

Metropolitan Waste Disposal Restrictions Report



Legislative Charge

*Laws of Minnesota 2012, chapter 272, section 93, **METROPOLITAN WASTE DISPOSAL RESTRICTIONS REPORT***

By August 1, 2012, the commissioner of the Pollution Control Agency shall prepare a report on how compliance with Minnesota Statutes, section 473.848, may be achieved. The commissioner must allow interested parties at least 30 days to review and comment on the report. Written comments received from interested parties and the commissioner's responses to the comments must be included in the report. By October 1, 2012, the report, comments, and responses shall be submitted to the chairs and ranking minority members of the senate and house of representatives committees with jurisdiction over environmental policy and finance. The agency may not require compliance with Minnesota Statutes, section 473.848, before February 15, 2013.

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Estimated cost of preparing this report (as required by Minn. Stat. § 3.197)

Total staff time: xx hrs.	\$xx,xxx
Production/duplication	\$x,xxx
Total	\$xx,xxx

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This report is available in alternative formats upon request, and online at www.pca.state.mn.us

Document number: lrw-sw-4sy12

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Executive Summary

The Minnesota Pollution Control Agency (MPCA) has prepared the Metropolitan Waste Disposal Restrictions Report (Report) to outline how the state could achieve compliance with Minnesota Statutes, section § 473.848, restriction on disposal, as required by recent legislation (Laws of Minnesota 2012, chapter 272, section 93). The Report outlines the requirements of Minn. Stat. § 473.848, the current framework of solid waste management in the metropolitan area and the conditions necessary to obtain compliance with waste disposal restrictions. In addition, the report attempts to forecast potential impacts related to achieving compliance.

The Minnesota Legislature established a solid waste hierarchy in Minn. Stat. § 115A.02 (b). The hierarchy identifies an order of preference for managing wastes with land disposal as the least preferred method. In addition, a roadmap for implementing these alternatives to land disposal is outlined in the Metropolitan Landfill Abatement Act (Minn. Stat. §§ 473.841-849) and related statutes (e.g. Minn. Stat § 473.149). The U.S. Environmental Protection Agency's (EPA) waste hierarchy also favors materials recovery and combustion for energy recovery over land disposal. **Pages 2-4**

In 2010, MPCA developed the Metropolitan Solid Waste Management Policy Plan 2010 to 2030 (Policy Plan) to implement these statutes. The development process included extensive public and stakeholder participation. The Policy Plan emphasizes moving waste up the hierarchy. It includes aggressive goals of four to six percent reduction in metropolitan waste over the 20 years of the Policy Plan, and a 54-60 percent recycling rate and 9-15 percent organics recovery rate by 2030. **Pages 5-8**

According to the Policy Plan, after source reduction, reuse, recycling, and organics recovery, by 2030, the remaining mixed waste would proceed to resource recovery (at existing operating waste to energy facilities) at a 24-28 percent rate, and finally the remaining 1-9 percent would go to land disposal (at landfills). The Policy Plan specifies that resource recovery facilities capable of processing mixed waste (waste to energy facilities) must be operating at full capacity before any waste generated in the metropolitan area can be land disposed (Minn. Stat. § 473.848). **Page 7-8**

Although the requirement in Minn. Stat. § 473.848 on restrictions on disposal has been in statute since 1985, enforcement of this statute is now possible and necessary for three reasons.

First, the MPCA has concluded that operating resource recovery facilities at capacity is an essential component of implementing state law and policy governing waste management in the metropolitan area. More specifically, implementation of the law supports the solid waste management hierarchy. More than one million tons of metropolitan waste can be processed each year by the region's four resource recovery facilities. Without resource recovery, land disposal would more than double. **Page 13-14**

In addition, the gap between resource recovery facility capacity and actual use in the metropolitan area has grown in recent years. In 2002, all available capacity was being used and in 2011, nearly 140,000 tons per year of processing capacity went unused. The growing gap could lead to closure of existing resource recovery facilities. The cost to replace the existing resource recovery system would be approximately one billion dollars. **Page 13-14**

Finally, in 2005, the Legislature consolidated state oversight of solid waste management into the MPCA. Therefore, for the first time, planning, regulation, permitting and enforcement of metropolitan area waste management falls under one authority. **Page 4-5**

After consulting with interested stakeholders, MPCA believes that no significant operational barriers exist to obtaining compliance. Large amounts of processible waste are generated and collected near the resource recovery facilities and transfer stations serving them. In addition, waste hauling, landfill,

resource recovery and transfer stations operators communicate extensively about waste deliveries. As a result, it is feasible that operating resource recovery facilities at capacity and according to Minnesota Law may be achieved as outlined in the Report. **Pages 15-21**

Several factors contribute to potential impacts associated with enforcing restrictions on landfill disposal of waste generated in the metropolitan area. Some of the most significant include the following:

General Public: In 2009, MPCA commissioned a study on residential waste services arrangements and found that there was no relationship between fees assessed for household garbage collection and where the waste ended up (landfill or resource recovery facility). **Page 18**

Landfill Operators and Host Communities: If compliance with *Minn. Stat. § 473.848* was fully met, in 2011, there would be an average 11 percent reduction in waste landfilled. The reductions would range from an estimated four percent decrease in total waste delivered to the Spruce Ridge facility to 29 percent for the Elk River landfill. These estimated reductions are small in comparison to the reduction in waste to be landfilled when the metropolitan recycling and organics recovery goals are achieved. Landfill owners, and communities and citizens of Minnesota, would benefit from the extension of the useful life of the landfills, which would conserve land for other uses and reduce risk liability. **Pages 10-13**

Resource Recovery Facilities: The facilities would run at full capacity providing increased benefits associated with recycling and energy recovery from MMSW. These additional benefits include energy and resource conservation, reductions in pollution and greenhouse gases, and increased economic activity and jobs. **Pages 13-15**

In summary, the MPCA finds compliance with *Minn. Stat. § 473.848* achievable. The benefits of conforming with the state's solid waste management hierarchy and landfill abatement policies, coupled with limited negative impacts resulting from compliance, make enforcement of the restriction on disposal of metropolitan area waste a necessary decision.

Legislative Policy and Purpose

The Minnesota Legislature has established a clear direction for solid waste management in Minnesota. In particular, the Waste Management Act (Chapter 115A) and the Metropolitan Landfill Abatement Act (Chapter 473.841-849), both establish a framework for moving Minnesota from a land disposal (landfill) based solid waste system to a system based on prevention and recovery of waste. The Waste Management Act outlines solid waste management practices and an order of preference (the waste management hierarchy). It prescribes adoption of a "systems" approach integrating all six primary waste management practices in order of preference.

Minn. Stat. § 115A.02 states:

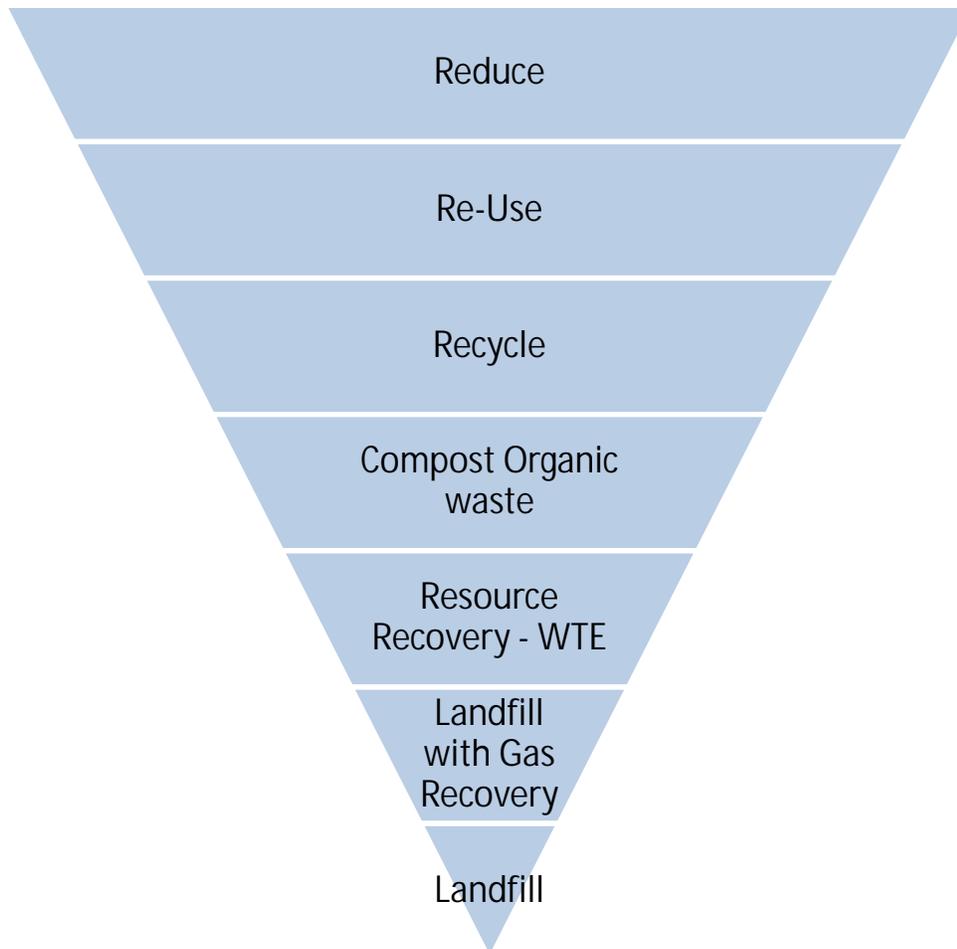
The waste management goal of the state is to foster an integrated waste management system in a manner appropriate to the characteristics of the waste stream and thereby, protect the state's land, air, water, and other natural resources and the public health. The following waste management practices are in order of preference:

- (1) waste reduction and reuse*
- (2) waste recycling*
- (3) composting of source-separated compostable materials, including but not limited to, yard waste and food waste*
- (4) resource recovery through mixed municipal solid waste composting or incineration*

(5) land disposal which produces no measurable methane gas or which involves the retrieval of methane gas as a fuel for the production of energy to be used on site or for sale

(6) land disposal which produces measurable methane and which does not involve the retrieval of methane gas as a fuel for the production of energy to be used on site or for sale.

In addition, more recent scientific research on energy and pollution and greenhouse gas reduction from solid waste management has validated the structure of the hierarchy in terms of environmental benefits. The chart below depicts the solid waste management hierarchy, and emphasizes the need to focus efforts at the top, by encouraging the generator to reduce waste generation and separate materials for diversion. These practices produce the greatest environmental benefits.



State solid waste laws consistently emphasize resource and energy recovery and landfill abatement as twin goals. The law requires that feasible and prudent alternatives to land disposal should be implemented. Furthermore, state law indicates that cost alone does not justify rejecting an alternative to land disposal (*Minn. Stat. §§ 473.823, subd. 6; 115A.917*).

The Waste Management Act's declaration of policy and purposes (listed below) sets a clear direction and anticipates the need to resolve issues related to resource recovery and land disposal facilities:

115A.02 LEGISLATIVE DECLARATION OF POLICY; PURPOSES

(a) *It is the goal of this chapter to protect the state's land, air, water, and other natural resources and the public health by improving waste management in the state to serve the following purposes:*

(1) *reduction in the amount and toxicity of waste generated*

- (2) *separation and recovery of materials and energy from waste*
- (3) *reduction in indiscriminate dependence on disposal of waste*
- (4) *coordination of solid waste management among political subdivisions*
- (5) *orderly and deliberate development and financial security of waste facilities including disposal facilities.*

Pursuant to this purpose, the Legislature put in place a policy structure to support it, including the solid waste management tax, the Metropolitan Landfill Abatement tax, SCORE and Metropolitan Landfill Abatement Account funding mechanisms, requirements for public entities, solid waste planning, and other similar tools currently in use by the MPCA and local governments.

Even as the primary legislative purpose was to build integrated waste management systems that minimized the need for and practice of land disposal of solid waste, the Legislature recognized the need to develop facilities, including landfills (Minn. Stat. § 115A.02, subd. a item 5). Because there is a need for land disposal capacity, it is important to conserve it and use landfills only as necessary. The Legislature also recognized that building waste facilities is expensive and challenging and several state laws, therefore, guide the orderly and deliberate development and utilization of resource recovery and disposal facilities.

Minn. Stat. ch. 473 sets out a framework for implementing a solid waste management system in the metropolitan area of Minnesota. This framework conforms with the solid waste hierarchy aims to achieve high levels of materials and energy recovery. The aim is to implement alternatives to land disposal. It requires MPCA to formulate an overall policy plan directing all solid waste stakeholders in the metropolitan area to implement the waste management hierarchy. MPCA's first Metropolitan Solid Waste Management Policy Plan (Policy Plan), adopted in 2011, calls for large increases in source reduction, reuse, recycling and organic materials recovery and large reductions in land disposal of trash.

To further these aims, the Metropolitan Landfill Abatement Act also requires that processible waste shall not be land disposed. Resource recovery facilities recover recyclables and convert waste to energy and are the preferred alternative to landfilling under the legislative waste management hierarchy.

Minn. Stat. § 473.848 requires the MPCA to report to the Legislature on the quantity of unprocessed waste that is land disposed, the reasons the waste was not processed, to propose a strategy for reducing land disposal, and to outline progress made by metropolitan counties. MPCA provides this information as part of the Solid Waste Policy Report. The law also authorizes MPCA to adopt standards for determining when waste is unprocessable and procedures for expediting certification and reporting of land disposal of waste. The MPCA adopted specific standards defining waste as unprocessable in the new Policy Plan.

Minn. Stat. § 473.848, subd. 1(a), prohibits the disposal of unprocessed MMSW unless the metropolitan counties have certified that the waste is unprocessable in accordance with the criteria in the Policy Plan. The counties have adopted the Policy Plan's standards and support MPCA enforcement of restriction on disposal through amendments to facility permits.

Minn. Stat. § 473.848, subd. 5, defines that a waste is unprocessed if it has not, after collection and before disposal, undergone separation of materials for resource recovery through recycling, incineration for energy production, production and use of refuse-derived fuel, composting or any combination of these processes so that the weight of the waste remaining that must be disposed of in a mixed municipal solid waste disposal facility is not more than 35 percent of the weight before processing. All four resource recovery facilities serving the metropolitan area exceed this standard for materials and energy recovery.

In 2005, the Legislature consolidated state administration and oversight of solid waste into the MPCA. This change in duties has required MPCA to examine compliance with all aspects of the Metropolitan Landfill Abatement Act including the restriction on disposal requirements in Minn. Stat. § 473.848. Previously, significant portions of the Waste Management Act and the Metropolitan Landfill Abatement Act had been administered by the Waste Management Board, the Metropolitan Council, the Office of Waste Management (OWM), or the Office of Environmental Assistance (OEA). Consolidation of duties allowed MPCA to integrate planning, oversight, financial assistance, reporting, permitting, and enforcement. Previously, coordination of actions was encumbered by fragmentation of authority and duties.

Metropolitan Solid Waste Management Policy Plan 2010 to 2030

The Minnesota Pollution Control Agency is responsible for implementing Minn. Stat. § 115A (the Waste Management Act) and administering provisions of Minn. Stat. §§ 473.841 through 849 (Metropolitan Landfill Abatement Act). Together, these laws outline waste management in the seven-county metropolitan area of Minnesota. MPCA's duties include administering Minn. Stat. § 473.149, which is the preparation and adoption of the [Metropolitan Solid Waste Management Policy Plan](#) (Policy Plan).

The current Policy Plan covers a planning period from 2010 to 2030 and establishes goals, policies and objectives to significantly improve the solid waste management system serving the people of the seven-county metropolitan area.

Three of the most notable elements of the plan include:

- Ambitious increases in recycling and organic waste recovery. For example, over the planning period, the Policy Plan sets out objectives that will increase recycling from 41 percent (2008) to 54-60 percent, increase organic waste recovery from two percent (2008) to 9-15 percent, and reduce land disposal to nine percent or less.
- Clear and measurable objectives to significantly expand waste reduction and reuse. For example, the Policy Plan calls for source reduction and reuse to account for four to six percent of solid waste management over the course of the 20-year plan.
- Expanded accountability for participation of the public, businesses and institutions in the metropolitan area in reducing the need for and practice of land disposal (landfills). The Policy Plan emphasizes accountability by all parties for implementing the plan and its system objectives.

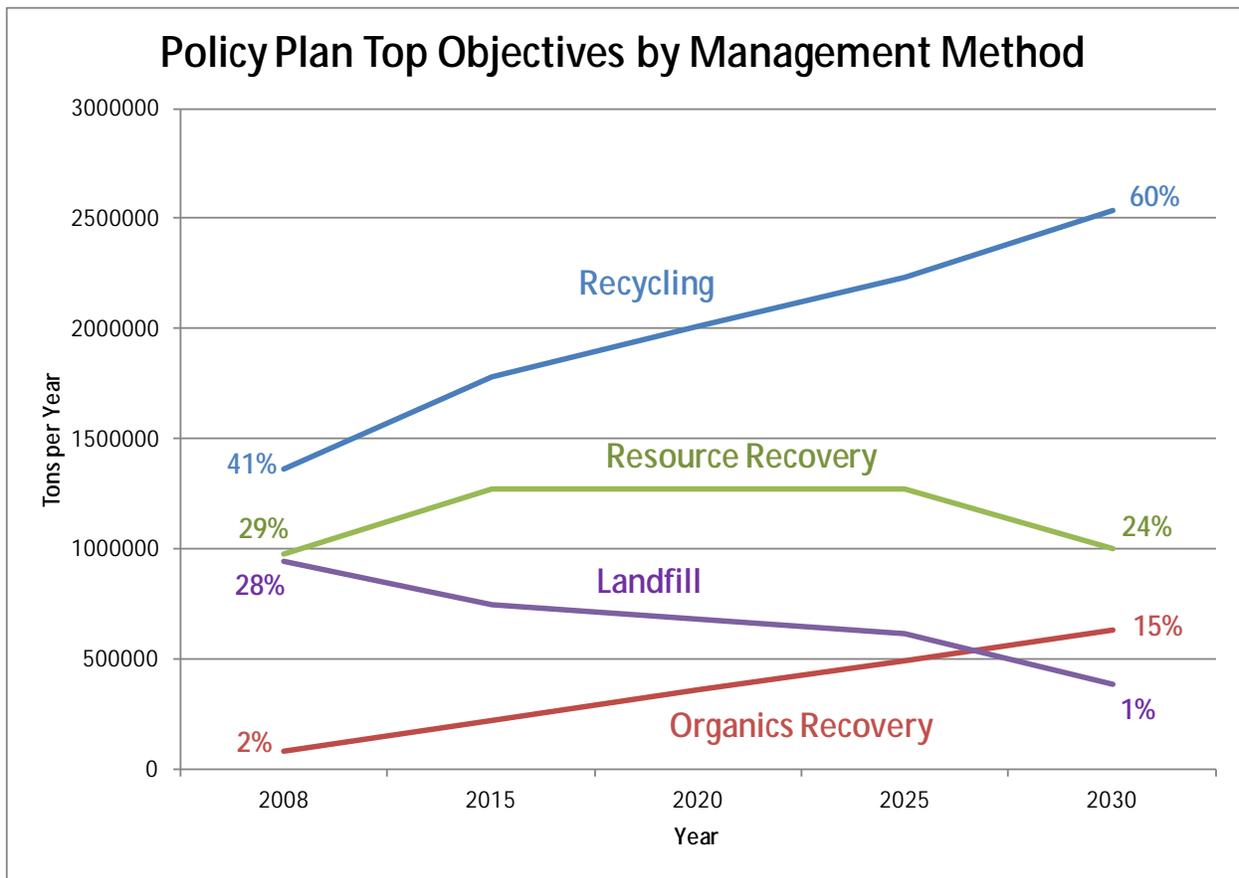
The following table shows the Policy Plan's system objectives in 2020 and 2030 compared to the base year 2008:

Metropolitan System Objectives			
Management Method	2008 System	2020	2030
Source Reduction (cumulative)	-	2-4%	4-6%
Recycling	41%	47-51%	54-60%
Organics Recovery	2%	4-8%	9-15%
Resource Recovery	29%	32-33%	24-28%
Landfill	28%	8-17%	1-9%

The point of achieving these goals is to improve Minnesota's economy and environment while reducing the liabilities related to land disposal. Achieving the Policy Plan's goals would have the following direct or indirect affects:

- Reduce environmental and economic risks of land disposal
- Conserve energy and generate renewable energy
- Reduce greenhouse gases
- Support economic development by providing secondary materials such as food, paper, metals, glass and plastics to Minnesota manufacturers
- Reduce pollution of Minnesota's land, water and air
- Coordinate efforts of political subdivisions and private firms
- Promote the orderly and deliberate development and financial surety of waste facilities, including landfills

The following graph shows how the Policy Plan's top objectives for recycling, organic materials recovery, resource recovery of Mixed Municipal Solid Waste (MMSW) and land disposal change from the base year out to 2030. Note that waste generation is increasing over the same time period and source reduction objectives are also accounted for. Although MPCA's Policy Plan is ambitious regarding the increases in diversion of waste to recycling and organics recovery, waste composition studies consistently indicate that these levels are achievable.



Achieving the Policy Plan’s objectives for reduction, reuse, recycling and organic materials recovery will drastically reduce land disposal of MMSW. Between 2008 and 2030 the Policy Plan shows recycling and organic recovery increasing steadily and land disposal decreasing from 28 percent to one percent. MPCA’s Policy Plan forecasts that the most diversion of MMSW from landfills will occur due to recycling and organic materials recovery. This diversion is much larger than the diversion of MMSW due to obtaining compliance with restriction on disposal.

For example, in 2011, compliance with the restriction on disposal requirements would have diverted an additional 140,000 tons from landfills. Comparatively, if the metropolitan area had obtained 1 percent in source reduction, 50 percent recycling, and 6 percent organic materials recovery (reasonable and realistic increases), then an additional 359,000 tons of MMSW would have been diverted from landfills. This represents more than double the diversion achieved through compliance with restriction on disposal. The total potential diversion of almost 500,000 tons from land disposal achieved through an integrated solid waste management system is significant.

In addition to setting aggressive source reduction, recycling, and organics recovery goals, the Policy Plan clearly outlines that compliance with restriction on disposal requirements is an important component of the metropolitan integrated solid waste management system. MPCA recognized that processible metropolitan area generated waste was being disposed of in landfills in violation of state law. Processible waste that is now being landfilled could be processed. There is capacity in the resource recovery system to be able to process this waste. MPCA formally expressed its intent to enforce the restriction on disposal in Minn. Stat. § 473.848 in the Policy Plan. Another key aspect of the Policy Plan is the expectation that no new resource recovery facilities would be needed to obtain the Policy Plan’s

waste management objectives. Instead, it anticipated and assumed full use of the resource recovery facilities now serving the metropolitan area.

The MPCA adopted the Policy Plan on April 6, 2011. The Policy Plan was developed after MPCA spent more than two years performing extensive consultations with industry groups, environmental groups, local governments and others. MPCA conducted a solid waste policy stakeholder process in 2009, held consultations with metropolitan area counties from 2008 through 2011, and implemented a 60-day public comment process beginning in September 2010. Hundreds of hours were spent in consultation with interested parties concerning the objectives in the Policy Plan.

Governance of Seven County Metropolitan Solid Waste Management System

The seven metropolitan counties - Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington - have duties under the Waste Management Act and the Metropolitan Landfill Abatement Act, ranging from adopting Solid Waste Management Master Plans (Master Plans) to implementing landfill abatement programs to enforcing local regulations.

The seven metropolitan counties developed and adopted new Master Plans in 2012 and MPCA approved them on May 24, 2012 (after MPCA adopted the Policy Plan). The counties are required to adopt plans that demonstrate that their programs and policies meet the specific measurable goals outlined in the Policy Plan.

Several aspects of the new Master Plans have been designed to support MPCA's compliance strategy related to restriction on disposal. These include:

- Adopting the Policy Plan framework for obtaining compliance with the restriction on disposal. The Master Plans make it clear that the metropolitan resource recovery facilities need to be used at their full capacity in order to certify MMSW as unprocessable and proceed with land disposal of MMSW generated in the metropolitan area.
- Including a statement that counties will certify MMSW as unprocessable only in accordance with the criteria in the Policy Plan.
- Continuing to license haulers and facilities and require reporting of essential information.
- Implementing and supporting initiatives to assure that cities, school districts, the Metropolitan Council, the state, and other public entities specify to waste haulers that the MMSW that they generate is sent to resource recovery facilities in compliance with Minn. Stat. §115A.471.

In 2011, the seven metropolitan counties obtained higher levels of recycling and resource recovery as compared to 2010. However, more than three quarters of a million tons of unprocessed metro MMSW was land disposed. A large portion of this waste could have been reduced, recycled, recovered as organic materials, or sent to resource recovery facilities. There appears to be no shortage of waste for operating both resource recovery facilities and land disposal facilities. In 2011, 140,000 tons of MMSW would have been available to be processed at resource recovery facilities if landfills were in compliance with the restriction on disposal requirements in the statute.

2011 Metropolitan County reported recycling, resource recovery facility and landfill statistics:

County	Recycling rate w/o credits*	Recycled tons	Resource recovery tons	MMSW landfill tons	MMSW landfilled out of state tons
Anoka	42%	141,052	135,208	55,908	3,027
Carver	47%	44,031	5,394	42,858	1
Dakota	52%	239,639	45,751	169,754	7,757
Hennepin	42%	572,618	412,747	348,825	3,685
Ramsey	48%	297,863	222,030	93,621	47,800
Scott	49%	56,589	15,018	44,289	0
Washington	49%	92,311	82,140	11,289	5,092
Totals	45%	1,444,103	918,288	766,544	67,362

**Credits added to county recycling rates include 5 percent for providing yard waste management and three percent for implementing source reduction and re-use programs.*

Mixed Municipal Solid Waste Land Disposal and Resource Recovery Facilities Governed by Restriction on Disposal

Mixed Municipal Solid Waste remains for disposal even after large portions of the waste stream are separated by the generator for reuse, special management (household hazardous waste), recycling, and/or organic recovery. This is the waste stream that is governed by the restriction on disposal requirements in Minn. Stat. § 473.848, if it is generated in the metropolitan area and managed in Minnesota. Until more waste generators adopt management practices that recover and divert a larger portion of MMSW, it is likely that Minnesota will generate MMSW for the foreseeable future.

In 2011, more than three million tons of municipal solid waste (MSW) was generated in the metropolitan area of Minnesota alone. MSW includes MMSW and source separated items like recyclables and organic waste. In 2011, more than 45 percent of metropolitan MSW was recycled and diverted to outlets for source separated organic materials such as composting, animal feed, and food rescue. Smaller amounts were re-used or diverted to special management as problem materials (tires, Household Hazardous Waste, appliances, etc.).

Yet, after those wastes were diverted, 1,752,194 tons of MMSW remained for disposal. This was an increase from 2010 levels, and represents more than 5,300 tons per day or almost 600 garbage truckloads per day. A small amount of MMSW was shipped out of state for disposal. Most MMSW managed in the metropolitan area was delivered to four landfills and to four resource recovery facilities. The table below shows the eight facilities (landfills and resource recovery facilities) currently subject to the restriction on disposal.

Facility	MMSW tons received in 2011	Permit #	type	Location - County
Spruce Ridge Landfill	233,162	SW-6	Land disposal	Rural McLeod County
Pine Bend Landfill	273,766	SW-45	Land disposal	Inver Grove Heights - Dakota
Burnsville Landfill	271,347	SW-56	Land disposal	Burnsville -Dakota
Elk River Landfill	265,987	SW-74	Land disposal	Elk River - Sherburne
Great River Energy (GRE)	200,349	SW-305	Resource recovery	Elk River - Sherburne
Hennepin Energy Recovery Center (HERC)	363,434	SW-396	Resource recovery	Minneapolis - Hennepin
Resource Recovery Technologies (RRT)	393,501	SW-286	Resource recovery	Newport - Washington
City of Red Wing	20,687	SW-637	Resource recovery	Red Wing - Goodhue

Four of the primary MMSW facilities are located inside the seven county metropolitan area. Four are located outside the seven county metropolitan area. The location of the facilities, local licensing and reporting requirements, and the flow of MMSW to the facilities across county boundaries have, in the past, made it difficult for one or a group of metropolitan counties to implement or regulate the restrictions on disposal. Allied Waste, Waste Management, Veolia, Waste Connections, and other firms own and operate landfills in Iowa, Wisconsin, and the Dakotas that could accept metropolitan area MMSW and other solid waste.

Land disposal facilities

The four disposal facilities accepting metropolitan area MMSW currently serve or may serve other regions of Minnesota. The landfills have operated for more than twenty years. Various types of solid waste are deposited into lined and covered landfill "cells". Gas generated by decomposing waste in the cells is collected to reduce air pollution and migration of landfill gas underground and off the landfill site. Gas recovery has been shown to reduce groundwater pollution. Leachate, or free liquids in the landfill cells, is collected on a liner below the landfill and treated on site, sent to a wastewater treatment facility, or pumped back into the waste (leachate recirculation).

The landfills accept many types of waste for disposal such as MMSW, contaminated soil, industrial waste, construction debris and demolition materials. Minnesota statutes and the individual landfills classify waste for land disposal into several categories. Only MMSW generated in the metropolitan area is governed and restricted from disposal by Minn. Stat. § 473.848. MMSW not generated in the metropolitan area and other categories of non-MMSW can be accepted and land disposed without this restriction.

Landfill volumes are elastic and may vary significantly from year to year. MMSW from the metro area, MMSW from greater Minnesota, industrial waste, construction waste, demolition waste, and other waste types vary year to year.

The **Spruce Ridge** Landfill is located west of the metropolitan area in rural McLeod County. It is owned and operated by a subsidiary of Waste Management Inc. Over the past three years 15 percent to 27 percent of the MMSW disposed by the facility was metropolitan area unprocessed waste. The landfill produces large amounts of methane gas. A portion of the landfill gas that is captured is incinerated to produce electricity and sold to the City of Glencoe. McLeod County finances their comprehensive waste management programs entirely using fees obtained



from waste deposited into the landfill. The county fee is indexed based on waste delivery. The landfill may have the capacity to accept an additional six million tons of waste. This would mean that the landfill could function for decades assuming moderate progress is made in achieving the Policy Plan's objectives.



Spruce Ridge is located more than 50 miles from the center of the metropolitan area. None of the four resource recovery facilities is near the landfill. Most of the waste land disposed at Spruce Ridge is not governed by restriction on disposal because the waste is generated outside of the metropolitan area in Wright, Meeker, and other greater Minnesota Counties. It is unlikely that this landfill would experience significant waste reductions of waste loads.

The **Pine Bend** Landfill is located in Inver Grove Heights (Dakota County). Over the past three years more than 90 percent of the MMSW disposed at the facility was metropolitan area unprocessed waste. It is owned by a subsidiary of Allied Waste. The landfill produces large amounts of methane gas. In 2011, according to the facility annual report, almost 100 percent of the collected methane was incinerated in an engine. The landfill pays voluntary "host fees" to the City of Inver Grove Heights and Dakota County that support various public



service programs in those areas. The county fee has both a fixed and volume based component. The county is currently renegotiating its fee agreement. The landfill may have the capacity to accept an additional four million tons of waste. This would mean that the landfill could function for decades assuming moderate progress is made in achieving the Policy Plan's objectives.



Pine Bend is located near the Newport RRT resource recovery facility and is the nearest landfill to the City of Red Wing resource recovery facility. Processible MMSW that is delivered to these resource recovery facilities would likely be relatively small because these facilities have a reasonably small available capacity. Therefore, MPCA would estimate a moderate (10 percent) decrease in waste flow to the Pine Bend Landfill.

The **Burnsville** Landfill is located in northwest Burnsville in Dakota County. It is owned and operated by a subsidiary of Waste Management Inc. Over the past three years more than 95 percent of the MMSW disposed by the facility was metropolitan area unprocessed waste. The landfill produces large amounts of methane gas. In 2011, about one third of the gas was incinerated in engines and the remaining two thirds was incinerated via flares. The landfill pays voluntary "host fees" to the City of Burnsville and Dakota County that support various public service programs in those areas. The county fee has both a fixed and volume based component. The county is currently renegotiating its fee agreement. The landfill may have the capacity to accept an additional 3.5 million tons of waste. This would mean that the landfill could function for decades assuming moderate progress is made in achieving the Policy Plan's objectives.



The Burnsville landfill is located near the Newport RRT resource recovery facility and is the nearest landfill to the HERC resource recovery facility. The available capacity of these facilities is relatively small and therefore, MPCA would estimate a moderate (10 percent) decrease in waste flow to the Burnsville Landfill.

The **Elk River** Landfill is located north of the metropolitan area in Elk River (Sherburne County). It is four miles north of the GRE resource recovery facility in Elk River. It is owned and operated by a subsidiary of Waste Management Inc. Over the past three years more than 90 percent of the MMSW disposed was metropolitan area unprocessed waste. The landfill produces large amounts of methane gas. In 2011, about 40 percent of the gas was incinerated in engines and 60 percent was incinerated via flares. The landfill pays fees authorized by Minn. Stat. § 115A.919 and 115A.921 to Sherburne County and the City of Elk River respectively. The landfill may have the capacity to accept an additional eight million tons of waste. This would mean that the landfill could function for decades assuming moderate progress is made in achieving the Policy Plan's objectives.



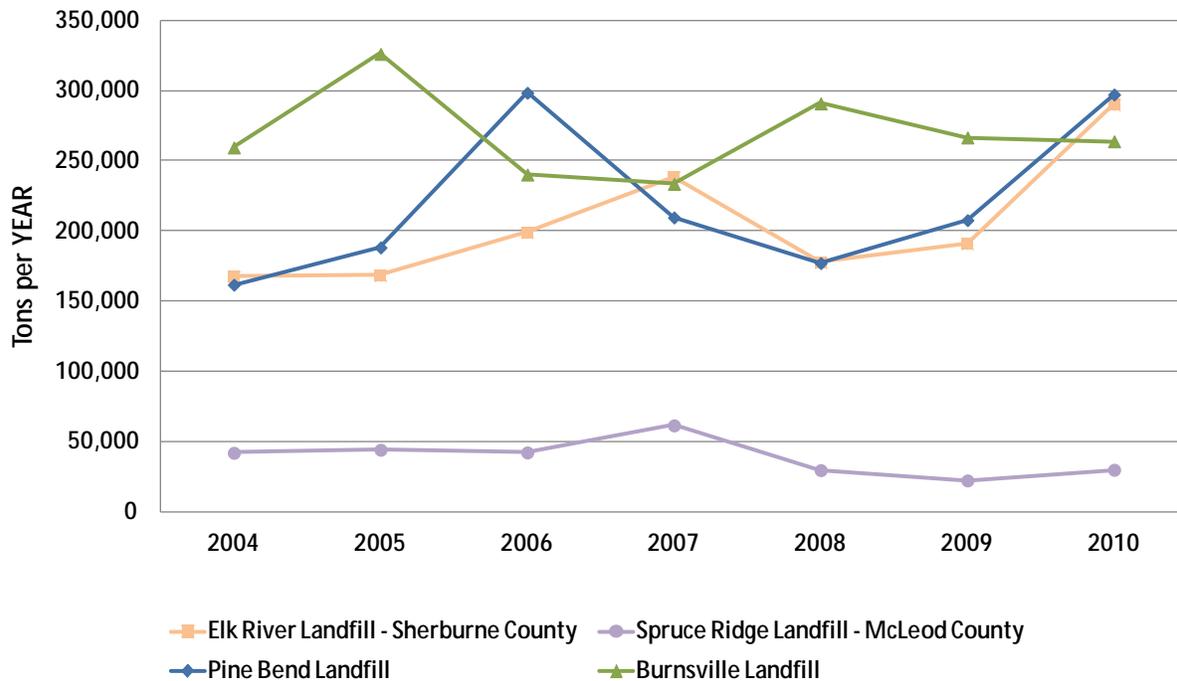
The Elk River landfill is located near the GRE resource recovery facility in Elk River and near the HERC resource recovery facility. The GRE Elk River resource recovery facility has a significant amount of available capacity and therefore, MPCA would estimate a (30 percent) decrease in waste flow to the Elk River Landfill.



Three of the four affected landfills are owned by Waste Management Inc., and therefore, Waste Management Inc. would experience the greatest savings in landfill space due to the shift of MMSW to resource recovery facilities.

The table below shows the fluctuations in delivery of metropolitan MMSW to landfills over the period from 2004 to 2010.

Metropolitan MMSW to MN Landfills (2004 to 2010)



Resource recovery facilities

Four metropolitan resource recovery facilities serve the metropolitan area. Several of these facilities accept MMSW from counties outside the metropolitan area. Together the operating capacity of the four facilities is more than 1.13 million tons per year. All four resource recovery or “processing facilities” have more than 20 years of operating history. Together, they have diverted in excess of 24 million tons of MMSW from landfills, the equivalent of four Spruce Ridge Landfills (8.3 million cubic yard capacity each). All four resource recovery facilities recover recyclables from the waste processed, and convert MMSW to renewable energy.

The operating capacity of several of the resource recovery facilities is somewhat variable month to month and year to year depending upon the composition of the MMSW received and the operational availability of resource recovery facilities (waste processing and waste-to-energy systems).

The MPCA monitors the development costs of resource recovery facilities. A study commissioned by the MPCA in 2007 (*Minnesota Resource Recovery Association Road Map*, HDR, 2007) outlined the replacement cost of resource recovery facilities. The study indicated that since the original development of these four facilities, the development costs and the cost to erect new resource recovery facilities has increased significantly. MPCA estimates that just the capital cost alone to replace metropolitan resource recovery capacity exceeds \$900 million. Therefore, MPCA has concluded that retaining and utilizing existing facility capacity is a strategic objective versus spending more than \$1 billion (when development costs are included) to replace the facilities at some later date.

Eliminating delivery of MMSW to resource recovery facilities could more than double the amount of waste deposited into landfills. The failure of the metropolitan area to use resource recovery facilities would result in the need to develop new landfills and further expand the landfills now operating.

The MPCA recently examined literature and national research into the performance of waste-to-energy facilities in the United States (US) in comparison to US landfills equipped with the most advanced landfill gas to energy systems. MPCA's analysis did not take into account the significant added benefits related to recycling of commodities performed by Minnesota's resource recovery facilities. Even without adding recycling into the analysis, the MPCA concluded that waste-to-energy is far superior to even the very best landfill in terms of pollution reduction, energy production, and long term liability. MPCA concluded that each of the four metropolitan area resource recovery facilities is ten times more efficient in converting waste to energy than the most effective landfill gas system. Moreover, resource recovery facilities do not create long term liability and perpetual care costs (see Appendix D).

The MPCA has extensive experience with the legacy costs of landfills through administration of the Closed Landfill Program. Through 2011, MPCA has spent over \$366,000,000 at 112 landfills in the state.

The **Great River Energy (GRE)** resource recovery facility is located north of the metropolitan area in Elk River (Sherburne County). It is owned and operated by GRE. The facility has operated for more than 20



years. Over the past three years, more than 90 percent of the MMSW delivered was metropolitan area unprocessed waste. Sherburne County accounted for the remaining MMSW. The facility produces refuse derived fuel (RDF) that is incinerated for electricity. The operating capacity is in part limited by the ability of GRE to market RDF to its Elk River power station that is dedicated to convert waste to electrical power. The facility also sorts waste to recover recyclables. The facility pays no host fees. The facility

currently has a stated operating capacity of 300,000 tons per year. The facility has significant available capacity, about 100,000 tons in 2011.

The **Hennepin Energy Recovery Center (HERC)** resource recovery facility is located in downtown Minneapolis adjacent to the Target Field. It is owned by Hennepin County and operated by Covanta. The facility has operated for more than 20 years. Over the past three years, 100 percent of the MMSW delivered was metropolitan area unprocessed waste. The facility burns MMSW to produce electricity and thermal energy. The facility also recovers metals from the ash for recycling. The facility pays no host fees. The facility currently has an operating (permitted) capacity of 365,000 tons per year. HERC has virtually no MMSW available capacity.



The **Resource Recovery Technologies (RRT)** resource recovery facility is located in Newport (Washington



County). It is owned and operated by RRT. The facility has operated for more than 20 years. Over the past three years, more than 90 percent of the MMSW delivered was metropolitan area unprocessed waste. Several southern Minnesota counties accounted for the remaining MMSW. The facility produces refuse derived fuel (RDF) that is incinerated for electricity. The operating capacity is partly limited by the capacity of RRT to market RDF to two dedicated Xcel energy power plants that convert the RDF to electrical power. The facility also sorts waste to recover recyclables. The facility pays no host fees. The facility currently has a stated operating capacity of 430,000 tons per year. RRT's MMSW available capacity is

moderate, about 30,000 tons per year.

The **City of Red Wing** resource recovery facility is located southeast of the metropolitan area in the City of Red Wing (Goodhue County). It is owned and operated by the City of Red Wing. The facility has operated for more than 20 years. Over the past three years, 30-40 percent of the MMSW delivered was metropolitan area unprocessed waste (Dakota County). Goodhue and Wabasha Counties accounted for the remaining MMSW. The facility begins by sorting MMSW to recover recyclables and remove non-combustible materials. The facility produces process steam for industrial leather processing by incinerating waste. The facility pays no host fees. The facility currently has an operating capacity of 30,000 tons per year. Red Wing's MMSW available capacity is small in comparison to the region but large given its total permitted capacity, about 10,000 tons per year.



Mixed Municipal Solid Waste available processing capacity

The table below shows the four resource recovery facilities that currently receive metropolitan MMSW. It shows permitted capacity which is the maximum annual throughput (per MPCA permit), 2011 annual operating capacity, 2011 MMSW delivery, and the gap in waste delivery versus the available operating capacity.

The data in the table below is from MPCA facility annual reports. SCORE data and Certification Report data from metro Counties may not be entirely consistent with the facilities actual gate receipts. It is the MMSW tons delivered that determines whether or not the resource recovery facilities are operating at capacity.

RR Facility	Permit Capacity (tons/year)	2011 Operating Capacity (tons/year)	2011 MMSW Delivery (tons/year)	2011 Unused Capacity (tons/year)
HERC	365,000	365,000	365,000	0
GRE	500,000	300,000	200,349	99,651
RRT	540,000	430,000	399,810	30,190
City of Red Wing	30,000	30,000	20,687	9,313
Total	1,435,000	1,130,000	985,846	139,154

Mixed Municipal Solid Waste delivery considerations

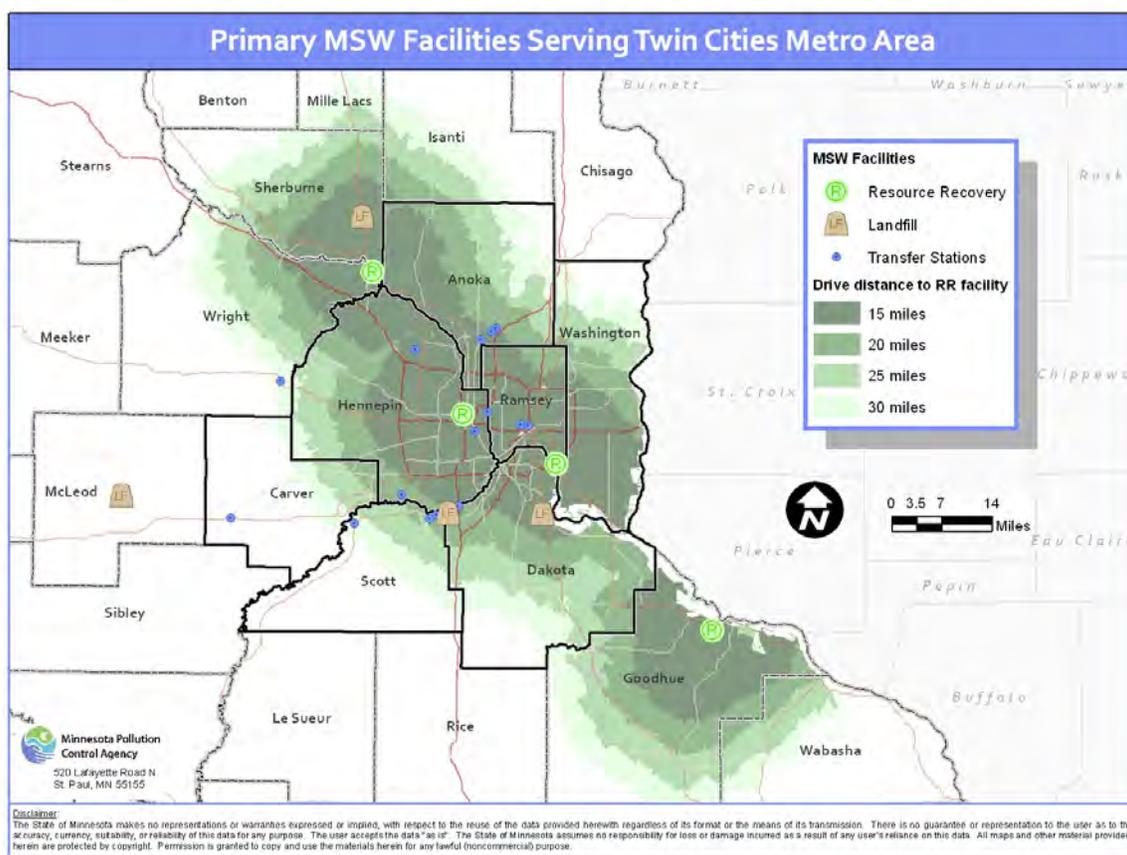
The MPCA believes that implementation of the restriction on disposal requirements in statute is feasible and will result in greater processing of waste through resource recovery and may actually reduce MMSW transportation costs. MMSW resource recovery facilities are not located in remote locations. The map below shows that MMSW is generated in sufficient amounts near the four facilities to fill the facilities' respective operating capacities. In addition, a substantial amount of MMSW is handled by transfer facilities that accept MMSW from waste collection trucks and subsequently reload MMSW into larger semi-trailers. Therefore, MPCA does not anticipate the need to move MMSW long distances. For example, there would be no need to transport MMSW from southern Dakota County across the metropolitan area to supply MMSW to the GRE facility in Elk River. By the same token, it is anticipated that only a small amount of metropolitan MMSW will be diverted from the Spruce Ridge landfill in McLeod County because there is no resource recovery facility anywhere near the landfill.

In the past, Metropolitan Counties have used various tools to ensure that MMSW was processed using resource recovery. Generally, until the past several years, these measures have been sufficient to utilize the

operating capacity of resource recovery facilities. County measures to direct MMSW to resource recovery have included:

- Incentive payments to MMSW resource recovery facilities
- Subsidy payments made to MMSW waste haulers
- Contracts for the delivery of MMSW
- Initiatives to organize MMSW collection
- Initiatives to direct MMSW generated by public entities

The owners and operators of land disposal facilities, resource recovery facilities, and transfer stations communicate about MMSW flow extensively now. Operators communicate to arrange MMSW flow from waste haulers and transfer facilities to landfills and resource recovery. In addition, resource recovery facilities arrange disposal of residuals and ash with operators of disposal facilities. For the past 20 years of operation, resource recovery facilities have also built effective lines of communication with haulers to re-direct MMSW delivery to landfills during periods of scheduled and unscheduled outages, when MMSW cannot be delivered. These are times when resource recovery facilities cannot process MMSW due to required repair and maintenance. Resource recovery facilities have limited storage capacity, so bypass periods are necessary. MPCA believes that implementation of the restriction on disposal requirements will be very smoothly integrated with other MMSW delivery considerations especially with robust lines of communication already in place and operating.



Some background information on why MMSW is delivered to one facility and not another might help inform the reader that multiple considerations are in place for waste generators, waste haulers, local units

of government, and the State of Minnesota. The restriction on disposal requirements of Minn. Stat. § 473.848 is only one additional factor in MMSW delivery.

Currently four primary factors govern waste flows:

- Hauler preference
- Location and logistics
- Pricing and incentives
- Specification by waste generators

Hauler preference

MMSW haulers may prefer emptying their waste collection trucks at land disposal or transfer facilities that they own and operate as opposed to facilities owned by other firms or public facilities. Owning all essential components of a waste management business - collection trucks, transfer stations, recycling centers, and land disposal facilities - is called vertical integration. Vertical integration is practiced by Minnesota's largest waste firms. These companies haul waste and typically own MMSW disposal facilities in Minnesota and neighboring states.

Location and logistics

Where MMSW is generated relates directly to the disposal site selected. Collection trucks fill up and must be emptied so routing schemes contribute heavily to where waste flows. MMSW haulers choose convenient locations to empty trucks so the trucks can be returned to collection duty as soon as possible. Haulers often use transfer stations to more effectively deploy collection trucks. Then the choice of landfill or processing facility destination is left to the transfer station operator.

Pricing and incentives

MMSW disposal/processing prices or "tipping fees" are another primary consideration behind where waste flows. MMSW haulers will generally seek the lowest tipping fees. However, several counties offer financial incentives to haulers to use resource recovery facilities. Although the costs and prices vary, without government subsidies, the actual tipping fees charged to haulers are generally lower at landfills than resource recovery facilities.

Several metropolitan area counties have systems that pay subsidies to MMSW haulers that deliver waste to resource recovery facilities instead of land disposal facilities. Some counties have discontinued subsidy programs and others have expressed a desire to reduce or eliminate subsidies in favor of a "merchant" or market approach to MMSW disposal. However, all seven metropolitan counties strongly favor resource recovery facilities and waste processing over land disposal.

Specification by waste generators

The last factor driving the flow of MMSW is the fact that MMSW generators can specify where (a landfill or resource recovery facility) MMSW haulers dispose of their trash. Generators instructing haulers to use one facility over another is extremely rare in the marketplace of MMSW collection service. Generators specify the location of MMSW disposal generally in one of the following two circumstances:

First, some public entities specify where MMSW will be disposed in accordance with Minn. Stat. § 115A.471. The direction from the public entity is made to the waste hauler to assure that the public entity is in compliance with the MPCA's Policy Plan and/or the specific County Solid Waste Management Master Plan. However, voluntary compliance with public entity requirements is not consistent from county to county.

Second, some private MMSW generators specify where MMSW haulers shall deposit their MMSW. This generally occurs if the firm or institution has concerns about long term liability related to landfill clean-up

or has participated in litigation regarding pollution from solid waste landfills. Another motivation of some MMSW generators is to ensure that materials and information contained in the waste that could be retrieved and misused is destroyed. In most cases these private generators direct haul to processing facilities or WTE facilities.

MPCA concludes that, in addition to all the other factors that must be considered by waste generators and waste haulers, the restriction on disposal requirement is a relatively simple and straightforward statutory limitation on landfills that accept unprocessable metropolitan MMSW.

Mixed Municipal Solid Waste service pricing

The MPCA has limited information on MMSW service pricing. However, in 2009, MPCA commissioned a study of residential MMSW service arrangements (Analysis of Waste Collection Service Arrangement, June 2009) and found that there was no relationship between MMSW service charges levied by waste haulers for MMSW residential service and where the hauler delivered the residential MMSW collected. The study showed that in almost all cities studied, organized collection resulted in lower prices. Second, the study indicated that organized collection was highly correlated with MMSW delivery to resource recovery facilities in the metropolitan area.

Restriction on Disposal – Compliance Plan

The MPCA began considering a compliance strategy to implement the statutory restriction on disposal after the Agency was assigned the duty to administer the Metropolitan Landfill Abatement Act in 2005. MPCA began formally discussing a compliance strategy that could implement the restriction on disposal through resource recovery and landfill permits in 2009. Both landfills and resource recovery facility permits already require the operators to comply with all applicable provisions of Minn. Stat. §§ 115A and 473. However, the present land disposal and resource recovery facility permits do not specify how facilities should operate in order to demonstrate compliance.

The substance of MPCA's proposal for implementing the restriction on disposal requirement is that landfill permits be amended to restrict landfills from accepting unprocessable metropolitan MMSW. The Policy Plan contains criteria for counties certifying when a waste is unprocessable. A waste is unprocessable when all reasonably available capacity within the Twin Cities Metropolitan Area processing system is fully utilized. In determining reasonably available capacity, the criteria in the Policy Plan provides that consideration will be given to the specific geographic area that typically support each of the processing facilities that serve the metropolitan area. Currently, the four landfills serving the metropolitan area would have this operating condition added to their permit to operate. For consistency, the remaining landfills in the state and all new landfills would also have this condition added to their permit to operate.

MPCA's proposal would also require resource recovery facility permits to be amended to require that MMSW delivered to be processed could not be landfilled if another resource recovery facility could process the waste. The resource recovery facilities would also be required to certify waste as unprocessable if MMSW had to be bypassed and landfilled.

The MPCA proposes that permit conditions will require monthly reports from resource recovery facilities and landfills that receive metropolitan area MMSW. The permit modification would also specifically call out the existing requirement that facilities comply with the restriction on disposal as outlined in Minn. Stat. § 473.848, the Policy Plan, and the seven metropolitan area County Master Plans. Monthly reports from resource recovery facilities would inform MPCA as to MMSW delivery and capacity. If one or more resource recovery facilities did not have MMSW delivery equivalent to operating capacity, the landfills would be restricted from accepting metropolitan area MMSW.

It is clear that at the present time resource recovery facilities and land disposal facilities are not in compliance with the restriction on disposal. Permit modifications are needed.

The MPCA proposes to specify the duties of facilities in terms of their compliance with Minn. Stat. § 473.848. In 2011, and early 2012, MPCA proposed to facility operators that facility permits would be modified to require monthly reports from resource recovery facilities and landfills that receive metropolitan area MMSW. The permit conditions would also specify the requirement that facilities comply with the restriction on disposal as outlined in Minn. Stat. § 473.848, the Policy Plan, and the seven metropolitan area County Master Plans.

The text of draft permit modifications and reporting forms, as they were proposed to facilities in late 2011 and early 2012, are attached in Appendix B and C.

Several conditions are precedent to MPCA's decision to formally move toward obtaining compliance with the restriction on disposal requirements of Minn. Stat. § 473.848:

Reorganization

Consolidation of statewide authority for solid waste management made it possible for MPCA to begin to develop an effective plan for gaining compliance with the restriction on disposal. Up until 2005, the authority for administering Minn. Stat. chs. 473 and 115A, and administering solid waste facility permits were divided among several Executive branch agencies. In 2005, the Legislature consolidated all duties within the MPCA.

Clear and consistent standards

The basis of MPCA's strategy for gaining compliance with the restriction on disposal required MPCA to promulgate and adopt standards for determining when waste is processible and unprocessable. MPCA also needed to establish procedures for expediting certification and reporting of unprocessed waste. These duties are assigned to MPCA and outlined in Minn. Stat. § 473.848. The MPCA crafted a clear definition of "unprocessable waste" in the Policy Plan. In the Policy Plan's Appendix D "Review Criteria", the MPCA stated that MMSW generated in the metropolitan area could be defined as unprocessable (and thereby, disposed in or on the land) only when all reasonably available capacity within the Twin Cities Metropolitan Area resource recovery system is fully used.

County master plans and certification

All seven 2012 County Solid Waste Management Master Plans adopt the MPCA's Policy Plan's approach to implementing the restriction on disposal requirements. Each county's Master Plan states that the county will perform certification in cooperation with MPCA and use the criteria and standards related to restriction on disposal as outlined in Policy Plan. All of the metropolitan counties expressed their support for MPCA gaining compliance with Minn. Stat. § 473.848 using monthly reporting. Several metropolitan counties commented that they had tried and failed to enforce Minn. Stat. § 473.848. Their authority ended at county boundaries. County regulation of waste haulers alone was not seen as an effective method of gaining compliance with the restriction on disposal since most counties did not host a processing facility. MMSW is hauled into and out of counties making their ability to restrict disposal unmanageable.

Permits governing landfills and resource recovery facilities

Essentially the entities most able to ensure compliance with the restriction on disposal requirements are facilities engaged in MMSW resource recovery and MMSW disposal. In Minnesota, these activities require permits from MPCA. Resource recovery facilities and landfills must obtain state permits. These permits require compliance with applicable state laws. MPCA permits generally require compliance with Minn. Stat.

Chapters 115A and 473. However, MPCA permits have not previously specified how MMSW processing and land disposal facilities are to comply with the restriction on disposal requirements in Minn. Stat. § 473.848.

Accountability for disposal

The MPCA needed to determine principal accountability for MMSW disposal. Disposal is defined in the Waste Management Act, Minn. Stat. § 115A.03 as follows:

Subd. 9 Disposal or dispose.

"Disposal" or "dispose" means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any waste into or on any land or water so that the waste or any constituent thereof may enter the environment or be emitted into the air, or discharged into any waters, including groundwaters.

Subd. 10 Disposal facility.

"Disposal facility" means a waste facility permitted by the agency that is designed or operated for the purpose of disposing of waste on or in the land, together with any appurtenant facilities needed to process waste for disposal or transfer to another waste facility.

Therefore, in obtaining compliance with the restriction on disposal requirement, MPCA views permitted landfills as the entity primarily accountable for "disposal" of MMSW generated in the metropolitan area. Currently, the four permitted MMSW landfills serving the metropolitan area are the primary facilities receiving "unprocessed MMSW" in violation of the restriction on disposal. Waste generators, metropolitan local units of government, and most MMSW haulers do not engage in MMSW disposal. These entities are engaged primarily in MMSW waste collection and patronize both resource recovery and disposal facilities.

Proposed permit modifications and reporting to implement the restriction on disposal

The MPCA has formulated permit modifications for MMSW resource recovery and MMSW land disposal facilities (landfills) that accept metropolitan area MMSW. The proposed permit conditions were crafted to be consistent with the Minn. Stat. § 473.848 and the Policy Plan. The proposed permit modifications are designed to be workable for the owners and operators and for waste haulers using the facilities. The proposed permit modifications lay out facility restriction on disposal compliance and reporting requirements (Appendix C). The MPCA has proposed that resource recovery facilities and landfills report information regarding their management of metropolitan MMSW (Appendix B). Monthly reporting of MMSW delivery, origin, and disposition are the key to compliance management. Both MMSW resource recovery facilities and landfills already gather the information contained in the report. Several of the facilities already prepare monthly reports to other entities for other purposes. In consultation with representatives from each of the facilities, none of the owners or operators asserted that reporting was not workable.

Resource recovery facility permits

Resource recovery facilities would see the addition of several permit conditions that require specific actions, including:

- Submit a monthly summary of MMSW delivery, processing, and disposal.
- Provide information demonstrating that the facility performed "processing" through recycling, incineration for energy production, production and use of refuse-derived fuel, composting, or any combination of these processes so that the weight of the waste remaining that must be disposed of in a MMSW disposal facility is not more than 35 percent of the weight before processing, on an annual average.
- Certify that waste that the facility cannot process is in fact "unprocessible".

- Assure that if MMSW is delivered to the facility and the waste cannot be processed, it is transferred to another metropolitan resource recovery facility that has capacity for recovery, if available.

Land disposal (landfill) permits

Land disposal facilities (MMSW landfills) would see modifications to their permit that would require specific actions, including:

- Submit a monthly MMSW delivery report.
- Prohibit the disposal of processible metropolitan MMSW.
- Restrict land disposal of MMSW generated in the metropolitan area to MMSW that is “unprocessible”.

Once permit modifications are in place and reports from facilities are submitted, the MPCA will review reports from MMSW landfills and resource recovery facilities to determine if MMSW that is bypassing resource recovery facilities is being accepted at land disposal facilities in violation of the permit. If so, MPCA will attempt to resolve the violation. If not, MPCA will take no action and continue to monitor monthly.

Compliance with the restriction on disposal will not be difficult for waste haulers, transfer stations, land disposal facilities and resource recovery facilities to achieve. Owners and operators already communicate and work with each other to arrange residual disposal from resource recovery facilities, assist hauler and transfer stations to arrange waste deliveries, and work cooperatively during scheduled and un-scheduled outages of resource recovery facilities. It is reasonable to anticipate that land disposal facilities’ operators can readily obtain the information and take the actions needed to comply with the restriction on disposal.

The MPCA does not need to direct MMSW deliveries. The facility owners, MMSW haulers and counties are accountable and responsible for making the MMSW delivery arrangements needed to comply with the restriction on disposal requirement. However, MPCA does need to monitor and assure metro MMSW management is in compliance with the restriction on disposal and other applicable laws.

The MPCA believes that the time required to complete permitting could be 8 to 16 months. Delay would cause tens of thousands of tons of processible MMSW to be landfilled. Permitting delays would increase land disposal, reduce renewable energy production and reduce recovery of ferrous and non-ferrous metals from MMSW. Unit costs for resource recovery facilities (cost per ton of MMSW) may increase if resource recovery facilities continue to operate below capacity.

The MPCA recommends that Legislative leaders retain the restriction on disposal requirements in Minn. Stat. § 473.848 as an essential element of effective waste management policy for Minnesota and support obtaining compliance without further delay.

Appendix A

Frequently Asked Questions/Background

The following are frequently asked questions regarding the MPCA's compliance strategy for restrictions on disposal:

- Q: Who is affected by the restriction on disposal requirements in Minn. Stat. § 473.848?
- A: Landfills and resource recovery facility owners and operators that have MPCA permits and that accept mixed municipal solid waste (MMSW) or garbage/trash generated in the metropolitan area. Indirectly, MMSW haulers that bypass resource recovery facilities are also affected.
- Q: Will cities and counties that receive landfill taxes and fees suffer if landfills comply with the law?
- A: No. In 2011, only 139,154 tons of metropolitan MMSW would have been diverted from landfills to resource recovery facilities. If spread among the landfills, then this equates to about ten percent of the waste landfilled. Local units of government have flexibility with the level of host fees and taxes.
- Q: Will haulers and landfill owners know what to do to comply?
- A: Yes. The operators of resource recovery facilities, landfills, transfer stations and haulers work together and communicate regularly now. There is no reason to believe that implementing the restriction on disposal requirements will encumber decades of communications that already deal with facility outages, residual disposal shipments, etc.
- Q: Will resource recovery facilities gobble up all the MMSW?
- A: No, the four landfills serving the metropolitan area received more than 1.4 million tons of waste in 2011. More than 700,000 tons of that waste was unprocessed MMSW. Metropolitan processing capacity is limited to about 1.1 million tons and the 2011 available processing capacity was 139,154. So, in 2011, assuming full use of resource recovery capacity, the landfills would have received more than 1.25 million tons of MSW. Landfills would have received over one half million tons of MMSW alone. Compliance with the restriction on disposal requirements will not put landfills out of business because of a shortage of waste.
- Q: Why enforce the law now?
- A: MPCA has only now established the framework for compliance. The Legislature assigned the MPCA the duty to administer the restriction on disposal requirements in 2005. MPCA and the seven metropolitan counties had to put in place a framework for effective compliance between 2007 and 2012. This framework included the Policy Plan (2011), County Master Plans (2012) and proposed facility permit modifications to implement the restriction on disposal (which could be in place by late 2012/13).
- Q: Will industrial waste, construction and demolition waste, and contaminated soil be diverted from landfills?
- A: No, the restriction on disposal requirements apply only to MMSW.
- Q: Will small waste haulers be put out of business?
- A: No. Small and large haulers using resource recovery facilities will be on a level playing field. Only Waste Management and Allied Waste, Minnesota's largest waste haulers and landfill owners, are subject to the restriction on accepting unprocessable MMSW at their landfill operations.
- Q: Why is the MPCA enforcing compliance with the restriction on disposal primarily at landfills?

A: In obtaining compliance with the restriction on disposal requirement, MPCA views permitted landfills as the entity primarily accountable for “disposal” of MMSW generated in the metropolitan area as defined in statute. Currently, the four permitted MMSW landfills serving the metropolitan area are the primary facilities receiving “unprocessed MMSW” in violation of the restriction on disposal. Waste generators, metropolitan local units of government, and most MMSW haulers do not engage in MMSW disposal, but are engaged primarily in MMSW waste collection and patronize both resource recovery and disposal facilities.

Q: Will trash prices go up?

A: MPCA studies indicate residential trash service prices are not affected by MMSW destination. Other factors such as subscription versus organized collection govern prices.

Appendix B



Minnesota Pollution Control Agency

520 Lafayette Road North
St. Paul, MN 55155-4194

Metropolitan MMSW Monthly Report for Landfills

Mixed Municipal Solid Waste (MMSW)
Restriction on Disposal Minn. Stat. § 473.848

Doc Type: **Need from Agency taxonomy**

Instructions: Minnesota law requires facilities to report solid waste data to the Minnesota Pollution Control Agency (MPCA). Counties also use the data to help ensure that waste is properly managed. To assist us in those efforts, please send the signed form to the attention of Sig Scheurle by mail to the address above or fax to 651-215-0246. To submit your form electronically, please scan the signed form and send via e-mail to Sig Scheurle at sig.scheurle@state.mn.us. If you have any questions, please contact Sig Scheurle, MPCA, at 612-669-1377 or sig.scheurle@state.mn.us.

Facility name: _____ Report month and year: _____
Solid waste permit number: SW- _____ Air quality permit number: _____

Table 1: Mixed Municipal Solid Waste (MMSW) Disposed by County of Origin

If you disposed of MMSW, enter the amount in **tons only** in the table below.

	Anoka	Carver	Dakota	Henn.	Ramsey	Scott	Wash.	Other MN	Other Out of state	Total
MMSW tons										

Table 2: County Certified Unprocessed MMSW by County of Origin

Enter the **tons of unprocessed MMSW from each county** that were disposed and certified by that county as unprocessable in advance during the month.

County Certified MMSW	Anoka	Carver	Dakota	Henn.	Ramsey	Scott	Wash.	Total

Table 3: Resource Recovery Certified Unprocessed MMSW by County of Origin

Enter the **tons of unprocessed MMSW from each county** that were disposed and certified by that county as unprocessable in advance by a resource recovery facility during the month.

Resource Recovery certified MMSW	Anoka	Carver	Dakota	Henn.	Ramsey	Scott	Wash.	Total

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision under a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Operator name (print): _____ Title: _____
Mailing address: _____ Phone number: _____
City: _____ State: _____ Zip: _____
Signature: _____ Date: _____

Appendix C

Restriction on Disposal in Minn. Stat. § 473.848

Draft Paragraph for Inclusion in Permits for Resource Recovery Facilities

The Permittee shall not transfer unprocessed mixed municipal solid waste (MMSW) generated in the 7-County metropolitan area from the Facility to a disposal facility unless the Permittee certifies that no other resource recovery facility serving the metropolitan area is capable of processing the waste and that the waste is unprocessable by the Facility under Minn. Stat. § 473.848, subd. 3. The certification shall be made on each load of mixed municipal solid waste it does not process. Certification must be made in writing to any landfill to which the resource recovery facility directs MMSW for disposal. A summary report of resource recovery facility certifications must be made to the MPCA on the Metropolitan Area MMSW Monthly Report and to each county that sends its waste to the facility at intervals specified by the county. Certification of MMSW for disposal must include at least the number and size of loads certified as unprocessable, the name of the disposal site, and the reasons the waste is unprocessable. Loads certified as unprocessable must include the loads that would otherwise have been processed but were not processed because the facility was not in operation.

For the purpose of this section of the Permit, waste is defined in Minn. Stat. § 473.848, subd. 5 as "unprocessed" if it has not, after collection and before disposal, undergone separation of materials for resource recovery through recycling, incineration for energy production, production and use of refuse-derived fuel, composting, or any combination of these processes so that the weight of the waste remaining that must be disposed of in a mixed municipal solid waste disposal facility is not more than 35 percent of the weight before processing, on an annual average. Within 7 days after the end of each month, the Permittee shall submit to the MPCA a Metropolitan MMSW Monthly Report on a form prescribed by the MPCA and in accordance with the instructions on the form. The Report shall include information on the quantities by county of origin of MMSW received and processed at the Facility, and unprocessed MMSW transferred to another resource recovery facility or to a disposal facility. The Permittee shall keep a daily accounting of MMSW by county of origin, amounts received, amounts processed, and amounts transferred to another resource recovery facility or to a waste disposal facility and shall make these records available to MPCA upon request.

Restriction on Disposal in Minn. Stat. § 473.848

Draft Paragraph for Inclusion in Permits for Disposal Facilities

The Permittee shall not accept and dispose of at the Facility any unprocessed mixed municipal solid waste (MMSW) generated in the 7-County metropolitan area unless the county in which the waste was generated has certified that waste is unprocessable under Minn. Stat. § 473.848 and the standards for waste certification in Appendix D, Paragraph 2.c. and 2.d.iii. of the Metropolitan Solid Waste Policy Plan 2010-2030 (Policy Plan), or unless land disposal of MMSW is consistent with the standards for waste certification in Appendix D, Paragraph 2.c. and 2.d.iii. of the Metropolitan Solid Waste Policy Plan 2010-2030 (Policy Plan) or unless the waste has been certified as unprocessable by a resource recovery facility under Minn. Stat. § 473.848.

For the purpose of this section of the Permit, waste is defined in Minn. Stat. § 473.848, subd. 5 as "unprocessed" if it has not, after collection and before disposal, undergone separation of materials for resource recovery through recycling, incineration for energy production, production and use of refuse-derived fuel, composting, or any combination of these processes so that the weight of the waste remaining that must be disposed of in a mixed municipal solid waste disposal facility is not more than 35 percent of the weight before processing, on an annual average.

The Permittee may dispose of specific loads of unprocessed metropolitan MMSW coming from a resource recovery facility if each load is certified as unprocessable by the operator of the resource recovery facility.

If the MMSW does not come from a resource recovery facility, the Permittee may dispose of specific loads of unprocessed MMSW generated in the 7-County metropolitan area if there is no reasonably available capacity to process the waste at a processing facility serving the metropolitan area or if each load is certified as unprocessable by the county where the waste was generated in accordance with Minn. Stat. § 473.848 and Appendix D, Paragraphs 2.c. and 2.d.iii. of the Policy Plan. The Permittee shall keep records showing that processing facilities were not available to process the MMSW.

The Permittee shall keep a record of all loads of MMSW certified as unprocessable by a County or by a resource recovery facility operator as unprocessable.

Within 7 days after the end of each month, the Permittee shall submit to the MPCA a Metropolitan Area MMSW Monthly Report on a form prescribed by the MPCA and in accordance with the instructions on the form. The Report shall include information on the quantities of MMSW received and disposed of at the Facility by county of origin. The Permittee shall keep a daily accounting of MMSW by county of origin, amounts received, amounts recycled, and amounts disposed of and shall make these records available to MPCA upon request.

Appendix D



Minnesota Pollution Control Agency PROGRAM MANAGEMENT DECISION MEMO

Issue: Waste-to-Energy (WTE) in an Integrated Solid Waste Management System

Effective Date: June 14, 2010

DECISION

After a recent review of published information about the performance of WTE plants and landfills, the MPCA reaffirms that the state's waste hierarchy properly places WTE plants as one step up from landfills for dealing with waste that Minnesotans have failed to separate at the source for reuse, recycling, or composting. Notwithstanding the important role WTE can play in an integrated Solid Waste Management System, each facility must satisfy all the requirements of environmental review and the permitting process.

BACKGROUND

In 2006, the MPCA published a position paper ("MPCA Position on Waste-to-Energy," November 14, 2006) stating that waste-to-energy has an important role in the solid waste system, based in part on the following points:

- Any waste-to-energy facility operating today must meet rigorous federal air pollution standards. Today's waste-to-energy facilities have proved these can be achieved with high reliability;
- A waste-to-energy facility is part of an integrated waste management system that maximizes the recovery of materials and energy from the waste;
- Greater self-sufficiency in energy production for Minnesota and for the nation is a desirable outcome; and
- Today's citizens and businesses should manage today's waste rather than storing it in dry landfills for future generations to grapple with.

This Program Management Decision supersedes that position paper. At the request of MPCA senior managers, technical staff reviewed literature to compare WTE plants and landfills on five criteria:

- Energy recovery per ton
- Effect on recycling rates
- Costs at existing facilities
- Greenhouse-gas emissions
- Air pollution other than GHG emissions

RATIONALE

As a general matter the MPCA has endorsed and will continue to endorse the concept that some portion of mixed municipal solid waste ("MMSW") now going to landfills should be going into a WTE system instead, because it is in line with the Waste Management hierarchy (see quoted statute, below). The Waste Management hierarchy in Minnesota calls for moving waste "up" a statutorily-defined hierarchy whenever practical, in light of regional circumstances. In general, the greatest benefits are achieved at the top of the hierarchy. County governments decide the combination of waste management practices that best meets their community's needs, and the particular waste management practice they want to implement at a particular point in time, as incorporated in their MPCA-approved solid waste plans. Despite guidance from the hierarchy, however, Minnesotans' dependence on landfills has grown significantly over the last 15 years. There is so much garbage going into landfills each year (2 million tons a year) that Minnesota's existing WTE plants could employ all their unused capacity without threatening goals that call for more reduction, reuse, recycling, and organics processing.

Summarizing the results of the literature review concerning WTE plants and landfills on the five criteria (For a link to more information on these topics, click [here](#)):

- Energy recovery per ton: On a per-ton of mixed municipal solid waste (MMSW) basis, waste-to-energy (WTE) is clearly superior to landfill-gas-to-energy (LFGTE) in terms of the amount of usable energy produced. This edge is even greater for high-performance WTE plants where a high proportion of metals are pulled out ahead of the combustion process, and "combined heat and power" plants of the type now being built to handle garbage in Northern Europe. Olmsted County recently added such a high-performance plant when expanding its waste-processing system. On its own, however, there is not enough municipal solid waste in Minnesota to match wind turbines as a renewable energy source: Even if 1.5 million tons of MMSW that is currently landfilled yearly were directed to an expanded WTE network, the renewable energy produced would amount to no more than a few percent of the state's total electrical consumption. (When expressed as a percentage of additional baseload electrical generation that is needed before 2025, however, the share from such a WTE expansion could be closer to ten percent.)
- Effect on recycling rates: MPCA finds no evidence that the state's WTE system and its recycling system are working at cross purposes. The most important single factor in boosting reduction and recycling appears to be a well-enforced, highly visible surcharge on the cost of mixed-waste disposal, because this sends a clear economic signal to all the handlers and generators of waste. Perhaps in part because the financing of WTE plants has been based on a fee added to tipping costs, there has been a positive correlation in the US and Europe between WTE usage and recycling rates. (With this caveat: unusually high WTE usage -- over 35 percent WTE of mixed solid waste in a region -- can place a cap on what could be achievable through additional reduction, recycling, and separated organics. But few regions in the world have attained such a high WTE usage level and the capital cost of WTE makes over-

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sizing less likely than in the first wave of construction, when public financing was easier to obtain.)

- Costs at existing facilities: Setting aside uncertainty about the long-term costs of landfills, the out-of-pocket tipping fee charged to haulers delivering a ton of mixed waste to a large WTE plant will be at least twice as much as the tipping fee charged at a large landfill, if public subsidies for WTE are excluded. Because most of the cost of waste management is in the transportation of the waste to the disposal facility, the higher tipping fee for WTE translates into an additional cost of less than \$5 per household per month. While WTE plants produce significantly more energy per ton of waste than landfills with energy recovery, to date, such revenue has not been enough to offset fully the costs of expensive pollution control equipment required at all WTE plants. The same situation relates to all energy sources classified as renewable under Minnesota law: it is very difficult to match the low price of fossil fuels, particularly strip-mined coal.
- Greenhouse-gas emissions: On a per-ton of waste basis, WTE and landfill gas-to-energy facilities are largely indistinguishable in terms of greenhouse-gas emissions, although the calculation has large uncertainty bars. Best professional judgment suggests that a few hundred thousands of tons of greenhouse gases might be at stake depending on whether MMSW went to WTE or landfills, and depending on certain key assumptions such as the fate of carbon stored in landfills (termed “carbon sequestration”). MPCA used a methodology that assumes landfills will succeed in isolating a portion of the vegetative material that is disposed there. But under no scenario would sending 1.5 million tons to new WTE plants cut the total statewide GHG emissions by even one percent a year.
- Air pollution other than GHG emissions: Because landfill air emissions of criteria and hazardous air pollutants are modeled rather than measured, actual measurements are needed to confirm those models. Based on very limited and uncertain data and including the offsetting of emissions from Minnesota electricity production, WTE appears to be superior to LFGTE from a life-cycle point of view. The MPCA will continue to advance the scientific knowledge of air emissions and update its position as needed.

Again, these are observations based on national averages. Fortunately, site-specific data such as electricity delivery to the grid is available from Minnesota facilities. This can give insight into how the state’s WTE plants and landfills measure up and could be a subject for the Solid Waste Policy Report.

When communities consider building new facilities, MPCA staff can offer information about how to factor in waste generation trends including source reduction and reuse; opportunities to separate recyclables and organics ahead of WTE or landfilling; efficiency factors based on actual measurements rather than computer models; the role of controlled combustion in destroying materials such as pharmaceuticals that are better excluded from landfills; the role of pilot

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projects versus proven, commercial-scale plants; the importance of engaging citizens from the earliest stages through performance monitoring; and the need to consider ambient air quality.

The MPCA's conclusions about the comparative standing of landfills will be quite limited when it comes to air emissions because there has been a persistent lack of actual data about air emissions from the surface area of landfills. While WTE plants must provide continuously or regularly monitored emission data for a specific set of air pollutants, landfills do not have to collect any continuous data from the surface of the landfill, only from the landfill-gas collection system and only if they have one. (The only exception is that rigorous air monitoring requirements do apply temporarily to landfills undergoing emergency response following odor problems or subsurface fires. Under such circumstances, air sampling covers only a limited set of compounds that need to be monitored for short-term exposures to workers and nearby residents, and thus exclude many chemicals that would ordinarily be considered in a permitting process. The MPCA is in touch with USEPA and Upper Midwest states to gather "lessons learned" on the emerging subject of how landfill upsets affect air quality.)

In conclusion, WTE plants continue to have an important role to play in the integrated solid waste management system. That said, any new facility will have to satisfy the requirements of environmental review and the permitting process. Proposals most likely to succeed will have strong community and financial support.

Minnesota Waste Management Hierarchy (Minn. Stat. 115A.02b, as amended)

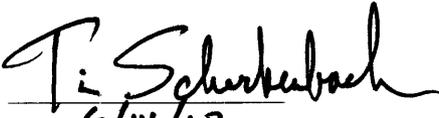
"The waste management goal of the state is to foster an integrated waste management system in a manner appropriate to the characteristics of the waste stream and thereby protect the state's land, air, water, and other natural resources and the public health. The following waste management practices are in order of preference:

- (1) waste reduction and reuse;
- (2) waste recycling;
- (3) composting of source-separated compostable materials, including but not limited to, yard waste and food waste;
- (4) resource recovery through mixed municipal solid waste composting or incineration;
- (5) land disposal which produces no measurable methane gas or which involves the retrieval of methane gas as a fuel for the production of energy to be used on-site or for sale; and
- (6) land disposal which produces measurable methane and which does not involve the retrieval of methane gas as a fuel for the production of energy to be used on-site or for sale."

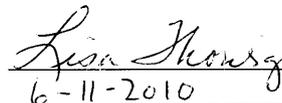
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APPROVAL

I have reviewed this program management decision and I concur:

Signed: 
Date: 6/14/10
Tim Scherkenbach
Deputy Commissioner

Signed: 
Date: 6-11-10
David Thornton
Assistant Commissioner

Signed: 
Date: 6-11-2010
Lisa Thorvig
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