A Minnesota family of five generates approximately six tons of garbage per year.
Legislative charge
Minn. Stat. § 473.149
A metropolitan long range policy plan for solid waste management, prepared by the Pollution Control Agency, sets goals and policies for the metropolitan solid waste system, including recycling consistent with section 115A.551, and household hazardous waste management consistent with section 115A.96, subdivision 6. The MPCA shall include specific and quantifiable metropolitan objectives for abating to the greatest feasible and prudent extent the need for and practice of land disposal of mixed municipal solid waste and of specific components of the solid waste stream.

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Acronyms

ARM  Association of Recycling Managers
C&D  Construction and demolition debris
CII  Commercial, industrial, institutional
CON  Certificate of Need
EPA  U. S. Environmental Protection Agency
HHW  Household hazardous waste
ISW  Industrial solid waste
ISWM  Integrated solid waste management
LRDG  Local Recycling Development Grants
MLAA  Metropolitan Landfill Abatement Account
MMSW  Mixed municipal solid waste
MPCA  Minnesota Pollution Control Agency
MRF  Materials recovery facility
Plan  Metropolitan Solid Waste Management Policy Plan
RDF  Refuse derived fuel
RMD  Recycling market development
SMM  Sustainable Materials Management
SSO  Source Separated Organics
SWMCB  Solid Waste Management Coordinating Board
TCMA  Twin Cities Metropolitan Area
USDA  U.S. Department of Agriculture
WARM  Waste reduction model
WLSSD  Western Lake Superior Sanitary District
WMA  Waste Management Plan
WMI  Waste Management Inc.
WTE  Waste to energy
Summary

This Metropolitan Solid Waste Management Policy Plan (Plan) establishes the plan for managing the Twin Cities Metropolitan Area’s (TCMA) solid waste through 2036. The Plan will be adopted by the Commissioner of the Minnesota Pollution Control Agency (MPCA). The seven metropolitan counties (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington) participated in the development of the Plan.

The overarching message of this Plan is that fundamental change in the form of accountability and effective tools is necessary among the stakeholders responsible for solid waste management in the TCMA, if the region is to continue to move beyond current trends and meet the goals set forth in the Waste Management Act (WMA). The activities of these stakeholders must be aligned so that overall system goals are achieved in a cost effective manner and reach state goals and objectives. This Plan provides a framework for change to assist state and local leadership and all stakeholders to meet these challenges and advance the TCMA solid waste system.

Minn. Stat. § 473.149 requires that the Plan be followed in the TCMA. All stakeholders, including the MPCA, will be accountable for implementing the Plan. The Plan is comprised of four parts that describe the responsibilities of stakeholders, including product producers, all levels of government, waste generators, and waste management businesses.

The Plan outlines the challenges and opportunities for waste management in the TCMA over the next 20 years and includes a framework for change, including a system plan which promotes aggressive goals that support the upper end of the waste hierarchy. The Plan also describes the tools that the MPCA and metropolitan counties will use to implement the Plan and monitor the progress toward meeting the system objectives.

The metropolitan solid waste planning process is comprised of two parts: 1) the Plan as prepared by the MPCA in consultation with the metropolitan counties; and 2) the more detailed County Master Plans, to be completed after adoption of the Plan that addresses the specific projects and programs to be implemented within the counties. During the preparation of the Plan, the MPCA will actively seek public input through public meetings on August 10, 2016, and August 11, 2016, and a minimum 30-day public comment period, as required in Minn. Stat. 473.149. Changes will be made to the Plan based on public input and will be documented in the Response to Public Comments report issued by the MPCA. This Plan will replace the Plan adopted by the Commissioner on April 6, 2011.
Part One: Introduction and background

Introduction

In 1980, the Minnesota Legislature recognized the importance of waste management with the passage of the Waste Management Act (Minn. Stat. § 115A). This statute’s purpose is to improve integrated solid waste management (ISWM) to protect the state’s natural resources and public health. It establishes the following hierarchy, in order from most to least beneficial to the environment, of preferred solid waste management practices:

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 (MMSW) 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

Purpose of this Plan

This Plan establishes the framework for managing the TCMA’s solid waste for the next 20 years (2016-2036) and was prepared in accordance with the requirements of Minn. Stat. § 473.149. This Plan will guide the development and activities of solid waste management and must be followed in the TCMA. The Plan supports: the goals of the WMA hierarchy; improving public health; reducing the reliance on landfills; conserving energy and natural resources; and reducing pollution and greenhouse gas emissions.

Unless otherwise specified, “solid waste” refers to both municipal solid waste and non-municipal solid wastes (construction waste, demolition debris and industrial wastes).

The Twin Cities Metropolitan Area includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington counties, but not the cities of Northfield, Hanover, Rockford, and New Prague.
Participants in the process
The MPCA worked with the seven metropolitan counties (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington) in the development of this Plan. In addition, the MPCA hosted three public meetings to gather input from other Plan stakeholders, including members of the recycling and waste industry and members of the general public.

How the Plan will be used by stakeholders
- Product producers. The Plan will guide product producers, including manufacturers and retailers, because they have a role in product stewardship and extended producer responsibility initiatives as well as sustainable materials management (SMM).
- Waste generators (residents, businesses, public entities). The Plan will 1) inform waste generators about their roles and responsibilities in waste management; 2) educate generators about solid waste issues and services (both public and private) available to them; and 3) identify and direct state agencies and county governments who provide assistance.
- Waste industry. The Plan will outline the responsibility of the waste industry in providing future solid waste facilities and services. For the purposes of this Plan, the “waste industry” includes all entities, public or private, that collect and/or manage solid waste in some form, including recyclables, household hazardous waste (HHW) and problem materials.
- Government. The Plan will: 1) guide the counties and regional governmental entities in developing solid waste master plans, ordinances, work plans, and budgets; 2) guide the MPCA metropolitan oversight responsibilities, including administration of the Metropolitan Landfill Abatement Account program, county plan reviews, and the MPCA's approval of solid waste facility permits and landfill certificates of need; 3) guide the MPCA in its regulatory, enforcement, and technical assistance functions that affect the TCMA; 4) contribute to policy discussions regarding solid waste legislation affecting the TCMA; and 5) guide local jurisdictions in the planning and provision of services to residents and businesses.

What has been accomplished already?
The TCMA solid waste system is the result of planning and development that began with the 1980 WMA. Since 1980, much has been accomplished.
- The TCMA recycles 49.9% of the MMSW. The recent improvement is largely due to advances in organics collection for food to people, food to livestock, source separated organics management and yard waste composting.
- Reuse and recycling activities contribute significantly to the economy of the region.
- Organics recovery has greatly increased since 2008.
- Resource recovery has increased since 2009, though facility shortages still exist.
- Waste to energy facilities manage 28% of the MMSW generated.
- Land disposal has decreased by 18% since 2008.
- Problem materials, such as major appliances, mercury-containing products, and electronic waste are banned from the MMSW stream, and infectious wastes are separately managed.
- A system to collect and manage HHW is available to all residents, through an arrangement of shared reciprocity among the counties.
What challenges still exist?

- TCMA MMSW generation continues to grow and the region’s solid waste diversion efforts have not advanced the goals set out state law.
- Traditional recycling has decreased slightly since 2008.
- The Legislature established a 75% combined recycling and organics goal for the TCMA, so system changes must occur throughout the region to achieve the new objective.

Figure 1 shows the percent of MMSW managed from 1991 to 2015 in the TCMA by recycling and organics recovery, resource recovery, and land disposal. Higher percentages of abatement occurred in the early years, because four of the seven metro counties used waste flow designation as a primary tool to direct MMSW to facilities and to pay for all services that benefited the entire system. The recent increase in resource recovery over the last six years can likely be attributed to the MPCA’s increased attention to enforcement of § 473.848 and county support of that initiative.

Figure 1. TCMA MMSW management method percentages from 1991 to 2015

If the current trends continue, nearly 8 million tons of additional waste will be sent to landfills over the 20 year period of this Plan (Figure 2). Over 60% of MMSW sent to landfills today could be recycled; this “lost opportunity” results in the loss of valuable metals, plastics, paper, and other commodities. Inevitably, the state, citizens, and businesses will be left with additional costs for siting new landfills, hauling MMSW long distances, increased greenhouse gas emissions, and cleanup at disposal facilities.

The TCMA generates approximately 60% of Minnesota’s MMSW and, therefore, has a tremendous impact on the state as a whole. The entire state has experienced a stagnation of performance.
Resource recovery capacity continues to be under-utilized in the region because the MMSW is being diverted to landfills by private haulers. This loss will result in a reduction of: renewable energy capacity; ferrous and nonferrous recovery capacity; and pollution and resource savings.

The MPCA has refocused compliance efforts around § 473.848 (Restriction on Disposal) to ensure that existing resource recovery capacity is fully used. In addition, Ramsey and Washington counties have purchased the Newport Refuse Derived Fuel facility and will continue to invest in that facility to ensure continued materials and energy recovery and landfill abatement.

To improve performance, all stakeholders must be willing to accept responsibility to remedy failures and deficiencies. Restoring accountability in the solid waste system will be critical.

The private sector has a significant role, and it should be recognized for its ability to foster innovation and efficiencies through competition. More needs to be done to ensure that the activities of the private sector and the public sector are aligned to reach state goals.
Part Two: Framework for change

This section of the Plan lays out a Framework for Change built around a regional vision, key themes, goals and policies. This framework will guide all decisions of the MPCA, regional governing entities, metropolitan counties, and other stakeholders with respect to the TCMA solid waste system.

Vision

This Plan is designed to help stakeholders exceed the benchmarks established in state law. In doing that, the TCMA will continue to reduce its reliance on landfills, prevent pollution, reduce the toxicity of waste, conserve natural resources and energy, improve public health, support the economy, and reduce greenhouse gases.

The Plan sets forth a vision for sustainability for the TCMA solid waste management system:

A sustainable community minimizes waste, prevents pollution, promotes efficiency, reduces greenhouse gas emissions, saves energy and develops resources to revitalize local economies. The integrated waste management system is an essential component of the infrastructure of a sustainable community. Solid waste must be managed by technologies and methods that support sustainable communities and environments. The solid waste management hierarchy, with its associated goals of protecting the state’s air, land, water, and other natural resources and the public health, is central to attaining the twin objectives of sustainability and solid waste management, because it emphasizes source reduction, reuse, recycling, organics recovery, and resource recovery over land disposal.

Key themes

The following key themes underlie all elements of the Plan.

Accountability. Many entities, public and private, are responsible for implementing this Plan, including state and local governments; private waste and recycling businesses; citizens; manufacturers of products; retailers and other businesses; and environmental groups. All must be held accountable. The WMA gives the state agencies and counties primary oversight for holding the parties accountable. Permits, financial assistance, and certificate of need (CON) are tools the MPCA uses to hold parties accountable. However, the authorities granted to the state and counties may not be sufficient and possible changes in authority may be needed. In the complex metropolitan solid waste system, accountability is not necessarily a linear top-down relationship, and all parties must also voluntarily hold themselves accountable.

Solid waste management hierarchy. This Plan stresses the need to manage waste in an ISWM system in accordance with the hierarchy of preferred waste management practices, with an emphasis on reduction and recycling to promote resource conservation and environmental protection. Scientific research has pointed out the environmental benefits of the hierarchy, such as reduced greenhouse gas emissions resulting primarily from waste reduction and recycling. Figure 3 shows the solid waste management hierarchy, and emphasizes the need to focus efforts at the top, where environmental benefits are most significant.
Generator responsibility. This Plan contains policies to aggressively foster and encourage responsibility at multiple levels (personal, corporate, government). Surveys show that most generators (a person or entity that produces waste) believe that their responsibility ends once the waste is hauled away. Generators are responsible for the waste they produce. That means generators must make wise purchasing and wise disposal decisions—accounting for the external costs of managing waste and evaluating the effects of their waste disposal decisions.

Government as a leader. Government provides health care, feeds and houses people, manufactures goods, provides a variety of services, builds structures, and more. In all of these activities, waste is generated. The goals and policies in this Plan are designed to steer the TCMA toward a new vision for solid waste management, with government leading the way.

Product stewardship. Product stewardship means that all parties involved in designing, manufacturing, selling, and using a product take responsibility for environmental impacts at every stage of that product’s life. In particular, product stewardship requires manufacturers to share in the financial and physical responsibility for collecting and recycling products at the end of their useful lives.

Private sector initiative. In the TCMA, there has been a long history of solid waste services provided by private businesses and nonprofits. The private sector has a significant role to play in implementing the Plan, and has a major responsibility for meeting the goals of the WMA hierarchy.

Environmental benefits. Solid waste management has an important role to play in reducing environmental impacts, such as greenhouse gas emissions, toxicity, and energy and water use. Moving materials up the waste management hierarchy maximizes environmental benefits.
Goals and policies

The following goals and policies provide the basis for improving solid waste management in the TCMA.

Goal 1: Protect and conserve. Manage materials in a manner that will protect the environment and public health, reduce greenhouse gas emissions, conserve energy and natural resources, and reduce toxicity and exposure to toxics.

The goal of the WMA is to protect Minnesota’s land, air, water, and other natural resources, and public health by improving waste management to serve the following purposes: reduce the amount and toxicity of waste generated; increase the separation and recovery of materials and energy from waste; and coordinate the statewide management of solid waste and the development and financial security of waste management facilities, including disposal facilities. This goal recognizes a prevention-based approach to waste management, to reduce, to the extent feasible, adverse effects on human health and the environment.

Policy 1: Focus more programs and work on reuse and waste and toxicity prevention. Sustainable Materials Management begins to look at ways to decrease our overall impact on the environment. Encourage manufacturers to design for repair, reuse, and recyclability.

Policy 2: Strengthen recycling markets to increase demand for recyclables and therefore allow for increased recycling and conservation of energy.

Policy 3: Ensure systems are in place that foster the growth of organics recovery.

Policy 4: Promote renewable energy and conservation, which includes recovering energy from waste.

Policy 5: Manage waste properly to protect human health. Ensure that all waste management facilities meet all applicable environmental standards.

Policy 6: Support the strong existing system for proper management of hazardous waste and household hazardous waste.

Goal 2: Whether public or private, hold the operators and users of any solid waste system accountable for meeting the goals of this Plan.

To achieve the aggressive goals established in this Plan and by the Legislature, all parties in the solid waste system must be held accountable. Cities and counties must ensure the systems are in place for the proper management of waste. Generators must use the tools provided to reduce, reuse, recycle, or dispose of waste. Haulers and facility operators must ensure that waste is managed properly upon collection.

Policy 7: Ensure demolition debris and industrial wastes are managed properly and managed according to the hierarchy. Measure more accurately the demolition debris and industrial portions of the waste stream.

Policy 8: Increase opportunities for cities to implement organized collection for recycling and mixed municipal solid waste.

Policy 9: Cities and counties hold haulers in their communities accountable for managing waste according to the Plan via their licensing agreements.

Policy 10: Counties hold cities, haulers, and private business accountable.

Policy 11: MPCA provides oversight of the system by holding counties and private businesses accountable. The Legislature holds the MPCA accountable for meeting waste management goals.

Policy 12: Continue to pursue product stewardship for problem materials.
Goal 3. Manage waste cost-effectively and internalize future costs. Manage waste in a cost-effective manner that maximizes environmental benefits and minimizes long-term financial liability and be priced to provide incentives that encourage waste to be managed as high as possible on the waste hierarchy.

The State's Landfill Cleanup Program and other programs to clean polluted land are this and future generations' price for past disposal practices. Some waste management practices are less expensive than others, but carry greater long-term or unknown risk. Some methods appear to cost more, but have measurable and significant economic value to the state. This goal is about balance: to maintain a sustainable system of managing waste; to keep costs of our solid waste system affordable; and to recognize the market is an important driver in waste management decisions.

Policy 14: Account for all phases of a material’s life cycle, including environmental and economic impacts.

Policy 15: Determine anticipated future costs and potential liability associated with currently operating disposal facilities.

Policy 16: Local governments work together to develop a consistent ordinance structure that allows private entities to smoothly operate across the region.

Policy 17: Promote efficiencies and cost effectiveness and reduce environmental costs in the delivery of integrated solid waste management services, including minimizing risk and managing for long-term care of disposal facilities.
Part Three: Metropolitan System Plan 2016-2036

The Metropolitan System Plan provides guidance to all stakeholders responsible for TCMA solid waste management and was developed in accordance with the requirements of Minn. Stat. § 473.149 subd. 2d. for a land disposal abatement plan. It describes broad regional system objectives, a landfill diversion goal, and the strategies necessary for solid waste programs and services to meet the region’s needs for the next twenty years. The System Plan recognizes the inter-county complexity of the TCMA solid waste system and the value of and need for regional approaches. Specific details associated with implementing the System Plan on a local level will be refined in the county master plans and any regional master plan developed by the metropolitan counties. The System Plan identifies where specific stakeholder actions are necessary to implement the objectives and strategies. The System Plan:

1. Places emphasis on the upper end of the hierarchy (source reduction, reuse, recycling, and organics recovery).
2. Establishes a minimum objective for each waste management method above resource recovery (source reduction, recycling, and organics recovery).
3. Achieves full use of resource recovery facility capacity and implements the restriction on disposal of MMSW requirements.
4. Establishes a ceiling on the amount of metro MMSW land disposal that will be allowed to occur.

Regional waste generation forecast

In 2015, the MMSW generated in the TCMA was 3.365 million tons. Metro MMSW generation is projected to grow to 3.98 million tons by 2035 (see Figure 4). The forecast does not include the non-MMSW waste stream - construction, demolition and industrial wastes. In 2015, approximately 4.0 million tons of non-MMSW was generated in the TCMA (the non-MMSW forecast is shown in Figure 11). The MMSW forecast was generated using waste generation from 2009 - 2015. This time period was chosen because the recession between 2007-2009 created a new baseline. More complex modeling (e.g., applying economic factors) may be appropriate in the future.
Statutory goals

Total MMSW generation increased through the mid-2000s. It began to decrease in 2008, most likely due to the national and regional economic decline. The economy has rebounded, but waste generation has only increased to the level of the initial dip in 2008. Compared to 1993, per capita waste generation has decreased nearly 2% (Figure 5).

In 2014, the Minnesota Legislature changed the recycling goal for metropolitan counties established in Minn. Stat. § 115A.551. The previous goal of 50% was adjusted to a new recycling goal of 75%. Due to significant efforts throughout the TCMA to increase recycling and organics recovery, the region achieved the previous 50% goal in 2015. The new recycling goal of 75% is to be achieved by December 31, 2030, and is a combined goal for traditional recycling and organics.
Sustainable Materials Management

The MPCA is pursuing a SMM Vision to inform future planning of waste and materials management for the State.

Sustainable Materials Management focuses on the best use and management of materials based on how they impact the environment throughout their life cycle. SMM considers the impacts of extracting raw materials, scarcity of materials, product design, product use, and reuse.

Sustainable Materials Management starts from the recognition that products and materials vary in the environmental impacts they cause throughout their life cycles, and that the largest portion of those impacts is typically caused in the extraction of raw materials, manufacturing, and sometimes during the use of the products (Figure 6).

Figure 6. The environmental life cycle of materials

This is not an entirely new concept; it builds on the foundation of work set in motion by the WMA (§ 115A). The waste management hierarchy (§ 115A.02) already emphasizes practices that have little to do with management of discarded products. “Reduce”, which refers to preventing creation of discards altogether, and “reuse” primarily involve changes in consumption and use materials, not management of discards.

While the waste management hierarchy puts reduction and reuse at the top, in practice, the main focus of the state, cities, counties, and private sector over the last 30 years has been on recycling and disposing of the waste that has already been created. A main challenge with implementing a SMM approach will be dedicating staff and program resources, in both public and private sectors, to SMM initiatives, similar to the resources that have been dedicated to recycling and disposal over the years.

Minnesota’s solid waste management hierarchy directs us to reduce, reuse, and recycle materials and then process remaining solid waste before landfilling. A SMM framework helps us understand that the hierarchy is a useful tool to be used as part of an integrated process of actions throughout materials’ life cycles rather than as a single choice at the point of discard – to reuse, recycle or throw away.

New partners will need to be established as activities like product design, changes to the manufacturing stage, and consumption or use phases of products are analyzed and changed. This means first working with manufacturers to create durable, fixable, and lightweight products that use less material and materials with lower environmental footprints, and secondly, putting in place policies and infrastructure that extends the life of products, through repair, rental, refurbishing, and reuse of all kinds. Ideally, goods are designed in a way that when they cannot be used or repaired further, the components are easily separated for recycling. Collecting meaningful data to determine the success and effectiveness of such initiatives will also be a challenge.

Framing Minnesota’s efforts to conserve resources and protect our air, land, and water by using a SMM approach requires evolution of the traditional waste management hierarchy put into state law 35 years ago. SMM provides a framework based on data and analysis tools developed in the decades since the hierarchy was established. The SMM framework will enable public and private efforts to better target materials that have the greatest overall impact on the environment, including energy, water, and resource use, as well as greenhouse gas generation. Recent development and refinement of analysis tools and available data, including life cycle assessment, allow a more complete view of the environmental impacts of products and materials through a product’s life cycle, a helpful addition to the traditional metric of tons managed. By incorporating these new tools, SMM can inform decision making, resulting in better overall environmental outcomes.

While SMM offers important information on environmental impacts and helps policy makers focus efforts on achieving the highest and best environmental use of materials, neither SMM nor the hierarchy provides information on other important factors such as economic (e.g., jobs) and social/political (e.g., environmental justice) considerations which would also need to be evaluated before final decisions are made. Though the focus of the MPCA is primarily environmental and human health, the MPCA has and will continue to consider all of these implications when making decisions on policy, planning, and implementation.

The importance of recycling is reaffirmed in the SMM framework. The benefit of recycling is commonly thought to be in managing discards to reduce demand for disposal facilities, when in fact, the larger environmental value of recycling lies primarily in providing feedstocks to manufacturing and reduced need for extraction and processing of virgin raw materials. Continued work is needed to support and develop recycling markets and recycling technologies for products where markets aren’t mature or technologies don’t yet exist; especially markets for materials with a high environmental impact.
Priority strategies

1. The MPCA, in collaboration with stakeholders, will select a few priority solid waste materials to focus on for reduction, reuse, and recycling based on life cycle analysis. The state will take into account the economic impact on local units of government and social issues of SMM as it determines priorities.

2. The counties will work with the MPCA on implementing strategies for the priority materials.

3. The MPCA, in collaboration with stakeholders, will help quantify the environmental impacts from the materials/products that are targeted.

4. The counties will allocate staff time on reaching the goals in the Plan for reduction and reuse and ensure that grant funding eligibility always includes reduction, reuse, and recycling (including organics).

5. The MPCA, in collaboration with stakeholders, will work on creating quality standard measurements for SMM.
   a. This could include a capture rate for materials/products.
   b. MPCA and stakeholders will determine what environmental indicators will be most important for SMM.
   c. MPCA and stakeholders will determine which tools, models, and calculators will be acceptable for SMM.

6. The MPCA and the counties will work to increase the partners involved in working on SMM, recognizing that SMM needs to include organizations that can impact products and materials upstream.

Solid waste abatement objectives

Pursuant to Minn. Stat. § 473.149 subd. 2d. Table 1a sets specific quantifiable objectives for abating the need for and practice of land disposal for the TCMA region over the next 20 years. Landfill abatement is best achieved through an ISWM; therefore, the statute requires "objectives for waste reduction and measurable objectives for local abatement of solid waste through resource recovery, recycling, and source separation programs." Table 1a defines the objectives by percentages of waste generated, and Table 1b defines the objectives in tons. Table 1b shows the objectives in tons based on the current waste forecast in this Plan and is subject to change as the forecast is updated. Several factors were considered when setting the objectives, including:

- current statutory goals
- the regional waste generation forecast
- the implementation of restriction on disposal of MMSW in the TCMA

Meeting the objectives will: reduce greenhouse gas emissions; support the production of renewable energy; conserve natural resources; and reduce land disposal.

Source reduction and reuse

By 2036, the TCMA should generate 5% less waste than was generated in the base year of 2015. The previous Plan established a more modest source reduction and reuse goal, striving for smaller increases in waste generation over the 20 year period, relative to the larger increases projected in the waste forecast. The objective of this Plan is to generate less waste than was generated in 2015, resulting in significantly larger source reduction – nearly 1.5 million tons by 2036. Although the percentages seem small, these are aggressive source reduction and reuse objectives and will depend upon aggressive statewide initiatives to achieve. If the source reduction and reuse objectives are not met, the tons
required to meet the other MMSW management method objectives will increase, because the MMSW generation will be higher. Source reduction and reuse practices serve to reduce the amount of waste that is available for management and, therefore, are not included in the calculation of total MMSW generation (i.e., the percentages of recycling, organics recovery, resource recovery, and landfill add up to 100%).

Table 1a. MMSW management system objectives in percentages (2016-2036)

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<tbody>
<tr>
<td><strong>Floor – The lower range of the percentages below represent the minimum amount of MMSW that must be managed by these methods.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source reduction &amp; reuse (cumulative)</td>
<td>2-4%</td>
<td>3-5%</td>
<td>4-6%</td>
<td>4 - 6%</td>
<td></td>
</tr>
<tr>
<td>Recycling</td>
<td>39%</td>
<td>47 - 51%</td>
<td>49 - 54%</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Organics recovery</td>
<td>10%</td>
<td>9 - 12%</td>
<td>10 - 14%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Restriction on disposal of MMSW – The percentages below represent the amount of resource recovery expected to occur after maximizing reduction, recycling and organics recovery. Restrictions on the land disposal of processible MMSW will be enforced.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource recovery</td>
<td>28%</td>
<td>36 - 43%</td>
<td>31 - 40%</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td><strong>Ceiling - The percentages below represent the maximum amount of MMSW land disposal that will be allowed.</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Max landfill</td>
<td>23%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

To avoid double-counting, the source reduction percentages cannot be added with the other MMSW management method percentages lower on the hierarchy.

1This does include residue after processing that cannot be recycled and is sent to a landfill.

2Organics may include: food to people, food to animals, and composting of source-separable compostable materials.

3Resource recovery through mixed municipal solid waste processing or waste to energy; Includes residue before and after processing that is sent to a landfill.

4This objective refers to TCMA generated MMSW that is disposed at all landfills that serve the TCMA.
Table 1b. MMSW management system tonnages

Based on objectives in Table 1a in thousands of tons (2010-2030)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Floor</strong> – The lower range of the percentages below represent the minimum amount of MMSW that must be managed by these methods.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source reduction &amp; reuse (cumulative)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>0</td>
<td>67 - 135</td>
<td>101 - 168</td>
<td>135 - 202</td>
<td>- 135 - 202</td>
</tr>
<tr>
<td>Recycling&lt;sup&gt;2&lt;/sup&gt;</td>
<td>1,324</td>
<td>1,535 – 1,666</td>
<td>1,584 – 1,746</td>
<td>1,919</td>
<td>1,919</td>
</tr>
<tr>
<td>Organics recovery&lt;sup&gt;3&lt;/sup&gt;</td>
<td>342</td>
<td>294 - 392</td>
<td>323 - 453</td>
<td>480</td>
<td>- 480</td>
</tr>
<tr>
<td><strong>Restriction on disposal of MMSW</strong> – The percentages below represent the amount of resource recovery expected to occur after maximizing reduction, recycling and organics recovery. Restrictions on the land disposal of processible MMSW will be enforced.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource recovery&lt;sup&gt;4&lt;/sup&gt;</td>
<td>931</td>
<td>1,176 – 1,405</td>
<td>1,002 – 1,293</td>
<td>768</td>
<td>768</td>
</tr>
<tr>
<td>Ceiling - The percentages below represent the maximum amount of MMSW land disposal that will be allowed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max landfill&lt;sup&gt;5&lt;/sup&gt;</td>
<td>768</td>
<td>33 - 37</td>
<td>32</td>
<td>32</td>
<td>32</td>
</tr>
</tbody>
</table>

To avoid double-counting, the source reduction amounts cannot be added with the other MMSW management method amounts lower on the hierarchy.

<sup>1</sup>This does include residue after processing that cannot be recycled and is sent to a landfill.

<sup>2</sup>Organics may include: food to people, food to animals, and composting of source-separated compostable materials.

<sup>3</sup>Resource recovery through mixed municipal solid waste processing or waste to energy; includes residue before and after processing that is sent to a landfill.

<sup>4</sup>This objective refers to TCMA generated MMSW that is disposed at all landfills that serve the TCMA.

**Emphasis on the upper end of the hierarchy**

The system objectives are intended to maximize the upper end of the hierarchy, including an emphasis on product stewardship, source reduction, reuse, and achieving the legislative goals for recycling and organics recovery.

**A floor for source reduction and reuse, recycling, and organics recovery**

For each MMSW management method above resource recovery, the lowest percentage within the range given will be considered a “floor.” All stakeholders, including the MPCA, will be held accountable for meeting these minimum floor objectives. The MPCA believes the floor objectives are achievable with current tools available. However, to reach the long-term objectives and those objectives at the high-end of the range, the TCMA will need significant changes to current tools, new tools, and increases in funding.
Maintaining existing resource recovery facility capacity
The system objectives are intended to fully utilize existing permitted TCMA resource recovery capacity. If the MPCA’s waste generation forecast is accurate, the objectives for source reduction and recycling are achieved, and if existing resource recovery capacity is maximized, it may not be necessary to build new resource recovery facilities. However, improvements to existing resource recovery facilities, new refuse-derived fuel (RDF) processing capacity, and/or other system improvements may be necessary in order to capture more recyclables from MMSW.

In order to meet the objectives for resource recovery, the MPCA will need to effectively use its authorities with respect to mandatory processing under Minn. Stat. § 473.848, Public Entities law Minn. Stat. § 115A.471, and CON for new MMSW landfill capacity. This authority applies only to solid waste management within Minnesota, so strict enforcement of these laws could result in more out of state disposal.

A ceiling on landfilling
The system objectives strive to reduce land disposal to a 1% level within the next 10 years, recognizing that some MMSW disposal will always be necessary. If the MMSW cannot be reduced, reused, recycled, or composted first, it should then go to a resource recovery facility and only to landfills as a last resort.

To assure compliance, the MPCA will use its authorities with respect to mandatory processing under Minn. Stat. § 473.848, issuances of CON for new MMSW landfill capacity, and enforcement of state laws, such as the Public Entities law (Minn. Stat. § 115A.471).

Evaluation of the system objectives
The MPCA will annually evaluate progress toward achieving all the system objectives. The MPCA recognizes the challenges associated with measuring the progress. The MPCA will continue to work with local governments to assure that the data collected is necessary and relevant, and will take responsibility to collect data on a statewide or regional basis when appropriate. For each biennium, the MPCA will reassess the objectives in this Plan in light of the progress, system and technological changes, and the available tools. If the MPCA determines that the objectives are not being met, it will report to the legislature on actions that could effect change. These actions could include a wide range of initiatives.

Additional capacity for recyclables and organics
The MPCA Recycling and Solid Waste Infrastructure Evaluation (Reclay StewardEdge, 2015) examining the available capacity for recyclables in the state indicated that the existing capacity for recyclables in the TCMA exceeds the current demand. However, in order to meet the MMSW management system objectives, additional new materials recycling facilities and organics processing capacity may be needed to process the additional tons of materials recovered (Table 2). In addition to potential new capacity and/or facilities, the availability of markets for the collected and processed material will be necessary.

<table>
<thead>
<tr>
<th>Facility type</th>
<th>2015 Base</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2036</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials recycling</td>
<td>1,324,067</td>
<td>+341,746</td>
<td>+79,806</td>
<td>+173,754</td>
<td>0</td>
</tr>
<tr>
<td>Organics recovery</td>
<td>341,745</td>
<td>+50,211</td>
<td>+60,612</td>
<td>+27,275</td>
<td>0</td>
</tr>
</tbody>
</table>

Improving the reliability of the data

The complexity of the TCMA solid waste system makes it difficult to measure how MMSW is managed. Some data is relatively reliable, such as the waste volumes delivered to waste facilities, because that material is weighed and records are kept. Other data is not as easily measured, such as the volume of material recycled by commercial establishments. In 2009, the Legislature required, the MPCA to evaluate SCORE data collection and management and to make recommendations for its improvement (Minn. Law 2009, ch. 37, art. 1, sec. 62, subd. 2). Many improvements to data collection have occurred since this legislative requirement and the adoption of the previous Plan. It is expected that this work will serve to improve the reliability of the measurement tools that will be used to assess the progress in attaining this Plan’s system objectives.

For the past several decades MPCA has relied on counties pulling together the data and reported it to the MPCA. Counties acted as a middle man. The counties relied on hauler reports, facility reports and county estimates. On-line data entry by all permitted facilities is now standardized and streamlined. The sources of data (e.g., haulers or facilities) now directly report their data to the MPCA. In 2015, the Legislature required haulers to directly report to the MPCA (Minn. Stat. 115A.93). The hauler forms will be completed by July 1, 2016, and in 2017 haulers will begin to report data from calendar year 2016 using the new forms. It will also provide better data on the waste management practices of commercial establishments. With haulers and facilities reporting directly to the MPCA, we may further be able to identify areas where there is duplication and further streamlining can be made.

These improvements are critical, as it is not possible to accurately demonstrate the progress made in the TCMA through estimation. However, changing data sources may also change the baseline. The reported numbers will be different, not due to a change in programs, but because of the change in reporting. Once the new baseline is established, the MPCA will have more reliable information to guide policy decisions.

Achieving a 75% recycling rate is challenging but possible

During the 2014 legislative session, the 2030 recycling and organics recovery objectives included in the previous Plan were codified in state statute. This statutory change established the goal of a combined recycling rate of 75% by 2030 for the TCMA. In 2015, the TCMA had about a 49.9% combined rate for traditional recycling and organics diversion. Nearly half the total available waste generated was put to a higher use or diverted from disposal through reuse, recycling, or organics recovery. Despite this success, much of the recyclable and compostable material is still being disposed.

Based on waste composition studies conducted in 2013, the MPCA conservatively estimates that 63% of the waste disposed is either recyclable or compostable. If all material that could be recycled or composted were captured from the waste stream, the TCMA would achieve an 81% recycling rate. While a 75% recycling rate is a very aggressive goal, and one that requires system changes in order to achieve, it should be pursued. To achieve the 75% goal, approximately 50% of the material currently going to waste to energy or landfill would need to be diverted away from these facilities. Given that 63% of the waste is currently recyclable, nearly all of the available material would need to be recovered (Figure 7). In short, the waste stream continues to contain a large volume of materials that could be recycled or composted. As such, the opportunity to increase the current 50% recycling rate, which has been relatively unchanged for many years, is very feasible. However, as our baseline is readjusted (due to the new reporting structure) and estimated tonnages are removed, reassessment of the objectives may be necessary.
The data in Table 3 is derived from certification reports and SCORE reports. These reports are provided by the seven metro counties. The table shows two hypothetical situations using 2015 data. One scenario where all available recyclable material is actually recycled which results in an 81% recycling rate. The lowest row shows how many tons would be needed to achieve the 75% goal. The top row shows actual 2015 data.

**Table 3a. 2015 Reported data, 100% of recyclables captured, and 75% goal**

<table>
<thead>
<tr>
<th></th>
<th>Recycling</th>
<th>Organics</th>
<th>Waste to energy</th>
<th>Landfill</th>
<th>Total waste</th>
<th>Recycling rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 reported</td>
<td>1,324,067</td>
<td>341,745</td>
<td>931,415</td>
<td>767,490</td>
<td>3,337,071</td>
<td>49.9%</td>
</tr>
<tr>
<td>All recyclables are diverted</td>
<td>1,911,888</td>
<td>820,836</td>
<td>570,977</td>
<td>33,370</td>
<td>3,337,071</td>
<td>81%</td>
</tr>
<tr>
<td>75% is achieved</td>
<td>1,802,803</td>
<td>700,000</td>
<td>800,898</td>
<td>33,370</td>
<td>3,337,071</td>
<td>75%</td>
</tr>
</tbody>
</table>

Table 3b applied the 75% combined recycling and organics goal to the waste projected for 2030. This table demonstrates that the TCMA will not generate enough material to operate the waste to energy facilities at full capacity if the 2030 waste reduction, recycling, and organics objectives are achieved. In a future Plan, the MPCA and the TCMA counties may need to consider sending industrial waste and demolition debris to the region’s waste to energy facilities in order to fill the available capacity, or reduce processing capacity. It also demonstrates that very little material is available for land disposal.

**Table 3b. Using projected 2030 tons**

<table>
<thead>
<tr>
<th></th>
<th>Recycling</th>
<th>Organics</th>
<th>Waste to energy</th>
<th>Landfill</th>
<th>Total waste</th>
<th>Recycling rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% source reduction and 75% are achieved</td>
<td>1,919,373</td>
<td>479,843</td>
<td>767,749</td>
<td>31,990</td>
<td>3,198,954</td>
<td>75%</td>
</tr>
<tr>
<td>75% is achieved</td>
<td>2,565,424</td>
<td>641,356</td>
<td>1,026,170</td>
<td>42,757</td>
<td>4,275,707</td>
<td>75%</td>
</tr>
</tbody>
</table>
As the MPCA transitions to a new data reporting structure, comparison of annual report data from solid waste facilities with certification report data from the counties is possible. The annual reports indicate that approximately 710,000 tons of recyclables were accepted by facilities in and near the TCMA. This is significantly less than the approximately 1,324,000 tons reported by counties in the certification reports. The MPCA expects some discrepancies, since some recyclable material is sent directly to end-market and some of the recycling reported by counties includes estimates for commercial recycling. However, this discrepancy is large enough that the MPCA, the metro counties, and the solid waste facilities need to convene to better understand the differences in the reported tonnages. Theoretically, the hauler data, once received by the MPCA, will further shed light on this issue and help generate a more accurate recycling tonnage for the TCMA.

More improvement is needed, as the MPCA needs to regularly collect waste composition data from not just WTE facilities but also landfills. Waste-to-energy facilities are currently required to conduct waste composition studies every five years. This requirement should be extended to all disposal facilities for consistency. The data provides important trend information on waste composition (types and quantities of materials disposed). The addition of landfill information will help policy, planning, and implementation efforts, such as assessing capture rates of recyclable and compostable materials. This will enable the MPCA to adjust its programs according to the changing waste stream.

**Additional benefits of attaining the MMSW system objectives**

Achieving the MMSW waste management system objectives in this Plan will not only serve to abate the use of landfills, but will also have a direct effect on achieving the state’s environmental and energy goals since moving waste up the hierarchy reduces environmental impacts. In the year 2036 alone, reaching the system objectives would:

- Reduce greenhouse gas emissions by over 5 million metric tons of carbon dioxide equivalent, equal to taking over one million vehicles off the road for an entire year
- Conserve over 48 million BTUs of energy

Greenhouse gas emissions reductions and energy savings information were calculated using the U.S. Environmental Protection Agency’s (EPA) Waste Reduction Model (Plan). It is important to note that the majority of these reductions and savings are contributable to waste reduction and recycling objectives. The savings calculated above are significantly smaller than documented in the previous Plan. This difference is attributable to the different calculation method used. This Plan documents the savings achieved in a single year – 2036 – by reaching the Plan objectives, as compared to the business as usual scenario. The previous Plan documented the cumulative savings for the 20 year duration of the Plan.
Best management practices to achieve the 75% recycling goal

There are various approaches to meet the system objectives of this Plan. The TCMA waste management system is governed by multiple entities, public and private, and a variety of strategies provide the flexibility to meet the needs of each program or situation. The state, counties, cities, businesses, nonprofits, communities, and citizens all have specific roles and responsibilities for improving solid waste management. In order to minimize conflict and inefficiencies, it is important to select strategies that align public and private objectives and to work together to identify necessary changes to existing strategies and indicate where new ones are needed.

Each topic below includes key strategies that will be instrumental to the region reaching the recycling goals. The MPCA expects that all counties will integrate implementation of the "priority strategies" directly into their master plans. The sections below include several additional best management practices ("recommended strategies") that have the potential to reduce waste and increase recycling. The counties are encouraged to include these strategies in their master plans.

The MPCA is committed to achieving the recycling objectives established in this Plan and intends to assist with strategy implementation as noted below.

Regional solutions

Although the metro counties do not have a formal regional waste management district in place, the region can implement certain strategies at the regional level. Minn. Stat. § 473.149, subd.6 requires the MPCA Commissioner to report to the Legislature on the need to reassign metropolitan solid waste responsibilities, if the goals of the metropolitan statutes are not being met.

Priority strategies

Residents in all seven metro counties shall receive standardized messaging regarding recycling by 2018.

Thorough education is essential to implementing a successful recycling program. The metro counties have developed strong recycling messaging for residents throughout the region for many years. The Solid Waste Management Coordinating Board (SWMCB), which includes members from six of the seven metro counties (Anoka, Carver, Dakota, Hennepin, Ramsey and Washington), began collaborating on education campaigns in the TCMA more than 10 years ago and has produced many useful resources designed to increase the capture of recyclable materials. Their most recent campaign, Know What to Throw, made significant progress towards standardizing the recycling messaging received by residents throughout the TCMA (http://www.rethinkrecycling.com/residents/know-what-throw). However, the consistent messaging of the Know What to Throw campaign will not reach its maximum potential without commitment from stakeholders throughout the regional recycling system, since recycling messaging is often provided by haulers.

Providing consistent messaging throughout the entire region is critical since residents of the TCMA often work, attend school, or socialize in counties other than their county of residence. While individual counties and the SWMCB have developed strong educational campaigns, there has not been adoption of the consistent messaging throughout the entire region. Key players in the recycling system, including haulers, facility operators, and cities, have not been directly involved in the development and implementation of many of the campaigns. Without system-wide involvement, buy-in, and ongoing coordination, the messaging is less effective.
In order to strengthen recycling programs and increase the capture of recyclables throughout the TCMA, residents must receive standardized messaging regarding recycling. A regional recycling education group charged with developing standardized recycling messaging should be created. This group must include all of the key players in the TCMA recycling system. A great example of multi-sector collaboration on an educational tool is the recent "Organics Recycling Outreach Guide". This guide was developed by a multi-sector team and includes standardized guidance on the terminology that should be used when educating residents and businesses about organics diversion programs. Coordination with existing groups and efforts, such as the Association of Recycling Managers (ARM), is encouraged. Use of existing materials and campaigns is also strongly encouraged.

To this end, the MPCA will coordinate with ARM, materials recovery facility (MRF),, and other partners to build a more comprehensive and effective structure for recycling communication that will include improved standardized "yes-no" recycling lists that will be updated annually and be the basis for MRF, hauler, city, and county recycling communication to the public and local businesses. The MPCA will also look at compliance with Minn. Stat. 115a.552 subd. 3a (Opportunity to Recycle) to encourage more frequent communications from counties and cities.

Involvement from the eight material recovery facilities that serve the metro area is critical. Not all of the facilities accept the same materials, but the residential education will focus on those materials that are accepted by all. The education campaign will also include clear guidance of materials that none of the facilities accept, such as plastic bags. Developing a strong relationship with those eight facilities will also help foster a collaborative effort to ensure that updates by the facility are clearly explained to cities, counties, and other entities that work with educating the public.

**Recommended strategies**

**City codes shall not inhibit the addition of recycling containers.**

The success of a recycling program relies on many factors. Not having enough space to collect and store recyclable materials is a big concern in non-residential settings. In addition, requiring the installation of an enclosure around a recycling dumpster can make the recycling program cost-prohibitive. Often, city zoning codes restrict flexibility by not allowing several businesses to share a community dumpster/recycling location, building codes do not require adequate space for recycling containers in new construction, or codes require that the recycling dumpster be surrounded by a fence. City codes should not have provisions that restrict the ability for businesses, multi-family buildings, or residents to have access to recycling.

Counties shall work with cities to modify codes that do not allow enough flexibility for recycling infrastructure. By 2022, all cities in the TCMA must update city ordinances to be consistent with this requirement. To implement this strategy, counties may:

- Require that cities update their ordinances in order to receive funding for recycling programs
- Provide technical assistance to cities updating their ordinances
- Provide model city code language that clearly defines when the enclosure requirement applies and requires the enclosure to be large enough to accommodate trash and recycling containers
- Work with developers and city planning staff to increase awareness of the need to accommodate for recycling and organics collection to ensure the issue is addressed in all new construction
Standardize ordinances
Some of the TCMA counties collaborate on education and licensing of haulers. Many of the counties also have reciprocity for HHW collection locations. However, the seven metro counties largely operate as individual entities. This can create challenges for private businesses that are trying to implement the solid waste system in the metro area. In order to facilitate more clarity to private businesses and the public, solid waste ordinances should be consistent across the seven-county metro area to the greatest extent possible. Where possible, implement region-wide initiatives, such as:

- Reciprocity programs for HHW across all seven counties
- Regional (seven-county) licensing of haulers
- Standard hauler reporting requirements

Source reduction and reuse
According to Minn. Stat. 115A.55, “It is a goal of the state and counties to reduce the generation of municipal solid waste.” The source reduction goal for the policy plan is one to two percent by 2020. In order to meet this goal the counties and the state will have to work on source reduction along with other partners including citizens, businesses, and organizations. In the last few years, the MPCA has focused its source reduction programs on reuse, food waste prevention, and procuring more sustainable products. The MPCA will continue to work on these programs and expects the counties to support and implement programs in these areas as well.

Priority strategies
Support financially and promote material exchange programs such as the University of Minnesota’s Materials Exchange Program.
The Minnesota Technical Assistance Program (MnTAP) has had a Materials Exchange Program for businesses to post and exchange/purchase materials for several years. A recent analysis on how the exchange program works identified recommended improvements. Recommendations (that would require funding from the state and counties) include hiring a person to actively staff the program, adding pictures of the items to the site, and increasing program advertisement.

Support the State’s Sustainable Purchasing Program.
Over the last several years, the MPCA has worked closely with the Department of Administration on increasing access to sustainable goods and services and reducing the environmental impacts of procurement. In the past, emphasis was primarily on recycled content products. While recycled content is still important, the Sustainable Purchasing Program strives to consider the impacts along the entire life cycle of the product or service. This new approach provides greater environmental benefits that extend beyond the benefits of recycling.

The state will continue to work on increasing the number of sustainable state contracts. Counties will continue to work with the state on sustainable purchasing by adopting purchasing requirements consistent with state requirements and purchasing sustainable products from state contracts.

Implement at least two active programs that focus on reuse at the county level.
Reuse keeps products in use longer and avoids the need for a new product to be purchased. The state has evaluated the economic association of reuse in Minnesota and discovered many organizations that are thriving in this sector. The state and the county should continue to educate people on the environmental benefits of reusing and create programs that encourage people to purchase used goods and repair existing goods. The counties must implement at least two programs from the list that follows.
• Ensure that all educational materials related to donation and clean-ups focus on the education of residents on the environmental, social, and economic benefits of buying used, renting or repairing. Promote purchasing used items and shopping used as well as renting or repairing. Consider creating a Choose to ReUSE coupon book like the successful Hennepin County booklet.
• Increase the capture rate of goods that are still usable from residences that have a population that moves frequently such as a move-in/move-out at colleges and universities in the metro or multi-family buildings.
• Work with cities that hold spring and/or fall clean-up days to reuse as many items as possible and contract with reuse organizations to collect materials.

Recommended strategies

Encourage and support cities and communities to host fix-it clinics.
In recent years, fix-it clinics (programs that provide residents the opportunity to repair their household items instead of purchasing new items) have started to become more popular. Hennepin County was the first to hold these in Minnesota and has done a great job of showing the benefits of these clinics. Hennepin County has tracked the diverted weight of material and the success rate of what could be fixed. The clinics also seem to create a sense of community. The MPCA recommends that more cities and counties implement similar programs.

Encourage and provide assistance for neighborhoods, communities, or cities to host swaps (clothing, toys, books, etc.) or libraries (e.g., tools).
Some items such as books, toys, children’s clothes, and infrequently used tools lend themselves well to sharing, swapping, or checking out as part of a membership or library system. This removes the need for new items to be purchased, especially items that would be used for a short period of time. There are some of these in the metro area and the MPCA encourages cities and counties to promote their growth.

Collection best practices
A variety of methods are used throughout the TCMA to collect recyclable materials, organics, and trash from generators. Given the diversity of communities represented in the region, it makes sense that the methods remain somewhat flexible. However, there are several best management practices that should be implemented to increase the recycling rates in the region.

Priority strategy

All cities shall contract for residential recycling by 2025.
Research has shown that organized recycling collection programs yield a higher recycling rate when compared to non-organized recycling programs (The Benefits of Organized Collection, MPCA, February 2012). Roughly 60% of communities in the TCMA offer organized recycling collection; however, many cities still rely on subscription, opt-in services provided by licensed haulers. While some of these non-organized programs have been successful, the results from communities with organized recycling are more consistently strong. Organized recycling collection was included as a best practice in two recent reports addressing strategies for increasing recycling (Strategies for Increasing Recycling, Ramsey/Washington Resource Recovery Project; Green Step Cities Best Management Practices, prepared by Foth).
In addition to yielding higher recycling rates, organized recycling collection is often more economical for residents. Data in Table 4 is derived from the Department of Revenue’s solid waste management aggregated tax receipts and bills from the TCMA. This data demonstrates that, on average, the monthly cost for residential recycling in an organized system is nearly 40% less than the monthly cost in a subscription system.

Table 4. Monthly cost of residential recycling in the TCMA

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscription average</td>
<td>$6.33</td>
</tr>
<tr>
<td>Organized average</td>
<td>$3.95</td>
</tr>
</tbody>
</table>

By 2025, all cities in the TCMA must provide organized recycling collection for residents. To implement this strategy, counties may:

- Require that cities offer organized residential recycling collection in order to receive funding for recycling programs
- Provide technical assistance to cities developing and implementing an organized recycling program

The MPCA also plays a role in implementing this strategy and may provide technical assistance to cities developing and implementing a new organized recycling program.

**Recommended strategies**

**Cities contract for residential MMSW collection.**

In the TCMA, 36% of cities currently contract for residential MMSW collection, compared with 72% of cities nationwide. However, over the last few years, several communities followed the process required by Minn. Stat. 115A.94 and successfully implemented organized MMSW collection programs for their residents. Although transitioning from an open MMSW collection system to an organized MMSW collection system is not simple, there are many environmental benefits of organized collection, and counties should work with cities to make this transition. Several reports developed over the last few years have identified organized MMSW collection as a best practice to increasing recycling ([Strategies for Increasing Recycling](#), Ramsey/Washington Resource Recovery Project; [Green Step Cities Best Management Practices](#), prepared by Foth; [Taking Out the Trash](#), Macalester-Groveland Community Council; [Analysis of Waste Collection Service Arrangements](#), MPCA).

An organized MMSW collection system allows a community to implement incentives for waste reduction, such as effective unit-based pricing. Although Minn. Stat. 115A.9301 requires haulers to establish volume-based pricing even in open collection systems, the price differences set by haulers are not enough to drive behavior change because the majority of the cost is attributable to transportation of the waste. Research has shown that the cost of generating a large amount of MMSW must be significantly more than the cost of generating a smaller amount of MSW in order to incentivize waste reduction and recycling. To incentivize behavior change, the differential should be set at least 80% higher than the smaller container size ([Increasing recycling now! Guidebook for community adoption of recycling and pay as you throw ordinance](#), Lisa A. Skumatz, Ph.D. and Juri Freeman 2008). When a community establishes an organized MMSW collection system, it is able to negotiate prices that will incent behavior change. Implementation of effective unit-based pricing has been shown to increase recycling rates, assisting the TCMA in achieving the aggressive recycling goals ([http://www.paytnow.org/resources.html](http://www.paytnow.org/resources.html)).

In addition to the environmental benefits associated with increasing recycling, creating efficiencies in waste collection can reduce both fuel consumption and emissions. Fuel consumption during collection activities in cities with open collection systems is typically much higher than that of cities with organized
systems. The number of haulers and their market share can affect overall fuel consumption and emissions. In an open system, trucks from many haulers travel the same alley. In an organized system, there may be the same number of haulers, but only one truck travels down each alley, resulting in lower fuel use because fewer miles are traveled to collect the same amount of material. Even open cities with one hauler having more than 60% of the market share (e.g., Eagan) would see a significant reduction in fuel use by switching to an organized system. A city with many haulers each having a smaller market share (e.g., St. Paul) would realize even greater savings. Fewer vehicle miles traveled also results in less air pollutant emissions from heavy duty waste/recycling collection vehicles. Public concern has increased regarding human health and environmental impacts of particulate matter and nitrogen oxides, which are emitted in large amounts from heavy duty vehicles. (source: The Benefits of Organized Collection, MPCA, February 2012).

Organized MMSW collection programs are also often more cost-effective when compared to subscription programs. Data in Table 5 was derived from Department of Revenue solid waste management aggregated tax receipts and bills from the TCMA. The monthly cost for residential MMSW collection varies by container size. Although the cost for a 90 gallon cart is similar in both systems, the cost in organized collection systems is lower on average (12% lower for a 30 gallon container, 16% lower for a 60 gallon container).

Table 5. Monthly cost of residential MMSW service in the TCMA

<table>
<thead>
<tr>
<th>Container size</th>
<th>30 gallon</th>
<th>60 gallon</th>
<th>90 gallon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscription average</td>
<td>$13.62</td>
<td>$16.75</td>
<td>$17.15</td>
</tr>
<tr>
<td>Organized average</td>
<td>$11.92</td>
<td>$14.03</td>
<td>$17.16</td>
</tr>
</tbody>
</table>

**Traditional recycling management**

**Priority strategies**

Implementation of mandatory commercial recycling in the metro area shall focus on generators of large quantities of recyclables and the generators of most impactful materials.

1. **Establish a baseline for commercial recycling in the region and identify the generators of large volumes of recyclables.** Minn. Stat. 115A.151 requires property owners with buildings in the seven-county metro area that contract for four cubic yards or more of trash per week also recycle at least three materials. This law went into effect at the beginning of 2016, so although it is too soon to assess the impacts of the new law, this is a good time to establish a baseline.

   In addition to establishing a baseline, identification of the large volume generators of recyclables is necessary to developing a targeted, effective commercial recycling program. MPCA will review existing data from other states and the EPA on typical generators of large quantities of recyclables. If appropriate data is unavailable, the MPCA will work with the counties to develop a list of large volume generators, as well as a list of generators of the most impactful materials.

2. **Identify materials that are most impactful to the environment.** The SMM approach discussed earlier in the Plan will allow the MPCA and stakeholders to identify the material types that are most impactful to the environment. By doing so, recycling efforts can be targeted with a focus on capturing the most impactful materials in the waste stream. This approach does not mean existing programs will be dissolved. But, in order to achieve the aggressive recycling goals established in this Plan and in statute, the region must consider how to capture recyclables from portions of the waste stream that have not been previously targeted, that have not been aggressively targeted, or that do not have a high capture rate.
The MPCA and stakeholders will complete an analysis of materials from the waste stream that should be focused on because of their increased ability to reduce impacts on the environment. See the above section, “Sustainable Materials Management”, for more explanation of this new approach.

3. **Re-focus commercial recycling assistance.** In addition to the new state law on commercial recycling, the metro counties have placed an emphasis on providing technical assistance to businesses interested in developing or improving a recycling program for the last few years. The increased emphasis on commercial recycling throughout the region is laudable. However, in order to maximize environmental benefits and increase the capture of materials, the efforts should be prioritized and targeted based on environmental impacts.

Once the identification of the most environmentally impactful materials is complete, commercial recycling efforts should be re-focused on generators of large quantities of recyclables as well as on generators of the most impactful materials. Counties should work with the Chamber of Commerce and Minnesota Waste Wise to develop a large-scale commercial recycling assistance program incorporating this new focus.

In order to maximize staff resources at both the state and county level, counties are asked to partner with the MPCA on commercial recycling compliance efforts. Since the counties are more in touch with the waste management efforts of businesses within their respective counties, counties must provide the MPCA with a list of commercial entities that may not be in compliance with the commercial recycling requirements. This list must be submitted to the MPCA on a biannual basis. The MPCA can use this list to prioritize compliance efforts.

**Continue efforts on compliance with the public entities law.**

Minn. Stat. 115A.151 requires that all public entities recycle a minimum of three materials. In addition to offering grants to cities and schools to develop or maintain recycling programs, the metro counties have worked to ensure that all buildings under county control are in compliance with the law. To increase recycling by public entities, the following strategies are recommended:

- MPCA approval of county certification reports should be tied to successful public entity recycling efforts.
- The Metropolitan Abatement Progress Report to the Legislature submitted by the MPCA should include a metric on public entity recycling.
- County grants awarded to public entities should be incentive-based. Grantees should be required to demonstrate measurable results.

**Evaluate the effectiveness and the impacts of mandatory upfront processing of waste prior to or at resource recovery facilities and landfills that accept waste from the TCMA.**

Achievement of the 75% recycling goal will require major system changes. Upfront processing of waste to recover recyclables prior to or at resource recovery facilities and landfills serving the TCMA may prove to be an important strategy for meeting the goals and should be evaluated prior to implementation.

An evaluation of the effectiveness and impacts of mandatory upfront processing of waste prior to or at all resource recovery facilities and landfills serving the TCMA is necessary. The evaluation should include:

- Review of existing research on available upfront processing technologies, including an evaluation of the materials that can be recovered from the waste
- Roles and responsibilities of the state, counties, and private sector
- Assessment of the cost to the system for implementation
- Assessment of the impacts on the export of waste
Organics management

Capturing and preventing a larger portion of the organic materials available in the waste stream for people, animals, and for the creation of a soil amendment is critical for the region to reach the food prevention goals of the EPA and U.S. Department of Agriculture (USDA) as well as recycling goals for the state. Farms and non-profits have taken the lead on capturing food that would have been wasted to be recovered for human consumption or animal feed. In order to meet the goals set out by EPA and USDA of a 50% reduction in food waste by 2030 the state and counties will need to work collaboratively with industries to find innovative ways to prevent and recover food from being wasted. Food loss and waste in the United States accounts for approximately 31%—or 133 billion pounds—of the overall food supply available to retailers and consumers and has far-reaching impacts on food security, resource conservation and climate change. Food loss and waste is the single largest component of disposed U.S. municipal solid waste, and accounts for a significant portion of U.S. methane emissions, according to the National Resource Defense Council.

Preventing food waste from being generated is the most cost effective and efficient way to reduce food loss. The EPA has developed programs for both commercial and institutional generators as well as residential generators. The Food Recovery Challenge provides assistance and information for organizations to prevent food from being wasted in the first place through diversion programs. The residential toolkit “Food: Too Good to Waste” was designed as a community based social marketing campaign for neighborhoods to learn tips on preventing food from being wasted in the home.

Donation of food for people is another way to prevent food from being wasted. There are several non-profits in the state that capture food for human consumption. Food-to-Livestock programs capture food that isn’t fit for human consumption but can be used as an animal feed. These two programs manage a significant portion of the organic materials that are being counted towards the state’s current recycling goal. These programs tend to work best for commercial or institutional generators due to the need to maintain especially low contamination thresholds and because they generate larger amounts of food waste.

While organics recovery has increased over the last several years, challenges still remain. The best method of collecting organics has yet to be determined, complicating the promotion of best practices. The number of commercial compost facilities is still relatively small and collectors are often obligated to travel longer distances to access the facilities. There is a lack of transfer stations that accept and consolidate organics for transport to the facilities. This leads to inefficiencies which can increase costs. Collection is also a challenge. Haulers need route density to offer affordable service but getting a suitable number of residential or commercial customers in close enough proximity for a sensible route is tough. The relative high cost of compostable products, most notably the compostable plastic bags required by many programs, is another challenge. Despite these challenges, interest in organics diversion remains high, and participation in both commercial and residential programs has grown.

To reach the recycling goals, the region must begin addressing these challenges and increase access to collection, improve its ability to collect and process organics, develop markets for compost, and educate the public.
**Priority strategies**

**When working with organizations, encourage preventing food waste and food donation first.**

As the state and local units of government provide technical assistance to organizations it is important to make sure to promote prevention of food waste first before discussing diversion options such as composting. Many times preventing the food from being wasted would be a more economical approach and with the number of tools now available an easier fix as well. There are several ways for organizations to track where the food waste is happening that allows them to implement specific steps to prevent further food loss. EPA’s Food Recovery Challenge has free resources for this and there are also companies that focus only on this. Donating to a non-profit not only reduces the cost of disposal but can have positive tax implications. Food-to-livestock programs are usually cheaper than disposal as well.

**Make residential curbside organics collection available region-wide by 2025**

Access to collection is critical to capturing more of the organic materials currently being disposed. Although drop sites (where residents deliver their own household’s organics to a central collection location) may be a good starting place, they do not offer the convenience many potential recyclers expect. Providing service to residents curbside – so access is equivalent to curbside recycling or trash collection – will be necessary if the 75% recycling goal is to be achieved.

The TCMA includes a diverse set of communities with varied waste management programs in place. Given the existing challenges facing organics collection, the region should begin by establishing the necessary infrastructure and systems to support region-wide residential curbside organics collection. By 2020, each county should require that all licensed haulers offer curbside organics collection. By 2022, cities of the first and second class (as defined in Minn. Stat. 410.01) should provide an organized residential organics collection program. By 2025, all residents in the TCMA should have access to organized curbside organics collection.

Curbside organics programs are typically funded primarily by user fees. Historically, user fees for curbside recycling have been applied to all households even though some households may choose not to participate. The WMA, under 115A.93, requires that: “A licensing authority shall prohibit MMSW collectors from imposing a greater charge on residents who recycle than on residents who do not recycle.” Since source separated compostable materials are also defined in state law as a recyclable material cities need to consider compliance with 115A.93 in determining how to fund their organics programs.

**Complete an evaluation of the organics collection methods that work best for your communities.**

Efforts of collecting organics curbside are relatively new. There are a number of approaches that have or could be used for collection; however, because of the relative infancy of the methods, no single practice has proved superior. In the coming years, communities will be able to customize program and collection methods based on their specific objectives and barriers. A continuing effort to evaluate and document the pros and cons of each collection method will be needed to position local governments to make wise decisions when designing their programs.

Methods for curbside collection that warrant further consideration include:

- Collecting organics curbside in a cart - including only food scraps, non-recyclable paper and compostable plastics
- Co-collecting organics with yard waste
- Co-collecting organics, in a durable compostable bag, with MMSW (sorting facilities to remove compostable bags are required with this model.
- Co-collecting organics with curbside recyclables (in a truck with separate compartments)

Local governments will need to work closely with haulers, transfer stations, and compost facilities to evaluate which collection methods are realistic in their communities.

The following resources may be helpful when evaluating the different collection methods:

- Assessment of Residential Source Separated organics Collection Options: A study for the City of Minneapolis, 2013
Assessing the fees for participation in organics collection to all households, and offering that collection via an organized system, appears to result in higher participation. In Minneapolis, where all households pay a fee for organics collection, more than 30% of households have already signed up to participate in the organics program (which will be available citywide by the end of 2016). By contrast, communities that require participating households to subscribe and pay an additional fee have fewer participants. For example, in St Louis Park, where only households willing to subscribe and pay an additional $10 per quarter have organics collection, only about 10% of households are currently participating.

**Require organics diversion by large generators of organic material by 2022.**

In the TCMA, many businesses are required to recycle a minimum of three materials types per Minn. Stat. 115A.151. Given this requirement, it is logical for large commercial generators of organic materials, such as restaurants and grocery stores, to implement organics diversion. Voluntary approaches within the TCMA, notably the efforts by Hennepin, Ramsey and Washington counties, have had success in increasing organics diversion by large generators. However, mandatory organics diversion by large commercial generators has more potential to significantly increase recycling rates.

Requirements that certain types of organizations participate in organics diversion efforts have become increasingly common in recent years. In Minnesota, the Western Lake Superior Sanitary District (WLSSD), located in northeast Minnesota, requires most restaurants, colleges, hospitals, nursing homes, assisted living facilities, food processors and caterers to separate and recycling their pre-consumer food waste. In Massachusetts, businesses or institutions that generate over one ton of organic material per week are required to divert food waste from disposal through composting, conversion, recycling or reuse. Vermont’s Universal Recycling Law (Act 148) includes a ban on food scraps (effective in 2020) that will effectively require all commercial and residential organics generators to recycle organics. The Vermont law also includes a requirement that waste haulers and solid waste facilities collect organics and recyclables. California’s Assembly Bill 1826 requires businesses, institutions and multi-family residential complexes with five or more units that generate at least eight cubic yards of organic waste per week to have organics picked up and recycled separately from trash.

The WLSSD ordinance would serve as a good model for the TCMA. In the WLSSD ordinance specific sectors are identified, and criteria are set to determine which businesses are obligated to participate. For example, grocery stores that are 7,500 square feet or larger, hospitals with 100 or more beds and restaurants with a St Louis County “Level 3” food-handling license are required to participate.

To make significant progress toward achieving the recycling goals, large generators of organic material must implement organics diversion. By 2022, each metro county should require organics diversion by large commercial generators. The counties should encourage moving organic materials up the waste management hierarchy and support businesses in donating food to people and implementing a food to animals program, in addition to source-separated organics composting. To ease the potential burden on small businesses, small commercial customers could be given the opportunity to use city-negotiated organics collection contracts.

**Recommended strategies**

**Support community based social marketing campaigns that educate residents on ways to reduce the amount of food that is not eaten.**

A significant portion of food that is wasted comes from the household. The EPA and Rethink Food Waste through Economics and Data have both highlighted the impact reducing food loss from households would bring. It has been shown that just by having people become aware of the amount of food being wasted from their home people start to change behavior. Tools have been developed and people that have been given the tools to use have seen up to a 25% reduction in wasted food. It is important to
prevent food from being wasted before we think about managing it because it reduces the resources needed to grow food in the first place. Food that is diverted does not have these upfront benefits. Preventing food from being wasted is more cost-effective as well.

**Develop additional transfer capacity in the region.**
As noted in the 2015 Solid Waste Policy Report, there is an immediate need for transfer capacity for organic materials. Increasing the number of transfer stations in the region would facilitate the development of new organics collection programs that might have been previously stalled by the distance to the composting facility.

The MPCA has made funding for transfer capacity and/or sorting of durable compostable bags a priority in its 2016-2017 Environmental Assistance Grant round. In addition, MPCA staff is committed to providing technical assistance to facilities to assist them with meeting permit requirements for consolidating and transferring organics.

Use of durable compostable bags is one strategy that has gained some traction for collecting organics. Source Separated Organics (SSO) are separated by the generator into the durable compostable bags. The durable bags are designed to be co-collected (typically with MMSW) while withstanding the rigors of compaction in garbage trucks and on tipping floors. The challenge is that the durable compostable bags/co-collected material needs to be delivered to a facility with the capacity to sort the SSO/bags from the MMSW. In 2016, only a handful of the facilities in the metro area have established sorting systems for durable compostable bags.

As a recyclable material, SSO are exempt from the state’s solid waste management tax. The MPCA will work closely with the Department of Revenue to ensure that as methods that allow for more efficient collection of organics are developed, the incentives remain in place. Each collection method will likely require evaluation to ensure that quality material is effectively captured so the intent of the exemption is preserved.

**Implement organics diversion at public entity facilities and in large event venues.**
Minn. Stat. 115A.151 has required public entities to recycle since the early 1990s. While compliance with this law is still an issue, the metro counties have made significant progress in implementing traditional recycling programs and encouraging the municipalities within each county to do the same. However, most public entities have not yet implemented an organics diversion program. Since this Plan prioritizes residential organics collection as well as organics diversion by large generators, public entities are also encouraged to implement organics diversion programs.

By 2025, all city and county facilities should implement an organics program. Although the cost of compostable products has been cited as a common barrier to establishing a program, public entities are well positioned to reduce these costs by participating in cooperative purchasing agreements that provide significant price breaks.

Progress has already been made implementing organics collection in prominent TCMA event venues like Target Field, CHS Field, the Science Museum of Minnesota, and the Xcel Center. Working with other venues like US Bank Field, the new soccer stadium, and other prominent gathering spaces will also help the public to become familiar with organics collection and capture large volumes of organic waste. Some stadiums have had noteworthy successes with organics collection because they often have the opportunity to design procurement programs so only organic and recyclable wastes are produced. For example, The Ohio State University’s football stadium has achieved recycling rates above 98% in recent years.
The state of Minnesota is also working to establish organics programs at many state owned and operated facilities. By the end of 2016 the Capitol Complex will have organics collection at more than 20 state facilities. The project is intended to provide a template for agencies that are not part of the complex to also implement organics collection in combination with recycling best practices.

**Evaluate mixed waste processing for organics recovery.**
Meeting a 75% recycling goal in the TCMA will take a broad range of programs and policies to achieve. Asking generators to source-separate their recyclables, including organics, is beneficial in that the material collected is of a higher quality (less contamination), and thus can be used to create more valuable and versatile products. Source separation is also emphasized as a priority over processing by statute (Minn. Stat. 115a.02). Other processing technologies that are designed to process MMSW by removing recyclables, and potentially organics that have not been source separated, also need to be assessed for their effectiveness.

In contrast to source separation, mixed waste processing has historically been challenging largely due to the quality of material captured and questions about overall system impacts. Changes to the technology may require another look to determine what type of impact this approach may have on overall diversion efforts. Anaerobic digestion, for mixed solid waste, has emerged as another alternative but questions remain about the overall benefits of the process (e.g., the usability of the digestate after gas collection). Life cycle analysis should be done to determine the benefits of anaerobic digestion for mixed waste processing and other technologies. For these processing strategies to be viable there must be clear and conclusive evidence that materials can be effectively captured, that there are outlets for the material, and that the products made from the process have value.

To that end, the MPCA, in partnership with stakeholders, should conduct an evaluation of processing technologies that addresses the following:

- The ability to capture quality organics effectively
- The availability of end-use facilities willing to accept processed organics
- The overall quality and marketability of the products made from the process
- The impacts of potentially lower quality compost products on markets for compost produced from source separated organic material

Mixed waste processing also raises questions regarding how to account for and report on captured materials. Sorting a material from the trash alone is not sufficient to qualify as recycling. Material must be manufactured (or composted) into a new product with some value if it is to be considered recycled.

**Non-mixed municipal solid waste**

In 2015, 4.0 million tons of non-MMSW was disposed in landfills that serve the TCMA. This includes industrial, and construction and demolition debris (C&D). Non-MMSW waste types need to be tracked more effectively to ensure proper management and protection of human health and the environment.
Land disposal practices, waste characteristics, and financial incentives have changed dramatically over the last three decades. The laws and rules governing solid waste management have not kept pace and now create some counterproductive incentives. As Table 6 above demonstrates, 1.75 million tons of industrial solid waste (ISW) was disposed of in TCMA landfills in 2015. Disposal and tax information suggests that some of the waste classified as ISW would have traditionally been classified as MMSW, but is now being managed as ISW. The MMSW and ISW definitions provided in statute and rule conflict with one another. This has led to confusion on how to properly characterize and manage the waste. In addition, we have seen a large amount of growth in non-MMSW C&D and ISW combined) since 2009, while MMSW has remained fairly constant (Figure 8).

Figure 8: Metro MMSW and Non MMSW Generation since 2009

State law (Minn. Stat. 473.801-849) provides general guidance to reduce the amount and toxicity of waste generated and landfilled in the metro area and calls for MPCA to set out a plan for both MMSW and non-MMSW landfill abatement plan (Chapter 473.149). However, there are no statewide statutory goals for non-MMSW reduction and recycling. Approximately 1.78 million tons of C&D was disposed of in the TCMA in 2015. Another 1.75 million tons of ISW was disposed of in the TCMA in the same year. C&D and ISW (with daily cover) accounted for just over 4.0 million tons (68%) of the total solid waste
generated in the TCMA in 2015. Non-MMSW, and C&D waste in particular, has not been given as much attention as MMSW by MPCA and metropolitan counties. The large amounts and fast growth of non-MMSW land disposal is a concern for the MPCA. The last close examination of non-MMSW was conducted in 2007 and there have been significant changes to the types and quantities of non-MMSW landfilled since then. Unfortunately the MPCA only has non-MMSW data for these facilities back to 2009, but it is clear in the chart that in 2009, MMSW and non-MMSW tonnage was nearly the same. More focus should be placed on non-MMSW management to increase the reuse and recycling of non-MMSW and achieve the benefits associated with diverting non-MMSW from landfills.

Past and present systems

In 1988, solid waste management in Minnesota looked like this:

- Industrial waste was a result of manufacturing or processing that needed special testing and screening before being landfilled as MMSW.
- The only ISW landfills were mono-fill facilities for coal ash, paper sludge, and auto fluff.
- Taxes for all solid waste types were low.
- No expectation that it would be desirable to have waste classified as ISW.

Currently, solid waste management in Minnesota looks like this:

- Many regions of Minnesota are served by landfills with large industrial generators but report no ISW disposal. Instead ISW is treated as a component of MMSW.
- 63% of ISW not classified as MMSW is characterized as "other ISW", so it is not possible to know exactly what constitutes that portion of the waste.
- Permitting and Environmental Review for MMSW landfills is restrictive, but there are many fewer restrictions for C&D or ISW landfills. There were fewer restrictions on those waste streams because they were believed to be lower risk, but we have increasing evidence that demolition debris and industrial waste also carry environmental risks.
- The nature of ISW has changed (e.g., waste has been observed to contain less inert and unprocessable materials such as foundry sand and contaminated soil) and now more closely resembles what would have originally been considered MMSW.
- Under current law, it is easier to expand ISW or demo landfills, than it is to expand MMSW landfills.
- Tax rates are 20 to 30 times higher for MMSW compared to ISW; this creates a strong tax incentive to characterize MMSW as ISW.

State Statute Definitions:

**Mixed municipal solid waste § 115A.03 Subd. 21**

(a) "Mixed municipal solid waste" means garbage, refuse, and other solid waste from residential, commercial, industrial, and community activities that the generator of the waste aggregates for collection, except as provided in paragraph (b).

(b) Mixed municipal solid waste does not include auto hulks, street sweepings, ash, construction debris, mining waste, sludges, tree and agricultural wastes, tires, lead acid batteries, motor and vehicle fluids and filters, and other materials collected, processed, and disposed of as separate waste streams.

State Rule Definitions: 7035.0300 subp.63

**Mixed municipal solid waste**

"Mixed municipal solid waste" has the meaning given it in Minnesota Statutes, section 115A.03, subdivision 21.

**Industrial solid waste 7035.0300 subp.45**

"Industrial solid waste" means all solid waste generated from an industrial or manufacturing process and solid waste generated from nonmanufacturing activities such as service and commercial establishments. Industrial solid waste does not include office materials, restaurant and food preparation waste, discarded machinery, demolition debris, municipal solid waste combustor ash, or household refuse.
Differing definitions
The differences between industrial waste, as defined in Minn. Stat. 115A.03, and ISW, as defined in Minn. R. 7035.0300, creates confusion among those attempting to manage the system. Statute states that for commercial or manufacturing waste to be considered ISW, it must be disposed of as a separate waste stream. The rule states that all waste generated from industrial or manufacturing is ISW, as is solid waste generated from service and commercial establishments. This discrepancy leads to a potential undermining of the intent of the WMA to manage material according to the waste management hierarchy by creating legal loopholes to reclassify waste. This creates a system where waste that was previously treated as MMSW is now able to be landfilled at very low cost.

Misaligned tax incentives
Disposing of waste in an ISW landfill is less expensive than disposing of it in a MMSW landfill because ISW landfills do not receive the same level of regulatory scrutiny as MMSW landfills. This is due to different tax structures and the reduced regulatory burden on the ISW facilities. The $0.462 per ton cost of ISW is much lower than the 17% of the sales price charged for MMSW (Table 7). The differences in the tax rates can lead to MMSW tax being about 20 times more expensive than Industrial tax.

Table 7. Solid waste management tax rate charged for different waste types.

<table>
<thead>
<tr>
<th>Type of waste</th>
<th>Solid waste management tax rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Debris</td>
<td>60 cents per CY or $2 per ton</td>
</tr>
<tr>
<td>Industrial Waste</td>
<td>60 cents per CY or $0.462 per ton</td>
</tr>
<tr>
<td>MMSW Commercial</td>
<td>17% of sales price</td>
</tr>
<tr>
<td>MMSW Residential</td>
<td>9.75% of sales price</td>
</tr>
</tbody>
</table>

The regulatory burden is also lighter at ISW landfills because they are not subject to CON, and there are no statutory goals for landfill abatement of materials that are handled as ISW.

Minnesota Management and Budget has also noticed a couple of trends in the tax data. In Figure 9, the blue line shows non-MMSW tax receipts for the state of Minnesota. The red line shows industrial economic activity over time and the green line shows construction investment over time. The blue line should be somewhere between the two lines (or at least in near the line with a similar trend). Prior to 2009, the blue line was in close proximity to the actual production in the State. Since 2009, non-MMSW tax receipts are growing at a rate that is much higher than the rate of actual industrial and construction activity, which is not consistent with past trends and is also curious because the tax is directly connected to volume of waste generated. The non-MMSW tax is more connected to waste generation than the MMSW tax is.
Figure 9. Non-MMSW tax with industrial and construction economic activity

*The economic index is set at 1.0 for the year 1999. Values greater than 1.0 show more economic activity than 1999, values less than 1.0 show less economic activity. The index is valuable because it places all three variables on the same scale.

Figure 10 shows the relationship with the Minnesota MMSW tax compared with actual economic activity of the national solid waste industry. Prior to 2003, the MMSW tax was in line with the national economic growth. However, since 2003, the tax has not kept up. Since 2009, that divergence has grown more quickly. This chart combined with the chart above, show that the MMSW tax is growing more slowly than it should be and the non-MMSW tax is growing more rapidly than it should be. These charts combined with the rapid growth in non-MMSW and stagnant growth of MMSW speak to the MPCA's concern about waste classification.
Importance and benefits of focusing on non-MMSW

Non-MMSW has strong connections to sustainable materials management. The EPA has demonstrated that concrete and carpet have relatively higher environmental impact compared to other materials (https://www.epa.gov/sites/production/files/2015-11/documents/sfhomes.pdf). In Minnesota, these impactful materials are part of ISW, but the WMA primarily focuses on MMSW management. The non-MMSW portion of the waste stream is growing very quickly and in twenty years could result in generating nearly 13 million tons per year by 2036 (Figure 11). The non-MMSW forecast was generated using non-MMSW data from facilities that accept TCMA waste. The 2009 – 2015 time period used in the forecast was chosen because the recession between 2007-2009 created a new baseline. This forecast may include non-MMSW generated outside of the metro area as well as MMSW counted as ISW. Expanded analysis of this waste stream will be necessary for a more accurate forecast.

In order to meet long-term environmental goals in the State, statutory recycling goals should be established for C&D and ISW. Expanding the focus to all solid waste will impact the way we measure recycling in the future.
Increasing the recovery of C&D and ISW in the TCMA could yield benefits ranging from reduced environmental impact to job creation. Waste Cap in Wisconsin has demonstrated an ability to recycle or beneficially use 88% of the material generated at their demolition and deconstruction sites. In addition, they have focused on finding local markets for their material, leading to increased job opportunities in Wisconsin. Requiring the recycling of construction debris in the TCMA could greatly reduce the amount of C&D waste going to land disposal.

**Priority strategies**

The following recommendations will drive the TCMA toward a system where all solid waste is managed effectively and the state of Minnesota realizes the greatest environmental benefit.

- MPCA should ensure that state buildings are in compliance with Section 16B.327 which details recycling requirements for C&D waste.
- Counties should ensure that projects that receive general obligation bond funding from the State of Minnesota are in compliance with the B3 guidelines ([http://www.b3mn.org/guidelines/m_3.html](http://www.b3mn.org/guidelines/m_3.html)).
- Counties should work with their cities to adopt ordinances that require waste plans for demolition/deconstruction projects if more than 1500 square feet is being remodeled or demolished. Plans should include a reuse and recycling rate, require reporting the materials recovered as well as landfilled with the amounts broken out by weight and end markets to the county or city, as well as a pre-demolition inspection. SCORE money could be used to help encourage participation.
  - Begin by implementing a deconstruction and demolition checklist (Ramsey County model).
• MPCA should perform a capacity study for recycling and reuse of demolition debris, so that the markets can be supported for these materials.

• Once the capacity study is complete, counties or cities should adopt ordinances that require the waste plan with specific recycling/reuse goal. Ordinances can utilize a phased approach, starting with public entities.

• All entities implementing the solid waste system shall correctly classify MMSW and ISW.
  o MPCA should clarify the meaning and application of statutory and rule definitions of MMSW and industrial solid waste.

• Waste composition studies must be conducted at all disposal facilities that accept waste from the TCMA.
  o Waste-to-energy facilities are currently required to conduct waste composition studies every five years. This requirement should be extended to all disposal facilities for consistency. The data provides important trend information on waste composition (types and quantities of materials disposed). The addition of landfill information will help policy, planning, and implementation efforts, such as assessing capture rates. This requirement should include all landfills.

**Recommended strategies**

• Develop more comprehensive measurement of the industrial and C&D segments of the solid waste stream
  o Collect data on recycling/reuse that occurs with these material types in addition to the disposal

• Identify material streams that are ready for capture and identify viable end markets for those materials. One group that would be well suited for something like this would be a Sustainable Materials Advisory Group should one be formed. Some possible materials with existing markets are:
  o Wallboard
  o Shingles
  o Lumber
  o Carpet
  o Concrete

• Develop educational programs for construction professionals about advanced construction and demolition waste diversion techniques (Alameda County, CA)

**Recycling market development**

**Traditional recycling markets**

Recycling market development (RMD) creates and maintains demand for recyclable materials by developing end markets for them. RMD looks at the highest and best use of post-consumer discards that are collected from the waste stream. Material that is recycled and reintroduced as a feedstock into a manufacturing process continues to generate economic activity. Focus should be on our local economies, investment in new products from recycled material, materials recovery facility (MRF) new technologies, and keeping jobs and tax dollars in Minnesota.
During the 1990s, the state of Minnesota and private industry invested millions of dollars in developing recycling end markets. The success of the current collection system and end markets for recycling that are in place today directly reflect those investments. In the 2000s, the investment pace in Minnesota slowed down considerably on the end market side because of industry consolidation and closure due to the increased amount of material being exported to China. However, China also imported millions of tons of recycled material from our domestic market. They were willing to pay above-market prices even for contaminated loads. China’s borders closed to all but the cleanest, most organized loads in 2013 with the institution of the Chinese government’s Green Fence policy. The lack of investment in domestic markets since 2000 meant the domestic market could not absorb the increased amount of material, which resulted in dramatic price drops for recyclable material. Local markets are usually less volatile and more cost effective than foreign markets, support the local economy, and provide jobs.

**Priority strategies**

**Research best practices for MRF optimization**
Contamination is a big concern at MRFs. Plastic bags gum up the system, shredded paper contaminates plastic bales, and glass gets crushed to an unusable size and unfortunately, some residents put non-recyclable items into their single sort bins. All these factors lead to an increase in the amount of residual material that must be disposed of vs. recycled. There are new technologies that could help MRFs attain a cleaner, higher value product. MPCA, TCMA counties, MRFs and other partners should work together to research the best equipment available and best operational practices to increase yield of recyclables and reduce contamination.

**Invest in new technologies and equipment for sorting**
The MPCA, TCMA counties, MRFs and other partners can use the recommendations from MRF optimization research to inform MPCA grant and loan priorities. This may require that the state seek federal funding and private equipment manufacturer funding as well.

**Expand the capacity for existing markets, specifically glass, paper, and film**
Glass continues to be a commodity with negative value. The issue stems from the size of crushed glass at the end of the MRF process. These small pieces can also be contaminated with bits of paper, plastic, and batteries. The amount of film, specifically agricultural plastic and boat wrap, has exploded in the last few years. It is preferable to recycle this material rather than landfilling or burning onsite as much of it is now. Paper, while stable at the moment, is another material that could lose its value. Commodity availability and pricing is fluid and other materials may also need assistance. The MPCA, industry representatives, counties, and recycling organizations should work together to coordinate material quality, collection, and markets for these three materials in particular.

**Develop innovative financing in order to build local infrastructure and capacity**
Infrastructure and investment in the 1990s was critical for developing and maintaining markets within the TCMA and throughout Minnesota. It will take a second wave of investment to maintain and expand Minnesota’s established and new recycling markets. The MPCA should investigate how this can be implemented by 2019. Possibilities include green bonds and alternative financing that will meet the needs of the public and private sectors.

**Develop additional processing capacity for non-traditional materials such as shingles, wallboard, and carpet**
These materials are available in large quantities, but lack industry education and a formal collection system. MPCA should work with industry representatives, counties, and recycling organizations to coordinate material quality, collection, and markets for these non-traditional materials.
Create a sustainable materials advisory group
This dedicated, multi-interest group is needed to help guide the direction of SMM activities, including RMD in Minnesota. Representatives from various state agencies (such as but not limited to: MPCA, Department of Employee and Economic Development, Agriculture, Commerce, and Revenue), counties, cities, businesses, and the recycling industry should be included. Working with counties on specific end markets would benefit the entire region. The advisory group should be formed by mid-2017. The final advisory group structure, mission statement, etc. will be determined by the stakeholder group made up of the representatives listed above.

Organics markets
In Minnesota, over 30% of what we throw away is compostable (food, soiled paper, etc.). MPCA, along with many cities in the TCMA, is working to bring organics collections to curbside containers, sports facilities, and commercial businesses. If this material can be captured, it would put a big dent in the required 75% recycling rate in the TCMA. There are opportunities to reduce the amount of food that is not eaten and move food waste to higher and better uses such as food to people and animal feed. The rest should be made into compost, used to feed livestock, or rendered. More end markets are needed for compost.

Priority strategies
Expand the use of compost in Minnesota Department of Transportation’s (MnDOT’s) and in local government transportation infrastructure projects.
Use of compost in roadside and other construction projects has many benefits. Compost helps amend soils so they are better equipped to support plant growth, prevent erosion and infiltrate runoff to prevent pollutants from entering lakes and streams. A number of communities have established practices that have incorporated use of compost into routine operations. For example, Maryland recently adopted legislation, Chapter 430 (House Bill 878) that lays out specific circumstances when the State Highway Administration will use compost and compost-based products. Implementing similar specifications into Minnesota’s public construction efforts would help expand markets for compost and ensure that those projects are conducted in a way that better protects Minnesota’s lakes, rivers and streams.

The MPCA should work closely with MnDOT to identify strategies to increase the use of compost.

Assist local governments in adopting policies that require the use of compost in new construction projects.
A number of communities have established requirements that local governments use compost in any construction project. For example, the city of Denver has a Soil Amendment Program that requires new residential, commercial, industrial and government properties to use compost so soil more effectively retains water. Details about the Denver program can be found here: http://denverwater.org/Conservation/SoilAmendmentProgram/

Similar policies have been adopted elsewhere including communities like Leander, Texas; Fort Collins, Colorado; Montgomery County, Maryland; (http://www.biocycle.net/2014/10/20/ordinances-to-amend-soils-boost-compost-demand/) and Eagan, Minnesota. Other communities have developed voluntary programs and paired them with financial incentives to encourage better management of stormwater.
These recommendations are typically adopted by communities primarily because of concerns about water pollution. The benefits they have for expanding markets for compost are usually not the primary motivation. That said, by promoting and expanding use of compost the composting industry is in a position to be more successful.

**Emerging technology**

The solid waste system is constantly evolving. Waste materials change and the technology to separate the materials generated improves. These changes generally improve our ability to divert more material from land disposal; however, they also often create challenges. A challenge with new technology is that the MPCA does not currently have specific rules directing the specific permitting of some new types of waste processing systems. The permitting process for some of these types of facilities is largely straightforward, but the MPCA struggles with policy decisions around technologies that do not fit neatly into current rules and the Solid Waste Management hierarchy. There are also challenges with fully understanding the environmental impacts of some of these new technologies. For example, the MPCA can permit a facility to operate and ensure that it does not have direct adverse impacts on the environment and human health. However, the facility may pull materials from a higher and better use, so that creates policy concerns and the permitting process will likely take longer than it would for an established technology. Examples of this could include: plastic beverage containers going to a waste to energy facility rather than being recycled or paper being composted rather than recycled. It also creates issues when facilities ask for tax-exempt status because they should be considered recycling, or a county wants that particular technology to count towards their recycling goal.

Due to this challenge, the MPCA needs to develop a system for evaluating not only new technology, but also existing technology via life cycle analysis. This system would allow the MPCA to more quickly and confidently make policy decisions about the environmental impacts of a new facility wishing to locate in Minnesota. It would also allow the MPCA to compare the impacts of the proposed facility to other types of solid waste facilities and processes in the state, region, and beyond.

**Priority strategies**

**Conduct a study on anaerobic digestion for the region.**

The MPCA will conduct a study on the environmental impacts of different methods of anaerobic digestion (including the energy outputs, feedstocks and digestate) to determine how this technology fits into the waste management hierarchy. Does anaerobic digestion more closely align with composting, waste to energy, or should it be its own tier of the hierarchy? If so, where should that tier fall? The MPCA will begin by looking at the updated Plan calculator (https://www3.epa.gov/warm/Warm_Form.html) as developed by EPA and other available research.

**Develop a process for gathering the information necessary to make more timely and consistent policy decisions by 2020.**

The MPCA should evaluate the various levels of the hierarchy using a life cycle perspective, which will help the MPCA with future policy decisions around new technologies by providing a basis for comparison. The evaluation should include:

- Identification of existing life cycle analysis, such as EPA’s decision support tool (https://mswdst.rti.org/), research about waste management methods, including, but not limited to, land disposal, waste to energy, composting, anaerobic digestion, plastics to oil, recycling, and food to livestock.
- Identification of gaps in life cycle analysis data and research funds needed to fill those gaps.
• Development of solid waste life-cycle policy recommendations.
• Apply knowledge from these studies to develop a framework for preferred technology.

Product stewardship

Defining which entities should have responsibility for which tasks is an important concept. Since 1980, the government’s role is no longer one of being a "caretaker" for waste produced by residents and businesses, but one of allocating responsibility for waste to those who produce it. The costs of proper management must be reflected in the prices paid for services, incorporating the true costs of waste management and thereby encouraging more environmentally sound options. Research and experience have shown that environmentally sound, up-front management decisions are cost-effective for businesses.

Product stewardship is a strategy through which all parties involved in designing, manufacturing, selling and using a product share in the financial and physical responsibility for collecting and managing products in an environmentally sound manner at every stage of that product’s life. Manufactured goods and packaging are about three-fourths of the material that becomes MMSW. Products and packaging may contain hazardous materials, and some can be expensive to manage as waste. Product stewardship spreads the responsibility for products that become waste beyond government, to the manufacturer and consumer. Ultimately, product stewardship is about facilitating movement of materials up the waste management hierarchy.

This Plan promotes generator and producer responsibility. Generators and product producers share responsibility for waste produced, and costs for waste disposal should be borne in the present by producers and generators and not deferred to future generations. Better waste management can be driven through incentives, visible costs, and effective pricing signals. Incentives for waste reduction and recycling, separate management of organic wastes, and resource recovery can be provided through pricing of solid waste management services, product stewardship requirements, tax incentives, or fees on disposable items. Costs should be visible to, and understandable by, those paying for system services.

Priority strategies

Counties report annually on the management of priority materials for product stewardship.
The MPCA has identified several priority materials for product stewardship – carpet, mattresses, mercury-containing lamps, primary batteries, agricultural plastic, and plastic boat wrap. In order to understand the potential impacts of product stewardship for these materials, the MPCA needs more data on the current management system. Counties should annually report data on the weight of carpet, mattresses, mercury-containing lamps, and primary batteries managed within the county. The report should also include the annual cost to the county to manage each material type.

Reconstitute the SWMCR’s Product Stewardship committee.
The advancement of product stewardship in the region relies on partnerships. A committee, composed of a representative from each metropolitan county, could focus on advancing the product stewardship agenda in the TCMA. The committee could be a focal point for data collection and analysis for products considered for product stewardship initiatives. The committee could also work in consultation with the MPCA and others regarding statewide initiatives.
Part Four: Implementing the plan

Solid waste master plans

Minn. Stat. § 473.803 requires the TCMA counties to prepare master plans that implement this Plan. Any solid waste activity within the seven-county region must be consistent with the Plan and the county master plans. Several options exist for the development of county solid waste master plans, including the development of a regional implementation plan, development of some aspects of the county master plans by a regional entity, or the development of individual county master plans. The approach taken will be decided in discussions between the MPCA and counties.

The counties must submit master plans to the MPCA in accordance with the schedule specified in this Plan. The master plans must be comprehensive and describe the relevant policies and implementation plans and strategies. The master plans must describe the activities to be implemented by counties, cities, and townships and the private sector.

Components of a master plan

1. Set specific, quantifiable objectives and establish measures and timeframes to meet the system objectives identified in Part Three, Table 1.
2. Incorporate all elements of individual county master plans as required by Minn. Stat. § 473.803.
3. Identify and prioritize strategies that best implement the MMSW system objectives; give preference and identify which strategies best promote inter-county regional implementation, such as regional designation, organized collection, and hauler collected fees. Identify where other stakeholders’ assistance and what type of assistance is necessary.

The MPCA will review county master plans in accordance with the requirements of Minn. Stat. §§ 473.149, 473.803, and 473.848. The master plans must conform to and implement the Plan and be compatible with each other. If the MPCA Commissioner does not approve a master plan, the county must submit a revised master plan within 90 days. County master plans and any regional master plans shall be completed and submitted to the MPCA within nine months after the adoption of this Plan (see Appendix D).

MPCA initiatives that will be used to support the plan

The MPCA intends to implement the Plan with the following initiatives:

1. Enforce all laws and rules where the MPCA has the authority, including:
   a. The metropolitan restriction on disposal of MMSW law, Minn. Stat. § 473.848, as part of solid waste facility permit decisions.
   b. The Public Entities law, Minn. Stat. § 115A.471 to require all levels of government comply with County Solid Waste Plans.
   c. The CON law, Minn. Stat. §§ 115A.917 and 473.823, that restrict landfill capacity as part of (CON) decisions.
   d. Solid waste rules including permits and operating requirements.
   e. Other statutes in the WMA that the MPCA is charged with enforcing.
2. Begin to transition to a SMM approach focused on minimizing environmental impact and emphasizing the use of life-cycle analysis.
3. Prioritize solid waste rule-making to advance the needs of the metropolitan area to meet the goals of this Plan, in consultation with the counties.

4. Consider policy initiatives that implement the Plan, with particular emphasis given to regional solutions and new tools, as well as modification of existing tools, which restore accountability in the system. This may include identifying policy initiatives in consultation with the counties.

5. Provide research where possible, support and technical assistance to clarify and remove barriers and provide clear and consistent direction.

6. Work to develop markets for recyclable and compostable materials to ensure adequate infrastructure for the increase in recycling and composting rates.

7. Review and adapt the methods used to evaluate the regional solid waste system, including the types of data collected and methods of collection.

8. Begin to permit and regulate waste activities based on environmental risk rather than based on point of generation.


Implementation of these initiatives may require additional funding.

**Implementation monitoring**

**County annual reports**

TCMA counties are required to submit annual solid waste reports to the MPCA for approval (Minn. Stat. § 473.803, subd. 3). The reports must provide information on waste generation and management activities, as well as progress in achieving the policies and objectives in the Plan. If the MPCA finds that the reports indicate that the counties are achieving the landfill abatement results required under law, the reports will be approved. Any report that does not demonstrate compliance with the criteria will be disapproved (see Appendix D).

**Legislative reports**

The MPCA must submit a Metropolitan Abatement Progress Report (progress report) to the Legislature by July 1 of each odd-numbered year that describes the progress made in implementing the Plan, including an assessment of whether the objectives of the TCMA abatement plan have been met and whether each county and each class of city within each county have achieved the objectives set for it in the Plan. The progress report must recommend any legislation that may be required to implement the Plan.

Previously, the MPCA used the Solid Waste Policy Report, which was submitted biannually to the Legislature, to communicate progress on Plan implementation. In 2012, the Legislature changed the submittal schedule for the Solid Waste Policy Report from every two years to every four years, making it incompatible with the submittal schedule for the progress report. Based on this change, the MPCA will submit a separate progress report by July 1 of each odd-numbered year.

If in any year the MPCA reports that the objectives of the Plan have not been met, the MPCA must evaluate and report on the need to reassign governmental responsibilities among cities, counties, and TCMA agencies to assure implementation and achievement of the TCMA and local abatement plans and objectives (Minn. Stat. § 473.149, subd. 6).
Metropolitan Landfill Abatement Account

Minn. Stat. § 473.844 authorizes the MPCA to award grants in the TCMA for landfill abatement activities. Funding for the Metropolitan Landfill Abatement Account (MLAA) programs is generated from the Metropolitan Solid Waste Landfill Fee, a $2 per cubic yard or $6.66 per ton surcharge on MMSW disposed of at the two landfills in the TCMA, and interest earned on investment of this money. Of the money collected, 25% is directed to the Metro Landfill Contingency Action Fund and 75% to the MLAA.

The MLAA program is designed to assist the TCMA in meeting region-wide goals for landfill abatement. The MLAA program is intended to assist in establishing an integrated and coordinated solid waste management system in the TCMA, consistent with the WMA hierarchy (Minn. Stat. § 115A.02), and implement the policies and programs outlined in the Plan. 50% of the funds in the MLAA are dedicated to the Local Recycling Development Grant (LRDG) program and the remaining 50% are discretionary funds allocated to the MPCA for distribution to support landfill abatement. In 2014, just over $2.1 million was distributed to the metropolitan counties under this program. The availability of this funding is based on land disposal of MMSW at the two metropolitan area landfills, and changes to disposal patterns and rates will impact the total amount available.

The LRDG program provides grants to the seven TCMA counties. The LRDG program is designed to implement new activities or to enhance or increase the effectiveness of existing yard waste composting and recycling programs within the TCMA. TCMA counties are required to support and maintain effective municipal recycling as a condition of receiving LRDG funds. All activities funded through the LRDG program must be consistent with this Plan and the county’s master plan.
Appendix A: Overview of the current Twin Cities Metropolitan Area solid waste management system

In 2015, the TCMA generated an estimated 3.3 million tons of mixed municipal solid waste (MMSW). Residential waste is estimated to make up 45% of the MMSW and commercial, industrial, institutional (CII) waste makes up the remaining 55%. Approximately 4 million tons of non-MMSW (such as demolition debris (C&D), industrial waste, and medical waste) was managed in the TCMA and surrounding counties and sent to C&D and/or industrial waste landfills. The TCMA solid waste infrastructure is comprised of private and public entities that collect, transport, recycle, recover and land dispose the materials generated by homes, businesses, and institutions.

Description of the system

Minn. Stat. ch. 115a and 473 mandate a two-fold strategy: 1) pursue the highest methods of solid waste abatement through source reduction, reuse, recycling, organics recovery and resource recovery; and 2) minimize the use of landfills and ensure landfills are environmentally sound. The metropolitan counties have the primary responsibility for planning and managing an integrated solid waste system. Over the past 10 years, that system has had an MMSW recycling rate of approximately 40%; increased the recovery of demolition and construction wastes; provided support to a system of resource recovery facilities that turned solid waste into renewable energy; implemented organics diversion programs and capacity; and initiated source and toxicity reduction and public awareness activities.

Waste composition

In 2013, an analysis of the composition of MMSW deposited at landfills and resource recovery facilities was conducted by the MPCA. Ramsey and Washington counties conducted a similar study at their Recycling and Energy Center in 2014. An average for the TCMA was calculated based on data from these two studies. The amount of material being disposed in the TCMA, identified by material type, is shown in Figure A-1.

Collection

The metropolitan counties license approximately 225 waste hauling businesses to collect and transport MMSW. Waste haulers that collect and transport of non-MMSW, recycling or organic waste are not licensed. State law requires waste haulers to provide volume-based service. Most TCMA communities allow residents and businesses to choose the waste hauler that provides their service, referred to as “open collection.” Some TCMA cities and townships (including Minneapolis) arrange for the service by contract or provide their own service, referred to as “organized collection.” Communities with organized collection represent 30% of the households in the TCMA (although not all multi-family residences in these cities are included in these services). There are no organized collection arrangements for commercial waste, although some communities allow small businesses access to organized collection services.
Residential recycling collection services are provided by either contract with an individual hauler or by municipal contract. In the TCMA, 67 municipalities contract for service which represents 58% of the households in the region. Commercial recycling collection services throughout the region are provided by subscription service.

After source separation the remaining waste is hauled directly to a resource recovery facility or land disposal facility, or may be taken to a transfer station for compaction and transport to facilities located farther away. In the TCMA, there are 19 transfer stations, of which 14 are licensed to accept MMSW and 5 to accept only C&D waste. One transfer station is publicly owned and the remaining privately owned.

**Toxicity reduction**

Waste that is hazardous as defined by federal and state laws and local ordinances pose environmental and public health and safety risks. Toxicity reduction is an effort to manage the risks associated with the hazardous character of waste.

The TCMA addresses the hazardous character or toxicity of waste in two ways. The first is aimed at residents and consists of efforts to encourage reduction of wastes with hazardous character, coupled with a network of household hazardous waste (HHW) programs operated by counties. The second is aimed at commercial generators of hazardous waste and includes regulating under the federal Resource Conservation and Recovery Act standards for businesses in the TCMA.
Household hazardous waste collection programs play an important role in removing toxic materials from the waste stream. Each of the metropolitan counties has at least one year-round site for the collection of HHW, and most augment that site with seasonal, temporary, satellite, or special one-day collections. A Reciprocal Use Agreement allows residents to use any of the HHW collection sites located in the six Solid Waste Management Coordinating Board (SWMCB) counties.

Of the waste received by HHW facilities, a high percentage is recycled or fuel-blended, or taken from product exchange shelves for reuse. Approximately 10 to 15% of the HHW cannot be reused, recycled, or fuel-blended and is managed at hazardous waste incinerators or landfills.

**Recycling**

Residential recycling programs consist of curbside collection and drop-off sites, and include recycling services for both single-family and multifamily housing. Curbside recycling programs in the TCMA are provided by haulers through a contract with a municipality or are provided through subscription service. Most counties provide some funding for municipal programs. The private sector, municipalities, and two counties provide numerous public drop-off locations for one or more types of recyclables.

Many businesses have active recycling programs, and commercial recycling accounts for most of the recycling in the region. The success of the region's recycling program is not only a result of county and city efforts, but of the significant contribution the private sector has made through the development of markets; provision of drop-off locations; and the many elements needed to develop the recycling infrastructure.

Recyclables collected are taken directly to a recycling market, a recycling broker, or to a materials recovery facility (MRF). Materials commonly recovered for recycling include:

- Paper/fiber (including corrugated, mixed paper, newspaper, office paper, magazines, phone books, boxboard)
- Glass bottles
- Metals
- Plastic bottles and film
- Food waste (to animal feed)
- Other organic materials
- Wood pallets
- Tires
- Used oil
- Appliances
- Batteries
- Mattresses
- Electronic waste

Presently, eight businesses operate MRFs that manage residential recyclable materials generated in the TCMA: Waste Management in Minneapolis; Allied in Minneapolis; Allied in Inver Grove Heights; Eureka Recycling in Minneapolis, DemCon in Shakopee, Dick’s Sanitation (Recycle Minnesota) in Lakeville, Randy’s Sanitation in Delano, and Tennis Sanitation in Saint Paul Park. In 2008, the materials recycled came from these sources: 73% from CII recycling; 23% from residential recycling; and 4% from mechanical / hand-sort recycling. Historically, 20 to 25% of the residential waste and about 50% of CII waste is recycled.
Yard waste

Yard waste is prohibited by state law from being mixed with the MMSW, landfilled, or processed at resource recovery facilities. Yard waste is collected either by MMSW haulers using separate collection vehicles, special yard waste collectors (such as lawn services), or by residents who drop off yard waste at collection sites. A few cities also offer the collection of yard waste mixed with other organics for composting. Yard waste is managed through county, municipal, and private programs. Two counties operate yard waste collection sites that allow citizens to drop off yard waste and pick up compost. However, municipalities or private firms sponsor most yard waste sites. Documented yard waste volumes are now reported to the MPCA. 146,540 tons of yard waste was reported in the TCMA in 2015. Some counties did not report yard waste, so the documented tonnage is less than what was actually managed.

The yard waste ban appears to be largely effective, since the 2013 Waste Composition study found only 2.9% of the material at landfills and resource recovery facilities was yard waste. A 2013 EPA report, Advancing Sustainable Materials Management: Facts and Figures 2013 Assessing Trends in Material Generation Recycling and Disposal in the United States, estimated that yard waste accounted for 13.5% of all waste generated nationally.

Organic waste management

Organic materials account for a larger portion of the MMSW currently sent to landfills and resource recovery facilities. The 2013 Waste Composition study identified 31% of the waste stream as organic and an additional 9.8% as compostable paper. Organics recovery programs include food rescue, food-to-livestock, and composting. Mixed waste processing to capture organic material has also been suggested as a method for capturing organics, although there are currently no active programs in the TCMA utilizing this approach. Each management method has different requirements regarding what materials are acceptable but it is clear there is substantial opportunity to reduce or recover organic materials that are currently ending up in the trash.

A portion of the compostable paper identified in the 2013 waste composition study is likely not suitable for composting. Items like freezer boxes and cups from fast food establishments frequently have plastic lining and as such, beginning in 2016, many composters have begun to educate recyclers to exclude those materials. Therefore, a conservative assessment of the quantity of compostable paper available would suggest that the number is lower than 9.8%. Despite this complication, items like napkins, paper towels, pizza boxes, and unlined paper plates, cups, and bowls are accepted in composting programs along with compostable plastics and food scraps.

Progress has been made in recovering organics in recent years although access to organics collection remains a challenge for many Minnesota residents and businesses. Several cities, including Minneapolis and St. Louis Park, are offering organics collection to residents citywide. A 2013 survey conducted by the MPCA of city recycling programs suggests that only about 8% to 9% of the state’s population has access to curbside organics collection. Most of the curbside access is through subscription-based programs where residents opt in and pay a fee to participate. A number of other cities that utilize open collection systems for providing trash service also have one or more hauler providing organics collection. The 2013 survey also suggests that access to organics drop sites is more prominent, but still only about 23% of the state’s population have an organics drop-site in their city. Individuals willing to self-haul their organics have access to drop sites in Carver, Dakota, Hennepin, Ramsey, and Scott counties.

Curbside collection primarily utilizes one of three methods:

- Collecting organics curbside in a cart – including only food scraps, non-recyclable paper and compostable plastics
• Co-collecting organics with yard waste
• Co-collecting organics, in a durable compostable bag, with MMSW (sorting facilities to remove compostable bags are required with this model).

A fourth method has also been identified in recent studies as a potential option:
• Co-collecting organics with curbside recyclables (in a truck with separate compartments)

The TCMA is currently served by a number of food rescue organizations, five food-to-livestock operations with garbage feeder permits (able to accept meat and vegetative food scraps), three large scale composting operations that are permitted to accept source separated organics, and many yard waste composting facilities. In general, these facilities have indicated they have the capacity to handle larger volumes of material. Transfer capacity, route density, and access to hauling service remain a challenge.

In 2015 the legislature increased SCORE funding for the state’s 2015 and 2016 fiscal years. The Legislature also required TCMA counties to spend half of the new funding on organics. The counties’ obligations for organics spending are listed in Table A-1.

Table A-1. Organics obligation by county for FY2015-2016

<table>
<thead>
<tr>
<th></th>
<th>FY2015 Organics Obligation</th>
<th>FY2016 Organics Obligation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anoka</td>
<td>$116,810.50</td>
<td>$85,906.50</td>
</tr>
<tr>
<td>Carver</td>
<td>$33,337.00</td>
<td>$26,689.50</td>
</tr>
<tr>
<td>Dakota</td>
<td>$138,111.50</td>
<td>$103,145.50</td>
</tr>
<tr>
<td>Hennepin</td>
<td>$406,882.00</td>
<td>$315,556.50</td>
</tr>
<tr>
<td>Ramsey</td>
<td>$180,243.50</td>
<td>$136,467.50</td>
</tr>
<tr>
<td>Scott</td>
<td>$48,916.50</td>
<td>$38,462.00</td>
</tr>
<tr>
<td>Washington</td>
<td>$86,516.00</td>
<td>$64,323.50</td>
</tr>
<tr>
<td></td>
<td>$1,010,817.00</td>
<td>$770,551.00</td>
</tr>
</tbody>
</table>

TCMA counties reported collecting a total of 341,745 tons of organics in calendar year 2015. Table A-2 provides the total amount of organics recovery reported, by type, in the 2015 SCORE report for the TCMA counties.

Table A-2. Organics recovered in 2015 (in tons) (data from the 2015 SCORE report)

<table>
<thead>
<tr>
<th></th>
<th>Residential SSO</th>
<th>C/I/I SSO</th>
<th>Yard Waste</th>
<th>Food-to-livestock</th>
<th>Food-to-People</th>
<th>Other Organics</th>
<th>Total Organics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Total</td>
<td>1,632.83</td>
<td>35,810.64</td>
<td>146,538.73</td>
<td>115,277.31</td>
<td>7,149.56</td>
<td>35,336.28</td>
<td>341,745.35</td>
</tr>
</tbody>
</table>

The yard waste stream is primarily coming from residential sources. The food-to-livestock and food-to-people figures come from commercial sources. 2015 data suggest organics diversion is growing in Minnesota with an all-time high organics recovery rate of 10.2%.

Resource recovery

Four MMSW resource recovery facilities serve the TCMA. The Hennepin Energy Recovery Center (HERC) facility in Minneapolis uses a mass-burn technology, producing energy for district heating and electricity. The facility also recovers ferrous metal for recycling from the ash. HERC is limited by its state permit to burning 365,000 tons annually.
The Ramsey/Washington County Resource Recovery Facility (Recycling and Energy Center) is a refuse-derived fuel (RDF) facility owned by Ramsey and Washington counties. The facility was purchased by the two counties in 2016. Mixed waste is sorted into processible and non-processible waste on the tipping floor, processed, and separated into three waste streams: RDF, recyclable metal, and residue. The RDF is transported for combustion to Xcel Energy power plants in Red Wing and Mankato, where it is burned to generate electricity. The facility recovers ferrous and non-ferrous metals for recycling, and unprocessible waste and residue from processing is delivered to landfills. Recycling and Energy Center’s permitted capacity is 500,000 tons per year.

The Elk River Resource Recovery Project (GRE-Elk River) is an RDF processing plant owned by Great River Energy (GRE). Mixed waste is sorted into processible and non-processible waste on the tipping floor, processed and separated into three waste streams: RDF, recyclable metal, and residue. The RDF is transformed for combustion to GRE’s power plant in Elk River. The facility recovers ferrous and non-ferrous metals for recycling, and unprocessible waste and residue from processing is delivered to a landfill. GRE-Elk River’s permitted capacity is 547,000 tons per year.

The city of Red Wing (City) operates a RDF processing plant in Red Wing. Mixed waste is sorted into processible and non-processible waste on the tipping floor, processed, and separated into three waste streams: RDF, recyclable metal, and residue. The RDF is transported for combustion to Xcel Energy’s power plant in Red Wing. The facility recovers a variety of recyclable materials including paper, plastics, and ferrous and non-ferrous metals for recycling. Unprocessible waste and residue from processing is delivered to a landfill. The City’s permitted capacity is 30,000 ton per year.

The four resource recovery facilities have a combined permitted processing capacity of over 1.4 million tons per year. Facility operational capacity may vary from year to year and three of the four facilities accept MMSW generated outside the TCMA. Another factor to consider is that the operating capacity of three of the four facilities is presently not being fully used due to MMSW bypassing the resource recovery facilities to go to landfills. In addition, there is available unpermitted, but installed capacity of 40,000 tons per year at HERC.

**Landfills**

In 2015, 23% of the TCMA MMSW was land disposed. Seven landfills received TCMA MMSW, with 10% going to landfills located out of state. Figure A-2 shows which landfills received TCMA MMSW in 2015. The four Minnesota landfills receiving the majority of TCMA MMSW have a collective remaining permitted MMSW capacity of approximately 10.2 million cubic yards. If these facilities continue to receive waste at approximately the same rate in the future, the permitted capacity would range from 4.9 to 14 years. Notwithstanding, this does not take into account the additional design capacity that could potentially be permitted or practices that move materials up the waste management hierarchy.
The TCMA has two MMSW landfills, both located in Dakota County. The Burnsville Sanitary Landfill is located in Burnsville and is owned by Waste Management Inc. (WMI). The Pine Bend Sanitary Landfill is located in Inver Grove Heights and is owned by Allied Waste. Both landfills operate methane gas-to-energy systems that capture methane gas generated by the decaying waste. Two other Minnesota landfills that receive significant amounts of TCMA MMSW are the WMI Spruce Ridge Landfill in McLeod County and the WMI Elk River Landfill in Sherburne County. These also operate methane gas-to-energy systems. For the four Minnesota landfills that receive the majority of TCMA MMSW, while the efficiency of the gas collection systems has not been established, it is estimated that an average of 75% of the methane that is captured is used to produce electricity, and the remaining captured methane is flared.

Three out-of-state landfills received TCMA MMSW in 2015, including: the Advanced Disposal Seven Mile Creek Landfill in Eau Claire, Wisconsin, the Republic Services Lake Area Landfill in Sarona, Wisconsin, and the Rice Lake Landfill in Rice Lake, Wisconsin.

**Non-MMSW management**

The TCMA is served by nine landfills that accept industrial wastes and/or C&D debris, or non-MMSW. These landfills have approximately 25 million cubic yards of remaining capacity. Non-MMSW includes nonhazardous industrial waste, C&D waste, materials banned from disposal with MMSW, problem materials, infectious waste, and other waste streams that are not MMSW or otherwise defined or regulated as hazardous waste.

Materials separated for recycling at some C&D transfer stations and landfills, include concrete, bituminous asphalt, aluminum, copper, steel, brick, mattresses, appliances, and tires. Other materials have the potential to be separated and recycled from the C&D waste. Private businesses own and operate most of the TCMA facilities that manage non-MMSW. There is some public sector activity in managing certain non-MMSW materials in the TCMA, such as tree waste processing and crushing, and recycling concrete or road base material.
Appendix B: Environmental justice review

The Minnesota Pollution Control Agency (MPCA) is committed to making sure that pollution does not have a disproportionate impact on any group of people — the principle of environmental justice. This means that all people — regardless of their race, color, national origin, or income — benefit from equal levels of environmental protection and have opportunities to participate in decisions that may affect their environment or health. In December 2015, the MPCA released the “Environmental Justice Framework 2015-2018” (https://www.pca.state.mn.us/sites/default/files/p-gen5-05.pdf), which established the vision, strategies, and implementation actions for integrating environmental justice principles into the MPCA’s work, including a commitment to evaluate the environmental justice implications of program policies.

The following sections constitute the MPCA’s environmental justice review of the Metropolitan Solid Waste Management Policy Plan (Plan). Counties are strongly encouraged to complete an environmental justice review when developing their respective County solid waste master plans.

1. **Identification of potentially affected communities:** Identify facilities that are located in areas of concern for environmental justice, defined by the MPCA as census tracts (using data from the U.S. Census and American Community Survey) that meet one or both of these demographic criteria, consistent with the criteria established by the Metropolitan Council:
   - Total population of people of color greater than 50%
   - More than 40% of the population with income less than 185% of the federal poverty level

Figures B-1 and B-2 show solid waste facility locations and census tracts that are considered areas of concern for environmental justice. Areas marked with the “purple lines” are census tracts with more than 40% of the population earning income less than 185% of the federal poverty level – this translates to $52,614 per year for a family of four (http://familiesusa.org/product/federal-poverty-guidelines). Areas shaded in green are census tracts with greater than 50% people of color.
Table B-1 lists the facilities that the MPCA considers to be located within areas of concern for environmental justice.
<table>
<thead>
<tr>
<th>Recycling facilities</th>
<th>Transfer stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied Waste Recyclery of Minneapolis</td>
<td>Advanced Disposal Services Vasko Solid Waste Inc.</td>
</tr>
<tr>
<td>AMG - Alliance LLC - Saint Paul</td>
<td>Commercial Container Corp LLC</td>
</tr>
<tr>
<td>Broadway Resource Recovery LLC</td>
<td>Commercial Container Minneapolis Recycling/Transfer</td>
</tr>
<tr>
<td>Burg Electronic Recovery</td>
<td>Coon Rapids Recycling Drop Off Center</td>
</tr>
<tr>
<td>Eureka Recycling</td>
<td>Freeway Transfer Station</td>
</tr>
<tr>
<td>J&amp;J Recycling</td>
<td>Hennepin County Transfer Station &amp; Recycling Center</td>
</tr>
<tr>
<td>Northern Metal Recycling - Savage</td>
<td>Keith Krupenny &amp; Son Disposal Service</td>
</tr>
<tr>
<td>Tech Dump - Saint Paul</td>
<td>Malcolm Avenue Recycling &amp; Transfer</td>
</tr>
<tr>
<td>Waste Management Recycle America</td>
<td>Minneapolis Northside Transfer Station</td>
</tr>
<tr>
<td><strong>Compost sites</strong></td>
<td></td>
</tr>
<tr>
<td>Arden Hills Yard Waste Site</td>
<td>Ray Anderson &amp; Sons - Dumpster Box Services</td>
</tr>
<tr>
<td>Burnsville Yard Waste Compost Facility</td>
<td>Richards Asphalt Transfer Facility</td>
</tr>
<tr>
<td>City of Newport Compost Site</td>
<td>Shamrock Recycling &amp; Transfer Facility</td>
</tr>
<tr>
<td>Ramsey County Battle Creek Yard Waste Site</td>
<td>Tubs Inc</td>
</tr>
<tr>
<td>Ramsey County Frank &amp; Sims Yard Waste Site</td>
<td>Twin City Refuse Recycling &amp; Transfer</td>
</tr>
<tr>
<td>Ramsey County Midway Yard Waste Site</td>
<td>Veit Container &amp; Transfer Facility</td>
</tr>
<tr>
<td>Ramsey County Mounds View Yard Waste Site</td>
<td>Veit Disposal Systems STP Recycle Facility</td>
</tr>
<tr>
<td>Ramsey County Summit Hill Yard Waste Site</td>
<td>Waste Management - St Paul Transfer</td>
</tr>
<tr>
<td>South Saint Paul Compost Site</td>
<td>Xcel Energy - A S King Transfer Station</td>
</tr>
<tr>
<td><strong>Waste to energy/Refuse derived fuel facilities</strong></td>
<td><strong>Landfills</strong></td>
</tr>
<tr>
<td>Covanta Hennepin Energy Resource Co LP</td>
<td>AS King Ash Disposal Facility</td>
</tr>
<tr>
<td>Recycling and Energy Center in Newport</td>
<td>Burnsville Sanitary Landfill</td>
</tr>
</tbody>
</table>

1. **Impact and assessment**: Identify who is likely to be affected by the proposed policy. What are the impacts of the proposed policy on communities of concern for environmental justice? Will it create new disproportionate impacts or make existing disproportionate impacts on minority or low-income populations worse? Examples include impacts on health, quality of life (from noise or visual impacts, etc.), personal finances, etc.

The policies and strategies proposed in the Plan are intended to reduce the environmental impacts associated with waste. The first priority of the Plan is to ensure the proper management of waste to protect human health and the environment. The Plan also supports reducing waste and increasing recycling. Reducing the environmental impacts associated with waste is beneficial to all Minnesotans.

The TCMA is home to several waste management facilities – out of 125 facilities, 42 of these are located in areas of concern for environmental justice. Reducing waste generation would mean less material would need to be managed by these facilities. Meeting the landfill diversion goals established in the Plan would likely divert material from landfills to regional recycling, organics recovery, and waste to energy facilities, including the facilities located within areas of concern for environmental justice. The potential impacts include increases in traffic and noise, as well as potential impacts to air quality due to increased vehicular traffic and facility emissions.
If the objectives in the Plan are attained, the region may need more recycling and organics recovery facilities. These facilities would be subject to the standard process for new facility development, outlined in Appendix D. In addition, as described in the MPCA’s environmental justice framework when considering permit applications for new facilities and during renewal of existing permits for facilities located in areas of concern for environmental justice, the MPCA will:

- Identify facility and permit types that warrant additional actions based on the potential for adverse effects.
- Identify and evaluate additional measures, beyond meeting established permit limits, to avoid and diminish impacts.
- Increase civic engagement, public participation, and outreach for community groups and residents.
- Foster increased community involvement and actions on the part of the entities that we regulate.
- Consider ways to prioritize work in order to enhance benefits to areas of concern for environmental justice.

2. Impact review: What are the opportunities for action? If the proposed policy would result in negative environmental or socio-economic impacts, or would add to cumulative impacts to people of color and low-income populations, what steps could be taken to avoid or mitigate these impacts? Additionally, does the proposed policy present opportunities to address existing disproportionate impacts on people of color, low income, or indigenous populations? Develop a list of likely impacts and actions to ensure that negative impacts are mitigated and positive impacts are enhanced.

A large role of the MPCA is ensuring that facilities are properly permitted in order to minimize human health and environmental harm. During permitting for facilities in areas of concern for environmental justice, the MPCA can identify and evaluate additional measures, beyond meeting established permit limits, to avoid and diminish impacts. This could include changing processes or procedures, installing additional pollution control equipment, or otherwise achieving a lower level of pollutant release than required by state or federal requirements. The MPCA can also work with the permittee to incorporate these measures into the permit or supplemental documents as possible.

Compliance and enforcement are other tools the MPCA can use to mitigate potential impacts. The MPCA could determine that more frequent inspections at facilities in areas of concern for environmental justice is needed to ensure the facilities are meeting applicable regulations and permit conditions.

Consistent with the WMA hierarchy, this Plan prefers waste to energy to landfilling. Communities of concern for environmental justice have indicated their concern about air emissions from waste to energy facilities located within their boundaries. To reduce reliance on waste to energy and landfills, this Plan promotes best practices designed to reduce waste and increase recycling and organics recovery. While the MPCA recognizes that waste will continue to be processed at waste to energy facilities and disposed at landfills, the aggressive objectives established in this Plan encourage the TCMA to significantly reduce reliance on these less preferable management methods.

Certain strategies proposed in this Plan would directly benefit communities in areas of concern for environmental justice. For example, the Plan recommends implementing organized collection for MMSW. Organized collection is a more efficient method of managing trash and
can lead to reductions in illegal dumping, a common concern in lower income communities. Lower mobile source emissions and reduced truck traffic are additional benefits of organized collection.

The Plan also includes an environmental justice review in the permitting process – for new and existing facilities – to ensure that environmental justice concerns are addressed.

3. **Engagement**: How have you involved community members and stakeholders? What specific measures have been taken to engage community members in areas of concern for environmental justice?

   The MPCA sought feedback from members of the public through the initial pre-draft notice comment period required by state law, as well as through several public meetings. The public meetings were held in two different locations at two different times of day. The pre-draft notice, comment period opportunity, and public meeting notifications were posted on the MPCA website and emailed to multiple distribution lists, including a list of community members interested in environmental justice issues. The MPCA intends to hold two public meetings, including one in the evening, once the draft Plan is released and will take additional steps to reach out to community members in areas of concern for environmental justice.
Appendix C: Predrafting notice

Statement of subjects expected to be covered by revisions to the Metropolitan Area Solid Waste Policy Plan

Introduction
The MPCA has started the process to prepare revisions to the Metropolitan Area Solid Waste Management Policy Plan (Policy Plan). This will revise the current Policy Plan adopted by the MPCA on April 6, 2011. The new Policy Plan will be adopted by the MPCA Commissioner by December 31, 2016.

Revisions to the Policy Plan will be prepared in accordance with Minn. Stat. § 473.149. The Policy Plan must be followed in the Metropolitan Area. The Policy Plan contains goals and policies for solid waste management, including recycling and household hazardous waste management. The statute requires that the regional plan contain objectives to abate the need for and practice of landfilling of MMSW and of specific components of the solid waste stream, including residuals and ash, to the greatest extent feasible and prudent.

Overall approach and philosophy
The Policy Plan revisions will focus on:

- Reduction in the amount and toxicity of waste generated
- Separation and recovery of materials and energy from waste
- Reduction in land disposal
- Coordination of solid waste management among political subdivisions
- Broadening participation and accountability for integrated solid waste management (ISWM)
- Protection of public health and state’s air, land, water, and other natural resources

The Policy Plan will continue to support: treating waste as a resource; landfill abatement; waste and toxicity reduction; the proper management of all solid waste; abatement goals; region-wide waste processing; regional operations; and minimization of negative environmental impacts associated with waste.

The Policy Plan revisions will be developed consistent with the State policies and purposes expressed in Minn. Stat. § 115A.02 of the Minnesota WMA. The Policy Plan will support the WMA hierarchy of preferred waste management methods.


Description of How the Existing Solid Waste System Serves the Twin Cities Metropolitan Area
The Metropolitan Area’s current solid waste infrastructure has developed extensively since the passage of the 1980 WMA. In 2014, 78 percent of the region’s mixed MMSW was managed by recycling, organics management, and at resource recovery facilities.
The Policy Plan will describe the level to which the existing Metropolitan Area solid waste system has fulfilled the legislatively mandated purposes described in the WMA, including the WMA hierarchy and the policy that favors the provision of solid waste services by private businesses.

The Policy Plan will describe how the existing solid waste system benefits the Metropolitan Area, including the environmental benefits, and how the new plan proposes to increase those benefits. The Policy Plan will identify the waste volumes and types of materials managed by the different solid waste abatement methods and technologies.

The Policy Plan will show how an integrated solid waste system, consistent with the waste management hierarchy, protects public health, supports a vibrant economy, reduces emissions of air pollutants such as greenhouse gases, conservation of energy and resources, production of renewable energy, and can be improved through more effective governance, a more efficient collection system, broadened accountability, and additional landfill abatement.

**Metropolitan Area Solid Waste System Faces Some Challenges**

The Policy Plan will discuss some challenges that face the Metropolitan Area solid waste system, including, but not limited to: the system of local governance; integrated solid waste system accountability; collection of accurate and meaningful data; a need for effective secondary commodities management, and secondary commodities market development and opportunities to advance the concept of sustainable materials management.

**Solid Waste Management Facilities and Programs**

The SWMCB is a joint-powers board that coordinates many of the solid waste activities of six of the seven metropolitan counties. The MPCA will consult with the SWMCB, Scott County, and other interested stakeholders in the revision of the plan.

The Policy Plan will include goals and policies for solid waste management, including recycling consistent with Minn. Stat. §115A.551, and household hazardous waste management consistent with Minn. Stat. § 115A.96, subd. 6, in the Metropolitan Area.

The Policy Plan will include specific and quantifiable regional objectives for abating waste generation and reducing reliance on the practice of landfilling of mixed MMSW and other components of the solid waste stream. The objectives will be stated for a period of at least 20 years. The Policy Plan will include objectives for waste reduction, reuse, and abatement of solid waste through recycling, source separation of organic waste for composting, and resource recovery, for a period of at least 20 years.

The Policy Plan will identify the environmental and resource management benefits of waste processing. The Policy Plan will identify the quantities and geographic origin of waste requiring processing. The Policy Plan will also identify the available processing capacity, and the inter-county regional opportunities for the development of future processing capacity and opportunities for inter-county sharing of waste.

The Policy Plan will evaluate the state and regional governance structure and make appropriate recommendations that best fulfill the needs of ISWM. The Policy Plan also will explore issues beyond the Metropolitan Area jurisdiction that affect the regional solid waste system.

**Policy Plan Implementation Tools**

The Policy Plan will include procedures, standards and criteria regarding the MPCA review of: county master plans; annual waste certification reports; waste facility permits; certificates of need; waste designation, and solid waste supply contracts and processing agreements. The usefulness of these
reviews will also be examined to determine if some of them should be eliminated, changed or if others are needed.

The Policy Plan will include standards and criteria for the MPCA review of solid waste facility permits regarding the following matters: general location; capacity; waste supply; operation; processing techniques; environmental impact; effect on existing, planned, or proposed collection services and waste facilities; and economic viability.

**Timeline/Comment Period**

Comments on the predrafting notice should be sent to: peder.sandhei@state.mn.us

Comments must be received by the MPCA by 4:30 p.m., C.S.T., October 12, 2015. [Written correspondence may be sent to the following address: Peder Sandhei, Minnesota Pollution Control Agency, 520 Lafayette Rd. N., 2nd Floor, St. Paul, Minnesota 55155-4100].

If you wish to stay informed on the development of the Policy Plan, please submit a comment on the predrafting notice by the deadline indicated above. All comments will be published on the Agency’s Policy Plan website page and commenters will added to a stakeholder list and be notified of any future Policy Plan developments. If you do not submit a comment on the predrafting notice but would like to be included on future Policy Plan related distributions, please contact Mr. Sandhei.

The MPCA is required to prepare this predrafting notice to solicit public comments on the anticipated revisions to the Policy Plan. Public comments must be received within 45 days from the date of the publication in the State Register. Questions about the document or the process may be addressed to Peder Sandhei at 651-757-2688 or 1-800-657-3864 (toll-free in Minnesota).
Appendix D: Procedures, standards, and criteria

Minn. Stat. chs. 115A, 116 and 473 authorize the MPCA to formulate and set out procedures, standards, and criteria to implement the Metropolitan Solid Waste Management Policy Plan (Plan) 2016 to 2036 and facilitate the MPCA’s review of:

- Solid waste facility permit applications
- Solid waste supply and processing contracts
- Waste district proposals
- Waste designation proposals
- Landfill certificates of need proposals
- County annual and waste certification reports
- County solid waste master plans (master plan)

The MPCA will implement the Plan when conducting these reviews. Public and private entities subject to review are encouraged to contact the MPCA before preparing and submitting approval requests. The MPCA will coordinate its review with other applicable state and local procedures.

Solid waste facility terms and definitions

The MPCA will administer the Plan using terms and definitions used in Chapters 115A, 116 and Chapter 473 and related rules.

Solid waste facility permit applications

MPCA review of solid waste facilities is governed primarily by Minn. Stat. § 473.823. Minn. Stat. § 473.823, subd. 3(b) provides that a permit may not be issued for the operation of a solid waste facility in the metropolitan area which is not “in accordance with the Plan.” The statute also provides that in making this determination, “the commissioner shall consider the area wide need and benefit of the applicant facility and the effectiveness of proposed buffer areas to adequately protect surrounding land uses in accordance with the Plan, and may consider, without limitation, the effect of the applicant facility on existing and planned solid waste facilities.” In this section of the Plan, the MPCA establishes the procedures that will be applied for review of solid waste facility applications, including the information to be submitted in particular applications, when those applications will be requested, and how the MPCA will approve, disapprove, or conditionally approve such facilities.

Minn. Stat. § 473.823 is reproduced below

473.823 RULES AND PERMITS.

§ Subd. 3. Solid waste facilities; review procedures. (a) The agency shall request applicants for solid waste facility permits to submit all information deemed relevant by the commissioner for review, including without limitation information relating to the geographic areas and population served, the need, the effect on existing facilities and services, the effectiveness of proposed buffer areas to ensure, at a minimum, protection of surrounding land uses from adverse or incompatible impacts due to landfill operation and related activities, the anticipated public cost and benefit, the anticipated rates and charges, the manner of financing, the effect on metropolitan plans and development programs, the
supply of waste, anticipated markets for any product, and alternative means of disposal or energy production.

(b) A permit may not be issued for the operation of a solid waste facility in the metropolitan area which is not in accordance with the metropolitan policy plan. The commissioner shall determine whether a permit is in accordance with the policy plan. In making this determination, the commissioner shall consider the area wide need and benefit of the applicant facility and the effectiveness of proposed buffer areas to adequately protect surrounding land uses in accordance with the policy plan, and may consider, without limitation, the effect of the applicant facility on existing and planned solid waste facilities.

(c) If the commissioner determines that a permit is in accordance with the policy plan, the commissioner shall approve the permit. If the commissioner determines that a permit is not in accordance with the policy plan, the commissioner shall disapprove the permit. Approval of permits may be subject to conditions the commissioner determines are necessary to satisfy criteria and standards in the policy plan, including conditions respecting the type, character, and quantities of waste to be processed at a solid waste facility used primarily for resource recovery and the geographic territory from which a resource recovery facility or transfer station serving such a facility may draw its waste.

(d) A permit may not be issued in the metropolitan area for a solid waste facility used primarily for resource recovery or a transfer station serving the facility, if the facility or station is owned or operated by a public agency or if the acquisition or betterment of the facility or station is secured by public funds or obligations issued by a public agency, unless the commissioner finds and determines that adequate markets exist for the products recovered and that establishment of the facility is consistent with the criteria and standards in the metropolitan and county plans respecting the protection of existing resource recovery facilities and transfer stations serving such facilities.

Procedures for obtaining MPCA approval of solid waste facility applications

Coordination of MPCA review. For existing facilities, the MPCA will request information related to the solid waste facility and information required in the Plan at the time the applicant applies for reissuance of the permit. The MPCA may request information from facilities after the adoption of the Plan and modify permits to require the submission of information. For new facilities, the MPCA will request information related to the proposed solid waste facility and information required in the Plan at the time the application is submitted, except in the case of a new solid waste disposal facility. For a solid waste disposal facility, the MPCA will request information regarding the proposed disposal facility and information required in the Plan at the time the preliminary application is submitted under Minn. R. 7001.3075.

Basic information required. To obtain MPCA approval solid waste facilities permit applicants must include:

- Information relating to the geographic areas and population served, including highlighting areas of concern for environmental justice
- The need, including information that shows that new or expanded resource recovery and disposal facilities are consistent with MPCA most recent forecast of waste generation and waste management objectives
- The effect on existing facilities and services
- The effectiveness of proposed buffer areas to ensure, at a minimum, protection of surrounding land uses from adverse or incompatible impacts due to landfill operation and related activities
• The anticipated public cost and benefit
• The anticipated rates and charges
• The manner of financing
• The effect on metropolitan plans and development programs
• The supply of waste
• Anticipated markets for any product
• Alternative means of disposal or energy production
• Measurements of the types and the quantity, by types, of waste landfilled
• Additional information required by the commissioner, including but not limited to, environmental justice review criteria (see Appendix B for more information)

Standards/criteria for approval of solid waste facility permits as consistent with the Plan

Following receipt of a complete application, the commissioner shall determine whether a permit is in accordance with the Plan within 90 days. In making this determination, the commissioner shall consider

• The area wide need and benefit of the applicant facility.
• The effectiveness of proposed buffer areas to adequately protect surrounding land uses in accordance with the Plan.
• The effect of the applicant facility on existing and planned solid waste facilities.
• The requirements of Restriction on Disposal in Minn. Stat. § 473.848.
• For public facilities owned or operated by a public agency, or if the acquisition or betterment of the facility or station is secured by public funds or obligations issued by a public agency, the commissioner must find and determines that adequate markets exist for the products recovered and that establishment of the facility is consistent with the criteria and standards in the metropolitan and county plans respecting the protection of existing resource recovery facilities and transfer stations serving such facilities.

If the commissioner determines that a permit is in accordance with the Plan, the commissioner shall approve the permit. If the commissioner determines that a permit is not in accordance with the Plan, the commissioner shall disapprove the permit.

Solid waste supply and processing contracts

Cities, counties and towns in the TCMA can enter into contracts for the delivery of solid waste to waste facilities and can enter into contracts for the processing of solid waste (Minn. Stat., § 473.813, subd. 1). The MPCA is required to approve local government waste management contracts if they supply waste to a facility and processing contracts that are longer than five years in duration (Minn. Stat. § 473.813, subd. 2). The success of waste facilities often depends on long-term commitments for waste supplies and processing. It is anticipated that long-term supply and processing contracts will continue to be used as new facilities proceed toward development or as existing contracts are renewed or renegotiated. MPCA contract approvals will remain in effect unless (1) the contract term is extended; or (2) the contract is substantially amended or revised during its term.
Minn. Stat. § 473.813 is reproduced below

473.813 CITIES, COUNTIES, TOWNS; SOLID WASTE CONTRACTS.

Subdivision 1. For up to 30 years. Notwithstanding any contrary provision of law or charter, and in addition to the powers or authority granted by any other law or charter, a city, county, or town in the metropolitan area may directly negotiate and enter into contracts, for a term not to exceed 30 years, for the delivery of solid waste to a waste facility and the processing of solid waste. Contracts made by direct negotiations shall be approved by resolution adopted by the governing body of the city, county, or town.

§ Subd. 2. Review by commissioner. Before a city, county, or town enters into any contract pursuant to subdivision 1 for a period of more than five years, the city, county, or town shall submit the proposed contract and a description of the proposed activities under the contract to the commissioner for review and approval. The commissioner shall approve the proposed contract if the commissioner determines that the contract is consistent with the metropolitan policy plan, permits issued under section 473.823, and county reports or approved master plans. The commissioner may consolidate the review of contracts submitted under this section with the review of related permit applications submitted under section 473.823 and for this purpose may delay the review required by this section.

Procedures for review of solid waste supply and processing contracts

- **Procedure:** Any city, county or town entering into a contract for the delivery of solid waste to a waste facility and the processing of solid waste for a term longer than five years shall submit that contract to the MPCA for review at least 90 days prior to the anticipated effective date of the contract. Contracts subject to this review include waste delivery agreements, organized collection contracts, host community fee agreements in lieu of fees authorized under Minn. Stat. §§ 115A.919 &.921 if they include waste delivery provision, and other agreements including waste delivery provisions.

- **Application of standards to contracts:** MPCA will approve contracts if the proposed contract is consistent with the Plan, permits issued under Minn. Stat. § 473.823, and county annual reports and approved master plans. A contract to deliver waste to a facility that is not specified in the applicable master plan will not be approved. To be approved, a contract to deliver waste must have a provision that terminates the contract in 30 years.

- **Timely MPCA contract review:** All contracts submitted to the MPCA for review will be reviewed and approved or not approved within 60 days. MPCA will notify the city, county or town of its decision, and if the contract is disapproved MPCA will notify the city, county, or town of the reasons for disapproval.

- **Consolidation of contract review with permit review:** MPCA may consolidate the review of contracts submitted under this section with the review of related permit applications submitted under Minn. Stat. § 473.823 and, for this purpose, may delay the review required by this section.

Waste management districts

The procedure, standards and review criteria for waste management districts is set out in Minn. Stat. §§ 115A.62 – 115A.72. Minnesota counties, including metropolitan counties, can form waste management districts. This authority enables counties to implement waste management practices they may not be able to conduct independently or which can be more effectively performed jointly. The establishment of a waste management district must be approved by the MPCA. Specific conditions can be incorporated as part of the MPCA’s approval. Minn. Stat. § 115A.63, subd. 3 provides that a waste management district
formed by metropolitan counties has the same procedural and substantive responsibilities and duties as a metropolitan county, including requirements for preparing a comprehensive solid waste management plan. The requirements for county solid waste planning are contained in Minn. Stat. § 473.803 and in the Plan.

Waste designation proposals

The WMA, Minn. Stat. §§ 115A.80 – .893 (Designation Statute), allows county or waste district to designate a facility where all MSW generated within its boundaries, or a service area thereof, is required to be delivered. Using designation to direct the waste to a particular destination is referred to as waste designation or waste assurance. MPCA approval of waste designations is required. Designation is authorized by the Minnesota Legislature to further state policies and purposes, as articulated in Minn. Stat. § 115A.02, and to advance the public purposes served by effective solid waste management. See Minn. Stat. § 115A.80.

Waste assurance is a means to assure the movement of waste from its origin to a particular facility. Waste designation is one method of waste assurance. Other methods of waste assurance include economic incentives to influence waste movement, contracting with waste collectors having direct control over waste movement, and implementing public collection.

The procedures, standards, and criteria for approval of waste designation are contained in the Designation Statute, Minn. Stat. §§ 115A.80 – 115A.893.

Landfill Certificate of Need

The Metropolitan Landfill Abatement Act, Minn. Stat. § 473.823, subd. 6, states that no new land disposal capacity for MMSW shall be permitted in the TCMA without a Certificate of Need (CON) issued by the MPCA indicating that the additional disposal capacity is needed. The MPCA must certify need only to the extent that there are no feasible and prudent alternatives to land disposal. Alternatives that are speculative or conjectural cannot be deemed to be feasible and prudent. Economic considerations alone cannot justify the CON or the rejection of alternatives. Minn. Stat. § 473.823, subd. 6 requires the MPCA to include in the Plan the standards and procedures for certifying need. The standards and procedures must be based on the metropolitan disposal abatement plan and the solid waste disposal facilities development schedule, both included in the Metropolitan System Plan (Part 3), and with approved master plans that are consistent with the abatement plan and development schedule.

Minn. Stat. § 473.823, subd. 6 is reproduced below

Certification of need. No new mixed municipal solid waste disposal facility or capacity shall be permitted in the metropolitan area without a certificate of need issued by the commissioner indicating a determination that the additional disposal capacity planned for the facility is needed in the metropolitan area. The commissioner shall amend the policy plan, adopted pursuant to section 473.149, to include standards and procedures for certifying need that conform to the certification standards stated in this subdivision. The standards and procedures shall be based on the metropolitan disposal abatement plan adopted pursuant to section 473.149, subdivision 2d, the solid waste disposal facilities development schedule adopted under section 473.149, subdivision 2e, and the provisions of any master plans of counties that have been approved under section 473.803, subdivision 2, and that are consistent with the abatement plan and development schedule. The commissioner shall certify need only to the extent that there are no feasible and prudent alternatives to the disposal facility, including waste reduction, source separation and
resource recovery which would minimize adverse impact upon natural resources. Alternatives that are speculative or conjectural shall not be deemed to be feasible and prudent. Economic considerations alone shall not justify the certification of need or the rejection of alternatives.

Procedures for obtaining MPCA CON for landfills in the Metropolitan Area

Scope: MPCA will apply these standards to requests for additional MMSW capacity for MMSW landfills located in the metropolitan areas.

Timing of CON application: MPCA will notify MMSW landfills located in the Metropolitan Area of MPCA’s intent to accept CON requests for additional MMSW land disposal capacity after the adoption of the Plan and after MPCA approval of all master plans.

Submittal of CON requests: CON requests from MMSW landfills located in the Metropolitan Area must be submitted within a period of 180 days after MPCA’s CON notification. A CON request must include the following:

- Annual solid waste estimates. The CON request shall include estimates of the amount (in tons) and type of solid waste to be managed annually at the facility during its design life.
- Origin of waste. The CON request shall include identification of the origin of the solid waste including estimates of the amount of solid waste to be received annually from each county or district of origin. Information about quantities of solid waste from counties or districts outside the metropolitan area shall be based on information in approved county solid waste management plans. Information about quantities of solid waste from counties or districts within the metropolitan area shall be based on information in the Plan and approved master plans. If an approved master plan does not state that solid waste from a county or district will be managed at the proposed facility, the request shall include a letter from the county or district board of the county or district generating the solid waste indicating that in the county’s or district’s best estimate the amount of solid waste in question is available for management at the proposed facility. The letter must be consistent with the approved greater Minnesota comprehensive solid waste management plan, the master plan and any applicable plan amendments.
- Alternatives. The CON request shall include an analysis of alternatives to the new or expanded disposal capacity if the new capacity has not been included in the approved county solid waste management plan, the Plan, or master plan.
- Estimate errors: If the amount of new capacity needed is greater than the amount identified in the approved master plan or the Plan due to assumptions concerning the amount of solid waste generated, the application must document the basis for calculating the amount of capacity.

Public informational meeting on CON request: The MPCA may hold a public informational meeting on its preliminary determination to approve or deny the request for a CON if the commissioner determines that a public informational meeting would help to clarify and resolve issues regarding the CON request.

Standard: No new MMSW disposal facility or capacity shall be permitted in the Metropolitan Area without a CON issued by the commissioner indicating a determination that the additional disposal capacity planned for the facility is needed in the Metropolitan Area. MPCA will approve CON requests only if MPCA determines that no feasible and prudent available alternative MMSW management facilities, including existing permitted land disposal capacity, can substitute for the proposed capacity.

The MPCA will apply the following criteria to determine whether CON can be granted:

- Restriction on disposal: MPCA will not accept or review any request for additional land disposal capacity for a landfill located in the metropolitan area unless MMSW resource recovery facilities
serving the metro area are functioning at full capacity and waste has been certified as unprocessable by metro counties.

- **Orderly and deliberate development of facilities:** Pursuant to Minn. Stat. § 115A.02, the MPCA must ensure the orderly and deliberate development of facilities, including landfills. To avoid a situation where the metro area is dependent on the services of a single disposal facility, MPCA will not grant all CON to one landfill.

- **Tonnage as basis of CON:** MPCA will grant CON in tons to a landfill instead of cubic yards or other volume units.

- **Alternatives:** MPCA will consider existing permitted capacity in the service area of the facility seeking the CON. The fact that a permit for a facility may expire during the expected service life of the facility seeking CON shall not be deemed to extinguish permitted capacity assuming that the existing permitted facility is likely to be re-permitted.

- **Plan consistency:** MPCA will not grant a CON unless the new landfill capacity is consistent with the Plan, with applicable master plans, applicable greater Minnesota comprehensive solid waste management plans, and applicable information from other solid waste management jurisdictions outside of the state of Minnesota.

- **Forecasting tons:** If the amount of new capacity needed is greater than the amount identified in the Plan, approved master plan or greater Minnesota comprehensive solid waste management plan due to errors in forecasting MMSW generated, the application must document the basis for calculating the amount of capacity needed and provide an analysis of alternatives.

- **Least cost alternative:** MPCA will not approve a CON request based solely on a determination that it is the least-cost alternative.

**County annual report and waste certification reports**

The TCMA counties are required to submit annual solid waste reports and certification reports to the MPCA for approval under Minn. Stat. §§ 473.803, subd. 3 and 473.848, subd 2. The MPCA will review these reports for consistency with the Plan and for consistency with the requirements of Minn. Stat. § 473.848, which states that no person shall dispose of unprocessable MMSW generated in the Metropolitan Area at a land disposal facility. Minn. Stat. § 473.848, subd. 4 states that the MPCA may adopt standards for determining when waste is unprocessable and procedures for expediting certification and reporting of unprocessed waste. The MPCA will use the information contained in the reports to enforce Minn. Stat. § 473.848 with respect to permitted waste facilities and public entities. MPCA permitted waste facilities, including MMSW resource recovery facilities and MMSW landfills, are required by state law to comply with Minn. Stat. § 473.848. The restriction on disposal in Minn. Stat. § 473.848, subd. 1 applies only to solid waste management and landfilling within Minnesota. Public entities that manage solid waste or contract for the management of solid waste are required by Minn. Stat. § 115A.46, subd. 5(b) to manage the waste consistent with the county plan.
Minn. Stat. § 473.848 subd. 2 is reproduced below

Subdivision 1. Restriction. (a) For the purposes of implementing the waste management policies in section 115A.02 and metropolitan area goals related to landfill abatement established under this chapter, a person may not dispose of unprocessed mixed municipal solid waste generated in the metropolitan area at a waste disposal facility unless the waste disposal facility meets the standards in section 473.849 and:

(1) the waste has been certified as unprocessable by a county under subdivision 2; or
(2)(i) the waste has been transferred to the disposal facility from a resource recovery facility;
(ii) no other resource recovery facility serving the metropolitan area is capable of processing the waste; and
(iii) the waste has been certified as unprocessable by the operator of the resource recovery facility under subdivision 3.

(b) For purposes of this section, mixed municipal solid waste does not include street sweepings, construction debris, mining waste, foundry sand, and other materials, if they are not capable of being processed by resource recovery as determined by the council.

Subd. 2. County certification; office approval. (a) By April 1 of each year, each county shall submit an annual certification report to the office detailing:

(1) the quantity of waste generated in the county that was not processed prior to transfer to a disposal facility during the year preceding the report;
(2) the reasons the waste was not processed;
(3) a strategy for development of techniques to ensure processing of waste including a specific timeline for implementation of those techniques; and
(4) any progress made by the county in reducing the amount of unprocessed waste.

The report shall be included in the county report required by section 473.803, subdivision 3.

(b) The Pollution Control Agency shall approve a county's certification report if it determines that the county is reducing and will continue to reduce the amount of unprocessed waste, based on the report and the county's progress in development and implementation of techniques to reduce the amount of unprocessed waste transferred to disposal facilities. If the Pollution Control Agency does not approve a county's report, it shall negotiate with the county to develop and implement specific techniques to reduce unprocessed waste. If the Pollution Control Agency does not approve two or more consecutive reports from any one county, the Pollution Control Agency shall develop specific reduction techniques that are designed for the particular needs of the county. The county shall implement those techniques by specific dates to be determined by the Pollution Control Agency.

Standard for approval of county certification: The MPCA will approve a county's reports if it determines that the county is reducing and will continue to reduce the amount of unprocessed waste based on the report and the county's progress in development and implementation of techniques to reduce the amount of unprocessed waste transferred to disposal facilities.

Procedures

- Required report: MPCA will notify the TCMA counties that annual reports and certification reports are required to be submitted to the MPCA on or before April 1 each year. Additional quarterly certification reports, including the information required in Minn. Stat. 473.848,
subd. 2, items 1, 2, 3, and 4, may be submitted on or before April 30, July 31, October 31, and January 31.

- **Content and Form:** MPCA will provide forms and instructions to the TCMA counties that outline the information and data required in the annual reports/certification reports.

- **MPCA review and approval:** MPCA will review and approve or disapprove a certification report if it determines that the county’s certification shows the county is reducing and will continue to reduce the amount of unprocessed waste.

The MPCA will apply the following criteria to approval of county certification reports

- **Unprocessable waste:** The MPCA will not approve a county certification if it certifies waste as unprocessable when there is reasonably available capacity in the TCMA system that could be used to process solid waste generated in the county. In determining reasonably available capacity, the MPCA will give consideration to the specific geographic area that typically supports each of the processing facilities that serves the TCMA. The TCMA processing system is described in Appendix A, but this system could change periodically. The MPCA will annually provide a list of processing facilities that serve the TCMA to the counties prior to the date the certification report is due. To be fully utilized, the processing facility must be operating at 100% of its operating capacity, taking into account outages for maintenance and repair.

- **Approval/disapproval**
  - Annual reports/certification reports must enumerate the actions the county is taking and the actions taken on behalf of the county to implement the goals and objectives of the Plan.
  - Annual reports must contain sufficient detail of programs so that the MPCA can determine if programs are effective and embody best practices for the management of waste.
  - Annual reports must show that the county is taking effective actions to ensure that no unprocessable MMSW goes to land disposal facilities in accordance with the requirement of Minn. Stat. § 473.848.
  - MPCA will approve annual reports if the reports describe and report on the specific barriers to implement the objectives and goals of the Plan, contain a description of the county programs that will be implemented to overcome the barriers, and contain recommendations to MPCA to assist in overcoming the barriers.

**Regional and county solid waste master plans**

The Metropolitan counties are required by Minn. Stat. § 473.803 to prepare and submit master plans to the MPCA for approval. The MPCA will review the master plans in accordance with the requirements of Minn. Stat. §§ 473.149, 473.803, and 473.848. In accordance with Minn. Stat. § 473.803, subd. 2, the MPCA will review the master plans for consistency with the Plan. The general content requirements for master plans are contained in Minn. Stat. §§ 473.803. If the MPCA disapproves a master plan, the county and/or SWMCB must within 90 days submit a revised master plan to the MPCA for approval.

**Minn. Stat. § 473.803 is reproduced below**

473.803 METROPOLITAN COUNTY PLANNING.

Subdivision 1. County master plans; general requirements. Each metropolitan county, following adoption or revision of the metropolitan policy plan and in accordance with the dates specified therein, and after consultation with all affected local government units, shall prepare and submit to the commissioner for approval, a county solid waste master plan to implement the policy plan. The master plan shall be revised and resubmitted at such times as
the metropolitan policy plan may require. The master plan shall describe county solid waste activities, functions, and facilities; the existing system of solid waste generation, collection, and processing, and disposal within the county; proposed mechanisms for complying with the recycling requirements of section 115A.551, and the household hazardous waste management requirements of section 115A.96, subdivision 6; existing and proposed county and municipal ordinances and license and permit requirements relating to solid waste facilities and solid waste generation, collection, and processing, and disposal; existing or proposed municipal, county, or private solid waste facilities and collection services within the county together with schedules of existing rates and charges to users and statements as to the extent to which such facilities and services will or may be used to implement the policy plan; and any solid waste facility which the county owns or plans to acquire, construct, or improve together with statements as to the planned method, estimated cost and time of acquisition, proposed procedures for operation and maintenance of each facility; an estimate of the annual cost of operation and maintenance of each facility; an estimate of the annual gross revenues which will be received from the operation of each facility; and a proposal for the use of each facility after it is no longer needed or usable as a waste facility. The master plan shall, to the extent practicable and consistent with the achievement of other public policies and purposes, encourage ownership and operation of solid waste facilities by private industry. For solid waste facilities owned or operated by public agencies or supported primarily by public funds or obligations issued by a public agency, the master plan shall contain criteria and standards to protect comparable private and public facilities already existing in the area from displacement unless the displacement is required in order to achieve the waste management objectives identified in the plan.

Subd. 1a. [Repealed, 1991 c 337 s 90]

Subd. 1b. [Repealed, 1995 c 247 art 1 s 67]

Subd. 1c.County abatement plan. Each county shall revise its master plan to include a land disposal abatement element to implement the metropolitan land disposal abatement plan adopted under section 473.149, subdivision 2d, and shall submit the revised master plan to the commissioner for review under subdivision 2 within nine months after the adoption of the metropolitan abatement plan. The county plan must implement the local abatement objectives for the county and cities within the county as stated in the metropolitan abatement plan. The county abatement plan must include specific and quantifiable county objectives, based on the objectives in the metropolitan abatement plan, for abating to the greatest feasible and prudent extent the need for and practice of land disposal of mixed municipal solid waste and of specific components of the solid waste stream generated in the county, stated in six-year increments for a period of at least 20 years from the date of metropolitan policy plan revisions. The plan must include measurable performance standards for local abatement of solid waste through resource recovery and waste reduction and separation programs and activities for the county as a whole and for statutory or home rule charter cities of the first, second, and third class, respectively, in the county, stated in six-year increments for a period of at least 20 years from the date of metropolitan policy plan revisions. The performance standards must implement the metropolitan and county abatement objectives. The plan must include standards and procedures to be used by the county in determining annually under subdivision 3 whether a city within the county has implemented the plan and has satisfied the performance standards for local abatement. The master plan revision required by this subdivision must be prepared in consultation with the advisory committee established pursuant to subdivision 4.
Subd. 1d. Plans for required use of resource recovery facilities. Plans proposing designation of resource recovery facilities pursuant to section 473.811, subdivision 10, shall evaluate the benefits of the proposal, including the public purposes achieved by the conservation and recovery of resources, the furtherance of local, district, or regional waste management plans and policies, and the furtherance of the state policies and purposes expressed in section 115A.02, and also the costs of the proposal, including not only the direct capital and operating costs of the facility but also any indirect costs and adverse long-term effects of the designation. In particular the plan shall evaluate:

(a) whether the required use will result in the recovery of resources or energy from materials which would otherwise be wasted;

(b) whether the required use will lessen the demand for and use of land disposal;

(c) whether the required use is necessary for the financial support of the facility;

(d) whether less restrictive methods for ensuring an adequate solid waste supply are available;

(e) all other feasible and prudent waste processing alternatives for accomplishing the purposes of the proposed designation, the direct and indirect costs of the alternatives, including capital and operating costs, and the effects of the alternatives on the cost to generators.

Subd. 1e. [Repealed, 1995 c 247 art 1 s 67]

Subd. 2. Commissioner review. The commissioner shall review each master plan or revision thereof to determine whether it is consistent with the metropolitan policy plan. If it is not consistent, the commissioner shall disapprove and return the plan with its comments to the county for revision and resubmittal. The county shall have 90 days to revise and resubmit the plan for the commissioner’s approval. Any county solid waste plan or report approved by the council prior to July 1, 1994, shall remain in effect until a new master plan is submitted to and approved by the commissioner in accordance with this section.

The commissioner shall review the household hazardous waste management portion of each county’s plan.

Subd. 2a. Waste abatement. The commissioner may require any county that fails to meet the waste abatement objectives contained in the metropolitan policy plan to amend its master plan to address methods to achieve the objectives. The master plan amendment is subject to review and approval as provided in subdivision 2 and must consider at least:

(1) minimum recycling service levels for solid waste generators;

(2) mandatory generator participation in recycling programs including separation of recyclable material from mixed municipal solid waste;

(3) use of organized solid waste collection under section 115A.94; and

(4) waste abatement participation incentives including provision of storage bins, weekly collection of recyclable material, expansion of the types of recyclable material for collection, collection of recyclable material on the same day as collection of solid waste, and financial incentives such as basing charges to generators for waste collection services on the volume of waste generated and discounting collection charges for generators who separate recyclable material for collection separate from their solid waste.
Subd. 3. Annual report. By April 1 of each year, each metropolitan county shall prepare and submit to the commissioner for approval a report containing information, as prescribed in the metropolitan policy plan, concerning solid waste generation and management within the county. The report shall include a statement of progress in achieving the land disposal abatement objectives for the county and classes of cities in the county as stated in the metropolitan policy plan and county master plan. The report must list cities that have not satisfied the county performance standards for local abatement required by subdivision 1c. The report must include a schedule of rates and charges in effect or proposed for the use of any solid waste facility owned or operated by or on its behalf, together with a statement of the basis for such charges.

The report shall contain the recycling development grant report required by section 473.8441 and the annual certification report required by section 473.848.

Subd. 4. Advisory committee. Each county shall establish a solid waste management advisory committee to aid in the preparation of the county master plan, any revisions thereof, and such additional matters as the county deems appropriate. The committee must consist of citizen representatives, representatives from towns and cities within the county, and representatives from private waste management firms. The committee must include residents of towns or cities within the county containing solid waste disposal facilities. The commissioner or the commissioner’s appointee is a nonvoting ex officio member of the committee.

§ Subd. 5. Role of private sector; county oversight. A county may include in its solid waste management master plan and in its plan for county land disposal abatement a determination that the private sector will achieve, either in part or in whole, the goals and requirements of sections 473.149 and 473.803, as long as the county:

(1) retains active oversight over the efforts of the private sector and monitors performance to ensure compliance with the law and the goals and standards in the metropolitan policy plan and the county master plan;

(2) continues to meet its responsibilities under the law for ensuring proper waste management, including, at a minimum, enforcing waste management law, providing waste education, promoting waste reduction, and providing its residents the opportunity to recycle waste materials; and

(3) continues to provide all required reports on the county’s progress in meeting the waste management goals and standards of this chapter and chapter 115A.

Master plan standards and procedures

The Plan hereby sets out the following specific procedures, standards and review criteria for the administration of CON for landfills in the Metropolitan Area:

Procedures

• **Scope:** MPCA will review master plans submitted to MPCA for approval under Minn. Stat. § 473.803.

• **Timeline for master plans:** MPCA requires counties to formulate, submit and obtain MPCA approval of a new master plan within 12 month of the MPCA’s adoption of the Plan. If a county fails to formulate and obtain MPCA approval of a new master plan within 24 months after the MPCA’s adopts the Plan, then MPCA may withhold the disbursement of SCORE block grants under Minn. Stat. § 115A.557.
• **Requirements for the contents of master plans:** See statute above and additional standards outlined below.

• **MPCA review of master plans:** MPCA will review master plans and submit comments if there are any deficiencies in the master plans in accordance with the standards and criteria outlined below.

**Standard.** To be approved by the MPCA, the master plans must implement the Plan, including the goals and objectives of the Plan. The MPCA will review the master plans to determine:

- Whether the master plan implements the local abatement objectives for the county and cities within the county as stated in the Metropolitan System Plan (Part 3).
- Whether the master plan includes specific and quantifiable county landfill abatement objectives, based on the objectives in the metropolitan landfill abatement plan, for abating to the greatest feasible and prudent extent the need for and practice of land disposal of mixed municipal solid waste and of specific components of the solid waste stream generated in the county, stated in six-year increments for a period of at least 20 years from the date of the Plan revisions.
- Whether the plan includes measurable performance standards for local abatement of solid waste through resource recovery and waste reduction and separation programs and activities for the county as a whole and for statutory or home rule charter cities of the first, second, and third class, respectively, in the county, stated in six-year increments for a period of at least 20 years from the date of the Plan revisions.
- Whether the performance standards implement the metropolitan and county abatement objectives.
- Whether the plan includes standards and procedures to be used by the county in determining annually under Minn. Stat. § 473.803, subd. 3 whether a city within the county has implemented the plan and has satisfied the performance standards for local abatement.
- Whether the plan outlines specific and measurable actions to be taken by entities delegated by the county to implement the Plan.
- Whether the county plan outlines specific measures to maintain oversight over entities delegated by the county to implement the Plan.
- Whether the plan outlines accountability measures for solid waste programs delegated to the private sector.

**County procedures.** To be approved, the MPCA must affirm that the master plan was adopted consistent with the procedural requirements in Minn. Stat. § 473.803, subd. 4, which provides that TCMA counties “shall establish a solid waste management advisory committee or a robust stakeholder input process to aid in the preparation of the master plan, any revisions thereof, and such additional matters as the county deems appropriate. The committee or the stakeholder input process must obtain the input of citizens, representatives from towns and cities within the county, and representatives from private waste management firms. The committee or the public input process must include residents of towns or cities within the county containing solid waste disposal facilities. . . .” The MPCA will not disapprove a plan if a county does not constitute the advisory committee so long as the county follows acceptable alternative public involvement procedures. Such procedures that depart from the statute are followed at the county’s risk.

**Role of private sector; county oversight.** Pursuant to Minn. Stat. § 473.803, subd. 5, a county may include in its master plan and in its plan for county land disposal abatement a determination that the private sector will achieve, either in part or in whole, the goals and requirements of sections 473.149 and 473.803, as long as the county:
1) Retains active oversight over the efforts of the private sector and monitors performance to ensure compliance with the law and the goals and standards in the Plan and the master plan.

2) Continues to meet its responsibilities under the law for ensuring proper waste management, including, at a minimum, enforcing waste management law, providing waste education, promoting waste reduction, and providing its residents the opportunity to recycle waste materials.

3) Continues to provide all required reports on the county's progress in meeting the waste management goals and standards of Minn. Stat. chapter 473 and chapter 115A.

To approve a master plan that includes this element, the master plan must include:

a) Specific quantifiable plans and strategies formulated and provided to the county by the private sector that shows how the private sector will implement applicable portions of the Plan and master plan.

b) Specific quantifiable methods and strategies that the county will implement to hold the private sector accountable for achieving waste management objectives. These strategies must include a description of applicable fees, subsidies, agreements, regulations, licenses, reporting requirements, and/or other institutional arrangement that are manifest in the arrangement that the county has with the private sector that will assure the private sector will implement applicable parts of the master plan and the Plan.

c) Specific measures that counties will implement to maintain oversight and measurement of outcomes of the programs delegated to the private sector. The master plan must also specify what fees, subsidies, agreements, regulations, licenses, reporting requirements, sanctions and/or other institutional arrangements that will be used to correct actions taken by the private sector if, in measuring the actions of the private sector, the county finds that the private entity is not managing waste as specified in the Plan and the master plan.

Plan approval. While a county is developing a new master plan for submittal to the MPCA, the existing master plan remains in effect until the MPCA approves or disapproves the new master plan. If the MPCA disapproves a county master plan, the county shall resubmit the master plan with changes that reflect the MPCA’s comments within 90 days. If the master plan is not approvable after revision, the MPCA will disapprove the master plan and will terminate the eligibility of the county for grants pursuant to Minn. Stat. § 115A.55.
Appendix E: Glossary

Terms used in this Policy Plan are intended to have meanings consistent with state statutes. Any words not defined in this appendix should be understood to have a meaning consistent with state law.

Collection
The aggregation of waste from the place at which it is generated and includes all activities up to the time the waste is delivered to a waste facility. (Minn. Stat. § 115A.03, subd. 5)

Composting
The controlled microbial degradation of organic waste to yield a humus-like product. (Minn. R. 7035.0300, subp. 20)

Construction debris
Waste building materials, packaging and rubble resulting from construction, remodeling, repair and demolition of buildings and roads. (Minn. Stat. § 115A.03, subd. 7). Also referred to in the Plan as construction and demolition waste.

Disposal facility
A waste facility permitted by the MPCA 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. (Minn. Stat. 115a.03, subd. 10)

Governance
Governance is the process by which materials are managed for the public good with an emphasis on highest and best use of materials and overall system sustainability. Governance includes the goals and activities of government entities, businesses, nonprofits, communities, and individual citizens.

Hazardous waste
Any refuse, sludge, or other waste material or combinations of refuse, sludge or other waste materials in solid, semisolid, liquid, or contained gaseous form, which because of its quantity, concentration, or chemical, physical, or infectious characteristics may (a) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or b) poses a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Categories of hazardous waste materials include but are not limited to explosives, flammables, oxidizers, poisons, irritants and corrosives. Hazardous waste does not include source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended. (Minn. Stat. § 116.06, subd. 11)

Household hazardous waste
Waste generated from household activity that exhibits the characteristics of or that is listed as hazardous waste under MPCA rules, but does not include waste from commercial activities that is generated, stored, or present in a household. (Minn. Stat. § 115A.96, subd. 1b)

Industrial waste
Solid waste resulting from an industrial, manufacturing, service, or commercial activity that is managed as a separate waste stream. (Minn. Stat. 115a.03, subd. 13a)
Industrial solid waste
All solid waste generated from an industrial or manufacturing process and solid waste generated from nonmanufacturing activities such as service and commercial establishments. Industrial solid waste does not include office materials, restaurant and food preparation waste, discarded machinery, demolition debris, municipal solid waste combustor ash, or household refuse. (Minn. R. 7035.0300 subp. 45)

Land disposal
Depositing of materials in a land disposal facility.

Land disposal facility
Any tract or parcel of land, including any constructed facility, at which solid waste is disposed of in or on the land. (Minn. R. 7035.0300 subp. 52)

Leachate
Liquid that has percolated through solid waste and has extracted, dissolved, or suspended materials from it. (Minn. R. 7035.0300, subp. 56)

Local governmental unit
Cities, towns, and counties. (Minn. Stat. § 115A.03, subd. 17)

Long-term care
Actions to prevent or minimize the threat to public health and the environment posed by a mixed municipal solid waste disposal facility that has stopped accepting waste by controlling the sources of releases or threatened releases at the facility (Minn. Stat.§ 115B.39, subd. 2.(c)).

Major appliances
Defined by statute as clothes washers and dryers, dishwashers, hot water heaters, heat pumps, furnaces, garbage disposals, trash compactors, conventional and microwave ovens, ranges and stoves, air conditioners, dehumidifiers, refrigerators and freezers. (Minn. Stat. § 1 15A.03, subd. 17a)

Materials recovery facility (MRF)
Facility designed for centralized sorting, processing, and/or grading of collected recyclable materials for marketing.

Twin Cities Metropolitan Area (TCMA)
Means the area over which the Metropolitan Council has jurisdiction, including only the counties of Anoka; Carver; Dakota excluding the city of Northfield; Hennepin excluding the cities of Hanover and Rockford; Ramsey; Scott excluding the city of New Prague; and Washington. (Minn. Stat. 473.121 subd. 2)

Mixed municipal solid waste (MMSW)
(a) Garbage, refuse and other solid waste from residential, commercial, industrial and community activities that the generator of the waste aggregates for collection, except as provided in paragraph (b), (b) mixed MSW does not include auto hulks, street sweepings, ash, construction debris, mining waste, sludges, tree and agricultural wastes, tires, lead acid batteries, motor and vehicle fluids and filters, and other materials collected, processed and disposed of as separate waste streams, but does include source-separated compostable materials. (Minn. Stat. § 115A.03, subd. 21)

Non-municipal solid waste (Non-MMSW)
Solid waste resulting from construction, demolition, or industrial activities which is not mixed municipal solid waste.

Organic material
Organic waste typically includes food waste, non-recyclable paper products, yard waste, and other materials that readily degrade. According to EPA, "Organic matter in landfills breaks down and releases methane, a potent greenhouse gas, and contributes to landfill leachate that can pollute waterways."
Organized collection
A system for collecting solid waste in which a specified collector, or a member of an organization of collectors, is authorized to collect from a defined geographic service area or areas some or all of the solid waste that is released by generators for collection. (Minn. Stat. § 115A.94, subd. 1)

Postconsumer material
A finished material that would normally be discarded as a solid waste having completed its life cycle as a consumer item. (Minn. Stat. 115a.03 subd. 24b)

Problem material
Material that, when it is processed or disposed of with mixed municipal solid waste, contributes to one of the following results: 1) the release of a hazardous substance, or pollutant or contaminant; 2) pollution of water; 3) air pollution; or 4) a significant threat to the safe or efficient operation of a solid waste facility. The four conditions are further defined in Minn. Stat. § 115A.03, subd. 24a.

Processing
Describes the treatment of waste after collection and before disposal. Processing includes, but is not limited to, reduction, storage, separation, exchange, resource recovery, physical, chemical, or biological modification and transfer from one waste facility to another (Minn. Stat. § 115A.03, subd. 25 and 473.848, subd. 5.

Recycling
The process of collecting and preparing recyclable materials and reusing the materials in their original form or using them in manufacturing processes that do not cause the destruction of recyclable materials in a manner that precludes further use. (Minn. Stat. 115a.03, subd. 25b)

Recycling facility
A facility at which materials are prepared for reuse in their original form or for use in manufacturing processes that do not cause the destruction of the materials in a manner that precludes further use. (Minn. Stat. 115a.03, subd. 25c)

Recyclable materials
Materials that are separated from mixed municipal solid waste for the purpose of recycling or composting, including paper, glass, plastics, metals, automobile oil, batteries, source-separated compostable materials, and sole source food waste streams that are managed through biodegradative processes. Refuse-derived fuel or other material that is destroyed by incineration is not a recyclable material. (Minn. Stat. § 115A.03, subd. 25a)

Refuse-derived fuel
A product resulting from the processing of mixed municipal solid waste in a manner that reduces the quantity of noncombustible material present in the waste, reduces the size of waste components through shredding or other mechanical means, and produces a fuel suitable for combustion in existing or new solid fuel-fired boilers. (Minn. Stat. 115a.03 subd. 25d)

Residuals
Waste materials left after recovery of recyclables and/or the physical, chemical or biological processing of wastes.

Resource recovery
The reclamation for sale, use, or reuse of materials, substances, energy, or other products contained within or derived from waste. (Minn. Stat. § 115A.03, subd. 27)
Resource recovery facility
A waste facility established and used primarily for resource recovery, including related and appurtenant facilities such as transmission facilities and transfer stations primarily serving the resource recovery facility. (Minn. Stat § 115A.03, subd. 28)

Secondary materials
The marketable or usable products derived from solid or hazardous waste through processing or separation.

Solid waste
Garbage, refuse, or sludge from a water supply treatment plant or air contaminants treatment facilities, and other discarded waste materials and sludges, in solid, semisolid, liquid, or contained gaseous form, resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include hazardous waste; animal waste used as fertilizer; earthen fill, boulders, rock; sewage sludge; solid or dissolved materials in domestic sewage or other common pollutants in water sources, such as silt, dissolved or suspended solids in industrial wastewater effluents or discharges which are point sources subject to permits under section 402 of the federal Water Pollution Control Act; as amended, dissolved materials in irrigation return flows; or source, special nuclear, or by-product materials as defined by The Atomic Energy Act of 1954, as amended. (Minn. Stat. § 116.06, subd. 22)

Solid waste management
The systematic administration of activities that provide for the collection, separation, storage, transportation, transfer, processing, treatment and disposal of solid waste.

Source separation
Separation of recyclable or compostable materials by the waste generator prior to collection.

Source reduction (see also waste reduction)
An activity that prevents generation of waste or the inclusion of toxic materials in waste, including: (1) reusing a product in its original form; (2) increasing the life span of a product; (2) reducing material used in production or packaging, or changing procurement, consumption, or waste generation habits to result in smaller quantities or lower toxicity of waste generated. (Minn. Stat. § 115A.03, subd. 36b)

Storage
Containment of solid or hazardous waste, in an approved manner, after generation and before collection, for ultimate recovery or disposal.

Sustainable materials management
Describes an approach to serving human needs by using/reusing resources most productively and sustainably throughout their life cycles, generally minimizing the amount of materials involved and all the associated environmental impacts (Source: EPA) Sustainable materials management (SMM) focuses on the best use and management of materials based on how they impact the environment throughout their life cycle. SMM considers the impacts of extracting raw materials, scarcity of materials, product design, product use, and reuse.

Transfer station
An intermediate waste facility in which waste collected from any source is temporarily deposited to await transportation to another waste facility. (Minn. Stat § 115A.03, subd. 33)

Unprocessed (MMSW)
For the purpose of Minn. Stat. § 473.848, 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% of the weight before processing, on an annual average.

**Waste flow designation**
A requirement by a waste management district or county that all or any portion of the mixed municipal solid waste that is generated within its boundaries or any service area thereof be delivered to a processing or disposal facility identified by the district or county. (Minn. Stat. § 115A.81, subd. 2)

**Waste facility**
All property real or personal, including negative and positive easements and water and air rights, which is or may be needed or useful for the processing or disposal of waste, except property used for the collection of the waste and property used primarily for the manufacture of scrap metal or paper. Waste facility includes, but is not limited to, transfer stations, processing facilities, and disposal sites and facilities. (Minn. Stat. § 115A.03, subd. 35)

**Waste management**
Activities that are intended to affect or control the generation of waste and activities which provide for or control the collection, processing and disposal of wastes. (Minn. Stat. § 115A.03, subd. 36)

**Waste reduction (see also source reduction)**
An activity that prevents generation of waste or the inclusion of toxic materials in waste, including: (1) reusing a product in its original form; (2) increasing the life span of a product; (2) reducing material used in production or packaging, or changing procurement, consumption, or waste generation habits to result in smaller quantities or lower toxicity of waste generated. (Minn. Stat. § 115A.03, subd. 36b)

**Yard waste**
Garden wastes, leaves, lawn cuttings, weeds, shrub and tree waste, and prunings. (Minn. Stat. § 115A.03, subd. 38)