4.0 Facilities and Program Overview

For over twenty years, it has consistently been the policy of the Olmsted County Board of Commissioners to provide capacity to handle all waste generated in Olmsted County within its boundaries to protect the health and safety of its citizens, along with providing protection from environmental liability. Since the mid-1980's, the County has funded the system through an enterprise fund and invested in improving its waste facilities and programs.

This section presents an overview of the existing Solid Waste Programs and/or Facilities, as well as general policies and plans associated with each. Olmsted County intends to maintain the programs set in place throughout the 10 year period, but will periodically evaluate whether to revise or eliminate them based on their effectiveness and changes in State requirements. Additional information on the Mission, Vision, Strategic Priorities, Objectives, Performance Measures and the related Initiatives can be found in Section 8.0 of this document.

Olmsted County operates an integrated solid waste management system that provides comprehensive solid waste services to Olmsted and Dodge County as directed by Minnesota statutes: Chapters 115A, and 400. The system consists of:

- Waste reduction and waste education programs including business waste management assistance;
- Mandatory curbside recycling, and a publicly-owned and operated recycling center;
- A yard waste composting site;
- A regional hazardous waste management facility
- A mass-burn municipal solid waste (MSW) combustor that co-generates steam and electricity for sale to a district heating system; and
- The Kalmar Landfill consisting of MSW, demolition debris, and ash cells.

The development of this integrated system began in 1986 and was designed to address and manage solid waste according to Minnesota's hierarchy of waste management programs that include reduction, recycling, composting, hazardous waste collection, incineration, and landfilling. Olmsted County ordinances prohibit yard waste and recyclable materials from the Mixed Municipal Solid Waste (MMSW) stream and require volume/weight-based pricing for MMSW to advance recycling and waste reduction.

Olmsted County has a well established integrated Solid Waste Management System and Olmsted County completed extensive evaluation before the addition of the recently

completed third combustion unit at the Olmsted Waste-to-Energy Facility (OWEF), that doubled the capacity.

4.1 Administrative Overview

The Solid Waste Division is a division of the Environmental Resources Department of Olmsted County. This division has 64 permanent employees. The Director of Environmental Resources reports to the County Administrator.

As shown on the organizational chart (See Attachment E), six Solid Waste Division staff and the Water Resources Coordinator report directly to the Director of Environmental Resources position. Each Manager/Coordinator has the responsibility for their facility and/or program. Additionally, support is provided to the Division by the Olmsted County Finance Department, the Information Technology Solutions Department, and the Clerical staff.

The Waste Abatement Manager manages and is responsible for the recycling and hazardous waste programs. This manager oversees 6 FTE positions at the Olmsted County Recycling Center and 3.5 FTE positions at the Hazardous Waste Facility.

There are 44.5 FTE positions at the Olmsted Waste-to-Energy Facility (OWEF) that are responsible for the operation and maintenance of the Olmsted Waste-to-Energy Facility.

The Waste Communications Coordinator manages the accounts and coordinates the development of paid advertising and tours and other waste education activities and provides technical assistance. This position also serves as liaison for the 800MHz radio system.

The Regulatory Compliance Coordinator is responsible for the permitting, testing and regulatory compliance for the Solid Waste Facilities and oversees the Environmental Analyst position.

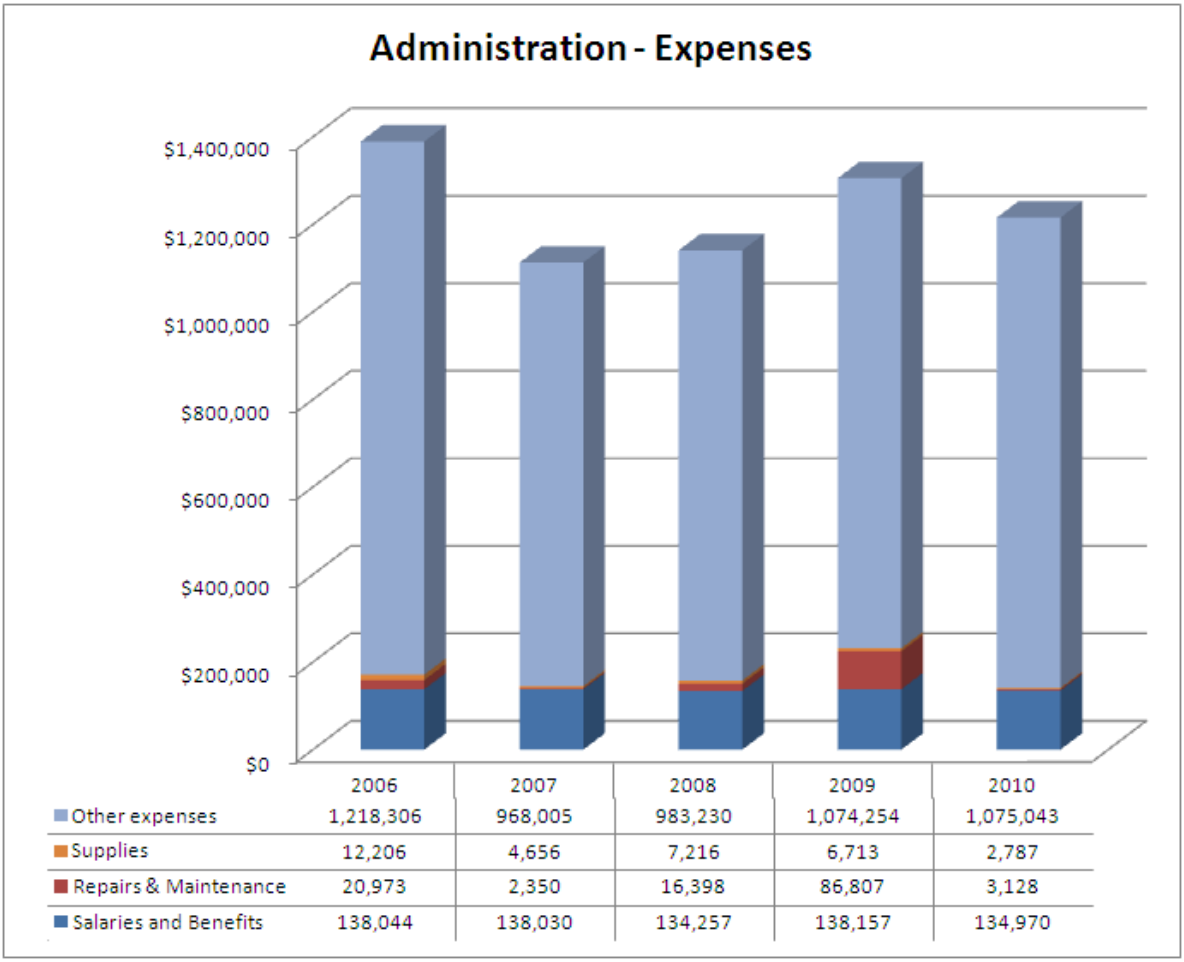
The 5 positions that report to the Landfill Manager are primarily responsible for the day-to-day operation of the Olmsted County Landfill and Compost site.

The Special Projects Coordinator works with staff on waste education campaign development, plan development, educational activities and technical assistance. This position also serves as Executive Director of the Southeastern Minnesota Recyclers Exchange (SEMREX) Joint Powers Board through a Professional Services Agreement.

Performance measures for each program and facility and an accountability system for meeting performance standards are developing as part of Olmsted County Managing For Results initiative as it is integrated and cascades to the various levels.

Staffing expenses are identified in each section of the Facility/Program. The graph below (Figure 4-1) represents the Administration unit's expenses under the accrual basis of accounting as reported for the annual financial report. Revenues are presented on a system wide basis as they contribute to the entire integrated solid waste management system. Other expenses include consultants and professional charges and charges from other funds such as services from finance, county attorney, purchasing, information technology, administration, etc. The increase in Other Expenses in 2006 was mainly due to the use of consultants and attorneys in a waste assurance issue.

Figure 4-1



	2006	2007	2008	2009	2010
Other expenses	1,218,306	968,005	983,230	1,074,254	1,075,043
Supplies	12,206	4,656	7,216	6,713	2,787
Repairs & Maintenance	20,973	2,350	16,398	86,807	3,128
Salaries and Benefits	138,044	138,030	134,257	138,157	134,970

Funding forecast information can be found in Attachment B.

4.1.1 Safety

Safety is a primary concern for staff at all four of the Olmsted County solid waste management facilities. Olmsted County is a long-time member of the Minnesota Safety Council, and has requested OSHA consultation each of the past five years. The

Olmsted County Solid Waste Division funds 1.5 FTEs to develop, manage, support and provide for continuous quality improvement of the health and safety program specific to OWEF and the Solid Waste Division. Regular Safety meetings are conducted to review Material Safety Data Sheets for new products, any injuries, near misses, as well as preventative measures that could be put into place. The Safety Manuals are revised and updated regularly, and safety committee initiatives are tracked to monitor progress and assure compliance. Risk Management staff conducts facility inspections regularly to identify and correct any potential issues. Construction of Unit 3 presented additional safety challenges at the OWEF during 2010, and resulted in two lost time injuries. All necessary reports are available through the Olmsted County Risk Management Department and are filed with the Minnesota Department of Labor and Industry as required.

4.2 WASTE REDUCTION/EDUCATION

Waste reduction is at the top of the hierarchy list in solid waste management. Waste reduction is also one of the most difficult management methods to implement and to measure. The County uses education as a tool in reducing waste generation. The primary methods that are used to raise awareness and expand waste reduction efforts are through public education, paid advertising, special events, business and organizational assistance, newsletters and the web site. The County also provides an incentive to encourage waste reduction through volume based disposal fees. The County is also interested in utilizing grant funding, tool kits and campaign materials available from other agencies to make the most of available funding.

The continuation and expansion of the following programs will be ongoing. Olmsted County expects to minimize the growth of the waste stream, target materials that make up the largest portions of the waste stream, identify barriers and provide tools to influence behavior change. Additional programs will be evaluated and implemented if determined to be beneficial to the Solid Waste goals and County policy.

4.2.1 In-House Program

Olmsted County intends to continue to be a positive example to local municipalities, businesses and residents by reducing waste generated from County sources. County staff has implemented waste reduction procedures throughout its facilities to serve as a model for other public and private institutions and is regularly shared through the Technical Assistance program.

Toner cartridges and printer ribbons are also reused in most departments with monthly collection of used items by the vendor. Vendor contracts include making the vendor responsible for taking back packing materials and product containers thus reducing the County's disposal costs.

Products such as paper and paper products are purchased in bulk through the Purchasing Department to reduced packaging. The County Government maintenance staff purchase cleaning products that are purchased in bulk and use refillable containers.

The Purchasing Department holds annual swap meets for usable unwanted office supplies. This opportunity is available to County departments and non-profits that receive County funding. One hundred percent of the unwanted, usable furniture and office equipment is reused either internally, through various materials exchange listings, or donated to local non-profits.

The County has also set as a target through its Managing For Results initiative to reduce county-wide paper consumption by 10%. This initiative began in 2011 and was set to reduce the amount of paper used within the county facilities. Data was collected as a baseline, an educational campaign will be conducted, and results will be reported to the County Board on an annual basis.

Solid Waste staff also prepares a monthly article for the Living Green column of the County intranet site. Articles feature information on recycling, waste reduction, composting, as well as other solid waste management related subjects. Olmsted County's intranet reaches about 1,000 employees.

4.2.2 Public Education Activities

Olmsted County's existing education program is the result of efforts by various personnel in the solid waste program, including the Waste Reduction Coordinator, Special Projects Coordinator, facility managers, and others in the Solid Waste Division. The Recycling Center public drop facility provides another opportunity to educate generators on a one-to-one basis. This team effort produces a good education program.

A primary function of the education program is to increase waste reduction and recycling efforts. In addition, the education program provides information on the overall solid waste program, toxicity reduction and composting. Information to be added includes: junk mail and phone book opt-out programs, reuse options (including the newly formed reuse alliance), and other individual elements as they become available. The combination of the web site, the Dex Media Garbage and Recycling pages, and 24-hour telephone information service provide a large amount of information to the public on demand.

4.2.3 Newsletter

A newsletter, entitled "One Person's Trash", is distributed quarterly. The distribution of this newsletter provides waste reduction tips as well as timely information on solid waste management issues. The newsletter was recently changed to an e-mail subscription instead of a mass mailing distributed to households with the newspaper or shoppers guide.

A quarterly newsletter called “Trash Talk” aimed at 5th grade students was discontinued in 2011 due to lack of funding and lack of interest from teachers surveyed. An alternative web page or children’s e-newsletter is being considered.

4.2.4 Web Site

The www.olmstedwaste.com web site provides extensive information on the integrated solid waste management system and its programs, as well as what is accepted at each of the facilities and the charges. Figure 4-2 shows the most popular topics viewed. In 2010, there were about 63,900 hits. The majority were repeat customers.

Figure 4-2
Olmstedwaste.com Web Site Hits
January 2007-2011

Subject	%
1. General Solid Waste and Recycling	30.0
2. Hazardous Waste	14.1
3. Recycling Center Plus	9.4
4. Compost Site	5.5
5. A-Z Guide to Garbage	4.2
6. Disposal Options	4.1
7. OWEF	3.1
8. Landfill	3.0
9. Solid Waste Management Ordinances	1.6
10. Fees & Charges	1.4
- 222 other items	33
TOTAL	100

Data is not available for every month for every year. Data is a summary of past four years.

The General Solid Waste and Recycling page provides seasonal information on items such as compost sales, holiday light recycling and Christmas tree drop off and is updated most frequently. The Recycling Center Plus page provides information on self-haul options for waste and recyclables drop off. Additional information on reuse ideas and options will be added during the next 2 years.

4.2.5 Dex Media Garbage and Recycling Pages

Information on the Olmsted County Solid Waste Facilities, and what can be taken to each, can be found in a Garbage & Recycling Section of the Dex Media phone book. Information on all components of the integrated solid waste management system is updated annually, and puts the information in the hands of the people who need it providing an alternative to the on-line resources. From March 1, 2009 through February

28, 2010, a total of 1,634 calls were received. From March 1 2010 through February 28, 2011, a total of 1,502 calls were received as a direct result of this outreach effort.

4.2.6 Media Campaign

Olmsted County's media campaign includes television, radio, and newspaper advertisements. The year 2011 plan presents a schedule of activities for each month of the year. Expenditures of $85,000 are budgeted for 2011. This budget includes $14,476 for publishing and advertising, including newspaper, radio, and TV, and development of the quarterly e-newsletter.

Advertisements are typically purchased to raise awareness of certain programs or events, or to provide general information to encourage recycling, waste toxicity reduction, and composting.

4.2.7 Fact Sheets

Fact sheets are provided for various subjects, including: Recycling Center Plus options, Household Hazardous Waste, used motor oil/filters, fluorescent tubes, cooking oil and sharps disposal. There are various other information pieces developed and distributed by the County that could also be considered fact sheets. Some examples would be those on the OWEF, the district energy system, and other topics. The total number exceeds 35. Some were developed by Olmsted County and others developed by the State of Minnesota. This information is provided at the facilities, the Environmental Resources Office, and is also distributed at various outreach venues. Fact sheets are also produced on an as-needed basis for specific topics.

4.2.8 Presentations

Presentations are given in various community settings, including schools, civic organizations, and Chamber of Commerce functions. The majority of presentations are the result of requests from organizations.

4.2.9 Tours

Tours of the various facilities are conducted for groups and individuals by request. Approximately 3,590 people tour Olmsted County's Solid Waste facilities each year in addition to numerous other presentations provided by staff. The Quarry Hill Nature Center maintains a program that offers all Rochester School District sixth-grade students the opportunity to learn about the complexities of solid waste management. In addition, other schools and colleges that are interested in the solid waste education program request class tours. Approximately 1,700 students participate in this program each year which involves touring the recycling center, the hazardous waste facility, the compost site, and the waste-to-energy facility. Furthermore, students also review ten solid waste learning stations and complete worksheets to enhance their learning. Updating of the learning stations is done on an annual basis.

A video presentation will be developed to serve as a supplemental means of giving the public an overview of the solid waste program. A video could provide a more in-depth look at the facilities without the safety concerns of being in industrial areas.

As a continuous process improvement method and to measure the successful components of the tour program, a post-tour survey will be conducted to obtain feedback and measure participant's satisfaction. Changes can then be incorporated into the tours that improve the quality and usefulness.

4.2.10 24-Hour Telephone Information Service

Information on the County's solid waste management program is also available to the public 24 hours per day, 365 days per year through a telephone hotline called the Waste Disposal Information Line. The telephone number is (507-328-7077). The recorded messages are reviewed and updated by County staff on an annual basis.

4.2.11 Think Green Fair

The Olmsted County Solid Waste Division sponsors a booth at the Rochester Think Green Fair each year to help the County gain exposure to with the community annually. Prizes and informational items are given out at these events to promote interest in the County's Solid Waste Management program. These events provide good opportunities to meet local residents and business people, provide information, promote awareness for the County's solid waste management programs, and offer assistance.

4.2.12 Arbor Day Celebration

Each year, Solid Waste Division partners with Rochester Public Utilities to provide event recycling and environmental education activities at the annual Arbor Day celebration that is open to elementary school classes in the area. In 2011, approximately 1,300 children participated in the event. This event provides an opportunity to meet children to raise awareness about ways to reduce waste on a daily basis.

4.2.13 Technical Assistance Program

Olmsted County offers assistance to businesses and other organizations. Options and alternatives are provided to help businesses increase recycling and reuse practices. County staff work to find recycling options for large quantities of materials on a case by case basis, and will continue these practices.

In 2010, Olmsted County worked the Rochester Community and Technical College (RCTC) as part of a grant from the Minnesota Pollution Control Agency to reduce greenhouse gas in the Rochester Centroid area. The project focus of the grant was to work with 10% of the schools in Olmsted County and RCTC to establish or enhance waste abatement programs. County staff, and seasonal staff hired for this purpose, extended the opportunity to all the schools in the area with limited success. There was enthusiasm and desire to participate among the faculty contacted, however school funding pressures and available staff time- restricted the progress made.

With the grant funding, staff was able to continue the process started with the Rochester Community and Technical College (RCTC) facilities the previous year. A waste sort was conducted to establish a baseline and establish target materials. An educational campaign was developed and conducted to inform students, faculty and visitors of the recycling program and generate support and enthusiasm. A follow-up waste sort was also conducted to determine the results of the effort and identify areas for improvement. County staff will continue to work with RCTC to enhance their program as well as be available to assist other schools when they are ready.

By working with businesses and SEMREX, Olmsted County has been able to find recycling options for off-spec cartons and other materials. By working with a local nursery, a pilot study was conducted in Olmsted County to find recycling markets for High Density Polyethylene (HDPE) plant pots. The pilot study was so successful that plant pot recycling has grown throughout the SEMREX region and then statewide through the Minnesota Nursery and Landscape Association. Carpet recycling at several carpet retailers also began as a result of the Technical Assistance program, and staff will continue to find options to increase carpet recycling in Olmsted County.

Staff will continue to work with businesses, to find reuse opportunities and recycling markets for additional materials such as textiles, cartons or plastics not currently being recycled. In 2012 staff will begin work with multiple agencies to create recycling networks among local businesses to aggregate sufficient quantities of material that can be marketed. Opportunities will also be sought to partner with local non-profit agencies to collect and process recyclable materials for end markets (similar to the holiday light recycling program sponsored by the Recycling Association of Minnesota).

4.2.14 Social Media

The use of social media in enhancing waste reduction and recycling programs is a growing trend. Olmsted County is exploring these opportunities and is working to develop a pilot program utilizing college interns. Based on the results of the pilot study, staff will evaluate the costs, benefits and risks of continuing such a program.

Olmsted County intends to continue the above programs and potentially adopt and promote new waste reduction campaigns based on results of proven techniques.

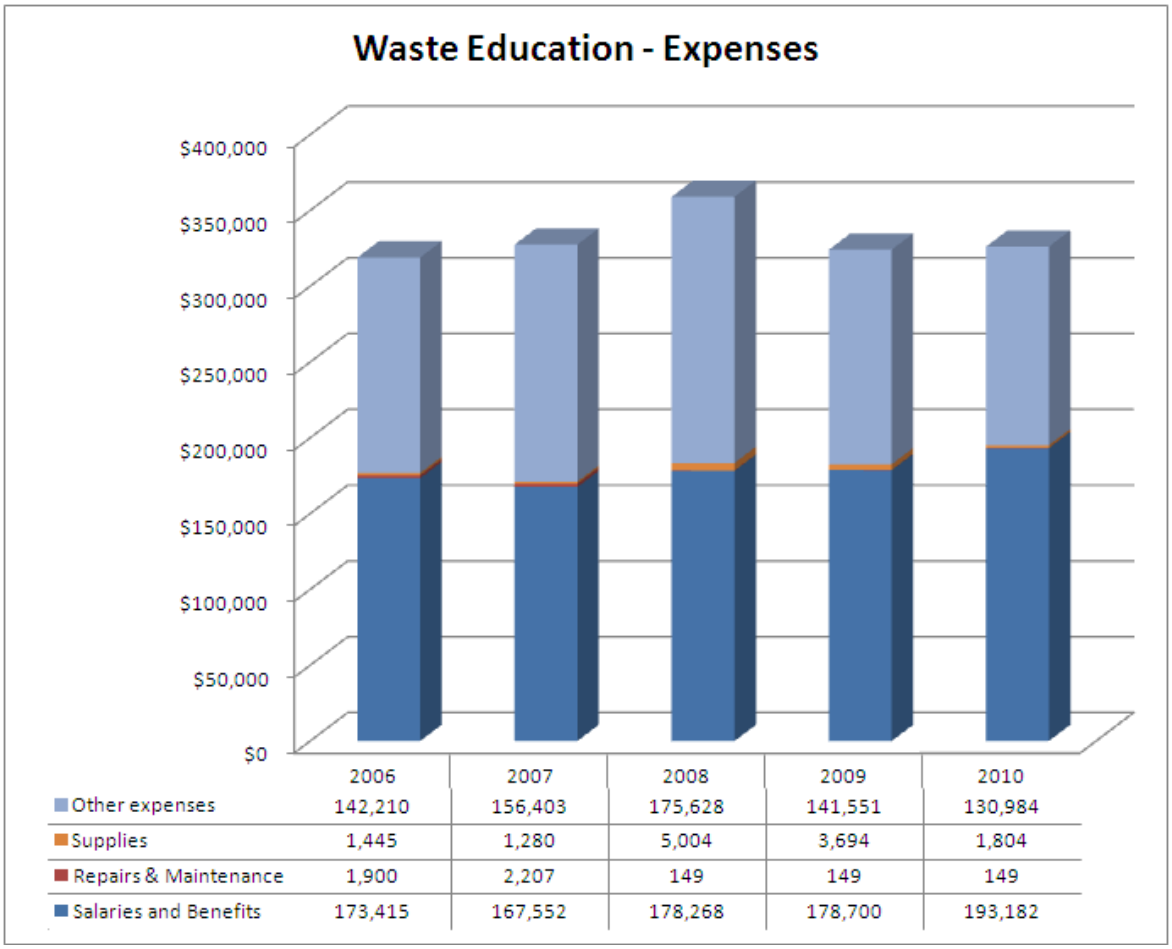
4.2.15 Illegal Dumping/Backyard Burning

Olmsted County currently does some public education on backyard burning and illegal dumping through its web site and in presentations and fact sheets. The Solid Waste Division is pursuing a partnership with the County Public Health Department to do an educational campaign on the health related issues of backyard burning.

4.2.16 Expenses

Figure 4-3 below represents the Waste Education unit's expenses under the accrual basis of accounting as reported for the annual financial report. Revenues are presented on a system wide basis as they contribute to the entire integrated solid waste management system.

Figure 4-3



	2006	2007	2008	2009	2010
Other expenses	142,210	156,403	175,628	141,551	130,984
Supplies	1,445	1,280	5,004	3,694	1,804
Repairs & Maintenance	1,900	2,207	149	149	149
Salaries and Benefits	173,415	167,552	178,268	178,700	193,182

4.3 Yard Waste & Composting

The County banned yard waste from the MSW stream in 1989. Currently, organics composting is conducted primarily in residential settings and through the Olmsted County yard waste composting facility. On-site management is seen as the best way to handle organics. The County does operate a combined yard waste drop-off and composting site. The yard waste facility accepts only leaves and grass clippings (Christmas trees are accepted January-April and chipped for use as mulch). The site is

located near the County waste-to-energy facility and operates at capacity under its current operating scheme. The quality of the finished compost is high and is in demand from County residents and businesses.

Olmsted County accepts brush and tree debris at the Olmsted County Recycling Center for a fee. The City of Stewartville provides a public drop-off site for brush. Hathaway Tree Service and Kellner Services are two private companies that also handle brush and tree debris. Licensed Haulers are required by ordinance to offer same day collection of yard waste to those generators wishing to contract for such services. Other businesses who haul yard waste are required to register with the County so that customers can be identified and changes in rules or procedures can be disseminated to them.

For the period of 2001-2010, the estimated quantity of finished compost has ranged from a high of approximately 2,640 tons in 2009, to a low of approximately 1,940 tons in 2010. In general, the quantity of compost produced has declined over the period reviewed for this project. This may be due to the increased use of mulching lawnmowers and increased back yard composting. All of the compost produced at the facility is sold each year. Actual yard waste deliveries are not weighed when they enter the facility. However, a volume estimate is documented when yard waste is put into a windrow. The volume of material composted is based on the number of payloader buckets of yard waste used to create the windrows.

The site is utilized primarily by residents and lawn service businesses. One licensed hauler does provide collection of yard waste service, and drops material at the Olmsted County yard waste compost site. While the facility handles a relatively small amount of material, the operation has a disproportionate amount of contact with the public through the nearby walking trail, residential waste drop-off areas and the product exchange center. Odor control and product quality are an important reflection of the County's overall integrated waste management system. There are currently no plans for the County to expand the site, add an additional site or provide collection services.

The County promotes the on-site management of yard waste in educational materials and in collaboration with the University of Minnesota Extension Master Gardner program.

Olmsted County has sponsored one-day compost bin and rain barrel truckload sales as an incentive to expand home composting. The University of Minnesota Master Gardner program members partnered with Olmsted County for the event to provide technical assistance and information on home composting. For the past three years, roughly 1,000 home compost bins were sold each year. This event has recently been taken over by the Zumbro Watershed Partnership. Olmsted County will continue to provide education on the benefits of composting, and work with the Master Gardners group to promote and teach backyard composting. Local retail stores also stock compost bins in the summer months.

Manufacturer calculations indicate that over 500 pounds per container can be diverted annually by an average family resulting in approximately 2,500 tons composted per year combined. The actual level of backyard composting is unknown. The County will continue to reduce organics in the waste stream through promotion of backyard composting, and by providing a public yard waste drop off site. At the current time, there are no commercial-sized compost facilities in Olmsted County.

4.3.1 History

- In 1987, the County developed a six-acre site for yard waste composting.
- The County banned yard waste from the waste stream in 1989.
- In 1991, the first Christmas tree recycling program began, the yard waste composting site expanded by acquiring six additional acres from the DNR, and a front-end loader and windrow turner were purchased.
- In 1993**,** the County purchased a trommel screen for the facility.
- In 2002 a new straddle windrow turner was purchased.
- In 2008, a new front-end loader (FEL) was purchased.

4.3.2 Facility Description

There is one composting facility in Olmsted County, it is located on 12 acres next to 305 Silver Creek Road NE in Rochester, Minnesota. It is owned and operated by Olmsted County. The site is very long (approximately ½ mile) and narrow. The area is located on the same campus as the recycling, hazardous waste and waste-to-energy facilities at the far north end of the property. It abuts railroad tracks and easement property owned by the DM&E Railroad. Further north is the Quarry Hill Nature Center. A hiking/biking trail bisects the site and is used by many people.

The active composting and screening area is unpaved. There are a number of low areas throughout the site. These were part of the intentional design to ensure that free water will pond and evaporate. Run-off leaving the site is not permissible due to the site's close proximity to a nearby stream (according to MN compost rules).

The drop-off area, located adjacent to the composting area, is open to residents and businesses. The receiving area is unpaved and has unrestricted access. Yard waste is delivered to the site by residents, licensed haulers and commercial lawn care and other businesses. The facility is advertised to be open to the public during daylight hours, 7 days a week from April 1st through November 31st. In reality, it is open all the time, because the site is not secure.

Brush and brush related items are not accepted at the compost site. Compostable material is required to be removed from trash bags and receptacles. Disposal containers for the trash bags are available on-site. The County also accepts Christmas trees at the drop-off area. The trees are chipped by a private operator and the resulting mulch is available to residents free of charge.

4.3.3 Equipment

The following equipment is available at the site:

- Scarab Straddle Windrow Turner (2002)
- Volvo L90 Front End Loader (FEL), 4 yd^3 bucket (2008)
- Water Truck (retired from use as a leachate transport vehicle)
- Wildcat Trommel Screen (1993)

4.3.4 Personnel

One full-time employee operates the site. The primary responsibilities are:

- Manually removing debris from yard waste dropped off by customers
- Maintaining the site
- Forming windrows and managing the composting process (windrow turning, watering, combining windrows)
- Processing finished compost and stockpiling the screened material
- Serving compost customers who want assistance loading compost

4.3.5 Institutional

The landfill manager currently supervises facility operations. The compost site manager has historically handled compliance issues (i.e., storm water runoff, odor, etc.).

4.3.6 Operations

The following is a summary of operations at the Olmsted County yard waste composting site.

- Yard waste materials are dropped off by residents and commercial lawn care services. Bags are required to be removed by the person dropping off the material. Waste receptacles are located on-site for disposal of bags. The County does not accept brush or tree waste at this site.
- The equipment operator uses a FEL to haul the yard wastes to the composting area and to form the windrows. When available, leaves are mixed with the grass to create an appropriate carbon/nitrogen ratio for composting.
- The windrows are periodically turned using a straddle windrow turner. The frequency of turning is conducted based on operator experience and compost conditions. To alleviate odor complaints, turning windrow piles is postponed when the wind is blowing out of the south.
- The site design causes rainfall to form ponds, which allows for necessary evaporation of surface run-off, but can restrict operations.

- The size (height) to which the windrows can be constructed is restricted by the working height of the windrow turner, approximately six feet. As the composting process progresses, the size of the windrows decrease and ultimately several of the windrows are combined together.
- Approximately 10 feet of space is maintained between each pile to allow the FEL to be maneuvered.
- After the composting process is completed, the mature material is moved to a location just northeast of the waste-to-energy facility.
- The mature compost is screened and placed in a curing pile. The trommel screen separates out materials greater than ½ inch from the composted material.
- If the screened rejects are relatively moist, they are returned to the compost piles. If dry, the reject material is transported to the landfill.
- It takes approximately 60 to 90 days to produce finished compost, during the composting season. As composting is temperature dependent, composting nearly halts during the winter months.

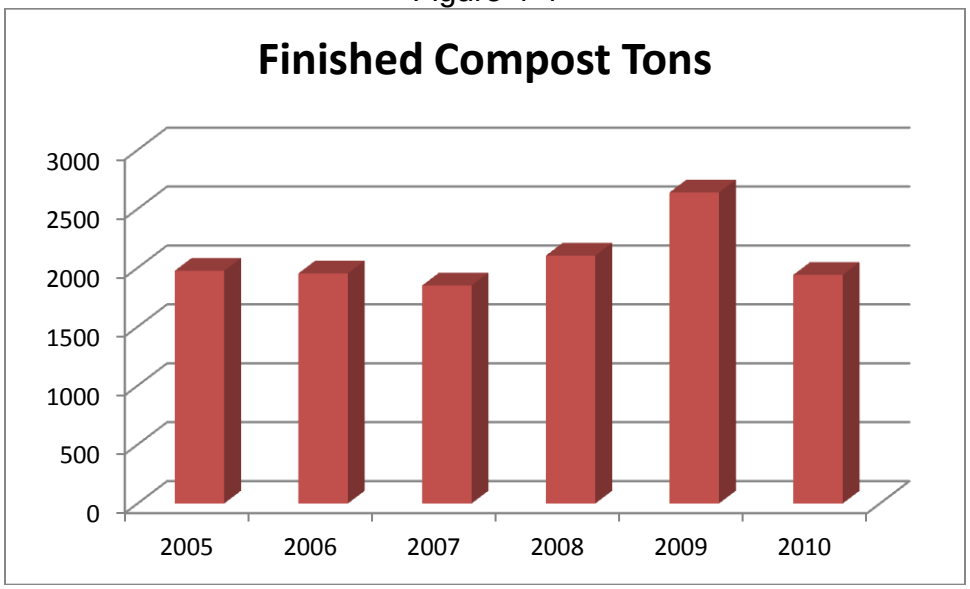
4.3.7 Regulatory Compliance

The facility operates under the state's permit-by-rule program. Fugitive dust emissions from the compost site were calculated as part of the waste-to-energy facility permit application, but have not been a substantial issue. Odors have been a concern of the Quarry Hill Nature Center, but the staff manages operations to minimize odors through proper windrow management and avoiding pile turning on days when the wind is out of the south. Annual Spring compost sampling is conducted to calculate the nutrient (N:P:K) value and pH of the compost site operator conducts scheduled testing for inerts to satisfy the requirements of the MN compost rules. Samples also tested on a biennial basis for Minnesota Department of Agriculture (MDA) List 1 and List 2 Pesticides and to determine if the material meets Minnesota Department of Transportation (Mn/DOT) Grade 2 specifications.

4.3.8 Throughput and Markets

The volume of finished compost that has been produced by the County since 2005 is presented in Figure 4-4.

Figure 4-4



The amount of finished compost produced has been slowly increasing over the last few years this may be due to education and promotion of the site leading to a general awareness that the yard waste should not go in the trash.

The quality of the finished compost is high and is in demand. Finished compost is currently sold at for $.50 per 5-gallon bucket or $25.00/ton if the customer loads and $30.00/ton if loaded by County staff. Residents must supply their own containers. Finished compost is also given away to non-profit organizations in amounts up to 10 cubic yards per group with a written request, for use in a community garden located on publicly owned land in Olmsted County. Approximately 100 cubic yards is given away annually, depending on requests.

Olmsted County intends to continue operation of its yard waste compost site for the next 10 years, and to adapt its operation as needs arise.

4.3.9 Financial Analysis

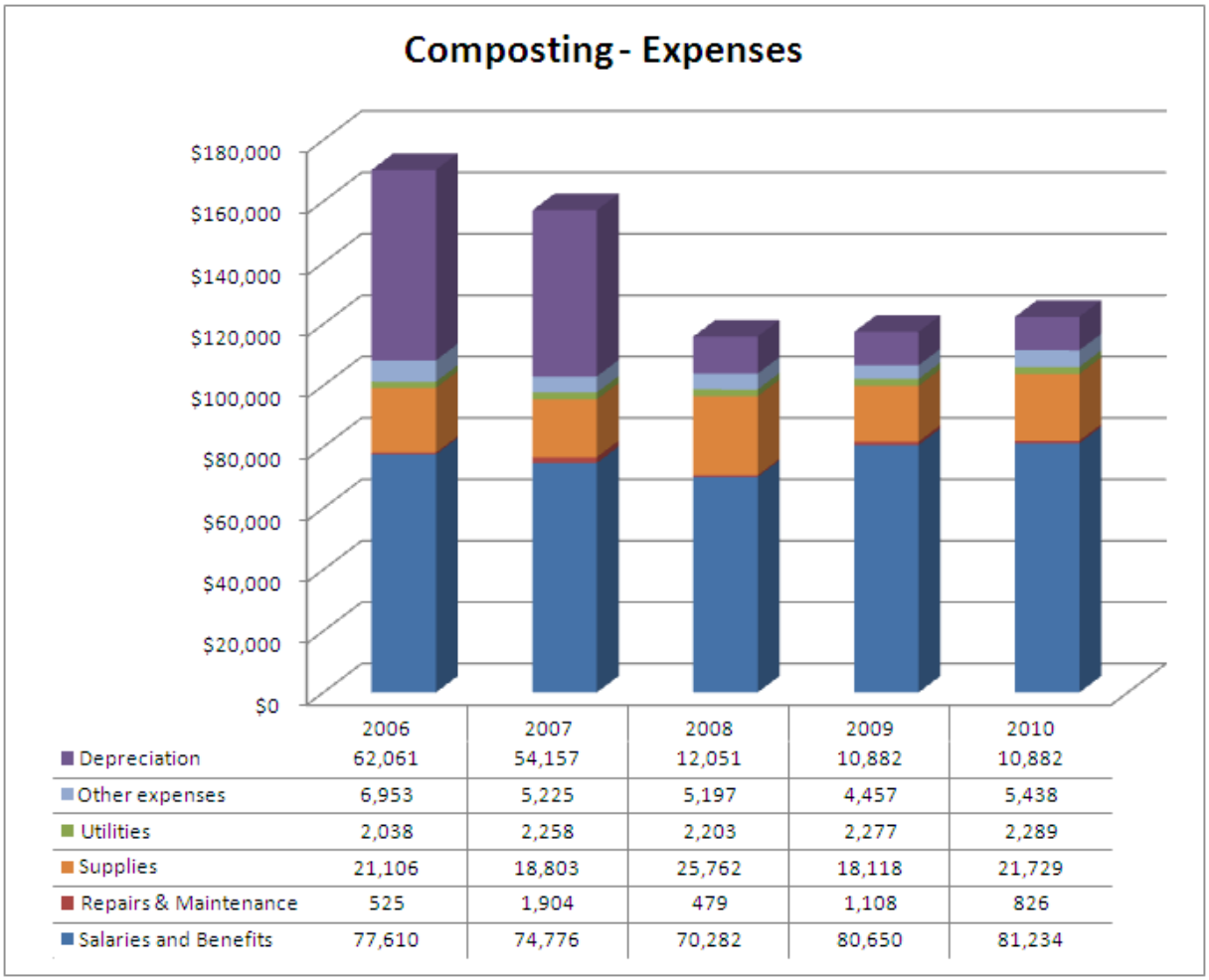
4.3.9.1 Capital Costs / Debt Service

The major capital cost during the past four years was for a new FEL. It was purchased in 2008, at a budgeted cost of $150,000. Funds were allocated from the general solid waste budget for a one-time payment. There are no debt service payments for the yard waste composting program.

4.3.9.2 Annual Operating Costs and Revenue

Figure 4-5 represents the Composting unit's expenses under the accrual basis of accounting as reported for the annual financial report. Capital purchases are excluded from expenses as these are capitalized on the balance sheet of the Solid Waste fund and depreciated over the estimated useful lives of the assets. The depreciation expense is shown to reflect the estimated annual cost of the assets being used for operations. Revenues are presented on a system wide basis as they contribute to the entire integrated solid waste management system. The windrow turner was fully depreciated by the end of 2007 but is still being used in the compost operation. A front end loader purchased in 2008 is being depreciated and used in operations

Figure 4-5



	2006	2007	2008	2009	2010
Depreciation	62,061	54,157	12,051	10,882	10,882
Other expenses	6,953	5,225	5,197	4,457	5,438
Utilities	2,038	2,258	2,203	2,277	2,289
Supplies	21,106	18,803	25,762	18,118	21,729
Repairs & Maintenance	525	1,904	479	1,108	826
Salaries and Benefits	77,610	74,776	70,282	80,650	81,234

There is still a measurable amount of yard waste in the waste stream. In addition, the County expects some growth of yard waste in the future due to increases in population (along with all other components of the waste stream). The cost of yard waste

management per ton will be reduced with additional material deliveries to the compost site, provided that contamination issues are at manageable levels.

4.3.10 Site Management

- Site Capacity – Capacity is impacted or limited by the windrow spacing required for the windrow and the turning frequency of the windrows. The frequency of pile turning is affected by feedstock contamination (i.e., brush, trash, etc.), odor concerns and water control (see below). There is no adjacent property available for composting operation expansion.

- Site Control – Access to the site is another concern raised by management. Since the site is not attended all of the time, people can deposit unacceptable items or yard waste with a high amount of feedstock contamination. Moving the weigh scale to a central location and securing the area could reduce the amount of feedstock contamination.

- Windrow Turning Frequency - The windrows are turned based on operator knowledge. There are no documented standard operating procedures. It is possible that a more standardized and regular procedure could reduce processing time. Process time is a key metric for addressing capacity issues.

- Water Control - The compost site has been graded to facilitate water collection and prevent storm water runoff. These low areas become inundated during the spring and wet periods reducing accessibility and restricting the amount of space that can be utilized for windrow placement. This ponded water is used for watering the windrows during the dry season.

- Feedstock Contamination Control - The site operator spends approximately 20 percent of each day removing brush, bags of garbage, and other materials inappropriately discarded by the users of the site. The operator is also periodically asked to work at other County solid waste facilities. These factors reduce the amount of time the operator can designate towards effectively managing the composting operation.

- Odor Concerns - Odor can periodically be a problem at the facility due to the high ratio of grass (high nitrogen content) in the feedstock in the summer, the frequency of turning the windrows, and if materials are located in low-lying areas where they become wet or saturated. Wind direction is also a concern because of its impact on neighbors to the north.

- Operating Costs – SCORE revenues do not completely cover annual operating costs. If site access is controlled, the remaining amount could be collected as a tipping fee from commercial haulers. The cost would be in

the range of $5.00 to $10.00 per ton of material delivered. In addition, the equipment at the facility is capable of handling greater material quantities, as is likely with the projected growth in population. Managing these additional materials will lower the unit cost required to make the program self-financing.

4.4 SOURCE-SEPARATED ORGANICS MATERIALS COMPOSTING

Olmsted County Solid Waste Division staff partnered with the Rochester School District staff and the Students Against Violating the Earth (SAVE) club to set up a food recycling program with kitchen and cafeteria food waste at one high school and one elementary school during the 2001-2002 school year. The food was segregated and taken to a local farm and fed to hogs. The program lasted one year, but costs became prohibitive as the charge to transport the material doubled. Staff continues to work with the school district to reduce waste and improve their recycling programs.

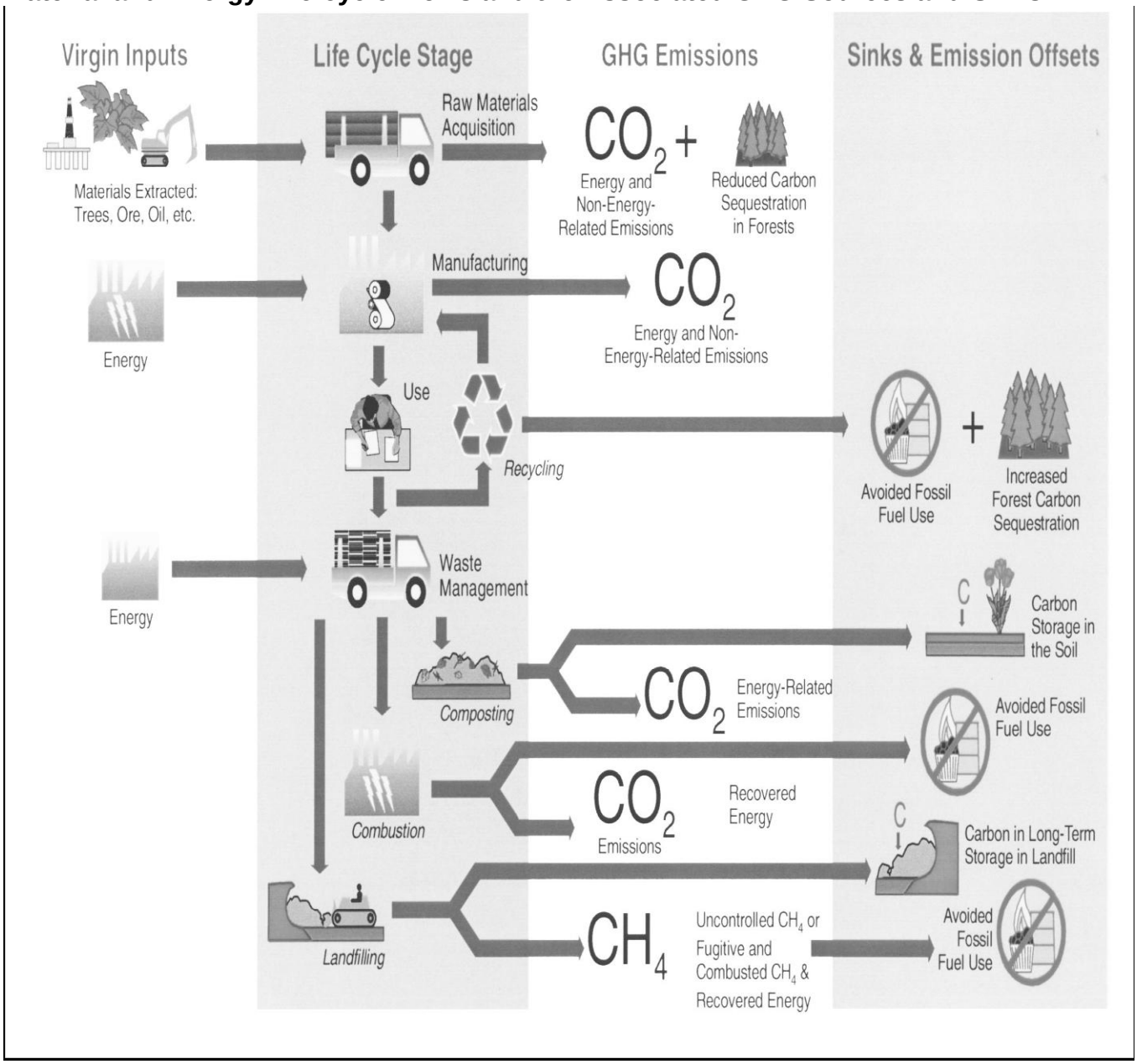
Over 800 tons of organic waste was diverted from the waste stream for animal food in 2010. Currently, two operations provide services in Olmsted County for using organic food waste from businesses for food for animals. They are Second Harvest Farms of Hayfield and Endres Processing of Rosemount, Minnesota. Endres collects food waste from some businesses in Olmsted County and processes it into food pellets for animal feed. These services are primarily utilized by IBM and Mayo Foundation, as well as restaurants and other businesses in Rochester. Other Olmsted County businesses reported that an additional 173 tons of source-separated organics were diverted from the waste stream for processing in 2010.

Produce from local grocery stores, and other food that is no longer desirable for human consumption is donated by residents and businesses to Olmsted County Oxbow Park/Zollman Zoo. Approximately 6,000 pounds of meat, 1,800 pounds of fish, and 5,250 pounds of fruit and vegetables are donated to the zoo for animal consumption each year.

According to the U.S. Environmental Protection Agency both composting and waste-to-energy processes provide opportunities for greenhouse gas (GHG) offsets (as shown in Figure 4-6 below) when compared to landfill disposal. With composting, some of the carbon contained in organic materials is returned and stored in the soil and therefore not released into the atmosphere. With waste-to-energy, the energy released during combustion can be harnessed and used to power other processes, resulting in offset GHG emissions from avoided fossil fuel use.

Figure 4-6

Material and Energy Life-cycle Flows and the Associated GHG Sources and Sinks



Source - Greenhouse Gas Emissions from Management of Selected Materials in Municipal Solid Waste; EPA-530-R-98-013; Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency: Washington, DC, September 1998. (Additional information can be found on the Climate Change and Waste Web site, http://www.epa.gov/globalwarming/actions/waste/index.html.)

Olmsted County considers that source-separated organic (SSO) materials composting plays a role in an integrated solid waste management program and encourages on-site composting of organic materials through its public education and technical assistance programs. Processing SSO materials onsite is preferred due to the challenges of storing these materials and the increased environmental impacts and costs associated with transporting SSO materials.

Olmsted County is not actively pursuing the development of a source-separated organics composting program in this Plan. Complying with State laws and rules in effect at the time, Olmsted County planned, and made a considerable investment in expanding its waste-to-energy facility to optimize its integrated Solid Waste Management system and currently has excess capacity. In 2003, Olmsted County began the permitting process for construction of additional capacity at the Olmsted-Waste-to-Energy Facility (OWEF). Construction of the 200-ton per day combustion unit at the OWEF began in the Fall of 2007, and was completed in 2010. Unless regional use of the Olmsted Waste-to-Energy Facility occurs, capacity will not be reached at the OWEF during the timeframe of this Plan.

Technical assistance is provided for source separated organics materials composting on a case-by-case basis and is funded by the Waste Reduction budget. It is estimated that approximately 2 percent of the waste stream will be diverted through these programs over the next 10 years. Since any source-separated organic material composting operation would be privately run, there are no County marketing efforts for finished compost at this time.

Olmsted County would participate in a regional study to evaluate opportunities to back-haul source separated compostable material in exchange for waste hauled to the OWEF if led by others. Once Olmsted County has reached capacity at the OWEF, it will look for opportunities to add this component to its integrated system.

4.5 MUNICIPAL SOLID WASTE (MSW) COMPOSTING

There are currently no MSW composting facilities in Olmsted County, and none are planned.

4.6 RECYCLING

The Olmsted County recycling program is an integral part of its waste management system. The voluntary recycling program began in 1983. The recycling program became mandatory in 1990 and remains so today. Over the years, Olmsted County has adopted the state recycling goals and currently meets and exceeds those goals. The County intends to continue to meet and exceed state recycling goals in the future. The

County will continue to provide its businesses and residents with technical assistance programs for implementing and expanding recycling options. Some of the materials that show promise are aseptic cartons such as milk cartons and juice boxes as well as additional plastics and textiles.

Olmsted County also supports the purchase of products with recycled content and currently has a purchasing policy that encourages the purchase of recycled products, and seeks opportunities to expand the purchase of products with recycled content as they become available.

Recycling collection and processing, like solid waste, is primarily handled by the private sector. Most areas in the County can be and are serviced by the Commercial Haulers. Rochester is the only city in the county with a population over 20,000, but all of the municipalities, including Rochester have curbside collection of at least four types of materials available at least once per month. As an option to private collection, residents can also self-haul their solid waste and recyclables to the Olmsted County Recycling Center Plus (OCRC) which is owned and operated by Olmsted County. The current operating hours at OCRC are 8:00 a.m. to 5:00 p.m. Monday through Saturday.

There are several other recyclable material processing facilities in Olmsted County in addition to the OCRC. One is owned and operated by Veolia, one is owned and one is operated by the Mayo Foundation. There are 11 licensed haulers in Olmsted County that provide weekly or bi-weekly curbside collection service to their customers. Most provide single-stream recycling services and utilize the Republic Services and WM Recycle America materials recovery facilities in the Twin Cities to sort the recyclables collected. Large metal processing facilities in Olmsted County are Jennings Scrap and Watson Recycling.

Olmsted County has a number of outreach programs to encourage recycling. (See Section 4.2 Waste Reduction/Education) Recycling requires the knowledgeable participation of the general public and area businesses. County managers recognize that improving recycling will be a challenge. A somewhat transient population means that many residents may not be familiar with the recycling program and the role it serves in the integrated management system. In addition, the health and related service industries are expected to continue to expand. The hospitality industry provides special recycling challenges because of the extra effort required for separation by staff and the transitory nature of their customers. Staff will continue to provide technical assistance to health care facilities and service industries.

Figure 4-7 below shows actual tonnage of materials recycled annually in Dodge and Olmsted Counties from 2000-2009.

Figure 4-7 **Dodge and Olmsted Total Tons Recycled**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Dodge Recycling	4,062	4,102	4,315	4,488	3,978	4,676	5,868	4,018	6,962	5,549	4,834
Olmsted Recycling	37,720	47,270	40,743	39,042	57,139	60,456	52,390	50,152	61,419	43,473	49,743
Total	41,782	51,372	45,058	43,530	61,117	65,132	58,258	54,170	68,381	54,251	54,577

Data Source: MPCA SCORE Reports

Olmsted County recycling quantities have increased from 37,720 tons per year (TPY) in 2000 to 61,419 tons per year (TPY) in 2008. In 2009 and 2010, quantities of waste and recyclables were down most likely due to the economic downturn.

The County is interested in working with private companies to construct a Material Recovery Facility (MRF) for mixed recyclables locally. A MRF would improve combustion at the OWEF by removing glass and metals and increase recycling quantities in the County. A MRF could provide a business synergy by utilizing steam produced at the OWEF to operate, and improve greenhouse gas emissions by not having to transport the material to the Twin Cities for processing. It could potentially improve the amount of material recycled by providing smaller haulers with a one-bin option.

Olmsted County is exploring options for development of a facility at the energy park on the County-owned land between the OWEF and the Rochester Community and Technical College. Other changes under consideration for implementation over the next 5-10 years include enhanced community outreach and expanding the existing problem materials and material exchange programs.

The staff is also evaluating recycling parts of the waste stream that are not currently effectively recycled. These include, carpet and pad, mattresses, shingles, construction and demolition materials and expanding plastics beyond #1 & #2. Barriers to doing this include a lack of operating space and labor constraints within the Olmsted County Recycling Center (OCRC) facility.

The County's Solid Waste Ordinance meets the requirements of MN Statute 115A.552 which directs MN counties to provide all residents with opportunities to recycle. Information on Olmsted County solid waste ordinances is provided in Chapter 6.0 Enforcement and Attachment F.

4.6.1 Event Recycling Program

Through a regional grant received by the Southeastern Minnesota Recyclers Exchange (SEMREX) from the Minnesota Pollution Control Agency, containers were purchased that are loaned out free of charge to event organizers for use at public and private events. The program has been very popular especially in the summer months. Some of

the typical uses are fund-raiser walks, graduation parties, school fairs, outdoor weddings, hockey tournaments, and swimming meets. They have also been used for the Arbor Day celebration, the Historical Society's outdoor movie night etc. The program has inspired some groups with regular events to purchase their own bins to save having to haul them back and forth. The County intends to continue this program and work with civic event planners to expand it over the next 10 years

4.6.2 In-House Recycling

The internal recycling program was implemented in the fall of 1990, with regular updates. Currently blue, plastic office-size recycling containers with smaller black garbage containers that hook onto the side of the recycling containers are the standard in most offices. The recycling containers are made from at least 40% post-consumer recycled content, and the garbage containers are made from 80% post-consumer recycled plastic.

4.6.3 Operations – Government Buildings Recyclables Collection

Recyclables collection service to public buildings, including the City of Rochester and other Olmsted County buildings is provided by OCRC staff. Approximately 14 locations are served in which about 300 tons/year of recyclable materials are collected and processed. Materials collected include: Office paper, mixed paper, aluminum cans, plastic and glass bottles, cardboard boxes, phone books and tin/steel cans. A complete list of the materials collected is included in Attachment G (Recycling Guide for Olmsted County & City of Rochester Offices).The recyclable materials from the various government buildings on the "government route" are delivered to the Olmsted County Recycling Center Plus where they are processed and marketed. This offsets the costs of the program. This program is expected to be ongoing.

In addition, Olmsted County also hosts 3 drop of locations at County buildings and participates in the Recycle Your Holidays program. This program is a partnership with the Recycling Association of Minnesota that provides a recycling option for non-working holiday lights.

4.6.4 Facility Description – Olmsted County Recycling Center (OCRC)

The OCRC opened for operation in 1986. The facility was partially financed through a grant from the Minnesota Office of Environmental Assistance (MOEA) Capital Assistance Program. The OCRC is located on the same campus as the waste-to-energy, yard waste composting and hazardous waste facilities on the east side of Rochester. The OCRC is operated by Olmsted County. Items accepted at the OCRC are nine categories of recyclable materials including: newspaper, corrugated cardboard, magazines, office paper, phone books, food glass bottles and jars, aluminum beverage cans, steel food (tin) cans, empty paint and aerosol cans, and plastic bottles with a neck. The facility also accepts self-hauled garbage, special wastes (tires, electronics and appliances) .

There have been many institutional changes to the County recycling program since it began. These changes have had a substantial impact on how the OCRC is operated. The County started the recycling effort in 1986 by constructing the OCRC. Early on, the OCRC was the main recycling processing center for the garbage haulers. Commercial and residential haulers used the facility to drop off their recyclables free-of-charge. As the recycling markets developed, the haulers built their own processing centers and during high price markets they used their facilities and when markets were low, they used the County facility for free. This fact, along with employing as many as 10 ABC workers, led to a large operating cost for the facility. So, in 1993 a private/public partnership was developed to operate the facility. Immediately 8 of the 10 workers' positions were eliminated and the free drop-off during low markets was ended. Various private vendors operated the OCRC until 2004, in which special wastes and self-haul garbage options were added along the way. In 2005, Olmsted County resumed full operation of the OCRC.

Changes that affected OCRC operations included:

- The consolidation and size of waste hauling companies operating in the county.
- The size of the recycling trucks outgrew the OCRC (the ceiling is too low for the new, larger trucks).
- The development of private sector recycling processing centers.
- The shift from source-separated to co-mingled and single sort recyclables collection.
- Large increases in the quantity and types of materials recycled.
- Privatization of OCRC operations.
- Addition of acceptance of self-hauled special wastes and garbage.

Because of these factors, private haulers access to the county-owned recycling facility has shifted to private facilities.

Today, limited processing occurs within the building. On the west side of the facility, outdoor bays under a covered structure are dedicated to self-hauled garbage wastes. On the east side of the facility, outdoor recycling containers provide an "express" drop-off area. The north building interior is dedicated to limited storage and baling of recyclables, including paper, cardboard, tin, plastic and used beverage containers. The south portion within the OCRC is used for serving self-hauling customers for recyclables drop-off, payment center and the collection area for appliances and electronics.

4.6.5 Equipment

All equipment is owned by Olmsted County. Equipment at the facility includes the following:

- Excel, auto-tie horizontal baler with infeed conveyor (2004).
- Three CAT skid loaders
- Two Komatsu forklifts
- Izuzu Recycling Collection vehicle.

- Roll-off containers to store self-haul materials.

4.6.6 Personnel

All OCRC personnel are employees of Olmsted County. Six County staff employee operate the facility and collect materials from City and County government offices, including the Government Center, Campus buildings, and Extension and Public Health buildings.

The Waste Abatement Manager has been responsible for the recycling program since 1997, as well as the hazardous waste program. The manager works with the Regulatory Compliance Coordinator and Health and Safety Coordinator to address compliance issues. The manager also works with the Waste Reduction Coordinator and Special Projects Coordinator regarding community outreach and public relations.

4.6.7 Operations - OCRC

Operations at the OCRC have changed substantially since it was constructed. At this time, the facility is owned and operated by Olmsted County and used for self-haulers as a garbage, special waste and recycling drop-off location. Olmsted County expects to continue to operate the Recycling Center Plus throughout the next 10 years.

4.6.8 Regulatory Compliance - OCRC

The OCRC currently operates under the state's permit-by-rule program. In 2011, the County will start the application process for obtaining a solid waste transfer and recycling facility permit for the OCRC.

4.6.9 Revenue Share

A revenue-share contract program is in place to encourage recycling and allow businesses with larger quantities of specific materials to receive a portion of the revenue from the materials brought to the OCRC. The program is extended on a case-by-case basis providing there is sufficient quantity and quality of material. Currently the program is restricted to larger generators of Sorted Office Paper grade of paper, but the County will consider expanding the program over the next 10 years provided that volumes are sufficient and commodity prices are supportive.

4.6.10 Materials Marketing

The majority of materials are marketed through the Southeastern Minnesota Recyclers Exchange (SEMREX) and shipped to end markets in Minnesota, Wisconsin and Iowa. Because of the quality of the source-separated materials from the OCRC and SEMREX's strong relationships with its end markets, there have been no problems with marketing the materials from the facility even through the economic down-turn of 2009. Figure 4-8 below shows the average annual price-per-ton for the past 10 years.

Figure 4-8
PRICE PER TON AVERAGE

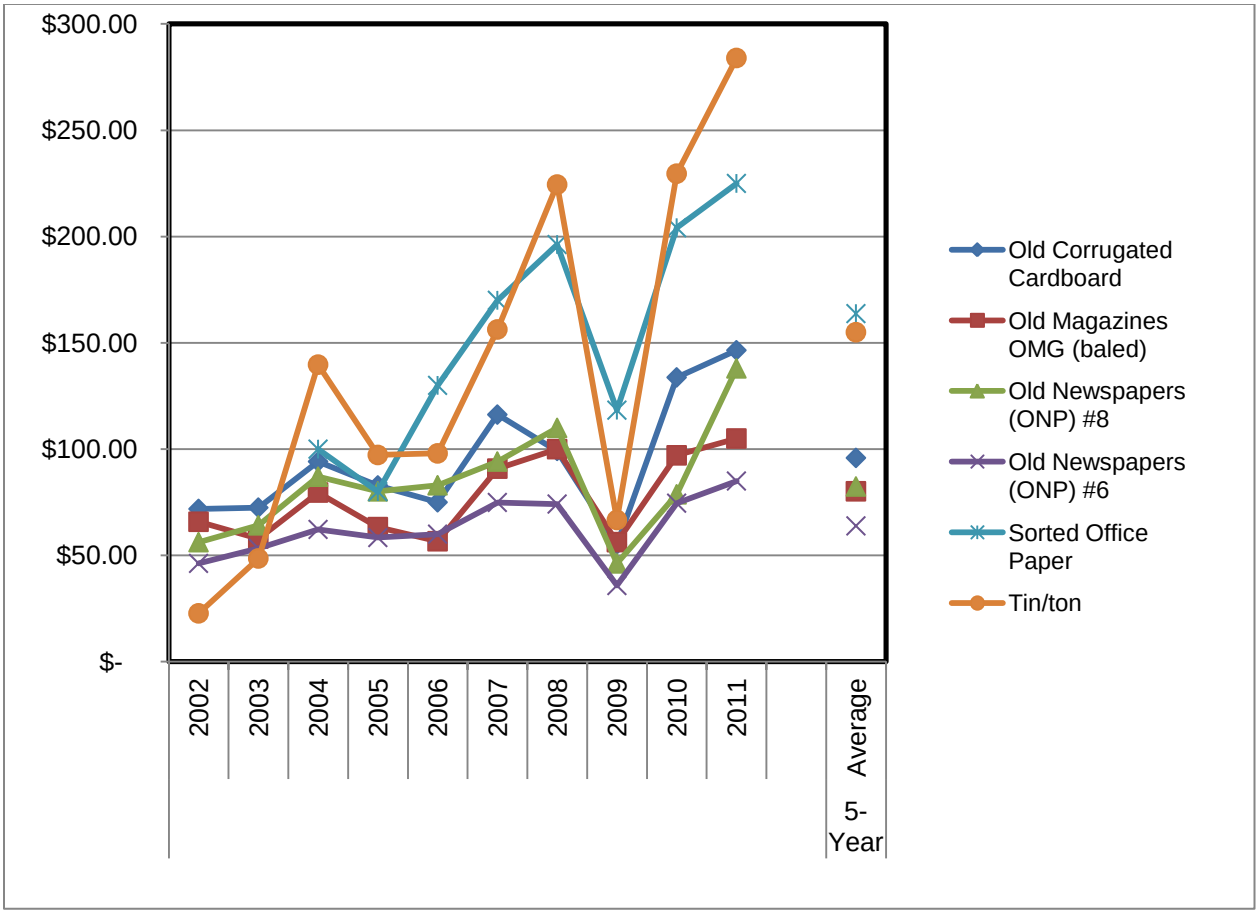
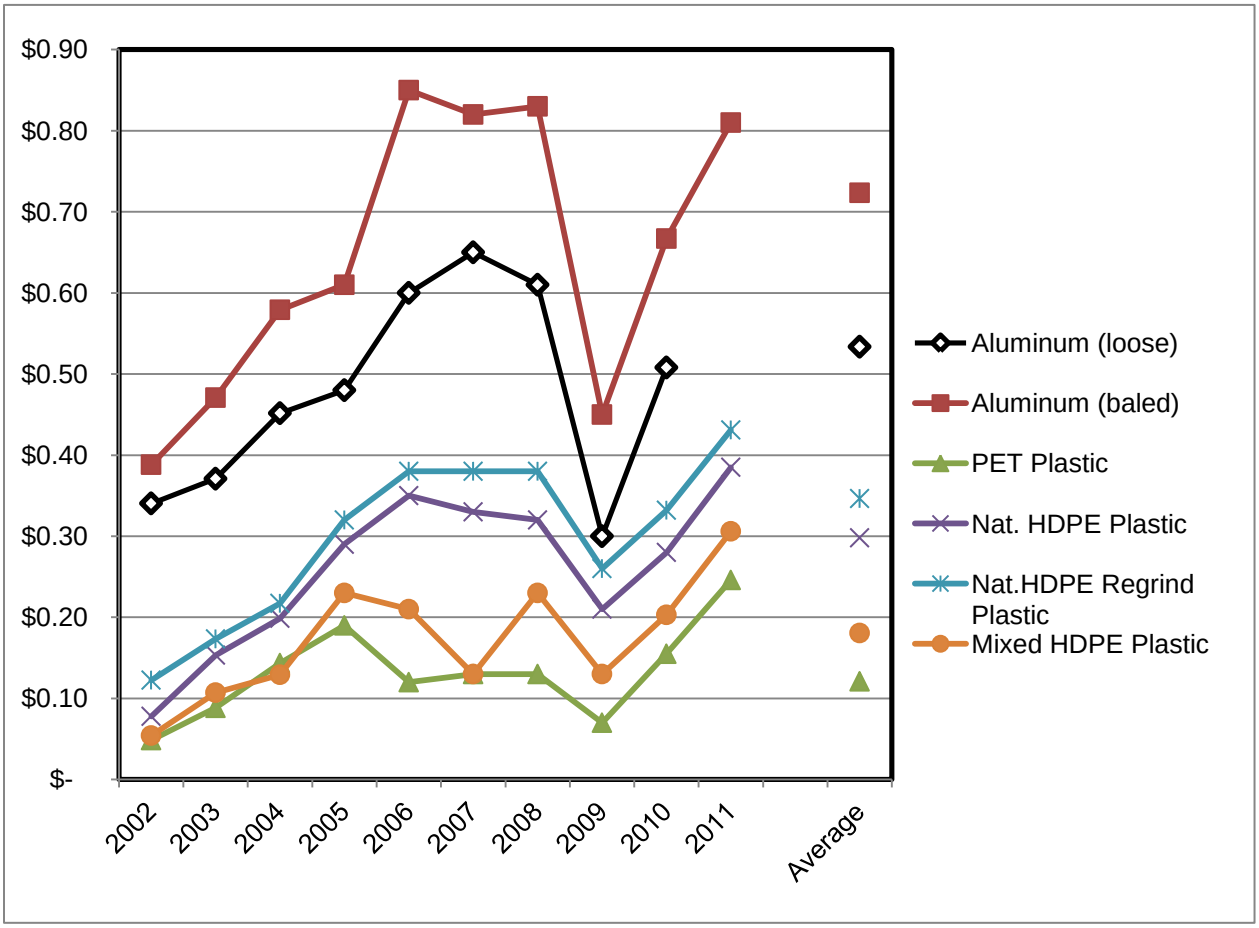


Figure 4-9 below shows the average annual price for the past 10 years for materials marketed on a per-pound basis.

Figure 4-9
PRICE PER POUND AVERAGE



By participating in SEMREX staff time is saved researching markets, prices, arranging transportation, doing collections and solving problems. Member benefits include: higher prices for recyclable materials because of larger volumes and increased bargaining power, transportation and storage efficiencies through joint shipments with other facilities freeing up valuable storage space and making the most of transportation dollars. SEMREX members also share educational resources to make the most of education dollars. Members also share knowledge of processing, contract language and other operational knowledge. Assistance is provided in finding recycling alternatives for materials such as off-spec packaging and other odd materials with large quantities that would otherwise end up in a landfill.

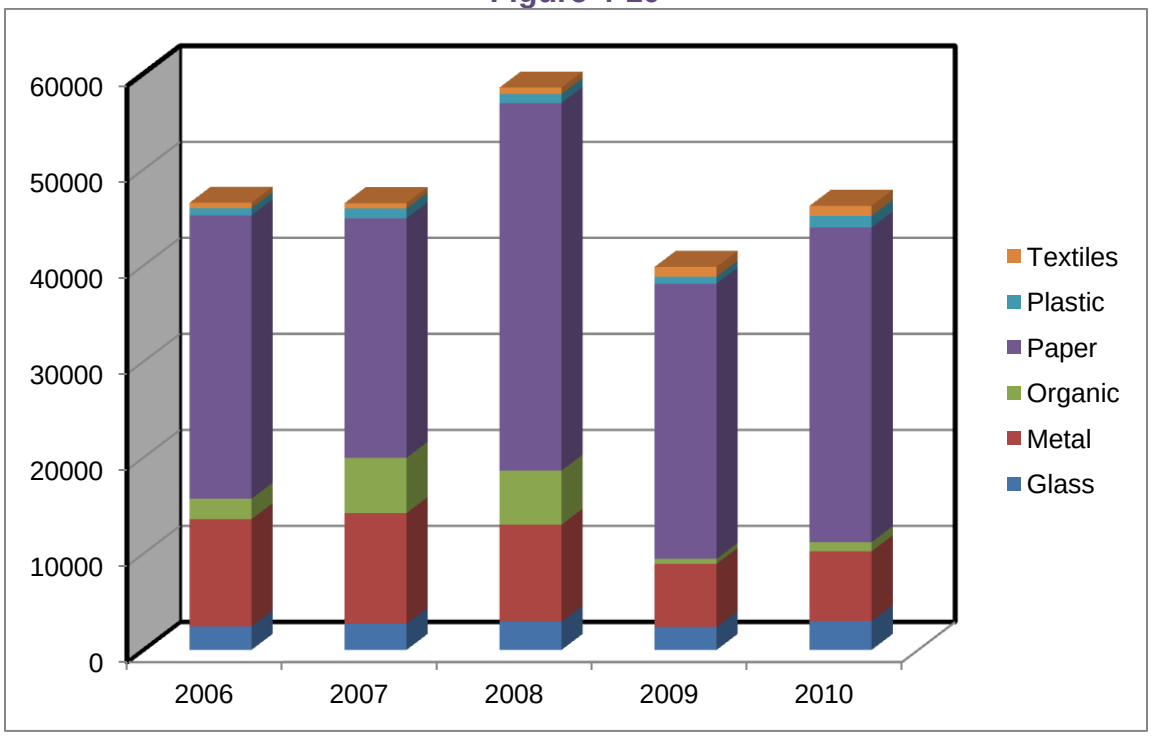
4.6.11 Annual Recycling Quantities

Recycling quantity information is collected through a variety of techniques. These include periodic reports from:

1. Solid waste haulers as required under Ordinance No. 10,
2. Materials delivered to the OCRC,
3. Selected businesses that are surveyed as part of the SCORE reporting program, and
4. Information provided by the MPCA for selected large retail stores that have multiple facilities around the state.

Best efforts are made to gather accurate data. The information received from the haulers, and businesses that submit the requested information is believed to be accurate, but the submittal of information from businesses that recycle is voluntary. Businesses that process their own recyclable materials may be shipping directly to mills independent of a hauler and those numbers are not included unless County staff is aware of this activity and the business reports. Therefore the actual recycling numbers for Olmsted County are higher than reported on the SCORE report. Reported recycling quantities in the County from 2006 through 2010 are presented in Figure 4-10.

Olmsted County Total Tons Recycled
Figure 4-10



As indicated in Figure 4-10, paper is the single largest component. Metals are second. Data for 2009 indicates a dramatic decrease in recycling. This is likely due to the economic downturn experienced by the nation in the Fall of 2008. Also, recyclable commodity prices for the majority of 2008 for were very good in comparison to 2009. The price of steel, for example, was $390.00/ton in July of 2008 and $37.50/ton in July of 2009. Since the "Metal" category includes ferrous and non-ferrous scrap, this may account for the severe drop in metal recycling tonnage from 2008 to 2009.

Materials handled at the OCRC account for approximately 4.2% of the total recyclable waste stream. Fibers comprised the largest portion of the material that passed through the OCRC and was marketed for resale,. Mixed paper, office paper, newsprint, phone books and magazines comprised 40% by weight of the marketed stream. Old corrugated cardboard comprised another 25.5% by weight of the marketable recycled waste stream. The rest of the recycled waste stream was comprised of aluminum, steel food cans, glass and plastic. The 2010 yearly total of recyclable tons from self-haulers marketed through the OCRC was 2,082.

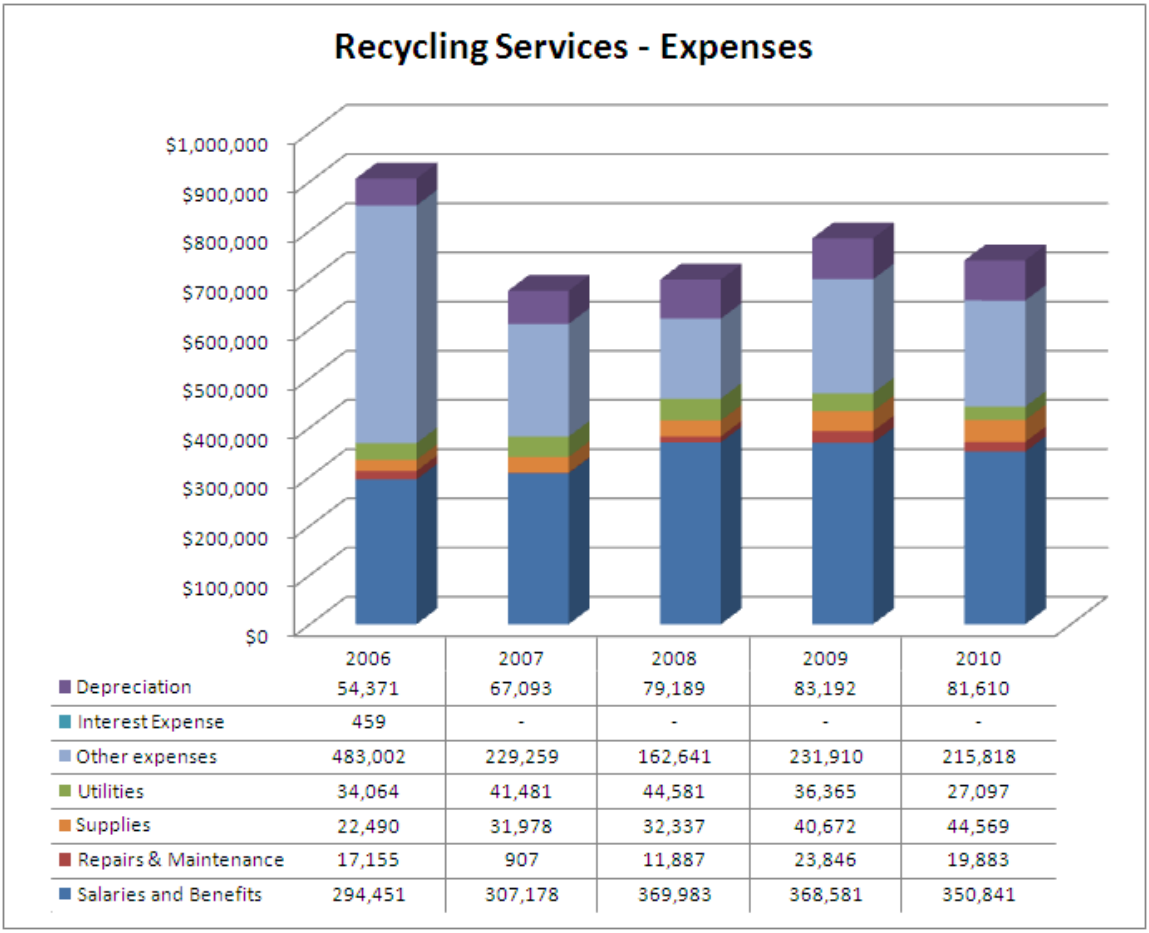
4.6.12 Capital Costs/Debt Service

There is no debt service on the OCRC as the last payment was made in 2006.

4.6.13 Operating Costs

Figure 4-11 represents the Recycling Services unit's expenses under the accrual basis of accounting as reported for the annual financial report. Capital purchases are excluded from expenses as these are capitalized on the balance sheet of the Solid Waste fund and depreciated over the estimated useful lives of the assets. The depreciation expense is shown to reflect the estimated annual cost of the assets being used for operations. Revenues are presented on a system wide basis as they contribute to the entire integrated solid waste management system. The "Other expenses" in 2006 included intrafund waste disposal fees and were not eliminated at year end. Beginning in 2007, these intrafund waste disposal fees are no longer recorded since these costs are taken into account at their respective final disposal location within the Solid Waste fund. In 2006, the remaining outstanding debt in this unit was paid in full.

Figure 4-11



	2006	2007	2008	2009	2010
Depreciation	54,371	67,093	79,189	83,192	81,610
Interest Expense	459	-	-	-	-
Other expenses	483,002	229,259	162,641	231,910	215,818
Utilities	34,064	41,481	44,581	36,365	27,097
Supplies	22,490	31,978	32,337	40,672	44,569
Repairs & Maintenance	17,155	907	11,887	23,846	19,883
Salaries and Benefits	294,451	307,178	369,983	368,581	350,841

Financial budget forecasting information can be found in Attachment B.

4.6.14 History

A brief summary of the recycling program includes the following highlights:

- The County recycling program began in 1983 and was operated by Ability Building Center (ABC). Recycling drop boxes were placed in several areas (grocery stores, malls, etc.) within Rochester.
- The recycling center opened for operations in June 1986 and was operated and managed by ABC as a redemption center.
- In 1988, Olmsted County becomes a member of the Southeast Minnesota Recyclers Exchange (SEMREX).
- In September 1989, ABC requested that Olmsted County take over operation of the County recycling center.

- In June 1990, the County began to accept all recyclables at the center without paying or charging. This was due to complaints concerning competition received from the private sector.
- In October 1990, the County adopted a solid waste ordinance requiring that waste haulers provide curbside recycling to residents and businesses. The recycling drop boxes were relocated to the rural townships and became the rural recycling sheds.
- In 1991, the County contracted out the operation of the 13 rural recycling sheds.
- The County resumed operation of the recycling sheds in 1992 due to poor service by contracted vendor.
- A private firm, Recycle Minnesota Resources, Inc. (RMR) took over operation of the recycling center in 1993.
- In 1994, Supercycle purchased RMR and assumed operation of the OCRC.
- In 1995, management of self-hauled garbage operations was added to the OCRC contract.
- In 1999, a new 3-year agreement was signed with a private firm, Waste Management, Inc. to operate the OCRC. The agreement ended December 31st, 2001.
- In 2000, a new recycling system was implemented in government buildings.
- In 2001, submitted a CAP grant for a MRF to the OEA. In April 2001, Olmsted County became Fiscal Agent for SEMREX, and hired Special Projects Coordinator to administer a Professional Services Agreement, and work with waste abatement staff on outreach projects.
- In 2002, a new 3-year agreement was signed with a private firm, Superior Services to operate the OCRC. The agreement ended on December 31st 2004.
- In 2003, the Rural Recycling Sheds program ended due to rapid growth around many shed areas, excessive contamination, state funding cuts and high cost/ton to manage materials.
- In 2004, the County resumed operation of processing recyclables at the OCRC.
- In 2005, the County resumed full operation of the OCRC to include self-haul garbage, special wastes and recyclables.
- In 2005, the OCRC started accepting e-waste per a state law banning this material from the waste stream.
- In 2006, phase 1 of the Public Drop Expansion (site layout) project was completed at the OCRC.
- In 2007, phase 1 of the Rain Garden (bio-retention pond) became operational at the OCRC.
- In 2007, phase 2 of the Public Drop Expansion project (Cover Structure) was completed at the OCRC.
- In September 2007, the OCRC added brush disposal option.

- In 2008, the OCRC added OWEF, Graham Arena and Law Enforcement Center (LEC) to the Government recycling route.
- In June 2009 the County implements 800 MHz Radio Communication system at OCRC.
- In September 2009, the OCRC started accepting credit cards as a payment option.
- In 2010, the OCRC added the new PW Service Center and 2117 Building to the Government recycling route.

4.7 HAZARDOUS WASTE

Toxicity reduction in the waste is critical to achieving the strategy of protecting public and environmental health. Toxic materials such as mercury from thermometers and lead from cathode ray tubes, can pose a serious health threat if not managed properly. Wastes with toxic or hazardous components that are burned for energy recovery can create problems with air emissions and/or the management of the resulting ash. Toxic or hazardous components of waste that are landfilled can create additional costs associated with the management of collected leachate or pose threats to ground water if not properly disposed.

The Hazardous Waste (HW) Program was set up with the primary responsibility of preventing hazardous material from entering the solid waste stream. A secondary responsibility was to help protect the environment (land, air and water). Olmsted County's Hazardous Waste Facility provides County residents with an outlet for unusable, unwanted, or hard to get rid of hazardous wastes and materials. In addition, the Hazardous Waste program has been designed to provide safety protection for the solid waste facilities and their employees in a cost-effective manner.

The separation and collection of hazardous waste is intended to reduce the volume of a number of problem heavy metals (including lead, cadmium and mercury) and hazardous organic compounds entering the waste stream. These hazardous wastes contribute to toxic air emissions from the OWEF or higher metals levels in the ash, leachate or air contamination from solid waste bypassed to the Kalmar Landfill.

In 1989, Olmsted County started a partnership with the Minnesota Pollution Control Agency (MPCA) to collect household hazardous waste (HHW). The County now acts as the sponsoring County in a four-county regional HHW program. The regional facility is located in Rochester. The HHW program includes education, a product exchange, a regional collection and processing facility, and a mobile collection unit. The mobile collection unit is used to service multiple locations within the region. The four counties in the HHW region are Olmsted, Dodge, Goodhue and Wabasha. The partnership with the MPCA started as a 50-50 split in costs. Today, the counties in outstate Minnesota

realize about 80% of the costs in addition to a reduction in MPCA support services. Over 15 percent of all Olmsted County households used the household hazardous waste facility in 2010.

The Hazardous Waste program has expanded over the years beyond HHW management to handle special wastes, hazardous waste generated by businesses defined as Very Small Quantity Generators (VSQGs), agricultural pesticides, abandoned wastes and wastes generated from spills. These services are provided to 12 counties in southeastern Minnesota (while HHW is only four regional counties).

From 1999 to 2010, the HW permanent facility managed between 170 - 220 tons of hazardous materials/year. HHW wastes make up the largest fraction at about 67%, Special Wastes at about 17%, VSQG wastes at about 14%, with the remainder (about 2%) being agricultural waste pesticides, abandoned and spilled wastes.

The Regional HHW Mobile Collection system collects an additional 50 tons/year of waste from small communities in the four-county area with periodic one-day collections. This waste is transferred to the permanent Hazardous Waste facility for proper management.

Several wastes are targeted through education specifically for collection through the HW facility. They include: Household hazardous waste, problem materials, VSQG's, waste pesticides, mercury bearing wastes and sharps. The existing programs are expected to be continued and reviewed periodically for improvement throughout the next 10 years.

4.7.1 History

- 1989 - The HHW program is started in partnership with the MPCA utilizing one-day collection events with temporary on-site storage capacity.
- 1991 - The County becomes part of a four-County regional HHW program. Other counties participating in the HHW program are Dodge, Goodhue and Wabasha counties. Regular, onsite collection hours are established.
- 1992 - The regional program acquires a mobile collection unit.
- 1994 - The HW program begins to accept problem materials. These materials include PCB ballasts/capacitors, oil filters, fluorescent tubes, oil filters, gas cylinders and asbestos in small quantities (1 cubic yard or under).
- 1995 - The (NEW) Olmsted County regional HW facility building opens.
- 1996 - The program initiates the collection of hazardous wastes from very small quantity generators (VSQGs). The VSQG waste program is developed in partnership with the MPCA.
- 1997 - The HW program expands it capabilities and acquires the regulatory capacity to accept agricultural waste pesticides and abandoned and spilled wastes. The agricultural waste pesticide collection program is developed in partnership with the Minnesota Department of Agriculture (MDA). The

abandoned and spilled waste programs are developed in partnership with the MPCA.

- 2000 - The HW program adds the capacity to collect household-generated, potentially infectious sharps. This program was developed with the use of the Mayo Clinic incinerator as a disposal site.
- 2001 – The HW program receives the Rechargeable Battery Recycling Corporation (RBRC) award for collecting the most rechargeable batteries in Greater MN from 1995 – 2000.
- 2002 Contract renewal for HHW Services signed with the MPCA and CO's for 5 years (2003 – 2007).
- 2004 – City of Chatfield has 1st ever HHW mobile collection.
- 2004 – Olmsted County signs Waste Pesticide contract with MDA.
- 2004 – On-site Latex Paint treatment disposal approved through Industrial Solid Waste Program.
- 2005 – The Dock extension project was completed, integrating the Haz Waste and Recycling Center area and providing additional operating space.
- 2006 – HVAC Systems project is completed at OCHW facility.
- 2007 – OCHW expands open hours to M-F 8:00 a.m. to 5:00 p.m. to coincide with OCRC as a one-stop shop.
- 2007 – Dock Cover project is completed enclosing the dock extension area integrating the OCHW and OCRC.
- 2008 - Contract renewal for HHW Services signed with the MPCA and CO's for 5 years (2008 – 2012).
- 2008 – Contract renewal for Waste Pesticide Cooperative Agreement signed with MDA.
- 2009 – OCHW reaches goal of managing 1 ton of mercury since inception of program.
- 2010 – Used cooking oil added to the list of materials accepted at OCHW.

4.7.2 Facility Description

The HW permanent facility is located in northeast Rochester at 305 Silver Creek Road NE, adjacent to the recycling center and compost facility and near the County's waste-to-energy facility. The HW management program also owns and operates a mobile collection unit. A low-bed 40-foot tractor trailer is located in Red Wing and is used to collect and transport HW materials gathered during the one-day mobile collection events.

The HW permanent facility is currently a 6,280 square foot concrete building. The facility contains an enclosed drop-off area, two loadout docks, office, bathroom with shower, laboratory with fume hood, product exchange area, bulking room, and a non-flammable drum storage area with five chemical storage bays. The storage capacity of the facility is one hundred twenty 55-gallon drums. Construction details include sloped epoxied floors with below grade containment, a fire suppression system, hard piped eyewashes, blowout panels, and a high volume ventilation system.

Adjacent to the HW facility is a stand-alone, 312 square foot safety storage unit. This unit is used to store flammable materials. This unit has the capacity to hold forty-four 55-gallon drums per MCPA regulations.

The following is a partial list of wastes accepted at the facility:

- Aerosol cans which contain product
- Automotive fluids (except used motor oil)
- Cleaners (acids, bases, degreasers, heavy metals)
- Paints and stains (oil and latex)
- Pesticides (insecticides and herbicides)
- Wood preservatives
- Solvent-based products (chlorinated and nonchlorinated)
- Mercury products
- Rechargeable, button and lead acid batteries
- Strippers
- Lab chemicals
- Resins/epoxies/roofing tars
- Photographic/plating wastes
- Residential generated sharps

Items that the facility cannot accept are:

- Explosives
- Medical wastes (other than sharps)
- Unknown products
- Large gas cylinders
- Radioactive waste
- Alkaline batteries
- Used motor oil

The main facility is open year round from 8:00 a.m. to 5:00 p.m., Monday through Saturday.

4.7.3 Equipment

Available equipment at the facility includes a forklift, lab, support truck, paint shaker, can crusher/oil filter crusher and aerosol puncturer (for spray cans).

4.7.4 Personnel

There are 3 full time employees and one half time employee that work the facility. The facility employees include a specialist, a crew leader and two technicians. Supervision is provided by the specialist and Waste Abatement Manager. The Waste Abatement Manager is split with one-half of his time designated to the operation of the Hazardous

Waste Management program, and the other half dedicated to the Recycling program. The employees all receive 24-hour Hazardous Waste Operation (HAZWOPER) and Occupational Safety and Health Administrator (OSHA) training with yearly refresher updates.

4.7.5 Institutional

Historically, the program manager has been directly responsible for relations with the MDA, the MPCA and other counties. There is also coordination between the Waste Abatement Manager and the Regulatory Compliance Coordinator and Health and Safety Coordinator.

A Microsoft Access based software program was developed in 2004 to handle the program's data management requirements. Prior to that time, the program had an R-based software program that was developed on 1992. The Access based software is still in use and is acceptable, although a new standardized data management program is needed.

4.7.6 Operations

The HW management program operates under a contract between the MPCA and Olmsted County. The agreement describes the terms under which Olmsted County has established and continues to operate the HW program as authorized by MN statutes.

A summary of the contract is as follows:

- The service area includes Olmsted, Dodge, Goodhue, and Wabasha Counties.
- The program is operated in accordance with the Olmsted County Operations Manual.
- The County may enter into Reciprocal Use Agreements with other MN counties or governmental units.
- The County shall notify the MPCA of program changes, prepare an annual report, and maintain records as necessary.
- The County will operate an education and waste reduction program in relation to the HW management program.
- The County will provide for the operation of the facilities to accept and manage wastes in accordance to all applicable requirements.
- The County can accept HW, VSQG wastes, abandoned wastes, special wastes including but not limited to: fluorescent or high density discharge lamps, mercury containing devices, cathode ray tubes, PCB ballasts/capacitors and batteries. The County can also collect non-household waste pesticides. Bulking of paints, solvents, fuels, adhesives, used or waste oil, and antifreeze is allowed.
- An MPCA-generated U.S. Environmental Protection Agency Identification (EPA ID) Number is used for transportation and disposal of wastes collected through the HW program.

- The MPCA shall accept generator status of wastes from the time they come into possession of the hauler under contract to the State.

The permanent facility accepts hazardous waste from the mobile collection unit, self-haulers and small businesses that participate in the VSQG program. When materials are received they are counted and weighed on a scale in the receiving area. Self-haul residents are identified by County and the number of participants are recorded.

VSQG participants must fill out an application form. This form is used to verify that the participants qualify to utilize the program. VSQG participants must include their EPA ID number on the application. If they do not have an EPA ID number, they must complete a "Notification of Regulated Waste Activity" form and obtain an EPA ID number. Upon approval of the wastes, Olmsted County provides instructions on how to safely package, store and transport the wastes to the facility. Free transportation of Olmsted County generated materials to the facility is also offered.

In 2010, the mobile unit is scheduled to be present at 27 single day collections to be held in the four-county area. Waste volumes are expected between 40 to 60 tons for these collections. Five of the single-day mobile collections will be in Olmsted County. A range of 7 to 11 tons per year of HHW is managed at the four Olmsted County mobile collections.

Participating counties manage the collection process within their respective borders. They are obligated to follow safety and other operating requirements as contained in their agreements with Olmsted County. The collected wastes are transported to the permanent facility where they are stored until the hazardous waste transporter removes the wastes.

The transport contractor manifests processed materials and delivers them to appropriate recycling or disposal facilities as indicated in the cooperative agreement with the County. In 2009, 16 semi-load shipments were made from the permanent facility, including 5 of HW and 11 Special Waste.

4.7.7 Contract and Regulatory Compliance

The HW management program operates under a number of agreements and contracts, including:

- Waste Pesticide Management with the MN Department of Agriculture (MDA)
- Special Waste/Problem Material Management with MPCA
- Spills Waste Management with local MPCA
- Hazardous Waste Management Disposal with the MPCA
- Household Hazardous Waste Management Program with the MPCA
- VSQG Waste Management with the MPCA
- Household Hazardous Waste Management Program with Dodge, Goodhue, and Wabasha Counties

The HW program with the MPCA was originally designed to address HHW. While the other programs and contracts are important, the HHW is the only one partially funded by the MPCA through the MPCA/Olmsted County HHW contract. The MPCA/Olmsted County HHW contract requires Olmsted County to maintain the following plans:

- Operations Plan – This manual describes the policies and procedures for operation of the HW program.
- Safety and Emergency Contingency Plan – This plan provides safety and emergency procedures to be implemented in response to emergency situations.

A summary of policies and procedures found in Operations Plan and the Safety and Emergency Contingency Plan are provided below.

4.7.8 Operations Plan

The following is a brief summary of information provided in the Operations Plan. For more detailed information, please refer to a full text document of the plan.

The plan addresses the following items:

- Collection procedures including preparedness of the site and site personnel, and receiving and inventorying the waste
- Categorizing and packaging collected waste including hazard class sorting and packaging the waste for storage and transportation
- Proper waste storage practices and product reuse

4.7.9 Safety and Emergency Contingency Plan

The following is a brief summary of information provided in the Safety and Emergency Contingency Plan:

- Safety objectives, applicability and site layout and the location of safety equipment
- Responsibilities of the facility operators, hazardous waste/recycling supervisor, safety officer, employees and subcontractors
- Accident investigation policy and procedures
- Occupational injury management
- Personnel protective equipment
- Identification, analysis and control of workplace hazards
- Communication of safety and health programs to employees
- Hazard monitoring and decontamination
- Emergency Contingency Plan and Fire Prevention Plan
- Safety training and a workplace accident and injury reduction program

The contingency plan insures safe and efficient operation, and impacts every aspect of the program. The HW program is a permitted large quantity hazardous waste generator and appears to be operating in accordance with applicable rules and regulations pertaining to the handling of hazardous waste and hazardous materials. Due to the type of materials handled, the HW program operates under mandatory procedures and is required to keep detailed records.

4.7.10 Public Education

The education plan uses a variety of media, depending on the target audience. Word of mouth is the most effective form of advertising. Geographic area, however, dictates what is effective at the least cost. For small areas, the County concentrates on local newspapers, signs, town administrators, inserts, speaking engagements and local haulers to inform the public. For regional programs such as VSQGs and agricultural wastes, where the program serves 12 counties, Olmsted County uses TV, radio and direct mail. See also, Section 4.2 Waste Reduction /Education.

4.7.11 Throughput

The HW management program handled 242.6 tons of hazardous materials at the County's permanent facility in 2010. An additional 39.7 tons of HW was delivered to the facility from the mobile unit, which operates almost entirely in other participating counties in the region. The following table provides a brief summary of the amount (in tons) of waste managed by the HW program and the major categories of waste handled.

Figure 4-12
HW Managed by Olmsted County (tons/year) Annually

Year	*Permanent Facility*	*Mobile Unit*	*Pesticides /Poisons*	*Latex products*	*Oil-based paints*	*Auto Batteries*	*Flammable products*	*Fuels*
2000	*154.8*	*37.3*	*2.7*	*87.5*	*35.8*	*8.2*	*3.0*	*32.2*
2001	*160.5*	*43.1*	*2.8*	*97.8*	*31.9*	*11.5*	*2.0*	*33.4*
2002	*151.5*	*64.2*	*4.1*	*101.1*	*35.8*	*10.7*	*2.1*	*37.4*
2003	*191.1*	*35.0*	*4.9*	*114.8*	*31.6*	*11.9*	*0.7*	*35.7*
2004	*154.6*	*31.1*	*5.4*	*110.8*	*34.1*	*12.8*	*0.3*	*32.8*
2005	*208.4*	*36.2*	*6.6*	*101.7*	*34.9*	*12.8*	*0.3*	*29.0*
2006	*239.8*	*48.8*	*6.2*	*122.3*	*36.1*	*14.0*	*0.3*	*30.4*
2007	*241.5*	*54.0*	*6.2*	*124.3*	*37.1*	*14.5*	*0.2*	*31.3*
2008	*218.6*	*45.7*	*5.6*	*119.8*	*32.4*	*9.0*	*0.2*	*26.3*
2009	*221.3*	*39.0*	*8.0*	*120.0*	*30.1*	*8.5*	*0.4*	*27.2*
2010	*242.6*	*39.7*	*6.8*	*132.6*	*32.6*	*6.0*	*0.3*	*32.8*

In 2010, there were 11,763 program participants representing all program sectors serviced at the permanent facility. About 30% of the materials collected are reused

through the Reuse Center. There were 71 VSQG transactions, which generated 27.1 tons, or 13.5% of all materials by weight. Annual reports indicate that HHW, Special Wastes and VSQG participation have leveled off over the past few years.

Figure 4-14 provides a summary of the major types and volumes of HW collected at the permanent facility in 2010. As indicated, paint was the primary material delivered to the facility.

Figure 4-13
HW Collected in 2010

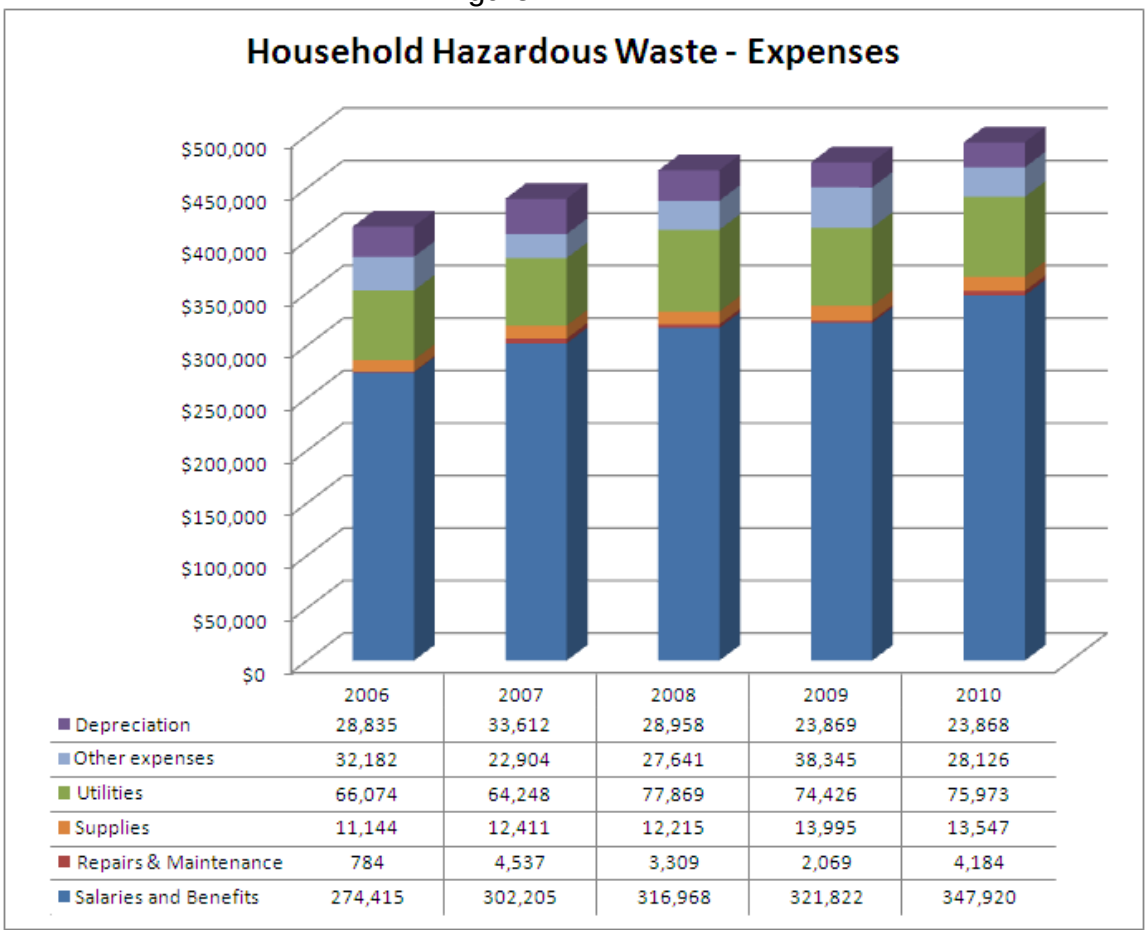
Type	Volume
Latex Paint	54.6%
Oil Based Paint	13.4%
Fuels	13.5%
Car batteries	2.5%
Nonhazardous	6.2%
Pesticides/Poisons	2.8%
Anti-freeze	1.8%
Unused Motor Oil	2.2%
Other	3.0%

4.7.12 Financial Analysis

The HHW program costs on a per participant basis has risen from $38 per participant in 2000, to $47 per participant in 2009. Most of the cost increase is due to labor costs. The main forms of revenue for the program include state grants and operational revenue. Over the last three years, state grants have averaged about $60,000, while operational revenue has been about $72,000.

Figure 4-15 represents the Household Hazardous Waste unit's expenses under the accrual basis of accounting as reported for the annual financial report. Capital purchases are excluded from expenses as these are capitalized on the balance sheet of the Solid Waste fund and depreciated over the estimated useful lives of the assets. The depreciation expense is shown in the above to reflect the estimated annual cost of the assets being used for operations. Revenues are presented on a system wide basis as they contribute to the entire integrated solid waste management system. See also, Attachment B.

Figure 4-14



	2006	2007	2008	2009	2010
Depreciation	28,835	33,612	28,958	23,869	23,868
Other expenses	32,182	22,904	27,641	38,345	28,126
Utilities	66,074	64,248	77,869	74,426	75,973
Supplies	11,144	12,411	12,215	13,995	13,547
Repairs & Maintenance	784	4,537	3,309	2,069	4,184
Salaries and Benefits	274,415	302,205	316,968	321,822	347,920

Operating expenses at the HW facility have increased 18.6% from $371,000 in 2005, to $440,000 in 2009. Standardizing and removing tip fees and SCORE funding in 2005, operational revenues have decreased 12.1% from $140,000 in 2005 to $123,000 in 2009. Throughput of waste has increased 17.6% during that same time period. The primary operating expenses are for labor and to a much smaller extent waste disposal. Tip fees are used to subsidize the difference, while surplus money is deposited back into the fund.

The HHW program does not charge its customers to drop off wastes. As indicated earlier, the HHW program generates 2/3rds of the waste at the Hazardous Waste Facility. The VSQG and Special Wastes program has a published price list for these transactions which, in contrast to the HHW program, is designed to offset costs by using fee-for-service. Fee-for-service is also used for spilled and abandoned wastes. Disposal costs for agricultural wastes, as well as HHW generated pesticides are paid for by the MDA.

4.7.13 Observations

- The current HW facility is adequately handling the current volume of materials encountered. However, if volumes continue to increase due to population growth, and/or if new programs are implemented, certain operating procedures can be changed to increase capacity, such as increasing the frequency of disposal (reducing the time material is stored on-site), safety is affected by the amount of open operating and storage space available.
- The data management system needs to be upgraded so that it is compatible with other Environmental Resources Department programs.

Olmsted County expects to continue to operate the Hazardous Waste Facility throughout the next 10 years.

4.8 Olmsted Waste-to-Energy Facility (OWEF)

The primary processing technology in Olmsted County is the Olmsted Waste-to-Energy Facility (OWEF). The OWEF produces renewable energy in the form of steam, electricity, and other utility services which are provided to 35 buildings in Rochester at the current time. The OWEF is owned and operated by Olmsted County. Olmsted County has made a significant investment in the waste-to-energy component of its integrated system to comply with the Minnesota Solid Waste Hierarchy as established in the Waste Management Act of 1980 as amended, and intends to continue to utilize this technology for the next 10 years and beyond. Further expansion of the facility is not planned during the next 10 years.

OWEF consists of two 100 ton-per-day and one 200 ton-per-day (TPD) MSW incinerator-boiler units that are mass-burn, water-cooled wall design; three steam turbine-generators; municipal solid waste receiving area; ash handling systems; air pollution control equipment; necessary auxiliary installations; the medium-voltage work necessary to connect with the utility grid; and a natural gas fired backup boiler. The two 100 ton-per-day Riley/Takuma incinerator-boiler units commissioned in 1987 are rated at 46.5 million BTUs* per hour which corresponds to 100 TPD at 5500 BTU/lb.

The original facility construction cost was approximately $22 million. Bonds used to finance the construction matured in 2007. Unit 1 and Unit 2 are of the stoker fired, water-cooled wall, excess air type. Each unit is equipped with a natural gas-fired auxiliary burner located at the rear wall of the furnace. Unit 1 and Unit 2 supply about 30 kpph of live steam each, at 610 psig/ 650 degrees F. Unit 3 is a 200 ton-per-day Austrian Energy and Environment Von Roll (AEEVR)

AEEVR/Duro Dakovic incinerator-boiler unit and was commissioned in 2010 and is rated at 93.5 million BTUs* per hour which corresponds to 200 TPD at 5610 BTU/lb. The facility construction cost was approximately $96.5 million.

Bonds used to finance the construction the first round of Unit 3 bonds issued in 2007 will mature in 2027 and the 2nd round issued in 2009 will mature in 2029. Unit 3 is also a stoker fired, water cooled wall, excess air type. The unit is equipped with two natural gas-fired auxiliary burners located on opposing side walls of the furnace. Unit 3 supplies 60 kpph of live steam, at 610 psig/650 degrees F. A 75 kpph dual-fuel Nebraska packaged boiler unit that was installed in 1993 at a cost of $1,300,000 and provides backup steam at 250-psig saturated conditions for use during the incinerator-boiler shutdowns.

All units utilize similar, but separate flue gas systems comprised of a spray dry absorber, powdered carbon injection (PAC), pulse jet fabric filter, induced draft fan, and stack flue. Continuous Emission Monitor (CEM) systems are used to measure CO, CO_2, O_2, SO_2, opacity and stack gas flow rate. Unit 3 utilizes selective non-catalytic reduction (SNCR) NOx control and associated continuous emission monitor.

Electrical power is generated with one backpressure steam turbine-generator unit of 1.86-MW nominal capacity (TG1), one condensing steam turbine-generator unit of 2.22-MW nominal capacity (TG2), and one condensing/extraction steam turbine-generator unit of 5.4-MW nominal capacity (TG3). TG1 and/or TG3 supply steam to a 60-psig header used primarily for the OWEF district energy system; TG2 exhausts into air-cooled condenser 1; and TG3 exhausts into air cooled condenser 2. Steam from the 600-psig header is also cascaded to supply 250-psig steam headers through pressure reducing and desuperheating stations.

The facility operates continuously, 24 hours per day, seven days per week, 52 weeks per year. The planned operating schedule of each boiler allows normal planned maintenance to be accomplished without interrupting the supply of steam or electricity. There are currently two scheduled maintenance shutdowns per year for each boiler.

Overall availability for the OWEF is approximately 90%. The plant has experienced an unscheduled down time factor of 2.5%. Scheduled outages account for 7.5% of plant down time. Every effort is made by all parties to maintain or improve this level of availability.

The facility operates a potable water system using groundwater and a sewer system that serves the Campus, the Department of Natural Resources (DNR), and the Federal Medical Center (FMC).

A steam absorber and electrically driven centrifugal chiller are installed at old power plant located on the grounds near the OWEF. A 1750 kW* emergency diesel generator was installed in the old power plant in 2009 replacing the previous 800kW machine.

Figure 4-15
Abbreviation Equivalents

*Unit Abbreviation	Term
BTU	British Thermal Unit
ccf	100 cubic feet
kW	Kilowatt
kWh	kilowatt hour
MLB	thousand pounds
MW	Megawatt
pph	pounds per hour
psig	pounds per square inch gauge
TPD	Tons per day

The primary fuel for the OWEF is Municipal Solid Waste (MSW), with natural gas and light fuel oil serving as backup fuels.

4.8.1 Agreements

The Olmsted Waste-to-Energy provides energy in the form of steam and electricity to 35 buildings in Rochester.

1. Steam agreements to various customers include the Olmsted County Campus, Rochester Community and Technical College (RCTC), University Center Rochester (UCR), Federal Medical Center (FMC), the Government Center, City Hall, Olmsted County Work Release Center, Mayo Civic Center, Rochester Public Library, and Olmsted Medical Center (OMC) Hospital.
2. Retail electricity is sold to the Olmsted Medical Center (OMC) Hospital and the Olmsted Community Services Campus. Excess electricity is sold to the Southern Minnesota Municipal Power Agency (SMMPA). Standby electrical service is contracted to FMC, but hasn't been used to date except for testing.
3. Domestic water is sold to the Campus and FMC.
4. Chilled water for air conditioning is produced for the Campus and FMC.

4.8.2 Capacity

1. Overall availability of the plant is about 90%.

2. The plant is designed to process a total of 400 tons per day of municipal solid waste (MSW).
3. The plant is operated to produce a total steam output of 120,000 pounds per hour per unit using 400 tons per day of municipal solid waste.
4. Electrical output forecasted for 2011 is about 25 million kWh*.
5. Electrical output forecasted for 2011 sold to SMMPA is about 10 million kWh.

Waste quantities delivered to County facilities are shown in Section 3, Figure 3-2 of this document.

4.8.3 Personnel

The OWEF has 42.5 full time equivalent (FTE) positions. There are four 6-person operating crews, one 2–person relief crew, 1.5 FTE scale operators, 3 instrument and control (I&C) technicians, 7 maintenance workers, and 5 management staff. Due to the recent expansion, the primary operating crews were recently increased from four to six workers.

In recent years, management has had some difficulty retaining employees due to higher competing wages in the area. To alleviate this concern, an incentive pay plan was negotiated with the operator's union. The plan provides increased hourly wages based on employees attaining licenses and certifications. The County also provides the cost of training. The incentive pay plan has improved the disparity in salary with similar plants and trained personnel have been retained.

4.8.4 Operations

The OWEF currently processes about 260 tons per day of mixed municipal solid waste and operates 24 hours per day, 7 days per week. MSW is delivered to the facility Monday thru Saturday. During maintenance outages waste may be diverted to the County owned and operated Kalmar Landfill.

The waste is collected from all sources in Olmsted County and from the transfer station in Dodge County. Commercial waste haulers have signed a voluntary agreement with Olmsted County to assure waste flow to the facility. Mayo Foundation also delivers MSW from its facilities, and has established a fully integrated and self-sustained solid waste management system for the collection, processing and disposal of its Solid Waste which supports the objectives of the Olmsted County Solid Waste Management Plan. MSW in excess of the Mayo facilities, is brought to Olmsted County Facilities

All collection vehicles enter the plant via the scale house. Two weigh scales are used so trucks can move through more quickly. Each scale serves as a back-up in case of failure. After weighing, the vehicles enter the building tipping floor area and dump the waste into a common pit for all combustors. The pit is sized for approximately 1,500 tons at normal capacity. All drivers are required to have reviewed safety training materials before utilizing Olmsted County Solid Waste Facilities.

One of the two overhead cranes (with grapple attachments) mix the waste within the pit and transfer it into the chutes which feed waste into the combustion units. Waste is moved through the combustion units on a reciprocating grate system. After the waste has been burned, the resulting bottom ash is ejected onto a common ash conveying system and deposited into 20 cubic yard roll-off bins for transport to the ash disposal cell at the Kalmar Landfill.

Combustion air is taken from the tipping floor for odor control. The products of combustion flow vertically and horizontally through each boiler to remove heat for steam generation. The products of combustion then pass through the Spray Dry Absorber (SDA) where gases are cooled to improve capture of condensable acid gas, organic and heavy metal pollutants that can be later captured in the fabric filter. Additionally Powdered Activated Carbon (PAC) and hydrated lime slurry are injected causing acid gases and heavy metals to be adsorbed, or absorbed and ultimately captured, in the fabric filter. Particulate captured in the fabric filter is then combined with the bottom ash.

The plant operates in a cogeneration mode, simultaneously producing steam for heating/cooling and electrical power. Heat removed from the products of combustion in the boiler generates steam. The steam is piped first to a turbine-generator(s) where a maximum of 7,460 kilowatts of electric energy can be generated. Steam exiting this turbine-generator is piped to a district heating and cooling system. Steam in excess of that required for the district heating and cooling system is routed to a condensing or extraction turbine-generator where an additional 6,200 kilowatts of electrical energy can be generated. The steam exiting the condensing or extraction turbine-generator is piped to an air-cooled condenser on the roof of the facility where the steam is cooled to water that is then returned to the steam generating system. Make-up water is added as necessary to replace system losses.

Combustion of the waste at the OWEF is very thorough. Problems associated with the fuel are aluminum cans and large pieces that will pass through the feed chute but will not exit the ash discharger. Aluminum causes slagging in the units. Large pieces require the rear door of the furnace be opened for the item to be removed. This is an extremely hazardous operation even when all safety practices are followed.

4.8.5 Maintenance

In addition to waste stream receipts, availability of the newly commissioned 200 TPD Waste Combustor dictates scheduled Maintenance shutdowns. Unit 1 and Unit 2 are capable of running 90-110 days before necessitating a Maintenance Outage. Unit 3 was designed, and is hoped to meet, a 180-day operating cycle. Outage duration varies, but normally requires about one week for each of Units 1 and 2 and three weeks for Unit 3. During the outages, one boiler operates while another is being serviced. If supplemental steaming capacity is required during an outage, the auxiliary boiler is operated.

A tabulation of historical facility availability since 2000 follows.

Figure 4-16
Annual Combustion Unit Availability

Year	Combustion Unit Availability (%)
2000	90.11%
2001	91.66%
2002	87.39%
2003	85.52%
2004	89.47%
2005	90.50%
2006	90.99%
2007	89.59%
2008	85.41%
2009	85.01%
2010	55.16%
Average	**84.42%**

4.8.6 Capital Costs

The OWEF was constructed in 1986, at a cost of approximately $22 million. Since that time a multitude of major capital improvements have been made including an Air Pollution Control upgrade in 2003 at a cost of approximately $10 million. The facility was recently expanded adding Unit 3 providing an additional 200 TPD capacity at a cost of approximately $96.5 million.

4.8.7 2010 OWEF Utility Sales

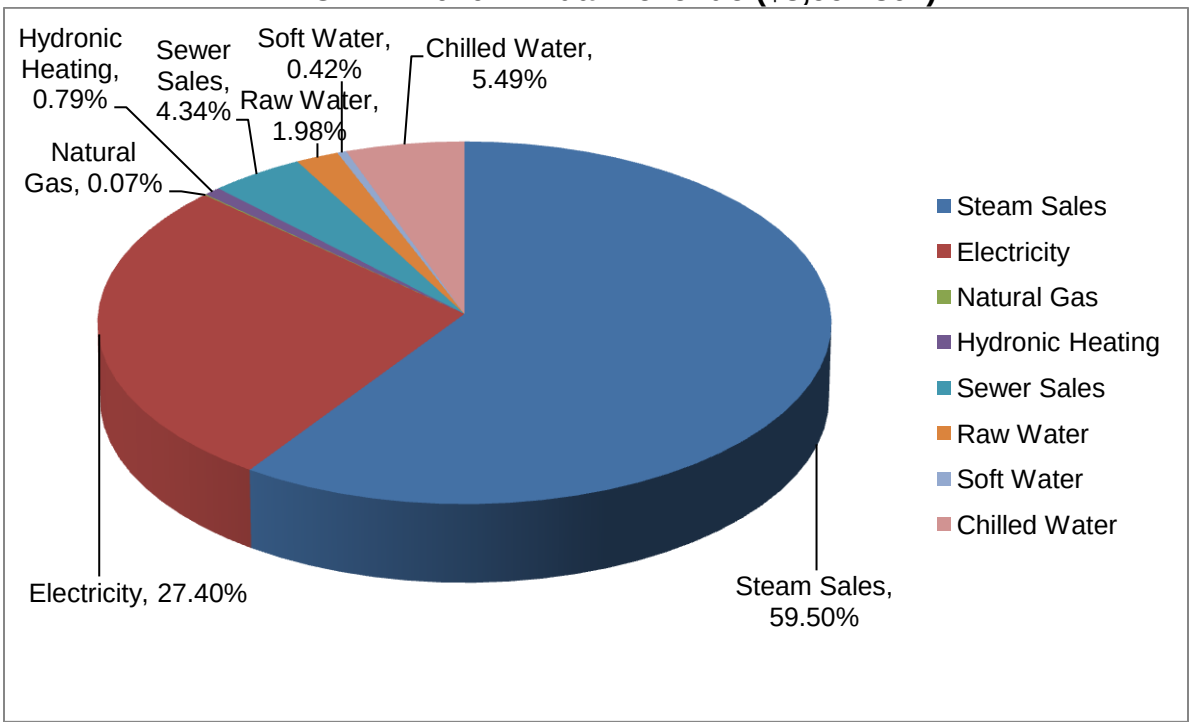
In 2010, Olmsted County received $3,994,304 from the sale of utilities produced at the OWEF. The following figure outlines 2010 revenues by customer from utility sales.

Figure 4-17 2010 Revenues from Utility Sales

	Steam Sales	Electricity	Natural Gas	Hydronic Heating	Sewer Sales	Raw Water	Soft Water	Chilled Water	Totals
Federal Medical Center	$ 765,658	$ 15,912	$ 2,945	$	$ 147,618	$ 60,274	$ 16,920	$ 96,318	$ 1,105,644
County Facilities	268,611	173,542			24,349	18,074		112,601	597,176
Olmsted Medical Center	180,008	378,848							558,856
Olmsted County Government Center	429,957	2,377		7,032				1,664	441,030
SMMPA		372,462							372,462
Work Release Center	109,031	53,705							162,736
Mayo Civic Center	147,675								147,675
City Hall	135,336								135,336
Rochester Public Library	103,400								103,400
Rochester Community College	88,976								88,976
Building 2117	60,365	14,280						303	74,948
Art Center	42,006								42,006
OCRC	21,841	10,596			54	20			32,511
Hazardous Waste	22,956	6,669			78	29			29,731
Graham Arena North		28,139							28,139
Rochester Animal Shelter	529	57		13,633	845	683		5,707	21,455
RPU		17,465							17,465
Graham Park		16,586							16,586
City-Skyway	242	2,925		8,655				2,048	13,870
Fontaine Towers	66	792		2,344				555	3,757
Department of Natural Resources		57			356	131			544
Total 2010 Revenues	**$ 2,376,658**	**$ 1,094,412**	**$ 2,945**	**$ 31,664**	**$ 173,300**	**$ 79,210**	**$ 16,920**	**$ 219,196**	**$ 3,994,304**

As shown below, the majority of this annual revenue is due to steam and electricity sales. The OWEF also sells chilled water, raw water, hydronic heating, soft water and manages a sewer utility for additional revenue.

Figure 4-18
OWEF 2010 Annual Revenue ($3,994.304)



4.8.8 Steam Rate Analysis

The OWEF has the capacity to produce 60,000 pounds of steam per hour (PPH) by burning MSW from both Olmsted and Dodge counties. The majority of this steam is then distributed to a number of end users. Each user has signed a similar steam contract with the County that details the steam delivery and rate structure. A contract was originally negotiated in 1985 between Olmsted County and the General Services Administration (GSA) on behalf of the Federal Medical Center (FMC). The Base Steam Rate was based on the old Gas Plant operations, and revised annually by a small percentage. In late 2009, a steam rate analysis study was conducted by an outside consultant. The outcome of that study resulted in a change to the calculation of the Base Steam Rate. The Base Steam Rate is now calculated using OWEF's budget. All contracts are based on this new Base Steam Rate calculation.

4.8.9 Electric Rate Analysis

A portion of the steam produced in the OWEF from burning MSW is run through a 1500 KW back pressure turbine to produce electricity which is, in-turn, sold to buyers at competitive retail electric rates. The OWEF is a co-generation system, that is, high pressure steam is produced, which is expanded through a turbine to produce both electricity and medium

pressure steam. When the demand for heating and/or cooling steam is low, excess steam produced is sent through a separate condensing turbine. The electricity generated from this turbine is used at the OWEF and is sold to local customers. Electricity not sold directly to users is sold to the local distribution grid via the Southern Municipal Power Agency (SMMPA). Electricity rates from the OWEF are broken into both demand and consumption charges. Existing rates along with similar comparisons are shown in Figure 4-19.

Figure 4-19 – Existing Rates Along With Similar Comparisons

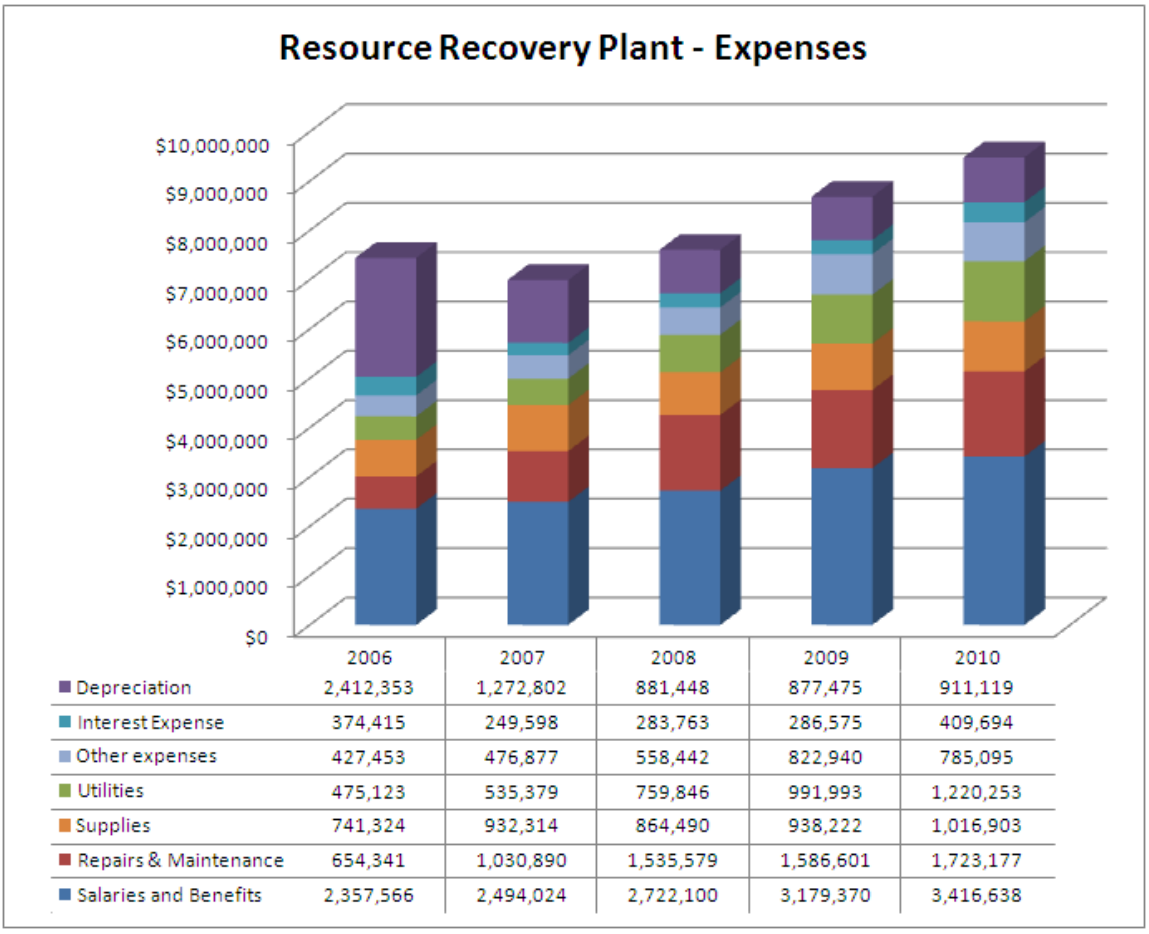
	General Service		Medium General Service		
	Summer Energy	Non-Summer Energy	Summer Demand	Non-Summer Demand	Energy
RPU	0.1127	0.0916	18.793	14.582	0.0527
OWEF	0.1127	0.0916	18.793	14.582	0.0527
SMMPA					0.0448

The current energy charge from the OWEF is actually based on a fee schedule from Rochester Public Utilities.

4.8.10 Expenses

Figure 4-20 represents the Resource Recovery Plant unit's expenses under the accrual basis of accounting as reported for the annual financial report. Capital purchases are excluded from expenses as these are capitalized on the balance sheet of the Solid Waste fund and depreciated over the estimated useful lives of the assets. The depreciation expense is shown to reflect the estimated annual cost of the assets being used for operations.

Figure: 4-20



	2006	2007	2008	2009	2010
Depreciation	2,412,353	1,272,802	881,448	877,475	911,119
Interest Expense	374,415	249,598	283,763	286,575	409,694
Other expenses	427,453	476,877	558,442	822,940	785,095
Utilities	475,123	535,379	759,846	991,993	1,220,253
Supplies	741,324	932,314	864,490	938,222	1,016,903
Repairs & Maintenance	654,341	1,030,890	1,535,579	1,586,601	1,723,177
Salaries and Benefits	2,357,566	2,494,024	2,722,100	3,179,370	3,416,638

Revenues are presented on a system wide basis as they contribute to the entire integrated solid waste management system. The original waste-to-energy plant was fully depreciated by the end of 2007 but is still operational. The related debt was also paid in full by the end of 2007.

4.8.11 Future Plant Operational Issues

Revenue and Expenses

A primary challenge faced by the County is maximizing revenue and minimizing expenses. Operating costs have increased due to the plant expansion. Additionally, the current economic downturn has negatively impacted projected refuse receipts as well as forecasted margins for energy resale.

The following options are available to offset expenses:

- Attract new energy system customers.
- Renegotiate the current electrical contract with SMMPA, or find other markets for the available electrical production capacity.
- Increase operating efficiency by having fewer unscheduled outages.
- Implement designation.
- Identify special waste streams for incineration (e.g., latex paint from the Hazardous Waste Facility, tires).

4.8.12 Operations and Maintenance

The primary causes of unscheduled maintenance are components of the waste stream that are too large to discharge from the furnaces and those materials (glass and aluminum primarily) that cause slagging, corrosion and erosion in the units. Increasing recycling is one way to address these issues.

4.8.13 Regulatory Compliance

The OWEF has an air emission permit from the MPCA. The MPCA permit imposes strict air emission limits, outlines monitoring and testing requirements, Air emissions from the OWEF have consistently been well below the MPCA permitted limits. Waste-to-Energy facilities are arguably one of the most heavily regulated industry groups for pollution control. The facility has continued to add the latest emission control technologies, it emits less air pollution today than it did when it opened in 1987. The OWEF is a state-of-the-art facility that is designed and operated to minimize air emissions. The flue gases from waste combustion pass through a series of air emission control devices.

- Flue gases then pass through a dry scrubber, where a lime slurry is injected to control sulfur dioxide and hydrochloric acid.
- Activated carbon is injected into the exhaust gases to control mercury and dioxins.
- Combustion gases pass through a baghouse containing a series of fabric filters to remove particulate matter; primarily flyash, scrubber and activated carbon residues.

The OWEF has only had two regulatory compliance infractions in its history. The OWEF received a Notice of Violation (NOV) related to sulfur dioxide emissions in 1989.

In 2009, the facility received an NOV for an activated carbon feed rate injection issue that occurred in 2007.

Since that time, the OWEF has only had minor issues with permitted operation related to short increases in carbon monoxide, and continuous emission monitoring downtime. The high availability and superior operating performance of the OWEF is an indication of the excellent environmental performance that has been realized by the management and staff of the plant.

4.8.14 Compliance and Permitting

The OWEF management staff and the regulatory compliance staff manage the compliance and permitting aspects of the OWEF and interact with the MPCA. The regulatory compliance group is responsible for the site monitoring requirements. They also take the lead on the monitoring and compliance permit issues, while the OWEF Plant Manager oversees the day-to-day operation of the Facility to assure compliance with the permit. The OWEF employs a highly trained staff and requires staff to attend the Minnesota Pollution Control Agency (MPCA) Waste Combustor Operator Certification Course and have at least one fully Certified Operator on duty on each shift. Operators are also required to have 24 hours of continuing education every 3 years related to waste combustor operation. Each load delivered to the OWEF is inspected by operations staff and haulers are required to remove any unacceptable waste they deliver and dispose of it properly.

Figure 4-21 below shows a comparison of actual OWEF air emissions and the corresponding permitted limits. Unit 3 is still in the start-up/testing phase so data is unavailable but comparable results are expected.

Figure 4-21

OWEF AIR EMISSION COMPARISON

Parameter	Units	Permit Limits	Nov-09 Results Unit 1	% of Limits Unit 1	Nov-09 Results Unit 2	% of Limits Unit 2
Particulate Matter	gr/dscf @ 7% O2	0.02	0.001	4.5%	0.001	5.0%
Particulate Matter	mg/dscm@ 7% O2	70	0.001	0.0%	0.001	0.0%
Dioxin/Furans	ng/dscm@ 7% O2	125	0.30	0.2%	0.38	0.3%
Mercury (Stack)	ug/dscm@ 7% O2	80	1.17	1.5%	1.26	1.6%
Mercury	% Reduction	85	87.99	80.1%	89.67	68.9%
Cadmium	ug/dscm@ 7% O2	100	0.34	0.3%	0.64	0.6%
Lead	ug/dscm@ 7% O2	1600	0.71	0.0%	2.84	0.2%
HCl (Stack)	ppm@ 7% O2	250	5.54	2.2%	4.04	1.6%
HCl	% Reduction	50	99.46	1.1%	99.54	0.9%
NOx	ppm@ 7% O2	500	156.50	31%	156.17	31%
SO2 (CEMs)	#/hr	22.6	0.20	0.9%	0.52	2.3%
Opacity	%	10	0.00	0%	0.00	0%

Figure 4-22

Olmsted Waste-to-Energy Facility

Average Total Composition for Ash Concentrations from 2005 - 2010

Parameter	Combined Ash Mean (mg/kg) (2005-2010)	Fly Ash Mean (mg/kg) (2005-2010)
Aluminum	35,249	21,272
Arsenic	17	46
Barium	605	444
Boron	225	128
Cadmium	59	216
Calcium	120,307	336,100
Chloride	36,854	161,400
Chromium	69	48
Copper	3,239	542
Iron	34,188	5,451
Lead	1,024	1,395
Magnesium	7,610	12,426
Manganese	673	340

Mercury	3	12
Nickel	64	33
Selenium	3	5
Silver	10	11
Sodium	13,241	24,124
Strontium	392	259
Sulfate	390	5,957
Tin	141	287
Zinc	5,752	9,572
pH	12	12
2,3,7,8-TCDD TTE	NA	1,042 pg/g

4.8.15 General Description of Air Quality Regulations

In general, facilities that require air quality permits are regulated under the federal Clean Air Act and rules promulgated by the State of Minnesota. The Clean Air Act is separated into "Titles", each of which has a particular scope of interest. A brief summary of those Titles that most affect the OWEF is included below.

Title I – Directs the U.S. Environmental Protection Agency (EPA) to set national ambient air quality standards (NAAQS) for criteria air pollutants (e.g., sulfur dioxide, carbon monoxide particulate matter, nitrogen oxides, ozone and lead) and to develop and maintain a pre-construction review program for major sources, called the New Source Review (NSR) program. The OWEF is considered a "synthetic minor source" for purposes of the NSR program. This means that restrictions have been taken on operations at the facility to maintain annual emissions below major source thresholds. Title I also directs EPA to set New Source Performance Standards (NSPS) by technology type. The auxiliary boiler at the facility is subject to NSPS for commercial-industrial boilers for sulfur dioxide.

Title V – Directs EPA to develop a federal operating permit program for major sources and other defined sources as defined specifically in this statute. The OWEF is considered a major source under Title V because solid waste is combusted and because nitrogen oxide emissions are greater than the 100 tons per year threshold. The OWEF currently holds a Title V Permit.

EPA programs are administered by the MPCA, with review and comment from EPA Region V, located in Chicago.

4.8.16 Permit History

- The campus steam plant received an operating permit in June 1980, which indicated that the plant was a synthetic minor source for sulfur dioxide. Synthetic minor sources are those which are willing to accept annual operating limits below that maximum capacity of the emission sources.
- The OWEF was originally permitted for construction and operation in 1987. The first permit was fairly simple and did not directly regulate HAPs. The County was required to meet fairly stringent sulfur dioxide standards shortly after the original permit was issued because the plant had the potential for annual emissions to exceed NSR major source thresholds for sulfur dioxide and the Rochester area had not attained NAAQS at the time of permit issuance.
- From 1987 to 1995, permit amendments were issued to the OWEF and other waste-to-energy facilities in the state that addressed ash management, combustor operations and operator training under policies and rules developed by the MPCA.
- Congress passed the Clean Air Act Amendments in 1990, which required states to standardize their operating permit programs and also directed EPA staff to develop hazardous air pollutant standards for municipal waste combustors (MWCs).
- In 1994, the MPCA promulgated rules for waste combustors that addressed many of the training, reporting, stack testing, continuous monitoring and administrative requirements that will eventually be part of the new federal standards.
- In 1995, EPA issued New Source Performance Standards for new MWCs and Emission Guidelines for existing MWCs. These rules were vacated in district court in 1996. The rules pertaining to small MWCs, as the OWEF is defined, were required to be rewritten in 1997 by the same court.
- In October 1996, the OWEF received a variance for ash testing.
- OWEF obtained a Title V operating permit in June 1997.
- In October 1997, an ash disposal variance was granted.
- In December 1997, a variance was granted to the OWEF related primarily to mercury testing.
- EPA finalized draft emission performance guidelines for municipal solid waste combustors in 1999. The guidelines were promulgated in 2000. Compliance with the air pollution control requirements must be met within three years after the MPCA completes a compliance plan and no later than five years after the rule is promulgated by EPA.
- In 1999, OWEF hired an engineering project team to begin the design and construction of new air pollution control and monitoring systems required to meet the forthcoming emission performance guidelines.
- In 2001, the U.S. Environmental Protection Agency (EPA) redesignated the Rochester area as “in attainment” with national ambient air quality standards for sulfur dioxide. EPA has indicated to MPCA officials that they are in

agreement, but have not yet placed the attainment determination on public notice in the Federal Register.

- At present, the EPA classifies the City of Rochester as a “Maintenance Area” (meaning it is a former non-attainment area that is currently meeting NAAQS requirements) for SO2 and PM10.

4.8.17 Title V Air Permit Operating Permit

The current air quality operating permit, issued in 2007 is separated into the following sections:

- General Conditions – This section is included in all Title V permits and requires the permittee to notify the Agency of shutdowns and breakdowns, meet noise regulations and other miscellaneous air quality rules.

- Conditions Specific to Waste Combustors – This section contains conditions outlined in the Minnesota Performance Standards for Waste Combustors that relate specifically to waste-to-energy facilities. Specific conditions include numerous plans for such items as ash management, general operation and maintenance procedures, and mercury control.

- Emission Limits and Operating Restrictions – This section outlines emission limits and other performance criteria required by the MPCA and EPA to assure compliance with ambient air quality standards and other applicable rules. Emission limits for particulate matter and other criteria pollutants, as well as dioxins and furans, are contained in this section.

- Reporting and Recordkeeping – this section contains requirements for quarterly, semi-annual and annual reports related to continuous emission monitoring, reports of emissions that deviate from limits and the annual emission inventory.

- Continuous Monitoring – This section contains requirements for maintaining and operating continuous emission monitors for opacity, sulfur dioxide, carbon monoxide and carbon dioxide.

- Performance Testing – This section contains requirements for testing emissions from the facility, including dioxins and furans, metals and other toxic organic materials.

- Notifications and Submittals – This section outlines the schedule for submitting information required under the other sections of the permit.

The Technical Support Document issued by the MPCA during the public notice period for the current permit provides greater discussion of the issues outlined above.

The Title V Operating Permit must be renewed in August 2012. Under state rules, the application must be submitted six months before the renewal deadline to provide MPCA staff with adequate time to revise the permit

In addition to air quality permits, the facility is also required to operate under the State Solid Waste Rules, an Industrial Wastewater Permit issued by the City of Rochester, a DNR well permit, and is also required to meet state and federal OSHA requirements.

4.9 CONSTRUCTION AND DEMOLITION DEBRIS MANAGEMENT

The only permitted Construction and Demolition debris site is located within the boundaries of the Olmsted County Kalmar Landfill, therefore information on construction and demolition (C & D) debris management is also included in Section 4.10. The Landfill Manager is responsible for the operation of the site and construction and demolition debris management. Only about 17.6 percent (by volume) of the C & D waste generated in Olmsted County is disposed of at the Olmted County site. Private companies handle the remainder. It is the policy of Olmsted County to direct all demolition and approved construction debris to permitted demolition landfills. See also, Section 3.5 for generation information. Permit-By-Rule Demolition permits are issued by the Minnesota Pollution Control Agency. As of the time of this writing, there have been no Permit-By-Rule Demolition permits issued in Olmsted County for “some time” according to the MPCA Regional Office located in Rochester, Minnesota.

Olmsted County will continue to operate and monitor the need for additional disposal capacity for construction and demolition debris, and evaluate its role in the management of demolition debris over the next 10 years. Any costs associated with demolition debris management are included under “Kalmar Landfill Expense” in Attachment B.

4.10 LANDFILLING

4.10.1 Introduction

Olmsted County owns and operates a landfill in Kalmar Township, which provides a land disposal component to the integrated solid waste management system. The purpose of Olmsted County’s landfill is to provide a final disposition point for solid waste that cannot be processed, reduced, recycled, composted or further reduced in volume through waste-to-energy incineration. Under state law non-processables and municipal solid waste bypassed from the OWEF are to be deposited in a sanitary landfill. OWEF ash is to be deposited in an ash monofill, and demolition and some construction debris are to be deposited in a demolition landfill.

The Kalmar Landfill has three major components: a bypass landfill for municipal solid waste (MSW) and industrial waste; an ash landfill for incinerator ash from the Olmsted Waste-to-Energy Facility (OWEF), Rochester Public Utilities coal ash, and Mayo Medical waste combustor ash; and a demolition landfill for demolition and construction debris. The MSW and ash cells provide support for the OWEF in the integrated solid waste management system. The demolition debris cell provides a service for the businesses and residents of Olmsted County to allow disposal of demolition debris.

4.10.2 Kalmar Landfill Summary

The Kalmar Landfill in Olmsted County was permitted in 1990. The landfill site was selected due to its geologic location. A siting study was conducted by Olmsted County and this site was selected due to the depth to bedrock (greater than 100 feet) and low permeability of the on-site clay that acts as a natural liner below the engineered liners.

The first phase of the Kalmar Landfill was constructed in 1990 and consisted of the access roads, maintenance building and scale house, and the first cell of the demolition area (Cell 1C). Cell 1B, the first cell of the MSW area, was constructed in 1991. Cell 1A, the first cell of the ash area, was constructed in 1992.

The ash and MSW disposal areas have their own leachate collection systems. A granular drainage layer overlies the primary geo-membrane in each area. The granular drainage layer directs the leachate to a sump in Cell 1B for the MSW area, and in Cell 1A for the ash area. Leachate from each area is then pumped from the respective sumps to a common leachate storage tank. Leachate from the tank is transferred by tanker to the Rochester Water Reclamation Plant.

The final cover systems used for the disposal areas at the Kalmar Landfill are designed to discourage infiltration and promote runoff. The cover design for the MSW area utilizes a synthetic membrane barrier layer. The cover design for the ash area and demolition area uses on-site clay for a barrier layer. All three designs meet the regulations governing cover requirements for these types of wastes.

4.10.3 MSW Liner System

The Kalmar Landfill is designed with state of the art liner systems that far exceed the regulations set forth by state and federal agencies. The MPCA regulations for municipal solid waste facilities require a composite liner with at least a 2-foot thick clay barrier layer overlain by a 60-mil HDPE geomembrane. The liner design used at the Kalmar Landfill exceeds these regulations and consists of a 4-foot thick clay barrier layer overlain by a 60-mil HDPE geomembrane.

4.10.4 Ash Liner System

The liner design used for the ash cells also exceeds the regulations. The MPCA rules regarding the disposal of ash from municipal solid waste combustors require that both ash and ash leachate be tested to determine the level of liner design required for each facility.

Testing of the ash leachate and ash to be disposed at the Kalmar Landfill indicates that the liner design for the ash landfill should consist of a double liner requiring no clay in the primary system. The liner design used in Cell 1A, was designed prior to the promulgation of the MSW combustor ash rules, it consists of a double composite liner. The liner design used for Cell 2A and subsequent cells also consists of a double composite liner. The secondary liner consists of a 2-foot (Cell 1A) and 3-foot (Cell 2A) thick clay barrier layer and a 60-mil geomembrane. The primary liner consists of a 2.5-foot thick clay barrier layer and a 60-mil geomembrane. Between the two liners is a leak detection system that consists of a geonet synthetic drainage layer material.

4.10.5 Demolition

The demolition facility does not have an engineered liner, but the constructed base is designed to be at least five feet from the groundwater surface. Since natural clay materials were on-site, clay is usually used as the base material to bring the site to grade. In 2009, a well was drilled in a low area in the demolition cell so the leachate that had built up in the cell over the years could be pumped out to a new collection tank and load-out area NE of the cell. The demolition site is to be covered with two feet of on-site soil material and will be vegetated. The site meets or exceeds (with the addition of the leachate system) the state regulations for demolition material.

Only materials like wood, concrete, plasterboard, brick, plastic building parts, and metal are accepted in the demolition debris cell. The site is open to the public, or generators can take demolition materials to the public drop at the Olmsted County Recycling Center, then it is transferred to the site

See Section 3.5 for generation information. Information on revenues and expenses are included with the Kalmar Landfill information in Attachment B.

4.10.6 On-Site Facilities

On the landfill property, the County has constructed infrastructure to support the landfill operations. A building, which houses both the scale house and maintenance activities, is located just inside the entrance to the facility. This building provides scale services and security for the facility. The entire facility is fenced to prevent unwanted access. The scale house is staffed full-time. An office for the landfill manager is located in the scale house. The maintenance building has adequate equipment for general maintenance of vehicles and equipment. Major repairs are subcontracted out.

The roadways to the various landfill operations within the site are generally paved, which helps keep the County road free of debris (soil) upon leaving the site.

Leachate handling equipment such as pumps, lift stations, and control panels are located at the individual landfill cells. A leachate tank (15,000 gallons) and load-out pad are located in the southwest corner of the landfill property that collects the leachate from the Ash & MSW cells. In 2009, a 6000-gallon tank and load-out pad were placed in the

NE corner of the site to relieve & collect the leachate that had built up over the years in the demolition cell.

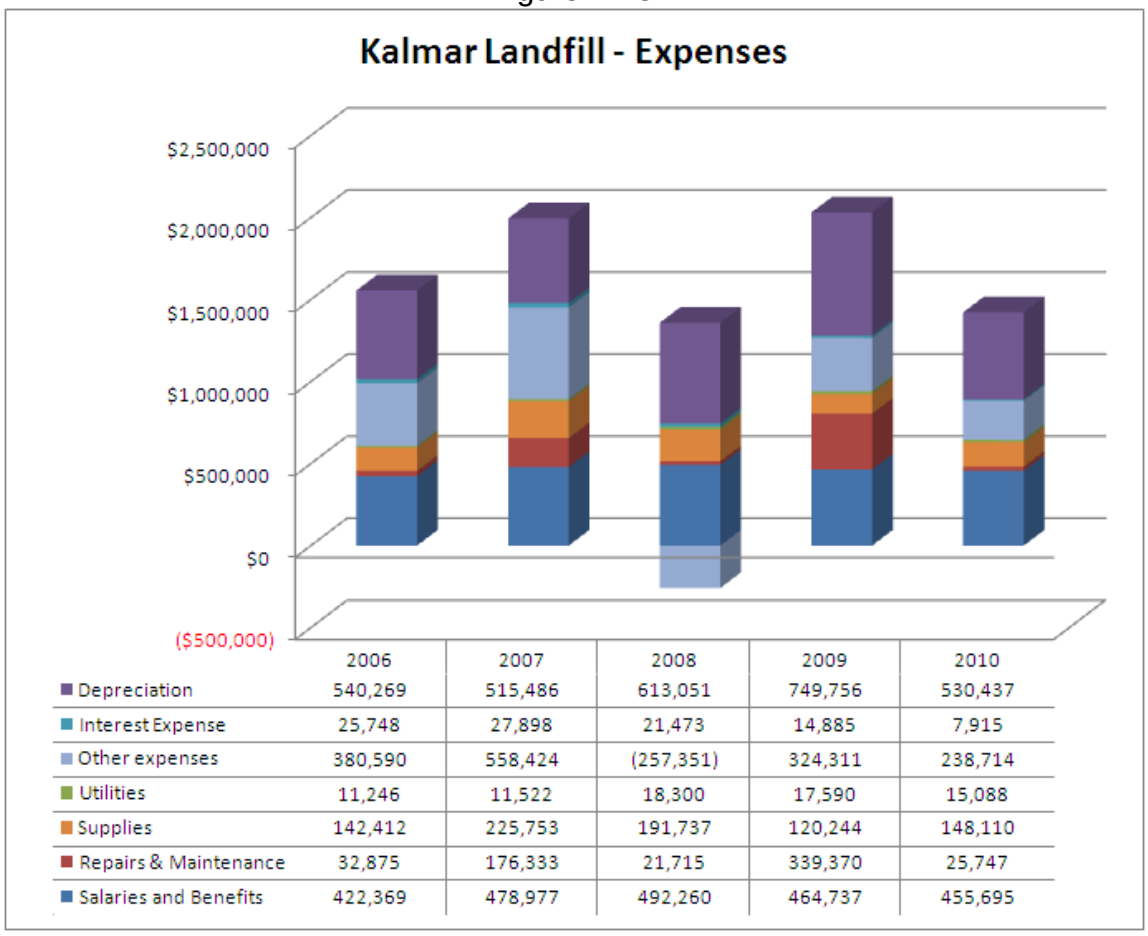
4.10.7 Landfill Facts

- Permitted Acres: 160
- Zoning: Agriculture A-1, Conditional Use Permit
- Number of Full-Time Employees:
  - Manager (1)
  - Crew Leader (1)
  - Equipment Operator (2)
  - Scale Operator (1)
- Waste Materials Handled (2010)
  - Ash – OWEF, RPU, Mayo: 22,377 tons per year
  - MSW: 20,859 tons per year
  - Demolition and construction debris: 3,800 tons per year
- Current Monitoring
  - Groundwater
  - Surface water
  - Soil pore gas (methane)
  - Leachate and leak detection systems

Figure 4-23 below represents the Kalmar Landfill unit's expenses under the accrual basis of accounting as reported for the annual financial report. Capital purchases are excluded from expenses as these are capitalized on the balance sheet of the Solid Waste fund and depreciated over the estimated useful lives of the assets. The depreciation expense is shown to reflect the estimated annual cost of the assets being used for operations. Revenues are presented on a system wide basis (See Section 5, Figure 5-1) as they contribute to the entire integrated solid waste management system.

In 2008, "Other expenses" includes a one-time adjustment to reflect a change in how the landfill closure and post closure expense is calculated. Prior to 2008, it was calculated based on actual volume received at the facility and was changed in 2008 based on annual surveying reports that calculate actual volume used. The 2008 adjustment was a non-cash expense item that resulted in a negative expense of approximately $569,000. Intermediate cell closures are expensed in the year the costs are incurred.

Figure 4-23



	2006	2007	2008	2009	2010
Depreciation	540,269	515,486	613,051	749,756	530,437
Interest Expense	25,748	27,898	21,473	14,885	7,915
Other expenses	380,590	558,424	(257,351)	324,311	238,714
Utilities	11,246	11,522	18,300	17,590	15,088
Supplies	142,412	225,753	191,737	120,244	148,110
Repairs & Maintenance	32,875	176,333	21,715	339,370	25,747
Salaries and Benefits	422,369	478,977	492,260	464,737	455,695

4.10.8 Compliance and Permitting

The landfill site manager and regulatory compliance staff manage the compliance and permitting aspects of the landfill and interact with the MPCA. The regulatory compliance group is responsible for the site monitoring requirements. They also take the lead on the monitoring and compliance permit issues, while the landfill site manager oversees the engineering and site infrastructure aspects of the permit. Olmsted County employs a highly trained staff and requires all staff to be MPCA certified landfill operators and to have 40-hour Hazardous Material training with 8-hour annual refreshers so they are able to respond to potential environmental and public health threats should they occur. Each load delivered to the Kalmar Landfill is inspected by staff and generators are required to remove any unacceptable waste and dispose of it properly. Any problem waste or contingency actions are reported to the MPCA in the annual report.

Olmsted County has established a Dedicated Long-Term Care Trust Fund for the financial assurance of closure, posteclosure care and corrective action of the Kalmar Landfill. The fund balance as of December 31, 2010 was $3,961,377.

All industrial waste received during a specific period is buried together, and its location surveyed. The location is then documented so that materials could be located if found to cause problems at a future time.

The site is well managed on the compliance and permitting aspects. The monitoring documents are on file at the Olmsted County Environmental Resources Department and at the MPCA via quarterly electronic submittals and in the landfill annual reports. No permit violations have occurred.

The site has the following permits and/or plans:

- MPCA Solid Waste Permit (SW-355), expired March 2007 (new permit under review)
- NPDES Permit (surface water), expires April 5, 2015
- NSPS (gas), not required at this time
- Site Specific Health and Safety Plan
- Leachate Agreements
  - RWRP (Rochester), primary - 5 year (Expires 3-31-12)
  - MCES (Minneapolis/St. Paul), secondary, (contingency 12-31-13)
- Hazardous Waste Small Quantity Generator License (uses Safety Clean, Inc.)
- Kalmar Township Agreement
  - Meet once per year for site updates
  - Need approvals for operational changes
- On-site Septic System
- On-Site Potable Well (Minnesota Department of Health)
- Fuel Storage
  - 10,000-gallon Diesel Underground Tank, meets 1998 regulations
  - 1,000-gallon Gas Underground Tank, meets 1998 regulations

4.10.9 Capacities / Life of Facility

The capacity and life for each disposal area has been evaluated in terms of currently permitted life and ultimate life based on current waste in-flow data. The 2010 annual tonnages used in this evaluation are as follows:

	2010 Tons
Demolition	3,800
MSW	20,859
Ash	22,377

The permitted and ultimate capacities (as currently designed) are shown on Figure 4-24. Figure 4-25 shows an alternative scenario, reducing the demolition debris area volume, but increasing the MSW area volume.

Figure 4-24 **- Current Design Capacities**

Waste Type	Currently Permitted (1) (CY)	Remaining Permitted (2) Volume (CY)	Current Permitted Life(3) Capacity (yrs)	Ultimate Operational Capacity (CY)	Total Life (years)	Annual Yardage (In-place) (2010)
Demolition	498300	244,500	22.17	498,300	22.17	6,600
MSW	1,583,100	309,200	12.59*	1,583,100	12.59*	43,496
Ash	769,400	239,125	14.5**	1,103,500	39.9**	16.85

* With the addition of unit 3 there will be less MSW landfilled going forward.
** With the addition of unit 3 there will be more ash landfilled going forward.
(1) Volumes granted for the current 5-year permit term: 2002-2007
(2) As of the end of 2010.
(3) Current life if MPCA were not to grant further capacity.

4.10.9.1 Phase Development – Certificate of Need

At the time of this writing, no Environmental Assessment Worksheet or Environmental Impact Statement work is planned. Development of a new ash cell and a new bypass cell are in the 5-year Capital Improvement Program due to unknowns related to start-up of the 3rd Unit at the Olmsted Waste-to-Energy Facility. Given successful operation of Unit 3, and the pending implementation of a full-scale landfill mining project, actual timing of future landfill cell development is unlikely for at least five years, and potentially ten years. The Kalmar Landfill is a permitted facility. If cell development becomes necessary, Olmsted County will comply with the applicable rules of the State of Minnesota and other regulatory agencies.

Figure 4-24 shows a potential design capacity scenario.

Figure – 4-25
Future Scenario with New Design Capacities

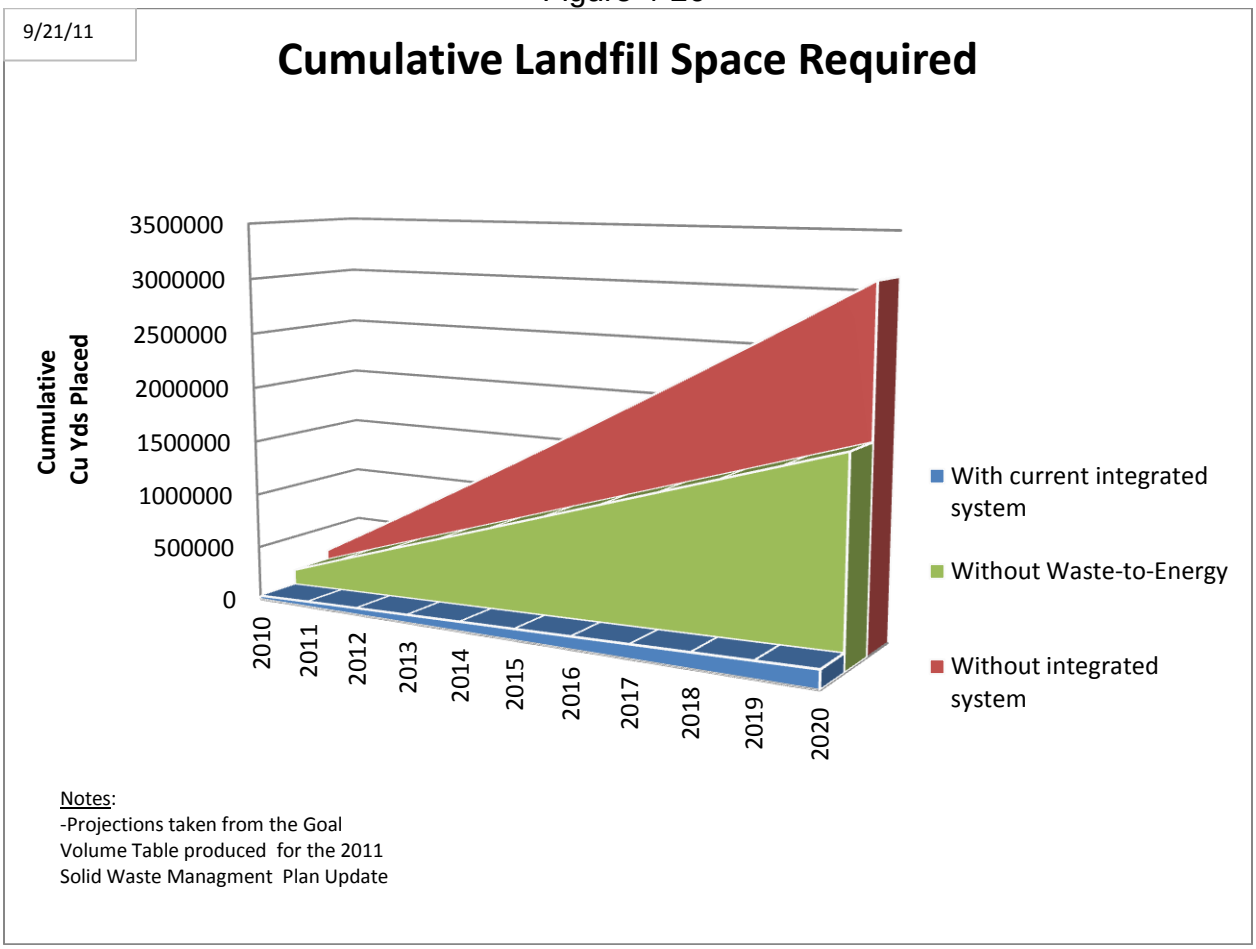
	Ultimate Operational Capacity (CY)	Total Life (years)
Demolition	501,800	23
MSW	3,550,000	74.7
Ash	1,103,500	39.9**

** Could be redesigned to south to provide equal site life to MSW.

Olmsted County has made a considerable investment in solid waste management in accordance with the State's hierarchy with the OWEF, and the addition of the 3rd combustion unit. Figure 4-26 shows the amount of air space that would be required if

Unit 3 had not been built. It also illustrates the volume reduction in landfill air space required if waste-to-energy is utilized instead of the landfill.

Figure 4-26



4.10.10 Operations Review

4.10.10.1 Personnel

The site is currently managed by the Landfill Manager. The staff consists of one crew leader, two equipment operators, one scale operator, and miscellaneous part-time or seasonal help who fill in for staff due to vacations or peak work periods.

4.10.10.2 Equipment

The site has excellent equipment for its use. The equipment is well maintained and on appropriate maintenance/life schedules. An equipment list with replacement schedule is well organized and reduces costly equipment repairs. The listing is as follows:

Figure 4-27 – Equipment List

Equipment Type	Date Purchased	No. of Years Used Before Replacement	Year Replaced	Condition	Replacement Approximate Cost
Bomag Compactor	2007	5	2012	Good	$500,000
615 CAT Scraper	2001			Good	$350,000
615 Cat Scraper	1995			Good	$350,000
D7 Dozer	2003	10	2013	Good	$400,000
D7 Dozer	2008	10	2018	Good	$400,000
Tarpomatic	1998	-	-	Good	$65,000
Ford Pickup	2006	-	-	Good	$25,000
Ford Pickup	2003	-	-	Good	$25,000
1998 GMC Pickup	1998	-	-	Good	$25,000

4.10.10.3 Waste Flows / Compaction

The site receives three major waste streams; ash, MSW, and demolition/construction debris. The demolition/construction waste flows have been affected by Veit Companies who operate a private demolition facility outside of Olmsted County. Subsequently, demolition/construction debris coming into the site has decreased 90 percent since 1998, but should have leveled out in 2010. A figure of waste flows, in tons, for each waste is as follows:

Figure 4-28 – Waste Flows

Waste Type	2006 Tonnage	2007 Tonnage	2008 Tonnage	2009 Tonnage	2010 Tonnage
Demolition	6,428	9,077	7,678	5,378	3,800
Ash	26,736	27,812	23,029	21,312	22,377
MSW	35,234	42,022	39,548	33,169	20,859

The ash stream has been quite consistent but will show an increase with Unit 3. The demolition debris is decreasing and the MSW is decreasing because difficult economic times have reduced the total waste stream. The amount of MSW waste landfilled will decrease further in 2011 when unit 3 is up and running consistently.

As previously discussed, the site has the proper equipment to deal with the regular operations. Density of the relative waste types is a measure of equipment and labor efficiency. This is an important tool as increased compaction can increase site life at no capital expense. Therefore, an analysis of compaction is completed below.

Figure 4-29 – Compaction Figures

Waste Type	2008 Density (lb/cy)	2009 Density (lb/cy)	2010 Density (lb/cy)	Industry Average
MSW	1136	765	959	1,200-1,400
Ash	2,415	2,318	2715	1,890-2,160
Demolition	929	585	1152	1,000-1,200

The ash density has been very consistent on the high side of the industry averages. The MSW densities are on the low side for industry standards. This may be due to the MSW being primarily a non-processable material, which is difficult to compact, and the fact that large areas had final cover added in 2009 & 2010. However, more compaction effort is recommended in the MSW area. The demolition densities were way down in 2009, which was caused by redesign and final closure of a large area of the west slope.

4.10.10.4 Hours of Operation

The current hours of operation are 8:00 a.m. to 3:30 p.m., Monday through Friday. The landfill is not open Saturday, but the OWEF facility and public drop area are open. During periods of OWEF bypass, the hours are increased to 7:30 a.m. to 5:00 p.m. The hours appear reasonable for the current waste streams.

4.10.10.5 Leachate Handling

The leachate for both the MSW and ash are pumped to a single 15,000-gallon double-walled steel tank located in the southwest corner of the property. The leachate lift stations are all in good condition. The pumps seem to operate well with the ash pumps requiring more maintenance than the bypass pump. This may be due to a more corrosive environment in the ash cell.

Olmsted County contracts with Alli Roll Off Inc. for leachate hauling. The current contract price is $0.03/gallon per gallon. Superior Jetting currently performs leachate pipe cleaning on an annual basis. The ash, MSW, and demolition leachate is tested four times per year as per the MPCA requirements and the combined leachate is tested twice per year to meet City requirements.

The volume of leachate handled varies from 1,200,000 to 2,945,475 gallons per year, depending upon the amount of open area in each cell and annual precipitation rates. The County will consider including leachate recirculation in the next permit cycle to reduce the leachate hauling cost while also extending site life.

There is no onsite treatment of leachate. All leachate is hauled by a contracted hauler to the Rochester Water Reclamation Plant (RWRP) for treatment. As of this date, there have been no problems or exceedences of any influent limits at the RWRP. The County

has a contingency permit with the Metropolitan Council Environmental Services Department. This contingency permit for discharge of leachate has never been utilized.

4.10.10.6 Traffic Control

The site is well managed through the scale operations, which direct the waste vehicles to the proper disposal site. In addition, the site has adequate signage, which assists the truck drivers. The paved roads help keep the site neat and clean and wet weather dumping is therefore not a significant problem.

4.10.10.7 Scale Operation

All MSW trucks coming to the site weigh-in and weigh-out on a certified scale. There does not seem to be a queuing problem, even during the highest traffic days (bypass from OWEF). Truck drivers only need to enter the building when they leave.

The biggest challenge is when the scale goes down. Olmsted County then calls Fairbanks Scale for repairs. The trucks must first weigh in at the OWEF before coming to the landfill when a breakdown occurs and return to the OWEF scale to weigh out. The state weighs and measures the scale twice per year to check for accuracy.

The scale operators handle the money and receipts. Payment is usually by check or on account, so very little cash is handled. All transactions are recorded electronically and all customers are provided with a receipt.

4.10.11 Program Development

Olmsted County will be doing a two-part pilot study in 2011. The first part is to determine the feasibility of mining MSW from the Kalmar landfill cell (and potentially demolition debris), then shipping the waste to the Olmsted-Waste-to-Energy-Facility (OWEF) for processing. The second part is to remove the ferrous metal from the OWEF ash after it arrives at the landfill then processing it for shipment to metal recyclers. Some of the equipment proposed will be utilized only in one of the two parts but most of the equipment is being specified in a way that it can be used in both parts. The total capital cost for the equipment needed for the project is estimated to be $2,261,300. A breakdown of the type of equipment and their corresponding cost is included. The program components of the project will be implemented in 2012 and operated throughout the next ten years if found to be financially and operationally feasible.

4.10.11.1 Landfill Mining

The landfill has been accepting non-processable bulky wastes that are not able to be processed at the OWEF since 1990. The landfill has also accepted MSW during outages at the OWEF and when there was more waste than the plant could handle since 1990. Early on, the majority of the material coming to the landfill was non-processable waste with very little MSW being bypassed as the plant was able to process most of the MSW. As time went by and the area population and waste quantities grew, more and more MSW was being landfilled. This was the reason that

the County decided to expand the OWEF. The County's main objective has always been to landfill as little waste as possible. Extra capacity was built into the plant expansion to make sure that there would be no bypassing of MSW to the landfill for at least ten years.

With the completion of the Unit 3 Expansion at the OWEF, the plant will have approximately 100 tons per day of extra capacity. Because of this extra capacity and the County's desire to limit the amount of waste in the landfill, the mining of the MSW cell and possibly the demolition cell seems logical. The plan is to only fill the empty ash containers so they can backhaul the waste with no additional trips. Based on testing, each 20-yard container will hold approximately 5-7 tons of waste with approximately 10 containers a day, six days a week.

The mining of the waste at the landfill accomplishes several things; the overall amount of waste in the landfill will be reduced saving valuable landfill space, the costly expansion of the landfill will be put off for many years, and it will reduce the overall amount of greenhouse gasses generated.

In addition, approximately 20 tons a day of non-processable bulky waste is delivered per day which will be processed and returned to the plant. On an annual basis 7,240 tons of non-processable waste would be processed and returned to the OWEF.

A shredder will be required to reduce the size of the non-processable waste delivered each day. The MSW mined out each day will also have to be shredded as it is mixed with non-processable waste. The waste will also have to be sent through a trommel screen to remove any dirt prior to being sent to the OWEF. Trommeling out the dirt will allow the plant to burn the waste more efficiently and will allow the landfill to reuse the dirt in future operations, this is important as the landfill is running out of cover dirt. This part of the project will also require the use of a front end loader, roll-off truck, ten 20-yard and three 30-yard roll-off containers, and an extra spool and two tarps for the Tarpomatic alternative landfill cover machine. This project was one of the strategies recommended in the Rochester Centroid Integrated Solid Waste Management process.

4.10.11.2 Ash Metal Recovery

The second component of this project is metal recovery from the OWEF ash. The landfill has been accepting ash from three different sources since 1992 and placing it in an ash monofill. Ash from the OWEF, coal ash from a utility plant, and ash from a medical waste incinerator has been accepted at the facility. The County is not planning to mine the ash monofill to remove metal for recycling as it has been co-mingled with the other two streams. The plan is to screen the OWEF ash as it comes to the landfill, remove most of the ferrous metal and process it for size reduction and removal of the majority of the ash prior to delivery to a smelter for recycling.

The OWEF delivers about 17,500 tons or 21,200 cubic yards of mass burn ash each year. With the expansion of the plant the amount of ash will go up by 50% to about 26,250 tons or 31,800 cubic yards per year. If the MSW cell is mined and the non-processable waste is shredded and returned to the OWEF the ash would increase to approximately 31,500 tons or 38,160 cubic yards per year. The increase in the amount of ash being landfilled because of the unit 3 expansion and the mining of MSW would be approximately 12,000 tons per year.

Based on waste studies approximately 13.5% of the ash by weight is metal. Assuming that 75% of the metal could be recovered in the form of ferrous metal approximately 3,190 tons of ferrous could be recovered each year based on the total of 31,500 tons of ash. If 3,190 tons of ferrous were recovered, the total amount of ash landfilled would go from 31,500 tons per year down to about 28,300 tons per year.

The equipment needed to accomplish the removal and recycling of the ferrous metal in the ash would be; an excavator with a bucket, grapple and magnet. The shredder, roll-off truck, the 30 yard roll-off containers from the mining operation would also be used in this operation. The front end loader and trommel screen could also potentially be utilized. Some of the equipment could serve double duty because the OWEF goes down for maintenance periodically, and the MSW mining operation could stop and the stockpiled metal in the ash cell could be processed with the shredder and trommel before sending the metal to a smelter. By processing the metal, more ash will be removed and it would be size reduced which would result in a better price for the ferrous metal.

This project is also one of the strategies recommended in the Rochester Centroid Integrated Solid Waste Management process.

4.10.12 CLOSED LANDFILLS

The Oronoco Landfill was closed in 1992, and entered the Minnesota Pollution Control Agency Closed Landfill Program in 1995.

4.11 SPECIAL WASTE MANAGEMENT

Olmsted County has adopted an ordinance (Solid Waste Ordinance No. 10- Attachment F) that includes a section for handling Unacceptable Waste, Problem Materials and Special Waste. The ordinance expresses that Olmsted County shall identify a list of Unacceptable Wastes that identifies facility specific alternatives to dispose, process or recycle materials (See Attachment H). Special wastes identified by statute are addressed in this section. These programs are on-going, and Olmsted County intends to continue these programs to comply with State and Federal regulations. (See also, Section 4.2 Waste Education/Reduction regarding related education programs.) Funding for the Olmsted

County Special Waste Management programs is provided through the Solid Waste Management budget and staff time is included in specific program/facility budgets. (See Organizational Chart – Attachment E)

4.11.1 Waste Tire Disposal and Recovery Program

Tires are prohibited by Minnesota Rules, Chapter 9200 from being landfilled. Olmsted County ordinance addresses the issues of storage and disposal and prohibits the burning or burying of waste tires on site. Persons wishing to dispose of their tires are directed to the public drop at the Olmsted County Recycling Center Plus (OCRC). Annually, Olmsted County handles approximately 2,200 tires. Approximate staff time required to manage tires brought to the facility is about .1 FTE. Staff time and any other associated costs, are included in the OCRC budget.

Tires from local business collectors are also self-hauled to the OCRC or utilize Liberty Tire or other contract vendors for transportation, recycling reuse or disposal. Approximately 144,248 waste tires or 1,442 tons were generated in Olmsted County in 2010. Tire generation estimates are based on a rate of one tire per person per year and an average weight of 20 pounds per tire. The tire disposal estimates for the ten year planning period are provided in the Goal-Volume Table (See Attachment A).

A storage permit is not required for an owner or operator of a business who, in the ordinary course of business, removes tires from motor vehicles if no more than 500 waste tires are kept on the business premises. There are various private companies that collect no more than 500 waste tires on the premises. Since these companies are not required to obtain a permit, the exact number is unknown. Enforcement of illegal storage or disposal are handled by the Olmsted County Planning Department and the Minnesota Pollution Control Agency. One site in the northeast part of Olmsted County was identified in 2010, and has since been turned over to the MPCA for enforcement action. No sites are being actively pursued through Solid Waste Ordinance enforcement at the time of this writing.

The Olmsted County Waste-to-Energy facility is permitted, and has always received small “incidental” quantities of tires since it began operation in 1987. Before the addition of the 3rd Unit, the OWEF was at capacity, so the tires delivered to the OCRC were directed to a vendor in the Twin Cities that “recycled” them, burning 80% of them for energy in facilities with fewer emissions controls than the OWEF and charging a fee. Once capacity was available at the OWEF, it made sense environmentally and economically to burn these tires for their energy here where they were generated. This program is ongoing, and no changes are expected in the next 10 years.

4.11.2 Electronic Products

Consumer electronics products are accepted at the OCRC for a charge, and at various other private businesses in Olmsted County. The OCRC collects about 500,000 pounds annually. Electronics management is based on a fee-for-service model so that overall costs vs. revenue are calculated as neutral. The County does no processing on site, and

currently uses a licensed state contractor to manage the waste. Electronics management information is available on the Olmsted County Solid Waste web site, and various other educational venues. The E-waste collection program is the responsibility of the Waste Reduction Manager, and the OCRC staff. Management of e-waste takes approximately 1.0 full time equivalent (FTE) employee and is included in the OCRC budget. Olmsted County will continue to accept electronic products in compliance with state or federal mandates throughout the next 10 years.

Technical assistance is provided on a case-by-case basis if requested by a business or other agencies, the benefits of recycling, maximizing usage and longer term replacement policies will be incorporated. Any costs associated with technical assistance would be funded by the Waste Reduction budget. This program is ongoing.

4.11.3 Major Appliance Management

Appliances (white goods) are prohibited by Minnesota Statutes, (section 115A.552, subdivision 1, and 115A.9561) from being landfilled. Olmsted County accepts major appliances for a fee. Individuals and companies wishing to dispose of their white goods are directed to the public drop at the Olmsted County Recycling Center Plus, where a special area has been designated for their collection. Appliances collected at the Recycling Center are then turned over to a licensed appliance recycler for disposal. In 2010, over 4,725 appliances were collected and recycled at the OCRC. The appliances are repaired and reused if possible, but most are disassembled for material recovery. Estimated staff time to handle appliances at the OCRC is approximately 5 minutes per unit, and is included in the OCRC budget.

Components containing hazardous substances are disposed of at hazardous waste sites. Residents can also take their stoves, washers and dryers to Rochester Metal Recyclers for recycling, and many appliance dealers take back used appliances for recycling.

Olmsted County intends to continue handling appliances in this manner. The cost of managing them is included in the budget.

4.11.4 Motor Vehicle Fluids & Filters

In 1987, legislation was passed in Minnesota to require all retailers of motor oil to either collect used oil or post signs indicating the nearest location where used oil is accepted (Minnesota Statute 115A.916). The County endorses these state policies and strives to keep waste oil out of the waste stream and encourage proper handling resulting in the reduction of surface and groundwater contamination. Olmsted County supports the current laws by including information in solid waste presentations, on the web site, in newsletters and other publications. In 2010, Olmsted County licensed haulers and businesses reported 1,361 tons of used oil recycled in Olmsted County.

Used oil filters are prohibited by Minnesota Statutes (Sections 115A.915, 115A.9155 and 115A.916) from being landfilled. Individuals and companies must use the services of an

oil filter recycler. Olmsted County maintains a list of oil and oil filter recycling collection locations that is available upon request or through the www.olmstedwaste.com web site. Olmsted County does accept used oil filters at the Hazardous Waste Facility. In 2010, Olmsted County businesses and licensed haulers reported that 38 tons of used oil filters were recycled in Olmsted County. Funding for handling these products is included in the Hazardous Waste Facility budget. Responsibility for this as with the other hazardous waste programs is with the Waste Abatement Manager and the Hazardous Waste Facility staff. Estimated staff time required for this program is approximately one hour per week. This program is expected to be ongoing.

4.11.5 Lead-Acid and Dry Cell Battery Management

A person may not place a lead acid battery in mixed municipal solid waste or dispose of a lead acid battery (Minnesota Statute 115A.915). Minnesota statues also have established a five dollar surcharge that is refundable when motor vehicle batteries are returned for recycling. When a new battery is purchased, the customer may avoid the surcharge by returning a used motor vehicle battery. Retailers are required to accept used lead acid batteries free of charge, even if those turning in batteries have not purchased a new battery. In 2010, businesses and licensed haulers reported 1,396 tons of vehicle batteries recycled in Olmsted County. The HHW Facility accepts lead acid, Nickel-Cadmium, and all button batteries. Management of batteries is included in the Hazardous Waste Facility budget forecast (See Attachment B). Public education related to proper battery management has been targeted through the County's Technical assistance and educational outreach programs included in Section 4.2. Handling of Lead-Acid and Dry Cell batteries will continue on an ongoing basis. Responsibility for this and the other hazardous waste programs is with the Waste Abatement Manager and the Hazardous Waste Facility staff. Estimated staff time required for this program is estimated at four hours per week This program is expected to be ongoing.

4.11.6 Mercury Bearing Product Management (includes fluorescent tubes)

Discarded mercury bearing products including mercury switches have been targeted through the County's Technical assistance and educational outreach programs included in Section 4.2. Collection boxes are strategically located at key businesses around the county to collect mercury bearing products. In addition, mercury bearing products are also collected free of charge at the Hazardous Waste Facility. In 2009, a total of 255 mercury thermometers were collected in exchange for digital thermometers, and 109.6 pounds of metallic mercury was collected. In 2010, a total of 223 mercury thermometers were collected in exchange for digital thermometers, and 47 pounds of metallic mercury was collected. Olmsted County handles mercury switches as referenced in the Olmsted County Mercury Conrol Plan available through the Olmsted County Environmental Resources Office or by calling 507-328-7070.

Used fluorescent bulbs are prohibited by Minnesota Statute (Section 115A.932) from being disposed at a solid waste facility. Fluorescent bulbs are collected at the Hazardous Waste

Facility. Rochester Public Utilities currently pays for the recycling of compact fluorescent bulbs from residents to encourage switching to the more energy efficient bulbs. In 2009, a total of 30,538 fluorescent bulbs (120.4 pounds of mercury) were collected. In 2010, a total of 27,858 fluorescent bulbs (55.8 pounds of mercury) were collected.

Staff will continue to educate residents and businesses that use or produce these products and collect devices that contain mercury for proper management. Funding for handling these products is included in the Hazardous Waste Facility budget. Mercury collected through the Olmsted County program is recycled through licensed vendors. Responsibility for this as with the other hazardous waste programs is with the Waste Abatement Manager and the Hazardous Waste Facility staff. Estimated staff time required for this program is approximately four hours per week. This program is expected to be ongoing.

4.11.7 Used Telephone Books

Each year, used telephone books are collected for recycling at the Olmsted County Recycling and marketed through Dex. A total of 14 tons of phone books were collected at the Olmsted County Recycling Center and recycled in 2010.

4.12 PROGRAM DEVELOPMENT

As a result of the Minnesota Environmental Initiatives Dodge-Olmsted Centroid Greenhouse Gas Stakeholder Input process, Olmsted County developed six strategies that will impact the amount of greenhouse gas produced through solid waste disposal. The Rochester Centroid Work Group presentation (See Attachment I) summarizes the stakeholder process, and outlines the following strategies developed by the Rochester Centroid to attain the greenhouse gas reduction goals set forth by the Minnesota Climate Change Advisory Group.

- Strategy 1 - Add Unit 3 to increase the capacity of the Olmsted Waste-to-Energy Facility by 200 tons per day. This project has already been completed.
- Strategy 2 – Waste Processing and Metals Recovery - A test project was conducted during the Summer of 2011 to determine the feasibility of strategy two through landfill mining, bulky waste processing and ash metal recovery project. The test project outcomes are being analyzed at the time of this writing. If determined to be feasible, some or all of the components will be implemented on a larger scale beginning in 2012, and throughout the next 10 years. (See Section 4.10.11 for more information on this project).
- Strategy 3 – State Bottle Bill - Olmsted County will continue to evaluate the complete impact of any proposed State Bottle Bills to the Olmsted County Integrated Solid Waste Management System and work to support a bill that is fair and reduces the environmental impact of post-consumer containers. This effort will be ongoing until passed.

- Strategy 4 – Source Reduce Corrugated Cardboard – This strategy is being attained by working with businesses and other large entities to reduce their waste including cardboard. Revenue sharing options for the sale of recyclable materials are also offered either through membership in the Southeastern Minnesota Recycling Exchange (SEMREX) or through a revenue-share agreement with Olmsted County Recycling Center Plus. This program is ongoing.
- Strategy 5 – Increase Recycling of Carpet in Olmsted and Dodge Counties. As a start, staff will evaluate the options for collecting carpet for recycling at the Olmsted County Recycling Center. Staff will also work with carpet installers and retail stores through the technical assistance program to develop carpet recycling options. Work on this program has already begun, and will continue as marketing options develop throughout the next 10 years.
- Strategy 6 – Source Reduce Personal Computers in Olmsted and Dodge Counties – Staff will work with the Olmsted County Information Technology Solutions (ITS) Department to review the ITS schedule and policy for computer upgrades. In 2010, the Solid Waste Division extended recommended purchase schedule for new personal computers by one year, for computers that were still in good working condition. County staff will continue to work with business and other institutions to adopt new replacement policies through the technical assistance program.

4.13 ALTERNATIVES

Various scenarios were analyzed in the previous 10-year Solid Waste Management Plan to determine the development of the current integrated system to meet the Olmsted County Solid Waste Division's mission, and the rules of the State Minnesota. Olmsted County has made a considerable investment in the current system with the addition of the third unit at the Olmsted Waste-to-Energy Facility to be able to process more waste and reduce the amount of waste going to a landfill.

The current system is in line with the State's solid waste hierarchy. During the Minnesota Environmental Initiative's Integrated Solid Waste Management Stakeholder Process, Olmsted County assessed the feasibility of source separated organics processing. It was determined that with the existing system, the environmental benefits would not be realized until the food wastes begin to be landfilled rather than combusted. Under current conditions, this will not be for another 10 years or longer. Greenhouse gas emissions from the separate collection of food waste would also be a factor to consider in the Dodge-Olmsted system. See also, Section 4.4.