerations and other system challenges, food waste recovery must be carefully planned, designed, implemented and managed. Storage, collection, processing, and end use marketing must be designed, implemented, and operated according to strict standards.

While this may be a “coming trend,” it may be beneficial for La Crosse area officials to focus on other potential changes first and monitor the separate food waste collection and recovery activities of others at this time.

**RecycleBank and Revenue Sharing:** RecycleBank is a proprietary rewards – incentive program intended to help increase participation in existing, municipal curbside recycling programs. Participants are awarded points for recycling which can be redeemed for merchandise with participating companies. Automated, single-stream recycling is required. There are no known communities in Wisconsin that use RecycleBank. The program is more suited to communities that utilize private landfills and can benefit from the savings associated with avoiding those tipping fees.

Revenue sharing is an alternative where the private recycling collection contractor shares a portion of the recyclable materials revenues received from the processor/end market with the municipality. This concept could be reviewed and implemented as part of the next recyclable collection contracting process and does not warrant special consideration at this time.

## Benchmarking and Case Studies

The information gained from previous studies was reviewed to develop pertinent information for this evaluation. Particularly a municipal survey from ten (10) cities in Wisconsin provided comparable data.

The costs for collection in the Cities of La Crosse and Onalaska were shown to be lower than the costs in these ten other cities. The average cost for garbage collection (not including disposal costs) was \$4.56 per household per month in the ten cities versus \$3.76 and \$3.78 respectively in La Crosse and Onalaska. Recycling costs averaged a net of \$2.84 in the ten cities versus \$1.02 and \$1.20 per household per month respectively in La Crosse and Onalaska.

For recycling performance, the ten cities performed significantly better than the Cities of La Crosse and Onalaska. The average pounds per household per month collected in the ten cities was 39.7 pounds versus 10.9 and 12.9 respectively in La Crosse and Onalaska. Also, the calculated recycling rate (amount of recycling versus amount of solid waste disposed) averaged 23% in the ten cities versus 8% and 9% respectively in La Crosse and Onalaska.

Some of the unique features highlighted from the ten cities included:

- ◆ The City of Beloit collects the funds to pay for their solid waste services on a utility bill.
- ◆ The City of Eau Claire has an open system where each household must make arrangements with their own hauler for solid waste and recyclables collection.
- ◆ The City of Fond du Lac contracts with a hauler for single-stream recycling collection with the hauler providing the carts using an automated collection truck.

- ♦ The City of Oshkosh (Winnebago County) recently (2009) switched to single-stream recycling as Winnebago County converted their MRF into a transfer station to transfer recyclables to the new single-stream MRF in Outagamie County and Brown County converted to single-stream collection for transfer to Outagamie County. Oshkosh changed their recycling program from dual sort/weekly/bag to single-stream/every other week/cart collection.

There are examples in other communities where cities or the county have coordinated collection services for multiple municipalities. Following are a few of these examples:

In Clark County, Wisconsin the “United Communities of Clark County” (UCCC) joined together in a 66.30 intergovernmental agreement to consider the sharing or combining of services such as fire, police, and public works as a way of cutting the cost of operations. In 2003, UCCC contracted for solid waste and recycling on behalf of twelve member municipalities. They developed a single request for competitive bids to award a single contract for solid waste and recyclables collection. They reported that in some instances the results cut rates in half.

Portage County, Wisconsin is the recycling responsible unit (RU) for 21 out of 27 municipalities in the County. The County administers the RU grant program submitting annual reports, receiving State funds, and dispersing the RU grants back to the municipalities. Most, but not all, municipalities are also parties to an agreement with Portage County for solid waste collection services. Portage County contracts for a bundle of services. Most of the more urbanized area is served using an automated collection system.

Southern Trempealeau County Solid Waste Management Commission is a multi-governmental program providing solid waste and recycling services for seven municipalities. The Commission was formed in 1990 pursuant to Wisconsin Statutes 66.30 and was the first multi-governmental unit formed to handle solid waste collection in Wisconsin. The Commission currently contracts for solid waste and recyclables collection services directly with a hauler for five of the seven municipalities. Different types of services are provided to each of the seven members. The current funding for garbage collection is via a bag system at the rate of \$2.40 per bag. Solid waste is collected weekly using a manual system. Recycling is included in the bag cost.

Metro Waste Authority (MWA) in Des Moines, Iowa is organized as a multi-governmental authority under Iowa Statute 28E, similar to the Wisconsin Chapter 66.30. MWA owns two landfills, a transfer station, a yard waste composting facility, and a household hazardous waste facility. They contract with a private company to process recyclables. In the early 1990’s, MWA handled coordination of the first curbside recycling collection program for their seventeen members. MWA issued RFP’s and contracts, then managed the collection service on behalf of their members. In 2008, MWA conducted another RFP process to switch recycling to single-stream using automated trucks and standardized carts. MWA received several proposals, evaluated them, and entered into a single contract for single-stream collection for over 75,000 households and a separate contract with a single-stream recycling processor. The new program is operating successfully.

Based on their success with recycling collection, MWA offered to handle garbage and bulky waste collection for their member communities. The City of West Des Moines took MWA’s

offer and in 2009, MWA conducted an RFP process for the City of West Des Moines for automated garbage collection. MWA recently indicated that four more member communities are interested in a joint contract handled by MWA when their current municipal contracts with their haulers end in 2011.

## System Carbon Footprint

This analysis provides data on how changing waste management methods can contribute to the reduction of greenhouse gas (GHG) emissions. The EPA has a computer model titled Waste Reduction Model (WARM) that can provide projections of the differences in GHG emissions from different waste management alternatives for the same waste stream.

The WARM model was used to determine the GHG emissions from the total waste streams from the Cities of La Crosse and Onalaska. First the current systems for the Cities of La Crosse and Onalaska were entered into the WARM model including the existing recycling tonnages, tonnages to the Xcel RDF Facility, the tonnages for composting, and the tonnages for landfilling (including the process residue and rejects from Xcel). This provides the “baseline” of the WARM model. Next an alternative scenario was developed that included additional materials being recycled that are not currently collected in these cities (corrugated cardboard, magazines, and high grade paper – residential mail). Also, the alternative used higher recycling capture rates for the existing materials being recycled. Higher capture rates could be achieved through a more convenient recycling service such as that provided in a single-stream program.

The baseline and the alternative scenario are then compared from a net GHG emissions standpoint. The modeling indicated that 6,989 fewer metric tons of carbon dioxide equivalents (GHG) could be achieved by recycling more materials in just the Cities of La Crosse and Onalaska. The EPA projects that this is the equivalent of taking 1,280 cars off of the roads each year. Additional GHG savings could be achieved by expanding these alternatives to other municipalities in La Crosse County.

## Service Delivery System Approaches

There are different “system” approaches to residential collection, different ways that municipalities can organize their solid waste service delivery. These approaches include:

- ◆ Municipal collection
- ◆ Municipal contracts
- ◆ Open systems
- ◆ Coordinated collection

**Municipal collection:** Municipalities can own the equipment, hire the employees, and operate their own collection service. While this was common in the benchmarking cities covered in this evaluation, there is no municipal collection service noted in La Crosse County as of this evaluation. While it would be possible for the cities to move to municipal collection, it seems to be contrary to the desire to reduce the burden on local government for solid waste collection.

## Pros and Cons of Municipal Collection Operations

Pros	Cons
<ul style="list-style-type: none"> <li>◆ More control over scope and quality of service</li> <li>◆ Does not require contract monitoring</li> <li>◆ Allows public sector to lead by example with new innovations</li> <li>◆ Eliminates incumbent contractor advantage</li> <li>◆ Municipal crews can be used to provide other services (e.g., snow plowing)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Increase capital and operating costs on the municipal budget sheets</li> <li>◆ Governments are not always directly incentivized to find the most cost efficient methods</li> <li>◆ Requires hiring, retaining and training a capable work force</li> <li>◆ Requires staying current with rapidly changing solid waste and recycling technologies</li> </ul>

**Municipal contracts:** This entails developing contract specifications and soliciting competitive bids from qualified contractors to provide the service, meeting the contract specifications. This approach is widely used in La Crosse County.

## Pros and Cons of Municipal Contracts

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Avoids city hiring employees, purchasing trucks, etc.</li> <li>◆ Builds on the strengths of both government and private sectors</li> <li>◆ Reduces government capital and operating costs and risks</li> <li>◆ Positive, working partnership approach can provide very high quality services</li> <li>◆ Long term relationships can be an asset to sustaining and growing programs</li> <li>◆ Innovation can be encouraged via private sector incentives and entrepreneurial spirit</li> </ul>	<ul style="list-style-type: none"> <li>◆ Less control over scope and quality of service compared to municipal operations</li> <li>◆ Requires contract performance monitoring and enforcement</li> <li>◆ Incumbent contractors have distinct advantages when it comes time to go out for bid again</li> <li>◆ If a serious situation arises, switching contractors in the middle of the contract term is very difficult and requires capable alternative contractor to step in on fairly short notice</li> </ul>

**Open System:** This involves minimal involvement by the municipality. Individual residents must contact a hauler directly. A municipality may regulate hauling services and require licenses, but the pricing; service levels; payments; and other terms are between the hauler and homeowner.

## Pros and Cons of Open Collection Operations

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Residents have freedom to choose their own hauler</li> <li>◆ Keeps nearly all costs off the municipal budget</li> <li>◆ Does not threaten the business development history or potential growth of hauling companies</li> </ul>	<ul style="list-style-type: none"> <li>◆ Tends to increase the number of hauling companies running trucks through residential neighborhoods</li> <li>◆ Reduces collection efficiencies (e.g., fewer stops per hour)</li> <li>◆ Studies find that open hauling is more expensive due to lower efficiencies and lack of centralized, structured competition (i.e., residents may not know current market pricing or their ability to negotiate lower rates)</li> <li>◆ Increases truck traffic with additional wear and tear on residential pavement</li> <li>◆ Decreases neighborhood safety</li> <li>◆ Decreases ability of municipality to standardize collection operations and public education systems</li> <li>◆ Reduces the ability of municipalities and counties to collect data and make changes to the system and introduce innovations</li> </ul>

**Coordinated collection:** This is defined as two or more local units of government collaborating to provide for solid waste or recycling collection service. Several case studies were noted above. Recycling responsible units can also be considered under the realm the potential for coordination. Wisconsin statutes delegate responsibility for implementing recycling programs to responsible units (RU's). An RU can be any municipality and in La Crosse County, all the cities, villages, and towns are their own RU. The DNR recognizes that this leads to potential inefficiencies and lack of economies of scale. The DNR encourages RU's to coordinate recycling collection if such a change can help improve the cost effectiveness of the program.

Several counties in Wisconsin have helped provide for improved, comprehensive recycling planning and intergovernmental coordination. Some counties have become the RU's themselves, helping to coordinate services, prepare annual reports, and receive and disburse State grant funds to municipalities.

Coordinated collection can be appropriate for more than recycling collection. It can also apply to coordinated solid waste collection.

## Pros and Cons of Coordinated Collection

Pros	Cons
<ul style="list-style-type: none"><li>♦ Can reduce overhead costs from duplicative management and administrative functions and strengthen program management</li><li>♦ May be more cost effective via additional market leverage with hauling companies (i.e., larger, more coordinated contracts)</li><li>♦ Provide economies of scale to reduce service prices and increase value</li><li>♦ Provides more uniform service standards within a region (e.g., recycling sorting instructions for residents, etc.)</li><li>♦ Once implemented, is politically the “right thing to do” to help save taxpayer dollars and may lead to regionalization of other services</li></ul>	<ul style="list-style-type: none"><li>♦ May be difficult to implement due to political barriers of each local unit wanting to control their own collection system</li><li>♦ Does not allow individual government units to unilaterally customize the collection services, although preferences can be taken into consideration during planning</li></ul>

## Funding Options

There are several options to collect funds for residential solid waste collection services in a city, village, town, or county. The most common funding options are:

- ♦ General Fund – tax based
- ♦ Municipal Utility Billing – user fee based
- ♦ Hauler Direct billing – user fee based

More detailed cost structures that can be used in conjunction with the above user fee based funding options include:

- ♦ Flat Rate User Fee Systems
- ♦ Volume-based User Fee Systems
- ♦ Weight-based User Fee Systems

**General Funding:** Property taxes into a city’s general fund provides funding for all of the city’s general programs and day-to-day operations, which can include items such as administration, human services, public safety, parks and recreation, public works, sanitation, planning, etc. General fund revenues and expenditures are authorized through the city’s annual budget process. This is the current funding method used by the Cities of La Crosse and Onalaska for solid waste services.

## Pros and Cons for General Fund

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Easy to administer/low cost</li> <li>◆ Less incentive for illegal dumping</li> <li>◆ Revenues are predictable and stable</li> <li>◆ Commercial properties pay for residential service</li> <li>◆ Deducted on income taxes</li> <li>◆ Current funding method – no change required</li> </ul>	<ul style="list-style-type: none"> <li>◆ Concerns with levy limits and pressure to provide other services via general fund</li> <li>◆ Costs are not easily visible to citizens</li> <li>◆ No economic incentive for waste reduction &amp; recycling</li> <li>◆ Inequitable payment by businesses, large families, and tax exempt properties</li> </ul>

**Municipal utility billing:** A city may already bill residents for some utility (water, sewer, electricity, etc.). A line can be added to the utility bill to cover the costs associated with residential solid waste collection.

## Pros and Cons for Municipal Utility Billing

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Costs removed from general fund</li> <li>◆ Low administrative costs</li> <li>◆ Easy to cover costs beyond hauler contract</li> <li>◆ Cost visible to residents</li> <li>◆ Increased level of accountability</li> <li>◆ Easy to promote program via inserts</li> <li>◆ Customer makes payments as part of an existing process</li> <li>◆ Businesses no longer subsidize residential solid waste service</li> </ul>	<ul style="list-style-type: none"> <li>◆ Requires a change which will be noticed by public</li> <li>◆ Initial administrative needs to set it up</li> <li>◆ Residents may “expect” reduction in property taxes</li> <li>◆ Average cost per household may go up because commercial businesses are no longer subsidizing residential service</li> </ul>

**Hauler direct billing:** This approach relies on the contracted hauler to prepare and send the bills to customers to pay the hauler directly.

## Pros and Cons for Hauler Direct Billing

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Cost removed from municipal budget</li> <li>◆ Lower municipal administrative needs</li> <li>◆ Maintain capability for controls in contract (as opposed to open based system)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Hauler inability to collect bad debt leads to municipal involvement</li> <li>◆ More administrative cost for hauler leads to higher cost for customers (as opposed to general fund or utility billing)</li> <li>◆ Less municipal control and opportunity for interaction and education</li> <li>◆ Residents may “expect” reduction in property taxes</li> </ul>

**Flat rate User Fees:** In a flat rate system for solid waste collection, residents pay a flat monthly fee for collection services regardless of the amount of materials set out for collection or how often they use the service (i.e., weekly, bi-weekly, etc.).

## Pros and Cons for Flat Rate User Fee Systems

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Easily allocate costs across the user base</li> <li>◆ Stable revenue</li> </ul>	<ul style="list-style-type: none"> <li>◆ No incentive to recycle</li> <li>◆ Same rate for all residents not fair</li> </ul>

Volume-based user fee (VBF) systems are another method of charging residents for solid waste collection services. There are other terms for this system such as Pay As You Throw (PAYT) and Unit-based Pricing (UBP). In VBF systems, solid waste collection services are treated more like a utility. Residents pay based on the amount and frequency of service they “consume.” Rates are structured similar to other utility services such as sewer, water, electricity, etc. so that residents who use the system more or put out more materials for collection pay more than those who do not.

**Pre-paid Bag or Tag:** In a pre-paid bag/tag system, residents are required to purchase specially marked bags or tags at a price that reflects the cost of the collection and disposal service. These bags or tags may be sold directly by the municipality or distributed through local retail merchants in order to make it more convenient for residents to obtain.

Pre-paid bag/tag approaches would work with the existing manual collection system, but would be less likely to fit with an automated system.

In the La Crosse area, communities that currently use a bag system include:

- ◆ La Crosse County
  - ▶ Town of Washington
  - ▶ Village of Bangor
- ◆ Houston County
  - ▶ La Crescent
  - ▶ Brownsville
  - ▶ Hokah
  - ▶ Caledonia
  - ▶ Houston
  - ▶ Spring Grove

Pros and Cons for Pre-paid Bag/Tag

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Smaller, more flexible increments of service available</li> <li>◆ Less complex administration requirements</li> <li>◆ May get volunteer retailers to sell bags/tags/stickers</li> <li>◆ Customized bags/tags/stickers are inexpensive and easily distributed</li> <li>◆ May reduce collection time</li> <li>◆ Result in “clean curb”</li> <li>◆ Service is pre-paid</li> </ul>	<ul style="list-style-type: none"> <li>◆ Supply and distribution systems required</li> <li>◆ Possible revenue volatility</li> <li>◆ No reusable containers</li> <li>◆ Residents are responsible for storing/managing bags/tags</li> <li>◆ Not as compatible with automated collection systems</li> <li>◆ Increased level of educational training</li> <li>◆ Bags are not rodent-proof</li> <li>◆ Stickers require hauler judgment as it is more difficult to enforce size/weight limits</li> </ul>

**Subscription service:** In a subscription service program, residents typically are provided an option to select one of several measured levels of service (such as 30, 60, or 90 gallons of garbage collection service per week). The amount charged is tied to the level of service selected so those residents that select smaller containers pay less than residents that select larger containers.

This “menu” of container sizes allows a resident to select the service level that meets their household’s waste generation needs. The resident benefits since they do not have to pay for more than what they use. This subscription approach, especially with different size carts available, works well for automated collection.

## Pros and Cons for Subscription Service

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Potentially increase recycling and reduce garbage generation</li> <li>◆ Decrease scatter of waste</li> <li>◆ Stable revenues</li> <li>◆ Works very well with automated collection</li> <li>◆ Simplified enforcement</li> </ul>	<ul style="list-style-type: none"> <li>◆ Coordination required for service level alterations</li> <li>◆ If containers are provided by city/hauler, cost, distribution, storage, and replacement can be expensive</li> <li>◆ Initial administrative complications</li> <li>◆ Small containers may be difficult to dump (especially for automated collection)</li> </ul>

**Modified or Hybrid System:** A modified or hybrid system combines some elements of a flat rate (or property tax-based) system with some elements of a pure VBF system. In fact, a modified system closely resembles a subscription service in many ways. The main difference is that in a modified system all residents are provided the same fixed unit volume of basic service for the same flat rate, and any excess material set out for collection requires the use of a pre-paid bag or tag by the resident. The primary advantage to this type of system over other forms of VBFs is that a community can cover the fixed overhead and operating costs of its collection system through the base charge. The additional bags or tags can be priced to cover the system's variable costs associated with the collection and disposal of the additional material. This approach can easily be applied to an automated collection system. It can also be adapted to the existing manual collection system.

## Pros and Cons for Modified or Hybrid System

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Stable and predictable revenues</li> <li>◆ Convenient</li> <li>◆ Easily applied to an automated system</li> </ul>	<ul style="list-style-type: none"> <li>◆ Need to set up bag/tag system for extras</li> <li>◆ Increased educational training</li> <li>◆ Customer may not realize full cost of their service</li> </ul>

### Potential Impacts of User Fee Based Approaches

There are some impacts associated with these user fee based approaches, both favorable and potentially unfavorable.

- ◆ **Increased recycling and waste reduction:** Customers pay less if they generate less waste for disposal. Thus, user fees create an economic incentive to generate less waste and recycle everything than can be recycled. This is one of the key drivers favoring volume-based user fee approaches. The larger the increase in cost between different levels of service, the more incentive that is created.

- ◆ **Illegal dumping:** This is a common concern, whether related to people throwing garbage in business dumpsters or into roadside ditches. This needs to be properly addressed during implementation and can be managed successfully.
- ◆ **Setting rates and estimating revenues:** There will be some risk in setting the rates and making them accurate to generate enough revenue. Even so, the rates can be adjusted over time if necessary.

## Governance

With the increased focus on improving efficiency in government and the potential for economies of scale, there is more interest in coordinating solid waste and recycling collection services for multiple local government entities. There are multiple approaches that can be used based on the statutory authority provided to local governments for intergovernmental cooperation. Wisconsin statutes provide authority for cities, villages, towns, and counties to manage collection for residents. Overall, there are four organizational approaches to be considered:

- ◆ Continue “as is” without any organizational change (i.e., each municipality contracts individually with a hauler);
- ◆ Cities join together pursuant to Wisconsin Statutes Chapter 66.30;
- ◆ Cities and County join together pursuant to Ch. 66.30; or
- ◆ County forms a Solid Waste Management Board (SWMB) pursuant to Wisconsin Statutes Chapter 59.70(2) and establishes solid waste service districts to handle solid waste and potentially recyclables collection. This could entail the County becoming the RU, following the statutes or simply contracting with the municipalities, whichever is preferable.

As noted, there are multiple legal approaches that can be used based on the statutes. Perhaps a better way to focus on potential changes is simply to consider the potential outcomes. These outcomes may be thought of as follows:

- ◆ Continue as is;
- ◆ Multi-government system combining solid waste collection, recycling collection, and RU status; or
- ◆ Multi-government system combining only recycling collection and RU status.

The pros and cons of each of these approaches follow.

**Pros and Cons for Continuing “As Is”  
Without Any Change in Governance Structures**

<b>Pros</b>	<b>Cons</b>
<ul style="list-style-type: none"> <li>◆ System has “worked” in the past. Some could say it’s not broken, so doesn’t need to be fixed.</li> <li>◆ Municipalities have a sense of greater control over the system changes.</li> <li>◆ Residents may have greater trust with existing governance structures compared to any new multi-government structure.</li> <li>◆ State recycling grants go directly to each municipality so there is a sense of more control of how the grant funds are best spent.</li> </ul>	<ul style="list-style-type: none"> <li>◆ There is duplication of effort by many municipalities.</li> <li>◆ System changes that may be considered for implementation by individual municipalities may miss opportunities for greater cost savings and financing options that may be available to multi-governmental structures.</li> <li>◆ Costs of operation and capital improvements are borne individually and can not as easily be spread among other governmental entities.</li> <li>◆ Regional standards for recyclables/solid waste collection services are more difficult to implement.</li> <li>◆ Waste supply security is less likely with the current system “as is” because of lack of standardized hauling contracts and provisions for designating the location for solid waste disposal.</li> </ul>

**Pros and Cons for Multi-Government System for  
Both Solid Waste and Recyclables Collection**

<b>Pros</b>	<b>Cons</b>
<ul style="list-style-type: none"> <li>◆ Potential for savings to residents if solid waste/recyclables rates can be reduced.</li> <li>◆ Potential for savings to municipalities if administration/overhead can be reduced.</li> <li>◆ Can help with (but is not required for) moving solid waste/recyclables collection costs off the general tax levies.</li> <li>◆ May provide opportunities to complement other system changes (e.g., automated collection, single stream, PAYT, etc.).</li> <li>◆ Public education can be more cost-</li> </ul>	<ul style="list-style-type: none"> <li>◆ One time costs of additional planning, organizing and initial restructuring.</li> <li>◆ May potentially reduce accountability away from individual municipalities.</li> <li>◆ Must carefully manage the contracting process to maintain hauler competition (maintain multiple haulers).</li> </ul>

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effective because of regional consistency.

- ◆ Mass media can be utilized more for communicating details.
  - ◆ Overall regional system planning and coordination of integrated solid waste system will be enhanced.
  - ◆ May lead to consideration of regionalizing other public services.
- 

### Pros and Cons for Multi-Government System for Recyclables Collection Only

Pros	Cons
<ul style="list-style-type: none"><li>◆ Potential for savings to residents if recyclables rates can be reduced.</li><li>◆ Potential for savings to municipalities if administration/overhead can be reduced.</li><li>◆ May provide opportunities to complement other system changes (e.g., automated collection, single stream).</li><li>◆ Marketing/advertising costs may be reduced due to economies of scale.</li><li>◆ Public education can be more cost-effective because of regional consistency.</li><li>◆ Mass media can be utilized more for communicating details.</li><li>◆ May lead to consideration of regionalizing other public services (e.g., solid waste collection).</li></ul>	<ul style="list-style-type: none"><li>◆ One time costs of additional planning, organizing and initial restructuring.</li><li>◆ May include splitting up into separate contracts for “solid waste” vs. “recycling” while these services are currently bundled into one contract.</li><li>◆ Miss out on broader positive outcomes related to solid wastes.</li></ul>

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## List of Abbreviations, Acronyms, and Symbols

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AR	Arkansas
AZ	Arizona
County	La Crosse County
CO <sub>2</sub> e	Carbon Dioxide Equivalents
DNR	Department of Natural Resources
EPA	Environmental Protection Agency
Foth	Foth Infrastructure & Environment, LLC
GHG	Greenhouse Gas
Harter's	Harter's Quick Clean-Up, Inc.
HDPE	High Density Polyethylene
HH	Household
HHM	Household Hazardous Material
HHW	Household Hazardous Waste
Hilltopper	Hilltopper Refuse and Recycling, Inc.
LDPE	Low Density Polyethylene
MRF	Materials Recovery Facility
MSW	Municipal Solid Waste
MT	Montana
MTCO <sub>2</sub> e	Metric Tons Carbon Dioxide Equivalent
MWA	Metro Waste Authority
NA	Not Applicable
NR	Not Reported
OCC	Old Corrugated Cardboard
ONP	Old Newspapers
OTM	Operations and Maintenance
PAYT	Pay As You Throw
PET	Polyethylene Terephthalate
PLAN	Solid Waste Management Plan for La Crosse County
RCC	Recycling Connections Corporation
RDF	Refuse-derived Fuel
RFB	Request for Bid
RFID	Radio Frequency Identification
RFP	Request for Proposal
RU	Responsible Unit
SSO	Source Separated Organics
STCSWC	Southern Trempealeau County Solid Waste Commission
TX	Texas
UBC	Used Beverage Container
UBP	Unit Based Pricing
UCCC	United Communities of Clark County
US	United States
VA	Virginia
VBF	Volume-Based Fee
WARM	Waste Reduction Model
WTE	Waste to Energy



# 1 Introduction and Background

## 1.1 Purpose

Changes have been occurring in how solid wastes and recyclables are collected in many communities. Improvements are now available in customer service, worker safety, and in areas related to sustainability. In addition, local governments in Wisconsin face significant financial pressures on their general fund revenues. It is timely to look for other options to fund solid waste and recycling collection related costs.

The La Crosse County Solid Waste Disposal System is a complex system including many different participants and services. The County has made a significant financial commitment to their Landfill Complex and the contract with Xcel for the waste-to-energy facility. Any changes for the Cities in how they manage and fund solid waste and recycling collection services will impact La Crosse County's Solid Waste Disposal System.

The goal and objectives of this evaluation was to inform City and County policy makers about the potential options available for the future solid waste and recycling collection services and to provide descriptions about the pros and cons of each option. The evaluation provides key information related to funding options and also address issues related to customer service, sustainability, and coordination of services among different local governmental bodies.

## 1.2 Scope of Work

This report addresses residential solid waste and recyclables collection. While the focus is on the Cities of La Crosse and Onalaska, most of the report covers topics that are directly applicable to all the municipalities in La Crosse County. The report focuses on residential collection issues and does not address commercial solid waste collection or dwell on processing and disposal facilities such as the Xcel RDF Facility or the La Crosse County Landfill Complex.

The report includes sections covering the following topics:

- ◆ Existing System Description – The highlights of the existing residential collection systems in the Cities of La Crosse and Onalaska as well as an overview of the rest of La Crosse County.
- ◆ Trends – Current trends in solid waste collection such as automated collection, single-stream recycling, separate food waste collection, and incentive approaches.
- ◆ Benchmarking – Reviewing what other communities have done and how La Crosse communities compare.

- ◆ Carbon Footprint – Estimating the impact of increased recycling on greenhouse gas emissions.
- ◆ Collection Technology Options descriptions and pros/cons – Automated collection, Single-stream vs. Dual Stream recycling plus System options such as coordinated collection by multiple municipalities.
- ◆ Funding Option descriptions and pros/cons – Addressing general fund and user fee approaches including “pay as you throw.”
- ◆ Governance Approaches – Addressing options from status quo to multi-governmental coordination.

### 1.3 Background

In 2007, La Crosse County completed preparation of a Comprehensive Solid Waste Management Plan. During that process, solid waste and recycling collection issues were discussed with numerous stakeholders and a workshop was held for representatives of the municipalities and counties participating in the La Crosse Regional Disposal System. Many of the same issues addressed in this report were first discussed during that planning process. The issues include:

- ◆ Most municipalities pay for solid waste related service via general levy.
- ◆ There is significant pressure to reduce the impacts on the property tax levy.
- ◆ Payment for solid waste service via property taxes is not an equitable way to fund the service (it is not based on garbage generation).
- ◆ Citizen demands for service are increasing.
- ◆ Elected officials are looking for more ways to generate revenue.
- ◆ There is a desire by Responsible Units to increase recycling but a concern the costs could increase.
- ◆ The Wisconsin recycling program Responsible Unit concepts and current status creates disincentives for coordination between governmental units (everyone wants to keep the grant funding).

Both La Crosse County and the City of La Crosse are committed to sustainability. Included in the recent Sustainability Plan was the need to address potential future solid waste and recycling collection changes that could improve sustainability. In addition, both the City of La Crosse and the City of Onalaska expressed specific interest in evaluating coordination of solid waste and recycling collection as a way to improve services and be more cost effective.

There is current, ongoing pressure to make changes in local solid waste and recycling services. For example, changes occurred in both the City of La Crosse and the City of Onalaska during the development of this report. The City of La Crosse amended their collection contract with Harter's Quick Clean-Up to add # 1 and #2 plastic containers to the recycling collection service. This is a reflection of the interest to expand recycling opportunities in the City. The City of Onalaska approved removing the collection of bulky wastes and yard wastes from their hauler's contracted services, making residents contact the hauler (Harter's) directly to provide the service and pay them directly. These are real examples of the pressures related to removing funding of solid waste services from the tax base and the desire for a more sustainable solid waste system via increased recycling.

The following sections of this report cover the topics as noted above. There are also appendices that provide background information pertinent to the topics. In follow up to this report, there are anticipated to be discussions by elected officials and staff to determine the appropriate changes and the schedule for those changes.

## 2 Existing Systems

The first step in analyzing future options is to gain a good understanding of existing conditions. This section provides written descriptions of the current residential solid waste, recyclables, yard wastes, and bulky waste collection systems in the cities of La Crosse and Onalaska. This includes collection methods, available information on costs, status of contracts, funding methods, and delivery locations. This addresses only residential systems collected as single family households and does not address multi-family (greater than a four-plex) residential collection which are typically handled as a commercial collection accounts.

The La Crosse County Disposal System is described as it relates to collection issues, projected life expectancies, and long term commitments. The historical perspective of the long term vision and past decisions are put in context along with how the entire system fits together.

### 2.1 Cities of La Crosse and Onalaska

### 2.2 Contracts

Both cities currently contract with Harter's Quick Clean-Up, Inc. (Harter's) for collection of garbage, recyclables, yard wastes, and bulky wastes. The contract term for the City of La Crosse was recently extended through December 31, 2013. The City has the option to renew the contract for an additional five (5) years by providing a ten-day notice. The contract term for the City of Onalaska also extends through December 31, 2013. The City may extend the contract term for a two-year period by giving notice by August 1, 2013.

#### 2.2.1 Rates and Annual Costs/Revenues

Current rates for collection and disposal related services are provided in Table 2-1. Harter's does not receive the disposal related amounts as these tipping fees are directly paid by both cities to La Crosse County. The cities also pay directly for yard waste processing and not to Harter's.

Table 2-1  
Monthly Cost for Services (\$ per household per month)

City	Garbage	Recycling	Yard Wastes	Bulky Wastes	Disposal	Total
La Crosse	\$3.76	\$1.02	\$0.45	Included	\$4.56 <sup>1</sup>	\$9.79
Onalaska	\$3.78	\$1.20	\$1.14	\$0.39	\$5.25 <sup>2</sup>	\$11.76

<sup>1</sup> Includes appliance disposal, landfill charge, and Riverfront yard waste from Budget Analysis for a total of \$923,031

<sup>2</sup> Based on total of \$430,122 from City of Onalaska Financial Report for 2009

Total annual costs for 2009 for both cities for each service are shown in Table 2-2.

Table 2-2  
Total Annual Costs for 2009

City	Garbage Collection	Recycling Collection	Yard Waste Collection	Bulky Wastes Collection	Disposal Related	Adm./ Other	Total
La Crosse	\$787,825	\$181,385	\$145,013	Included	\$923,031	\$130,619	\$2,167,873
Onalaska	\$326,265	\$ 80,171	\$ 42,704	\$9,620	\$430,122	\$ 51,095	\$ 939,977

In 2009, the City of La Crosse received a state recycling grant as the Responsible Unit in the amount of \$246,567 and an “Efficiency” grant in the amount of \$28,917. The rebate from La Crosse County was reported to be \$8,879. There were other reported revenues associated with refuse and recycling (Accounts 100864) in the total additional amount of \$21,478. Total reported revenues against the total annual costs of \$2,167,873 were therefore \$296,962 leaving \$1,870,911 to be covered by the general fund. With 16,875 households, this equates to \$110.87 per household for the year.

In 2009, the City of Onalaska received \$61,870 in state recycling grants, \$3,562 from the La Crosse County rebate, and incidental revenues of \$638. Total revenues reported was \$66,070 leaving \$873,907 to be covered by the general fund. With 6,826 households, this equates to \$128.03 per household for the year.

**2.2.2 Quantities**

Table 2-3 provides a summary of the quantity of the various solid wastes that were collected in the City of La Crosse in 2009. Garbage delivered to Xcel has trended slightly downward over the four years as have all the rest of the materials.

Table 2-3  
City of La Crosse Tonnages 2006 to 2009

Material	2006	2007	2008	2009
Xcel	13,565	13,411	12,846	12,473
Recycling (curbside)	1,216	1,288	1,126	1,103
Yard Waste	1,697	1,696	1,548	1,400
Bulky Wastes	1,189	1,130	855	811
Appliances (items not tons)	1,082	643	384	391
<b>TOTAL TONS</b>	<b>17,667</b>	<b>17,525</b>	<b>16,375</b>	<b>15,787</b>

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Table 2-4 provides a summary of the quantities of the various solid wastes that were collected and reported by Hilltopper Refuse and Recycling Inc. (Hilltopper) from 2006 through 2008. This is separated from the 2009 tonnages reported by Harter's for 2009 as the categories are reported differently. While the level of detail in the Harter's reports is much lower than Hilltopper's, the total tonnages of recyclables and overall materials are consistent.

Table 2-4  
City of Onalaska Tonnages  
Reported by Hilltopper 2006 to 2008

Material	2006	2007	2008
Fiber	145	184	202
Glass	232	230	245
Tin	39	40	44
Aluminum	12	12	10
Plastic	15	28	37
Recycling Subtotal	443	494	538
Appliances	25	21	12
Yard Waste	1,174	1,159	1,166
Xcel	6,251	6,178	5,798
County	165	165	159
<b>TOTALS</b>	<b>8,058</b>	<b>8,017</b>	<b>7,673</b>

City of Onalaska Tonnages Reported by Harter's 2009

Material	2009
Recycling	527
Appliances	84 appliances (not in tons)
Yard Wastes	1,466
Xcel (including landfill diversion)	5,592
County	129
<b>TOTAL</b>	<b>7,714</b>

### 2.2.3 Service Descriptions

**Garbage:** For both cities, collection service is provided by contract to single family residences including multi-family housing units of less than five households. Residents use their own containers for garbage. Collection is performed manually using rear load packer trucks. Collection is performed in the alleys if present, otherwise curbside. Collection for garbage is done weekly with recycling collection provided bi-weekly on the same day as garbage. Garbage must be delivered to the Xcel Refuse-Derived Fuel Facility (RDF Facility) as specified by La Crosse County. There is no limit to the amount of garbage that may be set out by residents.

**Recycling:** Recyclable materials collected in the City of La Crosse include newsprint as well as glass, tin, aluminum containers, and #1 and #2 plastics added in June 2010. Recyclables collected in the City of Onalaska include all of these materials. Recyclables are collected as “dual streams” with newsprint separated from the containers (glass, tin, aluminum, and plastic). The contractor is responsible for collecting, processing and marketing the recyclables from both cities. No recyclable material market revenue sharing is included in either contract. The contractor receives all recyclable material market revenues. The cities provide 18 gallon recyclables storage containers for each resident to use to store and set out their recyclables. Residents in the City of La Crosse purchase the containers for \$8 each. Additional storage is likely required for most residents. Recyclables are collected using a split, two-compartment, non-compacting side loader truck.

**Bulky Wastes:** Bulky wastes in the City of La Crosse include large items such as furniture, TVs, and carpet. Lumber may also be bundled not exceeding four feet in length. Bulky wastes (large items) do not include appliances which are collected for a fee of \$25 per appliance under a different contract. Bulky wastes are collected every other week in La Crosse on the same day as garbage collection. The bulky wastes are required to be delivered to the Landfill Complex. Bulky wastes are collected using rear loading packer trucks.

In the City of Onalaska, bulky wastes service changed during the course of this evaluation from being funded via the City to being billed by the contractor to individual households. Pick up was limited to three 60-pound loads per residence per year. Large items are picked up every other Wednesday, the opposite week of recycling. Residents must call Harter’s to schedule the pick up and will be paying Harter’s directly.

**Yard Waste:** In the City of La Crosse, the contractor is required to collect yard wastes from mid-March through mid-December. Yard wastes are to be placed in Kraft paper bags or loose in marked trash cans. Yard wastes are collected using rear load packer trucks. Yard wastes are to be delivered either to the Landfill Complex or to the City’s Isle La Plume yard waste processing site. The City of La Crosse also collects leaves in the fall with a leaf vac behind a single axle truck. These leaves are also delivered to the Isle La Plume yard waste site. In addition, the City places two compactors each at Isle La Plume and on the north side at West Copeland. Hilltopper services these roll-off compactors and hauls the yard wastes to Green Earth where the City pays a tipping fee of \$20 per ton.

In the City of Onalaska, yard waste service also changed during this evaluation from being funded via the City to being billed by the contractors to individual households. The contractor was required to collect yard wastes in two manners. The contract required leaf vacuum collection for one month. This service begins the second week of October and runs until the second week of November. Leaves are to be raked to the boulevard area no later than 5:00 a.m. on Monday of each week. Collection may also occur using paper bags or loose in a can with a sticker. This covers grass and leaves if the leaves are not vacuumed. Yard wastes are delivered to Green Earth for processing. In addition, the contractor must collect Christmas trees from each residence during one week in January.

**Disposal Fee Payment:** Both cities directly pay all the fees charged by the delivery locations for garbage. The tonnages are recorded at the delivery locations and accounting kept as to the source of the materials on each load. The City of Onalaska changed funding for bulky wastes and yard waste during this evaluation.

## 2.3 La Crosse County

La Crosse County and the municipalities in the County have a long history of solid waste planning and implementation of facilities, programs, and services. The County has historically focused on processing and disposal services while the municipalities have focused on collection related services. This is typical of most public entities across Wisconsin and the United States.

### 2.3.1 Municipalities

Though this evaluation focuses on the Cities of La Crosse and Onalaska, there are several other municipalities represented in this evaluation by the County. Tables 2-5 through 2-7 provide information regarding the residential collection systems in other municipalities in La Crosse County. These tables were originally prepared in 2006 as part of the La Crosse County Solid Waste Management Plan and were updated by the County Solid Waste Department as part of this report.

Table 2-5 summarizes information on MSW (not recyclables) collection. MSW collection is done via curbside and drop-off services with most the larger communities collected curbside. Service is provided weekly. Hilltopper has the most municipal contracts although Harter's has the largest two – the Cities of La Crosse and Onalaska. Residential MSW is delivered to the La Crosse County Disposal System (Xcel and the Landfill Complex). Eligible participants are typically single family residences; including up to four-plex apartments. Most of the municipalities fund the service via taxes; however, three municipalities have user fees with bag sales in the Town of Washington and Village of Bangor and payment via the water (utility) bill in the Village of Holmen.

Table 2-6 summarizes the Drop-off Sites in the County. There are a variety of drop-off sites, but there is a definite lack of consistency in the operating hours and the type of materials collected. At the time of preparation of the La Crosse County Solid Waste Management Plan in 2007, a potential need for more and better organized drop-off facilities was identified (Section 5.2.8 Public Convenience Center Drop-offs). The SWM Plan concluded there was a real need for a more formal assessment of the need and interest in such a system. This has not yet been completed.

Table 2-7 summarizes existing recycling collection services in the municipalities. The approach to curbside versus drop-off service closely parallels MSW collection. Contracted haulers are consistent with MSW. Hilltopper has most consistently collected the #1 and #2 plastic containers over time.

Table 2-5

## Residential MSW Collection Systems

Government Unit*	2009 Pop.	Collection Location	Frequency	Contract?	Term	Designation?	Eligible to Participate	Fees	How charged?	Bulky Items	Other
City of La Crosse	52,000	Curbside	Weekly	Harter's	July 2007, 5 years	Xcel WTE or Lax City Landfill	Residences <=4 Plexes	\$3.76/month	Taxes	Included bi-weekly	
City of Onalaska	16,150	Curbside	Weekly	Harter's	8 years	Xcel	4 units and less	Tires \$5; appliances \$25	Taxes	Every other week	
Town of Barre	1,201	Curbside	Weekly	Hilltopper	5 years, 2011?	Xcel, Lax Co Landfill	All Residential	\$126.00 year	Taxes	Large item 3/year	
Town of Bangor	595	Drop-off	Weekly			Xcel	4 units or less				
Town of Burns	1,000	Drop-Off at Town Hall Recycle Area	9 AM-2 PM Saturday 4 PM-6PM Tuesday	Hilltopper	5 years	Xcel, Lax Co Landfill	Town residents and Landowners	None	Taxes	Lrg. Item dumpster no fee	
Town of Campbell	4,480	Curbside	Weekly	Richard Sanitation	5 Year, 2009		All residences & 4-plexes		Taxes	\$20/large items/appliances	
Town of Farmington	1,953	Drop-off at Town Highway Shop	8 AM-noon Sat. 1 PM-5 PM Tues.	Yes, Hilltopper	5 years, 3 left	Lax City. Disposal System	Town residents and Landowners	\$1.00/bag	At site	Yes	
Town of Greenfield	1,766	Drop-off KreibichColer	2 days/week	Hilltopper	3 years	Recyclables, other wastes	Town residents	0		Cash at site: Tires \$2-\$15; Appliances \$15; C&D \$20 pu, \$40 large truckload; fluor. \$1 ea	Haz waste annually-cty no fee
Town of Hamilton	2,425	Drop-off	2 days/week	Hilltopper	3 years	Xcel	Town residents	\$3-\$25/recycl.	Taxes	Appliances any time 2x/week	Business contract separately
Town of Holland	3,439	Curbside	Weekly	Hilltopper	2nd year of 5 year	Xcel	Residents	\$4.31/HH/Mos	Tax assessment	\$1.40/HH/Mos Pick up service April-October	
Town of Medary	1,579	Curbside	Weekly	Hilltopper	6-yr contract expires 12/31/13	LaX City or Xcel	Residents, Plex, No trailer courts	Hilltopper \$4.37/HH/Mos Refuse & transport	Assessment on tax roll	2 large item days Town Hall, pay Hilltopper	Businesses have to contract separately
Town of Onalaska	5,531	Curbside	Weekly	Hilltopper	1st year of 5 year contract	Xcel Energy	All residential and duplexes only	\$1.00/bag	Purchase as needed	Town operates large item center at no charge for town residents	
Town of Shelby	4,835	Curbside	Weekly	Hilltopper	4th year of 4 year contract	Xcel or Lax Co. Landfill	Residential 4 units or less	\$5.18/HH/Mos	Tax levy except mobile home courts-2/3 of the cost	Drop-off monthly April-June, Aug.-Nov.	
Town of Washington	754	Town Hall	Once a week	Waste Management		Unknown	Anyone purchasing bags	\$2.00/bag	Bag sales		
Village of Bangor	1,425	Curbside	Weekly	Yes	5 Years	Xcel	Residents	\$3.35/bag	Per bag	Large item p/u quarterly	Appliance p/u quarterly
Village of Holmen	8,138	Curbside	Weekly	Yes, Hilltopper	2010, 3 years	Xcel, Lax Co Landfill	Residents +2-plex	\$35.50 Qtr	Water bill	1st week lg items pay Hilltopper	
Village of Rockland	652	Curbside	Weekly	Harter's	2007	Xcel	Residents	Bag or Tote		Large item p/u 4/year	
Village of West Salem	4,780	Curbside	Weekly	Waste Management	1/1/05 to 12/31/08	To Xcel or LaX Landfill	Residential and duplexes only	\$3.90/HH/mo.	Tax levy	Locally	

\* After repeated attempts, no information was received from municipalities not listed.

Table 2-6

## Drop-off Sites in La Crosse County

City of La Crosse Refuse & Recycling; 2000 Marco Drive; West Copeland Park (608) 789-7508 <a href="http://www.cityoflacrosse.com">www.cityoflacrosse.com</a>	Brush, yard waste, leaves – April thru October : Mondays & Thursdays 10:00am. – 7:00pm; Tuesdays, Wednesdays & Fridays 2:00pm–7:00pm; Saturdays 10:00am – 4:00pm; Sundays Noon–4:00pm
City of Onalaska	No city drop-off sites. Hilltopper site provides service
Village of West Salem; 900 West Avenue N. (608) 786-2850 / <a href="http://www.westsalemi.com">www.westsalemi.com</a>	Brush, yard waste, leaves. Open daily for residents.
Village of Rockland; 105 W. Center Street, Village Hall Rockland, WI 54653 486-4037 <a href="mailto:www.villageofrockland@charter.net">www.villageofrockland@charter.net</a>	Yard waste drop-off site open 2 <sup>nd</sup> & 4 <sup>th</sup> Saturdays from 8:00–10:00am
Village of Holmen; Empire Street 526-4336	Leaves & yard waste drop-off. Open spring, summer & fall; Monday & Wednesday 2:00-6:00pm & Saturdays 8:00am – 4:00pm
Town of Bangor; N4400 State Road 162, Town Hall; Bangor, WI 54614	Drop-off open Fridays 1:00–5:00pm; Saturdays 8:00am – Noon
Town of Barre, W3541 City Rd. M, La Crosse, WI 54601	No drop-off sites for yard waste or recyclables. Three times per year, have a drop-off for large items and demo.
Town of Burns; Town of Burns Town Hall, 1313 Jewett Rd., Bangor WI. 54614	Drop off for Town residents and landowners only. Open Nov 1-April 30 Sat 9AM-2PM Tue 4-6PM May 1-Oct 31 Sat 9AM-1PM Tue. 4-7PM
Town of Campbell; 2219 Bainbridge Street; La Crosse, WI 54603 783-0050 <a href="mailto:campbellwi@charter.net">campbellwi@charter.net</a>	Contract with the City of La Crosse so residents can utilize City's Copeland Park site for yard waste and leaves.
Town of Farmington; N8309 State Road 108; Mindoro, WI 54644 (608) 857-3913	Tuesdays 1:00-5:00 pm; Saturdays 8:00am–Noon.
Town of Greenfield; W2870 Kreibich Coulee Road; La Crosse, WI 54601	Drop-off open every Saturday 8:00am–3:00pm; also Tuesdays in spring & summer from 4:00-7:00 pm; fall and winter 1:00-4:30p.m.
Town of Hamilton; N5105 N. Leonard Street West Salem, WI 54669 786-0989	Vehicle sticker required. Open every Saturday 8:00am–3:00pm Also winter Tuesdays 11:00am–5:00pm; summers Tuesdays 10:00am–5:30 pm
Town of Holland; W7937 County Road MH; Holmen, WI 54636 <a href="http://www.co.la-crosse.wi.us/TownOfHolland">www.co.la-crosse.wi.us/TownOfHolland</a>	Yard waste drop-off by Town Hall. Also large item drop-off.
Town of Onalaska; N7042 Josie Street in Midway; Town Shop 783-4958 / <a href="http://www.co.la-crosse.wi.us/townofonalaska">www.co.la-crosse.wi.us/townofonalaska</a>	Leaves, grass, yard waste can be dropped off any day until 8:30pm Large items (no construction debris) varying Tuesdays 7:00-9:00am & Saturdays 8:00am–Noon. Closed December and January. Need sticker..
Town of Shelby; 2800 Ward Avenue 788-1032 / <a href="http://www.townofshelby.com">www.townofshelby.com</a>	Leaves & yard waste drop-off April-November at Town Hall. Large items 2 <sup>nd</sup> Saturday each month from April-June & August-November 7:00am – Noon at Town Hall Licensed e-waste collector at events can collect e-waste, appliances (large and small), and batteries (all types). Twice a year (March & November) collect hazardous waste
Town of Washington; W4130 County Road H – Town Hall La Crosse, WI 54601 486-2297 <a href="mailto:BoValleySwiss@aol.com">BoValleySwiss@aol.com</a>	Drop-off for recyclables open on a daily basis at Town Hall
La Crosse County; Solid Waste Department; 6500 State Rd 16, La Crosse, WI 54601 (608) 785-9572	No appliances, other items accepted at landfill Monday-Friday for a fee. Large items & demo. \$80/ton. Hazardous Materials Facility open varying hours. La Crosse County residents no charge for most items; charge for electronics and TVs. Businesses and out-of-county residents can use the facilities for a fee.
Hilltopper Refuse & Recycling; W6836 Industrial Blvd. Onalaska, WI 54650 783-6727	Drop-off Monday-Saturday at their business for a fee.
Harter's Quick Clean-Up; 2850 Larson St.; La Crosse, WI 54603 782-2082	Drop-off Monday-Saturday at their business for a fee.
Waste Management, Inc.; 415 Island St.; La Crosse, WI 54603 784-1095	Drop-off Monday-Saturday at their business for a fee.
Scientific Recycling; 659 Commerce St.; Holmen, WI 54636 526-9777 <a href="http://www.scientificrecycling.com">www.scientificrecycling.com</a>	Accept appliances, obsolete equipment, fluorescent lights & ballasts for a fee. Call for appointment and fees.

Table 2-7

## Recycling System Overview La Crosse County

Government Unit	2009 Tons	System	Frequency	Materials	Collection Method	Collector	Fees	How Charged?	C/I Generators
City of La Crosse	1,091	Curbside	Bi-weekly	Glass, ONP, tin, UBC, Plastics 1&2	Dual stream	Harter's Quick Clean up	\$1.02/HH/month	Tax	Contract separately
City of Onalaska									
Town of Barre	25	Curbside	Weekly	Tin, Glass	Dual stream	Hilltopper			
Town of Bangor	13	Drop-off	Weekly	Tin, Glass, ONP, UBC, OCC, Mags, Plastics 1&2	Drop off	Hilltopper			
Town of Burns	32	Drop-off	4-6 PM Tuesday 9AM- 2 PM Sat	ONP, UBC, OCC, Glass Tin, Plastics 1&2	Drop off	Hilltopper	None	Tax, Town pays hauler	Contract separately
Town of Campbell	112	Curbside	Weekly	Tin, glass, UBC, ONP, Plastics 1&2, OCC	Curbside	Richard's Sanitation		Tax	Contract separately
Town of Farmington	52	Drop off @ Town Hwy Shop	8 AM-noon Sat. 1 PM-5 PM Tues.	Glass, tin, Plastics 1&2, Newspaper, aluminum	Drop off	Hilltopper	None		Reasonable amounts
Town of Greenfield	50	Drop off	2 days/week	Tin, ONP, UBC, Glass, Mags, Plastics 1&2,,3-7	Bring to drop-off	Hilltopper	None	Tax, town pays hauler	
Town of Hamilton	60	Drop off	2 days/week	ONP, UBC, OCC, Glass Tin, Plastics 1&2	Bins, Hilltopper	Hilltopper	None	None	Contract separately
Town of Holland	122	Comingle curbside	Weekly	ONP, UBC, OCC, Glass Tin, Plastics 1&2	Curbside	Hilltopper	\$1.39/HH/Mo.	Tax assessment	
Town of Medary	51	Curbside	Bi-weekly	ONP, UBC, Glass, Tin, Plastics 1&2	Curbside	Hilltopper	\$1.39/HH/Mo.	Assessment on tax roll	Contract separately
Town of Onalaska	204	Curbside	Bi-weekly	ONP, UBC, OCC, Glass Tin, Plastics 1&2	Town recycle bin	Hilltopper	\$1.49/HH/Mo.		Contract separately
Town of Shelby	268	Curbside	Bi-weekly	Tin, glass, Plastics 1&2; newspaper, magazines, aluminum	Curbside, co-mingled except for paper	Hilltopper	\$1.49/HH/Mo.	Tax levy except mobile home courts-2/3 of the cost	Contract separately
Town of Washington	15	Drop-off	Once a week	ONP, UBC, tin, glass	Waste Management	Waste Management		Via grants and bag fees	
Village of Bangor	83	Curbside	Weekly	ONP, UBC, OCC, Glass, Tin, Plastics 1&2	Curbside	Harter's		Included in price of bag	
Village of Holmen	325	Curbside	Weekly	ONP, UBC, Glass, Tin	Bins, Hilltopper	Hilltopper	\$1.23/HH/Mo.	Included in qtrly chg	Contract separately
Village of Rockland	68*	Curbside	Bi-Weekly	Tin, glass, alum., plastic, newspaper, cardboard	Curbside	Harter's		Include with bag price	*Does not include Xcel Energy or appliance recycling.
Village of West Salem	122	Curbside	Weekly	ONP, UBC, tin, glass	Curbside bins co-mingled	Waste Management	\$1.24/HH/mo.	Tax levy	Contract separately
<b>Total</b>	<b>2,625</b>								

### 2.3.2 Recycling Responsible Units

Wisconsin's recycling program is authorized and prescribed in Wisconsin State Statutes (now Chapter 287) and related administrative rules found in Wisconsin Administrative Code (chapters NR 542 to 549). State policy outlined in the law establishes a hierarchy of preferences for solid waste management options. The law also instituted a graduated series of disposal bans on landfilling and incineration of certain materials.

These Statutes (Chapter 287) also delegate responsibility for implementing municipal recycling programs to responsible units (RUs). A responsible unit can be a municipality, county, tribe, solid waste management system or other unit of local government that is responsible for planning, operating and funding a recycling program. Each RU must develop and implement a recycling program to manage the banned materials. An RU is also charged with educating its residents and businesses about the recycling law.

In La Crosse County, each municipality has elected to be the RU for its jurisdiction. No municipalities have opted out. The County is not an RU and has no direct responsibility for recyclables collection and education.

As part of the more standard grant program, Wisconsin Department of Natural Resources (Wisconsin Department of Natural Resources) provides annual recycling grants to RUs with effective recycling programs. RUs apply by October 1 of the year preceding the grant award. Table 2-8 displays the recycling grants to RUs in La Crosse County. The following is a summary of statistics from these DNR grants awarded in 2009 (as applied in 2008):

- ◆ Total number of RUs in La Crosse County = 17
- ◆ Total recycling grants awarded = \$428,000
- ◆ Range of grant awards = \$1,000 to \$247,000
- ◆ Average grant award = \$25,000
- ◆ Total amount of eligible costs = \$1,309,000
- ◆ Total grants awarded as a percent of total eligible costs = 33%

Table 2-8  
DNR Recycling RU Grants Awarded to  
Municipalities in La Crosse County

Government Unit	Net Eligible Cost	Award	Award as Percent of Eligible Cost	Balance of Net Eligible Less Award
<b>Barre (Town)</b>	\$10,850	\$2,126	20%	\$8,724
<b>Burns (Town)</b>	\$4,075	\$1,087	27%	\$2,988
<b>Campbell (Town)</b>	\$54,769	\$14,084	26%	\$40,685
<b>Farmington (Town)</b>	\$14,053	\$6,080	43%	\$7,973
<b>Greenfield (Town)</b>	\$14,135	\$2,241	16%	\$11,894
<b>Hamilton (Town)</b>	\$20,518	\$3,975	19%	\$16,543
<b>Holland (Town)</b>	\$21,300	\$4,047	19%	\$17,253
<b>Medary (Town)</b>	\$13,046	\$2,818	22%	\$10,228
<b>Onalaska (Town)</b>	\$42,495	\$42,495	100%	\$0
<b>Shelby (Town)</b>	\$69,345	\$10,881	16%	\$58,464
<b>Washington (Town)</b>	\$2,700	\$2,596	96%	\$104
<b>Bangor (Village)</b>	\$3,986	\$3,843	96%	\$143
<b>Holmen (Village)</b>	\$98,200	\$22,406	23%	\$75,794
<b>Rockland (Village)</b>	\$19,100	\$3,771	20%	\$15,329
<b>West Salem (Village)</b>	\$36,494	\$6,898	19%	\$29,596
<b>La Crosse (City)</b>	\$655,795	\$246,567	38%	\$409,228
<b>Onalaska (City)</b>	\$228,469	\$52,576	23%	\$175,893
<b>Total</b>	<b>\$1,309,330</b>	<b>\$428,490</b>	<b>33%</b>	<b>\$880,840</b>

### 2.3.3 County System

La Crosse County has a long history of planning and providing solid waste management services in the County. As part of the Phase I planning process for the Solid Waste Management Plan, Foth conducted a workshop entitled “Strategic Thinking for Solid Waste Collection and Funding” on October 5, 2006, for La Crosse Area Communities. The workshop provided participants with information to address methods to fund solid waste collection as well as potential cost saving measures such as automated collection and coordinated collection contracting.

From a cost standpoint, residential solid waste collection represents a significant total cost for residents. Residential solid waste collection has historically been managed by municipalities rather than by county government. Thus, La Crosse County's role in collection has been limited. However, local governments now face many challenges that cause them to consider how to "do things differently" and to "do more with less." At the collection workshop in October 2006 several conflicting issues were noted including:

- ◆ Most municipalities pay for solid waste related service via the general levy.
- ◆ There is significant pressure to reduce the impacts on the property tax levy.
- ◆ Payment for solid waste service via property taxes is not an equitable way to fund the service (it is not based on garbage generation).
- ◆ Citizen demands for service are increasing.
- ◆ Elected officials are looking for more ways to generate revenue.
- ◆ There is a desire by Responsible Units to increase recycling but a concern the costs could increase.
- ◆ The Wisconsin recycling program Responsible Unit concept and current status creates disincentives for coordination between governmental units (everyone wants to keep the grant funding).

This collection evaluation eventually grew out of the planning process for the Solid Waste Management Plan and as a goal of Sustainability Plans as an activity that the County could assist their member municipalities.

La Crosse County provides facilities with delivery specifications for the municipalities to deliver their wastes after collection. This includes the County's contract with the Xcel RDF Facility and the County owned Landfill Complex. These facilities represent a part of the County's commitment to sustainability and long term solid waste disposal service to the municipalities. The RDF Facility contract currently extends into 2023. The Landfill Complex along with continued processing of wastes into RDF, provides disposal capacity for as much as fifty years into the future. These facilities are the result of past decisions by local elected officials as the preferred means to manage solid wastes and meet the needs of the community well into the future.

La Crosse County has also accepted a role in selected types of solid waste related collection services. The County has the facilities to collect and process household hazardous materials (HHM). The drop off receiving and processing facility is located at the Landfill Complex, plus the County has a mobile unit to conduct collection events in other communities. Also, the County added a citizen's drop off facility at the Landfill Complex for citizens to deliver small amounts of solid wastes and recyclables without entering the landfill.

## 2.4 Summary of Existing Systems

Key observations from the description of the existing systems include:

- ◆ Residential solid waste collection is a municipal government function that is managed by the municipalities primarily via contracts with various local hauling companies. Each of the municipalities handles their programs independently of other local municipalities in the La Crosse area.
- ◆ La Crosse County involvement in collection is limited to household hazardous materials delivered to the County's Household Hazardous Materials Facility and the citizen's drop-off area for solid wastes, both located at the Landfill Complex.
- ◆ The recycling Responsible Unit (RU) status is handled by each municipality in the County with minimal coordination of services between the municipalities.
- ◆ Grant funding from the Wisconsin Department of Natural Resources for recycling covers only about one-third of the costs of the local recycling programs for each municipality.
- ◆ The vast majority of the municipalities fund their solid waste and recycling program services via their general funds. In 2009, solid waste and recycling services required general funds of just under \$1.9 million in the City of La Crosse and just under \$900,000 in the City of Onalaska. Three municipalities in La Crosse County have user fees – two with bag sales and one via the Water Bill.
- ◆ Collection service is typically performed manually in La Crosse County municipalities using rear load packer trucks with garbage collection provided weekly and recycling every other week.
- ◆ There are several drop-off sites located around the County, but there is a definite lack of consistency in operating hours and the types of materials collected.
- ◆ There is current pressure to make changes in how solid waste and recycling services are funded and in the extent of recycling service provided as evidenced by the changes that occurred during the preparation of this report (additional recyclables added in the City of La Crosse and the discontinuance of bulky waste and yard waste collection funding by the City of Onalaska).

### 3 Trends

This section of the report describes relevant trends in solid waste and recyclables collection technologies and systems. The intent is to provide a summary-level overview of selected industry trends, including definitions and planning implications. This information provides the County and Cities with a glimpse into the future of up and coming changes in the solid waste and recycling industry. This section covers the following topics:

- ◆ Automated collection
- ◆ Single-stream and dual-stream recycling collection
- ◆ Separate food waste collection
- ◆ RecycleBank
- ◆ Revenue sharing

Though these topics are covered as “trends”, they vary in their frequency or level of “maturity.” They will also vary in their suitability for the La Crosse area.

#### 3.1 Automated Collection

##### 3.1.1 Definitions

Automated collection is defined as the use of mechanical equipment to lift and dump refuse or recycling containers such as wheeled carts. Fully automated trucks use a robotic arm that clamps around the cart, lifts it to dump into the truck hopper, and then sets it down back at the same spot. All of these actions are controlled by the driver from inside the cab of the truck such that, under normal conditions, the cart is not touched manually. The standard, fully automated truck design may include right-side drive. See Figure 3-1 below for a photo of one type of a fully automated refuse truck.

Figure 3-1

**Fully Automated Refuse Truck**



Source: Heil Environmental (2004)

Figure 3-2

**Semi-Automated Lifting Device in Action**



Source: Heil Environmental (2004)<sup>1</sup>

A variation is often defined as “semi-automated” collection whereby a mechanical lifting device is used to lift and dump the cart, but the collection crew must manually wheel the cart into place for the lifting device. There is no robotic arm – simply a hydraulic lifter/dumper attachment. See

Figure 3-2 below for a photo of one type of a semi-automated lifting device. In either case, fully automated or semi-automated, a standardized cart is essential to achieve the desired collection efficiencies. The carts must be designed to be compatible with the lifting arm mounted on the truck. Selecting cart sizes and colors is sometimes a controversial part of the process.

For fully automated collection systems, the resident wheels their refuse cart to the curb line (i.e., at the end of the driveway or other designated collection spot near the curb or alley). The cart should face towards the street so that the robotic arm can lift and dump the materials with the hinged lid at the top of the dumping cycle. If the cart is placed facing the house, the hinged lid may interfere with the automated dumping of the cart contents.

For semi-automated systems, most collection programs still require the cart to be placed at a designated spot along the curb line, facing towards the street. However, the placement of the cart is not quite as critical since it must be manually wheeled into position by the collection crew.

Automated and semi-automated systems may not be feasible in every situation. Therefore, while there are numerous cost and efficiency benefits, some communities and companies will maintain a manual, rear-loading truck for special circumstances. To accommodate this circumstance, some of the automated trucks have been designed to use automated, semi-automated and manual loading all into the same trash hopper; thereby avoiding the need to maintain a manual, rear-loading truck. Also, some programs allow residents to set out overflow amounts of trash next to their carts such that the crew must manually load these items (e.g., bags, etc.). If this situation continues on a regular basis, the customers may be asked to switch to a larger sized cart.

### **3.1.2 Frequency/Extent of Occurrence**

Automated collection is becoming more and more common. Its growth represents a clear and undeniable trend in both private and municipal operations.

Many cities have implemented automated collection systems across the U.S., including Dallas, TX; Kalispell, MT; Little Rock, AR; Scottsdale, AZ; and Virginia Beach, VA. Fifty-six percent (56%) of the top 35 cities in Florida are automated. National companies such as Waste Management, Republic (formerly Allied/BFI), and Veolia have continued to make significant investments in automated equipment and are looking for additional opportunities to replace older model trucks (e.g., rear loaders) with auto loaders. A number of communities throughout Wisconsin and the greater Midwest states have switched to automated trash collection. Cities in Wisconsin that are known to have automated collection include municipalities in and around the Madison/Dane County region including the City of Madison. In the Green Bay area, the Villages of Ashwaubenon and Allouez have automated. Communities in Portage County are automated. The City of Milwaukee uses a semi-automated system.

In Iowa, the Cities of Davenport and Bettendorf implemented automated refuse collection over four years ago. Municipal staff reports that the new automated system reduced related workmen's compensation injuries to nearly zero. Also, city residents like the new service. Allied Waste is promoting changes to automated collection in the same Quad Cities region.

In the greater Des Moines metropolitan area, several communities have made the switch to automated refuse collection including the Cities of Des Moines and West Des Moines. Even

smaller haulers serving the Carroll, Iowa area are using automated collection systems. In the City of Cedar Rapids, Iowa, automated collection is currently used for single-stream recycling and yard waste collection with ongoing discussions about implementing automated for trash collection in the future.

Many other communities are interested in automating, but have not done so due to the initial capital cost of the carts. At this time, it appears that private hauling companies (particularly the large, national companies) are able to implement automated collection systems more quickly than municipalities. The capital costs of specialized trucks and standardized carts often require careful planning for municipalities, including financing. While the long-term savings in operating costs and increased collection productivity can be significant, the up-front capital costs can be a barrier to implementation. This is one of the main reasons that more hauling companies and municipalities have not yet implemented automated collection systems.

Automated collection has become the standard for collection systems in many metropolitan areas. The uniform aesthetic look and feel of standardized carts set out on collection day at the same spot of the curb or alley line build an intuitive sense of community. This perception, plus the economic advantages, becomes a driving political force to help expand the service to other neighboring communities. Finally, the more the service is adopted by additional cities, towns and villages, the greater the economies of scale become to add to the economic savings.

## 3.2 Single-stream and Dual-stream Recycling Collection

### 3.2.1 Definitions

“Dual-stream” recycling is defined as the process of collecting and processing of recyclables in two separate categories: paper (or “fiber”) vs. cans/bottles (“containers” or “rigids”). These materials are source separated by the waste generator and kept separate throughout both collection and processing components of the recycling system. Sorting at a centralized materials recovery facility (MRF) is needed to further upgrade the materials into mill-ready commodities. Paper is sorted into grades (i.e., newspapers, corrugated cardboard, mixed paper, magazines, etc.). Rigid containers are sorted into three colors of glass, tin cans, aluminum cans and different grades of plastics. Dual-stream is the most common form of residential recycling in La Crosse County and is the current standard practice within the Cities of Onalaska and La Crosse.

“Single-stream” recycling is defined as the process of collecting and processing of recyclables in combined form (e.g., paper, cans, bottles all mixed together). These materials are fully commingled by the waste generator and then separated at a centralized materials recovery facility (MRF).

While dual and single-stream recycling can both be appropriate for commercial service, this evaluation is restricted to residential only. Therefore, while the trends and service issues are similar for commercial collections, the discussion of the trends towards single-stream recycling is focused on residential collections only.

### 3.2.2 Occurrence

In general, there has been a very consistent trend to more commingled recyclables collection systems. Most municipal curbside recycling programs that existed 20 to 30 years ago were

collected “source separated”. (“Source separated” recycling can be defined as three or more types of materials kept separate by the residents, recyclables hauler and processor.) Approximately five to ten years ago, the predominant recycling system was dual-stream. Today there are more than 160 single-stream Material Recovery Facilities in the United States, which is up from just 70 a mere four years ago.<sup>1,2</sup> It is estimated that about 27% of the U.S. population with access to curbside collection is participating in single-stream programs.<sup>3,4</sup>

Single-stream recycling has been growing nationally over the last few years. Upgrading existing facilities to handle single-stream recyclables, or construction of new MRF’s, requires significant capital investment. Therefore, one of the greatest barriers to converting existing municipal recycling programs to single-stream systems is the need for adequate MRF processing capacity. According to the *2007-2008 Materials Recycling and Processing in the United States: Yearbook & Directory*, MRF’s serving single-stream programs have been compelled to acquire equipment which can achieve the necessary sorts demanded by the market. As equipment has grown more sophisticated, MRF’s have grown in size, in order to achieve the level of throughput necessary to garner a return on the capital investment in automated sort lines.<sup>5</sup> Despite these increased costs and higher capital investments, there is a growing dominance of single-stream curbside recycling programs.

In 2007, the *Materials Recycling and Processing in the United States: Yearbook & Directory* reported that there were 160 single-stream MRF recycling facilities in their *Directory*, which is more than double the amount since 2002. Municipalities have been changing to single-stream collection of recyclables. About 30 additional facilities indicated that they may convert to single-stream in the future.<sup>6</sup> On a total basis, the percentage of single-stream MRF’s has increased from 15% overall to nearly 30%, a two-fold increase.<sup>7</sup> Additional municipalities have switched in the three years since this report was issued. For example, Foth worked with a client in the Des Moines, Iowa area to switch over 75,000 homes to single-stream in 2008.

Single-stream processing technology has been making substantial improvements. Automated recycling processing equipment is now in the fifth generation as reported in the *Yearbook & Directory*. Various configured disk screens, vibrating screens, trommel screens, and conveyors are capable of sorting fiber by grade. Magnets, eddy current separators, air classifiers and now optical sorters achieve separation of multi-grades of plastic, glass by color, as well as paper grades.<sup>8</sup>

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<sup>1</sup> Container Recycling Institute (CRI), (2009), *Understanding Economic and Environmental Impacts of Single-Stream Collection Systems*. For full report, see <http://www.container-recycling.org/assets/pdfs/reports/2009-SingleStream.pdf>.

<sup>2</sup> Scozzafava, Lori (2007) *To Single-stream or Not to Single-stream?* A power point presentation, at the SWANA/U.S EPA Meeting, July 19, 2007 in Philadelphia, PA.

<sup>3</sup> CRI (2009), *ibid*.

<sup>4</sup> American Forest and Paper Association (AFPA) (2004). *Paper Recycling: Quality is Key to long-Term Success*.

<sup>5</sup> Berenyi, Eileen Brettler. *2007-2008 Materials Recycling and Processing in the United States: Yearbook & Directory*. Government Advisory Associates, Inc. (GAA), Westport, CT. ©2007.

<sup>6</sup> Berenyi (2007), *ibid*.

<sup>7</sup> Berenyi (2007), *ibid*.

<sup>8</sup> Berenyi (2007), *ibid*.

Single-stream recycling is a significant trend in the industry that should be carefully considered when planning for future and long-term system improvements. Especially when coupled with the automated option, single-stream recycling can be a more efficient and safer form of collection compared to dual-stream recycling. Resident participation and material capture rates may likely increase, especially if a full list of recyclables are included in the collection program. However, there are increased costs of processing and recyclable product quality may also be a concern for marketing and remanufacturing of materials. These issues are discussed in detail in Section 6.2.

### 3.3 Separate Food Waste Collection

#### 3.3.1 Definitions

Food waste is a major recoverable material that remains in the residential waste stream. The DNR Statewide Waste Composition Study estimates that 13.4% of the residential solid waste in the State is comprised of food waste.<sup>9</sup> Similar to yard waste, food scraps can be collected separately for composting to produce a soil amendment, anaerobic digestion for production of methane gas for energy recovery, or both. Other organic materials may also be recovered with food waste through composting or anaerobically digested, but these are relatively minor compared to food waste as shown in Table 3-1 below:

Table 3-1  
Relative Amounts of Organic Materials  
in the Residential Waste Stream<sup>10</sup>

Material	Percent Composition of Total Residential Solid Waste
<b>Organics:</b>	<b>26.3%</b>
Yard waste - <6"	1.9%
Yard waste - >6"	0.1%
Food	13.4%
Diapers	3.7%
Animal waste/kitty litter	2.1%
Other recyclable/compostable organics	2.3%
Bottom fines/dirt	2.8%

Many programs define the targeted material more broadly to include other source separated organics (SSO) such as non-recyclable paper (e.g., soiled paper such pizza boxes, other soiled papers). For planning purposes, this evaluation focuses on food scraps as the most easily recovered organics commodity that is not yard waste.

<sup>9</sup> Wisconsin DNR (2003), *Wisconsin Statewide Waste Composition Study: Final Report*, prepared by Cascadia Consulting Group, Inc. with assistance from R.W. Beck and GRG Analysis.

<sup>10</sup> DNR (2003)

Residential food scraps collection programs will usually provide separate carts (e.g., colored green) along with smaller “kitchen collector” pails. To help ease the fears and risks of odor, biodegradable bags are also provided to the residents.

### 3.3.2 Occurrence

*BioCycle* magazine reports that more than 90 municipalities in the U.S. now have separate food scraps or SSO collection programs. This is more than double the number from 2007 when *BioCycle* previously conducted their survey. Progressive communities focused on waste reduction and recycling see food waste at the next opportunity to increase recovery. Dozens of new programs have popped up all around the country in the past two years. Two cities, San Francisco and Seattle, have even gone as far as to make residential organics collection mandatory. San Francisco’s ordinance, the first in the U.S., requires residents and businesses to separate organics and recyclables from the garbage.<sup>11</sup>

The recent study for the U.S. Environmental Protection Agency (EPA) Region 9, *Beyond Recycling: Composting Food Scraps and Soiled Paper*, further itemizes some of the trends in separate collection and composting of such organic materials.<sup>12</sup> Project researchers conducted surveys and sites visits, collecting data from 121 residential organics programs in the U.S. and Canada. Key findings included:

- ◆ About one third of the municipal organics programs collected food scraps separately.
- ◆ About one-half collect food scraps commingled with yard trimmings.
- ◆ The programs that collect food scraps and yard trimmings together are generally in areas where yard trimmings are generated and collected year-round.
- ◆ In areas where yard trimmings are only collected for part of the year due to seasonal growth and weather considerations, food scraps are (generally) collected separately. Most programs that composted yard trimmings separately from food scraps were located in northern climates where yard trimmings are collected seasonally.
- ◆ Only a few programs included pet waste.
- ◆ Only one program included diapers.

Dane County recently initiated a feasibility study and preliminary facility design for an anaerobic digester to recover the energy value from source separated organics. This is a two year study and final results may not be available until 2012. Other communities in the United States are in various stages of planning anaerobic digestion facilities to handle food wastes.

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<sup>11</sup> Yepsen, Rhodes. (2009)

<sup>12</sup> Center for a Competitive Waste Industry (CCWI), Gary Liss & Associates, and Steven Sherman. (January 2010) *Beyond Recycling: Composting of Food Scraps and Soiled Paper*, A study for the U.S. Environmental Protection Agency Region 9. Full report available from the “Beyond Recycling” web page at: <http://beyondrecycling.org/general/full-ccwi-report>.

### 3.3.3 Considerations

The separate collection of food scraps from residents must be carefully planned, designed, implemented and managed. Concentrating food scraps without proper controls can create potential odor problems. Storage, collection, processing and end use marketing must be designed, implemented and enforced with strict standards of operation to avoid nuisance or health problems.

Often, separate collection of food scraps has followed earlier programs for collection of yard waste. By the 1990's, 23 states had banned yard trimmings from landfills.<sup>13</sup> For many centralized, municipal programs, the addition of food scraps collection has been identified as both an opportunity and a technical challenge. If the community already has separate curbside collection for recyclables, yard waste and trash, the addition of a fourth system for organics (such as food scraps and soiled paper) is a challenge due to added costs of another truck / collection system. Furthermore, due to the potential for odors and other environmental issues with composting food scraps, the processing capacity to handle these other organics beyond simple yard waste is challenging.

The systems for separate collection of residential food scraps are relatively new. Usually only a portion of the population will participate such that financial or regulatory incentives may need to be considered to increase capture rates to maximum levels. Even in some of the more mature SSO collection programs, the participation rates in residential organics programs can be moderate or low. For example, San Francisco currently reports an average weekly participation rate of 35 to 40 percent. Alameda County reports an average participation rate of 17 to 23 percent.<sup>14</sup> One of the private haulers near Minneapolis that has a well developed SSO program, Randy's Environmental Services, states that only about 8 percent of their residential customers subscribe for the additional organics service (even with a partial discount for every other week trash collection).<sup>15</sup>

One of the most successful programs is in the City of Toronto, Canada. The City reports that 90 percent of single family homes participate in their "Green Bin" organics collection program (including both yard trimmings and food scraps).<sup>16</sup> While the collection component of the system has been very successful, Toronto's municipally owned and operated composting facilities have been plagued by odor problems. The City is now moving towards two, 55,000 ton per year anaerobic digestion plants, in part to control odors and improve the quality of the final compost product.

Separate collection of food waste is feasible but may need further research, planning and development. The costs of composting and marketing the finished material can be a barrier to implementation. Odors that may potentially be generated from collection and processing systems must also be carefully managed and controlled. The very recent trend towards anaerobic digestion and energy recovery from food waste is a relatively new development that warrants careful consideration. As other recycling system changes are planned and implemented, it may

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<sup>13</sup> CCWI (2010), *ibid.*

<sup>14</sup> CCWI (2010), *ibid.*

<sup>15</sup> Personal communication with Jim Wollschlager, Randy's Environmental Services. May 11, 2010.

<sup>16</sup> CCWI (2010), *op. cit.*

be beneficial for La Crosse area officials to be aware and monitor the separate food waste collection and recovery by others.

### 3.4 RecycleBank

#### 3.4.1 Definitions

RecycleBank is a proprietary rewards-incentive program designed to help increase participation in existing, municipal curbside recycling programs. The partnership program was started in 2004 by a New York – based recycling management company.

The system rewards RecycleBank participants with RecycleBank Points, which can be redeemed with participating companies, such as Coca-Cola, Evian, Target, Bed Bath & Beyond, Best Buy, CVS Pharmacy, Dick's Sporting Goods, Kmart, McDonald's, The Home Depot Gift Card, Wal-Mart, and many other local businesses. Residents in RecycleBank communities that participate in curbside recycling earn 2.5 points for every pound of recyclables diverted from the household waste stream. Participants redeem their points in person at local retailers, on-line or can donate their points to local schools and non-profit organizations.

The current generation of RecycleBank technology and equipment actually weighs each recyclables cart and records the data using an on-board computer. Each recycling cart is assigned to a house and the card is equipped with an implanted radio frequency identification (RFID) chip that is read by the truck's collection arm. RecycleBank is only implemented in singles stream recycling systems utilizing carts. The data is downloaded to RecycleBank's database after each truck load. Participants are able to access their RecycleBank account online or via phone to track their points balance or redeem online.

RecycleBank revenues are derived from avoided tipping fees through contracts with participating municipalities. The tip fee savings is split between RecycleBank and the municipality with RecycleBank typically receiving between 50 and 75 percent.

Prime candidates for new RecycleBank affiliates are communities in transition to their next generation of recycling services, such as municipalities that

- ◆ Have single-stream recycling with automated collection
- ◆ Are actively seeking bids
- ◆ Have contracts up for renewal
- ◆ Use city collection crews.

RecycleBank does not go after municipalities that have an existing contract with a hauler. At this time, there are no known communities in Wisconsin that use RecycleBank. One example city in Minnesota that is participating is Maple Grove.<sup>17</sup>

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<sup>17</sup> Preliminary listing of communities that participate in RecycleBank as derived from their web page:  
<http://corporate.recyclebank.com/municipalities/clients>.

### 3.4.2 Occurrence

According to RecycleBank, the program is growing quite rapidly. In the early stages around 2006, the company operated in just six municipalities, totaling 20,000 homes. By the end of 2009, RecycleBank's rewards program was servicing over 500,000 households in over 60 municipalities in the U.S. and U.K.<sup>18</sup>

From a broader perspective, the concept of financial incentives to encourage increased recycling participation rates and improved capture rates have been around for a long time. There are a variety of alternative financial incentive methods that have been used including:

- ♦ Unit based pricing (See more discussion in Section 7.6)
- ♦ "Get Caught Recycling"
- ♦ Mandatory source separation and recycling ordinances (with financial penalties for lack of compliance)

Of these alternative financial incentive methods, only unit based pricing (UBP) has been widely used in many communities for a long period of time. The U.S. EPA promoted the concept and supported research and case study summaries in the early 1990's. "Get Caught Recycling", a random drawing of recycling participants are awarded \$50 or \$100, was an earlier program financed in part by the beverage container industry to help increase curbside recycling rates. A few cities have implemented mandatory recycling ordinances and only a very few of these have attempted to enforce them with any regularity.

It appears from its relatively short life to-date that RecycleBank is growing and has more staying power compared to the latter two financial incentive methods. This is partly because the program is owned and operated by a private company and is self-financing based on savings from disposal tipping fees. Other than UBP, the alternative methods need some form of financing.

The RecycleBank concept is a valid and feasible financial incentive as a means to help increase participation and awareness in municipal recycling programs. Because RecycleBank is only implemented in single-stream recycling systems, it may be considered as a secondary option within a larger package of system improvements. Therefore, RecycleBank could be added into a longer-term planning strategy if any of the La Crosse County municipalities or haulers changes to single-stream recycling. In the meantime, the rapid growth of this promising new private initiative may be monitored.

## 3.5 Revenue Sharing

### 3.5.1 Definitions

Revenue sharing is an alternative provision in municipal recycling contracts where the net value of recyclable materials sold is split between the local unit of government and the contractor. Revenue sharing is usually implemented when a new recycling services contract is executed through a government purchasing process such as a request for proposals (RFP). Revenue

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<sup>18</sup> Leineweber, Henry and de Thomas, Dylan, (October 2009) "Money in the Bank" article in Resource Recycling magazine. Vol XXVIII, No. 10. pp 14 – 18.

sharing is rarely offered by private recycling companies on a voluntary basis. Thus, it must be a required provision as part of a larger set of RFP specifications.

There are many forms and formulae for recyclables revenue sharing. Foth has extensive experience in helping municipalities shape their new revenue sharing programs and no two systems are identical. There are many variables and local policy decisions that shape the scope and design of revenue sharing formulae, including (but not limited to):

- ◆ Scope of the new recycling services (e.g., collection, processing, marketing).
- ◆ List of recyclable materials to be collected under the new contract.
- ◆ List of recyclable materials to be included in the minimum list for revenue sharing.
- ◆ Whether to use published industry “indexes” or “actual sales” as the means to establish agreed upon values of recyclable products. If revenue sharing is based on “indexed prices”, the end market values are based on industry publications that itemize monthly price changes for each commodity (e.g., price per ton for bales of newspapers or aluminum cans). If revenue sharing is based on “actual sales prices”, the values are determined by actual sales to end markets for each commodity for the month as documented by receipts and truck scale tickets.
- ◆ Whether to use a “processing fee” component of the revenue sharing formulae to estimate the cost of recycling facility services to sort, densify, store and then ship the materials to market. In general, revenue sharing formulae include a price for the end product less a processing fee to calculate the net value of loose material as collected from residential curbside programs.

Revenue sharing is also a form of “risk sharing”. The municipal government agrees to share in the net revenue from materials sales during strong market conditions, but also agrees to lower or no revenue sharing during poor market conditions. The recent economic recession, for example, caused recyclable commodities to plunge to some of their lowest prices in years. This caused many communities with revenue sharing to go without any form of additional credit or income in late 2008 through 2009. In some cases, haulers came back to their municipal clients and requested the opportunity to renegotiate the revenue sharing terms.

This revenue sharing option could be carefully considered within a local municipality’s own risk tolerance profile. If, for example, a city wants to budget each year using only a known fixed, net cost for its recycling program, revenue sharing may not be advisable. If, on the other hand, a community has a recycling contract and wants to take some risk and participate in the market opportunities to help reduce costs, revenue sharing could be carefully considered.

Some haulers have used the recent recession to reduce or eliminate their recyclables revenue sharing contract terms. Depending on the specific contract terms, longer-term financial analyses could likely forecast that revenue sharing might still benefit municipalities in reducing net costs. Yet, some haulers prefer to contract on fixed fee contracts without revenue sharing so this economic downturn provided the opportunity to get out of those requirements.

A materials revenue sharing option should always be considered within the larger context of the overall recycling program economics. For collection contracts, revenue sharing is most often an offset or credit against the collection service fee (e.g., \$ per household or \$ per ton). In many cases, it may be expected that private companies will adjust this collection service fee component upward to compensate for the revenue sharing component.

Revenue sharing can be another alternative tool to help establish and strengthen long-term public-private partnerships. The revenue sharing provision in a contract can help assure the municipality that it is getting a credit for specified share of the material value during strong market conditions. This market participation may help strengthen the relationship with the contract hauler. This in turn may increase a city's incentive to negotiate an extension of the contract rather than go out for competitive bids (if local policies and the terms of the agreement allow the municipality such extensions).

### **3.5.2 Occurrence**

Revenue sharing is becoming more common in municipal recycling contracts. On the other hand, many municipalities are not comfortable with an uncertain net cost of recycling service (after credits are applied for their revenue share). Rather, most communities still use a flat, fixed fee payment schedule (\$ per household served, or \$ per ton collected) for recycling services.

The more advanced recycling programs understand that revenue sharing can both help reduce the net cost of the recycling service as well as help stabilize long-term relationships with their private service providers. Revenue sharing can help justify the economic sustainability of recycling services to residents by explaining that a portion of the value is returned back into the program. Some communities allocate the revenue sharing into dedicated environmental program account for system enhancements or special projects.

## 4 Benchmark/Case Study Summaries

This section covers results of previous studies conducted by Foth and additional case studies of direct relevance to this La Crosse area investigation. This information helps put the La Crosse situation into context of other leading programs and helps further describe the feasibility of making further system improvements.

### 4.1 Previous Study Results

Foth completed a solid waste collection study for Janesville, Wisconsin in 2009 to compare similar or “peer city” systems. Janesville was interested in learning more about options for improving their solid waste and recycling programs based on the experiences of similar programs in other Wisconsin cities. The study included survey information from nine (9) other relevant cities, plus Janesville. Based on the responses to the survey, Foth calculated comparable unit cost estimates and program performance data.

For purposes of this La Crosse area evaluation, the Janesville survey data was supplemented with readily available and current program information. The next series of tables (Tables 4-1 through 4-4) in this subsection summarize the key results of this peer city benchmarking for general cost comparisons and recycling rates. This is followed by a brief description of selected peer cities’ solid waste and recycling systems with notes about features that may be of special interest to the Cities of La Crosse and Onalaska.

#### 4.1.1 General Comparisons of Unit Costs

Table 4-1 itemizes the 10 cities surveyed. This table shows an average, calculated cost estimate of \$4.56 per household per month for garbage collection service. This estimate does not include garbage disposal (i.e., tipping fees) as this varies greatly by community and landfill. The comparable, 2010 City of La Crosse and City of Onalaska garbage collection cost estimates (\$3.76 and \$3.78 respectively) are also provided on the bottom of the table in the highlighted section.

Table 4-1 shows an average, calculated cost estimate of \$3.14 per household per month for recycling collection services. The comparable City of La Crosse and City of Onalaska recycling cost estimates (\$1.02 and \$1.20 respectively for 2010) are also provided on the bottom of the table in the highlighted section.

Table 4-1 shows an average, calculated cost estimate of \$2.13 per household per month for yard waste collection and composting services. The comparable City of La Crosse and City of Onalaska yard waste cost estimates (\$0.45 and \$1.14 respectively) are also provided on the bottom of the table in the highlighted section. The cost estimates for La Crosse and Onalaska may not include all yard waste processing costs.

Comparable cost estimate data for bulky wastes was not readily available. Either the service was not provided (i.e., residents are responsible for their own hauling/management of bulky wastes) or the program cost data was not adequately itemized.

Table 4-1  
Solid Waste/Recycling Collection Services:  
Comparison of Unit Cost Estimates

(\$ per household per month; Not including solid waste disposal costs)

City	System Structure	Collector(s)	Garbage	Recycling	Yard Wastes	Bulky Wastes
<b>Other Cities (2008 data)</b>						
Beloit	Municipal	City crews	\$6.38	\$4.77	\$0.93	
Eau Claire	Open <sup>1</sup>	Boxx Sanitation, Veolia Waste Services, Waste	NA	\$0.67 <sup>2</sup>	NA	
Fond Du Lac	Municipal	City crews	\$1.49	\$2.53	\$0.88	
Green Bay	Municipal	City crews	\$4.62	\$1.83	\$7.77	
Janesville	Municipal	City crews	\$3.56	\$1.63	\$0.92	Service not provided
Kenosha	Municipal	City crews	\$8.15	NA	NA	
Oshkosh	Municipal	City crews	\$3.32	\$4.44	\$1.42	
Racine	Municipal	City crews	NA	\$4.18	NA	Service not provided
Sheboygan	Municipal	City crews	\$5.38	NA	\$0.92	Service not provided
Waukesha	Contract	Veolia Environmental Services	\$3.56	\$2.58	\$2.10	
<b>Averages</b>			<b>\$4.56</b>	<b>\$3.14</b>	<b>\$2.13</b>	
<b>La Crosse's &amp; Onalaska's (2010 data)</b>						
La Crosse	Contract	Harters Quick Clean up	\$3.76	\$1.02	\$0.45	Included
Onalaska	Contract	Harters Quick Clean up	\$3.78	\$1.20	\$1.14	\$0.39

Sources: Foth report for the City of Janesville "Waste Collection Analysis", August 2009.  
City of La Crosse and City of Onalaska Harter's contract and other data. 2010. (N.A. = not available)

- Notes:
1. The collection system in Eau Claire is not managed by the city. It is an open system where residents hire their hauler directly. Available residential garbage haulers as listed on Eau Claire County's web page: [http://www.co.eau-claire.wi.us/health\\_and\\_environment/Recycle/ResidentialGarbageService.htm](http://www.co.eau-claire.wi.us/health_and_environment/Recycle/ResidentialGarbageService.htm)
  2. Eau Claire County's 2007 annual charge for recycling was \$8.00 per household per year (= \$0.67 per month). This data point for Eau Claire's recycling costs is not included in the computed average as this is the partial cost as charged by the hauler to the residents. The County pays by the remainder to the hauler. The City of Eau Claire recycling haulers have agreed to charge their resident for recycling at the same rate that the County charges households in other communities. Source and for more info: [http://www.co.eau-claire.wi.us/health\\_and\\_environment/Recycle/RecyclingBudget\\_and\\_Funding.htm](http://www.co.eau-claire.wi.us/health_and_environment/Recycle/RecyclingBudget_and_Funding.htm)

#### 4.1.2 Recycling

Table 4-2 displays the Foth-calculated recycling costs for the 10 peer cities. This table is based on the readily available information from the 2009 Foth study conducted for the City of Janesville. The data should be considered as unit cost estimates for purposes of general planning and comparative analysis between programs. These peer city unit cost estimates are not contract prices or rates, although the La Crosse and Onalaska prices are contract rates from the current Harter's agreement for 2010.

Seven of the peer cities surveyed process residential recyclables at a privately owned MRF. Three of the cities bring materials to a publicly owned (County owned) MRF. Three of the peer cities also provided tip fee amounts for processing recyclable materials at their respective MRFs. The remaining cities do not pay tip fees at the MRF and/or the cost to process the recyclable materials is buried in their contract with the cities' contracted hauler.

Four other cities received a rebate in 2008 with the amounts ranging from \$20,000 to over \$325,000. One of the peer cities normally receives a rebate but the MRF is retaining that money to offset tip fee increases for 2009. The other peer cities do not receive a rebate or revenue sharing from the sale of their residential recyclable materials.

The total cost per household per month for operating recycling collection systems (net of processing costs) among the other peer cities ranged from \$1.01 to \$4.77. The average cost per household per month is \$2.84. The monthly cost per household was not determined for Eau Claire because they are an open system and the cost could not be determined for the entire city. This lack of cost and performance related data is common in open collection systems. The total recycling cost for the Sheboygan recycling program was also not available.

The comparable monthly recyclables collection costs for the Cities of La Crosse and Onalaska are \$1.02 and \$1.20 per household per month respectively, well below the average of the other peer cities.

Table 4-3 displays the Foth-calculated recycling rates for the 10 peer cities for 2008. This table is also based on the readily available information from the recent Foth study conducted for the City of Janesville. The data should be considered as recycling rate performance estimates for purposes of general planning and comparative analysis between programs. The La Crosse and Onalaska tonnages are from reported data for 2009.

The comparison in Table 4-3 is a generic approach to comparing recycling rates as a percent of total trash + recyclables collected. The La Crosse and Onalaska recycling rates (8% and 9% respectively), are significantly lower than the average of the peer cities at 23%. This comparison implies that the other cities may have higher recycling rates due to a combination of factors including, demographics, types of materials collected, collection methods, public education and other service variables.

Table 4-2

Recycling Collection Services: Comparison of Unit Cost Estimates  
(\$ per household per month; In some cases, excluding recyclables processing fees)

City	Service Stops	2008 Tons Recovered	Calculated Monthly Pounds Recyclables per Household	Recyclables Processing Fee (\$ per Ton)	Calculated Monthly Cost of Processing per Household	2008 Total Recycling System Cost	Calculated Net Collection Cost (\$ Household per month)	2008 Amount of State Recycling Grant	Grant Funding per Household per Month
<b>Other Cities (2008 data)</b>									
Beloit	13,033	6,358	81.3	\$0.00	\$0.00	\$745,489	\$4.77	\$209,499	\$1.34
Eau Claire	25,000	Unknown	NA	Unknown	NA	Unknown	NA	To County	NA
Fond Du Lac	13,600	3,631	44.5	NA	NA	\$412,200	\$2.53	\$237,860	\$1.46
Green Bay	33,000	7,271	36.7	\$20.00	\$0.37	\$723,342	\$1.46	\$685,870	\$1.73
Janesville	23,700	3,767	26.5	\$31.50	\$0.42	\$405,170	\$1.01	\$342,701	\$1.20
Kenosha	30,700	6,978	37.9	\$0.00	\$0.00	\$913,358	\$2.48	NR	NA
Oshkosh	23,000	4,939	35.8	\$17.50	\$0.31	\$1,225,758	\$4.13	\$359,842	\$1.30
Racine	26,000	4,400	28.2	\$30.00	\$0.42	\$1,305,702	\$3.76	\$380,000	\$1.22
Sheboygan	18,000	2,531	23.4	\$0.00	\$0.00	NA	NA	\$265,908	\$1.23
Waukesha	20,304	5,241	43.0	\$0.00	\$0.00	\$629,326	\$2.58	To County	NA
<b>Average</b>			<b>39.7</b>		<b>\$0.19</b>		<b>\$2.84</b>		<b>\$1.36</b>
<b>La Crosse's &amp; Onalaska's (2009 and 2010 data)</b>									
La Crosse <sup>1</sup>	16,875	1,103	10.9	NA	NA	\$181,385	\$1.02	\$246,567	\$1.22
Onalaska <sup>1</sup>	6,826	527	12.9	NA	NA	\$80,171	\$1.20	\$61,870	\$0.76

Sources: Foth report for the City of Janesville "Waste Collection Analysis", (August 2009).  
City of La Crosse and City of Onalaska Harter's contract and other data, (2010).  
La Crosse and Onalaska recycling collection costs based on City's financial reports for 2009 (from Table 2-2).

Table 4-3

Solid Waste and Recyclables Collection Tonnages:  
Comparison of Performance per Household

City	Service Stops	2008 Tons of Trash Disposed	Calculated Monthly Pounds of Trash Disposed Per Household	Calculated Monthly Pounds Recyclables per Household <sup>1</sup>	Calculated Recycling Rate
<b>Other Cities (2008 data)</b>					
Beloit	13,033	10,000	127.9	81.3	39%
Eau Claire	25,000	Unknown	NA	NA	NA
Fond Du Lac	13,600	10,000	122.5	44.5	27%
Green Bay	39,000	27,408	117.1	36.7	24%
Janesville	23,700	18,060	127.0	26.5	17%
Kenosha	30,700	24,000	130.3	37.9	23%
Oshkosh	23,000	13,417	97.2	35.8	27%
Racine	26,000	32,000	205.1	28.2	12%
Sheboygan	18,000	14,000	129.6	23.4	15%
Waukesha	19,148	16,381	142.6	43.0	23%
<b>Averages</b>			<b>133.3</b>	<b>39.7</b>	<b>23%</b>
<b>La Crosse's &amp; Onalaska's (2009 data)</b>					
La Crosse <sup>2</sup>	16,875	12,473	123.2	10.9	8%
Onalaska <sup>3</sup>	6,826	5,592	136.5	12.9	9%

Sources: Foth report for the City of Janesville "Waste Collection Analysis", August 2009.  
City of La Crosse and City of Onalaska Harter's contract and other data. 2010.

#### 4.1.3 Yard Wastes

Table 4-4 displays the Foth – calculated yard waste costs for the 10 peer cities. This table is based on the readily available information from the recent Foth study conducted for the City of Janesville. The data should be considered as unit cost estimates for purposes of general planning and comparative analysis between programs.

Six of the peer cities operate a drop-off and compost site for residential yard waste. Two peer cities operated a drop-off site, but not a compost site and two cities don't have either a drop-off site or compost site. It is common to have multiple collection/disposal options for yard waste for residents. Nine of the peer cities operate or have access to a drop-off site for residents to bring their yard waste. Eight of the peer cities utilize a vacuum truck for curbside collection and have residents place their yard waste loose on the curb (e.g., for seasonal leaf collections in the fall). Five of the cities allow residents to place their yard waste in plastic bags for curbside collection. Three of the cities allow residents place their yard waste in paper bags for curbside collection.

Table 4-4  
Yard Waste Collection and Composting Programs:  
Comparison of Unit Cost Estimates  
(\$ per household per month)

City	Service Stops	2008 Total Yard Waste Collection/Drop-off Cost	Calculated Monthly System Cost per Household
<b>Other Cities (2008 data)</b>			
Beloit	13,033	\$144,743	\$0.93
Eau Claire	25,000	Unknown	NA
Fond Du Lac	13,600	\$143,553	\$0.88
Green Bay	33,000	\$3,076,707	\$7.77
Janesville	23,700	\$233,473	\$0.82
Kenosha	30,700	\$913,358	\$2.48
Oshkosh	23,000	\$391,426	\$1.42
Racine	26,000	NR	NA
Sheboygan	18,000	\$199,777	\$0.92
Waukesha	20,304	\$512,016	\$2.10
<b>Average</b>			<b>\$2.16</b>
<b>La Crosse's &amp; Onalaska's (2009 and 2010 data)</b>			
La Crosse <sup>1</sup>	16,875	\$145,013	\$0.45
Onalaska <sup>1</sup>	6,826	\$42,704	\$1.14

Sources: Foth report for the City of Janesville "Waste Collection Analysis", (August 2009).  
City of La Crosse and City of Onalaska Harter's contract and other data, (2010).  
La Crosse and Onalaska yard waste collection costs based on City's financial reports for 2009 (from Table 2-2).

In 2009, the City of La Crosse yard waste program cost \$145,013 for collection costs and the yard waste collection contract rate with Harter's was \$0.45 per household per month. The City of Onalaska reported a yard waste collection cost of \$42,704 and the yard waste collection contract was \$1.14 per household per month.

Other cities reported the annual costs to run their yard waste programs as part of the Foth study for Janesville. Some of these costs were just for curbside collection and some included the cost to run a drop-off site (if operated by the city). Therefore these costs may not be directly comparable. The average cost per household for the yard waste collection system is \$2.16 per household per month.

The current contract rates for the Cities of La Crosse and Onalaska (\$0.45 and \$1.14 per household per month) compares favorably with the peer cities' calculated average unit cost to operate municipal yard waste collection and composting programs.

## 4.2 Descriptions of Selected Peer Cities

Several of the peer cities from the Foth study for Janesville are directly relevant to this evaluation for La Crosse and Onalaska. Selected cities for further narrative descriptions include:

- ◆ Beloit
- ◆ Eau Claire
- ◆ Fond Du Lac
- ◆ Janesville
- ◆ Oshkosh
- ◆ Waukesha

These peer cities were selected for additional discussion in this subsection because of their unique solid waste/recycling program features related to the scope of this report.

### 4.2.1 Beloit

The City of Beloit operates its own garbage and recycling system with municipal crews. The collection operations use manual collection with residents providing their own garbage can with a maximum size of 39 gallons. Disposal of solid waste is at the "Mallard Ridge" landfill at a price of \$22.76 per ton, including taxes.<sup>19</sup> The City's solid waste fee schedule as posted on their web page is shown in Table 4-5.

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<sup>19</sup> As reported by Beloit in the Janesville survey (Foth, 2009).

Table 4-5

## City of Beloit – Solid Waste Fee Schedule (2010)

<b>Description</b>	<b>Amount</b>	<b>Unit</b>
Solid Waste -Weekly Collection Residence	\$13	Month
White Goods - Appliances	\$20	Item
Yard - Leaf vacuum Service	\$100	Year
Recycling Drop Off - Tire	\$6	Each
High Volume - Over 5 items	\$1	Per item
Yard Waste Sticker	\$1.50	Per Sticker
Bulky Items – Large Items	\$15	Each
Early collection fee - 24 hours before pickup	\$125	Each
Recycling - Recycling Bins	\$7.45	Each
Recycling/Refuse - Citation	\$177	Each

These are 2010 municipal fees/service prices and are not directly comparable to the 2008 collection service cost estimates included in Table 4-1. For example, the garbage collection/disposal price of \$13 per household per month noted in Table 4-2 immediately above includes costs of disposal (i.e., tipping fees) while the collection cost estimates in Table 4-1 are for collection only excluding disposal. Also, the Foth-calculated City unit cost estimates in Tables 4-1, 4-2 and 4-3 are based on reported total annual budget line items divided by the number of households served while the Beloit fee schedule immediately above are rates set by City policy.

It is important to note that the City of Beloit is the only peer city surveyed that uses a utility bill for financing solid waste and recycling services. All other organized collection cities use general fund taxes and Eau Claire (the only open hauling city) requires the haulers to bill residents directly. The Beloit ordinance language authorizing this collection system and monthly utility billing is contained in Appendix 1. Utility billing for solid waste collection, processing, and disposal services allows municipalities to collect payments higher than actual costs in order to fund other public works services such as the pro-rated portion of administration.

#### 4.2.2 Eau Claire

Eau Claire has an open residential curbside collection program which allows the residents to choose their own trash hauler. A list of available residential garbage haulers is provided by

Eau Claire County and includes:

- ◆ Boxx Sanitation
- ◆ Veolia Waste Services
- ◆ Waste Management

Each hauler offers volume based fee service where residents can order weekly service for 30/35, 60/65 or 90/95 gallon carts and pay accordingly. Service rates were not provided. Veolia also offers their customers an alternative bag system, where residents pre-pay for ten, 35-gallon plastic bags. Residents set out full “Veolia” bags on the neighborhood’s collection day. Thus, if residents only fill up a bag once every two weeks or more, the bag option is more economical. No information related to costs and system performance was available from Eau Claire. This is a common occurrence in open systems and makes control and system management very limited.

#### **4.2.3 Fond du Lac**

Fond du Lac uses municipal crews for residential curbside solid waste collection but has a city-wide contract with a single hauler for residential curbside recycling collection services. Fond du Lac was the only city that exclusively used rolling carts for recyclable material storage. Fond du Lac contracts with a hauler to collect recyclable materials and the hauler provides the containers to residents and utilizes automated collection.

#### **4.2.4 Janesville**

The City of Janesville (City) collects solid waste and recyclables from households using municipal trucks and crews. The city of Janesville currently provides comprehensive residential solid waste and recycling collection and disposal services for each residential facility (up to four units) and commercial facilities. Solid waste collection services are provided weekly and recycling collection services are provided every other week. Commercial facilities are allowed a volume of solid waste up to 90 gallons per week for collection by the City.

Curbside yard waste collection services are provided to residents for one week during the spring and one week during the fall. Composting of self hauled yard waste is available to resident’s year round at a drop-off location. Yard waste curbside collection includes grass, leaves, containerized garden debris and bundled brush. Disposal of demolition wastes and other household materials is also provided to residents.

Recyclables collected at the curb include:

- ◆ High Density Polyethylene (HDPE) and Polyethylene Terephthalate (PET)
- ◆ Magazines
- ◆ Phone books
- ◆ Catalogues
- ◆ Corrugated cardboard
- ◆ Box board (cereal, pop cases and gift boxes)
- ◆ Food, beverage and empty aerosol cans

- ◆ Unbroken glass food and beverage containers (clear, green, and brown)
- ◆ Plastic containers marked #1 or #2

The City also provides recycling and/or disposal of the following self hauled materials at the City's sanitary landfill:

#### Recycling

- ◆ Waste tires
- ◆ Appliances
- ◆ Vehicle batteries
- ◆ Waste oil
- ◆ Yard waste
- ◆ Metals
- ◆ Appliances

#### Disposal

- ◆ Concrete, asphalt, dirt, gravel, bricks, sand, soil and stones
- ◆ Unpainted wood and pallets
- ◆ Disposal of special wastes
- ◆ Stumps and root balls
  - ▶ Current fee for residents is \$5.50 per cubic yard

#### Composting

- ◆ Brush, branches and shrubs
- ◆ Yard and garden debris

#### **4.2.5 Oshkosh**

Oshkosh's residential recyclables were processed at the Winnebago County Material Recycling Facility (MRF). This facility has been modified to transfer single stream recyclables to the Outagamie County MRF. Oshkosh changed their program from a dual sort/weekly/bag collection system to a single sort/every other week/cart collection system in the fall of 2009. This change automated collection and reduced the crew size from 2 or more crew members to one crew member per route.

#### **4.2.6 Waukesha**

The City of Waukesha contracts for solid waste and recycling curbside collection services with Veolia Environmental Services. The City recently executed a new, five year contract with Veolia that runs through 2015. Garbage service is weekly and, at the beginning of this year, the City changed to every other week recyclable collection as another means to save tax dollars. Residents provide their own garbage cans (e.g., 36 gallon).

City staff<sup>20</sup> report that the 2010 base collection service fees in the new contract with Veolia are as follows:

Garbage collection (including disposal)	\$6.36 <sup>21</sup> per household per month
Large item collection (including processing)	\$0.45 per household per month
Curbside recycling collection	\$2.79 per household per month

These are 2010 contract prices and are not directly comparable to the 2008 collection service cost estimates included in Table 4-1. For example, the garbage collection/disposal price of \$6.36 per household per month noted above by Waukesha City staff includes costs of disposal (i.e., tipping fees) while the collection cost estimates in Table 4-1 are for collection only excluding disposal. Also, the calculated City unit cost estimates in Table 4-1 are based on reported total annual budget line items divided by the number of households served while the Waukesha prices immediately above are contracted rates.

### 4.3 County and Regional Case Studies

Relevant case studies of county coordinated or regionally coordinated collection systems in Wisconsin include: Clark County; Portage County; and Southern Trempealeau County. Metro Waste Authority in Des Moines, Iowa is also a relevant case study with examples of several types of service improvement options.

#### 4.3.1 United Communities of Clark County, Wisconsin

The “United Communities of Clark County” (UCCC) is a partnership of incorporated municipalities scattered throughout the county. Three of the communities are partially located in neighboring Chippewa and Marathon Counties. Table 4-6 displays the current list of municipalities that are members of the United Communities of Clark County.<sup>22</sup>

The UCCC began meeting in December 2002 and meets monthly. UCCC consensus is that there is a need to consider the sharing or combining services such as fire, police and public works (e.g., solid waste collections) as a way of cutting the cost of operations.<sup>23</sup>

In 2003, the UCCC communities took it upon themselves to review current, individual garbage/recyclables collection contracts. Soon thereafter, UCCC collectively issued a Request for Bids and contracted for solid waste and recycling. It is reported that the UCCC negotiations

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<sup>20</sup> Charlotte Brunner, City of Waukesha Engineering Dept., personal communication (7/14/2010).

<sup>21</sup> This contract rate for garbage collection/disposal does not include an additional \$9.20 per ton State environmental service fee (landfill tax) as charged by Wisconsin DNR. There is also an additional fuel surcharge of \$2.85 per gallon of diesel fuel.

<sup>22</sup> Personal Communication with Steve Kunze, Clark County Planning and Zoning Administrator (July 21, 2010).

<sup>23</sup> Clark County Inventory and Trends Report prepared by Foth (November 2003). Chapter 7: Intergovernmental Cooperation: [http://www.co.clark.wi.us/SOPHOTOS/comp\\_planning/Inventory%20and%20Trends%20R-Chapter%207.pdf](http://www.co.clark.wi.us/SOPHOTOS/comp_planning/Inventory%20and%20Trends%20R-Chapter%207.pdf)

resulted in garbage/recyclables collection rates cut in half in some cases (e.g., in the Town of Hewett).<sup>24</sup>

In some communities (e.g., in the City of Owen), both refuse and recyclables are collected weekly on the same day. In other communities, refuse is collected every other week and recyclables are collected on the alternate week (e.g., in the Town of Hewitt).

When UCCC goes out for bids, the municipalities coordinate to develop a single request for competitive bids to award a single contract for solid waste and recyclables collection. Disposal of solid waste and processing/marketing of recyclables are also included. The current contract is with Veolia Environmental Services. The 2006 rates for weekly trash collection within this program were:

- ♦ \$7.70 per month (if the resident provides their own bags or cans)
- ♦ \$8.59 per month (if Veolia provides the cart)
- ♦ \$0.53 per month for Veolia to bill the residents directly (instead of municipal billing)

Services include:

- ♦ “Free” weekly bulky item pick up
- ♦ Appliance pick up at \$35 per appliance
- ♦ Provide 30-cubic yard roll-off container for Annual Clean Up events at \$120 per container and \$40 per ton
- ♦ Access to Veolia’s transfer station for self-haul drop-off of solid waste at \$39 for Spring Clean Up events

Recycling service is provided by Veolia with a “single pass” vehicle system capable of collecting garbage and recyclables with one stop. Veolia provides 18 gallon recycling bins.

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<sup>24</sup> Kunze, op cit.

Table 4-6

United Communities of Clark County Member Municipalities

<b>Municipality</b>	<b>Type</b>	<b>County</b>	<b>Population <sup>1</sup></b>
Abbottsford	City	Clark	1,956
Colby	City	Clark + Marathon	1,616
Curtiss	Village	Clark	198
Dorchester	Village	Clark + Marathon	827
Grant	Town	Clark	920
Greenwood	City	Clark	1,079
Loyal	Town	Clark	1,308
Neillsville	City	Clark	2,731
Owen	City	Clark	936
Stanley	City	Clark + Chippewa	1,898
Thorpe	City	Clark	1,536
Withee	Village	Clark	508
<b>TOTAL</b>			<b>15,513</b>

1. 2000 Census data.

**4.3.2 Portage County, Wisconsin**

Portage County has a comprehensive integrated solid waste program. The Portage County landfill closed in 2007. The County owns a transfer station located in Plover, WI. MSW is now hauled under contract with Veolia as part of a “waste swap” to the Marathon County Landfill and other MSW is hauled from Wisconsin Rapids. These current wastes swap / direct haul contract arrangement is more efficient than transfer and long-haul and provides for adequate supply security.

Portage County owns its own materials recovery facility (MRF) located adjacent to the transfer station in Plover, WI. The MRF is operated under contract by Veolia Environmental Services. Under County direction, Veolia recently invested in new equipment and a facility retrofit to convert the County MRF to single stream.

With the MRF conversion, Portage County and its municipalities are currently in the initial stages of converting to single stream collections. The City of Stevens Point converted its

municipal collection programs to single stream last year (2009) as part of a larger conversion to automated solid waste collection. The City made the conversion in part due to the need to replace its aging fleet of older refuse trucks.

Portage County is the recycling responsible unit (RU) for 21 out of the 27 municipalities in the County, including:

- ♦ Alban (Town)
- ♦ Almond (Town)
- ♦ Almond (Village)
- ♦ Amherst (Town)
- ♦ Amherst (Village)
- ♦ Amherst Junction (Village)
- ♦ Belmont (Town)
- ♦ Buena Vista (Town)
- ♦ Dewey (Town)
- ♦ Hull (Town)
- ♦ Lanark (Town)
- ♦ Linwood (Town)
- ♦ Nelsonville (Village)
- ♦ Park Ridge (Village)
- ♦ Pine Grove (Town)
- ♦ Plover (Town)
- ♦ Plover (Village)
- ♦ Rosholt (Village)
- ♦ Sharon (Town)
- ♦ Stevens Point (City)
- ♦ Whiting (Village)

Prior to the Wisconsin RU system, there was an earlier form of a coordinated recycling system in the area. So when the State disposal bans and recycling law went into effect in 1991, it was a natural choice for the municipalities to join forces in a single RU program under the County.

Over the past years, six (6) municipalities have elected to remain as their own RU for their recycling programs. The County still provides generic information and referrals for these six municipalities. Two of these independent RU municipalities are currently considering joining the County's RU program for recycling.

The County administers the recycling RU grant program submitting annual reports to the Wisconsin DNR, receiving State funds, disbursing the RU grants back to the municipalities and contracting for services. Portage County pays Veolia as part of the consolidated recycling program services.

Most, but not all, of the same RU municipalities are also under an agreement with Portage County for solid waste collection services. The County contracts with Veolia for a bundle of services including solid waste collection. Six municipalities contract with another hauler,

Wittenberg Waste Disposal Services, who was recently acquired by Harter's Quick Clean Up. These communities elected to stay with Wittenberg for solid waste collection when the County first transitioned to Veolia. Most of the more urbanized area is served by Veolia using an automated collection system. The more rural parts of the County are still served using manual collection operations.

Portage County also helps coordinate with municipalities to provide yard waste drop-off sites. The County's web page lists seven (7) municipalities with drop-off sites for leaves and brush, often operated on a seasonal basis.<sup>25</sup>

Portage County has a long history of recycling even prior to the Wisconsin recycling law passed in 1990. Community involvement, including the influence of non-profit organizations, has been an important influence in the planning and coordination of recycling in the Portage County area. Recycling Connections Corporation (RCC), founded in 1981 as Intra-State Recycling Corporation, is a non-profit organization that originally provided recycling collection and processing in Portage County. After the Wisconsin recycling statutes first went into effect in 1991, most municipalities in the County joined forces with Portage County to evolve into the next generation of coordinated, state-supported services for recyclables collection and processing. The County then became the designated recycling RU for most municipalities. The County RU system evolved in part because of the previously existing recycling infrastructure and municipalities willing to support a coordinated recycling system.

With a County-managed system in place, RCC services then changed its name and focus to recycling education, community outreach and program coordination. The recycling – related topic areas that RCC covers include:

- ◆ Recycling
- ◆ Waste reduction
- ◆ Composting
- ◆ Organics recycling
- ◆ Compost bin & pail sales
- ◆ Mercury reduction
- ◆ Hazardous waste clean sweeps
- ◆ Sharps disposal
- ◆ Administration of solid waste & recycling organizations

The County Solid Waste Department now contracts with RCC for a variety of services, including, but not limited to:

- ◆ Community outreach and education
- ◆ Event and program coordination

RCC also has a partnership with Marathon County for similar services.<sup>26</sup>

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<sup>25</sup> Portage County Solid Waste Department's Recycling Program: Municipal Collections in 2010: <http://www.co.portage.wi.us/solidwaste/pdf/Municipalities%20%20Recycling%20Schedule.pdf>.

### 4.3.3 Southern Trempealeau County Solid Waste Commission, Wisconsin

The Southern Trempealeau County Solid Waste Commission (STCSWC) is a multi-governmental program to provide solid waste and recycling services among seven municipalities. The Commission was formed in 1990 pursuant to Wisconsin Statutes §66.30. The STCSWC was the first multi-governmental unit formed to handle solid waste collection in Wisconsin. Table 4-7 displays the current list of municipalities that are members of the Commission.

Table 4-7  
STCSW Commission Member Municipalities

<b>Municipality</b>	<b>Type</b>	<b>County</b>	<b>Population</b> <sup>1</sup>
Caledonia	Town	Trempealeau	759
Dodge	Town	Trempealeau	414
Gale	Town	Trempealeau	1,426
Galesville	City	Trempealeau	1,427
Melrose	Village	Jackson	529
Trempealeau	Village	Trempealeau	1,319
Trempealeau	Town	Trempealeau	1,618
<b>TOTAL</b>			<b>7,492</b>

1. 2000 Census data.

The Commission originally had six members. Melrose was added in 1994. The Commission now represents a population of about 7,500. There have been discussions about the option of expanding membership to other municipalities, but has remained at its current size since 1994. One of the Commission’s objectives is to provide cost-effective solid waste and recycling services tailored to the needs of member municipalities.

The Commission was originally formed to provide consolidated planning and management of recyclables collection services. It also has become one of the contract suppliers of mixed solid waste to the La Crosse County Regional Disposal System. The Commission is the recycling RU for these municipalities and as such submits the annual state recycling reports to DNR and receives the DNR grants for these communities. In addition to the standard recycling RU grants, the Commission has been successful in obtaining other discretionary state DNR and federal grants (e.g., hazardous waste, mercury reduction, etc.).

The Commission originally operated its own curbside recycling program and drop-off system, but later changed to contracting for recycling services with private haulers. One of the driving forces was the high cost of workman’s compensation insurance that totaled nearly a third of base

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<sup>26</sup> Recycling Connections Corporation web page: [www.RecyclingConnections.org](http://www.RecyclingConnections.org).

salaries for collection crews. Another reason is that the private haulers continued to expand and improve their own solid waste and recycling initiatives. The haulers were often better equipped to stay current with evolving technologies and recycling opportunities.

The Commission currently contracts for solid waste and recyclables collection services directly with a hauler for five of the seven municipalities. Contracted dual stream curbside recycling is provided in the City of Galesville. Curbside recycling is also offered within other Commission municipalities such that about half the population has curbside service available.

The Commission owns and operates a materials recovery facility (MRF) in Galesville to process and market the recyclable materials from the Galesville curbside collection program and town and village drop-off sites. The Commission also offers other recovery programs including can buy backs, office paper recycling, and other residential and commercial services. Solid waste is directed by contract to the Xcel refuse derived fuel (RDF) facility on French Island as part of the La Crosse County Regional Disposal System.

The Commission provides for different types of service to each of the seven participating municipalities. In the Town of Trempealeau and other municipalities, residents purchase garbage bags for solid waste and take their recyclables to the facility near Galesville. Some residents contract on an individual basis with garbage haulers to pick up their garbage. Residents can also deliver their recyclables to Stanislawski Recycling on Cox Road.<sup>27</sup>

The current cost of garbage collection service is paid through special 30-gallon garbage bags is \$2.40 per curbside bag. Solid waste is collected weekly using a manual loading system. Recycling service is included in this cost. This rate has not been raised for almost 10 years.

The Commission assists with their advice and negotiations for hauling contracts in the other two municipalities, Melrose and Dodge, not directly using the Commission's hauling contract. This assistance with contract negotiations helped cut the rates charged in the Village of Melrose by nearly half.

#### **4.3.4 Metro Waste Authority, Des Moines, Iowa**

Metro Waste Authority is a public entity organized under Iowa statutes section 28E. This is a comparable statute to Wisconsin Chapter 66.30 in that different local government entities join together to coordinate the delivery of specific government services. In Iowa, most of the public solid waste services such as landfills, recyclables processing, household hazardous waste management are provided locally by these 28E organizations. In most instances however, garbage, recyclables, yard wastes, and bulky waste collection services are controlled by municipalities rather than a county or the local 28E solid waste agency.

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Metro Waste Authority (MWA) includes all the municipalities in Polk County as well as the County itself. It is governed by a seventeen member Board of Directors with each municipality

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<sup>27</sup> Town of Trempealeau "Utilities and Community Facilities" as downloaded from the Town's web page at: <http://www.tn.trempealeau.wi.gov/docview.asp?docid=5052&locid=171>.

and the County represented. MWA owns and operates two landfills, a transfer station, yard waste composting facility, and a household hazardous waste facility. They also operate a mobile household hazardous waste unit that provides service to numerous other solid waste agencies in central Iowa. In addition, they contract with a private company to process the residential recyclables collected in their service area.

In the early 1990's when residential recycling was expanding throughout much of the U.S., MWA handled the coordination of residential curbside collection of recyclables on behalf of their member communities. MWA issued a request for proposals (RFP) for recyclables collection and for recyclables processing and marketing. At that time, MWA broke the service area of approximately 120,000 households into three (3) different collection zones and awarded contracts to three (3) different contractors to begin collection. The City of Des Moines won the contract to service homes in the City of Des Moines (City). The City was then and continues to collect all the other solid wastes from single family homes in Des Moines. Two different private contractors were selected for the other two collection zones (one nationally based company and one locally independent company). This process of MWA handling the coordination of contracting for collection of recyclables worked very well for the member communities in the Des Moines metropolitan area.

Over time, the City of Des Moines has continued to service their residents while the two privately collected zones were eventually combined and collection assumed by the local independent contractor. The collection contract was extended with the local hauler rather than rebid.

In 2008, MWA conducted another RFP process for recyclables collection and processing. This RFP was structured to collect and process recyclables in a single stream using automated collection trucks. The City had converted to single stream recycling approximately a year ahead of MWA in the rest of the communities. A single contractor (national company) was selected to collect the recyclables in over 75,000 households in the MWA service area outside of the City. A single contractor (different than the collection contractor) was also selected to process and market the single stream collected recyclables. Once again, MWA handling coordination of the procurement process and contract administration worked well for the member communities. They are able to achieve better economies of scale and the individual members do not have to expend the effort to administer the services and provide the public education and contract administration. They were able to switch effectively to single stream recyclables in a coordinated fashion. The collection contract is for a ten year period. MWA will own the rolling storage carts at the end of the contract. MWA bills their members on a per household basis with each member collecting the charges from their households, primarily on each city's utility bill.

Based on the success of their past coordinated collection services, MWA offered to coordinate the garbage and bulky waste collection contracts for their member communities. Planning efforts began in mid-2009. The City of West Des Moines, the second largest community expressed early interest in MWA coordinating these services in their city. Discussions were held with several other cities, especially those whose contract term end dates closely matched the term in West Des Moines. While three other communities showed significant interest in participating in the joint RFP process, they were lobbied heavily by the incumbent collection

contractor (same local company) to simply extend their existing contract. It is important to note that private waste haulers who have provided adequate service over time can be very effective in their lobbying efforts to maintain their contracts, especially if they give a little on price or provide an additional service. Eventually, the other communities extended their contracts with their existing hauler (the same local company). The City of West Des Moines was the only participant in the RFP process coordinated by MWA.

MWA received six (6) proposals to service the City of West Des Moines. While the same local company that had been providing the service was the apparent lowest responsive bidder (even lower than they had been charging), they were unable to obtain the required performance bond and finance the purchase of the rolling storage carts. The contract was awarded to the next lowest proposer, a national company. The new contractor is slated to begin service December 1, 2010. It is interesting to note that the local independent company that was the lowest priced proposer recently sold their company to one of the national companies serving the area.

Officials from West Des Moines strongly believe that having MWA coordinate all solid waste collection services for their member communities will provide better economies of scale and hence lower cost per household. They see the benefit of standardized service for each community and the effectiveness of public education handled to a single entity – the agency that is responsible for all solid waste management services in the area. MWA remains willing to coordinate collection services for their other members. The local company that effectively lobbied the other member communities to extend their contract rather than participate in the coordinated program is no longer in business. MWA's project manager recently indicated that four (4) more member communities are interested in a joint RFP process and contract as their existing contract terms expire in 2011.

## 5 System Carbon Footprint

### 5.1 Explanation of WARM

The purpose of this analysis is to provide La Crosse County area officials with data on how changing waste management methods can contribute to the reduction of Greenhouse Gas (GHG) emissions. The Environmental Protection Agency (EPA) WASTE Reduction Model (WARM) was used to determine the GHG emissions in carbon dioxide equivalents (CO<sub>2e</sub>) associated with the current waste management practices (baseline) and compare that to the GHG emissions if alternative waste management methods are utilized. For this study, the alternative scenario of interest is recycling more types of materials and increasing the estimated recycling capture rates for materials that are already being collected as part of the existing recycling programs in the Cities of La Crosse and Onalaska.

#### 5.1.1 WARM Data

The input requirement for WARM is tonnage data separated by waste type and management method. Historical annual tonnage information (2006 through 2009) was provided by the cities of La Crosse and Onalaska as summarized in Tables 2-3 and 2-4. The historical tonnage information from the two cities was provided in different formats. The City of La Crosse provided annual historical tonnage information based on the collection contract that included:

- ◆ Xcel (Refuse-derived Fuel (RDF))
- ◆ Recycling
- ◆ Yard Waste
- ◆ Bulky Waste
- ◆ Appliances

The City of Onalaska provided annual historical tonnage information based on the collection contract that included:

- ◆ Xcel (RDF)
- ◆ Recycling – separated by Fiber, Glass, Tin, Aluminum, and Plastic
- ◆ Yard Waste
- ◆ Appliances
- ◆ County (assumed to be landfilled)

For this analysis, the average of the annual total tonnages was utilized for modeling purposes. The average annual tonnage for the City of La Crosse was calculated to be 16,925 tons and 7,868 tons for the City of Onalaska (Tables 1 and 2 in Appendix 2).

The next step to prepare data for use in WARM was to determine the composition of the average annual tonnages since composition data specific to the La Crosse area is not available. Foth applied the residential composition data from the Wisconsin Waste Characterization and Management Study<sup>28</sup> to the annual average tonnages for each city. Table 3 in Appendix 2

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<sup>28</sup> Wisconsin Waste Characterization and Management Study, Update 2000, Franklin Associates, Ltd. July 2002

summarizes the composition data. After this step, the data provided annual generation estimates of different material types in the residential waste stream. If the Cities of La Crosse and/or Onalaska decide to conduct their own waste sort study, the composition of the generated waste stream from residents could be modified to better represent local conditions. However, for the purpose of providing a general understanding of GHG impacts in this preliminary analysis, this composition is sufficient.

The waste categories provided by the waste composition study do not exactly match the waste categories that are pre-defined in WARM. Foth adjusted the waste composition data to conform to the waste categories in WARM staying consistent with waste category definitions (Table 4 in Appendix 2).

### **5.1.2 WARM Application for Baseline and Alternative Scenarios**

The next step to prepare the data for WARM was to determine how the tons associated with each material category are presently managed. WARM has four management options:

- ◆ Combust
- ◆ Landfill
- ◆ Compost
- ◆ Recycle

Table 5 in Appendix 2 summarizes the available management options for the various WARM material categories. Table 6 in Appendix 2 summarizes the management methods chosen to represent both the baseline and alternative scenarios for each material for the Cities of La Crosse and Onalaska.

The majority of the residential waste in these two cities is modeled as combusted to represent the waste that is delivered to Xcel and actually ends up being utilized as RDF. A small percentage of the waste delivered to Xcel is rejected up front as it is not allowed in Xcel's processing equipment (e.g., bulky waste, carpet, vehicle batteries, wood pallets, tires, etc.). These materials were modeled as being landfilled or, in the case of tires, recycled. Of the materials that are delivered to Xcel (and not initially rejected), 27% is rejected and landfilled as residue. The remaining 73% is modeled as combusted. These percentages were derived from actual historical data.

The Cities of La Crosse and Onalaska have a recycling program for the following residential waste materials:

- ◆ Fiber (Newspaper)
- ◆ Glass
- ◆ Tin (Steel cans)
- ◆ Aluminum
- ◆ Plastic (HDPE and PET)

While residents may separate a majority of these materials into their recycling bins, a portion of these materials are still disposed in the garbage. The City of Onalaska provided separate recycled tonnage data for each of these categories for 2006-2008. Using this data as compared to the calculated generation rate of these materials yields the following recycling rates shown in Table 5-1.

Table 5-1  
The City of Onalaska Calculated Recycling Rate

Material Category	Calculated Generated Tons	Average Reported Recycled Tons	Calculated Recycling Rate
Newspaper	653	177	27%
Aluminum Cans	78	11	14%
Steel Cans	128	41	32%
Plastic (HDPE and PET)	89	27	30%
Glass	461	236	51%

These calculated recycling capture rates are low compared to national averages (Wisconsin Waste Characterization and Management Study-2005 recycling rate estimates). This may be due to over estimating the generation of these materials by applying a generic Wisconsin residential waste composition to the tonnage for these two cities. However, it was noted in Section 4 that the recycling rates in the Cities of La Crosse and Onalaska are significantly lower than the other Wisconsin cities. Therefore, these calculated recycling capture percentages were used to represent the baseline scenario. The City of Fitchburg conducted a waste sort in 2009<sup>29</sup> to determine the composition of the waste materials and the estimated capture rate of various recyclable materials. They estimated the following capture rates summarized in Table 5-2.

Table 5-2  
The City of Fitchburg Recycling Rates

Material Category	Recycling Rate
Newspaper	69%
Aluminum	73%
Tin	89%
PET	57%
HDPE	81%
Glass	77%

<sup>29</sup> City of Fitchburg, 2009 Waste Sort Results Report, November 3, 2009.

For the alternative scenario, Foth modeled an increase in the types of materials that were recycled (added corrugated cardboard, magazines, and high grade paper) and an increase in the percentage of the material that was recycled (2010 recycling rate estimates from the Wisconsin Waste Characterization and Management Study). The materials that were modified to be managed as recycled instead of combusted and their associated recycling percentages are shown in Table 5-3.

Table 5-3  
2010 Recycling Rates from the WI Waste  
Characterization and Management Study

<b>Material Category</b>	<b>Recycling Rate</b>
Newspaper	80%
Aluminum Cans	85%
Steel Cans	68%
Plastic (HDPE and PET)	48%
Glass	65%
Corrugated Cardboard	65%
Magazines	55%
High Grade Office Paper	50%

### 5.1.3 WARM Results

Table 5-4 summarizes the GHG emissions associated with the baseline (present) waste management methods and the alternative waste management methods. It is important to note that values in parenthesis indicate a reduction in GHG emissions. Therefore, since more material is being recycled in the alternative scenario, that scenario results in a reduction in estimated GHG emissions.

The savings in GHG emissions from the baseline to the alternative scenario is 6,989 MTCO<sub>2e</sub> (12,268-5,279 = 6,989). The EPA projects this is equivalent to removing 1,280 cars from the roads each year.

Table 5-4  
GHG Emission Summaries

<b>Management Method</b>	<b>Baseline (tons)</b>	<b>Baseline GHG Emissions (MTCO<sub>2e</sub>)</b>	<b>Alternative (tons)</b>	<b>Alternative GHG Emissions (MTCO<sub>2e</sub>)</b>
<b>La Crosse</b>				
Combust	8,109	(1,083)	6,857	(394)
Recycle	1,186	(2,387)	2,901	(8,119)
Landfill	5,922	204	5,459	476
Compost	<u>1,708</u>	<u>(338)</u>	<u>1,708</u>	<u>(338)</u>
Subtotal	16,925	(3,604)	16,925	(8,375)
<b>Onalaska</b>				
Combust	3,770	(503)	3,188	(183)
Recycle	551	(1,110)	1,348	(3,774)
Landfill	2,753	95	2,538	221
Compost	<u>794</u>	<u>(157)</u>	<u>794</u>	<u>(157)</u>
Subtotal	7,868	(1,675)	7,868	(3,893)
<b>TOTALS</b>	<b>24,793</b>	<b>(5,279)</b>	<b>24,793</b>	<b>(12,268)</b>

## 6 Collection Option Technologies and Service Delivery System Approaches

This section discusses various collection technology options and system approaches. The following options are summarized:

- ◆ Manual versus automated garbage collection
- ◆ Single-stream versus dual-stream for recycling
- ◆ Alternative methods for separate collection of yard wastes
- ◆ Manual versus automated collection for bulky wastes
- ◆ System approaches:
  - ▶ Municipal collection
  - ▶ City contracts
  - ▶ Open Collection
  - ▶ Coordinated collection

The technologies and approaches are described, defined and then advantages/disadvantages analyzed in terms of pros and cons. Summary conclusions are drawn for each option in terms of immediate relevance to current County and City planning efforts.

### 6.1 Manual versus Automated for Garbage

#### 6.1.1 Descriptions

Manual collection of solid waste or recyclables is defined as the loading of materials without the aid of any mechanical device. This is most commonly performed by collection crews manually lifting and emptying containers into designated hoppers. For solid waste collection, this normally involves rear-load, garbage packer trucks. The refuse is typically placed into the back hopper and then mechanically swept into the compartment for compaction.

For recyclables, manual collection normally involves specialized recycling trucks (e.g., with side loading hoppers). The recyclables are typically placed from curbside recycling bins or other containers into the specified hopper and then mechanically tipped into the corresponding compartment in the truck. Often the recycling trucks will have two or more compartments, depending on the design of the recycling collection/processing system.

Manually loading for both solid waste and recyclable collection requires the collection crew to be outside of the truck cab and on the curb or alley line. Thus, there is more direct contact with the waste or recyclable material and more manual labor.

Automated collection typically involves the use of a mechanical arm or other lifting device such that there is little to no lifting of materials into truck hoppers. Section 3.1 provides a general description of the automated collection technology and current trends in the industry. For fully automated systems, the driver stays in the truck cab and operates the mechanical arm with remote controls. The collection crew typically does not get out of the truck unless a resident has set out excess garbage that must be manually lifted into the side-loading hopper. Also, the driver

may need to get out of the cab if the refuse or recyclables cart is not placed properly at the curb line. Therefore, there is less direct contact and inspection with the material before it is tipped into the truck hopper.

Rolling carts are provided to residents for automated collection. These carts have lids connected by hinges and wheels on the bottom. They roll easily for residents with no lifting or carrying of traditional trash cans. Convenience for residents is a major advantage of automated collection.

The increased route productivity and cost effectiveness of automated collection is enhanced by good education and awareness of residents. Cart position and placement location on the curb or alley line is important. Most automated collection systems have excellent compliance with program guidelines for residents. As a general rule, residents like the convenience of the wheeled cart and standardized, “clean look” of the program. If a decision by a collection program is made to go to automated, the most residents possible should be included in the new program.

### 6.1.2 Pros and Cons

Table 6-1 outlines the known pros and cons of automated collection compared to the current system of manual operations.

Table 6-1  
Pros and Cons for Automated Collection

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Increased convenience to residents with wheeled, carts with an attached, hinged lid (compared to traditional trash cans with a separate lid or plastic bags)</li> <li>◆ More efficient for the haulers (less labor, more productive collection)</li> <li>◆ Less manual lifting, reducing injuries thereby reducing workmen’s compensation costs</li> <li>◆ Neighborhoods look orderly on collection day</li> <li>◆ Less chance of litter or vectors due to heavy-duty, standardized, lidded carts</li> <li>◆ Easy application of unit based pricing, (UBPI compatible with 30, 60, or 90 gallon carts)</li> </ul>	<ul style="list-style-type: none"> <li>◆ High start up costs associated with purchase of trucks, carts and education program</li> <li>◆ Higher maintenance truck costs, arm repair and cart inventory</li> <li>◆ Some residential areas may lack full access to curb line and lifting height clearance</li> <li>◆ For automated recyclables collection using side loaders, lack of visual inspection by the driver for contaminants</li> </ul>

The rapid growth of automated collection described in Section 3.1 is due to the significant benefits listed in the above table. Many haulers have implemented automated collection and provided carts to their own, private customers in open hauling communities. Even smaller, more rural routes are being observed changing to automated collection.

The job of “garbage collector” is significantly different with automated collection systems. The drivers are more skilled, and may command a higher wage than the crews servicing manual collection systems. Back and shoulder injuries are reduced if not eliminated. Drivers report much higher work satisfaction. Therefore, the staff turnover in automated systems is much lower compared to manual operations. The higher capital costs (e.g., trucks, carts) and maintenance costs (e.g., servicing the mechanical arm) are usually offset by the increased route productivity and operational cost savings mentioned above (e.g., more households collected per day and less injuries and workmen’s compensation claims, etc.).

Local communities in La Crosse County may wish to look carefully at how other communities in the Midwest have planned and implemented automated systems. As part of a larger package of system improvements (e.g., future option of single-stream recycling), automated collections can help significantly modernize the overall solid waste system.

## 6.2 Single-Stream versus Dual-Stream for Recycling

The La Crosse and Onalaska curbside recycling programs are currently based on a dual-stream recycling system design. Harter’s collects recyclables using a specialized recycling truck that uses a side loading hopper with newspaper in one compartment and rigid containers in the second compartment. Harter’s then transfers the recyclables at their facility at 2850 Larson Street in La Crosse.

Single-stream recycling would require planning and investments in a new system. If one or more municipalities consider switching to single-stream recycling, there would first need to be adequate processing capacity. This could be provided locally or, as done in many other locations, the materials could be transferred to a processing facility in another location. After this issue is addressed, then the questions of new collection systems could be more logically answered as to implementation details.

### 6.2.1 Descriptions

Single-stream recycling has been growing nationally over the last few years. Reasons for the growth include:

- ◆ Improved convenience offered to residents via the rolling cart;
- ◆ The ability to automate collection thereby improving collection efficiency and worker safety;
- ◆ Data showing increased diversion for single-stream; and
- ◆ Competition in the recycling collection market from companies such as Waste Management, Inc. and Allied Waste who have promoted single-stream collection contracts.

Section 3.2 provides a general description of the single-stream recycling technology and current trends in the industry.

### **6.2.2 Pros and Cons**

Several positive aspects of single-stream have been identified along with some potential issues. Proponents of single-stream cite many of the following as reasons to implement single-stream programs.

- ◆ Improved convenience for residents leads to more households participating and more materials collected from long time participants. This leads to higher volumes of recyclables diverted overall. Part of this is related to the size of the cart being considerably larger than typical 18-gallon bins. This provides additional capacity for recyclables. Part is related to the need for less sorting by residents (it is just as easy to place a recyclable in the recycling cart as the garbage cart). Part is the convenience of the rolling cart to bring it to the curb. People typically like the program and service.
- ◆ Greater collection efficiency and productivity with automation. This results in reduced unit cost for collection (less time per stop, fewer numbers of trucks required, and optimized fleet utility because recycling and garbage collection trucks may have the same design).
- ◆ Reduced collection employee safety risks with an associated lower cost of worker compensation, lower employee turnover related costs, and even a "wider range" of workers qualifying for automated collection jobs.
- ◆ Improved aesthetics in the community associated with the cart collection system. There is less likelihood for litter from recyclables blowing out of the 18-gallon bins.
- ◆ Some communities have even viewed it as an opportunity to reduce emissions from the collection vehicles (either a reduction in the number of trucks or switching the fleet over to biofuels) which could match up with the County's and Cities' emphasis on sustainability.

Several issues have arisen around the potential impact on the marketability of the recyclables collected in single-stream programs.

- ◆ Much of the glass is broken in the collection or material processing activities. The broken glass comes in contact with the fiber stream and has in some instances been left in the fibers brought to paper mills. This causes problems for the mills, such as reduced yield, higher residual disposal costs, equipment damage; worker safety; customer safety; and potential lost public confidence in their products.
- ◆ Plastics have also been found in fibers sent to paper mills. The plastics (whether film plastics or polystyrene) can slip through the mills' process and result in small holes left in the paperboard. The plastics collected in the mills' residues also increase their residue disposal costs.

- ◆ Higher percentages of residues from the materials recovery facilities (MRFs) have been noted in many single-stream programs. Some programs have noted residue percentages over 20 and as high as 30 percent. In these programs, the broken glass is not recovered for any type of beneficial use. With the weight of the glass, the residue percentages can be high.
- ◆ One of the potential impacts of the potential lowered marketability of products is recyclable market revenue loss, either from down-graded materials or rejected loads. Mills will often increase their enforcement of their supply quality specifications during soft market conditions such as the past two years.

One of the reasons for increased product contamination and higher MRF residual rates is that residents are not required to sort into multiple categories. While the increased convenience of the new service is an attractive feature of single-stream systems, residents may be more lax as to the quality of material included for recycling. This attitude by residents that the new single-stream system can handle more types of materials can lead to a greater risk of contamination. Also, many single-stream systems using automated collection equipment are not able to as effectively inspect the materials during unloading into the truck. Therefore, contaminants may not be rejected at curbside as frequently as compared to manual loading/inspection systems. It is rare for single-stream systems to use curbside “education tags” as instructional reminders for residents that an item is not acceptable.

There are several approaches to counter the challenges and issues noted above that are pertinent to La Crosse County’s situation. First, it should be noted that not all single-stream programs have trouble with high residue rates or low marketability. There are several single-stream programs with residue percentages under 10 percent and numerous programs meeting market specifications. There are good models to follow and improvements being made. For programs exceeding 10 percent residues, there are likely problems with lack of proper processing equipment, collection problems, inadequate management, or inadequate public information and education.

- ◆ Some equipment vendors are making improvements in their screens that separate materials by size. They report improved capability to remove broken glass from the fiber streams.
- ◆ Part of the success of other programs is that they switched to single-stream when they had good education programs and participation in place with existing residential recycling programs. Successful programs that do require more sorting by residents are more likely to result in good participation with lower contamination from improperly set out materials.
- ◆ One potential regarding material market revenues is that if the community gets greater participation and more materials set out by previous participants which increases diversion overall, that the total material market revenues could actually increase.

- ◆ Some communities have improved the success of their single-stream programs via properly structured contracts with the collection and processing contractors (or even a combined contract). Attention to performance measures and incentives can positively affect success of a single-stream program. For example, Metro Waste Authority included residue related performance requirements in both their single-stream collection and processing contracts.

Table 6-2 itemizes the pros and cons of single-stream recycling systems.

Table 6-2  
Pros and Cons of Single-Stream Recycling

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Improved convenience offered to residents (higher capacity, wheeled cart; only one sort)</li> <li>◆ Automated cart lifting operations by the collection truck thereby:               <ul style="list-style-type: none"> <li>▶ improving collection efficiency (e.g., more stops per hour)</li> <li>▶ improving worker safety (e.g., reduced back injuries due to manual lifting)</li> </ul> </li> <li>◆ Improved truck capacity utilization due to only one material category per truck</li> <li>◆ Improved fleet utilization since the same type of automated truck can be used to collect refuse, recyclables, or yard waste</li> <li>◆ Potential to add more items to list of acceptable materials collected (e.g., additional grades of paper or plastic)</li> <li>◆ Increased amounts of recyclables collected</li> <li>◆ Residents like the convenience, aesthetics and standardized “look”</li> </ul>	<ul style="list-style-type: none"> <li>◆ High start up costs associated with purchase of trucks, carts and education program</li> <li>◆ Increase capital and operating costs of higher-tech MRF for processing fully commingled recyclables</li> <li>◆ Greater risk of product contamination due to automated cart lifting/dumping system and more broken glass</li> </ul>

Some haulers use single-stream as a competitive sales advantage if the system is relatively new in a particular marketplace, especially in open hauling communities without municipal recycling contracts. This is not an advantage or disadvantage, just a marketing note.

Wisconsin DNR has helpful public information about single-stream recycling systems.<sup>30</sup> DNR and Wisconsin Extension Service staff have noted over 20 MRF's or transfer stations throughout the State that are currently handling single-stream recyclables.<sup>31, 32</sup>

Wisconsin administrative code<sup>33</sup> states that the RU system for collecting recyclable materials for single family and 2-4 unit residents must prohibit the compaction of glass containers with newspaper during collection. These rules also state that the materials must be maintained in marketable condition.<sup>34</sup> Most single-stream systems incorporate containers and paper fiber together during collection. Single-stream collection systems that use a materials recovery facility that is self-certified according to Wisconsin rules qualify as acceptable collection systems according to current Wisconsin administrative code.

### 6.3 Alternative Methods for Separate Collection of Yard Waste

Yard waste management is primarily a municipal function in La Crosse County. For the most part, each city, village, or town provides a location where residents may drop off their yard wastes. The materials are slowly composted using low tech approaches.

In the City of La Crosse, Harter's contract requires yard wastes collection service from mid-March through mid-December. The City of La Crosse Department of Public Works also collects leaves in the fall with a leaf vacuum behind a single axle truck. Residents can also drop off yard wastes at two different sites in the City of La Crosse. Most of the fall leaves in the City of La Crosse are collected via the City's vacuum trucks. These leaves are composted by the City at the Isle la Plume site.

The City of Onalaska's current contract with Harter's provided for collection of yard wastes on a seasonal basis. Harter's was required to collect yard wastes in two manners. The contract required leaf vacuum collection for one month and collection in paper bags or in a can with a City sticker. The City changed this service during preparation of this report to having residents contact and pay Harter's directly.

Hilltopper Refuse & Recycling Service, Inc., offers fall leaf vacuum service in the Town of Onalaska, Village of Holmen, and surrounding area residents. Hilltopper offers two levels of service: one collection per season or twice per season.

A private composting facility owned and operated by Green Earth Compost (Division of Dummer Farms, Inc.) is located in the Town of Onalaska. This facility receives the yard wastes from the City of La Crosse drop-off sites, from other Hilltopper collection routes, and a few other municipalities. Green Earth Compost markets the compost locally in bulk form. This facility has the capacity to handle additional material.

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<sup>30</sup> Wisconsin DNR (February 2004). *Frequently Asked Questions About Single-Stream Recycling in Wisconsin*.

<sup>31</sup> Personal communication with Joe Van Rossum, University of Wisconsin Extension Service (7-8-2010).

<sup>32</sup> Personal communication with Michael Wenzholz, Wisconsin DNR, West Central Regional Office (7-8-2010).

<sup>33</sup> Wisconsin Administrative Code, s. NR 544.05(1)(a)

<sup>34</sup> Wisconsin Administrative Code, s. NR 544.05(3)(c) (Revised as published January, 2006)

The Solid Waste Management Plan (*Plan*) for La Crosse County<sup>35</sup> outlined these yard waste management programs and facilities as well as the County's role within the system. Several potential issues were identified. Selected highlights of these potential issues include:

- ◆ Comments have been made by elected and public works officials that curbside yard waste collection is too expensive.
- ◆ Curbside yard waste collection is not uniformly used by residents, but the cost is on the general levy.
- ◆ Private companies, including lawn and yard care businesses, are not allowed to use City yard waste sites.
- ◆ The City of La Crosse compost is reported to be of poor and/or inconsistent quality.

See the *Plan* for more issues and additional discussion of potential future management options. The *Plan* concludes that there may be potential options to improve yard waste management within the La Crosse area.

### **6.3.1 Descriptions**

Residential yard waste includes leaves, grass clippings, garden debris and small brush less than six inches in diameter. In 1993, the Wisconsin Legislature banned the disposal of yard waste in landfills effective in 1993 (Wisconsin Administrative Code, chapters NR 542 to 549). Yard waste can go to an approved compost facility or be incinerated with energy recovery. Brush may be burned at licensed wood burning facilities if reasonable alternatives are not available.

One of the most significant challenges of any separate collection system for yard waste is that it is highly seasonal. In northern climates with deciduous forests such as La Crosse County, there are two peaks of yard waste generation: spring clean up around May, and fall around late October. These peaks in yard waste are sometimes beyond the fleet capacity of the separate, municipal collection or contract program. If service is delayed or not complete, residents will be discouraged and find less desirable alternatives for their material (e.g., roadside dumping, etc.). A variety of equipment and methods are available today for separate collection of yard waste. In rank order from lowest cost to highest cost, these alternative methods include:

#### **Waste reduction methods:**

- ◆ Backyard composting
- ◆ Mulching of grass and leaving it on the ground

#### **Separate collection methods:**

- ◆ Residents self-haul to drop-off composting sites
- ◆ Separate collection via yard waste carts
- ◆ Separate collection via compostable (biodegradable) bags
- ◆ Separate collection via leaf vacuum trucks

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<sup>35</sup> La Crosse County (Feb 2008). *Solid Waste Management Plan*, La Crosse Disposal System, La Crosse County, WI.

Many municipalities encourage yard waste reduction / on-site management by residents via grass mulching and back yard composting. These are the most efficient management strategies. Also, these methods help avoid the costs of separate collection systems. However, with even a maximum outreach and education program, there still may be a need for some form of separate collection, especially during the peak fall leaf season.

Drop-off systems provide for yard waste composting sites where residents self-haul and deposit their leaves, grass, and brush. Each site may have different separation requirements. The sites are open and staffed part time such that days and hours of operation vary. For example, at the City of La Crosse's Isle La Plume and West Copeland Park yard waste drop-off sites the hours are:

Monday & Thursday	10 a.m. to 7 p.m.
Tuesday, Wednesday and Friday	2 to 7 p.m.
Saturday	10 a.m. to 4 p.m.
Sunday	12 to 4 p.m.

Three types of containers for yard waste are common:

- ♦ Traditional plastic garbage bags
- ♦ Biodegradable plastic bags
- ♦ Kraft paper bags specially designed for yard wastes

These containers each have their own advantages and disadvantages. The last two are biodegradable and are intended to help improve the quality of the finished compost product without the necessity of manual sorting or other debagging equipment as part of the processing system.

If separate yard waste collection service is offered, it will typically be scheduled on a weekly basis to help manage any potential odors from green yard waste (e.g., grass clippings, garden scraps, etc.).

Leaf loader / vacuum trucks are specialized leaf collection vehicles equipped with large, flexible hoses. Residents are instructed to pile their leaves at designated spots on the curb on a set schedule during fall leaf season. This alternative method avoids the cost of yard waste containers (e.g., carts, bags), but the demand for the services is very seasonal. See Figures 6-1 for a "Leaf Vacuum Truck" and 6-2 for "Leaf Vacuuming in Operation."

Figure 6-1

**Leaf Vacuum Truck**



Source: Municipal Equipment Sales, Inc. (2010)<sup>36,37</sup>

Figure 6-2

**Leaf Vacuuming in Operation**



Source: City of Worthington, Ohio (2010)<sup>38,39</sup>

**6.3.2 Pros and Cons**

Many municipalities around the country use drop-off sites where citizens self-haul yard waste for composting. This is a popular alternative because of the lower municipal cost because residents drive in their own material. The lack of convenient curbside service, however, reduces participation. Table 6-3 itemizes the pros and cons of yard waste drop-off sites.

Table 6-3

Pros and Cons of Yard Waste Drop-Off Sites

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Does not require curbside/alley side collection service. Therefore, these costs are avoided.</li> <li>◆ Do-it-yourself (no charge for separate collection service)</li> <li>◆ Flexible schedule based on need / yard waste generation (i.e., do not pay for unused service).</li> </ul>	<ul style="list-style-type: none"> <li>◆ May require municipal or contract staff at the site, composting services and trucking operations.</li> <li>◆ Requires monitoring of yard waste supply quality.</li> <li>◆ Cost to residents of driving yard waste to drop-off sites and any containers (e.g., bags, tarps).</li> <li>◆ Energy consumption and emissions from individual, self-haul trips to drop-off / compost sites.</li> </ul>

Another option is to use wheeled carts for yard waste and provide seasonal collection service. These carts and trucks can be the same type as is used for refuses or single-stream recycling, but

<sup>36</sup> Municipal Equipment Sales, Inc. (2010). For more info, link to their web page: <http://www.municipalequipment.com/leaves.html#TARCO>

<sup>37</sup> Loughberry Manufacturing Corp. (2010) For more info, link to: <http://www.loughberry.com/pdf/TyphoonBrochure.pdf>.

<sup>38</sup> Municipal Equipment Sales, Inc. (2010) *ibid*.

<sup>39</sup> City of Worthington, Ohio (2010), (For more info, link to: [http://www.worthington.org/services/leaf\\_collection.cfm](http://www.worthington.org/services/leaf_collection.cfm))

the carts should be dedicated to yard waste, color coded and labeled. Tags for excess yard waste that can not fit into the cart can be sold. Table 6-4 itemizes the pros and cons of separate yard waste collection using dedicated yard waste carts.

Table 6-4

Pros and Cons of Separate Collection Using Yard Waste Carts

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Improved convenience offered to residents (lidded, wheeled cart)</li> <li>◆ Regular weekly service on a seasonal basis</li> <li>◆ Voluntary, subscription service on a fee-for-service payment basis (i.e., only those that subscribe are required to pay)</li> <li>◆ Automatic cart lifting operations by the collection truck thereby:               <ul style="list-style-type: none"> <li>▶ improving collection efficiency (e.g., more stops per hour)</li> <li>▶ improving worker safety (e.g., reduced back injuries due to manual lifting)</li> </ul> </li> <li>◆ Improved fleet utilization since the same type of automated truck can be used to collect refuse, recyclables, or yard waste</li> <li>◆ Excess yard waste can be bagged next to cart</li> </ul>	<ul style="list-style-type: none"> <li>◆ Limited capacity of carts, especially during peak, fall season</li> <li>◆ High start up costs associated with purchase of trucks, carts and education program</li> <li>◆ Greater risk of contamination due to automated cart lifting/dumping system</li> </ul>

Biodegradable yard waste bags have recently been mass marketed by private manufacturers due to mandates by a number of states (e.g., Minnesota) and local governments. The intent of such mandates is to help improve the quality of the finished compost product by eliminating the non-biodegradable plastic. Using biodegradable bags also eliminates the need for compost processing facilities to debag waste and thereby reduces composting costs. A significant disadvantage of biodegradable bag systems is the purchase cost to residents for this single use container. Some programs report a cost of more than \$1 per bag.<sup>40</sup> Table 6-5 itemizes the pros and cons of using biodegradable bags for yard waste.

<sup>40</sup> Tresaugue, Matthew (April 7, 2010), "Slow Start for 'Green' Yard Waste Bags", news article in the Houston Chronicle. Downloaded from: <http://www.chron.com/disp/story.mpl/metropolitan/6947262.html>

Table 6-5

Pros and Cons of Biodegradable Bags for Yard Waste

<b>Pros</b>	<b>Cons</b>
<ul style="list-style-type: none"> <li>◆ Flexibility to adjust to residents' needs / yard waste generation; Unlimited capacity</li> <li>◆ Lower cost of processing due to reduced need for debagging</li> <li>◆ Improved finished compost quality due to reduced plastic contamination</li> </ul>	<ul style="list-style-type: none"> <li>◆ Cost of biodegradable bags</li> <li>◆ Bags rip more easily and therefore may not contain the yard waste as well as regular plastic bags</li> <li>◆ Start-up may be lengthy depending on local and state policies and enforcement; Thus, during initial transition period, there may be both biodegradable and non-biodegradable plastic bags used</li> <li>◆ Difficult to implement and enforce in open hauling collection systems</li> </ul>

Both the City of La Crosse and City of Onalaska use leaf vacuum trucks (either directly with municipal crews or via contract) for separate collection of leaves. This can be a very labor intensive operation and is highly seasonal. The demand for this service peaks in the fall during the leaf season. There may not be enough equipment and staff to address the need. Table 6-6 itemizes the pros and cons of leaf vacuum trucks.

Table 6-6

Pros and Cons of Leaf Vacuum Trucks

<b>Pros</b>	<b>Cons</b>
<ul style="list-style-type: none"> <li>◆ No container (e.g., cart, bags) required</li> <li>◆ Higher quality of compost end product due to reduced contamination (e.g., from plastic bags)</li> <li>◆ Semi automated vacuum system reduces workman's compensation claims (e.g., back injuries due to lifting)</li> <li>◆ Some models promoted to also service catch basins</li> </ul>	<ul style="list-style-type: none"> <li>◆ Demand is highly seasonal (i.e., during peak fall leaf season)</li> <li>◆ Low vehicle utilization because of specialized truck type</li> <li>◆ Higher labor costs of collection compared to carts because crew needs to operate vacuum hose and rake leaves to finish a stop</li> <li>◆ May not work well for wet leaves or grass</li> <li>◆ Road pollutants (e.g., salt, sand, vehicle liquids) can potentially contaminate the leaves and thereby have a negative impact on the final compost quality</li> </ul>

In the end, the Cities of La Crosse and Onalaska may need to continue to employ multiple modes of yard waste collection. The highly seasonal nature of this service may require a combination of resident self-haul, leaf vacuums, and private collection operations (e.g., using yard waste carts). There may be merit in mandating the use of biodegradable bags for yard waste, but such

an ordinance would require careful research and planning before it could be successfully implemented. In any case, there may be a continuing need to coordinate planning of yard waste management services between the two Cities and La Crosse County.

In addition to the collection issues, the other system components of processing and compost marketing may be considered. Regardless of the method used to collect yard waste, there should be an emphasis on maintaining supply quality (e.g., avoiding contamination by other materials, etc.). Transportation logistics could also be considered when looking at opportunities for system improvements. Often it is more cost effective to simply transfer the yard waste to a centralized composting facility than it is to have smaller composting operations at multiple sites. Finally, there may be opportunities to realize further cost savings by considering a single, comprehensive yard waste management program that could serve the La Crosse area.

## 6.4 Manual Versus Automated for Bulky Wastes

### 6.4.1 Descriptions

The Cities of La Crosse and Onalaska have bulky waste collection service as part of their overall contract with Harter's. Bulky wastes are collected every other week in La Crosse on the same day as garbage collection. The bulky wastes are required to be delivered to the Landfill Complex. Bulky wastes are collected using rear loading packer trucks.

In the City of Onalaska, bulky wastes pick up is limited to three 60-pound loads per residence per year. Large items are picked up every other Wednesday, the opposite week of recycling. Residents must call Harter's to schedule the pick up. During preparation of this report, the City decided to require residents to pay Harter's directly for this service.

Household bulky wastes commonly include items such as: large furniture, mattresses, carpet, and other large items. The Wisconsin DNR waste composition study (2003)<sup>41</sup> estimated the following percentages of these household bulky items in the total residential waste stream:

<u>Material Item</u>	<u>Percent of Residential Waste</u>
♦ Bulky items	3.9%
♦ White goods (appliances)	0.6%
♦ Carpet	3.0%
♦ <u>Carpet padding</u>	<u>0.5%</u>
SUBTOTAL	8.0%

Electronic items such as televisions, computer monitors, computer equipment and other smaller household electronic appliances are not included in this definition of bulky materials. These other more hazardous items are excluded from this definition of bulky materials in part because there are other existing collection programs provided by La Crosse County.

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<sup>41</sup> Wisconsin DNR

Bulky wastes present special challenges for solid waste collection systems because their large, bulky size makes handling, loading and hauling problematic. Also, the material is generated on an irregular basis such that collections are often scheduled on-call and provided on an as needed basis.

If separate collection service is provided, bulky waste can be collected manually using standard panel trucks or modified flatbed trucks. The material is manually lifted onto the trucks, in some cases, onto hydraulic lift gates to facilitate lower loading heights.

If automated collection service is provided, special trucks with grapple cranes can be employed to mechanically load the items from the curb and place them into the truck. Figure 6-3 below shows a photo of such an automated bulky collection operation.

Figure 6-3

Automated Collection of Bulky Waste



One advantage of these more specialized grapple crane-equipped trucks is that they can also be deployed for collection of brush and larger tree waste (e.g., after storms).

The alternative to providing separate collection for bulky wastes is to require residents to haul their own material to a drop-off center. The same handling, loading, and hauling challenges exist, but the local municipality does not incur the costs.

Source: Peterson Industries, Inc. (2010)<sup>42</sup>

#### 6.4.2 Pros and Cons

Table 6-7 itemizes the pros and cons of manual collection trucks for bulky wastes and Table 6-8 itemizes the pros and cons of automated collection of bulky wastes.

Table 6-7

Pros and Cons of Manual Collection of Bulky Wastes

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Standard truck equipment can be used (e.g., rear-load packers or panel or flatbed trucks with hydraulic lift gates)</li> </ul>	<ul style="list-style-type: none"> <li>◆ If the trucks do not have hydraulic lift gates, lifting of bulky items onto the truck can be unsafe for the collection crew (i.e., back injuries due to lifting)</li> <li>◆ Higher labor costs if two or more staff is required for each truck</li> </ul>

<sup>42</sup> Peterson Industries, (2010). For more info, link to: <http://www.petersenind.com/applications/bulky%20trash.html>

Table 6-8

Pros and Cons of Automated Collection of Bulky Wastes

Pros	Cons
<ul style="list-style-type: none"> <li>♦ Lower labor costs if the collection can be staffed by one driver/operator</li> <li>♦ Reduced injuries and workmen's compensation claims</li> <li>♦ More efficient collections (e.g., greater payloads; more stops per minute of route time)</li> <li>♦ Same trucks can be used for brush and large tree waste collections</li> </ul>	<ul style="list-style-type: none"> <li>♦ Capital costs of specialized trucks</li> <li>♦ Truck capacity may exceed demand for services (i.e., low vehicle utilization)</li> </ul>

In the end, there may be a need for a combination of manual and automated collection systems for bulky wastes. In either case, it is unlikely that it will be cost effective for a specialized truck to be dedicated exclusively to the collection of bulky wastes. Rather, if such a vehicle can have multiple functions, it may be worthwhile to use it part time for bulky wastes.

## 6.5 System Approaches

This section addresses the "system organizational" approaches for collection, not technologies or waste types.

### 6.5.1 Municipal Collection

#### 6.5.1.1 Descriptions

One alternative to organize collection is for the municipality to own and operate its own collection equipment. While such municipally operated collection systems are less common than contract collectors, there are notable examples in Wisconsin (e.g., Cities of Madison, Fitchburg, etc.).

### 6.5.1.2 Pros and Cons

Table 6-9 itemizes the pros and cons of municipal collection.

Table 6-9

#### Pros and Cons of Municipal Collection Operations

Pros	Cons
<ul style="list-style-type: none"> <li>◆ More control over scope and quality of service compared to contracts</li> <li>◆ Does not require contract monitoring</li> <li>◆ Allows public sector to lead by example with new innovations</li> <li>◆ Eliminates incumbent contractor advantage</li> <li>◆ Municipal crews can be used to provide other services (e.g., snow plowing)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Increase capital and operating costs on the municipal budget sheets</li> <li>◆ Governments are not always directly incentivized to find the most cost efficient methods</li> <li>◆ Requires hiring, retaining and training a capable work force</li> <li>◆ Requires staying current with rapidly changing solid waste and recycling technologies</li> </ul>

There currently is some limited municipal collection operations by the City of La Crosse leaf vacuuming services. It may be controversial if the Cities of La Crosse or Onalaska were to change to municipal operations for recycling and/or trash. Such municipal collections would add these services to a city’s budget and likely make it difficult to cut these programs at a later date.

### 6.5.2 Municipal Contracts

#### 6.5.2.1 Descriptions

Municipal contracts for solid waste or recyclables collection involve some form of contract with one or more private hauling companies. These contracts can be for either trash, recyclables and/or yard waste. Many communities will bundle two or more of these services into one contract. As described in more detail in Section 2, contracting is very common to the municipalities in La Crosse County. Both the Cities of La Crosse and Onalaska contract with Harter’s for collection of garbage, recyclables, yard wastes, and bulky wastes.

Municipalities use either a request for bids (RFB) or a request for proposals (RFP) process. RFB or RFP documents should fully describe the services requested, selection criteria, schedules for review, and implementation timeframe. These documents must be publicly announced and made available to any hauler, recycler or other interested parties. Alternatively, municipalities have the option to extend existing contracts. Many local governments have policies that specify a maximum contract length. Other governments have the flexibility to negotiate with their incumbent hauler rather than go out for bids/proposals.

**6.5.2.2 Pros and Cons**

Table 6-10 itemizes the pros and cons of municipal contracts.

Table 6-10  
Pros and Cons of Municipal Contracts

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Avoids city hiring employees, purchasing trucks, and related financial and resource commitments</li> <li>◆ Builds on the strengths of both the government and private sectors</li> <li>◆ Reduces government capital and operating costs and risks for municipalities</li> <li>◆ Positive, working partnership approach can provide very high quality services</li> <li>◆ Long term relationships can be an asset to sustaining and growing programs</li> <li>◆ Innovation can be encouraged via private sector incentives and entrepreneurial spirit</li> </ul>	<ul style="list-style-type: none"> <li>◆ Less control over scope and quality of service compared to municipal operations</li> <li>◆ Requires contract performance monitoring and enforcement</li> <li>◆ Incumbent contractors have distinct advantages when it comes time to go out for bid again</li> <li>◆ If a serious situation arises, switching contractors in the middle of the contract term is very difficult and requires capable alternative contractor to step in on fairly short notice</li> </ul>

Both the Cities of La Crosse and Onalaska are familiar with this contracting option, have direct and current experience with implementation, and know the marketplace as far as potential private contract partners. There are many potential improvements that could be made to the existing systems of contracts:

- ◆ The two Cities could collaborate in contracting for garbage collection, recycling services, yard waste collection, and/or bulky waste collection.
- ◆ The two Cities and the County could investigate other means of coordinating collection services through contract planning and implementation.

### 6.5.3 Open

#### 6.5.3.1 Descriptions

Open hauling service is the alternative to municipal operations or contracts whereby the homeowner contracts directly the hauler. A municipality may regulate hauling services by ordinance and require licenses, but the pricing; service levels; payments and other contracting terms are negotiated directly between the hauler and the resident. The City of Eau Claire is one example of an open hauling system in Wisconsin. Open hauling is not common in Wisconsin.

#### 6.5.3.2 Pros and Cons

Table 6-11 itemizes the pros and cons of open collection.

Table 6-11  
Pros and Cons of Open Collection Operations

Pros	Cons
<ul style="list-style-type: none"><li>♦ Residents have freedom to choose their own hauler</li><li>♦ Keeps nearly all costs off the municipal budget</li><li>♦ Does not threaten the business development history or potential growth of hauling companies</li></ul>	<ul style="list-style-type: none"><li>♦ Tends to increase the number of hauling companies running trucks through the same residential neighborhood routes</li><li>♦ Reduces collection efficiencies (e.g., stops per minute)</li><li>♦ Some studies find that open hauling is more expensive due to lower efficiencies and lack of centralized, structured competition (i.e., residents may not know current market pricing or their ability to negotiate lower rates)</li><li>♦ Increases truck traffic with additional wear and tear on residential pavement</li><li>♦ Decreases neighborhood safety</li><li>♦ Decreases ability of municipality to standardize collection operations and public education systems</li><li>♦ Reduces the ability of municipalities and counties to collect data and make changes to the system and introduce innovations</li></ul>

Open collection can be a relatively easy way for municipal governments to reduce their involvement and risk in private operations of solid waste and recycling collections. If any of these functions are on their budgets, they can simply be removed by requiring all residents to have service and contract with the hauler of their choice. The City of Eau Claire is one of the few open hauling communities in Wisconsin that may provide more details on planning and/or implementation of open hauling systems.

The downside of the open hauling approach is that it reduces the government sector's ability to comprehensively plan, manage and coordinate solid waste services, including disposal and mixed waste recovery options. La Crosse area municipalities and the County may want to carefully consider the trade-offs before changing to open collection systems.

## **6.5.4 Coordinated Collection**

### **6.5.4.1 Definitions**

Coordinated collection is defined as when two or more local units of government collaborate to provide for solid waste or recycling collection services. The form of collaboration varies. The simplest means is to informally coordinate planning for system improvements or contracting (even if separate, independent contracts are executed by each municipality). The more complex coordinated structures may involve joint powers agreements (66.30's) and single collection contract(s) that serve multiple jurisdictions.

Once coordinated, the group of communities can then contract with a single hauler for solid waste and/or recycling collection services. Alternatively, the group could provide its own collection operations using municipal crews and equipment.

### **6.5.4.2 Case Studies**

Section 4 provides more details on relevant case studies of coordinated collection systems. Examples in Wisconsin of coordinated collection systems included: Clark County; Portage County; and Southern Trempealeau County. Southern Trempealeau County has a cooperative agreement for collection services. Clark County combines cities into collection contracts known as the "United Communities of Clark County". Portage County has a variety of coordinated collection and disposal contracts.

Metro Waste Authority in Des Moines, Iowa was also noted in Section 4 as having a history of coordinating collection.

### **6.5.4.3 Recycling Responsible Units**

In 1990, The Wisconsin Legislature passed a series of solid waste, recycling and waste reduction laws.<sup>43</sup> The policy outlined in the law establishes a hierarchy of preferences for solid waste management options. The law also instituted a graduated series of disposal bans on landfilling and incineration of certain materials that went into effect in 1991, 1993, and 1995 as follows:

#### **Banned in 1991**

- ◆ Lead acid batteries
- ◆ Major appliances
- ◆ Waste oils

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<sup>43</sup> The Wisconsin recycling, recovery and waste reduction laws are now codified as Chapter 287 of the Wisconsin State Statutes and related administrative rules found in Wisconsin Administrative Code, chapters NR 542 to 549.

**Banned in 1993**

- ◆ Yard waste

**Banned in 1995**

- ◆ Aluminum containers
- ◆ Corrugated paper or other containerboard
- ◆ Plastic containers #1 through #7
- ◆ Foam polystyrene packaging
- ◆ Glass containers
- ◆ Magazines
- ◆ Newspaper
- ◆ Office paper
- ◆ Steel containers
- ◆ Bi-metal containers (steel + aluminum)
- ◆ Waste tires

The statutes delegate responsibility for implementing municipal recycling program to responsible units (RUs). A responsible unit can be a municipality (i.e., city, town, or village), county, tribe, solid waste management system that is responsible for planning, operating and funding a recycling program. Each RU must develop and implement a recycling program to manage the banned materials generated within its region in compliance with the law and Wisconsin’s solid waste management priorities. RUs are also charge with educating residents and businesses about the recycling law and the local programs and services.

The laws and rules require standards for local recycling services known as “effective recycling programs”. Currently, all of the RUs in Wisconsin have approved effective recycling programs. RUs are required to report annually to the DNR on their recycling program performance and apply for annual DNR recycling grants. Section 2.3.2 summarizes these recycling RU grants. In La Crosse County, there are 18 RUs as follows and itemized in Table 2-8:

<b><u>Number of RU’s in</u></b>	
<b><u>La Crosse County</u></b>	
Cities	2
Towns	12 <sup>44</sup>
<u>Villages</u>	<u>4</u>
<b>Total =</b>	<b>18</b>

Note that La Crosse County is not an RU.

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<sup>44</sup> Includes the Town of Bangor and the Village of Bangor.

In the Cities of La Crosse and Onalaska, the following summarizes these two cities' recycling expenditures ("eligible costs") vs. WDNR recycling grants awarded in 2009:

<u>City</u>	<u>Total Eligible Cost</u>	<u>Total Grant Award</u>	<u>Grant as a Percent of Total Cost</u>
La Crosse	\$656,000	\$246,567	38%
Onalaska	\$228,000	\$52,576	23%

The State of Wisconsin encourages recycling responsible units to coordinate recycling collection if such a change can help improve the cost effectiveness of the program. In the past, DNR has also provided "Recycling Efficiency Incentive Grants" either through:

- ♦ Formal consolidation (pursuant to Wisconsin Statutes, Chapter 66) to merge two or more RUs into a single RU; or
- ♦ By entering into a cooperative agreement with at least one other RU where one or more of the following efficiencies have been achieved:
  - ▶ Collection and transportation of recyclables;
  - ▶ Sorting of recyclables at a materials recovery facility;
  - ▶ Comprehensive program planning; and/or
  - ▶ Educational efforts about recycling.

As an example, in 2008, the Cities of Onalaska and La Crosse received such a WDNR Recycling Efficiency Incentive Grant of \$28,917 to produce a collaborative public education flyer. There are elements common to both cities in the flyer on one side, and then the flip side has unique educational elements specific to each City. These Recycling Efficiency Grants are no longer provided.

There are still opportunities for the collection system to be more efficient. Further collaboration between the two Cities and County at the least could realize administrative efficiencies. Coordinated collection and public education systems will save on City staff time. Plus, increased economies of scale with larger service areas may help bring down the unit costs for collection operations and contract prices. For example, unit prices for services such as curbside recycling and separate yard waste collection could potentially be lower if the two Cities were to combine into one coordinated collection system. Such collaboration for a larger service area may also help attract more competitive pricing for contract recycling services.

The Wisconsin RU program has helped provide for statewide recycling planning and implementation at a very local level. There are total 1,064 RUs statewide. In DNR's West Central region there are 19 counties, but a total of 240 RUs.

Several counties in Wisconsin have helped provide for improved, comprehensive recycling planning and intergovernmental coordination. Often, these Counties will become recycling RUs themselves to help with this coordinated recycling planning and implementation. Chippewa and

Dunn Counties have both become RUs. In the case of Dunn County, the County serves as the recycling RU for all but 3 municipalities. In general, the DNR recycling RU grant money is passed through the RU County to their constituent municipalities. In this manner, the planning, coordination, DNR reporting and grants administrative tasks are centralized into County functions, but the municipalities still get their fair share of the State grant revenue. This enhanced County role in recycling management also better helps integrate recycling into the larger, comprehensive solid waste management system. For example, the counties are able to integrate recycling information into the larger public education messages about landfill disposal or other mixed waste recovery services.

DNR encourages coordinated collection systems if it can help improve recycling programs while serving to help reduce costs. DNR is required to administer the RU program, including processing of all of the RU annual reports and grants. The DNR regional staff monitors a sampling of the recycling programs in the field each year through site visits and observation of actual program operations. DNR recognizes first hand the administrative inefficiencies of so many smaller RU's providing the same services if they can be consolidated into larger regional programs (e.g., multi-city or municipal + county regions). Finally, public education can be significantly more cost effective on a regional basis, especially when mass media tools are used (e.g., earned news coverage through newspapers and television).

#### 6.5.4.4 Pros and Cons

Table 6-12 itemizes the various pros and cons for coordinated collection systems.

Table 6-12  
Pros and Cons of Coordinated Collection

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Can reduce overhead costs from duplicative management and administrative functions and strengthen program management</li> <li>◆ May be more cost effective               <ul style="list-style-type: none"> <li>▶ via additional market leverage with hauling companies (i.e., larger, more coordinated contracts)</li> <li>▶ Provide economies of scale to reduce service prices and increase value</li> </ul> </li> <li>◆ Provides more uniform service standards within a region (e.g., recycling sorting instructions for residents, etc.)</li> <li>◆ Once implemented, is politically the “right thing to do” to help save taxpayer dollars and may lead to regionalization of other services</li> </ul>	<ul style="list-style-type: none"> <li>◆ May be difficult to implement due to political barriers of each local unit wanting to control their own collection system</li> <li>◆ Does not allow individual government units to unilaterally customize the collection services</li> </ul>

The larger service areas and greater economies of scale often have the effect of bringing down unit costs per household for such collection if the communities can standardize collection operations. Furthermore, if a public – private partnership with a contractor is developed, the coordinated collection system can help increase competition and thereby help promote greater value. At the very least, these coordinated collection systems will allow communities to more efficiently share in common administrative functions across more households and thereby bring down the cost of government services. Finally, the move toward more standardized services will lead to easier public education, less confusion, greater recycling rates, and happier residents.

If such a coordinated collection system can be developed, it should be packaged with other system changes so that there are increased services provided. If a new contract (or contracts) is drafted to serve two or more communities, there should be a comprehensive set of services specified. Thus, there will be multiple variables all leading to increased value provided by the contractor(s).

La Crosse County may find value in discussing with the Cities of La Crosse and Onalaska their interest in consolidating recycling planning and administrative functions to bring down costs. If there is interest by the Cities in coordinated administrative or collection services, there will undoubtedly be a need to discuss how to most fairly pass through and distribute the DNR recycling grant funds. Reviewing the relevant case studies of other Wisconsin counties (e.g., Chippewa, Dunn) that have followed a similar path may be instructive.

## 7 Funding Options

This section of the report describes different funding options to pay for residential solid waste services. A description of what makes up the costs is provided. The different approaches are described along with a listing and commentary on the pros and cons of each.

There are several options to collect funds for residential solid waste collection services in a city, village, town, or county. The most common funding options are:

- ◆ General Fund – tax based
- ◆ Municipal Utility Billing – user fee based
- ◆ Hauler Direct billing – user fee based

More detailed cost structures that can be used in conjunction with the above user fee based funding options include:

- ◆ Flat Rate User Fee Systems
- ◆ Volume-based User Fee Systems
- ◆ Weight-based User Fee Systems

Each of these approaches is described below with tables containing the various pros and cons. There is considerably more detail for the user fee based approaches such as potential impacts along with some brief case history information.

### 7.1 Description of Cost Components

Rates charged to residents for solid waste collection services typically cover the costs associated with:

- ◆ Collection (labor, trucks, O&M)
- ◆ Disposal
- ◆ Recycling – Processing, Material Marketing
- ◆ Carts/Containers
- ◆ Administration/Billing
- ◆ Profit
- ◆ Fuel Surcharge
- ◆ State Taxes or Municipal Fees

The cost to collect various types of waste materials including bulky waste (furniture and appliances), yard waste, garbage, and recyclables may be in the base price charged to residents. However, more often; the base price only covers the collection of garbage and recyclables. In these instances, residents pay an additional fee for the curbside collection of bulky waste and yard waste.

Collection costs also must account for equipment, fuel, and labor. Vehicle type, frequency of collection, and staffing requirements depend on the waste type and the containers. For example:

- ◆ Manual versus automated collection for garbage and recycling
- ◆ Weekly or bi-weekly collection
- ◆ Same day or different day collection for garbage and recyclables
- ◆ Bagged yard waste versus loose piles of yard waste
- ◆ Single-stream versus dual-stream recycling

Haulers incorporate the costs to cover the operation and maintenance of fleet vehicles and labor rates for the appropriate number of staff into the base price paid by residents for collection services.

Haulers or cities must also account for disposal costs when determining the amount charged to residents for collection services. A hauler will consider the disposal/processing location(s) (landfill or RDF) and the corresponding tipping/processing fee associated with each location. For recyclable materials, haulers must consider processing costs as well as current and future market prices for the collected recyclable materials.

Sometimes residents use their own disposal containers for waste. Alternatively, the hauler or local government may provide all residents with proper disposal containers, especially if they are operating an automated collection system. If containers are provided to residents, the costs will include the initial supply, replacement, drop-off and collection, and storage costs in the base fee charged to residents.

Managing customer service and billing will incur administrative expenses. These expenses will be covered in the resident's base fee. Staff is required to assist with customer complaints and requests and manage invoicing and finances.

Frequently a fuel adjustment clause is included to control cost increases associated with changing diesel fuel prices. Typically the fuel surcharge is a separate line item on the resident's bill as it is dynamic in nature.

There may be a separate line item on bills for state taxes and any additional municipal fees associated with waste collection. These are often pass-through fees meaning the hauler only bills the resident the amount they must pay-in.

## 7.2 Funding Approaches

Funding approaches are typically either tax based or user fee based. Tax based approaches are typically via a city's general fund (ad valorem property taxes). This is the approach currently used by the Cities of La Crosse and Onalaska. User fee based approaches are typically collected by either the city or the waste hauler. The following sections describe each funding approach providing pros and cons.

## **7.2.1 General Funding**

### **7.2.1.1 Description**

A city's general fund provides funding for all of the city's general programs and day-to-day operations, which can include items such as administration, human services, public safety, parks and recreation, public works, sanitation, planning, etc. General fund revenues and expenditures are authorized through the city's annual budget process. Once the city council provides approval for budget authority, funds may be expended for the general purposes in which they were authorized throughout the fiscal year. On December 31 of each year, unexpended general fund appropriations revert back to the city treasury and become part of the city's general fund balance.

If a city funds residential solid waste collection services using their general fund, a portion of the general fund is dedicated to pay for this service and is therefore not available for use for other services.

### **7.2.1.2 General Funding Pros and Cons**

There are several advantages to using the general fund as a means to pay for residential solid waste collection services. As noted, this is the current funding method used by the City of La Crosse and the City of Onalaska for residential collection, thereby requiring no change to administration procedures. All residents are charged for collection services, whether they use them or not, so they are more likely to utilize the collection service rather than illegally dispose of their waste. Because the amount allocated from the general fund is fixed based on what the City Council approves and because the amount charged to residents on their property taxes can be fixed, it is easy to maintain and manage revenues and shortfalls associated with the collection program.

There are some issues with using the general fund as a means to pay for residential solid waste collection services. The general fund monies are not available to be allocated to other public services other than residential solid waste collection. Residents are not as knowledgeable about their collection costs and services since they do not receive a separate itemized bill for this service. When costs are not readily accessible to residents, they have no economic incentive to reduce or better manage their waste stream. Businesses pay taxes that go to pay for residential solid waste service. The businesses taxes do not pay for their solid waste service. This is one of the inequities of funding residential solid waste service via the general fund.

Table 7-1 provides a summary of the pros and cons with using the general fund to pay for residential solid waste collection services.

Table 7-1

Pros and Cons for General Fund

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Easy to administer/low cost</li> <li>◆ Less incentive for illegal dumping</li> <li>◆ Revenues are predictable and stable</li> <li>◆ Commercial properties pay for residential service</li> <li>◆ Deducted on income taxes</li> <li>◆ Current funding method – no change required</li> </ul>	<ul style="list-style-type: none"> <li>◆ Concerns with levy limits and pressure to provide other services via general fund</li> <li>◆ Costs are not easily visible to citizens</li> <li>◆ No economic incentive for waste reduction &amp; recycling</li> <li>◆ Inequitable payment by businesses, large families, and tax exempt properties</li> </ul>

**7.2.2 Municipal Utility Billing**

**7.2.2.1 Description**

If a city is already responsible for billing residents for some of their utilities (e.g. water, sewer, electricity, etc.), a line can be added to the utility bill to cover costs associated with residential solid waste collection. The amount charged to residents would be pre-determined based on:

- ◆ What the city is paying a contracted hauler for services,
- ◆ Disposal costs paid by the city,
- ◆ Any special solid waste servicing provided by the city; and
- ◆ Administration costs.

There may need to be ordinance changes and/or resolutions adopted to implement the charges and the ease may depend on the current billing software. Utility bills may be distributed on a monthly basis or up to a quarterly basis.

**7.2.2.2 Municipal Utility Billing Pros and Cons**

Utilizing municipal utility billing to collect funds for solid waste collection services has several advantages. Using this funding method allows general fund monies allocated to solid waste collection to be available to fund other city services. There is not a significant increase in administrative costs since the administration infrastructure is already in-place for other city-provided utilities. The city acquires control of rates charged to residents, allowing additional waste management programs (e.g. HHW, drop-off locations, waste management educational services) to potentially be supplemented by the curbside collection program. The cost for these services is more visible to residents since it is clearly displayed on their utility bill, providing economic incentive for residents to reduce/better manage their waste stream. Residents are easily accessible for educational opportunities. Educational leaflets and program updates can be included with the regular mailing of the utility bill. Residents are already familiar with the

procedures for paying the utility bill; no additional effort for paying bills will be required on the resident's behalf.

Changing the method residents pay for this service will definitely be noticed by the public, especially since the charge will be listed on their utility bill. There may be some vocal opposition to the change. It could result in residents expecting a decrease in property taxes since this service was previously paid for through that process. In reality, because commercial business properties pay part of the cost for residences in the general fund, the actual cost per household per year may go up as businesses no longer subsidize residential solid waste collection and disposal costs.

Table 7-2 summarizes the pros and cons for municipal utility billing to fund residential solid waste collection services.

Table 7-2  
Pros and Cons for Municipal Utility Billing

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Costs removed from general fund</li> <li>◆ Low administrative costs</li> <li>◆ Easy to cover costs beyond hauler contract</li> <li>◆ Cost visible to residents</li> <li>◆ Increased level of accountability</li> <li>◆ Easy to promote program via inserts</li> <li>◆ Customer makes payments as part of an existing process</li> <li>◆ Businesses no longer subsidize residential solid waste service</li> </ul>	<ul style="list-style-type: none"> <li>◆ Requires a change which will be noticed by the public</li> <li>◆ Initial administrative needs to set it up</li> <li>◆ Residents may “expect” reduction in property taxes</li> <li>◆ Average cost per household may go up because commercial businesses are no longer subsidizing residential service</li> </ul>

### 7.2.3 Hauler Direct Billing

#### 7.2.3.1 Description

Another option to collect funds for residential solid waste collection is to have the hauler prepare and send bills to customers to pay the hauler directly. In this approach, the hauler typically pays for not only his equipment and labor, but also disposal fees.

#### 7.2.3.2 Hauler Direct Billing Pros and Cons

Advantages to hauler direct billing include removing the cost from the municipal budget, similar to using utility bills. As opposed to open or subscription-based systems, the cities can maintain some control over contract stipulations and requirements.

The Cities may be required to assist the hauler with collecting appropriate funds from non-cooperative residents. When a hauler is managing the administrative portions of collection

services, they cover their expenses by adjusting the rates charged to residents, which may lead to higher costs to residents. The Cities have less influence and control over the local waste management trends and lose educational access to residents since they are not involved with billing. Because residents are receiving a completely separate bill for these services that were previously covered in their property taxes, they may expect a reduction in their property taxes.

Table 7-3 provides a summary of the pros and cons with using hauler direct billing to fund residential solid waste collection services.

Table 7-3  
Pros and Cons for Hauler Direct Billing

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Cost removed from municipal budget</li> <li>◆ Lower municipal administrative needs</li> <li>◆ Maintain capability for controls in contract (as opposed to open based system)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Hauler inability to collect bad debt leads to municipal involvement</li> <li>◆ More administrative cost for hauler leads to higher cost for customers (as opposed to general fund or utility billing)</li> <li>◆ Less municipal control and opportunity for interaction and education</li> <li>◆ Residents may “expect” reduction in property taxes</li> </ul>

### 7.3 User Fee Based System Approaches

There are different approaches to actually collecting the funds in user fee based systems. This section describes the differences between flat rates and different volumes or weight-based approaches.

#### 7.3.1 Flat Rate User Fee System

##### 7.3.1.1 Description

In a flat rate system for solid waste collection, residents pay a flat monthly fee for collection services regardless of the amount of materials set out for collection or how often they use the service (i.e., weekly, bi-weekly, etc.). In a flat rate system residents are typically direct billed on a monthly or sometimes quarterly basis, either as a separate bill or incorporated into an existing utility billing system such as a municipality’s water and sewer billing system.

Flat rate systems could be applied to either the existing manual collection system or a new automated collection system.

### 7.3.1.2 Flat Rate User Fee System Pros and Cons

Because all residents pay the same amount for services it is easy to determine the cost per household which leads to a predictable and reliable revenue stream to support the collection service.

However, for this same reason, there is less incentive for residents to recycle or otherwise reduce their waste stream. Residents do not receive an economic benefit from producing/disposing of less waste. All residents are charged the same rate regardless of the amount of materials set out for collection or how often they use the service.

Table 7-4 summarizes the pros and cons with using a flat rate user fee system to fund residential solid waste collection services.

Table 7-4  
Pros and Cons for Flat Rate User Fee Systems

Pros	Cons
<ul style="list-style-type: none"><li>♦ Easily allocate costs across the user base</li><li>♦ Stable revenue</li></ul>	<ul style="list-style-type: none"><li>♦ No incentive to recycle</li><li>♦ Same rate for all residents not fair</li></ul>

### 7.3.2 Volume-based User Fee System

Volume-based user fee (VBF) systems are another method of charging residents for solid waste collection services. There are other terms for this system; such as Pay As You Throw (PAYT) and Unit-based Pricing (UBP). In VBF systems, solid waste collection services are treated more like a utility. As such, residents pay based on the amount and frequency of service they “consume.” Rates are structured similar to other utility services such as sewer, water, electricity, etc. so that residents who use the system more or put out more materials for collection pay more than those who do not.

There are three general ways to structure VBF systems:

- ♦ Pre-paid bag/tag (or sticker)
- ♦ Subscription service
- ♦ Modified or hybrid system

#### 7.3.2.1 Pre-paid Bag/Tag

##### 7.3.2.1.1 Description

In a pre-paid bag/tag system, residents are required to purchase specially marked bags or tags at a price that reflects the cost of the collection and disposal service. These bags or tags may be sold directly by the municipality or distributed through local retail merchants in order to make it more convenient for residents to obtain. In either case, materials will not be collected unless

they are contained in the designated bag or, if a tag system is used, in a container provided by the resident that has a valid tag or sticker affixed.

In tag programs, communities typically allow residents to select whether the disposal container is a bag or rigid container but in all cases the size and weight allowed per container is limited by the community's specifications (usually no more than 50 pounds per bag or container if manually collected). In some cases, communities will specify that the container must be only a bag or only a rigid container. Often these specifications are driven by local community concerns about rodent control (it is more difficult for rodents to penetrate rigid containers) or local values regarding "curb appeal". In these cases some communities prefer bags since they result in a "clean curb" once the materials are collected. Any concerns regarding blowing trash cans or lids are also eliminated by this approach.

In the La Crosse area, communities that currently use a bag system include:

- ◆ La Crosse County
  - ▶ Town of Washington
  - ▶ Village of Bangor
- ◆ Houston County
  - ▶ La Crescent
  - ▶ Brownsville
  - ▶ Hokah
  - ▶ Caledonia
  - ▶ Houston
  - ▶ Spring Grove

Pre-paid bag/tag approaches would work with the existing manual collection system, but would be less likely to fit with an automated system.

#### **7.3.2.1.2 Pre-paid Bag/Tag Pros and Cons**

Utilizing pre-paid bags/tags for solid waste collection services has several advantages. There are reduced administrative requirements since residents do not have to be billed, there is only coordination required with the facilities that sell the bags/tags. Stores may volunteer to sell the bags/tags without expecting to make any profit in exchange for increasing their customer base. Bags/tags are less expensive to purchase initially and distribute compared to rigid containers. Collection time could be reduced in the existing manual system because staff are not required to return containers to the curb after collection. Services are pre-paid with the purchase of the bags/tags. Revenue may be received prior to the expense associated with collection since residents purchase bags/tags even though they may not use them until a later date.

There are some disadvantages to a bag/tag system. A bag/tag supply and distribution system must be created and managed. Bags/tags should be sold at locations which are convenient for residents (e.g. grocery stores, convenience stores, etc.). While this system would work with the existing manual system, it would not work well if an automated collection system was

implemented. Revenue volatility or uncertainty is a potential problem since revenue depends solely on the sale of bags/tags.

Table 7-5 provides a summary of the pros and cons with using pre-paid bags/tags to fund residential solid waste collection services.

Table 7-5

Pros and Cons for Pre-paid Bag/Tag

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Smaller, more flexible increments of service available</li> <li>◆ Less complex administration requirements</li> <li>◆ May get volunteer retailers to sell bags/tags/stickers</li> <li>◆ Customized bags/tags/stickers are inexpensive and easily distributed</li> <li>◆ May reduce collection time</li> <li>◆ Result in “clean curb”</li> <li>◆ Service is pre-paid</li> </ul>	<ul style="list-style-type: none"> <li>◆ Supply and distribution systems required</li> <li>◆ Possible revenue volatility</li> <li>◆ No reusable containers</li> <li>◆ Residents are responsible for storing/managing bags/tags</li> <li>◆ Not as compatible with automated collection systems</li> <li>◆ Increased level of educational training</li> <li>◆ Bags are not rodent-proof</li> <li>◆ Stickers require hauler judgment as it is more difficult to enforce size/weight limits</li> </ul>

Source:

Primary: Skumatz Economic Research Associates, Inc. Seattle, WA, © 1998. Secondary: Variable-rate or “pay-as-you-throw” Waste Management: Answers to Frequently Asked Questions, Lisa Skumatz, July 2002.

**7.3.2.2 Subscription Service**

**7.3.2.2.1 Description**

In a subscription service program, residents typically are provided an option to select one of several measured levels of service (such as 30, 60, or 90 gallons of garbage collection service per week). The amount charged is tied to the level of service selected so those residents that select smaller containers pay less than residents that select larger containers. This “menu” of container sizes allows a resident to select the service level that meets their household’s waste generation needs. The resident benefits since they do not have to pay for more than what they use. Some communities are choosing to simplify the number of container sizes, such as just two – a 48 and a 96 gallon size. This is a result of few residents choosing the 30 +/- gallon size and some difficulty emptying this size cart with automated collection trucks.

This subscription approach, especially with different size carts available, works well for automated collection. A subscription approach could also be adapted to the existing manual collection system, although there would likely be ongoing uncertainties for route drivers if a resident set out extra bags or cans than what they have subscribed.

There are two basic philosophies in the price differences between different size cart based subscription services. One approach is to have a significant price difference between the

different cart sizes, thereby creating bigger financial incentive for more recycling. The other basic approach is a relatively minimal price difference between cart sizes (\$1 to \$2). This philosophy is based on the knowledge that the vast majority of the cost is associated with the collection vehicle, labor, and cart, which is the same for each household. The added cost for the larger cart is primarily related to disposal of the additional waste. This second philosophy is consistent with the modified (hybrid) system covered in the next section.

### 7.3.2.2.2 Subscription Service Pros and Cons

There are several advantages to using a subscription service system for residential solid waste collection services. Variable levels of service at differing costs provide incentive to residents to increase recycling and reduce garbage generation. Sturdy containers may decrease scatter of waste as opposed to using just bags. Revenues are relatively stable and predictable after residents choose their service. It works very well with rolling carts and automated collection.

Some disadvantages to subscription service systems include initial administrative and operational complications when beginning the program. This burden will be either the responsibility of the hauler or the City depending on who is in charge of customer assistance. It may be challenging for residents to determine what service level they need initially. This could lead to some residents changing their service level if they are finding they are frequently over or under utilizing their selected service level. This uncertainty can make it difficult to order the proper number of selected container sizes at the beginning of the program. Also, staff will need to be available to manage service level changes. Residents must contact the hauler or City to change their subscription level and then proper coordination will be required to exchange the container if it is supplied by city/hauler. If containers are provided by city/hauler, cost, distribution, storage, and replacement can be expensive. Table 7-6 summarizes the pros and cons with using a subscription service system to fund residential solid waste collection services.

Table 7-6

Pros and Cons for Subscription Service

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Potentially increase recycling and reduce garbage generation</li> <li>◆ Decrease scatter of waste</li> <li>◆ Stable revenues</li> <li>◆ Works very well with automated collection</li> <li>◆ Simplified enforcement</li> </ul>	<ul style="list-style-type: none"> <li>◆ Coordination required for service level alterations</li> <li>◆ If containers are provided by city/hauler, cost, distribution, storage, and replacement can be expensive</li> <li>◆ Initial administrative complications</li> <li>◆ Small containers may be difficult to dump (especially for automated collection)</li> </ul>

Source:

Primary: Skumatz Economic Research Associates, Inc. Seattle, WA, © 1998.

Secondary: Variable-rate or “pay-as-you-throw” Waste Management: Answers to Frequently Asked Questions, Lisa Skumatz, July 2002.

### 7.3.2.3 Modified or Hybrid System

#### 7.3.2.3.1 Description

A modified or hybrid system, as its name implies, combines some elements of a flat rate (or property tax-based) system with some elements of a pure VBF system. In fact, a modified system closely resembles a subscription service in many ways. The main difference is that in a modified system all residents are provided the same fixed unit volume of basic service for the same flat rate, and any excess material set out for collection requires the use of a pre-paid bag or tag by the resident.

The primary advantage to this type of system over other forms of VBF's is that a community can cover the fixed overhead and operating costs of its collection system through the base charge. The additional bags or tags can be priced to cover the system's variable costs associated with the collection and disposal of the additional material. This approach can easily be applied to an automated collection system. It can also be adapted to the existing manual collection system.

A study funded by the Iowa Department of Natural Resources,<sup>45</sup> concluded that in communities that have implemented modified or hybrid systems fewer recyclables are "captured" than in communities using pre-paid bag or tag systems. Residents' awareness of the existence of a VBF system is also lower, especially in communities that allow residents to set out two or more containers as part of their base service level or in retired or single person households. The report indicates that this is, in part, due to the fact that these households rarely need to purchase a bag or tag for excess waste volumes. The report also finds that allowing one or two containers of trash as part of the base service reduces the incentive to recycle when compared to communities using a pre-paid bag or tag system.

#### 7.3.2.3.2 Modified or Hybrid System Pros and Cons

The advantages and disadvantages of a hybrid system are similar to those mentioned for a bag/tag system and a subscription service system since it combines these systems.

Table 7-7 provides a summary of some additional pros and cons with using a modified or hybrid system to fund residential solid waste collection services.

Table 7-7

#### Pros and Cons for Modified or Hybrid System

Pros	Cons
<ul style="list-style-type: none"><li>♦ Stable and predictable revenues</li><li>♦ Convenient</li></ul>	<ul style="list-style-type: none"><li>♦ Need to set up bag/tag system for extras</li><li>♦ Increased educational training</li><li>♦ Customer may not realize full cost of their service</li></ul>

Source:

Primary: Skumatz Economic Research Associates, Inc. Seattle, WA, © 1998.

Secondary: Variable-rate or "pay-as-you-throw" Waste Management: Answers to Frequently Asked Questions, Lisa Skumatz, July 2002.

<sup>45</sup> "Evaluation of Recycling Programs, East Central Iowa Council of Governments." March 2003.

### 7.3.3 Weight-based User Fee System

In a weight-based user fee system residents are charged for the actual weight of material they dispose of during each collection. Collection vehicles must be equipped with scales and proper electronic recording systems that can accurately weigh a container and record the weight with the proper household. This type of system has had limited application to date in the U.S., although there is increased interest driven by the “RecycleBank” trend noted in Section 3.4.

Table 7-8 summarizes the pros and cons with using a weight-based user fee system to fund residential solid waste collection services.

Table 7-8  
Pros and Cons for Weight-based User Fee Systems

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Flexible</li> <li>◆ Increase recycling rates</li> <li>◆ Fair and easily understood</li> </ul>	<ul style="list-style-type: none"> <li>◆ Equipment expensive</li> <li>◆ No city-wide operations in U.S. to date to follow as model</li> <li>◆ Existing trucks would require retro-fitting with scales</li> <li>◆ Potentially increased technical complications- equipment breakdowns</li> <li>◆ Complicated billing system</li> </ul>

Source:

Primary: Skumatz Economic Research Associates, Inc. Seattle, WA, © 1998.

Secondary: Variable-rate or “pay-as-you-throw” Waste Management: Answers to Frequently Asked Questions, Lisa Skumatz, July 2002.

### 7.4 Potential Impact of User Fee Based Approaches

VBF systems are not new. In fact, with the implementation of yard waste bans from landfills in many states over the past 15 to 20 years, many communities have adopted VBFs for yard waste collection as a simple yet effective means of equitably recovering the cost for separate yard waste collection service. This pricing strategy has also created an economic incentive for many people to elect to mulch their grass clippings and/or compost their grass and leaves in their backyards. This in turn has reduced the amount of yard waste collected in many areas.

The success of these has encouraged many communities to consider adopting a VBF system for their entire residential solid waste stream. Communities also see VBF as being more equitable since residents pay only for the amount of service they use. As a result, VBFs provides residents an opportunity to control their costs through improved management of their solid waste stream.

### **7.4.1 Potential Increased Recycling and Waste Reduction**

Although improving the equitable distribution of costs is a strong argument for supporting a VBF system, reducing the volume of waste generated and disposed of and increasing the quantities of materials that are recycled are often the primary reasons for implementing this type of system for garbage collection. Through the economic incentive created by the VBF system, residents are encouraged to control the amount of waste they generate through improved source reduction efforts, altered consumer-purchasing habits and increased recycling activities. All three of these are considered to be positive behavioral changes that can have a very positive impact on a community's efforts to reduce and improve the management of its local solid waste stream.

A key component to a successful VBF system is the inclusion of a comprehensive recycling collection program as part of the overall solid waste management system. The availability of curbside recycling is essential in order to provide residents with a viable and environmentally responsible alternative for managing their waste. What makes linking curbside recycling to unit-based pricing so important is the fact that the VBF rate includes, as a component of its base fee, an allowance for the cost of implementing the recycling collection program. This creates an impression on the residents that recycling is free. In fact, programs promote that there is no direct charge to the resident for using the recycling collection service, thereby reinforcing and encouraging their use of the recycling service. Since residents directly pay for each container of garbage they set out, but do not directly pay for setting out their recycling container the system gives them an economic incentive to maximize their recycling.

In addition to providing residents with access to ample recycling opportunities it is also important to educate them on the various source reduction options that they can explore. Encouraging residents to alter their consumer purchasing habits can usually be included as part of the overall educational and informational campaign for the program. This information should be designed to encourage residents to seek out products and packaging that minimize waste and to consider selecting products/packaging that can be recycled in the local program.

Education is a vital key to the success of a VBF program. A continuous stream of information prior to a program's start, useful waste reduction information, and status reports detailing the ongoing progress of the program are imperative in order to achieve long-term support, cooperation and participation.

It is extremely important to properly educate residents well in advance of the program's commencement. People tend to have a lot of anxiety when confronted with change. In order to help them overcome their fears it is a good idea to include key residents or groups within the community in the planning process from the beginning. This will give them a sense of ownership of the system as well as allow them to have a better understanding of the system as it evolves. It is also important that the community-wide educational campaign address residents' primary concerns of cost, equity and convenience.

### **7.4.2 Illegal Dumping**

There are some challenges that may need to be addressed as an element of the planning process for implementing a VBF system. One of these is the concern sometimes raised by residents and

businesses over the potential for illegal dumping in commercial and institutional dumpsters as well as along roadsides and on vacant land. There is no way to eliminate the concern or risk of illegal dumping at this point. The only way to effectively address this potential problem is to decide up-front how it will be handled if it occurs and follow through with action if illegal dumping becomes a problem. Initial preventive steps can be taken to minimize this problem including the installation of lids and locks on dumpsters or by placing dumpsters in areas that are inaccessible to the public. Increased police patrol in problem roadside dumping areas, particularly during the early months of the program, can help pinpoint and eliminate problem areas early. If actual bags of garbage are found, inspection of the contents for identifying articles such as old mail with names and/or addresses can help to trace and reprimand the responsible party. It is important to pass an illegal dumping ordinance and then to fully enforce it in order to send a clear signal to residents that illegal dumping will not be tolerated.

#### **7.4.3 Estimating Revenue/Rate Setting**

A second possible issue is the potential for generating insufficient revenues to cover the fixed costs of the collection program. A municipal collection system has fixed equipment and labor costs everyday regardless of how many bags of garbage are set out by residents. The more successful a VBF program is at reducing waste, the less revenue there may be to cover those fixed costs of collection. Ways to minimize this risk are to select a subscription service program or a modified VBF system. These alternatives allow a community to set the fixed components of the system fees to cover the collection program's fixed costs as well as the cost of the recycling service. The variable component of the fee structure can then be set to reflect the systems variable costs. This approach is very similar to many utility rate structures whereby consumers are charged a base fee to offset the cost of the infrastructure needed to deliver the utility service and a unit price for each measure of the utility consumed.

#### **7.4.4 Managing Cash Flow**

Another issue that may need to be considered when designing a VBF system is the possibility of having to manage irregular cash flows. This is more likely to occur in bag or tag programs and is usually caused by residents purchasing bags or tags in large quantities and utilizing them over several months. It can also occur if the community uses retail outlets for selling the bags or tags. In this case the lapse in time from the actual date of the bag/tag purchases to when retailers transfer money back to the community may create cash flow problems. Once again, implementing subscription or modified VBF systems are ways to mitigate cash flows issues.

#### **7.4.5 Miscellaneous**

Another issue that may need to be addressed, but is usually regarded as minor and temporary, includes the "cleaning out the closet" syndrome just prior to program commencement. Residents may take advantage of unlimited disposal just prior to the start of a VBF program and dispose of large amounts of accumulated garbage in order to avoid the extra costs involved in the new system.

Similarly, excessive compaction of waste after program implementation may be another issue that needs to be addressed. Residents may sporadically be found over-stuffing bags to reduce

their costs by avoiding having to purchase an additional bag or tag. This may cause a problem for the garbage collector due to bag breakage or possible employee injury. In a subscription program a similar problem can occur when residents either attempt to over fill the container or try to pile excess materials along side the container in the hope that the collector will still take it rather than subscribe to the next higher level of service. Enforcement of weight and volume limits is the best way to address these potential problems.

## 7.5 Case History of User Fee Based Systems

The United States Environmental Protection Agency (USEPA) estimates there are over 5,200 communities nationwide using some form of a VBF program for funding their solid waste collection system. Most VBF programs appear to have been implemented coincident with the start of a curbside recycling program. However, a review of the readily available literature on VBF offers some common points regarding the transition from taxed-based funding to VBF regardless of whether a community has an established curbside recycling program. These include:

- ◆ Plan ahead – at least six months or longer in advance of program implementation.
- ◆ VBF is often used as a strategy to boost recycling and waste reduction and increase diversion from disposal.
- ◆ Educate, educate, educate – education and outreach strategies are critical to program success. Most programs use a wide variety of media to inform and educate, including news articles, press releases, ads, flyers, direct mailings, advisory groups and group presentations.
- ◆ Anticipate needing to devote considerable staff resources during the planning, initial implementation and transition (i.e., six to nine months after start-up) periods.
- ◆ Anticipate some level of resident confusion of the new system and how it works.
- ◆ The VBF system selected (i.e., bag, tag, hybrid, or different size carts) is driven mostly by a desire to fit local conditions and is influenced by such community-specific factors such as existing collection equipment, traditional containers used by residents, level of resistance to change, political factors, interest in automated collection, etc.
- ◆ VBF provides greater flexibility for keeping revenues aligned with system costs.
- ◆ Be sure to seek public input on system design and resident sensitivity to cost implications of a program change.
- ◆ Illegal dumping is typically not a major problem (although it is often perceived to be one before program implementation).
- ◆ Waste quantities are typically reduced and recycling quantities increased.

Table 7-9 summarizes the reported impact VBF's have had on garbage and recycling volumes in three selected communities from throughout the country. These community success stories are described in more detail in subsequent sections.

Table 7-9

Impact of VBFs on Garbage and Recycling Collection Quantities in  
Select Communities

<b>Community</b>	<b>Population</b>	<b>Reduction in Garbage Collected</b>	<b>Increase in Recycling</b>
Stonington, CT <sup>1</sup>	17,906	>20%	Nearly 30%
Gainesville, FL <sup>2</sup>	95,447	18%	25%
Dubuque, IA <sup>3</sup>	57,686	23%	28%
Average		22%	30%

Sources:

<sup>1</sup>*World Wastes*, May 1996.

<sup>2</sup>*BioCycle*, December 1998; USEPA document No. EPA530-F-97-007c.

<sup>3</sup>Data provided by the city of Dubuque.

### 7.5.1 Stonington, Connecticut

The readily available literature lacks much specific information pertaining to communities that have switched to a VBF system after having implemented a curbside recycling system. However, there is some very limited information available for the community of Stonington, Connecticut. Stonington is a small New England community with a population of 17,906. Stonington's driver for adopting a VBF system was a projected revenue shortfall of nearly \$1 million as a result of a put-or-pay contract with a regionally sponsored waste-to-energy facility. The Town Board was reluctant to convert to a VBF system but the alternative, raising taxes, was not politically acceptable. Even after the program was adopted, the community considered a referendum to repeal the VBF system. However, it failed by a margin of two-to-one. The Town has reportedly reduced the amount of garbage generated by about 20 percent, while recycling has reportedly increased by nearly 30 percent.

### 7.5.2 Gainesville, Florida

There is some limited information available on Gainesville, Florida's experience converting to a VBF system in 1994. Gainesville is a suburban community in northern Florida. Prior to the adoption of a VBF system, Gainesville residents did not pay directly for solid waste services. The City's curbside recycling program began in 1989 and the materials collected in the program were expanded at the same time the VBF system was implemented. Under the new program residents were given the option to subscribe to one of three volume-levels of service (35, 64, or 96 gallons).

Gainesville reported that after the first year, garbage volumes decreased by 18 percent while recycling volumes increased by 25 percent. This data is consistent with the averages reported by the USEPA. Gainesville noted that one additional benefit of the new system was more equitably distributed costs to users of the services. They also noted that advanced planning was a critical component to the program's success. Finally, the City reported that the new VBF program reduced garbage tonnage by about 4,000 tons in the first year. This translated into savings of \$200,000 in landfill tipping fees, or the equivalent of approximately \$8 per household per year.

### **7.5.3 Dubuque, Iowa**

#### **7.5.3 Dubuque, Iowa**

The city of Dubuque, Iowa, is one good example of a community that has successfully converted to a VBF system long after it has established a comprehensive curbside recycling program. In fact, Dubuque's conversion to a VBF system began in the fall of 2002 after over a year of careful and detailed planning and promoting by the City. Dubuque's experience provides an excellent opportunity to examine the issues and opportunities that present themselves to a community that is considering converting to a VBF system.

Dubuque identified a number of objectives as part of its initiative to convert to a VBF system. Some key objectives included:

- ◆ Implementing a more equitable fee structure
- ◆ Reducing garbage tonnage by 15 percent
- ◆ Increasing curbside recycling tonnage by 25 percent
- ◆ Reducing crew injuries from heavy containers
- ◆ Getting community buy-in on waste minimization

The City also recognized they had a number of existing advantages that would help them make the transition to a VBF system, including:

- ◆ Established municipally-operated refuse, recycling and yard waste collection systems.
- ◆ Established residential services from single family homes up to multi-unit buildings with up to six units.
- ◆ Established curbside and drop-off recycling programs
- ◆ Established large item collection program
- ◆ Established small load drop-off facility at the local regional landfill
- ◆ Established system for accommodating the needs of senior citizens, persons with disabilities and customers with financial hardships
- ◆ Established billing, enterprise fund and full-cost accounting systems
- ◆ Established distribution and vendor system for yard waste program stickers
- ◆ Program similar to existing VBF system in the yard waste program
- ◆ Established public education mechanisms
- ◆ Strong support from advisory commission and solid waste staff
- ◆ Broad community consultation
- ◆ Knowledge that over 5,200 communities nationwide have adopted a VBF system

Dubuque also identified some potential and perceived barriers to implementing a VBF system, including:

- ◆ The challenge of adequately educating the public on the new program and its impacts
- ◆ Addressing the concerns regarding potential increases in illegal dumping
- ◆ How to enforce a VBF system in larger multiplexes (greater than 4 units)
- ◆ Negative customer reaction to a VBF system and lower container weight limits (especially from larger families)
- ◆ Customers' natural resistance to change
- ◆ Potential increases in crew time; customer service phone calls; start-up, marketing, administrative, billing and recycling processing costs
- ◆ Sufficient lead time prior to scheduled implementation
- ◆ Financial risk if over estimate revenues from VBF system
- ◆ Possible need to reroute equipment and manpower to accommodate shifts in garbage and recycling volumes

After reviewing its objectives, advantages and potential barriers, the City developed a hybrid VBF system whereby residents are provided a base service of one refuse can or bag per week for a base monthly fee and additional stickers, decals or cart subscriptions for larger volumes of service. Since the City's VBF system was first implemented, the program was evolved and prices have changed. Today, City has a very comprehensive VBF program called "Pay As You Throw" (PAYT) with a lot of options and customer flexibility. The services are provided to approximately a total of 22,500 households in the City (single family through six-plex).

- ◆ The "base fee" is defined as one container up to 35 gallons and contents up to 40 pounds. The current base monthly fee is \$11.09 that covers the cost of weekly collection of one, 35-gallon, rigid trash container or one, 35-gallon trash bag. At this base level, residents provide their own trash containers. Cost of weekly (same day as refuse) collection of all recycling bins/bags are included in this base fee. Most City customers subscribe to this level of service (approximately 18,600 households).
- ◆ The next level of additional refuse collection service requires residents to purchase green garbage stickers priced currently at \$1.30 each. This level has the same maximum size (35-gallons) and weight (40 pounds) restrictions. These green stickers are for residents that have occasional excess refuse above the base level. City staff have estimated that the average family may purchase about 5 of these green garbage stickers per year. (About 74,000 green stickers are sold each year.)
- ◆ The next level is the option to subscribe to a second, 35-gallon container with a City-provided green decal purchased through the City's Utility Billing Department. The cost of this additional service is \$5.60 per month per green decal. (About 800 customers subscribe to this level of service.)
- ◆ An additional level is for residents to upgrade the size of their own rigid solid waste container up to a maximum of 50-gallons that must be marked with a blue decal. The

cost of this larger size container is \$13.39 per month. Residents still provided their own refuse container at this level. Also, refuse must still be in bags as the collection crews manually remove and unload the refuse containers. No loose trash is allowed. (About 630 households subscribe to this level of service.)

- ◆ Finally, a “super size” level of service is available whereby residents can subscribe to City-owned wheeled carts. This level has two cart size options:
  - ▶ 64-gallon which may contain up to 224 pounds of refuse for \$21.00 per month. (About 245 households subscribe to this level of service.)
  - ▶ 96-gallon which may contain up to 335 pounds of refuse for \$30.00 per month. (About 245 households subscribe to this level of service.)

This level of service allows much heavier amounts of refuse because the carts are mechanically tipped into the refuse truck. It is important to note that this City-owned cart option has been very popular for use at rental properties such as apartment complexes. The carts are often the most cost-effective service level and they help improve the aesthetics and sanitation of the neighborhood.

- ◆ An additional level of service has recently been added to specific, targeted neighborhoods. This is a 48-gallon, City-owned wheeled cart. It is only available to eligible neighborhoods, and at the same cost of the base level service, \$11.09 per month. This is a mandated, discounted service level for targeted, low-income neighborhoods to help improve aesthetics and sanitation using this standardized service level. (About 720 households in two targeted neighborhoods will soon be subscribed to this service.)
- ◆ Residents who qualify can receive a 50 percent discount on the monthly fee. This includes persons over 65 years of age. Also, customers with a family of five or more persons who meet Section VIII Housing Guidelines may qualify for the discount. (About 100 customers qualify for this discount.)
- ◆ A customer may be eligible for a refuse credit if their property is vacant for a minimum of 2 months. A refuse credit form must be completed and submitted prior to or at the onset of the vacancy.
- ◆ Large item pickups cost a minimum fee of \$8 which allows residents to set out large items or an excessive volume of miscellaneous refuse. The volume of the large item or excess must be approximately 10-12 bags (the equivalent of one trash truck hopper full). Additional volume is charged in \$8 increments. At this rate, collections must be done on the resident’s regularly scheduled collection day. If residents request a large item collection on an off-route day, the City charges an addition \$10.
- ◆ Appliance disposal cost is \$12.50 per appliance. (But residents are encouraged to recycle these items themselves as an alternative to City collection.)
- ◆ Car tires cost \$2.50 off-rim and \$6 on-rim. Pickup tires cost \$5 each and light truck tires cost \$6 each.

- ◆ In situations where the landlord normally pays the utilities, tenants may pre-pay at the Utility Billing window for special collections.

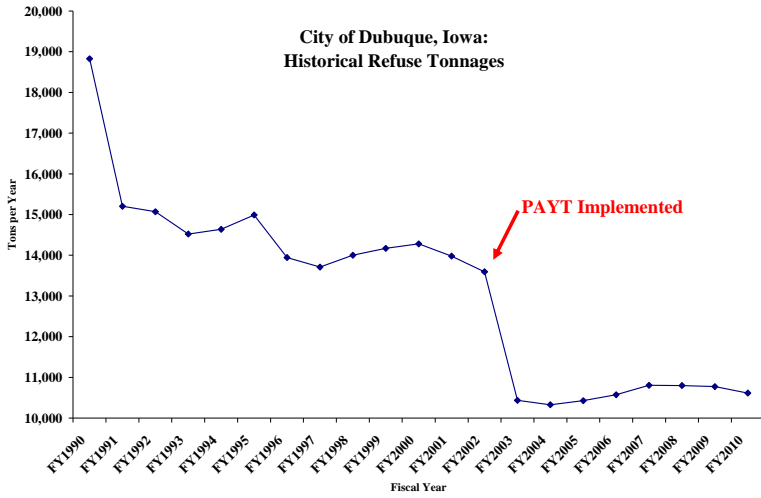
As noted earlier, the city of Dubuque spent a considerable amount of time in advance of program implementation preparing the community for this change. In fact, the City's educational efforts started in June of 2001 with a public notice on the issue. Throughout 2001 and 2002 the local newspapers ran front page articles on the subject and in August and September of 2002 the City embarked upon a \$19,000 multi-media campaign.

The City's educational and marketing campaign included a variety of tools and media, including:

- ◆ Distributing over 75,000 flyers, brochures, guides, reminders, warning tags, etc.
- ◆ Running ads in local papers, getting stories written on the issue and obtaining editorial support for the program.
- ◆ Running three billboard/truckboard advertising campaigns.
- ◆ Producing a VBF system video for the local government cable channel and running a crawler notice on the Weather Channel.
- ◆ Running extensive radio ads and conducting multiple radio interviews and call-in shows.
- ◆ Use of local websites.
- ◆ Speaking to local groups

The results of this effort were broad acceptance and success of the new program. The City was able to measure this in a number of ways. Average costs of refuse collection service were reduced by about \$1 per household per month. Garbage collected declined by 23 percent the year immediately after PAYT was implemented, exceeding the initial goal of a 15 percent decrease (see Figure 7-1). This decline was in part due to additional scrutiny and resident self-monitoring of illegal dumping (i.e., "midnight dumpers") of non City residents, etc. The new PAYT system helped set specified maximum service levels with extra charges enforced by the City. Therefore, illegal dumping into trash cans or carts now had financial consequences for residents so they would report it. Before PAYT, there were no enforced maximum amounts of trash so residents had little incentive to report illegal dumping.

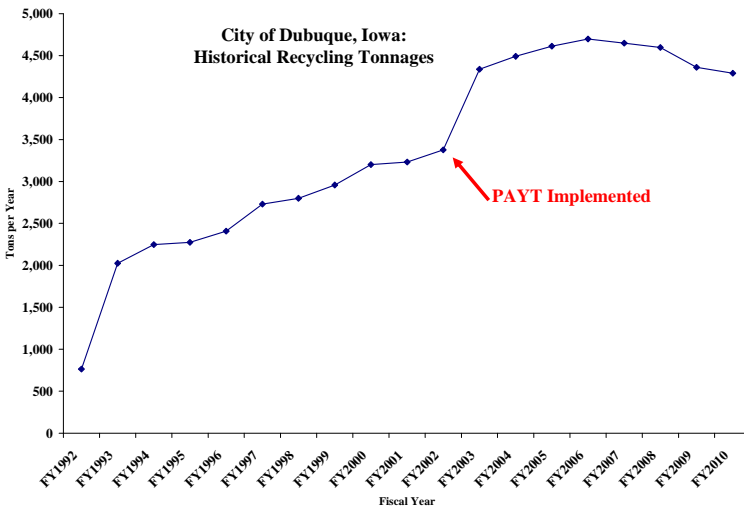
**Figure 7-1**  
**Dubuque Historical Refuse Tonnages**



Source: City of Dubuque, Department of Public Works

Recycling increased by about 28 percent the year immediately after PAYT was implemented, exceeding the initial goal of a 25 percent increase (see Figure 7-2).

**Figure 7-2**  
**Dubuque Historical Recycling Tonnages**



Other measures of the success of the PAYT program include:

- ◆ The City reports 98 percent compliance with the program.
- ◆ Eighty percent of customers reduced their garbage collection fees.
- ◆ Customer satisfaction with the program has been measured at 84 percent.
- ◆ Solid waste crew injuries and sick leave were reduced by 50 percent.
- ◆ There have been no reported increases in illegal dumping within the City or the surrounding County.
- ◆ There have been only moderate rate increases in the PAYT price schedule for the various refuse collection service levels since the program began. The City reports that it now has the lowest collection prices in the State of Iowa.
- ◆ The City reports that it is currently capturing about 66 percent of all targeted, residential recyclable items.

## 8 Governance

### 8.1 Descriptions and Historical Perspective

Historically solid waste and recycling collection has been a municipal (city, village, and town) function while processing and disposal has been a county or regional government led function. This is the case locally in the La Crosse area, in the State of Wisconsin, and across the U.S.

With the increased focus on improving efficiency in government and the potential for economies of scale, there is more interest in coordinating solid waste and recycling collection services for multiple local government entities. Section 4 provided descriptions of other communities that are working together to coordinate solid waste and recycling collection. This section documents the statutory authority applicable to the La Crosse area, reviews some of the organizational approaches being used and potentially available, and provides potential pros and cons.

### 8.2 Statutory Authority

The authority for La Crosse County and the municipalities to provide and fund solid waste services is provided in Wisconsin State Statutes.

#### **8.2.1 Municipal Authority**

Chapter 66 – General Municipality Law establishes much of the authority for city, village, and town involvement. Section 66.0405 – Removal of rubbish provides that cities, villages, and towns may collect garbage from different classes of properties. The cost of removal may be charged against each property served by means of special assessment or property tax. The city, village or town can contract for the service with one or more service providers.

Section 66.0627 addresses “Special charges for current services...” The city, village or town can charge for providing various services to residents, one service of which is garbage and refuse disposal and recycling. The Section provides that the city, village or town may impose a special charge against the property for the current services. The governing body may determine the manner of providing notice of the special charge.

These sections provide broad authority for cities, villages and towns to provide garbage and recycling services for properties and to collect the revenues required to fund the services.

Chapter 66 Subchapter III – Intergovernmental Cooperation provides some key authority to enable counties, cities, villages, and towns to work together to coordinate delivery of services that each is authorized to provide independently. This section provides authority for local municipalities to join an intergovernmental agreement. The focus is to favor cooperative action between municipalities in the state. There are numerous examples of these agreements in place and the term 66.30 agreement is commonly recognized. The authority provides a significant mechanism for La Crosse County and the various municipalities to develop a contract or multiple contracts to arrange for and coordinate different solid waste management services.

### **8.2.2 County Authority**

Section 289.10 – County solid waste management plans authorizes the County to prepare and adopt their Solid Waste Management Plan. Section 59.70(2) provides the authorization for counties to establish a solid waste management board as well as provides the broad authority for the county for solid waste. La Crosse County has not established the solid waste board structure exactly as laid out in Section 59.70(2) and County Corporation Counsel is not certain whether Subsection 59.70 (2)(o) for creation of service districts to provide different types of solid waste collection service is fully authorized. Nevertheless, there is broad authorization for providing all types of solid waste management services.

### **8.2.3 Designation of Responsible Units**

Section 287.09 – Municipal and county duties and powers provides the authorization to create responsible units for the purpose of recycling services. La Crosse County is not the responsible unit as every city, village, and town originally opted to be the responsible unit when the Wisconsin recycling law first went into effect in 1991. This status has not changed in nearly 20 years. Nevertheless, there appear to be at least two methods for the County to become a responsible unit if local officials would choose to do so. Subsection 287.09(1)(b) provides that the county board of supervisors may adopt a resolution designating the county as a responsible unit. Any municipality that desires to remain as a responsible unit may adopt a resolution within 90 days to retain responsible unit status for their municipality. In addition, the governing body of a responsible unit may by contract under Section 66.0301, designate another unit of government as the responsible unit. The contract would cover all the functions including provisions for financing and enforcing the recycling or other solid waste management programs. Thus, it would be possible for various municipalities in La Crosse County to contract with the County to administer the responsibilities of responsible units, perhaps in a more efficient manner if it is possible to gain some economies of scale.

## **8.3 Optional Organizational Approaches**

This subsection focuses on four organizational options for overall solid waste management planning and collection services implementation:

- ◆ Continue “as is” without any organizational change (i.e., each municipality contracts individually with a hauler)
- ◆ Cities join together pursuant to Wisconsin Statutes Chapter 66.30
- ◆ Cities and County join together pursuant to Ch. 66.30
- ◆ County forms a Solid Waste Management Board (SWMB) pursuant to Wisconsin Statutes Chapter 59.70(2) and establishes solid waste service districts

This subsection also identifies four organizational options for managing recyclables collection services:

- ◆ Continue “as is” without any organizational change (i.e., each municipality contracts individually with a hauler and remains their own recycling RU)
- ◆ Cities join together pursuant to Wisconsin Statutes Chapter 66.30 for recyclables collection and the new joint-powers entity becomes the recycling RU
- ◆ Cities invite the County to join together pursuant to Ch. 66.30 and the County becomes the recycling RU for the cities
- ◆ The County develops a plan to become the recycling RU for all of its municipalities with each municipality having the freedom to “opt out” of the County system and remain their own, individual recycling RU

It should be noted that there could be various combinations of the solid waste and recycling options. The options are not all mutually exclusive. On the contrary, the recycling RU options can be included with each of the respective solid waste related options. Also, while this evaluation is focused on the needs of the two Cities of La Crosse and Onalaska, these options are relevant to all municipalities in the County.

Individual municipalities (cities, villages, towns, and counties) in Wisconsin, as a general rule, retain the primary authority to select their own solid waste/recyclables collection systems. This power of the municipalities to decide their own collection structures is a basis for this discussion on governance options.

These options are framed around the legal authority and provisions in State statutes. If municipalities decide to change the solid waste and/or recycling organizational structure(s), there are multiple legal/administrative pathways that ultimately may lead to the same general outcome – a multi-governmental system that combines the resources of two or more local units of government. The remainder of this section, therefore, concentrates on comparing the pros and cons of the outcomes, not the legal means, of such a change. The outcomes are:

- ◆ Continue as is
- ◆ Multi-government system combining solid waste collection, recycling collection, and RU status
- ◆ Multi-government system combining only recycling collection and RU status

### **8.3.1 Continue “As Is” Without Any Organizational Change**

This scenario is based on the current systems of governance without any significant change. Currently each municipality contracts individually with its own hauler for solid waste/recyclables collection services. Each municipality is its own recycling RU and reports directly to Wisconsin DNR and receives the State recycling grants directly. The two Cities of La

Crosse and Onalaska cooperate on joint public education efforts on a project-by-project basis and La Crosse County provides landfilling and overall planning services.

Table 8-1 below outlines the pros and cons of retaining these existing governance structures. In general terms, local units of government may resist efforts towards greater regionalization of services. This is because cities, townships or villages (and their residents) may have a greater sense of control when they implement these programs themselves.

On the other hand, maintaining the status quo, without examination of the benefits of multi-governmental options, may mean that opportunities for additional cost savings are missed. Plus, regional planning and coordination, while not impossible, is more difficult because of the need to rely solely on good faith commitments of cooperative arrangements (e.g., recycling standards, solid waste supply security, etc.).

Table 8-1  
Pros and Cons for Continuing "As Is"  
Without Any Change in Governance Structures

Pros	Cons
<ul style="list-style-type: none"> <li>◆ System has "worked" in the past. Some could say it's not broken, so doesn't need to be fixed.</li> <li>◆ Municipalities have a sense of greater control over the system changes.</li> <li>◆ Residents may have greater trust with existing governance structures compared to any new multi-government structure.</li> <li>◆ State recycling grants go directly to each municipality so there is a sense of more control of how the grant funds are best spent.</li> </ul>	<ul style="list-style-type: none"> <li>◆ There is duplication of effort by many municipalities.</li> <li>◆ System changes that may be considered for implementation by individual municipalities may miss opportunities for greater cost savings and financing options that may be available to multi-governmental structures.</li> <li>◆ Costs of operation and capital improvements are borne individually and can not as easily be spread among other governmental entities.</li> <li>◆ Regional standards for recyclables/solid waste collection services are more difficult to implement.</li> <li>◆ Waste supply security is less likely with the current system "as is" because of lack of standardized hauling contracts and provisions for designating the location for solid waste disposal.</li> </ul>

### 8.3.2 A Multi-Governmental System for Managing Both Solid Waste and Recyclables Collection

This approach envisions a future governance structure whereby at least two municipalities join together to plan and manage a coordinated solid waste/recyclables collection contract. The following assumptions could be used to help frame this scenario:

- ◆ A single multi-governmental entity would be created to provide the legal and administrative structure to contract with one hauler for solid waste/recyclables collection.
- ◆ The details of the new entity’s administrative structure and financing would be defined through additional planning and organizing work.
- ◆ Objectives for forming this new entity may include the following
  - ▶ Take the costs of solid waste/recyclables collection off of the general tax levies of the Cities of La Crosse and Onalaska.
  - ▶ Reduce the burden and costs of solid waste administration for the member municipalities and the County.
  - ▶ Move ahead with selected improvements in customer service and sustainability
  - ▶ Increase cost-effectiveness of the solid waste/recyclables collection system
  - ▶ Improve planning and coordination of the yard waste collection and composting system.

Table 8-2 identifies the pros and cons of this new, multi-government entity. The analysis is based on the assumptions listed above as a means of comparing this new multi-government system to the current systems as they exist today. In general, such a new multi-government system could provide for additional efficiencies due in part to economies of scale and the additional resources from a collective rather than individual management approach. If coupled with a change in financing structure, the new multi-government system could help move the costs of solid waste/recyclables collection services off the general tax levy. For example, if the package of changes included moving to a utility billing or direct hauler billing method, the cost of solid waste/recycling would be moved to this type of service fee approach. Also, system improvements in customer service and/or sustainability such as automated collection and expanded recycling may be more easily implemented.

Table 8-2  
Pros and Cons for Multi-Government System for  
Both Solid Waste and Recyclables Collection

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Potential for savings to residents if solid waste/recyclables rates can be reduced</li> <li>◆ Potential for savings to municipalities if administration/overhead can be</li> </ul>	<ul style="list-style-type: none"> <li>◆ One time costs of additional planning, organizing and initial restructuring</li> <li>◆ May potentially reduce accountability away from</li> </ul>

<p>reduced</p> <ul style="list-style-type: none"> <li>◆ Can help with (but is not required for) moving solid waste/recyclables collection costs off the general tax levies</li> <li>◆ May provide opportunities to complement other system changes (e.g., automated collection, single stream, PAYT, etc.)</li> <li>◆ Public education can be more cost-effective because of regional consistency</li> <li>◆ Mass media can be utilized more for communicating details</li> <li>◆ Overall regional system planning and coordination of integrated solid waste system will be enhanced</li> <li>◆ May lead to consideration of regionalizing other public services</li> </ul>	<p>individual municipalities</p> <ul style="list-style-type: none"> <li>◆ Must carefully manage the contracting process to maintain hauler competition (maintain multiple haulers)</li> </ul>
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**8.3.3 A Multi-Governmental System for Managing Coordinated Recyclables Collection**

This approach envisions a future governance structure whereby at least two municipalities join together to plan and manage a coordinated contract for recyclables collection only (and not solid waste). This could be implemented by cities joining together in a 66.30 agreement, cities and the county joining together, or the county becoming the RU and providing coordination.

The same assumptions as outlined in subsection 8.3.1 above can be used here. The one exception may be that the options for financing recyclables collection only may have less flexibility. For example, in many communities, the costs of recycling services are “included” in the solid waste fees. Therefore, without the solid waste collection system and billing structure, hauler billing for recyclables only may be problematic.

Table 8-3 identifies the pros and cons of this new, multi-government entity for purposes of recyclables collection only.

Table 8-3  
Pros and Cons for Multi-Government System for  
Recyclables Collection Only

Pros	Cons
<ul style="list-style-type: none"> <li>◆ Potential for savings to residents if recyclables rates can be reduced</li> <li>◆ Potential for savings to</li> </ul>	<ul style="list-style-type: none"> <li>◆ One time costs of additional planning, organizing and initial restructuring</li> </ul>

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municipalities if administration/overhead can be reduced

- ◆ May provide opportunities to complement other system changes (e.g., automated collection, single stream)
- ◆ Marketing/advertising costs may be reduced due to economies of scale
- ◆ Public education can be more cost-effective because of regional consistency
- ◆ Mass media can be utilized more for communicating details
- ◆ May lead to consideration of regionalizing other public services (e.g., solid waste collection)

- ◆ May include splitting up into separate contracts for “solid waste” vs. “recycling” while these services are currently bundled into one contract
- ◆ Miss out on broader positive outcomes related to solid wastes

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This analysis does not recommend which legal path (e.g., Ch. 66.30; Ch. 59.70(2); or Ch. 287.09) is best. Nonetheless, there is some merit in considering larger scale organizational changes (e.g., including both solid waste and recyclables collection system improvements) rather than incremental changes (e.g., improvements to recyclables collection only). The more comprehensive the system change, the more likely there may be significant cost savings.

While this analysis does not recommend the legal path, it should be recognized that if changes are desired due to various potential positive outcomes, local elected officials, along with their staff, will need to identify, direct, and carry out the action required.

## Appendix

### Appendix 1: City of Beloit Municipal Code: Excerpt Relevant to Solid Waste Charges

#### **Chapter 17 REGULATION OF SOLID WASTE\***

(\*Editor's note: Section 36 of Ord. No. 3221, adopted Dec. 5, 20005, amended the title of Ch. 17 to read as herein set out.)

#### **17.06 SOLID WASTE MANAGEMENT, INCLUDING RECYCLING**

(1) **PURPOSE.** The purpose of this section is to promote the management, recycling and composting of solid waste in accordance with §287.11, Wis. Stats., and Chapter NR 544, Wis. Adm. Code.

(24) **CHARGE FOR CURBSIDE COLLECTION OF SOLID WASTE.**  
(Cr. #2704; Am. #2760)

(a) **Definitions .** In this subsection "dwelling unit" has the meaning set forth in §7.21(2) of this Municipal Code.

(b) **Persons and Property Subject to Solid Waste Collection Charge .** (Am. #2728; #2961; #3156) The owner of every dwelling unit and the owner of every nonresidential tax parcel receiving curbside solid waste collection services from the City of Beloit, its employees, agents or contractors, shall be required to pay the solid waste fee established by this subsection. The curbside solid waste collection fee shall be paid by owners of tax-exempt properties as well as owners of taxable properties. If the sewer bill is in an occupant's name, the bill for solid waste collection services shall also be put in the occupant's name. However, the owner of the property shall be responsible for payment of the bill for each dwelling unit for solid waste collection services if the occupant fails to pay the same. The solid waste collection fee does not include the high volume fee or the fee for collection of bulky materials, white goods and yard waste.

(c) **Monthly Fee .** (Am. #2728; #3024; #3148; #3213) The fee for curbside solid waste collection services shall be set by City Council resolution. The monthly solid waste collection fee shall be reduced by 50 percent if the public works director determines, pursuant to subsection (14)(a) of this section, that it is necessary to withhold a portion of the solid waste collection services from a dwelling unit or nonresidential tax parcel receiving curbside solid waste collection services from the City.

(d) **[Billing .]** (Am. #2728; #3024; Rep. & recr. #3117) The City Treasurer shall bill each tax parcel receiving City curbside solid waste services on a monthly basis. The bill for

such services shall be included with the City's monthly bill for City sewer and/or water utility services.

(e) Exemption . The solid waste collection fee shall be waived for any dwelling unit that is unoccupied throughout the calendar year for which services are billed if:

1. The owner of the tax parcel properly executes an affidavit on a form prescribed by the City Treasurer and files the same with the City Treasurer on or before January 20 of the year for which services are billed; and
2. The owner's affidavit states that the dwelling unit in question has not been and will not be occupied at any time during the calendar year for which services are billed. Any person who makes a false affidavit regarding the occupancy of a dwelling unit shall be subject to a forfeiture of not less than \$500 nor more than \$1,000 for each misrepresentation regarding the occupancy of a dwelling unit. Any owner of a dwelling unit who fails to report that a dwelling unit has been occupied during the calendar year for which an affidavit was filed with the City Treasurer shall be subject to a forfeiture of not less than \$500 nor more than \$1,000 for each unreported dwelling unit.

(25) CHARGE FOR DISPOSAL OF TIRES. (Cr. #2704; Am. #2961) Any person who brings a tire to the City's recycling center shall pay the fee established by City Council resolution for disposal of each tire.

(26) DISPOSAL OF YARD WASTE BY NONRESIDENTS AND LAWN CARE BUSINESSES. (Cr. #2814; Am. #3024) No person who is engaged in the business of providing lawn care service or who is not a resident of the City of Beloit may dispose of yard waste at the City's drop off center.

(27) SPECIAL REVENUE FUND. (Cr. #3024) There is hereby established in the financial books of the City of Beloit a special revenue fund to receive all revenues generated by fees, grants and sales under §17.06. The special revenue fund shall be used solely for the purpose of paying expenses incurred by the City for solid waste management, including recycling.

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**Note:** Many other provisions from the City's municipal code are not included. Selected other subsections (under Chapter 17 – Regulation of Solid Waste and subsection 17.06 Solid Waste Management, Including Recycling) that are not included into this excerpt are:

(5) MANDATORY SEPARATION AND COLLECTION OF RECYCLABLES.

(6) NOTIFICATION REQUIRED.

(7) SOLID WASTE STORAGE CONTAINERS

(8) CONTAINERS FOR RECYCLABLES.

(9) PREPARATION OF RECYCLABLES FOR CURBSIDE COLLECTION AND DROP-OFF.

(10) RESERVED.

- (11) LOCAL GOVERNMENT PURCHASE OF RECYCLED CONTENT MATERIALS.
- (12) COMPOSTING.
- (13) PROHIBITED PRACTICES.
- (14) COLLECTION OF SOLID WASTE.
- (15) TRANSPORTATION OF SOLID WASTE.
- (16) DISPOSAL OF SOLID WASTE.
- (17) HAULER SPECIFICATIONS FOR RECYCLABLE MATERIALS.
- (18) HAULER REPORTING REQUIREMENTS.
- (19) HAULERS PERMITS.
- (20) RULES AND REGULATIONS.
- (21) COLLECTION AND OWNERSHIP OF RECYCLABLE MATERIALS.
- (22) RESERVED. (Repealed #3024)
- (23) ENFORCEMENT.

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(Source: City of Beloit Municipal Code of Ordinances, Chapter 17 – “Regulation of Solid Waste”, Section 17.06 – “Solid Waste Management, Including Recycling” as downloaded from the City’s web page:

[http://library6.municode.com:80/default-now/template.htm?view=browse&doc\\_action=setdoc&doc\\_keytype=tocid&doc\\_key=e4542be504011556e1895962e9dcbe8f&infobase=12549](http://library6.municode.com:80/default-now/template.htm?view=browse&doc_action=setdoc&doc_keytype=tocid&doc_key=e4542be504011556e1895962e9dcbe8f&infobase=12549))

Appendix 2: WARM Appendix

Table 1  
La Crosse Annual Tonnage Data

<b>Material</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009 Average</b>	
Xcel	13,565	13,411	12,846	12,473	13,074
Recycling (curbside)	1,216	1,288	1,126	1,103	1,183
Yard Waste	1,697	1,696	1,548	1,400	1,585
Bulky Waste	<u>1,189</u>	<u>1,130</u>	<u>855</u>	<u>811</u>	<u>996</u>
Total Tons	17,667	17,525	16,375	15,787	16,925
Appliances (items)	1,082	643			863
Appliances Converted to tons (density 200 lbs/item)	108.2	64.3			86.25

Table 2  
Onalaska Annual Tonnage Data

<b>Material</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009 Average</b>	
Fiber	145	184	202		177
Glass	232	230	245		236
Tin	39	40	44		41
Aluminum	12	12	10		11
Plastic	<u>15</u>	<u>28</u>	<u>37</u>		27
Recycling Subtotal	443	494	538	527	501
Appliances (tons and items)	25	21	12	84 items	
Appliances Converted to tons (density 200 lbs/item)	25	21	12	8	17
Yard Waste	1,174	1,159	1,166	1,466	1,241
Xcel	6,251	6,178	5,798	5,592	5,955
County (landfilled)	165	165	159	129	155
Total Tons	8,083	8,038	7,685	7,714	7,868

The numbers of appliances provided by both of the cities were converted to tonnages so these tonnages could be included in the annual total tonnage. To convert the number of appliances to tons, Foth used an estimated average weight of 200 pounds per item.

Table 3  
Waste Composition

<b>Composition Study Material Category</b>	<b>% of Total Residential MSW Generated</b>
Newspaper	8.29%
Corrugated Cardboard	2.87%
Magazines	1.23%
High Grade Office Paper	1.77%
Mixed Waste Paper	15.55%
Aluminum Beverage Cans	0.99%
Steel Cans	1.61%
PET Soft Drink	0.77%
HDPE Milk and Water	0.35%
Other Plastic Containers	1.88%
Other Plastic Packaging	4.97%
Plastic Nondurable Goods	2.42%
Beer and Soft Drink Bottles	3.16%
Wine and Liquor Bottles	0.92%
Food and Other Bottles and Jars	1.78%
Yard Trimmings	10.09%
Food Waste	15.50%
Disposable Diapers	2.07%
Vehicle Batteries	0.08%
Tires	0.23%
Textiles, Rubber, and Leather Nondurables	3.94%
Major Appliances	0.56%
Furniture and Furnishings	5.49%
Carpets and Rugs	1.82%
Miscellaneous Durables	9.88%
Wood Pallets	0.00%
Miscellaneous Packaging	0.47%
Miscellaneous Inorganic Waste	<u>1.30%</u>
<b>Total</b>	<b>100.00%</b>

Table 4  
WARM Waste Category Details

WARM Waste Category	Waste Composition Categories
Aluminum Cans	♦ Aluminum beverage cans
Steel Cans	♦ Steel cans
Copper Wire	♦ Not used
Glass	♦ Beer and soft drink bottles, wine and liquor bottles, food and other bottles and jars
HDPE	♦ HDPE milk and water
LDPE	♦ Not used
PET	♦ PET soft drink
Corrugated Cardboard	♦ Corrugated cardboard
Magazines/Third-class Mail	♦ Magazines
Newspaper	♦ Newspaper
Office Paper	♦ High grade office paper
Phonebooks	♦ Not used
Textbooks	♦ Not used
Dimensional Lumber	♦ Not used
Medium-density Fiberboard	♦ Not used
Food Scraps	♦ Food waste
Yard Trimmings	♦ Yard trimmings
Grass	♦ Not used
Leaves	♦ Not used
Branches	♦ Not used
Mixed Paper (general)	♦ Not used
Mixed Paper (primarily residential)	♦ Mixed waste paper
Mixed Paper (primarily from offices)	♦ Not used
Mixed Metals	♦ Major appliances
Mixed Plastics	♦ Other plastic containers, other plastic packaging, plastic nondurable goods
Mixed Recyclables	♦ Tires
Mixed Organics	♦ Disposable diapers, wood pallets
Mixed MSW	♦ Miscellaneous inorganic waste, miscellaneous packaging, miscellaneous durables, furniture and furnishings, vehicle batteries

Carpet	♦ Textiles, rubber, and leather nondurables, carpets and rugs
Personal Computers	♦ Not used
Clay Bricks	♦ Not used
Concrete	♦ Not used
Fly Ash	♦ Not used
Tires	♦ Not used

Some data was placed in a specific WARM category to allow for a specific management method.

Table 5  
WARM Management Options

<b>WARM Material Category</b>	<b>Possible Management Methods</b>
Aluminum Cans	♦ Everything but Composting
Steel Cans	♦ Everything but Composting
Copper Wire	♦ Everything but Composting
Glass	♦ Everything but Composting
HDPE	♦ Everything but Composting
LDPE	♦ Everything but Composting
PET	♦ Everything but Composting
Corrugated Cardboard	♦ Everything but Composting
Magazines/Third-class Mail	♦ Everything but Composting
Newspaper	♦ Everything but Composting
Office Paper	♦ Everything but Composting
Phonebooks	♦ Everything but Composting
Textbooks	♦ Everything but Composting
Dimensional Lumber	♦ Everything but Composting
Medium-density Fiberboard	♦ Everything but Composting
Food Scraps	♦ Only Composted, Combusted, Landfilled
Yard Trimmings	♦ Only Composted, Combusted, Landfilled
Grass	♦ Only Composted, Combusted, Landfilled
Leaves	♦ Only Composted, Combusted, Landfilled
Branches	♦ Only Composted, Combusted, Landfilled
Mixed Paper (general)	♦ Only Recycled, Combusted, Landfilled
Mixed Paper (primarily residential)	♦ Only Recycled, Combusted, Landfilled
Mixed Paper (primarily from	♦ Only Recycled, Combusted, Landfilled

offices)	
Mixed Metals	◆ Only Recycled, Combusted, Landfilled
Mixed Plastics	◆ Only Recycled, Combusted, Landfilled
Mixed Recyclables	◆ Only Recycled, Combusted, Landfilled
Mixed Organics	◆ Only Composted, Combusted, Landfilled
Mixed MSW	◆ Only Combusted, Landfilled
Carpet	◆ Everything but Composting
Personal Computers	◆ Everything but Composting
Clay Bricks	◆ Only Source Reduced, Landfilled
Concrete	◆ Only Recycled, Landfilled
Fly Ash	◆ Only Recycled, Landfilled
Tires	◆ Only Recycled, Combusted, Landfilled

Not all of the management options are available for all the material types. There is an additional management option available in WARM for the alternative scenario, source reduction. This management method can be utilized to model source reduction of a material or to model an increase in tonnage. This management method was not used in this analysis.

Table 6  
WARM Waste Management Strategies for Waste Materials

WARM Waste Category	Waste Management Strategy - Baseline	Waste Management Strategy - Alternative
Aluminum Cans	Recycled, Combusted, Landfilled	Recycled, Combusted, Landfilled
Steel Cans	Recycled, Combusted, Landfilled	Recycled, Combusted, Landfilled
Copper Wire	Not used	Not used
Glass	Recycled, Combusted, Landfilled	Recycled, Combusted, Landfilled
HDPE	Recycled, Combusted, Landfilled	Recycled, Combusted, Landfilled
LDPE	Not used	Not used
PET	Recycled, Combusted, Landfilled	Recycled, Combusted, Landfilled
Corrugated Cardboard	Combusted and Landfilled	<b>Recycled</b> , Combusted, Landfilled
Magazines/Third-class Mail	Combusted and Landfilled	<b>Recycled</b> , Combusted, Landfilled

Newspaper	Recycled, Combusted, Landfilled	Recycled, Combusted, Landfilled
Office Paper	Combusted and Landfilled	<b>Recycled</b> , Combusted, Landfilled
Phonebooks	Not used	Not used
Textbooks	Not used	Not used
Dimensional Lumber	Not used	Not used
Medium-density Fiberboard	Not used	Not used
Food Scraps	Combusted and Landfilled	Combusted and Landfilled
Yard Trimmings	Composted and Landfilled	Composted and Landfilled
Grass	Not used	Not used
Leaves	Not used	Not used
Branches	Not used	Not used
Mixed Paper (general)	Not used	Not used
Mixed Paper (primarily residential)	Combusted and Landfilled	Combusted and Landfilled
Mixed Paper (primarily from offices)	Not used	Not used
Mixed Metals	Recycled	Recycled
Mixed Plastics	Combusted and Landfilled	Combusted and Landfilled
Mixed Recyclables	Recycled	Recycled
Mixed Organics	Combusted and Landfilled	Combusted and Landfilled
Mixed MSW	Combusted and Landfilled	Combusted and Landfilled
Carpet	Combusted and Landfilled	Combusted and Landfilled
Personal Computers	Not used	Not used
Clay Bricks	Not used	Not used
Concrete	Not used	Not used
Fly Ash	Not used	Not used
Tires	Not used	Not used

Foth assumed all yard trimmings were composted. Major appliances are modeled as “mixed metals” in WARM and are modeled as recycled. Multiple materials are represented as “mixed MSW” in WARM. The portion of this category that is furniture and furnishings, miscellaneous durables, and vehicle batteries are modeled as landfilled. Tires are represented as “mixed recyclables” in WARM and are modeled as recycled. There is a separate “tire” category in WARM but recycling material categorized as “tires” in WARM means they were retreaded. It does not account for other types of tire recycling.

The changes that were made to create the alternative scenario for the city of La Crosse are summarized in Table 15. Similar changes were made to create the alternative scenario for the city of Onalaska as shown in Table 16.

Table 15

## La Crosse Waste Management Changes for Alternative Scenario

<b>WARM Waste Category</b>	<b>Baseline Scenario</b>	<b>Alternative Scenario</b>	
	Recycle (tons)	Recycle (tons)	Increase in Recycled (tons)
Aluminum Cans	23	143	120
Steel Cans	87	186	99
Glass	506	644	138
HDPE	18	28	10
PET	39	63	24
Corrugated Cardboard	0	316	316
Magazines/Third-class Mail	0	115	115
Newspaper	379	1,123	744
Office Paper	<u>0</u>	<u>150</u>	<u>150</u>
<b>Total</b>	<b>1,052</b>	<b>2,768</b>	<b>1,766</b>

Table 16

## Onalaska Waste Management Changes for Alternative Scenario

<b>WARM Waste Category</b>	<b>Baseline Scenario</b>	<b>Alternative Scenario</b>	
	Recycle (tons)	Recycle (tons)	Increase in Recycled (tons)
Aluminum Cans	11	66	55
Steel Cans	41	86	45
Glass	235	300	65
HDPE	8	13	5
PET	18	29	11
Corrugated Cardboard	0	147	147
Magazines/Third-class Mail	0	53	53
Newspaper	176	522	346
Office Paper	<u>0</u>	<u>70</u>	<u>70</u>
<b>Total</b>	<b>489</b>	<b>1,286</b>	<b>797</b>

The additional tons of material that were recycled were taken from the previously combusted/landfilled tons.