SHWEC
SOLID & HAZARDOUS WASTE EDUCATION CENTER

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Waste education series

# Leaf and Yard Material Collection Practices in Wisconsin

**University of Wisconsin Extension's Solid & Hazardous Waste Education Center (SHWEC) surveyed 14 Wisconsin communities in Spring 2007 to determine leaf collection methods practiced across the state. SHWEC focused on leaf and yard waste collection after a review of data reported by Responsible Units to the Wisconsin Department of Natural Resources showed costs for handling yard waste had increased by nearly 50% from 2000 to 2005. From these surveys SHWEC staff compiled a summary of the collection methods. The collection systems in use have evolved over time to meet the needs of Wisconsin communities. What follows are common strategies and practices in use today.**

## Vacuum

This collection method employs truck-mounted or trailer-mounted units to vacuum leaves from the curb. Truck-mounted vacuum units are typically manned by one person, while the trailer-mounted units usually have a two person crew. Leaves collected in this manner tend to be shredded by the vacuum equipment, which may help them to compost more rapidly. One drawback to vacuum collection is the absence of compaction. Trucks tend to fill more rapidly than similar sized compaction equipment leading to more time off route for emptying.

One advantage of the vacuum units is that there generally is no need for a street sweeper to follow the leaf crew as the vacuum unit collects nearly all leaves set out. Vacuum units can also be maneuvered around obstacles and minimize hand raking that may accompany other methods. An additional benefit is that heavy objects such as rocks and other heavy contaminants buried in leaf piles, are not readily picked up by the vacuum units due to their weight.

## Brush and Pan

This common method of collection utilizes the traditional rear loading garbage truck fitted with a "pan" that leaves are pushed onto by another vehicle fitted with a brush or rake attachment. The brush or rakes are typically mounted to the front of a small tractor or truck. The brush is used to move the leaves from the curb or terrace and then push the leaves onto the pan. Other communities do not use the pan system, but rely on hopper extensions and front end-loaders to pick up the leaves and dump them into the hopper.

Labor needs for brush and pan systems range from two to four person crews. In addition to equipment operators, some communities have workers with hand rakes to assist the equipment operators. Leaves that are out of reach of the equipment and those around obstacles are hand raked.

Larger crew size is one disadvantage of this method of collection, but the compaction ability of the rear packing truck means crews spend more time on route and less time driving to empty the filled trucks. This method of collection also makes use of existing equipment with relatively inexpensive attachments.

### Bag Systems

Collecting leaves bagged by residents is a strategy used in a number of communities. This method often uses traditional garbage collection trucks such as rear packers. Two to three person crews pick the bags from the curb and either place the entire bag in the truck or empty the bags into the truck hopper. The empty bags are then left at the curb or placed in a bin on the truck.

The type of bags used for this collection method impacts whether the bags need to be separated from the leaves prior to composting. Leaves and yard debris set out in the traditional plastic garbage bags have to be removed from the bags. Many communities require homeowners to use biodegradable bags. These bags are made either from paper or a compostable type of plastic. For additional information regarding the selection of compostable bags see Wisconsin Department of Natural Resources Publication WA-423-05, DNR Recommendations on "Compostable" Yard Waste Plastic Bags. Of the communities surveyed, those which only accept materials in compostable bags allow residents to use paper bags. Two communities reported residents using plastic bags. In one case residents use plastic bags to bring materials to a drop-off site, but are required to empty the bags. In the other example, collection crews empty the bags at the curb and leave them for the resident to reuse.

### Baler

This method utilizes agricultural equipment to package leaves into bales. Brushes or rakes mounted to small tractors or trucks move the leaves into the street to form windrows. The baler is then pulled along the windrow and compacts the leaves into bales for transport to the composting facility.

### Street Sweepers

While not typically the primary collection method, many communities follow the leaf collection crews with a street sweeper to pick-up small quantities that the primary collection method missed. While this additional step may not seem necessary, it is seen as a preventative measure to keep storm drains clear and keep leaf debris out of storm water receiving water bodies.

### Collection and Processing Costs

The majority of the costs incurred to provide a leaf and yard material collection program are related to collection. Seven communities reported a breakout of program costs. They indicated an average of 70% of program costs were related to collection. Factors that contribute to the cost of a leaf and yard material collection program include:

***Collection crew size*** – Along with equipment costs, labor costs have the biggest impact upon the cost of operating leaf collection programs. When a community evaluates the collection method(s) that will be used, the size of the crew needed for each set of collection equipment must be considered. A community may choose to invest more dollars in equipment if crew size can be reduced. One city surveyed is switching to one man vacuum units as it replaces equipment to reduce crew size and labor cost.

***Compaction*** - Community collection programs which utilized compaction equipment generally were more cost effective than those using non-compacting methods. Rear-loading compactors are the vehicle of choice and allow the trucks to remain "on-route" longer than non-compactors.

***Collection frequency*** – The number of passes or sweeps a collection crew makes through the community can also impact program costs. Fewer passes through a neighborhood may lead to larger set-out volumes or more set-outs on a street for collection on each pass. A less intensive collection program may also influence residents to bring their leaves to drop-off centers reducing the volume of leaves to be collected curbside.

***Fuel*** - Any discussion on program costs involving any type of equipment would not be complete without mentioning the cost of fuel. As a community selects equipment or decides on a collection system, fuel is yet another factor to consider. Each collection practice described uses a different mix of crew size and equipment. A particular system may reduce labor costs, but increase capital and fuel costs or vice versa.

## Selecting a Collection System

There are numerous variables that determine which leaf or yard material collection program will work best for a community. As collection programs have evolved around the state, systems have changed to meet local needs. In some cases varying needs across a community has led to neighborhood specific systems and/or equipment. Factors to consider when selecting a leaf and yard material collection system should include:

* Labor – Employee related costs including wages, benefits and workers compensation. A program with high labor costs may look to collection systems that rely more on equipment and automation to reduce labor costs.
* Capital – Equipment and facility related costs. There is a wide variety of equipment that is used to collect leaves and other yard materials. A number of vendors are able to provide specially designed equipment, however some communities have chosen to custom build equipment to meet local needs. When selecting a piece of equipment or system, one must also consider what the labor and operating costs will be. An additional factor to consider is whether the equipment can be used for other tasks. A community with limited resources may have to rely on equipment that can be used for a variety of jobs, not just to collect leaves during the fall.
* Collection Frequency – The number of times or time between collections. Many communities offer only one collection day or week for a particular neighborhood or route, while others allow for a six to eight week window when residents may set leaves out for collection. Communities offering a single collection opportunity often direct residents who miss the collection to bring leaves to a drop-off location.
* Obstacles - Street congestion, parking and other obstacles to collection can also influence the type of collection system a community implements. In the past, communities tailored their collection programs around the most troublesome collection areas. Today more communities are turning to the most effective type of collection for their traditional type neighborhoods while using an alternate strategy for the difficult to collect areas.
* Level of service -Finally, the "level of service" a community provides its residents can influence leaf and other yard material collection program costs. Some communities have decided to offer a minimal level of service such as drop-off sites as the only means of leaf collection while others offer a much higher level of service through curbside collection combined with multiple drop-off locations. The challenge program managers face is to provide the most efficient and cost effective program at the service level demanded by residents and local elected officials.

## Education

Many Wisconsin communities have active education programs related to the impact leaves have on storm water. Outreach campaigns remind residents to keep leaves and grass clipping out of the street to keep them from being washed into stormwater collection systems and impacting waterways. Examples include:

* City of Janesville Leaf Collection
* City of Madison Leaf & Yard Waste Collection
* City of Oshkosh Loose Leaf Collection
* City of La Crosse Loose Leaf Collection
* City of Stoughton Leaf Collection

and many more. Contact your community's Department of Public Works to learn about local leaf collection programs and schedules.

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