



OFFICE OF THE LEGISLATIVE AUDITOR
STATE OF MINNESOTA

EVALUATION REPORT

Recycling and Waste Reduction

FEBRUARY 2015

PROGRAM EVALUATION DIVISION

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OFFICE OF THE LEGISLATIVE AUDITOR

STATE OF MINNESOTA • James Nobles, Legislative Auditor

February 2015

Members of the Legislative Audit Commission:

Minnesota law establishes a “waste management hierarchy,” which identifies a preference order for waste management activities. Waste reduction and reuse are at the top of the hierarchy, followed by recycling and incineration with energy recovery. Landfill disposal is at the bottom of the hierarchy. The Minnesota Pollution Control Agency (MPCA) works with counties to implement and oversee waste management programs.

This report contains our assessment of the state’s waste management efforts. We make recommendations for improvement to MPCA and present policy options for the Legislature to consider.

Our evaluation was conducted by Judy Randall (project manager), Caitlin Badger, and Sarah Delacueva. The Minnesota Pollution Control Agency cooperated with our evaluation, and we thank them for their assistance.

Sincerely,

A handwritten signature in black ink that reads "Jim Nobles".

James Nobles
Legislative Auditor

Table of Contents

	<u>Page</u>
SUMMARY	ix
INTRODUCTION	1
1. BACKGROUND	3
Waste Management Overview	3
Governance	10
Funding	12
Expenditures	21
2. RECYCLING PROGRAMS	25
Residential Recycling	25
Commercial Recycling	42
3. MEASURING RECYCLING	47
Recycling Goals	47
Recycling Performance	49
Measurement Problems	54
Alternative Waste Management Technology	63
4. STATE ROLE	67
Recycling by State Agencies	67
Market Development	74
Restrictions on Disposal	77
Incentives	80
LIST OF RECOMMENDATIONS	91
APPENDIX: Case Studies	93
Methodology	93
General Conclusions	95
Abington Township, Pennsylvania	98
Austin, Texas	100
Boulder, Colorado	102
Burlington, Vermont	104
Concord, Massachusetts	106
Davidson County, Tennessee	108
Dorchester County, South Carolina	110
Fairfax County, Virginia	112
Guntersville, Alabama	114
Mackinac Island, Michigan	116
Madison, Wisconsin	118
Onondaga County, New York	120
Orange County, North Carolina	122
Perrysburg, Ohio	124

	<u>Page</u>
Portland, Oregon	126
San Francisco, California	128
Seattle, Washington	130
Bibliography	132
AGENCIES' RESPONSES	133
Minnesota Pollution Control Agency	133
Association of Minnesota Counties	137
RECENT PROGRAM EVALUATIONS	139

List of Exhibits

	<u>Page</u>
1. BACKGROUND	
1.1 Key Waste Management Terms	4
1.2 Waste Management Lifecycle	6
1.3 Minnesota's Waste Management Hierarchy	7
1.4 Common Recyclable Materials	9
1.5 Minnesota Pollution Control Agency Key Recycling and Waste Reduction Responsibilities	10
1.6 Key County Recycling Responsibilities	11
1.7 County Recycling Funding by Source, Calendar Years 2004 to 2013	13
1.8 County Recycling Funding by Source, Metropolitan and Outstate Counties, Calendar Year 2013	14
1.9 State Funding for Recycling (SCORE), Fiscal Years 1991 to 2017	17
1.10 Allowable Uses of State Waste Reduction and Recycling (SCORE) Funding	18
1.11 County Recycling Spending, Metropolitan and Outstate Counties, Calendar Year 2013	24
2. RECYCLING PROGRAMS	
2.1 Requirements for Residential Recycling Service Provision	26
2.2 Sample County Residential Recycling Ordinances	27
2.3 Residential Waste Collection Service Arrangements for Select Cities and Counties, 2014	30
2.4 City of Hutchinson Curbside Collection of Compostable Material	35
2.5 County Recycling Education Methods	38
2.6 Winona County Curbside Recycling	39
2.7 Sample County Commercial Recycling Ordinances	43
2.8 Ramsey and Washington Counties Commercial Recycling Education Program	44
3. MEASURING RECYCLING	
3.1 Recycling Goals, by Year and Region	48
3.2 Recycling-Rate Calculation, 2014	49
3.3 Percentage of Counties Meeting State Recycling Goals, Calendar Years 2004 to 2013	51
3.4 Tons of Materials Recycled by Material Type, Calendar Years 2004 to 2013	52
3.5 Alternative Waste Management Technologies and Placement on Minnesota's Waste Management Hierarchy	65

	<u>Page</u>
4. STATE ROLE	
4.1 Recycling Rates for Minnesota Cabinet-Level State Agencies, 2012	69
4.2 Recycling in St. Louis Park Buildings—Effective Containers and Signs	71
4.3 Recycling in Washington County Buildings—Effective Containers and Signs	72
4.4 Recycling in the Centennial Office Building—Inadequate Container and Sign	73
4.5 Select Minnesota Businesses that Use Recycled Material	75
4.6 Minnesota Landfills and Waste Processing Facilities that Receive Waste from the Twin Cities Metropolitan Region	78
4.7 Possible Methods to Encourage Preferred Waste Management Activities	84
4.8 Select Materials Banned from Landfill Disposal in Minnesota	88
APPENDIX: Case Studies	
A.1 Selected Cities and Counties	94

Summary

Minnesota’s approach to managing waste focuses too narrowly on recycling, rather than on the full range of waste management activities.

Key Facts and Findings:

- Minnesota statutes establish a “waste management hierarchy,” which prioritizes waste reduction, reuse, and recycling above landfill disposal. (pp. 5-7)
- By law, counties must ensure that residents have an opportunity to recycle. But programs vary across the state, ranging from curbside collection of a number of recyclable materials to drop-off sites for only a few types of materials. (pp. 25-31)
- Counties rely on state and county money to fund recycling activities. State funding was stable at about \$14 million until the Legislature increased it to \$18.25 million for fiscal year 2015, and \$17.25 million for each year thereafter. (pp. 12-17)
- According to Minnesota Pollution Control Agency (MPCA) data, Minnesota recycled almost 47 percent of the total solid waste generated in 2013, an increase from 41 percent in 2004. (pp. 49-51)
- However, as a result of a flawed measurement system, the true percentage of waste that is recycled is unknown. (pp. 55-59)
- Some waste management measures, such as the amount of waste disposed of in landfills, are more reliable than current recycling-rate calculations but do not provide detailed information about recycling in Minnesota. (pp. 61-62)
- There is no oversight of state agency recycling efforts, and their recycling rates in 2012 ranged from 10 to 89 percent. (pp. 67-69)

- MPCA devotes few resources to developing markets for recyclable materials. (pp. 76-77)
- MPCA has not ensured that waste in the metropolitan area is “processed” (to recover recyclable material or incinerate it for energy) before being disposed of in a landfill. (pp. 79-80)
- Landfill disposal—which is the least preferred waste management method—is often the cheapest waste-disposal option. (p. 81)

Key Recommendations:

- MPCA should continue its efforts to improve measurement of recycling outcomes. (p. 60)
- The Legislature should establish goals for all tiers of the waste management hierarchy, including landfill disposal, and require counties and MPCA to track progress toward these goals. (pp. 62-63)
- The Legislature should identify MPCA as the agency responsible for overseeing state agency recycling activities. (p. 70)
- MPCA should consider increasing resources to develop markets that use recyclable materials. (p. 77)
- MPCA should ensure that, to the extent possible, waste is processed before it is disposed of in a landfill. (p. 80)
- The Legislature should consider incentives that encourage disposal methods consistent with the waste management hierarchy. (pp. 83-89)

Report Summary

Minnesota law establishes a “waste management hierarchy,” which identifies a preferred order for waste management practices. Waste reduction and reuse are at the top of the hierarchy, followed by recycling, composting, and incineration with energy recovery; landfill disposal is at the bottom of the hierarchy.

Recycling in Minnesota is funded primarily by state and county sources. Counties spent more than \$63 million on recycling activities in 2013. State recycling money (called SCORE grants) accounts for about one-quarter of counties’ recycling funds. For fiscal years 2008 through 2014, the Legislature allocated approximately \$14 million annually for SCORE grants. The 2014 Legislature increased this amount to \$18.25 million for fiscal year 2015, and \$17.25 million for each year thereafter.

In 2014, the Legislature increased recycling goals for counties in the Twin Cities metropolitan area. By 2030, metropolitan counties are required to recycle 75 percent of total solid waste generated (as measured by weight); all other counties in the state are required to recycle 35 percent. The Legislature also increased recycling requirements for sports facilities and certain commercial buildings, and emphasized the collection of compostable material.

The Minnesota Pollution Control Agency (MPCA) is responsible for overseeing recycling and waste reduction in the state. Among other things, the agency must establish uniform methods to collect and report recycling and waste reduction data; it also distributes state recycling funding

to counties and monitors their progress toward state recycling goals.

Recycling programs vary widely across the state.

In Minnesota, counties are primarily responsible for recycling activities. By law, counties must ensure that residents have an opportunity to recycle. At a minimum, all counties must ensure that residents have access to a local recycling center that is open at least 12 hours each week, provides service every month, and accepts at least four broad types of recyclable material (such as paper, metal, plastic, or glass). Larger cities and most cities in the Twin Cities metropolitan area are required to ensure residents have access to monthly pickup (“curbside collection”) of at least four broad types of recyclable material.

In our survey of county solid waste officers, most respondents reported that at least some residents had curbside recycling collection. Many residents also have access to “single-sort” collection, which allows residents to place all types of recyclable material in one collection receptacle. However, recycling programs vary across the state, ranging from Winona County, which provides countywide curbside recycling collection (unusual for a rural county), to Red Lake County, which has no curbside recycling collection, to city-based curbside recycling programs in the Twin Cities metropolitan area.

Unlike residential recycling, counties are currently required only to *encourage* commercial entities to recycle; requirements for recycling in certain commercial buildings take effect in 2016. Commercial recycling accounted for almost three-quarters of all state recycling (by weight) in 2013.

Despite a reported recycling rate of 47 percent, measurement of Minnesota’s recycling performance is flawed and relies heavily on estimates.

Counties annually report detailed recycling information to MPCA. Based on these data, the agency calculated a statewide recycling rate of 47 percent for 2013. Reported county recycling rates varied significantly, from a high of 80 percent in Waseca County to a low of 9 percent in Mille Lacs County.

However, many of these recycling rates rely heavily on estimated data. In interviews, county staff routinely expressed a lack of confidence in their recycling data. Staff in some counties cited inaccurate residential recycling data. Staff in other counties described estimating commercial recycling data based on a study conducted in 1990, while some county staff said their data does not capture recycling for which businesses privately contract.

As a result of the flawed measurement system, the true percentage of waste that is recycled—and the extent to which counties meet the state’s recycling goals—is unknown. MPCA staff have acknowledged problems with the existing data and are in the process of implementing an improved data reporting system.

We encourage the agency to continue its efforts to improve the measurement of recycling outcomes. We also recommend that the Legislature establish goals for all tiers of the waste management hierarchy—including landfill disposal and incineration—and require counties and MPCA to track progress toward these goals. Measuring progress on all waste management activities, in

addition to recycling, could provide more reliable information.

Many state agencies have low recycling rates, and there is no coordination or oversight of state agency recycling.

By law, each state agency is required to recycle at least 60 percent of the waste it generates; agency locations in the Twin Cities metropolitan area may be required to recycle at a higher rate, depending on county requirements. However, many state agencies did not meet this 60 percent threshold. State agency recycling rates varied significantly in 2012, ranging from less than 10 percent to almost 90 percent of waste generated.

In 2014, the Legislature removed several recycling responsibilities from the Department of Administration. As a result, each state agency (rather than the department) is now responsible for reporting its recycling rate to MPCA and informing its employees of “recycling opportunities and expectations.”¹ However, state agencies lack the expertise to fulfill these responsibilities, as the law now requires. In contrast, MPCA has recycling expertise but not the authority to take on responsibilities related to state agency recycling. We recommend the Legislature identify MPCA as the agency responsible for overseeing state agency recycling.

MPCA has not allocated sufficient resources to market development for recyclable materials, nor has it enforced statutory restrictions on waste disposal.

We heard about the importance of market development for recyclable

¹ *Laws of Minnesota* 2014, chapter 225, secs. 1-2.

material from all corners of the waste management industry. Staff from counties, cities, businesses, waste haulers, and others emphasized to us that having adequate outlets for recyclable material is key for the state to reach its recycling goals.

Despite its importance, MPCA has only one person working on market development for recyclable materials. In response to our survey of county solid waste officers, more than half of the respondents said that MPCA is “somewhat” or “very” ineffective at developing markets for recyclable materials. We recommend that MPCA consider increasing its resources dedicated to this function.

MPCA has also not enforced state law that requires waste in the Twin Cities metropolitan area to be processed before being disposed of in a landfill. The restrictions on disposal first became law in 1985, but enforcement was not needed until 2008, when the system had excess processing capacity.

In 2012, MPCA published a report noting the increasing amounts of unprocessed waste being disposed of in landfills despite available processing capacity. In the report, MPCA outlined its strategy for enforcing the restrictions on disposal, which largely relies on increased reporting requirements and amending permits for landfills and waste processing facilities.

Waste Management, Inc., which owns three of the four landfills serving the metropolitan area, challenged MPCA’s authority to implement its enforcement strategy and has repeatedly appealed decisions favoring MPCA. Now that the Minnesota Supreme Court denied Waste Management’s appeal in

October 2014, we recommend MPCA move ahead with its enforcement strategy.

Incentives for disposing of waste do not align with the state’s waste management preferences.

Landfill disposal—which is the least-preferred activity identified in the state’s waste management hierarchy—is often the cheapest waste-disposal option. Tipping fees (fees to “tip” a truckload of waste to dispose of it) vary widely among waste disposal facilities. Nevertheless, landfill tipping fees are typically less expensive than those at waste processing facilities (such as incinerators), which are typically less expensive than those at recycling facilities. We recommend the Legislature consider adopting incentives that encourage the disposal of waste consistent with the waste management hierarchy.

There are many incentives the Legislature could adopt to promote waste reduction, reuse, and recycling. We reviewed recycling and waste reduction efforts in 17 states across the country and identified a variety of strategies Minnesota could consider. We do not recommend specific incentives but encourage the Legislature to explore a range of possibilities, including:

- Establish reuse program grants.
- Require proportional pricing for garbage disposal.
- Increase landfill disposal fees.
- Subsidize recycling fees.
- Extend producer responsibility to new products.
- Adopt a beverage container deposit.
- Extend waste bans to include additional items.

Introduction

Waste reduction, recycling, and composting have attracted increased attention recently. In September 2014, California enacted a law that prohibits certain stores from providing single-use bags (such as plastic or nonreusable bags) to customers; as of October 2014, food waste generated by certain commercial operations is banned from landfill disposal in Massachusetts; and Minneapolis is poised to provide citywide curbside collection of food waste and other compostable material by 2016. In national reports, Minnesota is often recognized as having one of the highest recycling rates in the country. Yet the Minnesota Pollution Control Agency (MPCA) recently reported that the state's recycling rate has shown little growth in recent years, and residents continue to throw large amounts of recyclable material into the garbage.

In April 2014, the Legislative Audit Commission directed the Office of the Legislative Auditor to evaluate recycling and waste reduction in Minnesota. Our evaluation addressed the following questions:

- **How has funding for recycling changed over time, and how has this money been used?**
- **What are the recycling outcomes in other states, and how does Minnesota compare?**
- **To what extent has Minnesota established effective recycling policies and practices?**

To answer these questions, we used several different research techniques. We reviewed data that counties annually report to MPCA and examined recycling funding trends over time. In addition to revenue and expenditure data, we analyzed the recycling program and outcome data also included in these county reports.

We surveyed county solid waste officers in Minnesota to learn about local recycling policies and practices; we received responses from 87 percent of those surveyed.¹ To obtain a more in-depth understanding of local recycling practices, we interviewed solid waste staff in 13 counties: Anoka, Carver, Dakota, Hennepin, Meeker, Mille Lacs, Polk, Ramsey, Red Lake, Scott, St. Louis, Washington, and Winona. We also monitored the activities of the Solid Waste Management Coordinating Board, a joint-powers board made up of six of the

¹ We surveyed solid waste administrators from 82 counties and the Western Lake Superior Sanitary District (WLSSD); we received 72 responses for a response rate of 87 percent. Counties that rely on partnerships with other counties for solid waste management services were not surveyed. WLSSD is a special district that provides solid waste management services for a 530 square-mile region around Duluth, Minnesota.

seven counties in the Twin Cities metropolitan region.² To learn more about city-level recycling practices, we met with solid waste staff from the cities of Minneapolis, Plymouth, St. Louis Park, and St. Paul.

To enrich our understanding of current recycling practices, we selected 17 cities, towns, and counties across the country that had been identified as recycling “leaders.”³ For each of these local units of government, we examined relevant state laws, local policies, and local practices; we also conducted phone interviews with staff to learn more about their recycling practices. Information about each of these local units of government is provided in the Appendix.

To provide us with a more complete understanding of the waste management system in Minnesota and elsewhere, we reviewed journal articles, relevant United States Supreme Court decisions, laws from Minnesota and a sample of other states, and a sample of county ordinances. We also spoke with local waste haulers and a number of interested parties, including representatives from the Association of Minnesota Counties, Minnesota Beverage Association, Minnesota Chamber of Commerce, Recycling Association of Minnesota, Recycling Reinvented, and businesses that use recycled material to manufacture new products. We attended the Recycling Association of Minnesota 2014 conference and participated in a recycling sort for a municipality; we also toured a waste transfer station, waste processing facility, waste incinerator, and three material recovery facilities. Finally, we had numerous meetings with MPCA staff.

This evaluation focuses on the roles and responsibilities of the Legislature, state agencies, and counties regarding recycling and waste reduction in Minnesota. However, waste management activities are the results of efforts by many different interests, including private industry, membership organizations, and citizens, in addition to the public sector. While our findings and recommendations focus on the actions of public agencies, they are relevant for all members of the waste management industry.

² The Twin Cities metropolitan region includes the seven Twin Cities counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington. Scott County is not a member of the Solid Waste Management Coordinating Board.

³ The 17 local units of government are: Abington Township, Pennsylvania; Austin, Texas; Boulder, Colorado; Burlington, Vermont; Concord, Massachusetts; Davidson County, Tennessee; Dorchester County, South Carolina; Fairfax County, Virginia; Guntersville, Alabama; Mackinac Island, Michigan; Madison, Wisconsin; Onondaga County, New York; Orange County, North Carolina; Perrysburg, Ohio; Portland, Oregon; San Francisco, California; and Seattle, Washington.

Chapter 1: Background

People deal with waste every day—they throw away garbage, separate items to be recycled or composted, and take hazardous material to designated collection facilities. However, few people think about what happens to that waste once they have placed it in the garbage can or taken it to the curb to be collected. In this chapter, we pick up where most people leave off: we explain the different types of waste and walk through the “lifecycle” of waste. We also discuss which levels of government control how waste is handled in Minnesota. In addition, we discuss the state’s “waste management hierarchy,” which ranks different practices to reduce and manage waste. Finally, we provide an overview of the funding state and local governments use to reduce, reuse, and recycle waste in Minnesota.

WASTE MANAGEMENT OVERVIEW

Waste management is the process by which local and state governments—in cooperation with private industry—collect, dispose of, and recycle waste. In this section, we define key terms used throughout the report and provide an overview of the waste management lifecycle. We also discuss Minnesota’s waste management hierarchy, which identifies the state’s preferences for processing and disposing of waste.

Mixed Municipal Solid Waste

Household and office garbage—referred to as mixed municipal solid waste—comprises the bulk of what people throw away in their daily lives. Mixed municipal solid waste includes the packaging materials and organic waste (such as food and soiled paper) people routinely put in the garbage; it also includes otherwise recyclable materials that are thrown in the garbage rather than separated for recycling. An aluminum can placed in the garbage is considered mixed municipal solid waste; that same can separated for recycling is considered a recyclable material. Similarly, when other household and office materials are collected, processed, and disposed of separately from the traditional garbage stream, they are not considered mixed municipal solid waste.¹ By law, 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.”² Exhibit 1.1 provides definitions of different waste materials, as well as other key terms related to recycling and waste management.

¹ These materials include household hazardous waste; “problem materials,” such as appliances and mattresses, among other things; yard waste; and “source-separated compostable materials.” According to *Minnesota Statutes* 2014, 115A.03, subd. 32a, source-separated compostable materials are separated for composting by the generator of the waste and include “food waste, fish and animal waste, plant materials, diapers, sanitary products, and paper that is not recyclable.” For simplicity, in this report, we refer to these as “materials separated for composting.”

² *Minnesota Statutes* 2014, 115A.03, subd. 21(b).

Exhibit 1.1: Key Waste Management Terms

	Definition
Household Hazardous Waste	Waste generated from household activities that is corrosive, flammable, or toxic.
Material Recovery Facility	A recycling facility that prepares at least three different material categories (such as paper, glass, metal, and plastic) for market. Preparation for market is the sorting and processing of materials through crushing, baling, shredding, or other densifying activity.
Mixed Municipal Solid Waste (MSW)	Mixed trash set out by homeowners, industries, offices, and governments intended to be collected as garbage. It does not include mining waste, construction debris, auto hulks, ash, agricultural wastes, street sweepings, or items banned from the waste stream (such as tires, used oil, and vehicle batteries). Note: an aluminum can or other recyclable item placed in a bag of garbage is MSW; the same item placed in a recycling bin is a recyclable material.
Problem Materials	Materials that cause processing, health, or environmental problems in the recycling system or in solid waste processing and disposal facilities.
Recyclable Materials	Materials that are separated from MSW for the purpose of recycling or composting, including paper, glass, plastics, metals, automobile oil, batteries, and compostable materials. Refuse-derived fuel or other material that is destroyed by incineration is not recyclable material.
Recycling	The process of collecting and preparing recyclable materials and reusing the materials in a manner that does not preclude further use.
Refuse-Derived Fuel	A product resulting from the processing of MSW 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.
Single-Sort Collection	Commingled recyclable materials collected together by the hauler. This is in contrast to "dual-sort" or "multi-sort" collection where the waste generator sorts the recyclable material by material type, such as paper, plastic, and aluminum.
Source-Separated Compostable Materials (Materials Separated for Composting)	Materials that are (1) separated at the source by waste generators for the purpose of preparing them for use as compost; (2) collected separately from MSW; (3) made up of food wastes, fish and animal waste, plant material, sanitary products, and paper that is not recyclable; and (4) delivered to a facility to undergo controlled microbial degradation.
Waste Processing Facility	A facility that processes MSW through separation of materials for resource recovery through recycling, production of refuse-derived fuel, incineration for energy production, or a combination of these processes. May also be called resource recovery or waste-to-energy facilities.
Yard Waste	Garden wastes, leaves, lawn cuttings, weeds, prunings, and shrub and tree wastes generated at residential, commercial, industrial, and institutional properties.

SOURCES: *Minnesota Statutes* 2014, 115A.03, subds. 21, 25a, 25b, 25d, 32a, 38; and Minnesota Pollution Control Agency, *2013 SCORE Reporting Form*.

Waste Management System

Mixed municipal solid waste is collected by haulers and managed as garbage. Other material, when separated from mixed municipal solid waste, is managed in a separate waste stream. For example, yard waste is typically separated from other waste and processed at certain composting facilities.

As illustrated in Exhibit 1.2, there is a waste management “lifecycle.” Once people purchase and consume products, they dispose of the remaining waste. Residents typically separate garbage, recyclable material, and yard waste and either set the waste out for collection at their residence or take it to a collection facility.³ Haulers collect the waste material and generally transport it to one of four destinations, depending on the type of material and agreements with nearby facilities: (1) a material recovery facility that sorts and prepares recyclable materials for market and reuse; (2) a composting facility that processes materials separated for composting to create soil amendments for farming and gardening; (3) a waste processing facility or incinerator that transforms waste into energy; or (4) a landfill to dispose of waste.⁴ As Exhibit 1.2 shows, material that is recycled or composted may re-enter the lifecycle by being turned into new products, either through manufacturing or farming. Waste that is converted to energy or disposed of in a landfill exits the cycle.

Waste Management Hierarchy

Minnesota Statutes 2014, chapter 115A, is the state’s Waste Management Act. The goal of the Act is “to protect the state’s land, air, water, and other natural resources and the public health by improving waste management in the state...”⁵ Additionally, the Act sets forth the following purposes:

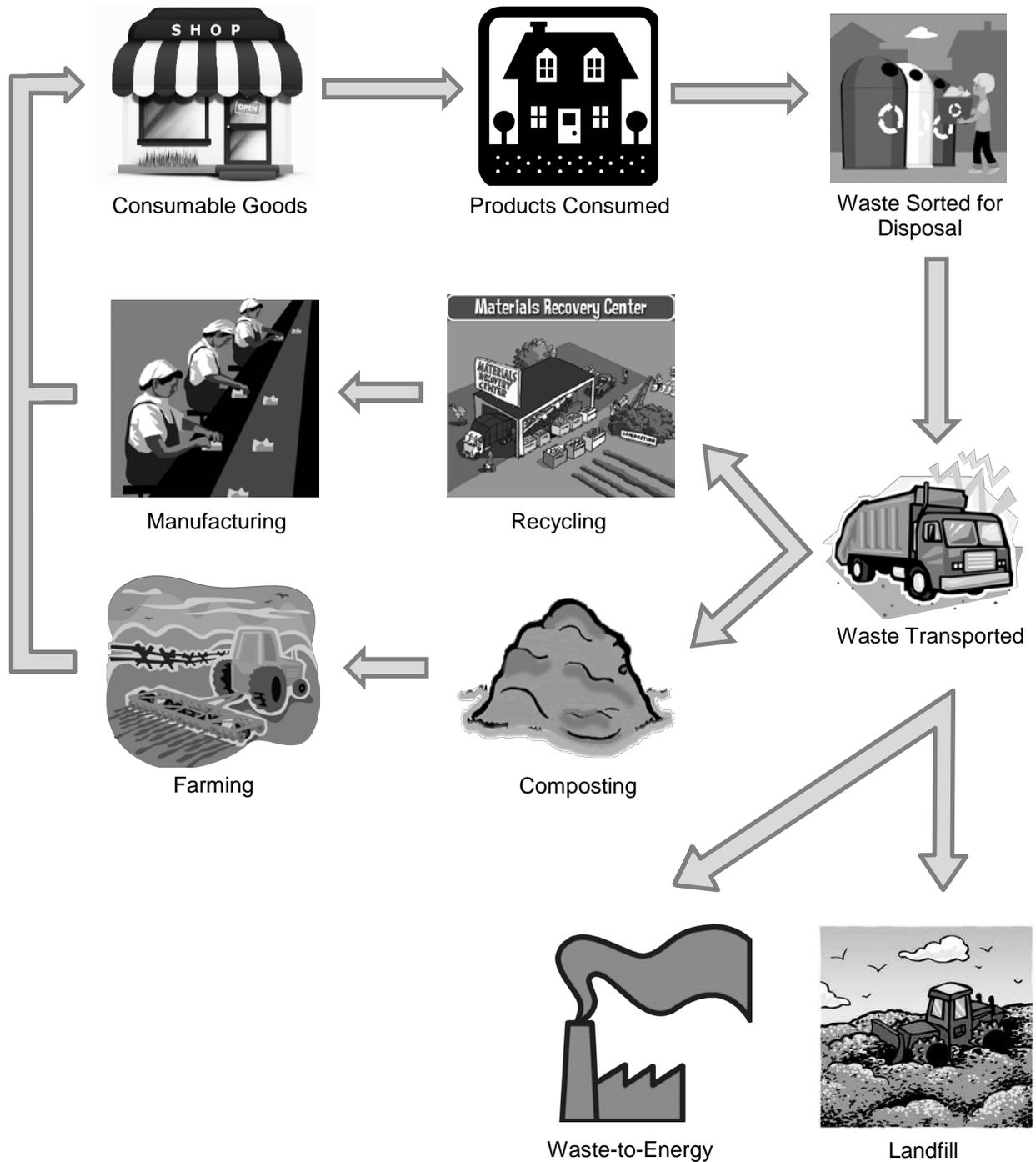
1. Reduce the amount and toxicity of waste generated
2. Separate and recover materials and energy from waste
3. Reduce indiscriminate dependence on disposal of waste
4. Coordinate solid waste management among political subdivisions
5. Provide for the orderly and deliberate development and financial security of waste facilities, including disposal facilities

³ In Chapter 2, we discuss the variety of recycling and waste collection methods available to residents across the state.

⁴ Waste processing facilities generally first sort the material to remove recyclable metal and problem materials from the waste stream. These facilities compact the remaining waste to create “refuse-derived fuel,” which is then burned by power plants to create electricity. The Great River Energy Elk River Resource Processing Plant in Elk River, Minnesota, and the Resource Recovery Technologies facility in Newport, Minnesota, are both examples of waste processing facilities. Incinerators first mass burn and recover energy from the waste material and then separate recyclable material from the resulting ash. The Hennepin Energy Recovery Center in Minneapolis is an example of an incinerator.

⁵ *Minnesota Statutes* 2014, 115A.02(a).

Exhibit 1.2: Waste Management Lifecycle



NOTES: This exhibit focuses on activities that occur after a waste generator (such as a resident or business) has separated and disposed of waste. It does not reflect reuse activities such as food or clothing donation programs. Note that waste that is transferred to a waste-to-energy facility may undergo processing to remove recyclable metals and problem materials before being converted to energy.

SOURCE: Office of the Legislative Auditor.

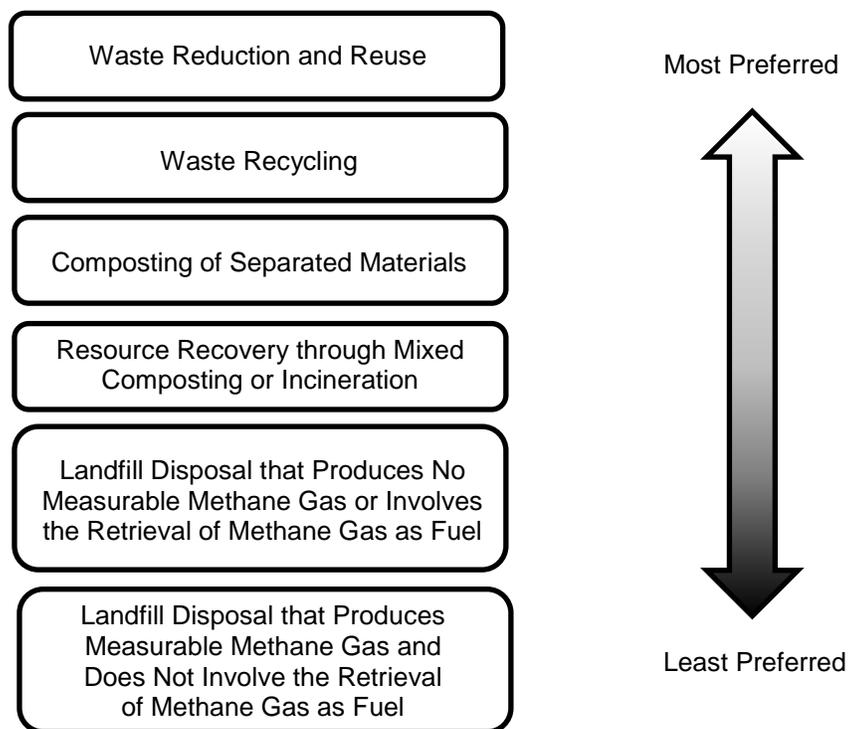
The Waste Management Act also identifies an order of preference, referred to as the “waste management hierarchy,” for various waste management practices.

Minnesota statutes establish a “waste management hierarchy,” which prioritizes waste reduction, reuse, and recycling above landfill disposal.

As shown in Exhibit 1.3, Minnesota statutes place waste reduction and reuse at the top of the state’s waste management hierarchy, indicating that these are the most preferred waste management practices.⁶ Reduction and reuse are followed in preference by recycling, composting, and incineration with energy recovery; landfill disposal is at the bottom of the hierarchy.⁷

Minnesota’s waste management hierarchy is consistent with the hierarchy established by the United States Environmental Protection Agency (EPA) and those

Exhibit 1.3: Minnesota’s Waste Management Hierarchy



SOURCE: *Minnesota Statutes* 2014, 115A.02(b).

⁶ *Minnesota Statutes* 2014, 115A.02(b).

⁷ Throughout this report, we use the term “waste processing” to refer to resource recovery activities that process waste to form refuse-derived fuel or incinerate waste to create energy.

of many other states.⁸ While Minnesota's hierarchy establishes a priority order for waste management techniques, state law does not generally require state and local governments to follow the hierarchy.⁹ Instead, the hierarchy simply represents the Legislature's preferences for waste management activities; there are limited consequences if counties disregard the hierarchy. Nevertheless, the hierarchy serves as a guideline for how the state and counties should manage waste.

Lifecycle analyses examining the benefits of recycling generally validate placing recycling above landfill disposal in the waste management hierarchy. In 2014, the EPA published an analysis of the lifecycle costs and benefits of recycling and estimated that one year's worth of recycling in the United States was comparable to "removing the emissions from over 33 million passenger vehicles from the road in one year."¹⁰

A 2010 study conducted by the New South Wales Department of Environment, Climate Change and Water compared the impacts of recycling with the impacts of extracting virgin materials and disposing of waste in a landfill and concluded that "recycling generates environmental benefits."¹¹ The report found that recycling metal, in particular, provides the highest benefit per ton. For example, the study calculated that recycling one ton of aluminum cans resulted in a net reduction of greenhouse gas equivalent to the annual emissions from three passenger vehicles.¹²

Recyclable Materials

Traditional recyclable materials are generally categorized into four broad material types: glass, metal, paper, and plastics. Within each material type, there are a variety of recyclable products. For example, the "paper" material category includes milk cartons, cereal boxes, corrugated cardboard boxes, office paper, and newspaper. Similarly, the "plastic" material category includes seven different types of plastic, each of which is assigned a number ranging from one to seven.¹³

⁸ The United States Environmental Protection Agency's waste management hierarchy is posted on its website, <http://www.epa.gov/solidwaste/nonhaz/municipal/hierarchy.htm>, accessed November 11, 2014. Other states with waste management hierarchies similar to Minnesota's include California, North Carolina, New York, Oregon, Texas, Pennsylvania, Washington, and Wisconsin.

⁹ There are some exceptions regarding waste disposal requirements in the Twin Cities metropolitan area, which we discuss further in Chapter 4. For the purposes of this report, the "Twin Cities metropolitan area" includes the seven Twin Cities counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

¹⁰ United States Environmental Protection Agency, *Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2012* (Washington, DC, February 2014), 10.

¹¹ Department of Environment, Climate Change and Water, NSW, *Environmental Benefits of Recycling* (Sydney, June 2010), 26.

¹² Minnesota recycled more than 37,600 tons of aluminum in 2012. Using the calculations from the New South Wales study, this is equal to a reduction of greenhouse gas emissions equivalent to the annual emissions of more than 116,000 passenger vehicles.

¹³ The plastic number classification is identified by the Society of Plastics Industry. See <http://www.plasticsindustry.org/AboutPlastics/content.cfm?ItemNumber=823&navItemNumber=1125>, accessed December 23, 2014.

Exhibit 1.4 identifies common recyclable materials within the four broad material types. Compostable material, such as food waste and soiled paper, are also considered recyclable. However, not all recyclable materials can be recycled in every Minnesota municipality. As we discuss more in Chapter 2, local governments, haulers, and recycling processing facilities determine which materials are collected for recycling in their communities.

Exhibit 1.4: Common Recyclable Materials

	Examples
<u>Glass</u>	
Glass	Glass bottles and jars
<u>Metal</u>	
Aluminum	Aluminum beverage cans
Steel/Tin	Food and beverage cans
<u>Paper</u>	
Aseptic Containers	Juice boxes and milk cartons
Boxboard	Cereal, cracker, and shoe boxes
Corrugated Cardboard	Unbleached, unwaxed paper with a ruffled (corrugated) inner liner
High-Grade Paper	Most white office paper, including letterhead and copy machine paper
Mixed Paper	Colored paper, envelopes, magazines; can include high-grade paper
Newspaper	Newsprint
<u>Plastic</u>	
Plastic #1, Polyethylene Terephthalate (PET)	Soda and water bottles, shampoo bottles, peanut butter jars
Plastic #2, High-Density Polyethylene (HDPE)	Milk, juice, and water jugs; bottles for laundry detergent and fabric softener
Plastic #3, Polyvinyl Chloride (PVC)	Bottles for cooking oil, salad dressing, and mouthwash
Plastic #4, Low-Density Polyethylene (LDPE)	Bread, grocery, and trash bags; rigid plastic packaging
Plastic #5, Polypropylene	Yogurt containers, shampoo bottles, and margarine tubs
Plastic #6, Polystyrene	Some coffee cups, yogurt tubs, and clear carry-out containers
Plastic #7	Products that use a combination of plastic materials #1 through #6

NOTES: The items listed above are samples of products that use the given recyclable material; the list is not exhaustive. Additionally, similar products may be manufactured with different materials; for example, shampoo bottles may use plastic #1 or plastic #5 in their packaging.

SOURCES: Burns and McDonnell Engineering Company, 2013 *Statewide Waste Characterization Final Report* (St. Paul, December 2013); and <http://www.epa.gov/epawaste/nonhaz/municipal/pubs/bus-guid/app-e.pdf>, accessed December 8, 2014.

GOVERNANCE

By law, the Minnesota Pollution Control Agency (MPCA) is the state agency responsible for overseeing recycling and waste reduction in the state. Exhibit 1.5 lists some of the agency's key responsibilities regarding recycling and waste reduction. As outlined in the Waste Management Act, MPCA must establish uniform methods to collect and report recycling and waste reduction data.¹⁴ Statutes also require the agency to develop a statewide waste management public education campaign.¹⁵

Exhibit 1.5: Minnesota Pollution Control Agency Key Recycling and Waste Reduction Responsibilities

- Promulgate rules to implement Minnesota's Waste Management Act
- Establish uniform methods for collecting and reporting data
- Develop a statewide waste management public education campaign
- Distribute waste reduction and recycling funding to counties and report on how the money was used and the resulting statewide improvements
- Monitor the progress of each county toward meeting the state's recycling goals
- Administer, promote, and enforce Minnesota's electronic-waste recycling program
- Assist and encourage the development of facilities, services, and uses needed to provide adequate, stable, and reliable markets for recyclable materials and compost generated in the state

SOURCES: *Minnesota Statutes* 2014, 115A.06, subd. 2; 115A.07, subd. 3; 115A.072, subd. 2; 115A.1320, subd. 1; 115A.48; 115A.551, subd. 4; and 115A.557, subds. 1 and 4.

Additionally, MPCA distributes state recycling funding (called SCORE funding) to counties and monitors their progress toward meeting the state recycling goals.¹⁶ This is because while MPCA has general oversight responsibility for recycling and waste reduction in the state, responsibility for specific recycling programs and activities is delegated by law to counties.

In Minnesota, counties are the units of government primarily responsible for recycling and waste reduction activities.

As we discuss more in Chapter 3, Minnesota statutes establish county recycling goals.¹⁷ By law, each county must “develop and implement or require political subdivisions within the county to develop and implement programs, practices, or

¹⁴ *Minnesota Statutes* 2014, 115A.07, subd. 3.

¹⁵ *Minnesota Statutes* 2014, 115A.072, subd. 2.

¹⁶ In 1989, the Governor's Select Committee on Recycling and the Environment—commonly referred to as SCORE—was established to develop legislation to address recycling, solid waste, and related issues. Now the term “SCORE” is used to refer to related legislation or programs, such as SCORE grants to counties. Laws regarding MPCA's SCORE-related responsibilities can be found in *Minnesota Statutes* 2014, 115A.551, subd. 4; and 115A.557, subds. 1 and 4.

¹⁷ *Minnesota Statutes* 2014, 115A.551, subd. 2a.

methods designed to meet its recycling goal.”¹⁸ Exhibit 1.6 lists several key responsibilities counties have regarding recycling. Additionally, counties that receive state recycling funding must annually report to MPCA on their waste management activities, including recycling.¹⁹ State recycling funding for counties is discussed later in this chapter.

Exhibit 1.6: Key County Recycling Responsibilities

- Ensure that residents have an opportunity to recycle
- Provide for the recycling of problem materials and major appliances
- Provide information on how, when, and where materials may be recycled
- Develop a promotional program that publishes notices at least once every three months and encourages separation of materials
- Encourage building owners and managers and business owners and managers to provide appropriate recycling services
- Ensure that materials separated for recycling are taken to markets for sale or to recyclable material processing centers
- Develop and implement—or require political subdivisions to develop and implement—programs, practices, or methods designed to meet the state-established recycling goal
- Include in its solid waste management plan a recycling implementation strategy for meeting the state-established recycling goal

SOURCES: *Minnesota Statutes* 2014, 115A.551, subs. 2a(b) and 6; 115A.552, subs. 1, 3, and 4; and 115A.553, subd. 1.

Several counties coordinate their waste management and recycling efforts. For example, Faribault and Martin counties have a joint county solid waste management plan and jointly manage the Prairieland Solid Waste Management Facility. Chisago, Isanti, Kanabec, Mille Lacs, and Pine counties are members of the East Central Solid Waste Commission. These counties submit a joint solid waste management plan and jointly own and operate waste management facilities, including landfills and recycling drop-off sites. Similarly, Pope and Douglas counties have a joint waste management system that includes several waste management facilities and operates a comprehensive recycling program.

In the Twin Cities metropolitan region, local municipalities often take the lead to establish and manage recycling programs. However, six of the counties in the metropolitan area—Anoka, Carver, Dakota, Hennepin, Ramsey, and Washington counties—have joined together to form the Solid Waste Management Coordinating Board. This board focuses on policy-level and coordination issues regarding solid waste management in the metropolitan area. Board efforts include a coordinated hauler-licensing program and reciprocal household hazardous waste collection across the member counties.

¹⁸ *Minnesota Statutes* 2014, 115A.551, subd. 2a.

¹⁹ *Minnesota Statutes* 2014, 115A.557, subd. 3(b)(2).

FUNDING

Recycling in Minnesota is funded primarily through a combination of state and county sources. In this section we discuss revenue sources for county recycling activities and examine county recycling expenditures. We also present recycling revenue and expenditure trends over a ten-year time period.

Revenue Sources

In calendar year 2013, counties reported recycling funding of almost \$62 million, an increase of 21 percent from nearly \$51 million in 2004.²⁰ When accounting for inflation, however, recycling funding decreased by 2 percent over the ten-year period.

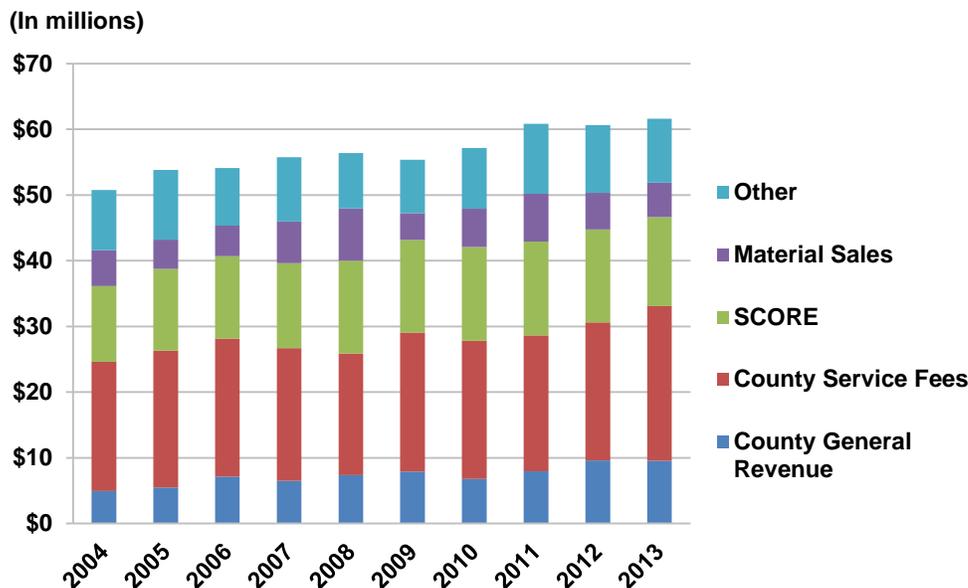
Counties rely primarily on a combination of state money, service fees, general revenues, and revenue from the sale of recycled material to fund their recycling activities.

Exhibit 1.7 shows county recycling funding by source from 2004 to 2013. Statewide, county service fees were the largest source of funding for county-level recycling activities, accounting for between 33 and 39 percent of county recycling revenues. Service fees, sometimes called “county environmental charges,” are uniform fees charged to all property owners or waste generators and may appear either on a property tax bill or a garbage hauling bill. For example, a large portion of Steele County’s recycling funding comes from a special assessment placed on residential property tax bills; in 2014, urban households were assessed \$42 per year and rural households were assessed \$26 per year. In Ramsey County, on the other hand, the county environmental charge appears on garbage bills and is remitted to the county by licensed waste haulers. The fee for residential garbage customers is 28 percent of the cost of waste collection services, while commercial customers pay a fee equal to 53 percent of the cost of garbage collection.

State recycling funding (SCORE grants) were the second largest source of county recycling funding, accounting for between 22 and 26 percent of recycling revenues during the ten-year period. The next largest sources were counties’ general fund revenue and material sales. The remaining recycling dollars each year (between 15 and 20 percent) came from less prevalent sources, which included non-SCORE grants from the state and other sources, household hazardous waste funding (either from MPCA or a regional program sponsor), and landfill disposal and processing facility fees, among other sources.

²⁰ Revenue numbers in this section reflect the money allocated to recycling (by state or local governments) for the given year and do not include funds counties have carried over from the previous year.

Exhibit 1.7: County Recycling Funding by Source, Calendar Years 2004 to 2013



NOTES: Totals for each individual year consist of money allocated during that calendar year; carryovers from previous years are excluded. "Other" includes grants, household hazardous waste funding (from both the state and special regional program sponsors), landfill disposal and processing facility fees, and all other sources of recycling funding not otherwise captured above.

SOURCE: Office of the Legislative Auditor, analysis of Minnesota Pollution Control Agency SCORE data, 2004-2013.

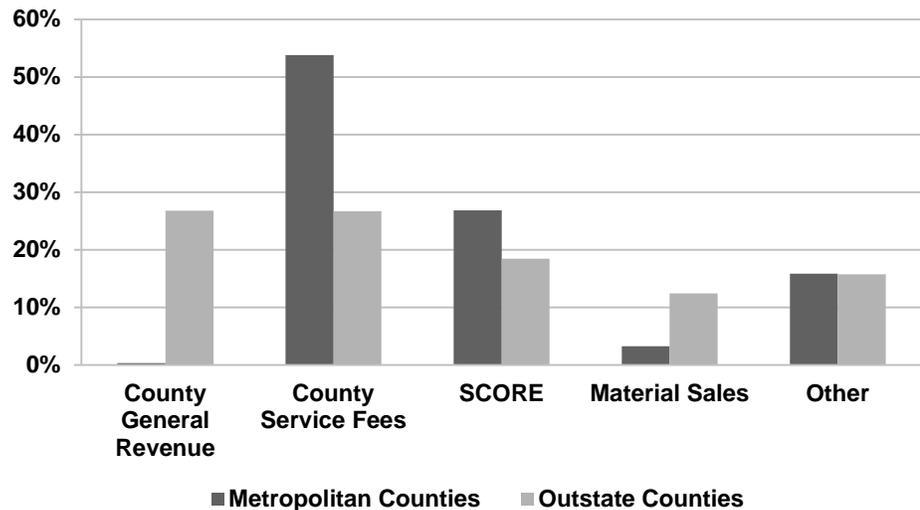
An examination of county funding data collected by MPCA reveals that reliance on funding sources varied significantly among counties.²¹ While all counties received SCORE grants, none of the other funding sources were as widely used.²² Almost all counties (93 percent) funded recycling with three or more revenue sources (SCORE grants plus at least two other sources). Most counties in the Twin Cities metropolitan area relied heavily on county service fees, effectively spreading the cost of recycling among their large populations. Counties outside the metropolitan area were more likely to use county general fund revenues. Exhibit 1.8 shows how funding sources differed between

²¹ The recycling data we analyzed are not organized strictly by county, but rather according to how counties have agreed to report data to MPCA. While most counties report to MPCA individually, there are two notable exceptions: (1) Pope and Douglas counties report jointly and (2) St. Louis County is split, with some data reported under St. Louis County and the remainder under Western Lake Superior Sanitary District. This sanitary district is a special district that provides solid waste management services for a 530 square-mile region around Duluth, Minnesota. The total number of reporting units is still 87, and in this report, we refer to the reporting units as "counties" for the sake of simplicity.

²² MPCA may withhold funding if counties have not met their statutory obligations, meaning that some counties did not receive SCORE grants in every year of the data we analyzed. We discuss counties' SCORE obligations later in this chapter. When MPCA withholds money from a county, it makes back payments to the county once the county satisfies the state requirements.

metropolitan and outstate counties in 2013. The mix of revenue sources a county chooses depends on factors specific to that county and might include location and population size, presence of processing facilities or landfills within the county, access to markets for the sale of recycled goods, or public and political support for and interest in recycling activities.

Exhibit 1.8: County Recycling Funding by Source, Metropolitan and Outstate Counties, Calendar Year 2013



NOTES: The exhibit reflects only money allocated during calendar year 2013; carryover funds from 2012 are excluded. "Other" includes grants, household hazardous waste funding (from both the state and regional program sponsors), landfill disposal and processing facility fees, and all other sources of recycling funding not otherwise captured above. The term "metropolitan counties" refers to the seven Twin Cities counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

SOURCE: Office of the Legislative Auditor, analysis of Minnesota Pollution Control Agency SCORE data, 2013.

State Recycling Funding

As discussed in the previous section, a portion of county recycling programs is funded with state dollars, called SCORE grants. SCORE grants are allocated from the state's Environmental Fund, which is partially funded by the solid waste management tax.²³ In this section, we discuss the history of the solid waste management tax, trends in SCORE funding, and other state revenues that are used to fund county recycling programs.

²³ The Environmental Fund, outlined in *Minnesota Statutes* 2014, 16A.531, subd. 1, resides in the state treasury for the deposit of receipts for environmentally related taxes and fees, such as the solid waste management tax; pollution prevention fees; fines and penalties; and hazardous waste, water quality, and stormwater permit fees. The fund is used almost exclusively by MPCA and made up 38 percent of the agency's budget in fiscal years 2014 and 2015.

Solid Waste Management Tax

The solid waste management tax, currently used to fund state recycling grants to counties, is a state tax on solid waste management services.²⁴ The Legislature established the solid waste management tax in 1997 to replace two separate taxes: the SCORE sales tax (a 6.5 percent state sales tax applied to waste management services) and a solid waste generator assessment (a flat user fee of \$2 on all residential households and a charge of \$0.60 per uncompacted cubic yard of commercial waste).²⁵ The SCORE sales tax was intended to fund solid waste reduction and recycling programs and the proceeds were deposited in the state's General Fund. The solid waste generator assessment was used to fund the state's landfill cleanup program, among other things. The proceeds were deposited in the state treasury and credited to the state's Solid Waste Fund.

In 1996, the Legislature established a task force to examine issues surrounding the SCORE sales tax and the solid waste generator assessment.²⁶ The task force, which consisted of 14 members with expertise in either taxation or waste management, was charged with making recommendations to the Legislature on, among other things, tax collection issues and identifying ways to simplify the tax structure for ease of collection and administration. The task force issued a final report in February 1997 that recommended eliminating the SCORE sales tax and solid waste generator assessment and replacing them with a single, combined tax.²⁷ The task force recommended that the proceeds from the new tax be used for the same purposes as the taxes being replaced. Under this recommendation, the amount that would have been collected through the SCORE sales tax (estimated at \$25.5 million in 1996) would be appropriated for solid waste activities, and the amount that would have been generated through the solid waste generator assessment (estimated at \$22.5 million) would continue to fund landfill cleanup.

Following the task force's recommendations, the 1997 Legislature repealed the two existing solid waste taxes, replacing them with the solid waste management tax.²⁸ The new tax established a 9.75 percent tax on residential garbage service and a 17 percent tax on commercial garbage removal. Initially, state law required that the greater of \$22 million or half of solid waste management tax revenues be deposited in the Solid Waste Fund (to be used for a number of purposes, including the administration of MPCA's solid waste management programs) and the remainder in the General Fund.²⁹ In 2005, the Legislature changed the allocation of this tax revenue so that at least \$33,760,000 or

²⁴ Services subject to the tax include waste collection, transportation, processing, disposal, fuel surcharges, and compactor and container rental charges when made by the waste service provider.

²⁵ *Laws of Minnesota* 1997, chapter 231, art. 13, secs. 6-20.

²⁶ *Laws of Minnesota* 1996, chapter 471, art. 2, sec. 28, subd. 3.

²⁷ Minnesota Office of Environmental Assistance, *SCORE Sales Tax Task Force Final Report* (St. Paul, 1997), 19.

²⁸ *Laws of Minnesota* 1997, chapter 231, art. 13, secs. 6-20.

²⁹ The Solid Waste Fund was repealed in 2003. Revenues from the solid waste management tax were redirected to the Environmental Fund at that time. See *Laws of Minnesota* 2003, chapter 128, art. 2, secs. 43 and 56.

70 percent (whichever is greater) of the revenues is deposited in the Environmental Fund and the remainder is deposited in the General Fund.

Less than one-quarter of the revenue from the state's solid waste management tax has been designated for SCORE recycling funding.

The amount of revenue collected through the solid waste management tax has increased over time, with 2013 revenue collections of just over \$70 million. As required by law, almost \$50 million was directed to the Environmental Fund; the remainder was deposited in the state's General Fund.³⁰ Only about 20 percent of the total solid waste management tax collections (\$14.25 million) was legislatively appropriated to counties in the form of SCORE grants in 2013. The 2014 Legislature increased the amount of Environmental Fund dollars dedicated to SCORE grants to \$18.25 million in 2015 and \$17.25 million annually thereafter.³¹

SCORE Grants

State law outlines a population-based funding formula to allocate SCORE money to Minnesota counties.³² Counties are to receive no less than \$55,000 of SCORE money in a fiscal year, if the size of the SCORE appropriation allows.³³ As a condition of the funding, counties must annually:

1. Have in place an approved solid waste management plan.
2. Report to MPCA on the previous year's spending and performance.
3. Provide local matching funds in the amount of 25 percent of the county's SCORE grant.³⁴

Because funding levels are based on population, SCORE disbursement amounts vary by county. In fiscal year 2013, recycling funding to individual counties ranged from \$55,950 for small counties to more than \$2.8 million for Hennepin County. Almost half of Minnesota counties received the minimum funding amount of \$55,950.

Prior to an increase in fiscal year 2015, state recycling (SCORE) money had remained mostly flat since its first full appropriation in 1991.

³⁰ *Minnesota Statutes* 2014, 297H.13, subd. 2.

³¹ *Laws of Minnesota* 2013, chapter 114, art. 3, sec. 3, subd. 5, establishes the SCORE funding amount of \$14.25 million per year. *Laws of Minnesota* 2014, chapter 312, art. 12, sec. 5, appropriates \$4 million in 2015 and \$3 million per year thereafter to be added to the base amount.

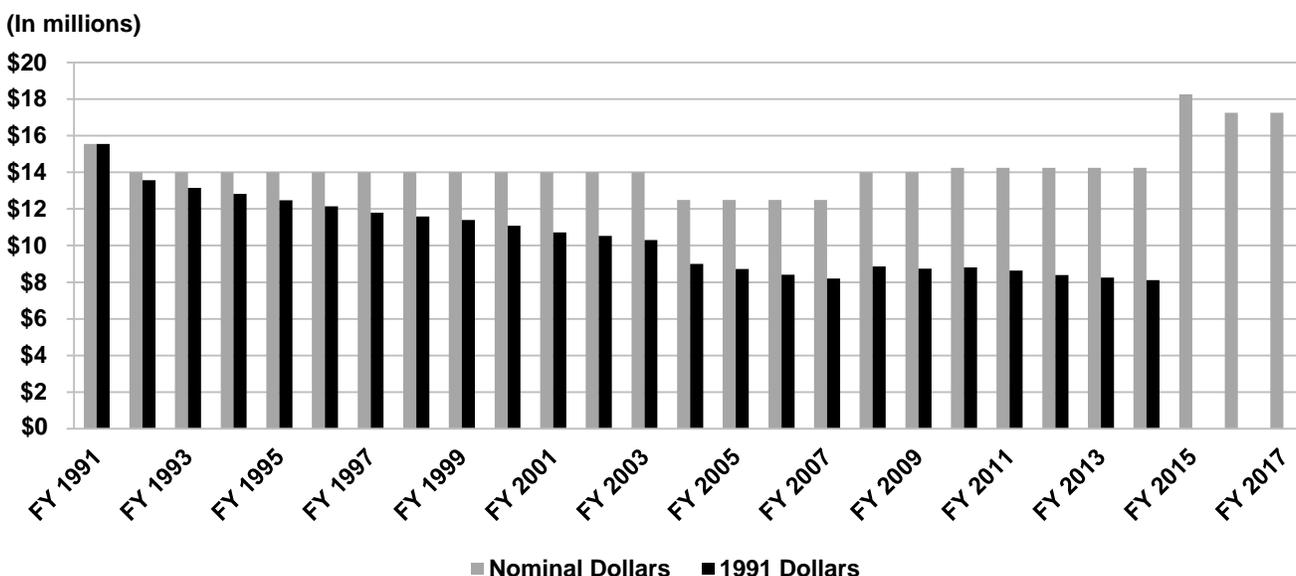
³² *Minnesota Statutes* 2014, 115A.557, subd. 1.

³³ *Ibid.* The minimum SCORE grant is \$55,000 if the total SCORE appropriation is equal to 2001 funding levels (\$14 million). If the SCORE appropriation for a given year is less than the 2001 base amount, the minimum disbursement may be decreased proportionately. Similarly, a larger SCORE appropriation results in a larger minimum disbursement.

³⁴ As mentioned previously, SCORE funding may be temporarily withheld if counties have not met their obligations.

Exhibit 1.9 shows state recycling appropriations under the SCORE program going back to the first full appropriation in fiscal year 1991.³⁵ For fiscal years 1991 through 2014, the state appropriated between \$12.5 million and \$15.55 million annually. With the exception of a few years in which the SCORE program received only \$12.5 million, state funding for most of the period was around \$14 million per fiscal year, until the funding increase authorized by the 2014 Legislature.³⁶ The exhibit shows actual SCORE appropriations, as well as the value in 1991 dollars. Prior to the recent legislative action, the inflation-adjusted value of state recycling funding had been gradually declining.

Exhibit 1.9: State Funding for Recycling (SCORE), Fiscal Years 1991 to 2017



NOTES: The darker bars show the values of SCORE appropriations indexed to constant 1991 dollars using the Bureau of Labor Statistics' Consumer Price Index for all urban consumers (<http://data.bls.gov/cgi-bin/srgate>, series ID CUUR0000SA0, accessed January 5, 2015). Appropriations for fiscal years 2015 through 2017 are not adjusted for inflation because price indices are not available for future years.

SOURCES: Office of the Legislative Auditor, analysis of *Laws of Minnesota* 1989, First Special Session, chapter 1, art. 24, sec. 2; *Laws of Minnesota* 1991, chapter 254, art. 1, sec. 3; *Laws of Minnesota* 1993, chapter 172, sec. 3; *Laws of Minnesota* 1995, chapter 220, sec. 3; *Laws of Minnesota* 1997, chapter 216, sec. 3; *Laws of Minnesota* 1999, chapter 231, sec. 3; *Laws of Minnesota* 2001, First Special Session, chapter 2, sec. 3; *Laws of Minnesota* 2003, chapter 128, art. 1, sec. 3; *Laws of Minnesota* 2005, First Special Session, chapter 1, art. 2, sec. 2, subd. 6; *Laws of Minnesota* 2007, chapter 57, art. 1, sec. 3, subd. 6; *Laws of Minnesota* 2009, chapter 37, art. 1, sec. 3, subd. 5; *Laws of Minnesota* 2011, chapter 2, art. 1, sec. 3, subd. 5; *Laws of Minnesota* 2013, chapter 114, art. 3, sec. 3, subd. 5; and *Laws of Minnesota* 2014, chapter 312, art. 12, sec. 5.

³⁵ *Laws of Minnesota* 1989, First Special Session, chapter 1, art. 24, sec. 2, subd. 1. The Legislature made an initial small appropriation of \$6.7 million for 1990 before increasing SCORE funding for fiscal year 1991.

³⁶ *Laws of Minnesota* 2014, chapter 312, art. 12, sec. 5.

Minnesota statutes restrict how counties may use SCORE funding.

Minnesota statutes outline nine allowable purposes for SCORE funding.³⁷ The purposes, as shown in Exhibit 1.10, include waste reduction, recycling services, market development, and education, among other things. In 2014, the Legislature added the ninth purpose related to composting, along with a requirement that, going forward, metropolitan-area counties must use half of any additional SCORE money they receive (above what they received in fiscal year 2014) for composting.

Exhibit 1.10: Allowable Uses of State Waste Reduction and Recycling (SCORE) Funding

- Reduce the amount of solid waste generated
- Recycle the maximum amount of solid waste technically feasible
- Create and support markets for recycled products
- Remove problem materials from the solid waste stream and develop proper disposal options for them
- Inform and educate all sectors of the public about proper solid waste management procedures
- Provide technical assistance to public and private entities to ensure proper solid waste management
- Provide educational, technical, and financial assistance for litter prevention
- Process mixed municipal solid waste generated in the county at a resource recovery facility located in Minnesota
- Compost source-separated compostable materials (materials separated for composting), including the provision of receptacles for residential composting

SOURCE: *Minnesota Statutes* 2014, 115A.557, subd. 2.

These restrictions, however, apply only to state SCORE dollars, which account for a relatively small percentage of the average county's recycling revenue. As mentioned previously, counties are required to provide local funds to match at least 25 percent of the SCORE grants they receive from the state. In reality, most counties contribute considerably more than is statutorily required. In 2013, SCORE grants made up only about one-quarter of recycling funding statewide. Most counties (63 percent in 2013) paid for less than 25 percent of their recycling expenditures with SCORE grants and paid for the rest of their recycling expenditures with other funds. For these counties, the bulk of their recycling expenditures are not subject to the restrictions in law.

Other State Funding

State law either imposes or authorizes a number of fees associated with landfills. These fees provide additional revenue for some counties that host landfill sites. Counties may also receive state funding from MPCA through competitive grants.

³⁷ *Minnesota Statutes* 2014, 115A.557, subd. 2.

Landfill Fees

Minnesota law establishes the metropolitan solid waste landfill fee, a fee on mixed municipal solid waste disposed of in landfills in the metropolitan area.³⁸ Landfill operators must pay either \$6.66 per ton of waste accepted (if the facility weighs its waste) or \$2 per cubic yard.³⁹ Three-quarters of the proceeds from this fee are deposited in the state's Environmental Fund for the purposes of metropolitan landfill abatement, and one-quarter is deposited in the metropolitan landfill contingency action trust.⁴⁰ According to MPCA staff, the metropolitan solid waste landfill fee is used to fund "local recycling development grants" for counties in the metropolitan area. These grants may be used for "planning, developing, and operating yard waste composting and recycling programs," and the activities funded must be consistent with the Metropolitan Solid Waste Management Policy Plan.⁴¹ In 2013, the state collected \$3.2 million in revenues from the metropolitan solid waste landfill fee.

While it is not remitted to the state, Minnesota statutes establish a similar landfill fee for facilities located outside of the Twin Cities metropolitan area.⁴² The greater Minnesota landfill cleanup fee requires landfill operators outside of the metropolitan area to charge a fee of \$2 per cubic yard of waste accepted and disposed of at the facility.⁴³ The revenue from this fee is remitted to the county or sanitary district where the landfill is located (unless the facility is owned by a city or a joint powers board, in which case, the fees are remitted to the owner). State law requires that the revenues from the greater Minnesota cleanup fee be used for "landfill abatement purposes, or costs of closure, postclosure care, and...mitigating and compensating for the local risks, costs, and other adverse effects of facilities."⁴⁴

In addition to the two landfill fees discussed above, state law authorizes any county that hosts a landfill to impose a fee by cubic yard of waste accepted on landfill operators.⁴⁵ For non-construction waste, the amount of this fee is determined by the county. State law requires revenues to be used for "landfill abatement purposes, or costs of closure, postclosure care, and...mitigating and

³⁸ *Minnesota Statutes* 2014, 473.843, subd. 1.

³⁹ The law exempts from this fee waste residue from recycling or waste processing facilities if there is at least an 85 percent weight reduction in solid waste processed.

⁴⁰ *Minnesota Statutes* 2014, 116.155, subds. 1 and 5. The metropolitan landfill contingency trust is an account within the state's Remediation Fund, created to provide a reliable source of public money for environmental response actions at qualified landfill facilities.

⁴¹ *Minnesota Statutes* 2014, 473.8441, subds. 3 and 4. The Metropolitan Solid Waste Management Policy Plan is a long-range policy plan prepared by MPCA in consultation with the metropolitan counties. The plan sets goals and policies for the metropolitan solid-waste system, including recycling and landfill disposal.

⁴² *Minnesota Statutes* 2014, 115A.923, subd. 1.

⁴³ As with waste that originates in the metropolitan area, the fee does not apply to waste from recycling or waste processing facilities if there is at least an 85 percent weight reduction in solid waste processed.

⁴⁴ *Minnesota Statutes* 2014, 115A.919, subd. 1; and 115A.923, subd. 1a.

⁴⁵ *Minnesota Statutes* 2014, 115A.919, subd. 1.

compensating for the local risks, costs, and other adverse effects of facilities.”⁴⁶ Counties are authorized to impose an additional fee of up to \$7.50 per cubic yard on waste that is collected outside the county but disposed of at a landfill inside the county.⁴⁷

Revenues from greater Minnesota landfill cleanup and county fees represent only a small part of statewide recycling funding (\$2.6 million in 2013). However, landfill fees can be a significant source of revenue for those counties that host waste disposal facilities. In Nobles and McLeod counties, for example, landfill fees make up more than 40 percent of those counties’ recycling funding.

State Grant Programs

While SCORE and local recycling development grants are distributed using population-based formulas, Minnesota statutes outline three additional grants for which counties and other entities can apply to help fund recycling and waste reduction programs. First, the 1980 Legislature established the Capital Assistance Program, which is available to cities, counties, solid waste management districts, and sanitary districts to help finance the capital costs of building solid waste processing facilities.⁴⁸ Eligible facilities must recover materials or energy and include, for example, facilities for recycling, composting, and waste-to-energy processing, as well as transfer stations that serve those facilities. Projects may receive up to 50 percent of the capital cost for recycling, household hazardous waste, and composting facilities, and up to 25 percent of the cost of other processing facilities (up to \$2 million per county involved in the project).

Local governments interested in receiving a capital assistance grant submit requests to MPCA, which in turn forwards the requests to the Legislature. The Legislature appropriates funding for particular projects as part of the bonding process. In 2014, for example, the Legislature appropriated \$2.6 million to MPCA for a capital assistance grant to Becker County to design and construct a transfer station and a material recovery facility.⁴⁹ MPCA reports that the Capital Assistance Program has provided more than \$60 million of assistance for at least 90 projects since 1985.

The Environmental Assistance Grant and Loan Program was established in state law in 1996.⁵⁰ The law permits MPCA to make a grant to any person for the purpose of researching or implementing projects related to recycling and other waste management strategies, among other things.⁵¹ The law authorizes MPCA to adopt rules to administer the grant program and allows the agency to “give

⁴⁶ *Minnesota Statutes* 2014, 115A.919, subd. 1.

⁴⁷ *Ibid.*, subd. 2.

⁴⁸ *Laws of Minnesota* 1980, chapter 564, art. 6, sec. 6.

⁴⁹ *Laws of Minnesota* 2014, chapter 294, art. 1, sec. 8.

⁵⁰ *Laws of Minnesota* 1996, chapter 470, sec. 6.

⁵¹ *Minnesota Statutes* 2014, 115A.0716, subd. 1(a).

priority to projects or practices that have broad application in the state....”⁵² Since 2004, the Legislature has appropriated \$119,000 each year for the grant program. MPCA, however, supplements this legislative appropriation with other funds; the agency made \$1 million available for the 2014-2015 project cycle. During previous cycles, MPCA has awarded grants to counties, cities, school districts, nonprofit organizations, and businesses. For example, the St. Cloud School District and the Tri-County Solid Waste Commission were awarded \$4,612 in fiscal year 2010 to improve recycling and reduce the toxicity of cleaning products used by St. Cloud schools. The school district used the grant money to purchase recycling bins and improve signage, as well as replace its cleaning products with a selection of environmentally friendly options.

In 2009 the Legislature established a competitive grant program to “increase composting, reduce the amount of organic wastes entering disposal facilities, and reduce the costs associated with hauling waste by locating the composting site as close as possible to the site where the waste is generated.”⁵³ MPCA is expected to “actively recruit” grant applicants beyond solid waste professionals, such as schools and soil and water conservation districts. The 2009 Legislature appropriated a total of \$500,000 for the grant program in 2010 and 2011.⁵⁴ MPCA awarded a total of ten grants over two years. For example, the Northfield School District was awarded nearly \$30,000 to establish a program for the collection of compostable materials. After conducting a successful pilot program at one of the district’s elementary schools during the 2010-2011 school year, the program was expanded throughout the district. While the composting grant program remains in state law, the Legislature has not appropriated additional funds to the program and MPCA has not awarded any of these grants since 2011. MPCA has, however, awarded funds for compost-related projects through the Environmental Assistance Grant and Loan Program, discussed above.

EXPENDITURES

We have already demonstrated that counties receive recycling funding from numerous sources; county recycling *spending* is equally varied in nature. In this section, we first discuss how Minnesota counties use their SCORE grants. We go on to discuss recycling expenditures more broadly (from state, local, and other funding sources), and how spending patterns differ between metropolitan-area and outstate counties.

Use of SCORE Dollars

State law allows counties to use their SCORE funds for a variety of purposes, as shown earlier in Exhibit 1.10.

⁵² *Ibid.*, subd. 1(b) and (c).

⁵³ *Laws of Minnesota* 2009, chapter 37, art. 1, sec. 43, subd. 1.

⁵⁴ *Ibid.*, sec. 3, subd. 5.

Counties allocate state SCORE funding in a variety of ways; some counties retain this funding for countywide recycling activities, while others distribute it to their municipalities.

We surveyed county solid waste officers in Minnesota to learn about local recycling policies and practices.⁵⁵ We found that most counties keep SCORE funds and use them for countywide recycling activities. Sixty-one percent of survey respondents reported that their county retains all of its SCORE funding for county use, and almost three-quarters of respondents reported retaining the majority of their SCORE funding for county purposes.

Survey Question: Please indicate the percentage of SCORE money your county keeps for eligible county-level activities.

None	8%
More than zero, but less than half	6
More than half, but less than all	13
All	61
No response	13

Total Responses: 72

In contrast, six counties (located throughout the state) reported allocating all of the SCORE money they receive to municipalities within their county. Hennepin and Anoka counties, for example, distribute SCORE funds to their municipalities using a population-based formula, and the municipalities are expected to use the funds for approved recycling activities.⁵⁶

Through our survey and discussions with county staff, we learned about several ways in which counties use their SCORE money. Some counties, such as Benton and Crow Wing, use SCORE funds to offer grants and other assistance to municipalities, individuals, and businesses within their county. Other counties, such as Washington, Isanti, and Pipestone, use SCORE money to fund their household hazardous waste recycling programs. Several counties reported using SCORE money to pay directly for recycling services, often by contracting with private vendors for recycling collection or processing.

Use of Recycling Revenue from All Sources

Counties report to MPCA on all recycling expenditures, regardless of whether they were funded with SCORE grants or other revenues. MPCA data show recycling expenditures in nine key areas:

1. Planning, oversight, and administration
2. County provision of recycling services
3. Yard waste
4. Household hazardous waste and problem material management

⁵⁵ We received responses from 87 percent of those surveyed.

⁵⁶ Clay, Crow Wing, Morrison, and Sibley counties also reported distributing 100 percent of their SCORE funds to municipalities.

5. Source reduction
6. Recycling education
7. Market development
8. Litter prevention
9. County grants to other local units of government

Total spending on all recycling-related activities rose from about \$51 million in 2004 to more than \$63 million in 2013, a 24 percent increase. When accounting for inflation, however, recycling spending increased by only 1 percent during this time period.

Direct county recycling services accounted for the largest portion of county recycling spending.

From 2004 to 2013, counties generally reported spending the largest share of dollars (between 28 and 34 percent) on the direct provision of recycling services. This includes curbside collection of materials, the operation of recycling drop-off centers, and materials processing, whether provided by county employees or through county-administered contracts with private haulers or facilities. Expenditures related to municipality-provided or -contracted recycling services do not fall in this category.

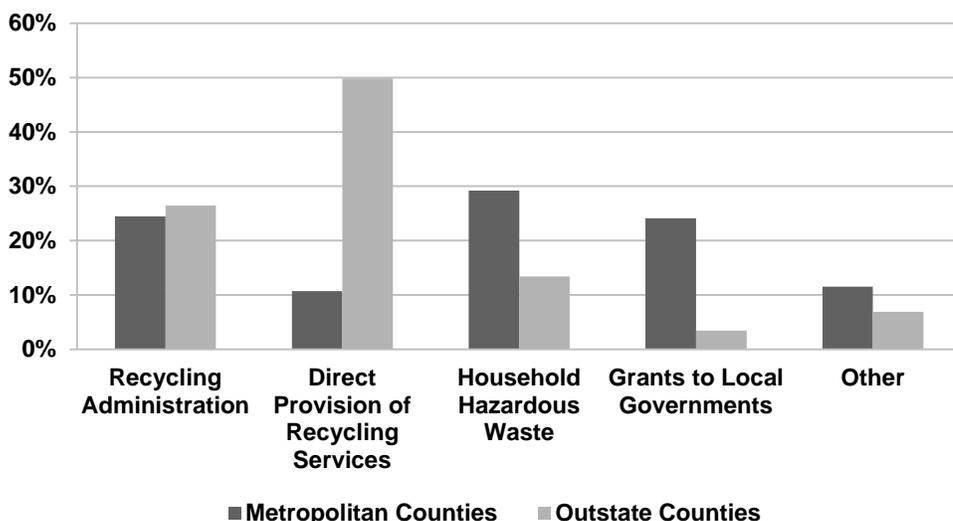
The next largest county spending category was planning, oversight, and administration, which includes county staff costs, as well as training, supplies, and consultant fees. This was followed by management of household hazardous waste and problem materials, grants to local governments, and other spending. “Other” spending encompasses a range of possible activities, including yard waste collection, source reduction, recycling education, market development, and litter prevention. These proportional breakdowns were fairly consistent across the ten-year period we examined.

In 2013, county provision of recycling services accounted for half of spending in outstate counties, but only 11 percent in metropolitan-area counties.

On average, counties spent roughly one-quarter of their recycling funding on planning, oversight, and administration, regardless of their location in the state. However, metropolitan and outstate counties spent their remaining recycling funds differently, as shown in Exhibit 1.11. Over the past decade, outstate counties spent close to half of their recycling dollars on direct county provision of recycling services and only 3 to 6 percent on grants to local governments. This balance has been shifting over time, with the proportion of spending on direct recycling services rising as the proportion of grants falls. Metropolitan counties, on the other hand, have spent much less (6 to 11 percent) on the direct

provision of services, but have spent nearly one-quarter of their total spending on grants to local government entities, which help their municipalities provide recycling services. Chapter 2 discusses in more detail how counties use their recycling funding to operate a wide variety of recycling programs and services.

Exhibit 1.11: County Recycling Spending, Metropolitan and Outstate Counties, Calendar Year 2013



NOTES: “Recycling administration” includes staff salaries; consultant costs; equipment and supplies; and training related to the planning, oversight, and administration of recycling programs. “Direct provision of recycling services” includes curbside collection of materials, the operation of recycling drop-off centers, and materials processing, whether provided by county employees or through county-administered contracts with private haulers or facilities. “Other” includes spending on yard waste, source reduction, recycling education, market development, and litter prevention. The term “metropolitan counties” refers to the seven Twin Cities counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

SOURCE: Office of the Legislative Auditor, analysis of Minnesota Pollution Control Agency SCORE data, 2013.

Chapter 2: Recycling Programs

While state law provides a general framework for recycling in Minnesota, recycling opportunities and participation vary across the state. In this chapter, we provide an overview of residential and commercial recycling in Minnesota and describe how local units of government take different approaches to recycling. We first discuss residential recycling across the state and conclude with a discussion about commercial recycling.

RESIDENTIAL RECYCLING

Residential recycling includes the process by which residents in single- and multi-family households collect recyclable materials and separate them from mixed municipal solid waste (garbage).¹ Common materials found in residential recycling include cardboard boxes, newspapers and magazines, and cans and bottles.

General Requirements

As discussed in Chapter 1, counties play a central role in facilitating residential recycling across the state.

By law, counties must ensure that residents have an opportunity to recycle.

Current law requires counties to ensure that residents of single- and multi-family dwellings have “an opportunity to recycle.”² Statutes define an “opportunity to recycle” differently, depending on the location and size of the municipality, as shown in Exhibit 2.1.

At a minimum, all counties are required to ensure that residents have access to a local recycling center.³ Certain cities, however, are subject to additional requirements. All cities with a population of 5,000 or more must ensure that residents have an opportunity to recycle at least four broad types of recyclable material, such as paper, metal, plastic, or glass. If a city with a population of 5,000 or more residents is located in the Twin Cities metropolitan area, or if a

¹ As defined in *Minnesota Statutes* 2014, 115A.03, subd. 21(a), “mixed municipal solid waste” includes garbage, refuse, and other solid waste from residential, commercial, industrial, and community activities that the generator of the waste aggregates for collection.

² *Minnesota Statutes* 2014, 115A.552, subd. 1.

³ Recycling centers must be open at least 12 hours each week, provide service for 12 months each year, and accept at least four broad material types. Recycling centers are discussed in the following section.

Exhibit 2.1: Requirements for Residential Recycling Service Provision

All Counties	
<ul style="list-style-type: none"> Local recycling center in the county Sites for collection of recyclable materials that are located in areas convenient for persons to use them 	
Cities with a Population of 5,000 or More Persons	Larger Cities and Cities in the Metropolitan Area ^a
<ul style="list-style-type: none"> Curbside pickup, centralized drop-off, or a local recycling center Accept at least four broad types of recyclable materials 	<ul style="list-style-type: none"> Monthly pickup of at least four broad types of recyclable materials

^a These requirements apply only to cities in the metropolitan area with a population of 5,000 or more and larger cities outside of the metropolitan area. "Larger cities" include cities of the first and second class. Cities of the first class are defined as "those having more than 100,000 inhabitants"; cities of the second class are defined as "those having more than 20,000 and not more than 100,000 inhabitants." See *Minnesota Statutes* 2014, 410.01. The term "metropolitan area" refers to "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." See *Minnesota Statutes*, 2014, 473.121, subd. 2.

SOURCE: *Minnesota Statutes* 2014, 115A.552, subd. 2.

city has more than 20,000 inhabitants, it is also required to ensure residents have access to monthly pickup of at least four broad types of recyclable material.⁴

While all counties must provide a recycling center, some local units of government also provide either curbside collection or drop-off facilities; others use a combination of both approaches. We discuss collection methods more in the following section.

In addition to ensuring collection opportunities for traditionally recyclable materials, Minnesota counties must also facilitate opportunities to recycle "problem materials and major appliances."⁵ The law states that, to the extent possible, the costs to recycle major appliances incurred by the county should be borne by those who discard the appliances.⁶ For instance, at Mille Lacs County's biannual household hazardous waste collection events, the county accepts a number of items for free (including paint, household cleaners, and batteries). However, the county charges a fee to recycle other problem materials, including

⁴ *Minnesota Statutes* 2014, 473.121, subd. 2, defines the term "metropolitan area" as "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."

⁵ As defined in *Minnesota Statutes* 2014, 115A.03, subd. 24a, "problem materials" are materials that, when processed or disposed of with trash, contribute to pollution of air or water or are a threat to the safe or efficient operation of a solid waste facility. Tires and electronics are examples of "problem materials." As defined in *Minnesota Statutes* 2014, 115A.03, subd. 17a, "major appliances" include washing machines, dryers, dishwashers, and other large household appliances.

⁶ *Minnesota Statutes* 2014, 115A.552, subd. 1.

\$15 to recycle major appliances, such as washers, dryers, and water heaters. Similarly, while it accepts some household problem materials for free, Scott County charges \$20 to recycle a treadmill and \$60 to recycle large tractor tires.

Some local units of government have enacted recycling requirements in addition to those specified in law.

While Minnesota requires counties to ensure that residents have the *opportunity* to recycle, several counties in Minnesota *require* residents to recycle. According to data collected by the Minnesota Pollution Control Agency (MPCA) in 2013, some Minnesota counties reported having local ordinances requiring residents to recycle. These ordinances are relatively similar; several counties, for instance, require residents to separate recyclable material from solid waste. For example, Carlton County's solid waste ordinance states: "...every person or entity disposing of Solid Waste in Carlton County shall separate recyclable materials from Solid Waste."⁷

Several county ordinances require residents to separate recyclable material from their garbage; others provide a list of specific materials residents are required to recycle. Additionally, some county ordinances require owners and/or managers of multi-unit housing facilities to provide central collection locations for recyclables generated in their buildings. Exhibit 2.2 provides examples of county ordinances that require residential recycling.

Exhibit 2.2: Sample County Residential Recycling Ordinances***Freeborn County: Residential Recycling***

Every person in Freeborn County shall:

- Subd. 1. Separate recyclable materials from non-recyclable materials.
- Subd. 2. Empty, rinse, clean and remove caps from all recyclable materials.
- Subd. 3. Store such materials in a clean and sanitary manner.

An owner or occupant of a residential or multiple family dwelling shall not deposit for collection mixed municipal solid waste which contains recyclable materials including glass, newsprint, metal cans, aluminum, plastic or other materials identified by resolution of the Board.

Olmsted County: Residential Recycling

Residential Generators must ensure the segregation and delivery of, at a minimum, newsprint, glass containers, corrugated cardboard, aluminum cans and aluminum scrap to a Recycling Center, either by Self-Hauling or by contract with a licensed Commercial Hauler.

SOURCES: Freeborn County, *Waste Management Ordinance, Ordinance No. 17*, art. 4, sec. 1, subs. 1-3, and sec. 6 (2007); and Olmsted County, *Chapter 3500 Solid Waste Management Ordinance*, 3503.02, subs. 3 (2012).

⁷ Carlton County, *Solid Waste Ordinance, Ordinance No. 17*, sec. 4, subd. 2(a) (1997).

Collection Methods

State law establishes broad parameters for county recycling programs, but the program specifics are determined by the local county or municipality. As a result, recycling collection practices vary widely across the state.

Methods for collection of residential recycling vary across the state; some residents have access to only drop-off sites, while others have curbside collection of recyclable material.

Some residents must transport their recycling to a centralized location; for others, recyclable material is collected at their curb or in their alley. Many factors affect the collection process, including geographic location, who collects the recyclable material, and where the material is processed. Counties typically implement one or more of three collection methods to ensure that residents have access to recycling: recycling centers, drop-off facilities, and curbside collection.

Recycling Centers

As noted in the previous section, state statutes require all counties to ensure residents have access to at least one recycling center. Recycling centers, as defined in law, must:

1. Be open at least 12 hours each week.
2. Provide service for 12 months each year.
3. Accept at least four broad material types, such as paper, glass, plastic, and metal.⁸

In addition to collecting recyclable materials, some recycling centers provide additional waste management services, such as reuse centers, resident education, and household hazardous or yard waste collection. The Cook County Recycling Center in Grand Marais, for example, houses the Budget Shop, a used clothing and household goods site where residents can purchase used goods and learn about county recycling operations. On the other hand, some recycling centers are simply drop-sites that accept four types of recyclable material and are open 12 hours each week year round.

According to MPCA data, there were 499 recycling centers across the state in 2013. Becker County reported having the greatest number of recycling centers (47 facilities in 2013); 27 counties reported having only one recycling center.

Drop-Off Facilities

To ensure that residents have sufficient opportunities to recycle, counties may also choose to establish recycling drop-off sites.⁹ Drop-off facilities are

⁸ *Minnesota Statutes* 2014, 115A.555.

⁹ Drop-off facilities are also called “recycling stations” on MPCA’s reporting forms.

recycling sites that do not meet the requirements of a recycling center (for example, they may not accept four types of recyclable material), but are at locations convenient for residents to use.¹⁰ Recycling drop-off sites are sometimes the primary recycling service for residents living in counties with lower population density.

Recycling opportunities at drop-off sites vary across the state. Some drop-off sites allow residents to place all recyclable material into one collection container, while other sites require residents to separate their recycling by material type before placing it in collection receptacles. For instance, residents of Otter Tail County have access to 29 county-owned drop-off sites, at which residents must separate the different types of material before recycling.

MPCA data show there were 739 recycling drop-off facilities across the state in 2013. Data collected by MPCA show that, in recent years, counties generally reported having between 1 and 33 recycling drop-off facilities.¹¹

Curbside Collection Services

Counties may also ensure that residents have the opportunity to recycle by using curbside collection services in addition to a recycling center or drop-off facility. Curbside collection is a recycling service in which recyclables are picked up from a resident's home, usually at the curb or in the alleyway. Often, communities with curbside recycling offer biweekly collection of recycling in addition to weekly collection of garbage. Beyond the collection schedule, however, local units of government across the state take widely different approaches to facilitating curbside collection.

Statewide, curbside collection of recyclable materials is conducted by a mix of public and private entities.

There are many ways that curbside collection services can be provided. A county or municipality may opt for *organized* collection services, meaning that the county or municipality either provides the collection services itself or contracts with a specific third-party hauler or haulers to provide these services to residents. The alternative is to establish *open* collection services, in which residents contract directly with a third-party hauler of their choice. Recycling services may be the same across the entire county, as they are in Winona County, or may vary from city to city, as in Dakota County. Additionally, local units of government may choose to implement open collection for either garbage or recycling service and organized collection for the other.

Exhibit 2.3 highlights a sample of local units of government in Minnesota and shows the ways in which they arrange for residential curbside garbage and

¹⁰ *Minnesota Statutes* 2014, 115A.552, subd. 2.

¹¹ Ramsey County reported having 265 drop-off facilities; however, this figure includes any identifiable location that accepted for recycling at least one type of recyclable material as of 1997. For example, the county included every auto service facility that accepted used oil or lead acid batteries.

recycling collection services. For example, the city of Farmington provides both recycling and garbage services directly to its residents (organized collection). Residents of other cities, such as Brainerd, arrange for both recycling and garbage services with third-party haulers directly (open collection). We found that service arrangements vary across the state, although establishing open recycling and organized garbage collection appears to be less common among local units of government in Minnesota.

Exhibit 2.3: Residential Waste Collection Service Arrangements for Select Cities and Counties, 2014

Open Collection: Residents contract directly with a hauler for collection services.
Organized Collection: Local unit of government contracts with a specific hauler who provides collection services for residents, or the municipality provides collection services directly.

	Open Collection		Organized Collection	
	Garbage	Recycling	Garbage	Recycling
Brainerd	✓	✓		
Dodge County	✓	✓		
Eden Prairie	✓	✓		
Falcon Heights	✓			✓
Farmington			✓	✓
Forest Lake			✓	✓
Minneapolis			✓	✓
Oakdale	✓	✓		
Richfield	✓	✓		
Shakopee			✓	✓
St. Paul	✓			✓
Wayzata			✓	✓
Willmar	✓			✓
Winona County	✓			✓
Woodbury	✓	✓		

SOURCE: Office of the Legislative Auditor, review of city and county websites.

While the ways in which local units of government arrange for recycling collection services vary widely, most counties reported that at least some residents had curbside recycling collection. Strategies that local units of government use to ensure that residents have access to curbside collection services include: (1) implementing an ordinance (requiring garbage haulers to also provide curbside recycling services, for example); (2) contracting with a hauler for citywide services; or (3) providing curbside recycling collection using city staff. To

Survey Question: About what percentage of residents in your county have curbside recycling service?	
None	17%
About 25% or less	8
At least 25% but less than half	13
At least half but less than 75%	25
At least 75% but less than 100%	19
All	13
Don't know	3
No response	3
Total Responses: 72	

learn more about local recycling opportunities, we surveyed county solid waste officers across the state.¹² Of those who responded, nearly 80 percent reported that at least some county residents had access to curbside recycling services. In Meeker County, for instance, county staff told us that all cities with a population over 600 residents have biweekly, curbside recycling collection. MPCA data show that more than three-quarters of Minnesota’s population was served by residential curbside recycling programs in 2013, based on county-provided estimates.

Whether or not residents have curbside collection, they must understand how to separate their recyclable material. An increasingly common sorting method, “single-sort,” allows residents to place all types of recyclable material in one collection receptacle. This is in contrast to separating material by type (such as paper or glass) as is required in multi-sort collection methods. Some, but not all, residents with curbside collection have access to *single-sort* curbside collection. While 78 percent of respondents to our survey stated that at least some residents have access to curbside recycling services, fewer (58 percent) reported that at least some residents have access to *single-sort* curbside collection. Nearly 50 percent of respondents said that less than half of county residents have access to single-sort curbside recycling. Only 8 percent of respondents said that all residents have access to single-sort curbside collection (Anoka, Chisago, Lyon, Ramsey, Scott, and Watonwan counties).

Survey Question: About what percentage of residents in your county have single-sort curbside recycling collection?	
None	29%
About 25% or less	8
At least 25% but less than half	10
At least half but less than 75%	15
At least 75% but less than 100%	17
All	8
Don't know	8
No response	4
Total Responses: 72	

Recyclable Materials

When residents recycle in their homes, they likely think of traditionally accepted materials, such as paper, glass, plastic, and metal. However, state statutes define recyclable materials more broadly, as:

...materials that are separated from mixed municipal solid waste for the purpose of recycling or composting, including paper, glass, plastics, metals, automobile oil, batteries, and source-separated compostable materials.¹³

While a broad range of materials are considered recyclable under law, the types of material collected for recycling vary widely among local units of government.

¹² We received responses from 87 percent of those surveyed.

¹³ *Minnesota Statutes* 2014, 115A.03, subd. 25a. “Source-separated compostable materials” are materials that are separated at the time of disposal for the purposes of composting. For simplicity, in this report we refer to them as “materials separated for composting.”

Private haulers or recycling processing facilities may determine which recyclable materials will be collected, based on the technological capabilities of their collection and processing equipment. For example, some recycling haulers began collecting certain cartons—such as milk and juice boxes—after local processing facilities installed new sorting equipment; prior to the technology upgrade, residents could not recycle these types of cartons because recycling facilities could not process them. In other cases, items collected for recycling may be determined based on market demand for the recycled material. For example, one hauler in the Twin Cities does not collect #3 and #6 plastics, partially because there are limited end markets for these materials.¹⁴ However, the city of Minneapolis and some other haulers have made a point to collect *all* plastic containers, including #3 and #6 plastics, in an effort to make recycling easier for residents.

Differences in the collection practices for certain recyclable material can be confusing for residents, particularly those living in a municipality with an open collection system. In an open collection system, multiple haulers may serve a single city or neighborhood. If each hauler collects different recyclable materials, it can be difficult for local units of government to communicate with residents about what materials to recycle.

Just as collection practices vary for common household recyclables, practices also vary for the collection of many other types of recyclable material. The following sections provide information about three additional types of recyclable material: yard waste, compostable material, and household hazardous waste.

Yard Waste

By law, residents are not permitted to dispose of yard waste with their garbage.¹⁵ As outlined in state statutes, yard waste includes “garden wastes, leaves, lawn cuttings, weeds, shrub and tree waste, and prunings” generated at residential, commercial, industrial, and institutional properties.¹⁶ Some garbage or recycling haulers collect yard waste as part of their waste collection service, while others may charge residents an additional fee for yard waste collection. Some haulers do not offer curbside yard waste collection services.

MPCA data show that in 2013, there were 501 yard waste drop-off sites and 238 yard waste curbside collection programs across the state. The city of Plymouth, for example, operates a yard waste drop-off facility from April through November that is available to residents of Plymouth, Long

Survey Question: Please identify all public or privately provided yard waste recycling services available to residents or businesses in your county.

Curbside collection	33%
Centralized collection sites	85
Collection events	15

Total Responses: 72

¹⁴ As outlined in Chapter 1, Exhibit 1.4, plastics #3 are made of polyvinyl chloride and include bottles for cooking oil, salad dressing, and mouthwash. Plastics #6 are made of polystyrene and include some coffee cups, yogurt tubs, and clear carry-out containers.

¹⁵ *Minnesota Statutes* 2014, 115A.931.

¹⁶ *Minnesota Statutes* 2014, 115A.03, subd. 38.

Lake, Medicine Lake, and Wayzata. St. Cloud residents have access to weekly curbside yard waste collection. In our survey of county solid waste officers, most respondents reported having drop-off sites for yard waste, while about one-third reported having curbside collection opportunities in their counties. Based on MPCA data, counties estimated that almost half of Minnesota's population had access to curbside yard waste collection in 2013.

Compostable Materials

By law, compostable materials are defined as “food wastes, fish and animal waste, plant materials, diapers, sanitary products, and paper that is not recyclable.”¹⁷ Nonrecyclable paper includes soiled paper not accepted for traditional recycling, such as paper towels and greasy pizza boxes. To be considered “source-separated,” compostable material must be:

1. Separated from the waste stream by a “waste generator,” such as a resident or business, for use as compost.
2. Collected separately from mixed municipal solid waste.
3. Taken to specific facilities to undergo microbial processing.¹⁸

The 2014 Legislature required counties to place a greater emphasis on composting.

The Legislature expanded the definition of recycling in 2011 to include materials separated for composting; in 2014, the Legislature added composting activities to the list of permitted uses of state recycling money.¹⁹ The Legislature also added a requirement that, going forward, metropolitan counties use half of any additional SCORE money they receive (above what they received in fiscal year 2014) for composting.²⁰ In addition to the new compost-related laws passed during the 2014 legislative session, existing statutes also encourage composting. State statutes establish a competitive composting grant program administered by MPCA, which we discussed in Chapter 1.²¹

While state funding can be used to manage yard waste and other compostable materials, the Legislature's recent emphasis on composting is separate from the requirement that residents not dispose of yard waste with their garbage.²² The

¹⁷ *Minnesota Statutes* 2014, 115A.03, subd. 32a.

¹⁸ *Ibid.*

¹⁹ *Laws of Minnesota* 2011, chapter 107, sec. 81; and *Laws of Minnesota* 2014, chapter 312, art. 13, sec. 28. As discussed in Chapter 1, state money allocated to counties for recycling purposes must be used only for certain purposes identified in law.

²⁰ *Laws of Minnesota* 2014, chapter 312, art. 13, sec. 28. SCORE grants are state recycling grants distributed to counties using a population-based formula. The term “metropolitan county” includes the counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

²¹ *Minnesota Statutes* 2014, 115A.559.

²² *Minnesota Statutes* 2014, 115A.931, prohibits people from placing yard waste in mixed municipal solid waste.

actions taken by the 2014 Legislature were focused instead on compostable materials that are often part of the municipal garbage stream, like food waste and paper that is otherwise not recyclable, such as pizza boxes.

Despite the Legislature’s emphasis on composting, very few counties reported collection opportunities for separated compostable materials, such as food waste.

In our survey of county solid waste officers, 74 percent responded that county residents do not have collection services for material separated for composting (excluding yard waste).²³ Only 4 percent of county administrators reported that at least half of residents have access to collection services for material separated for composting. Two counties—Dodge and Ramsey—reported that all residents have access to collection of these materials. Residents of Ramsey County, for example, can access these services via county drop-off sites.

Survey Question: About what percentage of residents in your county have source-separated organics collection (not including yard waste) available in their community?

None	74%
About 25% or less	10
At least 25% but less than half	4
At least half but less than 75%	1
At least 75% but less than 100%	0
All	3
Don't know	7
No response	1

Total Responses: 72

Although collection of material separated for composting remains limited throughout the state, some cities, such as Wayzata, St. Louis Park, Watertown, Mayer, and parts of Minneapolis, have implemented collection programs for this material. Many of these programs require residents to “opt in” to collection services and some charge an additional fee. Wayzata residents, for instance, can request collection of compostable material through a local hauler. The cost for these services is included in the hauler’s fee; residents also receive a 32-gallon collection cart, biodegradable collection bags, and a kitchen compost bucket at no additional cost. The city of Hutchinson, whose compostable collection program is highlighted in Exhibit 2.4, also offers curbside collection of material separated for composting. A private waste hauler collects the material, which is taken to a city-owned and -operated composting facility.²⁴

Local units of government use various techniques to collect material separated for composting. The city of Watertown, for example, uses a “blue bag” system in which residents place compostable material in a biodegradable blue bag. Residents then dispose of the blue bag with their garbage, and the hauler sorts the bag out of the waste stream as part of its waste-processing activities. Alternatively, the city of St. Louis Park provides curbside collection for food waste and other compostable material commingled with yard waste in one container.

²³ Our survey of county solid waste officers referred to “source-separated organics (not including yard waste.)” In this report, we refer to the same material as “material separated for composting.”

²⁴ Composting is not the only method for managing organic waste; other practices include food donation and “food-to-livestock” programs.

Exhibit 2.4: City of Hutchinson Curbside Collection of Compostable Material

What:	Hutchinson has a voluntary curbside collection program for yard waste and materials separated for composting (including food waste; nonrecyclable paper, such as tissues, napkins, and paper plates; and boxes, such as milk cartons, egg cartons, and pizza boxes).
Collection:	Compostable material is collected weekly at no additional cost to residents, on the same day as traditional recycling and garbage collection.
Resources provided:	At no additional cost, residents receive a 90-gallon roll cart (from the private hauler) and eight biodegradable bags per month (from the city).
Processing:	Compostable material is hauled to a composting site owned and operated by the City of Hutchinson.
End product:	The resulting soil amendment is sold at hardware and gardening stores in Minnesota.

SOURCE: Office of the Legislative Auditor.

Similar to recycling, compostable material haulers and processing facilities often dictate what specific materials will be accepted for composting. For example, Ramsey County drop-off sites for compostable material do not accept animal waste. Hutchinson, on the other hand, provides curbside collection of compostable material and will accept animal waste, such as cat litter.

Household Hazardous Waste

Household hazardous waste is yet another category of waste generated by Minnesota residents. MPCA defines household hazardous waste as: “Waste generated from household activities that is corrosive, flammable, toxic...”²⁵ Examples of household hazardous waste include drain cleaners, batteries, varnish, and weed killer.

State statutes require all counties to include household hazardous waste management plans as part of their solid waste management plans. Within these plans, counties must at least include a:

1. Broad-based public education component.
2. Strategy for reduction of household hazardous waste.
3. Strategy for separation of household hazardous waste from mixed municipal solid waste and the collection, storage, and proper management of that waste.²⁶

²⁵ Minnesota Pollution Control Agency, *2013 SCORE Reporting Form* (St. Paul, 2013), 12.

²⁶ *Minnesota Statutes* 2014, 115A.96, subd. 6.

While counties employ different strategies to provide household hazardous waste collection services, collection opportunities across the state are widespread.

All respondents to our survey reported that residents have opportunities to recycle or properly manage household hazardous waste via collection sites or collection events.

In our survey of county solid waste officers, more than half of the respondents reported providing household hazardous waste collection sites *and* collection events. Almost 80 percent of respondents reported providing collection events, and three-fourths of respondents indicated their county has household hazardous waste collection sites.

For instance, Mille Lacs County hosts two collection events per year where it collects a number of household hazardous waste materials—such as paint, cleaners, tar, and antifreeze—from residents at no charge. To provide household hazardous waste recycling opportunities for the rest of the year, Mille Lacs County contracts with Stearns County. Mille Lacs residents can make arrangements with Stearns County Environmental Services to recycle household hazardous waste throughout the year. Similarly, Chippewa County collaborates on household hazardous waste collection with Kandiyohi County via a joint powers agreement. Residents of both Chippewa and Kandiyohi counties can bring household hazardous waste materials to the regional collection center in Willmar (located in Kandiyohi County). In addition, Chippewa County hosts an annual collection event to encourage proper disposal of household hazardous waste.

Members of the Twin Cities metropolitan Solid Waste Management Coordinating Board also cooperate in their efforts to provide household hazardous waste services to their counties.²⁷ Member counties have a reciprocal-use agreement, which allows residents to drop off their household hazardous waste at any household hazardous waste collection site in the six member counties.

Some county household hazardous waste programs are open to commercial entities as well. Dakota County staff, for example, told us that the county provides household hazardous waste collection programs for local businesses, including an electronic-waste and fluorescent bulb collection program and a Very Small Quantity Generator Program aimed at small businesses.²⁸

Encouraging Residential Recycling

The Legislature has established recycling goals for all counties in the state and has an interest in increasing the amount of material that is recycled.²⁹ In this

²⁷ The Solid Waste Management Coordinating Board member counties are: Anoka, Carver, Dakota, Hennepin, Ramsey, and Washington.

²⁸ A Very Small Quantity Generator Program consists of one or more hazardous waste collection sites aimed at businesses that generate 220 pounds or 22 gallons or less of hazardous waste per month.

²⁹ *Minnesota Statutes* 2014, 115A.02(a).

section, we examine ways in which local units of government encourage residents to recycle.

Counties report a variety of activities to encourage residential recycling.

To learn more about recycling practices in Minnesota, we visited a number of counties and cities across the state.³⁰ During our site visits, recycling staff told us they use multiple approaches to encourage residential recycling. Staff frequently cited the importance of educating residents and making recycling more convenient, both of which are discussed in greater detail below.

Educating Residents

Local units of government often try to educate residents as a way to increase recycling rates. As discussed in Chapter 1, state recycling funding may be used to “inform and educate all sectors of the public about proper waste management procedures.”³¹ MPCA data show that in 2013, Minnesota counties spent a combined total of nearly \$2.9 million—5 percent of total 2013 recycling-related expenditures—on recycling education.³² Counties we visited told us they use a wide range of methods to educate the public, such as providing composting classes, sending informational mailings to residents, and conducting landfill and recycling-center tours.

In our survey of county solid waste officers, we asked how counties educate their residents about recycling. Survey respondents most frequently reported providing recycling information on county websites, placing newspaper advertisements and announcements regarding recycling opportunities, and providing recycling resources to public schools. Exhibit 2.5 outlines the extent to which county staff reported using different education methods to increase recycling across the state.

Recycling Convenience

In our site visits, county staff and other stakeholders often stated that making recycling easy and convenient encourages residential recycling. As one Winona County administrator told us, convenient recycling increases the likelihood residents will recycle and decreases the chances they will bury or burn waste illegally.

³⁰ We spoke with staff from Anoka, Carver, Dakota, Hennepin, Meeker, Mille Lacs, Polk, Ramsey, Red Lake, Scott, St. Louis, Washington, and Winona counties. We also spoke with staff from the cities of Minneapolis, Plymouth, St. Louis Park, and St. Paul.

³¹ *Minnesota Statutes* 2014, 115A.557, subd. 2(a)(5).

³² Expenditures designated for resident education are funded by state and local revenues. Local funding sources include service fees, material sales, and county general revenues, among other things.

Exhibit 2.5: County Recycling Education Methods

	Rate of Use
County website information	90%
Newspaper advertisements/announcements	88
K-12 school resources and/or visits	74
In-person education at neighborhood/community events	61
Radio advertisements/announcements	61
Signage in public spaces	53
Mailings to residents	47
Solid and hazardous waste directories	43
Landfill or recycling center tours	40
Waste assessments for commercial businesses	35
Social media	21
Television advertisements/announcements	15
Website advertisements/announcements (other than on county websites)	15
Other	14
Electronic newsletters	11
Master recycler/composter classes	4

NOTES: Analysis was based on county responses to the following prompt: "Identify all of the education programs your county provides to inform residents about recycling." "Other" includes county-provided responses such as the Yellow Pages, collaboration with a chamber of commerce, and cart labels. We received responses from 87 percent of those surveyed.

SOURCE: Office of the Legislative Auditor, survey of county solid waste officers, 2014.

Local units of government take different approaches to making recycling convenient, including providing (1) curbside and single-sort collection, (2) recycling services for no additional fee, and (3) recycling opportunities in public places.

Several local units of government provide curbside recycling services as a way to encourage recycling. For instance, residents of the city of Virginia have access to both recycling drop-off containers and curbside recycling services. As discussed in Exhibit 2.6, Winona County provides countywide curbside recycling collection, unusual for a rural county.

Local units of government also make recycling more convenient by providing single-sort recycling collection, where residents can place all recyclable material in one receptacle. Minneapolis, for example, piloted single-sort collection in specific neighborhoods in 2012 and fully converted to citywide single-sort collection by June 2013. Staff from several cities and counties told us that their recycling rates increased after they implemented single-sort collection. Minneapolis, for example, reported a 45 percent increase in recycling rates after replacing a complicated multi-sort collection process with single-sort services. In 2011—prior to the implementation of single-sort collection—Minneapolis recycled 16.5 percent

Exhibit 2.6: Winona County Curbside Recycling

What:	Winona County provides countywide curbside recycling collection for all residents and businesses in the county, which is unusual for a rural county.
Collection:	Winona County contracts for recycling services with a private hauler. Residents in single-family homes, multi-family housing with up to four units, and businesses receive bi-weekly curbside collection.
Resources provided:	Participants receive one 96-gallon collection cart.
Processing:	Materials are first shipped to a transfer station in Rochester and then to a material recovery facility in the Twin Cities.
Participation:	Almost 100 percent of residents participate in recycling, up from an estimated rate of around 60 percent before the countywide curbside recycling program was implemented.
Convenience:	Prior to curbside collection, county staff said, rural recycling was difficult; residents had to load their vehicles and make special trips to recycling drop-off sites that ultimately might be too full to accept their waste. Curbside collection, staff said, makes recycling easier for residents.

SOURCE: Office of the Legislative Auditor.

of its municipal solid waste; after the implementation of single-sort collection in 2013, the city reported recycling 23.3 percent of its waste.³³

Local units of government also seek to increase recycling by providing recycling services at no additional charge. Polk County, for example, does not charge to recycle most materials (including problem materials, such as appliances and electronics). Instead, the costs to recycle these materials are paid for by a \$120 annual, per-parcel assessment levied on residents’ property taxes. Similarly, Scott County reported an increase in the amount of material collected when it eliminated the fees to recycle a number of problem materials in 2014.

As another approach to encouraging recycling, some counties and cities in the metropolitan region, including Hennepin and Ramsey counties and the city of St. Paul, are putting a new emphasis on recycling in public spaces. For instance, St. Paul is making recycling available in public areas, such as parks, recreational centers, and commercial retail districts. The city has placed nearly 500 recycling containers in public locations with the aim of increasing access to recycling opportunities away from home.

Similarly, Hennepin County has partnered with the Minneapolis Park and Recreation Board to loan portable recycling containers for use at local events. In 2013, the portable recycling containers were used at 73 events—such as Minnetonka Summer Fest, the Minneapolis Bike Tour, and Maple Grove Days—to encourage recycling at these events.

³³ Other Minnesota communities may not report equally large increases after conversion to single-sort recycling collection. For example, St. Louis Park staff reported that recycling rates increased after the conversion to single-sort collection, but not dramatically. Minneapolis’ substantial increase in its recycling rate was likely a result of replacing the city’s previous complicated multi-sort program and cannot be expected in all municipalities.

Recycling Impediments

While many local units of government and residents have taken an active role in increasing the amount of material recycled, these efforts are not consistent across the state.

Recycling participation and interest varies across Minnesota.

Through our site visits and survey responses, we identified a number of factors that can serve as barriers to recycling. These factors include residents' attitudes toward recycling, county demographics, the difficulty of recycling in multi-family complexes, and the lack of basic garbage service in some communities. We discuss these factors in more detail below.

County Culture and Demographics

Staff in some counties told us that recycling was not a priority for their residents or county boards. For example, one staff person told us that many people in her county feel that if they throw away something that could be recycled, it is “not the end of the world.” Staff in another county noted that their county board members do not necessarily see the benefit of environmental activities, such as recycling.

Some solid waste administrators we spoke with cited economic factors as elements that can also negatively affect county efforts toward increasing residential recycling. For instance, staff in Ramsey County told us that “social determinants,” such as income—not small program changes such as providing recycling carts—have a substantial effect on recycling. They noted that recycling is especially challenging in areas of poverty.

Accessibility and convenience of recycling services can also affect recycling rates. In describing the effort necessary to transport recyclable material to collection sites, one outstate county staff person told us that if he did not work in town where the drop-off facilities are located, he would likely throw his recycling in the garbage rather than drive 15 miles to recycle it.

Multi-Family Complexes

During our site visits, county and city staff also spoke about recycling challenges at multi-family housing complexes. For example, Anoka County staff explained that having a large number of multi-family residences in a community can make meeting recycling goals more difficult; communities that tend to meet recycling goals, they told us, are those that have a stable population with a large percentage of single-family households. Additionally, the recycling collection process at multi-family complexes often differs from the process used for single-family residences. In many communities, multi-family buildings are excluded from organized recycling services provided for single-family residents. As a result, managers of many multi-family complexes must contract directly for recycling services with third-party haulers. While the law requires that residents of multi-family buildings have access to recycling, one solid waste staff person told

us that managers of multi-family complexes do not always provide recycling services, even when pressured to do so by the municipality.³⁴

Some local units of government have taken steps to address recycling challenges at multi-family residences. Steele County, for instance, established an agreement with a private contractor to provide recycling services to multi-family dwellings. Likewise, since the 1980s, St. Louis Park has organized collection for trash, recycling, and yard waste for smaller, multi-family buildings. The Solid Waste Management Coordinating Board, recognizing the challenges associated with recycling in multi-family units, recently approved a grant to support research about overcoming recycling barriers at multi-family housing complexes. Nevertheless, county staff told us that challenges in this area remain. Washington County staff, for instance, stated that they have trouble encouraging recycling in multi-family buildings and find it is unclear whether outreach efforts should focus on the property owners or the residents. Similarly, Ramsey County staff told us that multi-family complexes are the county’s primary recycling challenge.

Recent legislative changes may help to increase recycling at multi-family complexes. In 2014, the Legislature enacted new recycling requirements for buildings that produce a certain amount of waste and are located in the Twin Cities metropolitan region.³⁵ Many larger multi-family complexes will be subject to these requirements when they take effect in 2016. We discuss these requirements in greater detail at the end of the chapter.

Lack of Garbage Service

Another impediment to increasing recycling rates may be the lack of affordable and convenient garbage services in some areas of the state. Establishing garbage collection helps encourage people to dispose of waste safely and legally.³⁶ Further, because many garbage haulers also provide recycling services, having garbage service can increase access to recycling services. However, only

Survey Question: About what percentage of residents in your county have garbage service?

None	0%
About 25% or less	0
At least 25% but less than half	3
At least half but less than 75%	19
At least 75% but less than 100%	50
All	18
Don't know	8
No response	1

Total Responses: 72

18 percent of survey respondents reported that all county residents have garbage services. As a result of the lack of readily available garbage services statewide, illegal dumping and burning of waste are still concerns. MPCA estimated that, in 2012, 62,775 tons of municipal solid waste were buried or burnt.³⁷ Staff from

³⁴ *Minnesota Statutes* 2014, 115A.552, subd. 1.

³⁵ *Laws of Minnesota* 2014, chapter 225, sec. 4.

³⁶ As noted in *Minnesota Statutes* 2014, 88.171, subds. 2 and 8, it is illegal for most Minnesotans to burn garbage. Exceptions exist for farmers under circumstances outlined in *Minnesota Statutes* 2014, 17.135.

³⁷ Minnesota Pollution Control Agency, *Report on 2012 SCORE Programs* (St. Paul, 2013), 5. Additional information about illegal waste disposal can be found in a report prepared for the Minnesota Pollution Control Agency by Zenith Research Group, *Garbage Burning in Rural Minnesota* (Duluth, 2010).

some counties we visited, for example, told us that residents still burn waste in home “burn barrels.” Further, MPCA estimated that in 2012, an additional 124,100 tons of materials that are banned from landfills—including major appliances, waste tires, motor oil, oil filters, and vehicle batteries—were disposed of illegally. In total, an estimated 186,875 tons of material were disposed of illegally in Minnesota in 2012.

COMMERCIAL RECYCLING

While individuals may be more familiar with the recycling they manage at home, commercial recycling accounted for 74 percent of all state recycling (by weight) in 2013. Commercial recycling includes materials separated from municipal solid waste that were generated at locations such as office buildings, retail and wholesale establishments, and restaurants.³⁸ Common materials found in commercial recycling include corrugated boxes, office paper, beverage containers, and food scraps.

Unlike residential recycling, counties are not required to ensure that commercial entities have an opportunity to recycle.

In contrast to the requirement that counties ensure recycling opportunities for residents, the state does not require counties to ensure that commercial entities have an opportunity to recycle. Rather, Minnesota law simply states that counties should *encourage* commercial entities to recycle. More specifically, Minnesota statutes state:

Each county shall encourage building owners and managers, business owners and managers, and collectors of commercial mixed municipal solid waste to provide appropriate recycling services and opportunities to generators of commercial, industrial, and institutional solid waste in the county.³⁹

Several local units of government in Minnesota supplement state law with local ordinances requiring that commercial facilities recycle or provide opportunities to recycle at their establishment. County ordinances requiring commercial recycling typically include at least one of two provisions: (1) requiring owners and/or managers of commercial property to provide central collection sites for recyclable material or (2) requiring that commercial waste generators separate recyclable materials from solid waste. For example, Swift County requires all waste generators to “separate and store their solid wastes into three categories: recyclables, compostables, and non-processibles.”⁴⁰ Additional examples of commercial recycling ordinances can be found in Exhibit 2.7.

³⁸ In this report, we use “commercial recycling” as shorthand for recycling occurring in all commercial, industrial, and institutional settings.

³⁹ *Minnesota Statutes* 2014, 115A.552, subd. 4.

⁴⁰ Swift County, *Chapter 5. Swift County Solid Waste Ordinance*, sec. 6.2.

Exhibit 2.7: Sample County Commercial Recycling Ordinances

Olmsted County: Commercial Recycling

Commercial Site owners and/or managers must provide central Collection locations for Recyclable Materials generated on its premises and provide for the segregation and Collection of, at a minimum, newsprint, glass containers, corrugated cardboard, aluminum cans and aluminum scrap, and mixed paper and ensure delivery to a Recycling Center, either by Self-Hauling or by contract with a licensed Commercial Hauler.

Dakota County: Mandatory Residential and Commercial Recycling

It shall be unlawful for any owner or occupant of a commercial building to generate or deposit for collection mixed municipal solid waste that contains any of the following recyclable materials:

- A. Beverage containers;
- B. Glass recyclables;
- C. Paper recyclables; and/or
- D. Other materials that may be designated by the county board unless such waste is directly delivered or collected for direct delivery to a facility that has been approved by the county for separation of recyclable materials.

SOURCES: Dakota County, *Ordinance No. 110, Solid Waste Management*, sec. 16.05 (2013); and Olmsted County, *Chapter 3500 Solid Waste Management Ordinance*, 3503.02, subs. 4 (2012).

Collection Services

Recycling collection practices for commercial entities typically differ from those for residential collection. Businesses often enter into private agreements for recycling services. In such instances, businesses are responsible for choosing a recycling hauler and negotiating price, collection frequency and location, and service provision. Recycling services may be included in a business’ garbage collection contract, or it may be provided by a separate hauler. Because Minnesota does not currently require commercial entities to recycle, some choose to contract only for garbage collection.

Some municipal recycling programs are available for commercial entities.

While many businesses establish recycling collection services through private contracts with licensed haulers, some local units of government allow commercial establishments to use their recycling program services. Cities such as St. Louis Park, for example, provide curbside recycling collection for smaller businesses that are able to use residential collection carts. In our survey of county solid waste officers, 86 percent of respondents reported that commercial entities have access to publicly or privately provided recycling collection at their place of business. Some local units of government also have drop-off sites available for use by

Survey Question: Please identify all public or privately provided recycling services available to businesses in your county.	
Collection at establishment	86%
Centralized collection sites	54
Collection events	4
Total Responses: 72	

businesses. A staff person for the city of Plymouth, for instance, said providing collection opportunities for commercial entities was part of the reason for having a city recycling drop-off site. More than half of survey respondents reported that businesses have access to centralized recycling collection sites.

In order to improve commercial recycling rates, county-provided education campaigns are widespread. Olmsted County, for example, offers technical assistance to local businesses on a case-by-case basis to help them increase recycling and reuse rates. As highlighted in Exhibit 2.8, Ramsey and Washington counties also provide educational programs targeted at commercial entities. MPCA data show that in 2013, more than two-thirds of counties had specific programs to promote commercial recycling.

Exhibit 2.8: Ramsey and Washington Counties Commercial Recycling Education Program



Ramsey and Washington counties began the “BizRecycling” program as a way to work with individual businesses to implement recycling and composting services. BizRecycling consultants visit businesses and assist with recycling initiatives, including looking at bills, providing technical assistance, and obtaining and placing recycling containers. A representative from the St. Paul Hotel reported that the hotel increased its recycling by 2,500 pounds per month after it started collecting material separated for composting with the assistance of BizRecycling.

SOURCES: Office of the Legislative Auditor and <http://lesstrash.com>, accessed December 12, 2014.

Recent Legislative Changes

Over time, interest in commercial recycling has increased, in part because a substantial portion of recyclable materials are generated in a commercial, industrial, or institutional setting. Contributing to the increased interest in commercial recycling, the 2014 Legislature enacted new commercial recycling requirements for certain entities in the Twin Cities metropolitan region and statewide.

The 2014 Legislature enacted new recycling requirements for certain sports facilities and commercial buildings.

First, professional and collegiate sports facilities statewide must collect at least three recyclable materials (such as paper, glass, plastic, or metal) beginning in 2015.⁴¹ MPCA staff reported that they are collaborating with county solid waste officers to identify affected facilities and were relatively confident that most larger sports arenas, such as the University of Minnesota’s TCF Stadium, have already implemented recycling collection programs. Staff, however, stated that

⁴¹ *Laws of Minnesota* 2014, chapter 312, art. 13, sec. 24.

identifying smaller facilities that are also subject to the new legislation—such as sports facilities at community colleges throughout the state—can be challenging, and the recycling status of many of these facilities is unknown.

Additionally, beginning in 2016, certain commercial buildings located in the Twin Cities metropolitan region that contract for four cubic yards or more of solid waste collection per week (per building) must collect at least three recyclable materials (such as paper, glass, plastic, or metal).⁴² MPCA staff stated that determining how many sports facilities and businesses are subject to the new law is the first step in implementing the legislative changes. County and MPCA staff are still working on how to educate affected facility owners, they said, and enforcement mechanisms have not yet been developed.

After these changes are implemented, it is reasonable to expect that the new recycling requirements will increase the amount of waste recycled in Minnesota. With the state now *requiring*, rather than *encouraging*, certain commercial buildings to provide recycling services, residents and employees will likely have greater opportunities to recycle.

⁴² *Laws of Minnesota* 2014, chapter 225, sec. 4. Businesses classified in sectors 42 to 81 under the North American Industrial Classification System are included in this requirement. These classifications include most businesses, with the exception of businesses in the agricultural, mining, utilities, construction, and manufacturing industries. See www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012, accessed October 28, 2014.

Chapter 3: Measuring Recycling

Without goals and measurements, local units of government cannot evaluate their recycling and waste reduction programs and policymakers cannot know if their waste management strategies are having their intended effect. In this chapter, we review the goals that the Legislature has established for recycling and evaluate the state's progress toward meeting those goals. We discuss the difficulty in making comparisons among different states' recycling rates and examine the problems Minnesota has encountered in its attempts to measure recycling and waste reduction. Finally, we outline some less traditional waste management technologies and discuss whether they should be integrated into the state's waste management hierarchy. We recommend reevaluating Minnesota's waste management measurement techniques, goals, and hierarchy as a means to develop a more meaningful waste measurement system.

RECYCLING GOALS

As discussed in Chapter 1, state law prioritizes possible waste management practices.¹ Waste reduction and reuse are at the top of the hierarchy, followed by recycling, composting, and resource recovery through incineration or composting of materials mixed with waste.² Each of these methods of recovering value from materials is considered preferable to landfill disposal. Though not in statute, Minnesota Pollution Control Agency (MPCA) staff told us that illegal dumping and burning of waste would fall even lower than landfill disposal on the waste management hierarchy.

Despite the broad goals and range of activities identified in the waste management hierarchy, state and legislative interest has been largely focused on recycling.

Recycling goals, first identified by the Minnesota Legislature in 1989, have been updated throughout the years.³ The goals require counties to recycle a minimum percentage (by weight) of the solid waste they generate. For nearly two decades, the goal for counties in the Twin Cities metropolitan area was to recycle half of all solid waste generated.⁴ The 2014 Legislature increased the recycling goal for these counties; by December 2030, counties in the Twin Cities metropolitan area will be required to recycle 75 percent of the solid waste they generate. This goal

¹ *Minnesota Statutes* 2014, 115A.02(b).

² The waste management hierarchy identifies "source-separated composting," rather than simply "composting" as indicated in the text. According to *Minnesota Statutes* 2014, 115A.03, subd. 32a, source-separated compostable materials are "food wastes, fish and animal waste, plant materials, diapers, sanitary products, and paper that is not recyclable" that are separated for composting by the generator of the waste. For simplicity, in this report, we refer to these as "materials separated for composting."

³ *Laws of Minnesota* 1989, First Special Session, chapter 1, art. 18, sec. 12.

⁴ The seven counties in the Twin Cities metropolitan area are Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

includes both traditional recyclables (such as cans and bottles) and organics (such as materials separated for composting and food-to-livestock programs). The Legislature did not change the goal for counties outside the metropolitan area, which continue to work toward a goal of recycling 35 percent of total solid waste generated.⁵ Exhibit 3.1 shows the legislative recycling goals and how they have changed over time.

Exhibit 3.1: Recycling Goals, by Year and Region

Year Enacted	Percentage (by Weight) to Recycle of Total Solid Waste Generated		Goal to be Achieved by
	Outstate Counties	Metropolitan Counties	
1989	25%	35%	December 1993
1991	30	45	July 1996
1992	30	45	December 1996
1995	35	50	December 1996
2014	35	75	December 2030

NOTES: This table shows only years in which recycling goals were changed in law. The term "metropolitan counties" refers to the seven Twin Cities counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

SOURCE: Office of the Legislative Auditor, analysis of *Laws of Minnesota* 1989, First Special Session, chapter 1, art. 18, sec. 12; *Laws of Minnesota* 1991, chapter 337, sec. 20; *Laws of Minnesota* 1992, chapter 593, art. 1, sec. 14; *Laws of Minnesota* 1995, chapter 247, art. 1, sec. 14; and *Laws of Minnesota* 2014, chapter 312, art. 13, sec. 27.

The Minnesota Legislature, thus far, has established specific goals related only to recycling. MPCA produces an annual report on counties' progress towards the recycling goals outlined in law, in addition to other recycling-related activities.⁶ MPCA reported that in 2012, 46 percent of waste, or more than 2.6 million tons, was recycled statewide. The agency also reported the amounts of waste disposed of using other practices, both through methods included on the waste management hierarchy and otherwise. MPCA reported that 21 percent of waste (1.2 million tons) was incinerated at waste-processing facilities to create energy. The agency also estimated that 30 percent of waste (1.7 million tons) was disposed of in landfills and the remaining 3 percent (less than 200,000 tons) was disposed of illegally, through burning or dumping.⁷

While the data are not published, MPCA has been attempting to track waste reduction by comparing the total amount of waste generated each year to a personal consumption index showing how much money Minnesota residents spend on goods and services. MPCA staff explained that, historically, personal consumption has been closely related to waste generation, meaning that as Minnesotans spend more, they typically generate more waste. Staff said this relationship appears to be weakening, which would indicate that the state is

⁵ *Laws of Minnesota* 2014, chapter 312, art. 13, sec. 27.

⁶ Minnesota Pollution Control Agency, *Report on 2012 SCORE Programs* (St. Paul, 2013).

⁷ *Ibid.*, 1-6.

generating less waste. Additionally, MPCA is starting to measure reuse; the agency reached out to reuse organizations such as repair and second-hand shops, to help create ReUSE Minnesota in 2012.⁸ As part of that effort, MPCA has requested that reuse organizations start voluntarily reporting amounts of materials reused; MPCA expects this reporting to begin during calendar year 2015.

RECYCLING PERFORMANCE

MPCA has historically collected data from counties to measure waste management activities. In addition to the financial and program information discussed in previous chapters, counties report to MPCA the tons of recyclable materials collected from residences, businesses, and through mechanical- or hand-sorting at processing sites. They also report tons of garbage disposed of or processed in the county and estimate the number of residents without trash service who may dispose of waste on their own property. These data allow MPCA to compute county and state recycling rates. The recycling rate is a percentage reached by dividing the weight of recycled materials by the weight of total solid waste generated. The recycling-rate calculation is illustrated in Exhibit 3.2.

From the mid-1990s through 2011, state law included “source reduction” and “yard waste” credits in the recycling-rate calculation.⁹ Counties that implemented a solid waste reduction program were eligible for up to three extra percentage points (source reduction credits) applied to their base recycling rate. A county’s solid waste reduction program could consist of numerous different

Exhibit 3.2: Recycling-Rate Calculation, 2014

$$\text{Recycling Rate} = \frac{\text{Recycled Material in Tons}}{\text{Total Solid Waste Generated in Tons}}$$

NOTES: “Recycled Material” includes paper, glass, plastic, metal, automobile oil, batteries, materials separated for composting, and yard waste. The materials may be separated for recycling by residential or commercial waste generators or hand- or machine-separated during processing. Material destroyed by incineration is not included in recycled material. “Total Solid Waste Generated” includes recycled material, mixed municipal solid waste (garbage), motor/vehicle fluids and filters, lead acid batteries, and major appliances, as well as waste materials disposed of on a resident’s property. For the purpose of calculating the recycling rate, construction debris is excluded from both recycled material and total solid waste generated.

SOURCES: *Minnesota Statutes* 2014, 115A.03, subds. 21, 25a, and 25b; and 115A.551, subds. 1(a) and 1(b).

⁸ ReUSE Minnesota is a nonprofit trade association focused on bringing visibility to the reuse, rental, and repair sector.

⁹ The source reduction credit was established by *Laws of Minnesota* 1993, chapter 249, sec. 13, and the yard waste credit by *Laws of Minnesota* 1995, chapter 247, art. 1, sec. 14.

activities, including publicizing waste reduction success, educating residents and businesses about waste reduction, encouraging waste reduction among county departments and local governments, and providing waste reduction technical assistance to businesses or residents. Similarly, counties could receive up to five extra percentage points (yard waste credits) for providing yard waste collection sites and community education about yard waste management. The Legislature eliminated these credits in 2012, at which point MPCA moved to a documented yard waste measurement system.¹⁰

Minnesota Pollution Control Agency (MPCA) data, despite its many limitations, show that Minnesota's recycling rate increased over the past decade.

We discuss the challenges of collecting recycling data in general and the specific limitations of MPCA's data in a subsequent section. Limited though the data may be, they have been collected consistently over many years and can be used to show trends over time. We examined MPCA data from the past decade and found that during that time, Minnesota's base recycling rate (not including source reduction or yard waste credits) gradually increased from 40.6 percent in 2004 to 46.9 percent in 2013. It should be noted, however, that the recycling rate includes compostable materials, the collection of which has increased significantly in recent years. Minnesota's rate of recycling traditional materials (glass, metal, paper, and plastic) showed a smaller overall increase, and actually declined between 2012 and 2013.

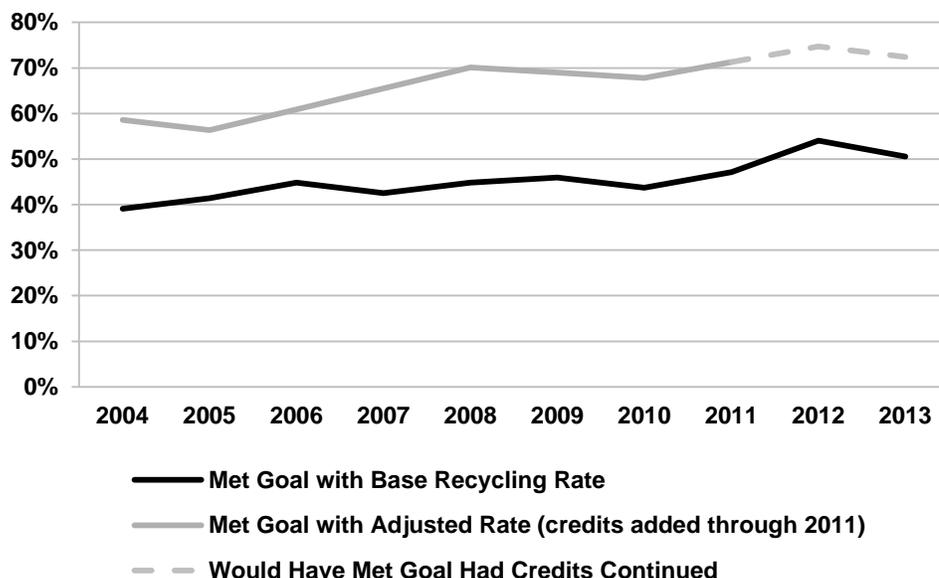
Despite the broad trends described above, county recycling rates (including compostable materials) varied widely; in 2013, Mille Lacs County recycled only 9 percent of waste generated, while Waseca County's recycling rate was 80 percent. Between 2004 and 2013, the number of counties meeting their recycling goals gradually increased.¹¹ In 2004, only 39 percent of counties would have met their recycling goals without the source reduction and yard waste credits; by 2012, 54 percent of counties achieved a base recycling rate that met state goals (that percentage slipped to 51 percent of counties in 2013). If source reduction and yard waste credits are included, the number of counties meeting their recycling goal is greater, as high as 71 percent of counties in 2011.¹² Exhibit 3.3 shows the percentages of counties meeting state recycling goals using both the base and adjusted recycling rates.

¹⁰ *Laws of Minnesota 2012*, chapter 272, sec. 67.

¹¹ As stated previously, from 2004 to 2013, counties in the Twin Cities metropolitan area had a recycling goal of 50 percent, while counties outside the metropolitan area had a goal of 35 percent. The increased goal of 75 percent for the metropolitan area took effect in 2014 and does not impact the data presented here.

¹² From 2004 to 2008, more than two-thirds of counties received the maximum combined credit of eight percentage points. In 2009, the number of counties receiving the full amount of both credits began to decline.

Exhibit 3.3: Percentage of Counties Meeting State Recycling Goals, Calendar Years 2004 to 2013



NOTES: State law established separate recycling goals for counties in and outside of the Twin Cities metropolitan area. The counties in the metropolitan area are Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington. From 2004 to 2013, counties in the metropolitan area were expected to recycle 50 percent by weight of their total waste generated, and outstate counties were expected to recycle 35 percent of their waste. Prior to 2012, counties were eligible to receive credits of up to five percentage points for collecting and encouraging recycling of yard waste and up to three percentage points for encouraging waste reduction. The dashed portion of the upper line shows the percentage of counties that would have met recycling goals had the yard waste and source reduction credits continued past 2011.

SOURCE: Office of the Legislative Auditor, analysis of Minnesota Pollution Control Agency SCORE data, 2004-2013, and *Minnesota Statutes* 2004 through 2013, 115A.551, subd. 2a.

Metropolitan area counties have historically had higher recycling goals than outstate counties, and those goals have proved difficult to meet. With the help of the source reduction and yard waste credits, most metropolitan-area counties achieved their goal of a 50 percent recycling rate between 2004 and 2011. All seven counties met the goal in 2011 and would have met the goal in 2012 and 2013 had the credits continued. Without the credits, however, most metropolitan area counties fell short of recycling 50 percent of the solid waste they generated. Dakota County achieved a 50 percent recycling rate without credits in 2009, 2011, 2012, and 2013. Ramsey and Scott counties are the only other metropolitan-area counties to have achieved a 50 percent recycling rate (without the aid of credits); both met the goal for the first time in 2013.

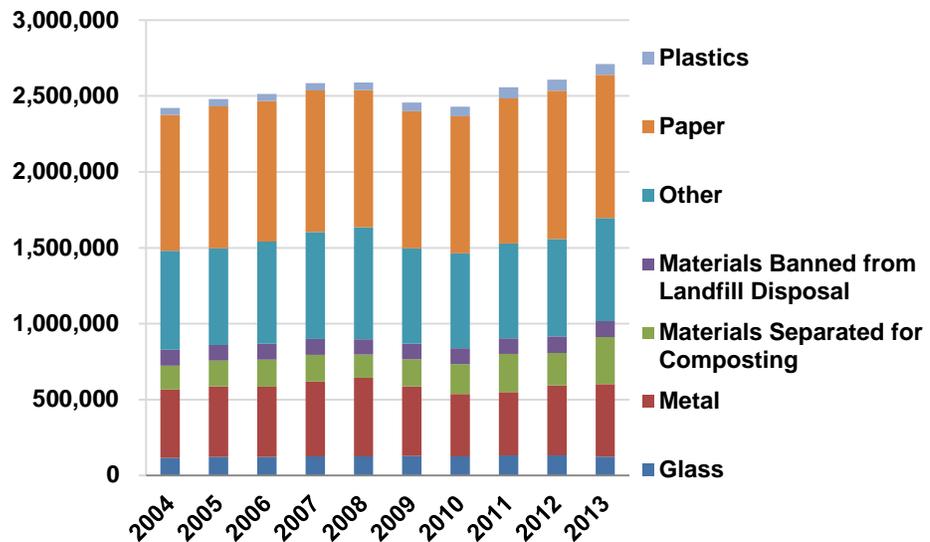
Materials Recycled

In addition to reporting the total weight of all recycled material, counties annually report the weights of recycled materials by material type.

By weight, paper is the most recycled material in Minnesota, making up about 37 percent of all recycled material over the ten years analyzed.

After paper, the next largest broad category of recyclables by weight is miscellaneous recyclables, such as paint, electronics, and household hazardous waste, among other things. Exhibit 3.4 shows several broad categories of recyclables and illustrates that the composition of Minnesota's recycling stream has remained fairly consistent over time.

Exhibit 3.4: Tons of Materials Recycled by Material Type, Calendar Years 2004 to 2013



NOTES: MPCA estimates tons recycled for five particular items that are prohibited from landfill disposal under state law. These "materials banned from landfill disposal" are major appliances, used oil and filters, vehicle batteries, and waste tires. "Other" includes paint, electronics, household hazardous waste, and miscellaneous recyclable materials that are not included in the other broad types of commonly recycled materials.

SOURCE: Office of the Legislative Auditor, analysis of Minnesota Pollution Control Agency SCORE data, 2004-2013.

While the proportion of materials collected has not changed dramatically over time, there have been some small, but noteworthy, changes. First, the amount of plastic recycled in Minnesota increased by more than 50 percent, from 47,000 tons in 2004, to 71,000 tons in 2013. This increase is noteworthy because plastic has gotten lighter over time, so it takes more plastic containers to achieve the same weight of recycled plastic. The United States Environmental Protection Agency (EPA) estimated that the amount of plastic generated in the municipal waste stream nationwide increased only 8 percent between 2005 and 2012, which means that Minnesota has increased its plastic recycling by more than one would expect based on the increase in plastic generation alone.

Second, the collection of materials separated for composting increased substantially during this period, particularly in recent years. This increase likely resulted from a combination of factors, including the following: (1) the Legislature added materials separated for composting to the statutory definition of recyclable materials in 2011, and (2) counties were allowed to count yard waste tonnage in their recycling reporting as materials separated for composting for the years 2012 and 2013, to compensate for the loss of the yard waste credit.¹³ In 2013, Minnesota counties collected more than 300,000 tons of material for composting and yard waste.¹⁴ This is nearly double the amount collected in 2004.

Residential and Commercial Recycling

When counties report tons of material recycled to MPCA, they must also report whether those materials were generated in a residential setting or a commercial, industrial, or institutional setting.¹⁵ Institutional settings include schools, hospitals, and prisons, for example.

Commercial recycling makes up the bulk of the recyclable materials collected in Minnesota.

In 2013, 2.7 million tons of recyclable material were collected statewide, according to MPCA data. Almost three-quarters of these recyclable materials were generated in a commercial, industrial, or institutional setting. As discussed in Chapter 2, the 2014 Legislature put new emphasis on commercial recycling, requiring certain businesses in the Twin Cities metropolitan area to start collecting three broad types of materials for recycling by 2016.¹⁶ As a result, it is likely that commercial recycling will comprise an even larger share of recyclable materials going forward.

Glass is the only common recyclable material that is generated in greater proportions by residential households than commercial settings. In 2013, two-thirds of glass was recorded by counties as being recycled by residents. All other broad material types, including paper, metal, and plastic, were more likely to be generated in a commercial setting. The most extreme example is materials separated for composting; in 2004, virtually all compostable materials collected for recycling were collected in commercial settings, such as restaurants and

¹³ *Laws of Minnesota* 2011, chapter 107, sec. 81. Note that while the statutory *definition* of recyclable materials was amended to include materials separated for composting, there was no actual change to the *calculation* of the recycling rate. MPCA was already collecting data on tons of materials separated for composting and including them in recycling-rate calculations.

¹⁴ In addition to materials separated for composting, MPCA collects data on tons of food donations and food waste directed to food-to-livestock programs. These amounts are also counted as compostable materials.

¹⁵ In this report, we use “commercial recycling” as shorthand for recycling occurring in all commercial, industrial, and institutional settings. A small percentage of materials are recorded as being “mechanical and hand-separated,” which means they were separated from the mixed municipal solid waste (garbage) stream during processing; these materials could have been generated in either residential or commercial settings.

¹⁶ *Laws of Minnesota* 2014, chapter 225, sec. 4.

hotels. Residential collection of materials separated for composting has since increased, but 93 percent of the material is still generated commercially.

MEASUREMENT PROBLEMS

With the recent legislative increase in recycling goals for counties in the Twin Cities metropolitan area, recycling measurements have taken on even greater importance. There are, however, a number of factors that make recycling and waste reduction difficult to measure, as we explain in this section. We start with a discussion of the difficulty in comparing recycling outcomes across states. We then examine some specific issues with Minnesota's recycling data and make recommendations for improvement.

National Comparisons

When the Legislative Audit Commission directed our office to evaluate recycling in Minnesota, one of the questions we were asked was how Minnesota's recycling outcomes compare with those of other states. This is not a simple question to answer.

Variation in recycling-rate calculations makes comparisons among states difficult.

There is no standard way to measure recycling, and states differ in what recycling-related measurement they use and what materials they include in their recycling rates. Several stakeholders we interviewed commented on the difficulty of comparing recycling rates across states. For example, Minnesota excludes construction and demolition waste from its total solid waste numbers, but some other states include those materials in their calculations. In addition, states choose to track different recycling-related measurements. Like Minnesota, some states report a "recycling rate"; other states calculate "disposal," or "waste reduction" rates.¹⁷ Some states, such as Illinois and Wisconsin, do not calculate statewide recycling rates. Our Appendix provides information on 17 cities, townships, and counties across the country identified as recycling "leaders." Our in-depth review of these local governments shows significant variation in the materials included in recycling-rate calculations and the methods used to measure recycling or waste reduction.

For years, *BioCycle*'s "State of Garbage in America" report compiled state recycling data using a national survey.¹⁸ *BioCycle* last published this report in

¹⁷ For example, Tennessee and North Carolina both measure landfill reduction by comparing per capita landfill disposal to a base year.

¹⁸ Scott M. Kaufman, Nora Goldstein, Karsten Millrath, and Nickolas J. Themelis, "The State of Garbage in America," *BioCycle* 45, No. 1 (January 2004); Phil Simmons, Nora Goldstein, Scott M. Kaufman, Nickolas J. Themelis, and James Thompson, Jr., "The State of Garbage in America," *BioCycle* 47, No. 10 (April 2006); Ljupka Arsova, Rob van Haaren, Nora Goldstein, Scott M. Kaufman, and Nickolas J. Themelis, "The State of Garbage in America," *BioCycle* 49, No. 12 (December 2008); Rob van Haaran, Nickolas Themelis, and Nora Goldstein, "The State of Garbage in America," *BioCycle* 51, No. 10 (October 2010).

2010, using survey data from 2008. The report's methodology section highlights measurement issues, explaining how certain materials had to be "filtered" out of states' responses in an attempt to develop a consistent measurement. More recent reports present raw, state-reported data on tons of materials generated and recycled, but stop short of presenting calculated recycling rates or state rankings. We used *BioCycle*'s data to calculate our own rates of recycling (including composting), and found that Minnesota had the third highest rate in the nation.¹⁹ However, given the differences in the way states measure recycling, one should be cautious about making state comparisons using these data.

In an effort to provide more reliable "apples-to-apples" state comparisons, the EPA has developed an online reporting and measurement tool that will allow states to voluntarily share waste management data. The tool was piloted by eight states starting in 2008; nationwide implementation began in 2013 and is being phased in over three years. Establishing a nationally consistent measurement system may allow for improved data and research across states.

Minnesota's Measurement Issues

Measurement problems, however, are not limited to interstate comparisons. Minnesota's flawed data and changes to recycling-rate calculations make it difficult to measure the extent to which counties and the state have met recycling goals.

As a result of the flawed measurement system, the true percentage of waste that is recycled is unknown.

As a result of the problems with the current measurement system, counties and the state cannot be confident in the percentage of waste they recycle. Therefore, the extent of progress toward statutory goals (35 percent for outstate counties and 75 percent for counties in the Twin Cities metropolitan area) is not quantifiable under the current measurement system.

MPCA has acknowledged problems with the existing data. Staff told us that counties use different methods to collect their data and may include or exclude different materials in their reported tons of recycling, resulting in discrepancies. They also said that county estimates of commercial recycling amounts ranged from "complete junk" to "nearly documented." MPCA staff told us, however, that despite the known problems with the existing data, the data have been collected consistently over time.²⁰ As a result, staff told us, the data can be used

¹⁹ In addition to the problems with state-to-state comparisons, we found an error in *BioCycle*'s 2008 Minnesota data. *BioCycle* reported an incorrect number for tons of waste disposed of in landfills in Minnesota, which erroneously increased the publication's estimated total waste generated for Minnesota. We calculated Minnesota's recycling rate (and determined its third-place ranking) using data published in the report on the tons recycled and the state's reported total waste generated. Using *BioCycle*'s estimated total waste generated, Minnesota would have a much lower recycling rate, ranking 14 among the 50 states and the District of Columbia.

²⁰ Reporting data to MPCA is a requirement for state funding per *Minnesota Statutes* 2014, 115A.557, subd. 3(b)(2). MPCA has received data from every county for the past several years.

to analyze recycling trends, even if the true recycling rate is unknown. MPCA staff pointed out that even with its flaws, Minnesota data are far superior to those available in most other states.

While it is true that the same data elements have been collected with the same survey instrument for many years, that does not mean that individual counties have reported data consistently over time. In our visits with counties, we spoke with county officials who relied heavily on estimates some years and not others, depending on what data they were able to collect. The current recycling measurement system is built on estimates, particularly for commercial recycling, independent recycling, and problem materials. While MPCA reviews—and ultimately approves or disapproves of—estimation methods used by counties, there are many cases where the estimates are unreliable; it is difficult to know whether the estimated tons of materials used to calculate recycling rates are too low or high. Certain data may be overestimated in one county and underestimated in another, and the accuracy of any county’s estimates could change from year to year. Minnesota’s true recycling rate will not be known until MPCA successfully moves away from estimates in data collection. The following section further describes the problems with Minnesota recycling data.

Data Problems

Counties have long been required to report detailed recycling data to MPCA. There are several problems, however, with the data in their current form.

Reliance on estimates, inconsistent reporting, and missing data all contribute to accuracy problems with Minnesota’s measurement of recycling.

Counties collect waste and recycling data from cities, haulers, and commercial entities and estimate what data they are unable to document. We visited or spoke with staff from each of the seven metropolitan area counties as well as six counties outside the metropolitan area.²¹ In these conversations, staff in most counties expressed a lack of confidence in their recycling data. Counties use different data collection strategies and experience different challenges depending on the specific commercial enterprises and haulers working in the area. In our site visits, counties questioned the accuracy of hauler-reported data, commercial recycling data, data from independent recyclers, and data related to problem materials. We discuss these issues in more detail below.

Hauler-Reported Data

Some counties determine amounts of residential recycling by collecting data from recycling haulers. Minnesota statutes do not require haulers to report recycling data directly to the state. Haulers may be required to report to counties, but only when the counties have included reporting as part of their hauler licensing agreements. Some recycling staff told us that hauler-reported residential data are fairly reliable, but others expressed concerns. Cities or

²¹ We spoke with staff from Anoka, Carver, Dakota, Hennepin, Meeker, Mille Lacs, Polk, Ramsey, Red Lake, Scott, St. Louis, Washington, and Winona counties.

counties with open recycling systems may have to collect data from several different private haulers, which can be difficult and labor intensive.²² According to Washington County staff, some haulers do not provide updated information. For example, we were told that some haulers report the exact same tons for residential recycling year after year. Carver County staff told us of an instance in which two people from the same hauling company submitted conflicting reports. Even if haulers make a good-faith effort to report recycling data to the counties they serve, some haulers cross county lines, which complicates data reporting. If a hauler's route takes a truck into more than one county, it may be difficult for the hauler to determine how much recyclable material should be attributed to each county. MPCA staff told us that some counties get good numbers from their haulers while others do not.

Commercial Data

When reporting to MPCA, counties have the option to provide the amounts of *documented* commercial recycling, *estimated* commercial recycling, or a combination thereof.²³ In some instances, counties may receive data from haulers who operate commercial recycling routes in the counties. In other instances, counties send a questionnaire to all of the businesses in the county, asking for data on weights of recycled material. When businesses fail to respond or refuse to share their recycling information, counties may estimate recyclables for those businesses as long as MPCA approves their estimation methods. Staff in several counties told us that some businesses refuse to share their recycling data. Business reporting is voluntary, and some businesses consider the amounts of material they recycle to be proprietary information.

Staff from several counties in the metropolitan area explained that their commercial recycling data are largely estimated based on commercial recycling data from a study conducted in 1990. Staff told us they annually adjust these data based on county employment trends, notwithstanding any changes in recycling practices or materials. While staff from one county clarified that these estimates are applied only to businesses for whom they could not gather documented amounts of recycling, staff from other counties suggested that their commercial recycling data are largely or entirely estimated using this method. MPCA staff confirmed that counties in the metropolitan area use this study to construct their estimates.

As mentioned previously, about three-quarters of Minnesota's reported recyclables by weight are generated in the commercial sector. Our analysis of MPCA data shows that in 2013, the reported tons of commercial recycling was roughly 42 percent estimated and 58 percent documented. Given the proportion

²² As discussed in Chapter 2, open recycling systems occur in municipalities in which the residents contract for recycling services directly. In such systems, there may be several hauling companies collecting recycling in the same city or even neighborhood.

²³ "Documented" commercial recycling is recyclable materials from the commercial sector for which tonnages are verifiable through signed affidavits, tare slips from a recycler, or reports submitted from a recycler. "Estimated" commercial recycling is the recycled amount estimated based on a survey of businesses or amounts estimated because actual amounts have been withheld by or are not available from the recycler.

of Minnesota's recycling that is generated in the commercial sector, these estimates have a significant influence on Minnesota's reported recycling rate.

Independent Recycling

Independent recycling is another issue that makes commercial recycling data difficult to collect. Many large businesses enter into private contracts to sell their recyclable materials directly to an end market. For example, a large retailer might sell its cardboard packaging material directly to Liberty Paper, Inc., a company that recycles old corrugated cardboard into a product that can be manufactured into new cardboard boxes. Since recycling of this kind would not be collected on a county recycling route or processed at a county facility, a county would only know about independent recycling if a business chose to share its data.

Individuals can also engage in independent recycling, albeit on a smaller scale. For example, residents may take their recyclable items to a scrap metal dealer rather than putting them out for curbside collection or taking them to a county drop-off site. Some counties have reported to MPCA documented tons of independently recycled materials by soliciting voluntary reports from scrap dealers. Other counties do not report data from individual independent recyclers.

Problem Materials

MPCA staff told us that in the early 1990s, the agency developed population-based formulas to estimate the amounts of certain problem materials recycled. For major appliances, automobile oil, used oil filters, vehicle batteries, and waste tires, MPCA uses the greater of: (1) the data reported by the county, and (2) the amount indicated by the agency's formula. Some county officials told us that they submitted documented amounts for these materials, which MPCA subsequently changed to be higher, since the county reported fewer tons than MPCA estimated using its calculations. Staff from one county said they do not even bother reporting actual data on these materials, knowing that their values will default to the state's estimates. In our review of the data, we confirmed that, in many cases, the amounts reported for these materials equaled the calculated estimate. All others were greater values, presumably submitted by the county.

In our survey of county solid waste administrators, more than three-quarters of respondents reported that at least some of their reported recycling data are estimated. In a follow-up, open-ended question, two-thirds of those who provided comments (25 respondents) said that commercial recycling numbers were all or partially estimated; almost one-third (12 respondents) reported that tons of problem materials were estimated.

Survey Question: To what extent are the SCORE data you report to MPCA based on estimates (rather than documented data)?

All of the data are documented	17%
Most of the data are documented but we report some estimated data	68
Most of the data are estimated but we report some documented data	10
No response	6

Total Responses: 72

Calculation Changes

For all their flaws, the recycling data described above are important for tracking recycling performance. MPCA uses the total weight of all material recycled to calculate statewide and county recycling rates. However, some county staff we spoke with felt that recycling reporting expectations were unclear. Staff from one outstate county, for example, said MPCA recently informed them that the county has been reporting commercial recycling data incorrectly for at least the past five years. Staff from another county believed that the new 75 percent recycling goal for metropolitan counties was for residential recycling only.

Recent changes to the method for calculating counties' recycling rates have made it confusing for county staff to track their progress.

The most widespread confusion seems to be related to yard waste and whether or not it is included in recycling-rate calculations. As stated previously, the recycling rate is computed by dividing tons of recycled materials by tons of total solid waste generated. The 1995 Legislature explicitly included yard waste in the calculation. Since that time, the law has identified yard waste as a recyclable material, and the weight of yard waste collected for composting should have been included as part of the tons of recycled materials on which the recycling rate is based.

MPCA staff explained, however, that the actual calculation of the recycling rate did not always follow the language in law. Staff told us that in the early days of the SCORE program, yard waste data were particularly difficult to collect, and until recently, MPCA has not attempted to collect actual tons of yard waste collected since 1994. According to MPCA staff, the agency determined that a county doing a good job collecting yard waste would collect yard waste equivalent to about 5 percent of the total waste it generates. The yard waste credit, therefore, was designed to award a “bump” of up to five percentage points to make up for the yard waste that a county collected, but could not report.

From 1995 to 2011, counties were encouraged to collect yard waste, but MPCA did not receive data on the actual tons of material collected. The recycling rates from those years *did not include* yard waste in the weight of material recycled, though counties could receive up to five additional percentage points added to their recycling rates if they qualified for the yard waste credit. The Legislature eliminated the yard waste credit (and the similar source reduction credit) in 2012, resulting in the first change to the recycling-rate calculation in many years.

According to MPCA, when the yard waste credit and its five additional percentage points were eliminated, counties were directed to include their documented yard waste tonnages with their materials separated for composting. Some recycling staff we spoke with seemed unaware that yard waste was included in the recycling rate. In 2015, counties will report into a new recycling data system (discussed in the next section); yard waste will be its own category in this new system, allowing all counties to separately report documented yard waste collection data.

Measuring Recycling Going Forward

MPCA agrees that the recycling data the state has been collecting are flawed. The agency is in the process of replacing its data system, hopefully resulting in a more accurate and useful recycling measurement.

MPCA is in the process of implementing an improved data reporting system.

In 2009, the Legislature directed MPCA to reduce reporting requirements and to investigate ways to collect recycling data that are accurate and useful for policymakers.²⁴ As a result of MPCA's efforts, duplicative elements were eliminated from the form counties used to report recycling data to the agency.

MPCA has also been working to replace the old reporting system with a revised system that will incorporate facility and hauler reporting, eliminate county estimates, and improve data collection and management.²⁵ By collecting waste-disposal data directly from haulers and facilities (such as recycling, composting, processing, and disposal facilities), MPCA will also be able to analyze the flow of materials throughout the state, which will allow for more meaningful regional planning. This more detailed information could be useful for targeting consumer education campaigns and developing markets for recyclable material.

Recycling, composting, processing, and disposal facilities have already been reporting into the new system, and counties will begin using the system in 2015 to report data from calendar year 2014. Haulers are not currently required to report directly to MPCA, although they may report voluntarily. To the extent that haulers provide the state with data on tons of recycling, composting, and garbage collected, it will provide a richer picture of waste management in Minnesota. Once the new data system is fully operational, the state will likely be able to calculate more-accurate recycling rates to determine how close Minnesota counties truly are to meeting their recycling goals.

RECOMMENDATION

MPCA should continue its efforts to improve measurement of recycling outcomes.

As noted above, MPCA is working to develop a more reliable reporting system whereby haulers and recycling, composting, processing, and disposal facilities report tons of garbage and recycled materials directly to MPCA. These efforts have been underway for several years and should not be abandoned now. Some stakeholders favor replacing Minnesota's recycling-rate calculation with a waste reduction measure focused primarily on the amount of waste disposed of in landfills; in contrast, MPCA wants to use its new data system to improve the

²⁴ *Laws of Minnesota* 2009, chapter 37, art. 1, sec. 62.

²⁵ While the proposed system will address many of the existing data problems, MPCA acknowledges that it still will not capture "independent" recycling, unless private companies agree to share their recycling information with the state. According to MPCA staff, some of the larger retailers, including Walmart, have agreed to share this information.

collection of detailed recycling information. The agency—and we—are hopeful that the hauler- and facility-reported data will ultimately be more accurate and consistent than the estimate-based data counties currently report.

Some waste management measures—such as the amount of waste disposed of in landfills—are more reliable than current recycling-rate calculations but do not provide detailed information about recycling in Minnesota.

Measuring the amount of waste disposed of in landfills over time allows states to quantify the amount of material being diverted from landfills, presumably through source reduction, material reuse, recycling, or other processing. Some states use a landfill-reduction measurement to evaluate waste management success.²⁶ For example, Tennessee calculates the per capita amount of waste disposed of in landfills and compares it with a base year; the state’s goal is to divert from landfills 25 percent of waste, as compared to 1995 disposal rates. Similarly, North Carolina’s goal is to reduce the “municipal solid waste stream” by 40 percent as compared to a base year. This involves measuring the amount of solid waste disposed of in landfills—as well as the amount incinerated and converted to tire-derived or refuse-derived fuel—and comparing it to 1991-1992 disposal rates.

In our site visits with Minnesota counties, several county staff were in favor of a landfill-reduction goal, for a number of reasons. Landfill reduction, they told us, is easier to measure than recycling and would allow the state to focus on the ultimate goal of keeping waste out of the landfill. County staff also pointed out that focusing on landfill disposal would allow counties to determine what materials are being discarded inappropriately and then design educational outreach for those specific items.

To measure landfill reduction, one could compare the amount of material disposed of in landfills annually (preferably per capita), either from one year to the next, or with respect to a base year. A decrease in the per capita amount of material disposed of in the landfill would constitute landfill reduction, either because more material was recycled or processed in another way, or because less waste was generated. Minnesota does not have an official landfill-reduction goal or measurement. However, for the past several years, MPCA has collected data from permitted landfills on the amount of waste they receive. Such data could be used to measure landfill reduction. MPCA and county staff told us these are more reliable figures than the county-reported recycling data, which currently rely heavily on estimated weights of materials.

Relying on landfill disposal rates to gauge waste management performance has some limitations. While some county staff support *replacing* recycling-rate calculations with a landfill-reduction measure, staff in other counties and MPCA

²⁶ The terminology used to describe waste-management measurements varies from location to location. We have elected to use the term “landfill reduction” for measurements that focus on the amount of waste disposed of in landfills. Since the 1990s, MPCA has informally calculated a “landfill-diversion” rate by adding up the tons of material disposed of through reuse, recycling, composting, and waste-to-energy and dividing by total waste generated. This measure, however, has mainly been used internally.

believe that landfill reduction should not be the only measure of waste management success. For example, landfill-reduction rates alone would not capture waste that is generated in Minnesota but sent to landfill facilities in other states. Additionally, relying on only a landfill-reduction rate would not measure activities at all levels of the waste management hierarchy. MPCA staff told us that while measuring landfill reduction is an important tool, the details of what is being diverted are equally important.²⁷ Simply knowing that there has been a decrease in the amount of material landfilled, for instance, does not reveal whether the landfill reduction is the result of source reduction or reuse; increased recycling and composting; or an increase in the use of other technologies, such as incineration. However, a measure and goal that focus solely on recycling also fail to capture all of these details.

RECOMMENDATION

The Legislature should establish goals for all tiers of the waste management hierarchy—including goals related to landfill disposal and waste processing—and require counties and MPCA to track progress toward these goals.

In addition to the current recycling goal, establishing goals and collecting data related to landfill diversion, waste processing, and composting will measure progress all along the waste management hierarchy. Some of these data also have the benefit of being more reliable and easier to obtain than recycling data. The *Metropolitan Solid Waste Management Policy Plan, 2010-2030*, prepared by MPCA in consultation with the metropolitan counties, establishes goals for the different tiers of the hierarchy and could serve as a template for developing statewide goals.²⁸ These goals should not supplant a more nuanced recycling goal, but they should be incorporated into planning documents and elevated in discussions regarding recycling and waste reduction.

In establishing goals for the various waste management strategies, the Legislature should clarify the status of composting (of both yard waste and other materials collected for composting, such as food waste and nonrecyclable paper). Composting currently falls below recycling on the waste management hierarchy, yet it is included in the definition of recycling and the calculation of recycling rates. The Legislature may wish to adopt a separate goal for composting, in which case the goal for recycling should be revised accordingly. Alternatively, the Legislature may wish to revise the hierarchy, grouping recycling and composting together in a single category. This approach would not require a revision of the current recycling goals, which already allow for the inclusion of compostable materials in recycling rates.

²⁷ MPCA staff also suggested measuring recycling through material “capture rates.” Capture rates can be calculated for individual recyclable materials or for the sum of all recyclable materials collected. To calculate a capture rate, one would divide, for example, the weight of all newspaper recycled in a community by the total weight of newspaper *available to be recycled* in that same community. Capture rates would provide useful information about the success of waste prevention and recycling initiatives but would take considerable effort to measure.

²⁸ Minnesota Pollution Control Agency, *Metropolitan Solid Waste Management Policy Plan, 2010-2030* (St. Paul, 2011), 14.

Waste reduction, situated at the top of the waste management hierarchy, is perhaps the most difficult activity to measure. However, if all the other activities along the hierarchy are measured, one can sum the tons of waste reused, recycled, composted, processed, and disposed of in a landfill to determine the total amount of waste discarded. If this total waste decreases from year to year, that represents a waste reduction.

It is important to note that the different levels of the waste management hierarchy are interconnected, and progress towards the goal at one level might make it harder to achieve the goal at another. For example, if waste-reduction efforts are successful in reducing the total amount of bottles and cans generated, there will be fewer bottles and cans to recycle and recycling rates may drop. Given that waste reduction is the most preferred waste management strategy, decreasing recycling rates would be an acceptable trade off for a reduction in the amount of waste generated.

Setting goals for all levels of the waste management hierarchy would require counties and MPCA to track activities other than recycling. The resulting data about what and how materials are discarded could be valuable for policy planning and improving waste management in Minnesota.

ALTERNATIVE WASTE MANAGEMENT TECHNOLOGY

Throughout this chapter, we have discussed the difficulties of measuring recycling and other activities in the state's waste management hierarchy. In this section, we identify some waste management practices that are not included in the hierarchy and evaluate the extent to which MPCA and the Legislature should acknowledge these activities. As we have discussed throughout this report, Minnesota's waste management hierarchy prioritizes some waste management activities (reduction, reuse, recycling) over others (waste processing and disposing of waste in a landfill). The hierarchy has not significantly changed since it was first established in 1989, yet waste management technology has evolved over time.²⁹

The waste management hierarchy does not contemplate alternative waste management technologies, such as food-to-livestock programs or anaerobic digestion of compostable material.

Some existing waste management activities, such as donating unused food ("food-to-people") or sending food waste to farms ("food-to-livestock"), are reported in counties' recycling data and included in MPCA's recycling-rate calculation. These activities could be considered a form of reuse, but their inclusion in the recycling rate makes it unclear where these activities fall on the waste management hierarchy.

Another waste management technology that is not identified in the state's waste management hierarchy is anaerobic digestion. Anaerobic digestion is a process whereby microbes break down compostable material to create biogas (that can be used as an energy source) and a soil amendment (that can be added to the soil as a type of fertilizer); its inclusion in the state's recycling-rate calculation is, as of yet,

²⁹ *Laws of Minnesota* 1989, chapter 325, sec. 2.

undetermined. Waste composting (a composting process that uses mixed municipal solid waste, rather than only food waste and nonrecyclable paper, to create a soil amendment) and plastics-to-oil (a process that converts waste plastic into oil to be used as fuel) are other alternative waste management technologies.

Exhibit 3.5 highlights several waste management practices, ranging from food-to-livestock programs to waste processing, and illustrates where these practices are classified on the state's waste management hierarchy. Some of these methods, including food-to-livestock and anaerobic digestion are currently not identified in the hierarchy.

Although it is not acknowledged in the hierarchy, MPCA includes food-to-livestock (and food-to-people) in the recycling-rate calculation. However, neither the Legislature nor MPCA has determined whether anaerobic digestion should be included in the recycling-rate calculation. Other inventive uses of waste are also not counted as recycling. For example, Polk County uses the ash from its waste-to-energy facility to help build county roads, rather than disposing of it in an ash landfill. "Beneficial uses" such as this are not acknowledged in the waste management hierarchy, nor are they routinely included in the recycling-rate calculation.

Neither anaerobic digestion nor waste composting is widespread in the state, although anaerobic digestion, in particular, has attracted interest. Some other municipalities, including Madison, Wisconsin; Portland, Oregon; and San Francisco, California, are already using anaerobic digestion on a small scale and have expressed interest in expanding this waste management practice.

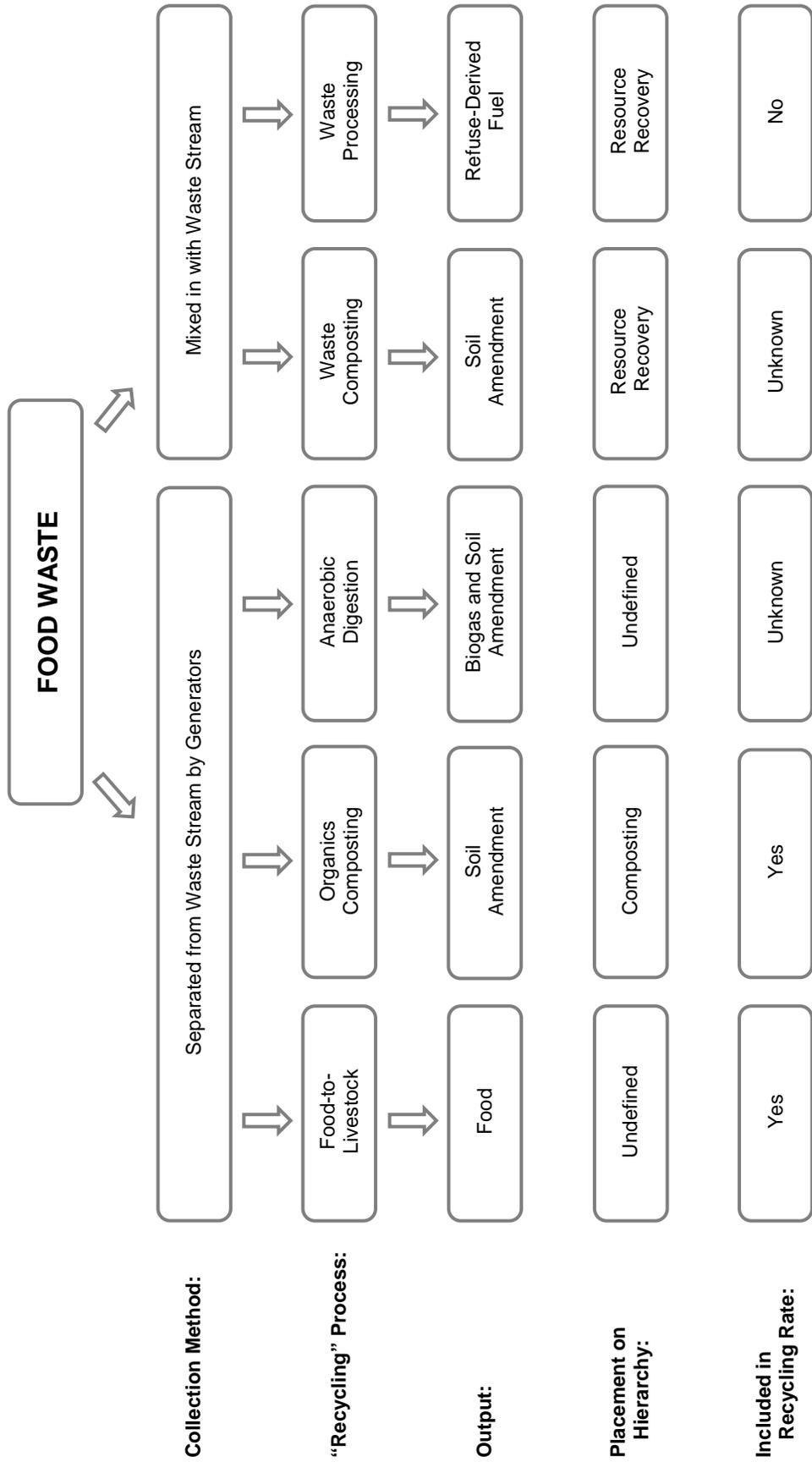
A key determinant for companies to invest in these alternative technologies is whether these activities are classified as recycling. If an activity is considered "recycling," two key ramifications are that material processed as recycling (1) is not subject to the state's solid waste management tax and (2) can be included in the recycling rate. As a result, the state's classification of waste management activities can affect investment in these technologies. Counties may want to encourage activities that can increase their recycling rate, and companies may be more willing to invest in activities that have a lower tax rate.

RECOMMENDATION

The Legislature should direct MPCA to research alternative technologies and determine how to integrate them into the state's waste management hierarchy.

Given the growing interest in alternative waste management technologies, the state should provide guidance to the industry regarding how these activities will be considered on the waste management hierarchy. It is possible that different byproducts of a given waste management activity will be treated differently. For example, if anaerobic digestion is used to process residential food waste, it may be that the biogas produced from the process is classified as a product of waste processing, while the soil amendment byproduct is classified as a product of composting. Regardless of the ultimate classification, a determination by MPCA will provide clarity to the industry and help stakeholders make decisions about potential investments.

Exhibit 3.5: Alternative Waste Management Technologies and Placement on Minnesota’s Waste Management Hierarchy



SOURCE: Office of the Legislative Auditor.

Chapter 4: State Role

While counties and local municipalities are responsible for administering recycling services in their communities, the Legislature and the Minnesota Pollution Control Agency (MPCA) also have important roles. Through policies and incentives, the Legislature can encourage recycling and waste reduction activities. MPCA can also encourage these activities through its expertise and enforcement authority.

The Legislature and MPCA could do more to encourage recycling and other waste reduction activities preferred by the waste management hierarchy.

In this chapter, we discuss four specific areas where the Legislature or MPCA could do more to encourage recycling and waste reduction in the state:

- Improving recycling by state agencies
- Developing local markets for recycled materials
- Enforcing laws that place restrictions on waste disposal
- Developing incentives to encourage activities that are higher on the state's waste management hierarchy

RECYCLING BY STATE AGENCIES

As discussed in Chapter 2, the 2014 Legislature implemented new recycling requirements for sports facilities across the state and certain commercial buildings located in Twin Cities metropolitan counties.¹ Additionally, the Legislature increased recycling goals for counties in the metropolitan area. Given these expanded requirements for recycling, it is reasonable to expect state agencies to also increase their recycling activities. In this section, we discuss state agency recycling rates, coordination, and practices. We also make a number of recommendations to improve recycling by state agencies.

State Agency Recycling Rates

Each Minnesota state agency is required by law to recycle at least 60 percent of the waste it generates, although state agencies located in the metropolitan area may have higher recycling goals. Agencies in the metropolitan area must recycle the highest of (1) 60 percent of waste generated by weight, (2) the recycling rate required of a metropolitan county, or (3) goals established in the Metropolitan

¹ *Laws of Minnesota* 2014, chapter 312, art. 13, sec. 24 (sports facilities); and chapter 225, sec. 4 (commercial buildings). The Twin Cities metropolitan counties are the seven Twin Cities counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

Solid Waste Management Policy Plan.² As a result, metropolitan-area state agencies will be required to recycle at least 75 percent of their waste by 2030—the recycling goal established for metropolitan counties by the 2014 Legislature.³

Recycling rates for state agency locations in the metropolitan area varied widely in 2012, ranging from less than 10 percent to almost 90 percent.

In April 2014, MPCA published the *State Agency Sustainability Dashboard*, which demonstrates progress on certain recycling and sustainability measures, such as recycling rates, recycled paper purchases, and use of bottled water. MPCA did not have complete recycling information for almost 80 percent of state agency locations in the metropolitan area.⁴ Based on the data provided, only 14 percent of state agency locations in the metropolitan area met the goal of recycling at least 60 percent of waste generated; 7 percent of the agency locations did not meet the 60 percent goal.

We reviewed the 2012 recycling rates for those agency locations for which MPCA had more detailed data. Recycling rates for some individual Metropolitan Council locations, including the Metropolitan Police and the Metro Transit Operations Support Center offices, had recycling rates of less than 10 percent. In contrast, the Minnesota Department of Transportation-Metro District buildings had a joint recycling rate of almost 90 percent. Recycling rates for Minnesota cabinet-level state agencies varied widely, as shown in Exhibit 4.1. Several of these agencies, including the departments of Public Safety and Labor and Industry, did not report complete recycling information to MPCA for 2012.

Oversight and Coordination

In 2014, the Legislature removed a number of recycling-related responsibilities from the Department of Administration.⁵ As a result, the department is no longer responsible for operating a central material recovery facility, conducting waste audits, or measuring state agency progress toward recycling goals or waste reduction. Instead, each state agency now must report its recycling rate to MPCA and inform its employees of “recycling opportunities and expectations.”⁶

² *Minnesota Statutes* 2014, 115A.15, subd. 9.

³ *Laws of Minnesota* 2014, chapter 312, art. 13, sec. 27.

⁴ For most state agencies, “state agency location” refers to each separate building in which an agency is located. For example, some agencies, such as the departments of Human Services and Natural Resources, have multiple locations, each of which is considered a state agency location. On the other hand, some smaller state boards that are located in the same building—such as the boards of Pharmacy, Physical Therapy, Podiatric Medicine, and Psychology—may report together as one state agency location. The agencies located in the Capitol Complex, including Minnesota Management and Budget; MN.IT; and the departments of Administration, Agriculture, Health, Revenue, Transportation, and Veterans Affairs, also report recycling information together.

⁵ *Laws of Minnesota* 2014, chapter 225, secs. 1-3.

⁶ *Ibid.*, secs. 1-2.

Exhibit 4.1: Recycling Rates for Minnesota Cabinet-Level State Agencies, 2012

State Agency	Recycling Rate
Bureau of Mediation Services	NA
Capitol Complex (Multiple Buildings) ^a	62%
Department of Commerce	47
Department of Corrections ^b	43
Department of Education	36
Department of Employment and Economic Development ^b	33
Department of Human Rights	NA
Department of Human Services ^b	62
Department of Labor and Industry	NA
Department of Military Affairs	NA
Department of Natural Resources ^b	52
Department of Public Safety	NA
Department of Transportation	89
Metropolitan Council ^b	53
Minnesota Housing Finance Agency	NA
Minnesota Office of Higher Education	NA
Minnesota Pollution Control Agency	66

NOTES: The recycling rate is calculated by dividing the total weight of recyclables collected in the year by the total weight of waste (recycled material plus garbage) collected during that same time period across all agency locations. "NA" indicates the state agency did not report complete recycling data for any location to the Minnesota Pollution Control Agency (MPCA). The Minnesota Department of Iron Range Resources is a cabinet-level state agency; however, because it is located outside of the seven-county Twin Cities metropolitan region, it was not required to report its recycling data to MPCA in 2012. The recycling rate for the Department of Transportation does not include waste recycled or disposed of at the Department of Transportation Training and Conference Center.

^a Cabinet-level state agencies located in the Capitol Complex include Minnesota Management and Budget; MN.IT; and the departments of Administration, Agriculture, Health, Revenue, Transportation, and Veterans Affairs.

^b Data not reported for all agency locations.

SOURCE: Minnesota Pollution Control Agency data, *2012 Agency Recycling Report Calculations*.

There is no statewide oversight or coordination of state agency recycling efforts.

With the reduction of the Department of Administration's recycling role, no organization is responsible for overseeing recycling across state agencies. As a result, there is no coordinated effort to educate employees about recycling and no agency responsible for providing technical assistance regarding appropriate recycling containers and signage. Similarly, there is no centralized resource to help agencies negotiate recycling services as part of building lease agreements.

Many state agencies do not have systems in place to gather their recycling data on their own. However, several agencies do collect their recycling information and report it to MPCA, which synthesizes the information to provide an overall picture of state agency recycling. Additionally, MPCA staff told us some agencies call them for assistance, and they provide technical support services as

resources allow. MPCA has also created a “toolkit” for state agencies to use to establish or improve their recycling programs, but it is not yet finalized.

MPCA has recycling expertise and, while it has taken on some responsibilities related to state agency recycling, it does not have explicit authority to do so. On the other hand, state agencies lack the expertise to track their recycling rates and provide employee education on recycling practices, as the law now requires.

RECOMMENDATION

The Legislature should identify MPCA as the agency responsible for coordinating and overseeing state agency recycling activities.

With MPCA responsible for overseeing state agency recycling activities, the state could leverage the expertise already in place at the agency. MPCA could develop educational materials to increase employee recycling, which all state agencies could use. MPCA could also provide technical assistance to other state agencies interested in expanding or enhancing their recycling activities (for example, adding or expanding collection of compostable material). As noted above, MPCA staff have already done some of this. But, giving the agency specific responsibility and authority for state agency recycling may encourage the agency to dedicate more resources to these activities. It would also help other state agencies by providing them access to MPCA resources to improve their recycling programs and rates.

One complication is that many state agencies are located in leased buildings, where landlords—rather than the state agency tenants—manage recycling contracts with haulers. To implement effective recycling practices in these agency locations, the Department of Administration (the state agency responsible for lease transactions) may need to negotiate lease terms that ensure appropriate recycling opportunities for state agency tenants. We suggest MPCA and the Department of Administration collaborate to help state agencies implement effective recycling practices.

RECOMMENDATION

The Legislature should require MPCA to annually publish state agency recycling rates.

Beginning in 2015, all state agencies must report to MPCA their estimated recycling rates from the previous calendar year. We think the information in these reports should be published annually and made available to the Legislature and the public. This agency-specific information would help the Legislature and others identify which agencies are meeting state goals, and which agencies need assistance. In addition, having agency-specific information published may serve as an incentive for agencies to prioritize recycling activities.

State Agency Recycling Practices

Throughout our interviews with counties, cities, waste haulers, and interest groups, we heard a recurring theme: the amount of material recycled will increase if it is easy and convenient for people to recycle.

Some county and city staff told us how they have made recycling in their facilities easier and more convenient in an effort to increase their recycling rates. For example, the city of St. Louis Park placed new and uniform containers for recycling, waste, and compostable material in all city buildings. The three types of containers are all located together and clearly labeled with graphics to illustrate which materials go in which bin, as shown in Exhibit 4.2.

Exhibit 4.2: Recycling in St. Louis Park Buildings—Effective Containers and Signs



- Containers and signs are color coded.
- Containers and signs are uniform throughout city facilities.
- Signs use graphics to illustrate what to place in each container.
- Recycling and compost containers are co-located with trash container.

SOURCE: Office of the Legislative Auditor.

Similarly, Washington County implemented its “Divert 70” project in an effort to increase the recycling rate in county buildings.⁷ As part of this project, the county moved to single-sort recycling (which allows employees to place all types of recyclable material in one collection receptacle), removed desk-side trash containers from offices and cubicles, and co-located color-coded containers (green for compostable material, blue for recycling, gray for garbage) throughout the county’s facilities. Co-locating containers is important because it makes recycling or composting just as convenient as throwing an item in the garbage can. As shown in Exhibit 4.3, the containers use images and words, making it easier to understand how to dispose of waste. In Washington County facilities where the Divert 70 project has been implemented, recycling rates increased from 34 to 84 percent.

⁷ The Divert 70 project also sought to reduce energy costs and adopt less-toxic cleaning practices.

Exhibit 4.3: Recycling in Washington County Buildings—Effective Containers and Signs



- Containers and signs are color coded.
- Containers and signs are uniform throughout county facilities.
- Signs use graphics to illustrate what to place in each container.
- Recycling and compost containers are co-located with trash container.

SOURCE: Office of the Legislative Auditor.

Recycling opportunities in many state buildings—including many of those in the Capitol Complex—do not incorporate effective practices.

In contrast to local examples such as the city of St. Louis Park and Washington County, state agencies often do not provide convenient and easy-to-use recycling opportunities. For example, in many of the buildings in the Capitol Complex—including the Administration Building, Centennial Office Building, State Office Building, and the Transportation Building—recycling containers are not co-located with garbage containers, and there is no opportunity to separately collect compostable material, other than in the cafeterias. Signs on the recycling bins for a large number of containers in Capitol Complex buildings indicate that only cans, glass, and plastic beverage containers can be recycled, as shown in Exhibit 4.4. However, the list of recyclable materials that can actually be recycled in these buildings includes many additional items, such as milk cartons and jugs, yogurt containers, and margarine tubs.⁸ Finally, the signs on the recycling containers identify the (now-eliminated) Department of Administration Resource Recovery Program as the responsible party and provide a now-disconnected phone number.

⁸ Paper is recycled separately from glass, plastic, and metal containers. Offices may choose to collect paper separately because it can yield a higher sales price if it is not commingled with other recyclable material.

Exhibit 4.4: Recycling in the Centennial Office Building—Inadequate Container and Sign



Materials accepted for recycling in the Centennial Office Building include:

- Beverage cans
- Plastic beverage bottles
- Glass bottles
- *Milk cartons*
- *Milk jugs*
- *Plastic bags*
- *Yogurt containers*
- *Margarine tubs*

Italics indicate item is accepted for recycling but not identified on the sign as recyclable.

SOURCE: Office of the Legislative Auditor.

RECOMMENDATION

The Legislature and state agencies should implement effective recycling and waste reduction practices.

By law, all state agencies are required to recycle at least 60 percent of their waste. State agencies located in the metropolitan area are required to recycle more if the state or Metropolitan Solid Waste Management Policy Plan establishes a higher goal for the county in which they are located. Actions by the 2014 Legislature increased these recycling goals to 75 percent of waste by 2030. State agencies are unlikely to meet this goal given current recycling practices.

State agencies—under the guidance of MPCA—should adopt effective recycling practices, including locating containers for different types of waste near each other; posting up-to-date signs that use graphics to indicate what materials should be disposed of in which container; providing regular education to staff; and offering the collection of compostable materials, such as food waste and paper towels. These practices should be adopted not just in state agencies, but in other state venues, including the Legislature and the Minnesota State Fair. Some state agencies, including MPCA and the Department of Natural Resources, have already introduced collection of some compostable materials; other state agencies could learn from their experiences.

State law establishes waste reduction as a goal and places waste reduction at the top of Minnesota's waste management hierarchy.⁹ Further, Governor Dayton issued an Executive Order in 2011 directing state agencies to reduce the amount of waste disposed of each year.¹⁰ However, waste reduction and recycling rates are related, and success with one effort may mask opportunities for improvement in the other. For example, an agency may be careless in its use of paper, and therefore have paper comprise an unusually large share of the agency's waste stream. If the agency recycles a large percentage of its paper, it would have a high recycling rate. However, the agency may be missing an opportunity to reduce the amount of paper it uses, which would result in a reduction in the amount of total waste it generates—a more preferable method to managing waste. We suggest that in addition to implementing effective recycling practices, the Legislature and state agencies also make efforts to reduce the total amount of waste they generate.

As recommended earlier, MPCA could be responsible for overseeing and coordinating state agency recycling and waste reduction efforts. In this role, MPCA could provide education materials to all state agencies and more targeted resources to agencies with additional needs.

MARKET DEVELOPMENT

A critical part of the waste management lifecycle is the conversion of recycled materials into new products. Exhibit 4.5 highlights three Minnesota businesses that use recycled material to manufacture new products. Some markets for recycled material are well developed. For example, an aluminum can is typically returned to the shelf as a new product within about 60 days of being recycled. On the other hand, in Minnesota, there is a limited market for recycled glass and certain types of plastics (#3 and #6 in particular).¹¹ The lack of end markets for certain products became more apparent when one of the two mixed-glass recycling processing companies located in the Twin Cities metropolitan area—eCullet, Inc.—closed its Minnesota location suddenly in the fall of 2014. This had a ripple effect throughout the state recycling industry, as recycling processing facilities were not able to deliver (or sell) to eCullet the recycled glass they had collected.

⁹ *Minnesota Statutes* 2014, 115A.02(b); and 115A.55, subd. 4.

¹⁰ State of Minnesota Executive Order 11-13, "Strengthening State Agency Environmental, Energy and Transportation Sustainability," April 8, 2011, 4a.

¹¹ Plastics #3 and #6 are used in a number of different household products. For example, products made with #3 plastic—polyvinyl chloride (PVC)—include bottles for cooking oil, salad dressing, and mouthwash, among other items. Products made with #6 plastic—polystyrene—include Styrofoam coffee cups, some yogurt tubs, clear carry-out containers, and plastic cutlery, among other items.

Exhibit 4.5: Select Minnesota Businesses that Use Recycled Material

Company: Strategic Materials, Inc.
Minnesota Location: St. Paul
Recycled Material: Glass
End Products: Glass cullet

Strategic Materials processes post-consumer and post-industrial glass, including mixed glass from curbside recycling programs. The glass is color-sorted and turned into "cullet" (scrap container glass), which is sold to the glass-container and fiberglass industries.



Company: Liberty Paper, Inc.
Minnesota Location: Becker
Recycled Material: Old corrugated cardboard
End Products: Cardboard linerboard

Liberty Paper converts old corrugated cardboard into linerboard rolls, which are shipped to box plants and manufactured into new cardboard boxes.



Company: Master Mark Plastics
Minnesota Location: Paynesville
Recycled Material: Plastic
End Products: Lawn, garden, and building products

Master Mark Plastics uses high density polyethylene (HDPE) plastics, such as milk jugs and detergent containers, to create composite decking materials, garden edging, fencing, and other products.



SOURCES: Office of the Legislative Auditor; www.libertypaper.com, accessed December 3, 2014; www.strategicmaterials.com, accessed December 3, 2014; and www.mastermark.com, accessed December 3, 2014.

Minnesota statutes recognize the importance of developing markets for recycled materials and require MPCA to:

...assist and encourage the development of specific facilities, services, and uses needed to provide adequate, stable, and reliable markets for recyclable materials, solid waste suitable for land application, and compost generated in the state.¹²

The law requires MPCA to coordinate with other state agencies and communicate with the Department of Employment and Economic Development on these efforts. Waste haulers, private businesses, counties, and other economic development organizations also play an important role in identifying and developing markets for recycled material.

¹² *Minnesota Statutes* 2014, 115A.48, subd. 1.

MPCA devotes few resources to developing markets for recycled materials.

Since 2007, MPCA has had one staff person working on market development for recycled materials. According to MPCA staff, this is down from a high of seven full-time-equivalent (FTE) staff working on market development between 1995 and 1997 and 2.5 FTEs through 2005.¹³ The MPCA staff person currently responsible for this work said he coordinates with staff from a variety of agencies, including the Minnesota Department of Employment and Economic Development, the Minnesota Department of Agriculture, and local economic development offices.

The MPCA staff person devoted to this activity works on developing markets for all types of recycled material and works with companies on all aspects of product development, including facilitating collaboration among businesses and providing information on current research technologies, policy and legislative initiatives, material supplies, and market trends. For example, if a company is interested in using recycled glass, the MPCA market development staff person can help the company understand how to work with recycled glass, determine how they would need the glass sorted for their purposes, and locate a reliable stream of the material. MPCA also publishes a directory listing companies in the state that accept large quantities of recycled materials.¹⁴

MPCA staff characterized the agency's current market development activities as being in "maintenance mode." Staff explained that in the 1990s, the state invested several hundred thousand dollars annually in product development for recycled material, resulting in products such as plastic lumber. Now, however, MPCA has less than \$100,000 in a loan program it can offer to businesses for product development. Additionally, agency staff said some of the relationships they previously had with businesses that could use recycled material have "languished" given the few resources the agency has dedicated to these activities.

County and city solid waste officials we interviewed, as well as waste haulers, business representatives, and other interested parties, commented on the importance of MPCA's market development activities. For example, a staff person in one county we visited said market development is "the best thing the state can do for recycling."

To learn more about recycling across the state, we surveyed county solid waste officers.¹⁵ More than half (54 percent) of the county solid waste officers who answered our questionnaire responded that MPCA is "somewhat" or "very" ineffective at developing markets for recycled materials. These responses may be the result of the limited resources MPCA has allocated to this function. In

¹³ According to MPCA staff, the agency received a United States Environmental Protection Agency Jobs Through Recycling grant, which funded several market development positions between 1995 and 2000.

¹⁴ The directory is posted on MPCA's website. See <http://www.pca.state.mn.us/index.php/topics/preventing-waste-and-pollution/recycling/minnesota-recycling-markets-directory/minnesota-recycling-markets-directory-list-all.html>, accessed November 13, 2014.

¹⁵ We received responses from 87 percent of those surveyed.

interviews, county and city staff, as well as an interest group representative, told us that one staff person at MPCA is not sufficient to develop the needed markets for recyclable materials. One waste hauler we interviewed emphasized the importance of having robust markets for recycled materials. Another hauler we interviewed talked about storing 250 bales of recycled plastics because they could not find an end market; eventually they found a buyer who would take the material but only pay for the cost of freight.

Survey Question: Please indicate the extent to which MPCA is effective at developing markets for recyclable materials.

Very effective	3%
Somewhat effective	18
Somewhat ineffective	22
Very ineffective	32
Don't know	19
No response	6

Total Responses: 72

RECOMMENDATION

MPCA should consider increasing the amount of resources dedicated to market development for recycled material.

Staff from several counties in the Twin Cities metropolitan area said additional market development is necessary for their counties to meet the increased goal of recycling 75 percent of waste by 2030. Waste haulers we met with also commented that additional investment in research and development regarding recyclable materials could “move the needle” on recycling rates. They noted that if end markets are developed that use additional recyclable materials, it would likely result in diversion of those materials from landfills to recycling.

With only one FTE devoted to market development activities, however, MPCA staff told us the agency cannot be proactive. Rather than developing new markets, MPCA must instead respond to immediate needs, such as the sudden closure of one of only two mixed-glass recycling processing companies in the region. With additional resources dedicated to market development, MPCA could help businesses that use recyclable materials identify source material and locate in Minnesota. Having more end markets for recyclable materials in the state would encourage additional recycling and potentially help counties meet their recycling goals.

RESTRICTIONS ON DISPOSAL

Minnesota statutes require waste in the Twin Cities metropolitan area to be processed before being disposed of in a landfill, unless processing is not possible.¹⁶ Waste is “processed” if, after collection and before disposal, it has:

...undergone separation of materials for resource recovery through recycling, incineration for energy production, production

¹⁶ *Minnesota Statutes* 2014, 473.848, subd. 1. Waste that is deemed unprocessable by a county or processing facility operator is not subject to this requirement. There are not similar requirements to process waste outside of the metropolitan area.

and use of refuse-derived fuel, composting, or any combination of these processes....¹⁷

This law, which places restrictions on disposal, is consistent with the state's waste management hierarchy, which prefers recycling, composting, and resource recovery (including incineration) to landfill disposal.

There are four waste processing facilities and four landfills in Minnesota that receive waste from the Twin Cities metropolitan area, as identified in Exhibit 4.6.¹⁸ Although not all of these facilities or landfills are located in the metropolitan area, they all receive a share of the waste that is generated there. The Great River Energy Elk River Resource Processing Plant and Resource Recovery Technologies facilities first sort the waste to recover some recyclable material and then process the remaining waste to produce refuse-derived fuel that is incinerated (by Great River Energy and Xcel Energy, respectively) to create electrical power. The Hennepin Energy Recovery Center (HERC) burns waste to produce electricity and thermal energy, then recovers some recyclable metal from the ash of the incinerated material. The city of Red Wing facility first sorts the waste to recover recyclable material and then incinerates the waste to produce steam to be used for industrial processing.

Exhibit 4.6: Minnesota Landfills and Waste Processing Facilities that Receive Waste from the Twin Cities Metropolitan Region

	Location
Landfills	
Burnsville Landfill	Burnsville, Dakota County
Elk River Landfill	Elk River, Sherburne County
Pine Bend Landfill	Inver Grove Heights, Dakota County
Spruce Ridge Landfill	Rural McLeod County
Waste Processing Facilities	
City of Red Wing	Red Wing, Goodhue County
Great River Energy Elk River Resource Processing Plant	Elk River, Sherburne County
Hennepin Energy Recovery Center	Minneapolis, Hennepin County
Resource Recovery Technologies	Newport, Washington County

NOTE: The "Twin Cities Metropolitan Region" refers to the seven Twin Cities counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

SOURCE: Minnesota Pollution Control Agency, *Metropolitan Waste Disposal Restrictions Report* (St. Paul, 2012), 10.

¹⁷ *Minnesota Statutes* 2014, 473.848, subd. 5.

¹⁸ Waste processing facilities are sometimes also referred to as waste-to-energy or resource recovery facilities.

According to an MPCA report published in October 2012, processing capacity among three of the four waste processing facilities was fully utilized through 2007.¹⁹ However, beginning in 2008, increasing amounts of waste generated in the metropolitan area were delivered directly to area landfills rather than first going to a processing facility. MPCA estimated that in 2011, more than 700,000 tons of waste that was delivered to the four area landfills was unprocessed, despite capacity at the area facilities to process additional waste.²⁰ In the report, MPCA states: “It is clear that at the present time resource recovery facilities and land disposal facilities are not in compliance with the restriction on disposal.”²¹

MPCA has not enforced a state law that requires waste in the Twin Cities metropolitan area to be processed before being disposed of in a landfill.

Minnesota’s restrictions on disposal first became law in 1985. MPCA has never taken action to enforce them, in part because waste processing facilities were at capacity through 2007. The 2012 Legislature required MPCA to prepare a report on how to achieve compliance with this law and forbade the agency to require compliance before February 15, 2013.²²

MPCA prepared a report as directed and set forth its proposed compliance strategy, which relies largely on amending landfill and waste processing facility permits.²³ More specifically, MPCA proposes to amend landfill permits to “restrict landfills from accepting unprocessed metropolitan [garbage] unless the waste has been certified by the county as unprocessable.”²⁴ The report goes on to explain that waste is “unprocessable” when there is no “reasonably available capacity” in the waste processing facilities that serve the metropolitan area.

In the report, MPCA also proposes to amend permits for processing facilities. Under the proposed compliance strategy, permits for waste processing facilities would prohibit landfill disposal of any garbage (1) generated in the metropolitan area and (2) delivered to the processing facility, if another facility in the region had capacity to process the waste. As part of the amended permits, waste processing facilities and landfills that receive waste from the metropolitan area would also be required to submit monthly reports to MPCA.

In June 2013, MPCA notified landfill operators that it intended to implement the strategy to enforce the restrictions on disposal outlined in its 2012 report. In response, Waste Management, Inc.—which owns three of the four landfills serving the metropolitan area—filed a petition with the Office of Administrative

¹⁹ Minnesota Pollution Control Agency, *Metropolitan Waste Disposal Restrictions Report* (St. Paul, 2012), Appendix E.

²⁰ *Ibid.*, Appendix A. MPCA estimated that in 2011, the four processing facilities serving the Twin Cities metropolitan area could have processed an additional 139,000 tons of waste.

²¹ *Ibid.*, 21.

²² *Laws of Minnesota 2012*, chapter 272, sec. 93.

²³ Minnesota Pollution Control Agency, *Metropolitan Waste Disposal Restrictions Report* (St. Paul, 2012), 20-21.

²⁴ *Ibid.*, 21.

Hearings requesting an order to direct MPCA to cease implementation of its strategy.²⁵ Waste Management appealed the decisions of the Administrative Law Judge and Minnesota Court of Appeals, both of which ruled that MPCA was acting within its authority. Waste Management's appeal to the Minnesota Supreme Court was denied on October 28, 2014.

RECOMMENDATION

MPCA should enforce the law and ensure that, to the extent possible, waste is processed before it is disposed of in a landfill.

As discussed in Chapter 1, Minnesota statutes outline the state's waste management hierarchy, which establishes a preference order for waste management activities.²⁶ Landfill disposal is at the bottom of the hierarchy, indicating it is the least-preferred waste management option. The restrictions on disposal established in law, which require waste generated in the Twin Cities metropolitan area to be processed before it is disposed of in a landfill, are consistent with the state's waste management hierarchy: resource recovery is preferred to landfill disposal.

Although the state's restrictions on disposal of waste in the metropolitan area have been in place since 1985, MPCA has yet to enforce these requirements. This law is a specific tool the agency has to encourage diversion from landfill disposal and move waste "up" the waste management hierarchy. We recommend that MPCA move forward with developing and implementing its enforcement strategy.

INCENTIVES

Minnesota's waste management hierarchy, which is consistent with hierarchies established by the United States Environmental Protection Agency and other states, establishes a preference order for waste management. To encourage activities consistent with the hierarchy, the Legislature could provide financial or programmatic incentives; we discuss both types of incentives below.

Financial Incentives

The United States Supreme Court has limited the extent to which local units of government can require that waste be taken to specific facilities.²⁷ However, cities and counties may use economic incentives to subsidize tipping fees—the per-ton cost of disposing of waste at a given facility—to encourage disposal at

²⁵ Minnesota Office of Administrative Hearings Order, OAH 68-2200-30906, *In the Matter of the Petition of Waste Management of Minnesota, Inc. Pursuant to Minn. Stat. 14.381*, December 20, 2013. In its petition, Waste Management claimed that MPCA was attempting to enforce its strategy "as though it was a duly adopted rule."

²⁶ *Minnesota Statutes* 2014, 115A.02(b).

²⁷ *C & A Carbone, Inc. v. Town of Clarkstown*, 511 U.S. 383, 114 S.Ct. 1677 (1994).

the facilities of their choice. In general, waste haulers will try to dispose of the waste they collect in the most economical way possible, given the costs of transportation and tipping fees.

Under the current waste management structure, moving waste “up” the hierarchy in compliance with the Legislature’s stated preference is more expensive.

Landfill disposal—which is the least-preferred waste management activity—is often the cheapest waste-disposal option. Landfill tipping fees vary widely. For example, in its 2012-2030 solid waste management plan, Carver County reported landfill tipping fees ranging from \$64.14 to \$101.47 per ton, depending on the facility and negotiated agreements.²⁸ In a report prepared by MPCA, counties reported tipping fees per ton of \$21.42 and \$34.88 at two landfills in the Twin Cities metropolitan area.²⁹ In its 2012-2030 solid waste master plan, Dakota County estimated landfill tipping fees ranging from \$39 to \$43 per ton.³⁰ As one hauler told us, haulers prefer to landfill waste because it is the cheapest alternative—it is “cheap as dirt.”

Regardless of the variation in landfill tipping fees, tipping fees for waste processing and recycling facilities—which use waste management activities that are preferred in the waste management hierarchy—are typically more expensive than those for landfill disposal. For example, Dakota County estimated that its tipping fees at waste processing facilities range from \$49 to \$84 per ton, which can be significantly more than its estimated landfill disposal costs. Tipping fees at material recovery facilities for recycled material are difficult to identify, because cities and counties may have revenue-sharing agreements built into the fee structure. However, information we obtained showed recycling tipping fees of more than \$80 per ton for several local units of government.

Some counties have subsidized the tipping fees at waste processing or recycling facilities to encourage their use. For example, Ramsey and Washington counties subsidize the tipping fees at the Resource Recovery Technologies waste processing facility in Newport, Minnesota, for waste generated in their counties. Under a processing agreement, the counties pay licensed haulers \$20 for every ton of county waste accepted at the processing facility. Similarly, Polk County has a \$0 tipping fee for its residents at its recycling and waste-to-energy facilities. As stated in the county’s 2013 solid waste management plan,

The use of a zero tip fee is a form of economic flow control that encourages materials to be received at the appropriate County

²⁸ Carver County Public Health and Environment Division, Environmental Services Department, *Carver County Solid Waste Master Plan 2012-2030* (Chaska, 2012), 38.

²⁹ These tipping fees are for the Elk River and Pine Bend landfills and were reported in Minnesota Pollution Control Agency, *Advanced Disposal Environmental Services Rolling Hills, Mixed Municipal Solid Waste Landfill Project, Final Environmental Impact Statement* (St. Paul, 2014), 190.

³⁰ Dakota County, Minnesota, *Dakota County Solid Waste Master Plan 2012-2030* (Dakota County, 2012), 19.

solid waste facility where they can be managed properly and avoid illegal disposal.³¹

Programmatic Incentives

Financial incentives are one way to encourage waste management stakeholders to comply with the state's waste management hierarchy. Another is to promote programs that encourage activities higher on the hierarchy, such as waste reduction and reuse.

Some counties and organizations have instituted programs to encourage waste reduction and reuse, but there are no statewide programs to encourage these activities.

For example, the Washington County Environmental Center has a “Free Product Room” where usable household hazardous waste, such as unwanted paint and automotive products, is available to residents for no additional charge. The Tri-County Solid Waste Management Commission (which serves Benton, Sherburne, and Stearns counties) hosts a similar reuse program at its household hazardous waste facility in Stearns County. Similarly, Eureka Recycling—a nonprofit organization and recycling hauler located in the Twin Cities—created the Twin Cities Free Market to “divert usable and repairable items from the waste stream.”³² The program targets the exchange of reusable household goods.

The University of Minnesota also offers a reuse program, where surplus office furniture, supplies, and equipment from the Twin Cities campus are made available to other university departments for reuse. The program also makes items in its warehouse available for purchase by residents. During certain parts of the year, the University also administers a program aimed at reducing waste that results from students moving into and out of student housing. This “Pack & Give Back” program includes free pick-up of donations; items collected are placed in the program's Free Store and are available to students at no charge at the beginning of the following school year. In May 2013, the program collected nearly 50,000 pounds of household goods for the Free Store.³³

While the above initiatives are focused on *reuse*, some local units of government have instituted policies to *reduce* waste. For example, Hennepin County sponsors monthly “Fix-It Clinics,” where residents can bring in electronics, small household appliances, and other items and receive free help to repair their items. One of the stated purposes of these clinics is to “reduce the number of repairable objects that are thrown in the trash.”³⁴ The city of Minneapolis has also

³¹ Wenck Associates, Inc., *2013 Polk County Solid Waste Management Plan* (Crookston, 2013), 3-6.

³² “About the Free Market,” <http://www.twincitiesfreemarket.org/about>, accessed November 24, 2014.

³³ Facilities Management, “Pack and Give Back,” <http://www.facm.umn.edu/about/central-services/reuse/packandgiveback/>, accessed November 24, 2014.

³⁴ Hennepin County, “Fix-It Clinics,” <http://www.hennepin.us/residents/recycling-hazardous-waste/fix-it-clinics>, accessed November 24, 2014.

instituted policies to reduce waste. In May 2014, Minneapolis amended its Environmentally Acceptable Packaging Ordinance, which requires “environmentally acceptable packaging” for food or beverages sold and intended for immediate consumption (such as food sold at restaurants and concession stands). As defined in the ordinance, environmentally acceptable packaging includes reusable, returnable, recyclable, and compostable packaging; it does not include certain plastics, such as polystyrene. This ordinance goes into effect on April 22, 2015.

Some municipalities across the country have also instituted regulations on acceptable packaging. For example, Seattle, Washington, prohibits food service businesses from selling or providing food in expanded polystyrene containers.³⁵ Similarly, San Francisco, California, prohibits food vendors from selling prepared food in containers that include polystyrene foam.³⁶ California made headlines in September by going further and prohibiting many stores statewide from providing “single-use” carryout bags to customers.³⁷ As defined in the law, “single-use” carryout bags include plastic bags and bags made of nonrecycled paper.³⁸

Incentive Options

Given the preferences established in the waste management hierarchy, the state should promote activities supporting the top of the hierarchy (waste reduction, reuse, and recycling). The Legislature and MPCA could use incentives—either financial or programmatic—to encourage those activities.

RECOMMENDATION

The Legislature should consider adopting incentives that encourage the disposal of waste consistent with the waste management hierarchy.

There are many incentives the Legislature could consider to encourage waste reduction, reuse, and recycling. Exhibit 4.7 outlines some options for the Legislature to consider; although we do not recommend any option in particular, we discuss them in more depth below.

Reuse Program Grants

As discussed earlier, some counties and organizations offer reuse opportunities. These programs not only promote reuse, they also result in reduced waste. In other words, these programs are directed at the top of the waste management hierarchy. Developing and administering these programs requires organization, time, and expertise. The Legislature could authorize and fund a grant program

³⁵ *Seattle Municipal Code* 2014, title 21, subtitle III, chap. 21.36, subchap. II, 21.36.084.

³⁶ *San Francisco Environment Code* 2014, chapter 16, sec. 1603.

³⁷ *California Public Resources Code* 2014, division 30, part 3, chapter 5.3.

³⁸ *Ibid.*, art. 1, 42280(f).

Exhibit 4.7: Possible Methods to Encourage Preferred Waste Management Activities

	Description
Reuse Program Grants	Establish a statewide grant program to encourage local reuse initiatives.
Variable Pricing for Waste Disposal	Require waste haulers to more proportionately increase charges as the amount of waste collected increases.
Disposal Fees and Recycling Subsidies	Impose additional fees on landfill disposal or provide subsidies to material recovery facilities to align the cost of disposal with the waste management hierarchy.
Product Stewardship	Require manufacturers of certain products to bear responsibility for recycling or disposing of their products.
Beverage Container Deposit	Impose a refundable deposit on beverage containers to increase recycling of beverage containers.
Waste Bans	Prohibit additional materials from landfill disposal.

SOURCE: Office of the Legislative Auditor.

(administered by MPCA) to develop reuse programs. Although the reuse programs would likely be local in scope, they could have a larger impact as successful reuse programs are replicated across the state.

Variable Pricing for Waste Disposal

By law, waste haulers are required to increase their fees with the volume or weight of the waste that is collected.³⁹ This pricing mechanism, commonly referred to as “pay as you throw,” is intended to be an incentive for people to generate less waste. The theory is that the more garbage people produce, the more they will have to pay for garbage collection. However, the law does not fully work as intended because it does not require the fees to increase *proportionately*. As a result, consumers may be able to double the size of their garbage container for as little as a few extra dollars per year. This does not result in a strong incentive for residents to reduce their waste. On the other hand, a municipality may not want haulers to significantly increase the price of larger garbage containers, because this could encourage illegal dumping. The Legislature could amend the current pay-as-you-throw law to provide a more meaningful incentive for residents to reduce waste. However, it would be important to find the right balance between encouraging waste reduction and minimizing illegal dumping.

Disposal Fees and Recycling Subsidies

Another option is for the Legislature to increase disposal fees to align the cost of final disposal with the waste management hierarchy. State law authorizes counties and cities to impose fees on waste disposed of in landfills located within their boundaries; the law also requires landfill operators to charge a “clean-up”

³⁹ *Minnesota Statutes* 2014, 115A.93, subd. 3.

fee for waste accepted at the site.⁴⁰ However, even with these fees, landfill disposal is often the cheapest waste-disposal option. Rather than increasing fees on landfill disposal, the Legislature could subsidize recycling or waste processing—as some counties have done—to align disposal costs with the state’s waste management preferences.

Product Stewardship

The concept of “product stewardship” places responsibility for the environmental impact of a product on the manufacturer of the product. Under a stewardship program, manufacturers may pay a fee to help cover the cost of recycling and disposing of their products sold in the state. If manufacturers are responsible for associated disposal costs, the theory goes, it will encourage them to make the products easier to recycle. This could result in both a reduction of waste and an increase in recycling. Minnesota has had mixed success with two of the product stewardship programs currently in law: one for electronic waste and one for paint. Each is discussed briefly below.

Electronic Waste

The electronic-waste (e-waste) stewardship program, enacted by the Legislature in 2007, requires manufacturers of video display devices to recycle a specified amount of these devices and pay an annual fee.⁴¹ The fee, which is intended to be used to administer the program and provide grants to outstate counties and private entities to recycle these devices, includes a fixed registration fee and a variable recycling fee. Each manufacturer’s recycling fee reflects the extent to which the manufacturer met its recycling requirement (80 percent of the weight of video display devices sold by the manufacturer to Minnesota households in the previous year). Manufacturers that meet or exceed the requirement pay the fixed registration fee only and can carry over “excess recycling” as recycling credits for future years. Those that do not meet their recycling requirement pay a variable recycling fee based on the extent to which they fell short of the required amount.

MPCA estimates that nearly 250 million pounds of electronic waste included in the program have been recycled since July 1, 2007. However, the e-waste stewardship program is not without problems. Since the law was enacted, the types of electronic devices on the market have changed, and the weight of new products (which determines a manufacturer’s recycling requirement) is less than

⁴⁰ *Minnesota Statutes* 2014, 115A.919, 115A.921, 115A.923, and 473.843. As discussed in Chapter 1 and outlined in *Minnesota Statutes* 2014, 115A.919 and 115A.921, the revenue from this fee “shall be used only for landfill abatement purposes, or costs of closure, postclosure care, and response actions or for purposes of mitigating and compensating for the local risks, costs, and other adverse effects of facilities.”

⁴¹ *Laws of Minnesota* 2007, chapter 48, codified in *Minnesota Statutes* 2014, 115A.1310-115A.1330. This section of law is titled “Video Display and Electronic Device Collection and Recycling,” but for simplicity, we refer to it as the electronic-waste stewardship program. As defined in law, a “video display device” means “a television or computer monitor, including a laptop computer, that contains a cathode-ray tube or a flat panel screen with a screen size that is greater than nine inches measured diagonally and that is marketed by manufacturers for use by households” (*Minnesota Statutes* 2014, 115A.1310, subd. 20).

the weight of the old products (which determines a manufacturer's recycling performance). For example, televisions sold today are much lighter than the cathode ray tube televisions that are often brought in to be recycled. As a result, manufacturers are able to partially meet their obligations based on the number of pounds recycled (by recycling heavier, older devices) and have not financially helped counties recycle electronic devices to the extent anticipated.

Paint

The paint stewardship program, enacted by the 2013 Legislature, began on November 1, 2014.⁴² Under the program, paint producers must submit a stewardship plan for approval by MPCA. Producers must also

...implement and finance a statewide product stewardship program that manages the architectural paint by reducing the paint's waste generation, promoting its reuse and recycling, and providing for negotiation and execution of agreements to collect, transport, and process the architectural paint for end-of-life recycling and reuse.⁴³

Through the program, Minnesota residents and businesses can drop off unused paint, primers, stains, and sealers at retail sites throughout the state. There is no charge to drop off paint and other materials; the program is funded through a "PaintCare Recovery Fee" that is paid at the time of purchase. This fee pays for recycling the unwanted paint and managing the program, which is administered by a paint stewardship organization (PaintCare). In addition to retail collection sites, counties may still accept paint at household hazardous waste drop-off sites or collection events. PaintCare will help pay for the management of paint collected at county facilities if the county has entered into a contract with the paint stewardship organization. Otherwise, the county will continue to be financially responsible for the disposal of the paint collected at county facilities.

At this point, it is too soon to determine the success of the paint stewardship program. MPCA staff note that there are now approximately 140 retail collection sites for unwanted paint in the state and that the program provides counties an opportunity to reduce their expenditures on managing these products. However, several county officials have expressed frustration with the paint stewardship program. In particular, county officials told us they have spent time and energy coordinating with PaintCare to replace their existing and well-functioning paint recycling program. One county official told us paint disposal was the least controversial program the county had, prior to the paint stewardship program being implemented. Another county official said counties already have an established infrastructure to handle recycled paint and did not need the paint stewardship program.

Staff at MPCA and several local units of government have expressed an interest in expanding stewardship programs to other products, including mattresses and

⁴² *Laws of Minnesota* 2013, chapter 114, art. 4, sec. 78, codified in *Minnesota Statutes* 2014, 115A.1415.

⁴³ *Minnesota Statutes* 2014, 115A.1415, subd. 2.

carpet. These products may be suitable for stewardship programs, although we suggest that before the Legislature authorizes another stewardship program, the state first ensures proper implementation of the e-waste and paint stewardship programs already enacted in law.

Beverage Container Deposit

In 2014, MPCA published a legislatively required report on implementing a statewide recycling refund program to increase recycling of beverage containers in Minnesota.⁴⁴ The proposed program would place a \$0.10 deposit on all beverage containers of one gallon and smaller, with the intent of recycling at least 80 percent of beverage containers. (A recent estimate suggests that 45 percent of beverage containers are currently recycled in Minnesota.) An independent cost-benefit analysis estimated a net annual cost of \$29 million to implement the program as recommended.

There are advantages and disadvantages to implementing a beverage container deposit program. Advocates point to expected increases in beverage container recycling and note the deposit fee provides an effective incentive for consumers to recycle. Ten states in the country currently have a deposit program and generally report a high level of recycling of beverage containers, but total recycling rates (for all material types) for these states are mixed.⁴⁵ For example, while Michigan—which has a \$0.10 beverage container deposit—reports recycling 97 percent of beverage containers, it estimates an overall recycling rate of only 14.5 percent.⁴⁶ On the other hand, Oregon has a \$0.05 beverage container deposit and estimated nearly a 54 percent recovery rate in 2013 (which includes waste recycled, composted, and burned for energy recovery).⁴⁷

There is a large coalition opposed to a beverage container deposit program, including representatives from the recycling, grocery, retail, and manufacturing sectors. Several people with whom we met, including haulers, waste processors, county representatives, and other stakeholders, expressed concern about the impact of a container deposit. They noted that collecting beverage containers—typically one of the more reliably profitable materials to recycle—in a separate recycling stream could impact the financial viability of the existing recycling system.

⁴⁴ Minnesota Pollution Control Agency, *Increasing Recycling of Beverage Containers in Minnesota: Recommendations for a Statewide Recycling Refund Program* (St. Paul, 2014).

⁴⁵ The ten states with a beverage container deposit program are California, Connecticut, Hawaii, Iowa, Maine, Massachusetts, Michigan, New York, Oregon, and Vermont.

⁴⁶ Public Sector Consultants, *Improving Recycling Performance in Michigan: Best Practices, Options and Potential Costs* (West Bloomfield, MI, 2013), 6.

⁴⁷ Oregon's 53.9 percent recovery rate includes credits for reuse, waste prevention, and residential composting programs. Not including these credits, Oregon reported a recovery rate of 50.1 percent. When including only recycled or composted material (and not waste burned for energy recovery), Oregon had a 43.1 percent recycling rate in 2013.

Waste Bans

To discourage landfill disposal and encourage waste management activities higher on the hierarchy, the Legislature could expand its waste ban. A number of products are already banned from landfill disposal in Minnesota, as shown in Exhibit 4.8. For example, state law has prohibited the disposal of tires in landfills since 1985 and the disposal of electronic products containing a cathode ray tube since 2006.⁴⁸ Minnesota also prohibits the disposal of major appliances, mercury-containing devices, and motor vehicle fluids and filters. Since 1992, Minnesota has prohibited people from disposing of yard waste with their garbage.⁴⁹

Exhibit 4.8: Select Materials Banned from Landfill Disposal in Minnesota

- Batteries (certain dry cell, lead-acid, and rechargeable)
- Cathode ray tubes
- Household hazardous waste
- Major appliances
- Mercury or mercury-containing products
- Motor vehicle fluids and filters
- Source-separated recyclable material^a
- Telephone directories
- Tires
- Yard waste

^a This waste ban is only on recyclable materials that have been separated by the waste generator. This ban does not prohibit residents from disposing of recyclable material with the garbage, nor does it prohibit haulers from disposing of garbage that contains recyclable material in a landfill.

SOURCES: *Minnesota Statutes* 2014, 115A.904; 115A.915; 115A.9155; 115A.9157; 115A.916; 115A.931; 115A.932; 115A.95; 115A.951; 115A.956; 115A.9561; 115A.9565; and 115A.96, subd. 6.

Several states have banned additional products from landfill disposal. For example, effective October 1, 2014, Massachusetts banned the landfill disposal (and incineration) of food and vegetative material generated by certain businesses and institutions.⁵⁰ As another example, in 2009, North Carolina banned the disposal of one-time-use plastic bottles, oil filters, and wooden pallets.⁵¹ Similarly, as of July 1, 2011, Wisconsin banned the disposal of many recyclable materials, including aluminum, glass, plastic, and steel containers; corrugated paper; container board; and paper.⁵² Wisconsin's ban differs from Minnesota's landfill ban on recyclable materials in an important way: the ban in Minnesota applies to only recyclable material that residents or other waste generators have

⁴⁸ *Minnesota Statutes* 2014, 115A.904 (tires), and 115A.9565 (cathode ray tubes).

⁴⁹ *Minnesota Statutes* 2014, 115A.931.

⁵⁰ *Code of Massachusetts Regulations* 2014, 310 CMR 19.000 Regulations.

⁵¹ *North Carolina General Statutes* 2014, 130A-309.10(f).

⁵² *Wisconsin Statutes* 2014, 287.07(4) and (4e)(a).

separated from other waste; Wisconsin's ban applies to the material regardless of whether it has been separated from other waste.

The Legislature could choose to follow the example of these other states and prohibit additional items from landfill disposal, as a means to encourage additional recycling. If the Legislature expands current waste bans to new materials, however, it should also identify enforcement mechanisms and address concerns about illegal dumping.

List of Recommendations

- The Minnesota Pollution Control Agency (MPCA) should continue its efforts to improve measurement of recycling outcomes. (p. 60)
- The Legislature should establish goals for all tiers of the waste management hierarchy—including goals related to landfill disposal and waste processing—and require counties and MPCA to track progress toward these goals. (p. 62)
- The Legislature should direct MPCA to research alternative technologies and determine how to integrate them into the state’s waste management hierarchy. (p. 64)
- The Legislature should identify MPCA as the agency responsible for coordinating and overseeing state agency recycling activities. (p. 70)
- The Legislature should require MPCA to annually publish state agency recycling rates. (p. 70)
- The Legislature and state agencies should implement effective recycling and waste reduction practices. (p. 73)
- MPCA should consider increasing the amount of resources dedicated to market development for recycled material. (p. 77)
- MPCA should enforce the law and ensure that, to the extent possible, waste is processed before it is disposed of in a landfill. (p. 80)
- The Legislature should consider adopting incentives that encourage the disposal of waste consistent with the waste management hierarchy. (p. 83)

Appendix: Case Studies

To enrich our understanding of recycling practices, we studied recycling services in 17 local units of government across the country that had been identified as recycling “leaders.” We examined the recycling policies and practices of each city and county and conducted phone interviews with staff to learn more about their recycling practices. Below we provide information about how we selected these 17 local units of government and present some general conclusions about their recycling practices and how they compare to Minnesota cities and counties and each other. The remainder of this appendix contains detailed information on each local unit of government.

METHODOLOGY

To select a sample of cities and counties to review, we first established some basic criteria. In particular, we determined that our cases must:

- Be located within the United States.
- Provide a mix of types of local units of government (cities and counties).
- Be geographically diverse in regards to state and region of the country.
- Represent cities and counties of different population sizes.
- Consist of national recycling leaders identified by industry peers.

After determining the selection criteria, we took a number of steps to identify appropriate local units of government for our review. We first compiled a list of potential cities and counties based on a number of sources, including the United States Environmental Protection Agency (EPA), state and local program evaluations and audits, and professional recycling associations in the United States. This process resulted in a total of 83 possible local units of government.

To ensure that the sample reflected current recycling practices, we included only local units of government that were recognized for their recycling activities in 2005 or later. We further limited the sample based on the number of times a city or county was recognized for its recycling activities. Multiple acknowledgements from one source were counted as one citation (for example, three separate American Forest & Paper Association awards were counted as only one); however, reports released by the same agency but discussing different recycling specialties were counted as separate citations. For example, if an agency produced separate reports on national leaders in commercial recycling and recycling in public places, we considered each report a separate citation. Local units of government that were recognized only once were eliminated. To increase geographic diversity within the sample, we further limited the pool to include only one city or county per state. Within each state, the local unit of government with the greatest number of citations took precedence. This process resulted in ten cities and counties.

The ten identified cities and counties, however, lacked balanced representation of both the type and population size of the local unit of government. To address this imbalance, we reconsidered all counties that had been recognized at least once for overall recycling leadership (seven total counties). We chose to prioritize inclusion of counties recognized for the accomplishments of their recycling system as a whole over counties recognized for accomplishments within only one recycling specialty. We added into our sample the two counties located in states not already represented.

To address the preponderance of local units of government in our sample with large populations and to increase geographic diversity, we reconsidered localities with fewer than 200,000 residents that were cited in the last ten years for their recycling practices (even if they had only been recognized for a particular recycling specialty). We added into our sample those smaller cities and counties located in states not already represented. The selection process resulted in 20 total local units of government, as identified in Exhibit A.1.

Exhibit A.1: Selected Cities and Counties

Municipality Name	State	Municipality Type
Abington Township	Pennsylvania	City
Austin	Texas	City
Boulder	Colorado	City
Burlington	Vermont	City
Chicago	Illinois	City
Concord	Massachusetts	City
Davidson County	Tennessee	County
Dorchester County	South Carolina	County
Dubuque	Iowa	City
Fairfax County	Virginia	County
Guntersville	Alabama	City
Mackinac Island	Michigan	City
Madison	Wisconsin	City
Onondaga County	New York	County
Orange County	North Carolina	County
Perrysburg	Ohio	City
Portland	Oregon	City
San Francisco	California	City
Seattle	Washington	City
Township of Nutley	New Jersey	City

SOURCE: Office of the Legislative Auditor.

After selecting these 20 cases, we undertook a detailed document review of each city and county. Sources included state statutes; city and county ordinances and regulations; city and county websites; recycling-related documents produced by the local units of government, such as recycling plans or department budgets; state agency websites and documents; and recent newspaper articles.

We then contacted recycling and solid waste staff in each city and county for additional information. While we selected 20 cases for review, we received responses from only 17 local units of government. As a result, we excluded Chicago, Illinois, Dubuque, Iowa, and the Township of Nutley, New Jersey, from our analysis. Below, we draw some general conclusions from our review of the recycling practices of the 17 counties and cities. Following that discussion, we provide a summary of each of the 17 recycling programs.

GENERAL CONCLUSIONS

Variations in recycling practices are found nationwide. However, certain commonalities emerged among the local units of government included in our analysis. Among the 17 recycling leaders included in our review, the majority:

- Require residents to recycle.
- Offer single-sort curbside recycling collection services to residents, which allows residents to place all recyclable material into one receptacle for collection.
- Receive revenue via recycling commodity sales.

When we compared the recycling practices of Minnesota communities to the 17 cities and counties included in our review, we found a number of similarities.

In many cases, Minnesota law requires cities and counties to engage in recycling practices similar to those used by cities and counties identified as national leaders.

For example, residents of almost all of the local units of government in our review have access to curbside recycling collection. The same is true of many cities in Minnesota. State law requires curbside collection of recyclables in (1) cities in the Twin Cities metropolitan area with a population of 5,000 or more residents, and (2) all cities with a population of at least 20,000.¹ Similarly, nearly half of the local units of government in our review have implemented variable pricing for garbage collection, in which service charges increase as the amount of waste collected increases. Minnesota law requires licensed waste haulers to “impose charges for collection of mixed municipal solid waste that increase with the volume or weight of the waste collected.”²

¹ *Minnesota Statutes* 2014, 115A.552, subd. 2.

² *Minnesota Statutes* 2014, 115A.93, subd. 3.

Some local units of government included in our review have taken steps toward regulating commercial recycling, often through recycling mandates. Several local units of government included in our analysis (including Abington Township, Burlington, Onondaga County, Portland, San Francisco, and Seattle) require that all commercial entities recycle. Similarly, some cities and counties (including Austin, Fairfax County, Madison, Onondaga County, and Portland) require commercial facility owners to provide access to recycling within their buildings. Again, Minnesota law outlines similar requirements. In 2014, the Minnesota Legislature established new recycling requirements for certain commercial buildings.³ As discussed in Chapter 2, some commercial buildings located in the Twin Cities metropolitan region must collect at least three recyclable materials beginning in 2016.

However, there are some differences between recycling practices in Minnesota and those in the local units of government included in our review of national recycling leaders.

For instance, more than half of the local units of government included in our review require residents to recycle. While some Minnesota counties have enacted local ordinances requiring residents to recycle, it is not required by state law. Instead, Minnesota statutes simply require counties to ensure that residents have an opportunity to recycle.⁴

As part of requiring residents to recycle, some local units of government included in our review have chosen to prohibit residents from disposing of recyclable material—such as cardboard, office paper, or plastic drink bottles—as solid mixed municipal waste (garbage). Minnesota law, however, only bans the landfill disposal of traditional recyclable materials that have *already been separated* from the waste stream for the purpose of recycling; waste generators can dispose of recyclable materials in the garbage, if they so choose.

Another difference between Minnesota and the local units of government included in our review pertains to compostable material. Several cities included in our review (Austin, Boulder, Mackinac Island, Portland, San Francisco, and Seattle) provide curbside food waste collection. Staff in several other cities and counties noted interest in starting or expanding food waste collection but said they were limited due to local processing capacity. While some cities in Minnesota provide curbside food waste collection, including Hutchinson, St. Louis Park, and Wayzata, it is not a widespread practice in the state.

Finally, several of the local units of government included in our review use different methods to process waste materials. Staff from three cities (Portland, San Francisco, and Madison) stated that their cities process some compostable waste via anaerobic digestion. In contrast, anaerobic digestion as a

³ *Laws of Minnesota* 2014, chapter 225, sec. 4. Businesses classified in sectors 42 to 81 under the North American Industrial Classification System are included in this requirement. These classifications include most businesses, with the exception of businesses in the agricultural, mining, utilities, construction, and manufacturing industries. See www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012, accessed October 28, 2014.

⁴ *Minnesota Statutes* 2014, 115A.552, subd. 1.

waste-processing method is still in its infancy in Minnesota. Additionally, less than one-quarter of the local units of government in our review incinerate waste. This is different than Minnesota, in which incineration is widely used as a waste-processing method.

The following summaries provide a more detailed look at the unique aspects of the 17 cities and counties included in our review. In each summary, we provide “quick facts” about aspects of each city’s or county’s recycling program. To be identified as a city or county providing *curbside* or *single-sort* recycling collection, local units of government must offer curbside or single-sort recycling collection to all residents. Because some residents live in areas where access to curbside or single-sort collection varies by hauler, we also note instances in which the provision of these services varies throughout the city or county. Similarly, to be identified as a local unit of government that provides *compostable collection*, cities or counties must offer residents curbside collection of food waste; this excludes recycling programs providing curbside collection of yard waste only.

Cities or counties using *waste-to-energy* technology are those that deliver waste to facilities that produce energy from waste processing; communities in which waste oil is burned for energy are excluded. Finally, cities, counties, and states establish *waste management goals* using different measures, including recycling, diversion, and waste-reduction rates. The following summaries reflect the variety of approaches used by the cities and counties we reviewed.

ABINGTON TOWNSHIP, PENNSYLVANIA

Abington Township is a township with 56,000 residents in the greater Philadelphia metropolitan area. In 2013, it won the United States Environmental Protection Agency's WasteWise Award for its efforts in local government recycling.

Collection Services

Abington Township provides curbside recycling services to single-family households. The township maintains a dual-sort recycling collection system because it receives a higher sales price for separated paper than it does for commingled materials. Abington Township uses a variable-rate fee schedule; monthly service charges are determined based on the size of a resident's garbage can. The township provides curbside yard waste collection for 11 months of the year but does not collect other compostable materials due to facility limitations.

Smaller commercial facilities and multi-family complexes may elect to use township recycling services for a fee. Commercial businesses and multi-unit complexes that choose not to use township collection services are responsible for contracting directly with a third-party hauler. The Commonwealth of Pennsylvania licenses all recycling haulers. Abington Township devotes about 25 full-time-equivalent employees—including both collection and administrative staff—to township solid waste and recycling efforts.

Recycling Requirements

- Abington Township requires residents and businesses to recycle.
- The township does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of either in landfills or in the mixed municipal solid waste (garbage) stream. These include certain electronics, lead acid batteries, tires, waste oil, and certain yard waste. Abington Township does not ban the disposal of any additional items via township ordinance.
- Some state recycling grants require local units of government to employ a recycling coordinator.

QUICK FACTS

Population:	56,000
Urban/sub/rural:	Suburban
Curbside collection:	Yes
Single-sort collection:	No
Compostable collection:	No
Waste-to-energy used:	Yes
Township recycling goal:	None
State recycling goal:	35%

Reporting

The township is required to report to both county and state recycling authorities. Abington Township staff report all recycling data to the county and additional documentation to the state for recycling grant applications. To obtain commercial recycling data, the township approaches businesses and haulers directly.

Funding

Abington Township’s revenue sources include service fees, recycling sales, state grants, and a small amount of money from bulky waste collection fees. In 2013, revenue from residential service fees totaled about \$4.3 million, material sales totaled about \$204,000, and state funding totaled nearly \$263,000.

Materials included in 2013 recycling-rate calculations

	MN	Abington Township
Appliances	✓	
Construction and demolition		
Compostable material	✓	✓
Electronics	✓	
Glass	✓	✓
Household hazardous waste	✓	
Metal	✓	✓
Other ^a	✓	
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	
Textiles	✓	
Tires	✓	
Waste reduction credit		
Yard waste	✓	✓
RECYCLING RATE		
	47%	55%
DIVERSION RATE		
	N/A	N/A

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

The state provides recycling funding via a state surcharge on waste tipping fees. State funding is allocated through grants based on recycling performance and resident population. The state also provides competitive grants. The township does not receive any county funds.

Other Practices

- Abington Township and other local units of government collaborate to combine recycled material at a local transfer station so that they receive a higher sales price for the material.
- The township audits commercial businesses every other year to ensure compliance with business recycling requirements.

AUSTIN, TEXAS

Austin is an urban city with 885,000 residents. The city was recognized as a recycling leader in (1) a Mecklenburg County, North Carolina, analysis of recycling best practices and (2) a report on outstanding recycling programs compiled for Metro Vancouver.

QUICK FACTS	
Population:	885,000
Urban/sub/rural:	Urban
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	Pilot
Waste-to-energy used:	No
City diversion goal:	90%
State recycling goal:	40%

Collection Services

Austin currently provides single-sort curbside recycling collection services to single-family homes, duplexes, and triplexes. Waste collection service charges are based on a variable-rate fee schedule. Austin is currently piloting a food waste collection program and plans to offer curbside food waste collection services to all city residences by 2017. Currently, 72 percent of residents recycle.

Commercial and larger multi-family complexes must contract for recycling services with private haulers. Private haulers are required to have a city permit and pay a small fee before they can collect waste in Austin. The city currently employs about 400 staff members who provide collection services, “zero waste” programming, and other services.

Recycling Requirements

- Austin requires single-family residences to have recycling services (but does not require residents to recycle).
- Austin requires multi-family, commercial, educational, governmental, and industrial facility tenants and employees to have access to recycling. Food vendors must ensure employees have access to compost collection by 2018.
- The city does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of in landfills, including lead acid batteries, tires, and waste oil and filters. Austin does not ban the disposal of any additional items via city ordinance; however, it prohibits retail stores from providing disposable bags to customers.

Reporting

Starting in 2015, haulers will be required to report their recycling tonnages to the city. Austin also requires local businesses to report recycling data; however, a staff person told us that only about 65 percent of businesses comply.

Austin’s diversion rate is a calculation of composted, recycled, and reused materials as a percentage of the total generated waste. The diversion rate reflects only single-family residential recycling data and does not include commercial, industrial, construction, or institutional recycling data.

Funding

Austin has two primary sources of revenue for its recycling program. First, the city charges a fee for all curbside waste collection services, which appears on residents’ utility bills and fully funds the curbside collection program. The second fee is a flat fee assessed on all residential and commercial properties that pays for services such as street sweeping, as well as recycling program planning and education. In 2013, Austin generated about \$49 million in revenue from the collection fee and \$16 million from the flat fee; revenue from recycling sales totaled about \$4 million. Austin does not receive revenue from state or county sources but does pursue grant funding.

Other Practices

- Instead of generalized advertising campaigns, Austin staff divide the city into nine “zones” and tailor educational campaigns to the needs of each zone.
- To attract local recycling market opportunities, Austin is developing an industrial park for companies who use recycled material to create new products.
- Austin adopted a hierarchy of beneficial use for food waste. Beginning with the most beneficial, it encourages: (1) feeding hungry people, (2) feeding animals, (3) providing for industrial uses (such as anaerobic digestion or using oil for fuel), and (4) composting.

Materials included in 2013 recycling-rate calculations

	MN	Austin
Appliances	✓	
Construction and demolition		
Compostable material	✓	✓
Electronics	✓	
Glass	✓	✓
Household hazardous waste	✓	
Metal	✓	✓
Other ^a	✓	
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	
Textiles	✓	
Tires	✓	
Waste reduction credit		
Yard waste	✓	✓
RECYCLING RATE	47%	N/A
DIVERSION RATE	N/A	40%

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

BOULDER, COLORADO

Boulder is an urban city with 103,000 residents. The city was recognized as a recycling leader in (1) a Mecklenburg County, North Carolina, analysis of recycling best practices and (2) a report on outstanding recycling programs compiled for Metro Vancouver. It was also recognized for its commitment to commercial recycling in an evaluation conducted by the city of Ann Arbor, Michigan.

QUICK FACTS

Population:	103,000
Urban/sub/rural:	Urban
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	Yes
Waste-to-energy used:	No
City waste reduct. goal:	85%
State recycling goal:	None

Collection Services

Boulder residents and businesses contract for garbage and recycling services in an open, competitive market; however, within the open market, the city regulates how haulers provide services for single-family homes and multi-family complexes. All single-family residents have access to single-sort curbside recycling collection as well as curbside compost collection. City staff are exploring the possibility of requiring haulers to collect garbage bimonthly and compost weekly, instead of weekly garbage collection and bimonthly compost collection.

Haulers must renew their licenses annually through the county and submit a one-time Business Tax License application to the city of Boulder. Boulder currently devotes three full-time and one part-time employee to city recycling efforts.

Recycling Requirements

- Boulder does not require residents or businesses to recycle.
- The city requires garbage haulers to use a variable-rate fee schedule, provide composting and recycling services, and drop off their recycling at Boulder's publicly funded recycling center.
- State law prohibits certain materials from being disposed of in landfills, including lead acid batteries, tires, and waste oil. Boulder does not ban the disposal of any additional items via city ordinance, although it implemented a fee on disposable grocery store bags in 2013.

Reporting

Boulder requires that haulers submit to the city annual reports, including garbage, compost, and recycling material tonnage from single-family, multi-family, and commercial properties. The city also requests data from recyclers who are not also garbage haulers, including several facilities and service providers, most of which are smaller operations.

Boulder’s diversion rate is a calculation of recycled and composted materials as a percentage of the total generated waste. While Boulder currently tracks diversion rates, the next city strategic plan calls for Boulder to track per capita waste generation over time.

Materials included in 2013 recycling-rate calculations

	MN	Boulder
Appliances	✓	
Construction and demolition		✓
Compostable material	✓	✓
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	
Metal	✓	✓
Other ^a	✓	
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	✓
Textiles	✓	✓
Tires	✓	
Waste reduction credit		
Yard waste	✓	✓
RECYCLING RATE	47%	N/A
DIVERSION RATE	N/A	32%

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

Funding

Boulder funds its recycling programs almost solely from “trash tax” revenues. All haulers are required to pay a city tax—a charge per household for single-family residential customers, and a charge per yard of waste for commercial and multi-family complex customers. The city trash tax generates about \$1.6 million annually.

While Boulder receives some money from its disposable bag fee, the fee is designated to offset related administrative costs. There is a county grant program for recycling education, but Boulder typically does not receive county grants because it has access to more resources than other municipalities in the county.

Other Practices

- Boulder requires that new multi-family complexes build an adequate enclosure to house at least one-half as much recycling as garbage generated onsite.
- The city of Boulder collaborates with Boulder County and local organizations to manage a material recovery facility, compost site, and household hazardous waste facility.
- The city collaborates with a local nonprofit to provide recycling education and community outreach.

BURLINGTON, VERMONT

Burlington is an urban city with 42,000 residents. In a 2007 evaluation conducted by the city of Ann Arbor, Michigan, Burlington was recognized as a recycling leader for its efforts in commercial recycling.

Collection Services

Burlington provides single-sort curbside recycling collection to all residential buildings with fewer than ten units. The city does not collect yard or food waste as part of recycling services, but it provides yard waste drop-off facilities for brush. Some private garbage haulers collect food waste and take it to a local composting facility.

Commercial and larger multi-family complexes contract for garbage and recycling services in an open, competitive market. The city requires all garbage haulers to have a city-issued license. Burlington employs three recycling collectors and one administrator who spends a small share of his time on recycling.

Recycling Requirements

- Burlington requires residents and businesses to recycle.
- The city does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of in landfills, including appliances, cathode ray tubes, certain batteries, electronics, products containing mercury, paint, tires, and waste oil. Burlington does not ban the disposal of any additional items via city ordinance.

QUICK FACTS

Population:	42,000
Urban/sub/rural:	Urban
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	No
Waste-to-energy used:	No
City recycling goal:	None
State waste reduct. goal:	25%

Reporting

Instead of reporting to a county solid waste department, Burlington reports to the Chittenden Solid Waste District (CSWD), which includes 18 member municipalities covering 532 square miles surrounding Burlington. The district weighs recycled materials collected by the city of Burlington and from private haulers at its material recovery facility. All Burlington recycling data are stored with and managed by CSWD. Burlington is not subject to state or county reporting requirements and does not track its recycling rate.

Funding

Burlington generates recycling program revenues solely from a tax assessed on garbage haulers. Burlington licenses all waste haulers, and as part of the licensing agreement, haulers are required to report their total number of customers to the city. The city assesses a hauler tax based on their total accounts. Revenue for the city recycling program has been approximately \$500,000 for each of the last few years.

Other Practices

- Burlington provides very little consumer education to residents; consumer education is the responsibility of CSWD.
- CSWD sets local waste and recycling policies. While Burlington has its own solid waste ordinance, it follows the direction of the solid waste district.
- Vermont requires all businesses to divert food waste from the landfill starting in 2014. By 2020, the state will require that all food scraps (including those from residential households) be diverted from landfills.
- Vermont has a beverage container deposit program, in which consumers pay a deposit on beverage bottles at the time of purchase and receive a refund when they return empty containers to a redemption location.

Materials included in 2013 recycling-rate calculations

	MN	Burlington
Appliances	✓	
Construction and demolition		
Compostable material	✓	
Electronics	✓	
Glass	✓	
Household hazardous waste	✓	
Metal	✓	
Other ^a	✓	
Paper	✓	
Plastic	✓	
Problem materials	✓	
Textiles	✓	
Tires	✓	
Waste reduction credit		
Yard waste	✓	
RECYCLING RATE	47%	N/A
DIVERSION RATE	N/A	N/A

^a "Other" includes materials such as film plastic, cooking oil and grease, and wood packaging.

CONCORD, MASSACHUSETTS

Concord is a town in the Boston metropolitan area with 19,000 residents. In 2009, it was recognized as a leader in construction and demolition debris recycling in a Mecklenburg County, North Carolina, plan for solid waste management.

Collection Services

Concord contracts with a third-party hauler to provide curbside residential garbage and recycling collection services. The town currently has a dual-sort collection program due to concerns about recycling contamination. Concord's recycling and disposal program coordinator expressed interest in establishing food-waste collection services; the town does not currently offer this option because there are no processing facilities in the area.

Most commercial and large multi-family complexes contract directly with private haulers for both garbage and recycling collection, although some of the smaller businesses use the municipal curbside collection program. The town also holds semiannual business recycling events for electronic waste and shredded paper. All haulers are licensed by the state. Concord currently devotes 1.5 full-time-equivalent staff to city recycling efforts.

Recycling Requirements

- The town of Concord does not require residents or businesses to recycle.
- The town does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of in landfills, including appliances, some construction and demolition waste, cathode ray tubes, glass containers, certain batteries, metal containers, many plastics, recyclable paper, tires, wallboard, wood, commercial food waste, and yard waste. Concord does not ban the disposal of any additional items via city ordinance.

QUICK FACTS

Population:	19,000
Urban/sub/rural:	Suburban
Curbside collection:	Yes
Single-sort collection:	No
Compostable collection:	No
Waste-to-energy used:	Yes
Town recycling goal:	None
State waste reduct. goal:	80%

Reporting

Concord’s recycling rate includes material from the curbside collection program and town dumpster sites; it does not include materials collected at town drop-off events. Private haulers are not required to report recycling data to the town. While some town waste is incinerated, Concord does not count refuse-derived fuel as recycled material.

A town staff member told us that Concord tracks a recycling rate because the state has historically done so. However, staff said that the state’s focus is shifting to tons of garbage disposed of per household.

Funding

Concord primarily funds its recycling program through a two-tiered collection fee consisting of: (1) a biannual curbside subscription fee, and (2) a per-bag waste disposal fee. In fiscal year 2013, the town generated about \$700,000 from subscription fees and \$280,000 from disposal fees. Concord receives some revenue from the state container deposit program, sales of recycled paper, and other sources. The town also receives state funding—typically less than \$2,000 per year—based on population size.

Other Practices

- Concord buys compost bins from the state and sells them to residents.
- The town works closely with its contracted third-party hauler on recycling enforcement. The hauler leaves tickets on offenders’ garbage or recycling bins, and the town either calls or contacts repeat offenders via mail.
- Concord hosts a number of collection events, including a semiannual “Drop-Off, SwapOff” event, during which residents can both bring and take home used items at the event for free. In addition to collecting bulky waste and recycling at these events, the town collects some construction and debris material, which is often collected for reuse by local nonprofits.
- Massachusetts has a beverage container deposit program, in which consumers pay a deposit on beverage bottles at the time of purchase and receive a refund when they return empty containers to a redemption location.

Materials included in 2013 recycling-rate calculations

	MN	Concord
Appliances	✓	
Construction and demolition		
Compostable material	✓	
Electronics	✓	
Glass	✓	✓
Household hazardous waste	✓	
Metal	✓	✓
Other ^a	✓	
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	
Textiles	✓	
Tires	✓	
Waste reduction credit		
Yard waste	✓	
RECYCLING RATE	47%	41%
DIVERSION RATE	N/A	N/A

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

DAVIDSON COUNTY, TENNESSEE

Davidson County, located in north-central Tennessee, has a population of 659,000. The county was recognized as a recycling leader in a Mecklenburg County, North Carolina, analysis of recycling best practices.

Collection Services

Davidson County and the Metropolitan Government of Nashville jointly manage recycling services for the county. The county is divided into two service areas—the Urban Services District and the General Services District. The metropolitan government provides monthly, single-sort curbside recycling collection services for residents living in the Urban Services District (more than 50 percent of county residents). Residents in the unincorporated areas of the county live in the general district and must contract for recycling collection services from a list of approved haulers. Access to single-sort recycling services varies across the general district and depends on the hauler.

While it collects yard waste for the Urban Services and General Services districts, the metropolitan government does not provide collection services for other compostable materials due to a lack of processing facilities in the area. The metropolitan government also has three permanent drop-off sites at which it collects electronic waste, recycling, and household hazardous waste materials. Haulers must be licensed with the county, which involves registering and submitting an annual fee.

Recycling Requirements

- Davidson County does not require residents or businesses to recycle.
- The county requires garbage haulers to provide recycling collection services to all garbage customers.
- State law prohibits certain materials from being disposed of in landfills, including lead acid batteries and tires. Davidson County bans additional items from being collected with and disposed of in the mixed municipal solid waste (garbage) stream, including electronic waste (effective July 1, 2015), corrugated cardboard, and yard waste.

QUICK FACTS

Population:	659,000
Urban/sub/rural:	N/A
Curbside collection:	Varies
Single-sort collection:	Varies
Compostable collection:	No
Waste-to-energy used:	No
County waste reduct. goal:	22%
State waste reduct. goal:	25%

Reporting

While Davidson County ordinance requires that private haulers and facilities provide recycling data to the county, a staff person told us that obtaining data is extremely difficult. Due to reporting noncompliance, the staff member estimated that less than half of the area’s recycling data are reported to the county.

To compile its annual report, the county combines recycling data from the municipal collection program with any data obtained from private recyclers. Landfill operators report directly to the state.

Funding

The metropolitan government has a revenue-sharing agreement with its third-party material recovery facility; in 2013, material sales totaled approximately \$570,000. The area also received approximately \$47,000 in the form of a state recycling rebate grant in fiscal year 2013 and receives approximately \$40,000 per year from the Tennessee Department of Transportation for litter prevention and recycling education.

The metropolitan government collects a waste generator fee of \$6 per ton for material disposed of at landfills. Per state law, however, revenues from this fee may only be used to fund programs to which all residents have access. Because residents in the General Services District do not have access to curbside collection, disposal fee revenues cannot be used to fund the curbside recycling program.

Other Practices

- Davidson County charges residents a blanket fee of \$50 for all compliance infractions. For example, a resident who disposes of cardboard in a landfill must pay a \$50 fine and attend environmental court.
- A county solid waste staff member stated that monthly recycling collection within the Urban Services District is too infrequent and is a barrier to the success of the area’s recycling program.

Materials included in 2013 recycling-rate calculations

	MN	Davidson County
Appliances	✓	
Construction and demolition		✓
Compostable material	✓	
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	✓
Metal	✓	✓
Other ^a	✓	✓
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	✓
Textiles	✓	✓
Tires	✓	✓
Waste reduction credit		
Yard waste	✓	
RECYCLING RATE	47%	N/A
DIVERSION RATE	N/A	47%

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

DORCHESTER COUNTY, SOUTH CAROLINA

Dorchester County, located in southeastern South Carolina, has a population of 145,000. In 2007, it won the American Forest & Paper Association “large community award” for its efforts in paper recycling.

Collection Services

Most county recycling efforts target residents. The county provides 12 drop-off sites for residents in unincorporated areas, none of which provide single-sort collection. The five towns in the county arrange for their own recycling services. The county manages two yard waste drop-off sites and is interested in collecting compostable materials, but there is not a local processing facility.

The South Carolina Department of Health and Environmental Control (DHEC) licenses all recycling haulers; the county has no role in hauler licensing. There is one employee dedicated to county recycling efforts.

Recycling Requirements

- Dorchester County does not require residents and businesses to recycle.
- The county does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of either in landfills or in the mixed municipal solid waste (garbage) stream. These include appliances, electronics, lead acid batteries, whole tires, motor oil, and yard waste. Dorchester County does not ban the disposal of any additional items via county code.
- DHEC requires counties to employ at least one recycling coordinator.

QUICK FACTS

Population:	145,000
Urban/sub/rural:	N/A
Curbside collection:	Varies
Single-sort collection:	Unknown
Compostable collection:	No
Waste-to-energy used:	No
County recycling goal:	None
State recycling goal:	35%

Reporting

The county requires haulers of special waste (such as tires and batteries) to report recycling data to the county. The county solicits data from local towns and reports aggregate numbers to the state.

Funding

The county funds its drop-off sites and solid waste disposal through a Solid Waste User Fee paid by all property owners and certain commercial and governmental entities. While user-fee revenues in fiscal year 2013 totaled about \$5.7 million, just under \$40,000 was approved for recycling expenditures. In fiscal year 2014, the county received about \$46,000 in grants from DHEC, as well as about \$96,000 from recycling commodity sales.

Materials included in 2013 recycling-rate calculations

	MN	Dorchester County
Appliances	✓	✓
Construction and demolition		
Compostable material	✓	✓
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	✓
Metal	✓	✓
Other ^a	✓	✓
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	✓
Textiles	✓	✓
Tires	✓	✓
Waste reduction credit		
Yard waste	✓	✓
RECYCLING RATE	47%	37%
DIVERSION RATE	N/A	N/A

^a "Other" includes materials such as film plastic, cooking oil and grease, and wood packaging.

Other Practices

- Dorchester County provides free paper recycling dumpsters to each local school and recycling bins to each classroom.
- The county employs “code enforcement officers” to address illegal waste disposal and theft at drop-off sites.
- DHEC plays an active role in supporting local units of government through grants, training, graphic design, information sharing, and resources pertaining to recycling markets.

FAIRFAX COUNTY, VIRGINIA

Fairfax County, located in northern Virginia, has a population of 1,131,000. The county has been recognized as a recycling leader in a Mecklenburg County, North Carolina, analysis of recycling best practices.

Collection Services

Fairfax County provides weekly single-sort curbside recycling collection to residents in the county sanitary district—a special taxing district allowed in state law and created through a voter petition process. However, most residents must contract directly with haulers for recycling collection services. Fairfax County also collects residential yard waste but does not provide collection services for other compostable waste because of a lack of processing facilities in the area. The county also provides recycling drop-off sites for residents.

The county requires all haulers to obtain a yearly “certificate to operate” unless they collect only recyclable materials. Businesses that collect only recyclables must register with the county. Haulers must provide, at a minimum, weekly recycling collection to all residential and nonresidential customers. In addition to collection staff, Fairfax County currently devotes four county inspectors and three staff to recycling efforts.

Recycling Requirements

- Fairfax County requires residents and businesses to recycle.
- The county does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of in the mixed municipal solid waste (garbage) stream, including lead acid batteries. Fairfax County bans additional materials from disposal with mixed municipal solid waste, including glass and metal containers, plastic bottles, yard waste, scrap metal, cardboard, and paper.

QUICK FACTS

Population:	1,131,000
Urban/sub/rural:	N/A
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	No
Waste-to-energy used:	Yes
County recycling goal:	None
State recycling goal:	15 or 25%

Reporting

Fairfax County requires recycling reports from haulers and from businesses that self-haul their recycling, such as large retail stores, landscapers, grocery stores, tire collectors, and electronic-waste collectors. The county compiles recycling data and sends a report to the state.

The Commonwealth of Virginia requires counties to track recycling rates. However, the state recently altered requirements so that annual reporting is only required of local units of government with a population over 100,000 residents. Smaller cities and counties must report recycling rates to the state every four years.

Funding

The county funds garbage collection and recycling services through a \$345 fee assessed annually to each customer in the sanitary district. Revenue for recycling education and staff salaries totals about \$2 million per year and is generated through waste disposal tipping fees.

Other Practices

- Because fees to process recyclable material at third-party facilities have increased dramatically, Fairfax County is beginning to explore marketing its own recyclables.
- The county is considering eliminating glass collection because it is not earning revenue from glass sales.
- Haulers are required to sign a waste disposal delivery agreement as part of annual licensing, which requires companies hauling within the county to deliver the material either to the county transfer station or waste-to-energy facility. The county encourages compliance by giving haulers discounted tipping rates at each facility.

Materials included in 2013 recycling-rate calculations

	MN	Fairfax County
Appliances	✓	
Construction and demolition		
Compostable material	✓	
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	✓
Metal	✓	✓
Other ^a	✓	✓
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	
Textiles	✓	✓
Tires	✓	✓
Waste reduction credit		✓
Yard waste	✓	✓
RECYCLING RATE	47%	48%
DIVERSION RATE	N/A	N/A

^a "Other" includes materials such as film plastic, cooking oil and grease, and wood packaging

GUNTERSVILLE, ALABAMA

Guntersville is a rural city with 8,000 residents. In 2013, it won an American Forest & Paper Association award for its efforts in paper recycling.

Collection Services

Guntersville provides recycling services to all city residential and commercial buildings. Residents have the opportunity to recycle via single-sort curbside collection and drop-off sites throughout the city limits. Instead of using carts or bins for waste and recycling collection, the city collects material in plastic bags provided by the city. A city staff member explained that plastic bags are more affordable than purchasing carts or bins and are easier for haulers to handle. All material sorting is done by hand at the city's recycling center.

Guntersville also provides year-round yard waste collection services; however, it does not have plans to provide citywide food waste collection services. The city devotes 17 employees to solid waste and recycling collection and administrative efforts.

Recycling Requirements

- Guntersville requires residents and businesses to recycle.
- State law prohibits certain materials from being disposed of in landfills, including regulated PCB waste.⁵ Guntersville bans additional materials from disposal in the mixed municipal solid waste (garbage) stream, including aluminum materials, certain paper, corrugated cardboard, glass, motor oils, plastic bottles, and steel and bi-metal cans.

QUICK FACTS

Population:	8,000
Urban/sub/rural:	Rural
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	No
Waste-to-energy used:	No
City recycling goal:	None
State recycling goal:	25%

⁵ Polychlorinated biphenyl (PCB) is a manufactured chemical that may be found in oil-based paint, certain electrical equipment, insulation material, and other products.

Reporting

The city is required to file semiannual and annual recycling reports with the Alabama Department of Environmental Management, including data pertaining to program funding, staffing, collection systems, and recycling tonnage, among others. The city does not report recycling rates to the state.

Funding

Residents and businesses pay a monthly service charge for public utilities, including garbage collection. Revenue from the sale of recycled materials—which totaled about \$65,000 in 2013—is deposited in the city’s General Fund. A city staff person told us that revenues from recycling sales have been beneficial for the city overall, but because revenues are diverted to the General Fund, Guntersville must seek outside grant funding to support its recycling program.

Materials included in 2013 recycling-rate calculations

	MN	Guntersville
Appliances	✓	
Construction and demolition		
Compostable material	✓	
Electronics	✓	
Glass	✓	
Household hazardous waste	✓	
Metal	✓	
Other ^a	✓	
Paper	✓	
Plastic	✓	
Problem materials	✓	
Textiles	✓	
Tires	✓	
Waste reduction credit		
Yard waste	✓	
RECYCLING RATE	47%	N/A
DIVERSION RATE	N/A	N/A

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

Other Practices

- Guntersville employs an ordinance enforcement officer who issues citations for recycling ordinance violations. The enforcement officer and a public works employee visit the homes of repeat offenders to provide additional recycling outreach.
- The city tailors educational materials to entities that reach large segments of the community, such as schools, businesses, restaurants, and churches.
- Guntersville brokers its recycled materials directly and strives to enter into contracts with local purchasers who are environmentally friendly and have good compliance records.
- Once per year, municipalities from around the county gather for a “Mayors’ Clean City Forum,” an opportunity for county solid waste staff to meet with local mayors to discuss common challenges regarding waste and recycling.

MACKINAC ISLAND, MICHIGAN

The city of Mackinac Island is a rural city of 490 on Mackinac Island, Michigan. In 2009, the city was recognized in a Mecklenburg County, North Carolina, plan for solid waste management as a recycling leader for its commitment to the collection of compostable materials.

QUICK FACTS

Population:	490
Urban/sub/rural:	Rural
Curbside collection:	Yes
Single-sort collection:	No
Compostable collection:	Yes
Waste-to-energy used:	No
City recycling goal:	None
State recycling goal:	30%

Collection Services

Mackinac Island contracts with a third-party hauler to provide curbside collection services for garbage, recycling, and compostable materials to all city residents and businesses. Residents recycle via a dual-sort collection system in which they commingle plastic, glass, and metals and bundle newspaper and magazines separately. The city has a variable-rate fee schedule in which waste generators pay \$2.00 per bag for compost collection and \$4.50 per bag for garbage collection. Residents receive recycling collection at no additional cost, while businesses pay a minimal fee to transport their materials to the city's recycling facility.

There is only one waste hauler on Mackinac Island. As a result, the city has not implemented an official hauler-licensing process. Four city employees run Mackinac Island's solid waste collection operations, while two administrative employees spend a portion of their time on recycling-related activities.

Recycling Requirements

- Mackinac Island does not require residents or businesses to recycle.
- The city does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of in landfills, including certain asbestos, lead acid batteries, and waste oil. Mackinac Island does not ban the disposal of any additional items via city ordinance.

Reporting

Because Mackinac Island’s recycling facility is considered a transfer station, the city is not subject to state or county reporting requirements. The city does not report a formal recycling or diversion rate.

Funding

Residents are charged a solid waste fee that is used to support the city’s solid waste facilities and recycling program. The solid waste program generates approximately \$750,000 per year in revenue from the sale of recyclable material. The remainder of the program revenue is generated via service fees.

Other Practices

- Mackinac Island has not established different expectations or collection processes for single-family, multi-family, or commercial properties. All entities have access to the same resources and are subject to the same composting and garbage service rates.
- A city staff person told us that variable pricing has been a primary contributor to Mackinac Island’s recycling success; residents and businesses see recycling and composting as cost-saving opportunities.
- The city brokers its own recycled materials. The city has buyers for all of the recyclable materials it collects, and the department has chosen not to collect materials it is unable to sell.
- Michigan has a beverage container deposit program, in which consumers pay a deposit on beverage bottles at the time of purchase and receive a refund when they return empty containers to a redemption location.

Materials included in 2013 recycling-rate calculations

	MN	Mackinac Island
Appliances	✓	
Construction and demolition		
Compostable material	✓	
Electronics	✓	
Glass	✓	
Household hazardous waste	✓	
Metal	✓	
Other ^a	✓	
Paper	✓	
Plastic	✓	
Problem materials	✓	
Textiles	✓	
Tires	✓	
Waste reduction credit		
Yard waste	✓	
RECYCLING RATE	47%	N/A
DIVERSION RATE	N/A	N/A

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

MADISON, WISCONSIN

Madison is an urban city with 243,000 residents. The city was recognized as a recycling leader in a report on outstanding recycling programs compiled for Metro Vancouver. It was also recognized for its commercial recycling efforts in an evaluation by Ann Arbor, Michigan, and for its commitment to recycling at permitted events (such as outdoor concerts and festivals) by the United States Environmental Protection Agency.

QUICK FACTS

Population:	243,000
Urban/sub/rural:	Urban
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	Pilot
Waste-to-energy used:	No
City diversion goal:	None
State recycling goal:	None

Collection Services

Madison provides recycling collection for residential buildings with fewer than nine units. Larger residential and commercial buildings can contract directly with the city if they meet its recycling requirements, namely: (1) not require more than weekly recycling collection; (2) limit recycling to four, 95-gallon carts per week; and (3) bring carts to the curb. The city currently serves between 500 and 700 small businesses.

Madison began a curbside collection pilot program for compostable material in 2011. Madison's compostable material is processed at an anaerobic digester. Madison employs a recycling coordinator, who spends approximately 70 percent of his time on recycling-related programming.

Recycling Requirements

- Madison requires residents to recycle.
- The city requires owners or operators of multi-family and commercial buildings to provide opportunities for tenants to recycle.
- The city does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of in landfills, including aluminum, glass, and plastic containers; major appliances; certain batteries and electronics; foam polystyrene packaging; recyclable paper; tires; waste oil; and yard waste. Madison also bans the disposal of recyclable plastic bags.

Reporting

Madison’s diversion rate is a calculation of composted, recycled, and reused materials as a percentage of the total waste generated; the city diversion rate primarily reflects residential and construction and demolition recycling data. Historically, haulers for multi-family and commercial recycling have not reported data to the city. However, Madison has a new licensing program requiring private haulers to report collection estimates to the city. Madison reports recycling data to the state on an annual basis.

Funding

Madison does not receive recycling funding from the county, but it does receive funding from the state, which is primarily generated via state landfill taxes. State aid is used to reimburse local units of government for residential recycling costs, but the state does not reimburse them for the cost of recycling collection from businesses and large multi-family complexes. Madison also generates revenue from the sales of recyclable materials, which was slightly more than \$1.2 million in 2013. Additional funding comes from the city’s General Fund, which is primarily funded via property taxes.

Other Practices

- The city requires construction or remodeling projects costing more than \$20,000 to have city-approved recycling plans. These plans oblige builders to report recycling data back to the city.
- Madison chose to contract for recycling processing with a local company instead of a larger national company because it provided more opportunities to sell recycled material to local markets and support the local economy.
- Madison chose to set programmatic goals instead of a diversion rate goal. These goals include reducing waste toxicity and waste volume and increasing opportunities for diversion.

Materials included in 2013 recycling-rate calculations

	MN	Madison
Appliances	✓	✓
Construction and demolition		✓
Compostable material	✓	✓
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	✓
Metal	✓	✓
Other ^a	✓	✓
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	✓
Textiles	✓	✓
Tires	✓	✓
Waste reduction credit		
Yard waste	✓	✓
RECYCLING RATE	47%	N/A
DIVERSION RATE	N/A	69%

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

ONONDAGA COUNTY, NEW YORK

Onondaga County, located in upstate New York, has a population of 468,000. The county won the American Forest & Paper Association award for community paper recycling and the 2010 Composting Program of the Year Award from the United States Composting Council.

QUICK FACTS

Population:	468,000
Urban/sub/rural:	N/A
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	No
Waste-to-energy used:	Yes
County recycling goal:	None
State waste reduct. goal:⁶	0.6 pounds

Collection Services

The Onondaga County Resource Recovery Agency (OCRRA), a public authority created by the New York State Legislature, manages county recycling services. OCRRA does not provide recycling services directly; instead, municipalities within the county choose to implement open or organized waste collection systems and make arrangements with private haulers for services. All county residents have access to single-sort curbside recycling.

While curbside compost collection is not widely available at residences, OCRRA manages a food scrap recovery facility targeted at larger generators, such as commercial and institutional facilities. Commercial entities contract for composting services directly with third-party haulers. OCRRA devotes approximately 12 employees to county recycling programming.

Recycling requirements

- Onondaga County requires residents and businesses to recycle.
- The county requires garbage haulers to provide recycling services to all garbage customers.
- State law prohibits certain materials from being disposed of in landfills, including electronics, lead acid batteries, and tires. The state also requires all store operators to establish a recycling program for plastic carryout bags. In addition, Onondaga County bans the disposal of recyclable materials with mixed municipal solid waste (garbage).

⁶ New York seeks to reduce the amount of waste disposed per person to 0.6 pounds per day.

Reporting

OCRRA contractually requires the local material recovery facility to submit monthly reports that identify recycling tonnage, to whom material is sold, and market values for the materials. Most commercial businesses are not required to report recycling data to the agency; however, OCRRA tries to obtain data from some of the largest companies that may not send recyclable materials to the local processing facility. The agency is required to submit to the state an annual compost report, an annual recycling report, and a “comprehensive recycling analysis” every three years.

Funding

The county recycling program is funded primarily with garbage tipping fees (about \$22 million in fiscal year 2013) and revenue generated from the sale of energy from an incinerator (about \$7 million in 2013). OCRRA also applies for competitive government and private grants. New York counties are eligible for grants from the New York State Department of Environmental Conservation for certain recycling, household hazardous waste, and waste reduction programs.

Other Practices

- The agency’s contract with a private material recovery facility requires the facility to guarantee recycling haulers a \$0 tipping fee for all residential recycling.
- To encourage haulers to participate in the compost program, the tipping fee at the Onondaga compost facility is about one-half of the fee at the landfill.
- OCRRA hired an advertising agency to help produce recycling and waste reduction advertisements that resonated with county residents.
- OCRRA owns a waste-to-energy facility and requires that all local solid waste be delivered to the facility.
- New York has a beverage container deposit program, in which consumers pay a deposit on beverage bottles at the time of purchase and receive a refund when they return empty containers to a redemption location.

Materials included in 2013 recycling-rate calculations

	MN	Onondaga County
Appliances	✓	✓
Construction and demolition		
Compostable material	✓	✓
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	✓
Metal	✓	✓
Other ^a	✓	✓
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	
Textiles	✓	✓
Tires	✓	
Waste reduction credit		
Yard waste	✓	✓
RECYCLING RATE	47%	62%
DIVERSION RATE	N/A	N/A

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

ORANGE COUNTY, NORTH CAROLINA

Orange County, located in central North Carolina, has a population of 140,000. The county won the American Forest & Paper Association award for community paper recycling. It was recognized for its commitment to commercial recycling in an evaluation by the city of Ann Arbor, Michigan, and as a leader in the collection of compostable material in a Mecklenburg County, North Carolina, plan for solid waste management.

QUICK FACTS

Population:	140,000
Urban/sub/rural:	N/A
Curbside collection:	Varies
Single-sort collection:	Yes
Compostable collection:	No
Waste-to-energy used:	No
County waste reduct. goal:	61%
State waste reduct. goal:	40%

Collection Services

Orange County implemented single-sort collection in 2013. The county pays a private contractor to provide weekly, curbside recycling collection in the urban area, while the county provides curbside recycling collection on a bimonthly basis in the rural parts of the county. Approximately two-thirds of rural residents receive curbside collection; the remaining residents take recycling to county single-sort drop-off centers. The county also provides recycling services to multi-family complexes, government buildings, and schools.

Orange County collects recycling from about 130 businesses across the county. While the county does not provide residential collection of compostable material, approximately 50 businesses participate in food-waste collection. Orange County has about 18 employees dedicated to recycling collection and education.

Recycling Requirements

- Orange County requires residents and businesses to recycle.
- The county does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of in landfills, including aluminum cans, antifreeze, appliances, certain electronics, lead acid batteries, plastic containers, waste oil and filters, tires, yard waste, and wooden pallets. Orange County bans additional items from disposal in the mixed municipal solid waste (garbage) stream, including recyclable construction and demolition material, drink boxes, corrugated cardboard, metal, and clean wood waste.

Reporting

Material recovery facilities statewide are supposed to track the origination of the recyclable materials they receive. At the end of the year, facilities send reports to the state including total tons received from each county; the state then shares facility data with each respective county. North Carolina has a waste reduction goal that measures a reduction in the weight of landfilled and incinerated waste per capita compared with tonnage in fiscal year 1992. Orange County reported a waste reduction rate of 58 percent in 2013. County waste reduction rates do not include commercial recycling.

Materials included in 2013 recycling-rate calculations

	MN	Orange County
Appliances	✓	✓
Construction and demolition		✓
Compostable material	✓	✓
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	✓
Metal	✓	✓
Other ^a	✓	
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	✓
Textiles	✓	✓
Tires	✓	✓
Waste reduction credit		
Yard waste	✓	✓
RECYCLING RATE	47%	N/A
DIVERSION RATE	N/A	N/A

^a "Other" includes materials such as film plastic, cooking oil and grease, and wood packaging.

Funding

Originally, Orange County assessed two fees for recycling services: (1) a countywide base fee (via property taxes) to all habitable units in the county, and (2) an additional fee for curbside collection assessed to those receiving curbside services. However, for the past two years, the county has not assessed the additional curbside fee due to concerns about whether the county has sufficient authority to levy the fee, particularly on rural residents.

The county also receives recycling funding from the state. Revenue generated from a \$2 per-ton state tax on landfilled material is allocated on a per capita basis to counties. Counties also have the opportunity to compete for other state grants.

Other Practices

- In North Carolina, any restaurant selling alcohol is required to demonstrate how it recycles cans and bottles as a requirement of obtaining a liquor license.
- Orange County requires residents to submit a solid waste plan for any construction site. The plan requires residents to report information on how construction and demolition waste will be processed and how the new building will provide sufficient recycling access.
- Haulers that do not comply with county recycling mandates are charged double the tipping fee in effect at the time of the offense.

PERRYSBURG, OHIO

Perrysburg is a city with 21,000 residents in the Toledo metropolitan area. In 2007, it won the American Forest & Paper Association “small community award” for its efforts in paper recycling.

Collection Services

According to a city staff person, Perrysburg is one of two cities in northwest Ohio that provides municipal garbage and recycling collection. The city implemented single-sort curbside collection in 2013 and provides variable-rate curbside yard waste collection services. The city does not collect food waste due to a lack of resources to expand the current compost site. Perrysburg provides special waste collection opportunities for certain materials, including Christmas lights, recorded media such as DVDs and CDs, hardcover books, and pumpkins. The city hosts an annual collection event for household hazardous waste and provides unlimited curbside collection of bulky materials, such as couches and refrigerators.

Commercial and multi-family complexes with more than six units are required to arrange for garbage collection services with a third-party hauler; they are not required to contract for recycling services. Perrysburg licenses waste haulers directly, although haulers must also be inspected by the county health department. Perrysburg has one employee who devotes about half of her time to city recycling efforts.

Recycling Requirements

- The city does not require residents or businesses to recycle.
- The city does not require garbage haulers to provide recycling or compost collection services.
- State law prohibits certain materials from being disposed of in landfills, including lead acid batteries, tires, and certain yard waste. Perrysburg does not ban the disposal of any additional items via city ordinance.

QUICK FACTS

Population:	21,000
Urban/sub/rural:	Suburban
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	No
Waste-to-energy used:	No
City recycling goal:	None
State recycling goal:	25%

Reporting

Perrysburg is required to submit a recycling report to the local solid waste district as a condition of receiving funding. Haulers and material recovery facilities report directly to the solid waste district as well. In addition to providing recycling data to the solid waste district, Perrysburg shares its recycling report with the county. The county compiles a countywide recycling report that it submits to the state.

Funding

Perrysburg residents vote on a garbage levy every two years. About half of the recycling program’s revenue comes from garbage levy funds and half comes from the city’s General Fund. Residents do not pay additional fees for solid waste or recycling collection services. Perrysburg also receives a per capita allocation of \$1 per resident from the regional solid waste district, and a city staff person pursues additional grant funding.

Materials included in 2013 recycling-rate calculations

	MN	Perrysburg
Appliances	✓	✓
Construction and demolition		
Compostable material	✓	
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	✓
Metal	✓	✓
Other ^a	✓	✓
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	
Textiles	✓	
Tires	✓	✓
Waste reduction credit		
Yard waste	✓	✓
RECYCLING RATE	47%	46%
DIVERSION RATE	N/A	N/A

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

Other Practices

- Perrysburg encourages residents to put bulky items at the curb the evening before waste collection so that scrap dealers can collect the materials, which reduces the city’s disposal costs.
- Perrysburg has agreements with businesses, such as Goodwill and Home Depot, for the collection of certain materials, including computers and fluorescent bulbs.
- City ordinance does not require managers of multi-family complexes to provide recycling opportunities. As a result, a staff person estimated that nearly 30 percent of all city residents do not have convenient access to recycling.

PORTLAND, OREGON

Portland is an urban city with 609,000 residents. The city was recognized as a recycling leader in (1) a Mecklenburg County, North Carolina, analysis of recycling best practices and (2) a report on outstanding recycling programs compiled for Metro Vancouver. Portland was recognized for its commercial recycling in an evaluation by the city of Ann Arbor, Michigan, and for its construction and demolition debris recycling in a Mecklenburg County plan for solid waste management.

QUICK FACTS

Population:	609,000
Urban/sub/rural:	Urban
Curbside collection:	Yes
Single-sort collection:	No
Compostable collection:	Yes
Waste-to-energy used:	No
City recycling goal:	75%
State recovery goal:	50%

Collection Services

Eighteen franchised haulers work within assigned service areas across Portland to provide residential recycling services. The city charges for waste collection services on a variable-rate fee schedule and uses a two-sort collection system in which glass is separated from other commingled recyclables, such as plastic and paper. Residents receive curbside collection services for compostable materials.

In contrast, commercial collection is provided in an open, competitive market. In addition to recycling collection, some businesses collect food waste, which is processed via anaerobic digestion. Portland licenses haulers and includes hauler reporting obligations as part of the license agreement. Portland devotes approximately 22 employees to solid waste and recycling efforts.

Recycling Requirements

- Portland does not require residents to recycle, but residents with garbage collection contracts cannot opt out of recycling or composting services.
- All commercial businesses are required to recycle; food service vendors are required to separate food scraps.
- If requested by a business, garbage haulers must provide collection for certain materials, such as food scraps, cardboard, glass bottles, and yard waste.
- State law prohibits certain materials from being disposed of in landfills, including appliances, automobiles, electronics, tires, and waste oil. Portland does not ban the disposal of any additional items via city ordinance.

Reporting

Portland reports recycling data to a regional agency, which reports data to the state for all local jurisdictions. These reports include total materials recycled and composted, where the waste was collected, and where the waste was shipped. Haulers submit quarterly reports to the city identifying the type of material, from where material was collected, and where the material was shipped. All waste processing facilities report directly to the state.

Independent recyclers are required to report quarterly to the city if they collect material more than 20 times per year. Businesses are not required to report recycling data.

Funding

The two primary funding streams for Portland’s recycling program are a residential franchise fee and a commercial tonnage fee. Franchised haulers must pay 5 percent of their related gross revenue as a residential “franchise fee”; annual revenue is about \$3.5 million. The commercial tonnage fee—assessed quarterly on the tonnage of waste collected from commercial waste accounts—is \$8.30 per ton of waste. Revenue from the commercial tonnage fee is projected to total \$2.3 million for fiscal year 2016.

Portland also receives funding from the regional agency—about \$600,000 for fiscal year 2014—but does not pursue grants or receive revenue from material sales. Portland does not receive recycling funding from the state or county.

Other Practices

- Oregon cities can apply for recycling rate credits of up to six percentage points for programs such as home composting and education. Portland adds these credits to its recycling rate to determine its total *recovery* rate.
- Oregon has a beverage container deposit program, in which consumers pay a deposit on beverage bottles at the time of purchase and receive a refund when they return empty containers to a redemption location.

Materials included in 2013 recycling-rate calculations

	MN	Portland
Appliances	✓	✓
Construction and demolition		✓
Compostable material	✓	✓
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	✓
Metal	✓	✓
Other ^a	✓	✓
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	✓
Textiles	✓	
Tires	✓	✓
Waste reduction credit		
Yard waste	✓	✓
RECYCLING RATE	47%	64%
DIVERSION RATE	N/A	N/A

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

SAN FRANCISCO, CALIFORNIA

San Francisco is an urban city with 837,000 residents. The city was recognized as a recycling leader in (1) a Mecklenburg County, North Carolina, analysis of recycling best practices and (2) a report on outstanding recycling programs compiled for Metro Vancouver. It was also recognized for its commercial recycling of compostable material in an evaluation by Ann Arbor, Michigan, and for its commitment to recycling in public places by the United States Environmental Protection Agency.

QUICK FACTS

Population:	837,000
Urban/sub/rural:	Urban
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	Yes
Waste-to-energy used:	No
City diversion goal:	100%
State diversion goal:	75%

Collection Services

Recology, a third-party hauler, provides waste, recycling, and compost collection for San Francisco. Residents receive recycling and composting services with garbage collection at a small additional cost. Nearly all residents and businesses receive single-sort curbside recycling and compost collection. All residents and businesses in the city are subject to the same recycling requirements.

A staff person told us that San Francisco began its compost program by targeting places that generated large amounts of food waste, such as restaurants. The city uses three compost facilities and generates 700 tons of compostable material per day. A small amount of San Francisco's compostable waste is processed at an anaerobic digestion facility; a city staff person told us that San Francisco has plans to expand its use of anaerobic digestion.

Recycling Requirements

- San Francisco requires residents and businesses to recycle.
- State law prohibits certain materials from being disposed of either in landfills or in the mixed municipal solid waste (garbage) stream. These include certain electronics, paint, and tires. California prohibits certain stores from providing customers with single-use carryout bags after July 2015. San Francisco bans food vendors from disposing of grease in the garbage.
- San Francisco prohibits food vendors from selling food in polystyrene containers; food vendors using disposable service ware must provide compostable or recyclable products.

Reporting

San Francisco is required to annually submit landfill disposal tonnage to CalRecycle, the state agency department responsible for recycling. In addition to requiring reports from local units of government, the state requires landfills to track the origin of waste disposed of at their facility, which they are also required to report to the state. Instead of measuring recycling or diversion, California measures the daily number of pounds disposed per person in the state. California last certified waste disposal data in 2011; in that year, San Francisco disposed of 2.9 pounds of waste per resident per day.

Materials included in 2013 recycling-rate calculations

	MN	San Francisco
Appliances	✓	
Construction and demolition		
Compostable material	✓	
Electronics	✓	
Glass	✓	
Household hazardous waste	✓	
Metal	✓	
Other ^a	✓	
Paper	✓	
Plastic	✓	
Problem materials	✓	
Textiles	✓	
Tires	✓	
Waste reduction credit		
Yard waste	✓	
RECYCLING RATE	47%	N/A
DIVERSION RATE	N/A	N/A

^a "Other" includes materials such as film plastic, cooking oil and grease, and wood packaging.

Funding

About 3 percent of every dollar paid towards waste collection services goes to San Francisco’s Zero Waste Department. The department uses this money, totaling around \$9 million per year, for community outreach, school education, the management of hazardous waste, and staff salaries. The city received about \$200,000 through CalRecycle from 2013 state beverage container deposit revenues, although a staff member said they do not anticipate receiving any such revenues in 2015. San Francisco also receives some recycling-related state funding.

Other Practices

- Recology and San Francisco devote a combined total of 20 to 25 full-time-equivalent staff to recycling education efforts.
- A recycling outreach team conducts regular compliance audits of curbside collection containers. They tag offenders’ receptacles and return to audit the collection containers at a later time to monitor improvement.
- The city targets multi-family homes for outreach regarding collection of compostable material; they send volunteers to visit residents, answer questions, and provide them with kitchen composting pails.
- California has a beverage container deposit program, in which consumers pay a deposit on beverage bottles at the time of purchase and receive a refund when they return empty containers to a redemption location.

SEATTLE, WASHINGTON

Seattle is an urban city with 652,000 residents. The city was identified as a recycling leader in (1) a Mecklenburg County, North Carolina, analysis of recycling best practices and (2) a report on outstanding recycling programs compiled for Metro Vancouver. It was also recognized for its commercial recycling in an evaluation by the city of Ann Arbor, Michigan, and as a leader in the collection of compostable material in a Mecklenburg County plan for solid waste management. Seattle also won the American Forest & Paper Association “large community” recycling award in 2006.

QUICK FACTS

Population:	652,000
Urban/sub/rural:	Urban
Curbside collection:	Yes
Single-sort collection:	Yes
Compostable collection:	Yes
Waste-to-energy used:	No
City recycling goal:	70%
State recycling goal:	50%

Collection Services

Seattle contracts with third-party haulers for recycling services at single- and multi-family residences. Residents have access to single-sort curbside recycling collection and curbside collection for compostable materials. The city charges for garbage services on a variable-rate fee schedule, while recycling services are provided at no additional charge. Seattle provides compost collection services on a variable-rate schedule, but at a lower price than garbage services.

Most Seattle businesses select recycling and composting services from an open market. Washington’s Utilities and Transportation Commission licenses all waste haulers, processing facilities, and transfer stations operating in the state. Haulers operating in Seattle must obtain a business license from the city.

Recycling Requirements

- Seattle requires residents and businesses to recycle.
- State law prohibits certain materials from being disposed of in landfills, including vehicle batteries and waste oil. Seattle bans additional materials from disposal in the mixed municipal solid waste (garbage) stream, including yard waste, aluminum and tin cans, cardboard, glass bottles and jars, plastic containers, paper, and food waste.
- Seattle prohibits retailers from providing single-use plastic bags to any customer. Food service vendors may not provide disposable food service ware; compostable or recyclable products are acceptable alternatives.

Reporting

Seattle requires any hauler or facility that collects or processes recycling or compostable material to report to the city annually. Haulers and facilities are required to report total waste tonnage, waste material type, and the location from which waste originated. Haulers and processing facilities with which Seattle contracts for services report recycling data weekly. Open-market haulers that provide commercial recycling services submit annual reports, while processing facilities that are not under contract report to the city quarterly. Seattle does not require commercial businesses to report recycling data to the city. Seattle is responsible for reporting to the state only data pertaining to its contracted services.

Materials included in 2013 recycling-rate calculations

	MN	Seattle
Appliances	✓	✓
Construction and demolition		
Compostable material	✓	✓
Electronics	✓	✓
Glass	✓	✓
Household hazardous waste	✓	
Metal	✓	✓
Other ^a	✓	
Paper	✓	✓
Plastic	✓	✓
Problem materials	✓	✓
Textiles	✓	✓
Tires	✓	✓
Waste reduction credit		✓
Yard waste	✓	✓
RECYCLING RATE	47%	56%
DIVERSION RATE	N/A	N/A

^a “Other” includes materials such as film plastic, cooking oil and grease, and wood packaging.

Funding

Solid waste activities are funded through the Solid Waste Fund, an enterprise fund established by city ordinance. Recycling services are funded almost entirely by solid waste taxes and user fees derived from commercial and residential solid waste collection and disposal. The city also receives limited funding from the state to support hazardous waste activities. Seattle does not receive any funding from the county and does not seek private grants.

Other Practices

- Seattle contracts with a nonprofit organization to manage a “Junk Mail Opt-Out Registry” through which residents decrease the delivery of junk mail.
- The city provides multi-family complexes with access to recycling services at no charge.
- Seattle employs four or five full-time-equivalent staff for recycling and composting outreach.

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Minnesota Pollution Control Agency

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February 4, 2015

James Nobles, Legislative Auditor
Office of the Legislative Auditor
Room 140 Centennial Building
658 Cedar Street
St. Paul, MN 55155

Dear Mr. Nobles:

Thank you for the opportunity to comment on the Office of the Legislative Auditor (OLA) report *Recycling and Waste Reduction*. On behalf of the Minnesota Pollution Control Agency (MPCA), I would like to express our appreciation for the work of your dedicated staff, for meeting with us and other solid waste stakeholders over the past year.

Overall, we believe the report raises and discusses many of the important policy, financial and programmatic issues involved in advancing a successful integrated solid waste management system in Minnesota.

There are many findings in the audit with which we agree, in particular:

1. Measuring and establishing goals for all aspects of the solid waste hierarchy;
2. Incentives are put in place to ensure more waste is managed in accordance with the State's solid waste management hierarchy;
3. Devoting additional resources to advance recycling market development; and,
4. Ensuring compliance with Minn. Stat. § 473.848 (Restriction on Disposal).

We want to provide more detail on a few important topics, some of which were not discussed in this audit or that would benefit from additional detail, in our opinion. The following summarizes those key points:

- **System Accountability**
 - The solid waste system in Minnesota is largely privatized (haulers, facilities), yet the performance goals and oversight for reaching goals are tied to the public sector. The Metropolitan Solid Waste Policy Plan creates accountability for the seven county metropolitan area, but has limited ability to affect the private sector.
 - In Greater Minnesota, there is no analogous policy tool to the Metropolitan Solid Waste Policy Plan that holds all parts of the solid waste system accountable. Developing individual and regional county solid waste management plans which, as currently structured, have limited ability to ensure solid waste system accountability. The importance of county planning and regionalization of solid waste systems across the state needs to be recognized and strengthened, both to create statewide accountability and to develop improved goals related to the waste management hierarchy. As the audit finds, all levels of the hierarchy should be recognized.

- **Data Collection and Measurement of the Solid Waste Management System and Performance Evaluation**
 - The report states that progress toward the state's recycling goals cannot be measured because of the flawed measurement system. We do not entirely agree with this statement – progress can be measured and trends established but we agree that more needs to be done to ensure we have the data necessary to develop effective policy and planning tools.
 - This report focuses on how data has been collected over the previous decade. We have already recognized the challenges of data quality and collection and made efforts to improve it. Examples include the implementation of online SCORE (Select Committee On Recycling and the Environment) reporting and techniques to improve measurement and evaluation (e.g., removal of estimated SCORE credits). Most recently we have evaluated and improved the SCORE database leading to changes in facility and hauler reporting through MPCA's new Re-TRAC database.
- **Resource Needs to Implement Recommendations**
 - Many important recommendations were made in the audit that would require additional resources to implement (for state, county and private entities). We believe this legislative session is an excellent opportunity for dialogue among the Legislature, public and private entities, and citizens about the resources needed to implement and build on the audit's findings (e.g., recycling market development).
 - A clear connection can be drawn between the leveling off of the recycling rate since the mid-1990s and the declining resources that have been dedicated to state and local solid waste programs.
- **Recycling Market Development**
 - We agree additional resources should be dedicated to market development; however, many parties, including the public and private sector, should be involved. An investment in infrastructure to support new and expanding markets is necessary for this endeavor to be successful.
 - As recycling market development efforts began in earnest in the 1990s, significant resources were made available by the Minnesota Legislature and the U.S. Environmental Protection Agency (EPA) (in the form of grants and loans) to stimulate, develop and support Minnesota companies that use recycled materials in their products.
 - A portion of Metropolitan Landfill Abatement Account (MLAA) dollars previously went to this effort and are now passed through to the Metro Counties.
 - In the past, we had six additional staff dedicated to market development. The funding source for those positions was a grant from the EPA that is no longer available.
 - Additional resources will be necessary to sustain and expand Minnesota's markets if we wish to meet current and future statutory and policy goals.
- **Restriction on Disposal (ROD)**
 - ROD will be enforced through modifications to landfill permits. Following the MPCA's announcement of our intent to enforce this law, legal challenges held up the timeline; however, a final ruling by the Minnesota Supreme Court in favor of the MPCA in October 2014 ended that legal challenge, and the MPCA is moving forward to implement the ROD provisions.
- **Stagnating Recycling Rate**
 - While the State has seen some recent gains in the overall recycling rate in the past few years, much of that is due to gains in organics diversion. While organics is a very important part of the State's overall resource management strategy, it masks the fact that there is much more investment needed to recover the significant amount of traditional recyclables (paper, plastic, metal, and glass) remaining in our waste stream.

- **Product Stewardship**
 - Product stewardship programs are changing across the country and in Minnesota. If we are to meet our goal of managing materials in the most responsible manner by holding all parties responsible for their role in the end of life management of products, we need to continue to evaluate and improve our product stewardship programs and policies so they work as intended.
- **Emerging Technologies**
 - Emerging technologies like anaerobic digestion and plastics to oil need to be better researched so we understand their pros and cons and where they fit into the waste management hierarchy, including permitting that may be necessary for such facilities to operate in Minnesota.

Additional topics were not addressed in the report but were discussed with the OLA over the course of several months leading up to this report. We believe they should be considered in order to provide a full evaluation of the recycling system in Minnesota. They include:

- The use of waste designation, organized collection, and certificate of need as policy tools that the state and counties can use to improve the solid waste management system and make progress toward meeting all the goals of the hierarchy.
- There has both been a loss of senior level/experienced staff in solid waste at both the state and county level in recent years due to solid waste program cuts, job changes and retirement. Many non-solid waste duties (e.g., zoning) have been added to county solid waste staff in the past 10 years that adds to this staffing and experience deficit.

We are developing a Solid Waste Policy Report for the Legislature that is due December 31, 2015. That report will provide another opportunity to expand on topics covered by the OLA report as well as introduce additional policy initiatives.

Again, we would like to thank the OLA for the chance to provide input on this important programmatic review and are appreciative of the significant time and effort that your staff put into this audit.

Sincerely,



John Linc Stine
Commissioner

JLS/MR:je

cc: MPCA Citizens' Board



January 23, 2015

Mr. James R. Nobles
Office of the Legislative Auditor
Room 140, Centennial Building
658 Cedar St.
St. Paul, MN 55155

Dear Mr. Nobles,

Thank you for the opportunity to review and comment on your report on recycling and waste reduction. We appreciate the thoughtfulness of the report, and believe you and your staff produced a well-written, insightful examination of the current system and the potential for improvement. We particularly appreciate your attention to the different challenges facing individual counties across the state. Counties generally agree with the key findings and recommendations in the report.

As outlined in the report, counties are the unit of government primarily responsible for recycling and waste reduction activities in Minnesota. Counties currently fund the vast majority of these activities through fees and property taxes. As a result, any system changes should incorporate input from counties. We believe strongly that new goals and mandates should be accompanied by state funding, so that counties can be successful regardless of their individual demographics, geography and property tax capacity.

Counties generally support the report's recommendation to focus on landfill reduction measurement rather than recycling goals. That said, some counties that operate landfills have concern about the potential for lost revenue, which reduces their program capacity. If the Legislature chooses to establish goals for each tier of the waste management hierarchy, counties will need additional resources and tools to successfully meet these goals. Counties have limited authority to drive behavior change. We rely on the state to provide economic incentives to change disposal behavior and encourage private market development.

Counties agree that the state should improve measurement of recycling outcomes. We will continue to work together with the Pollution Control Agency (PCA) to craft measures that are practical and meaningful. We appreciate efforts to simplify and streamline data collection, as long as we can maintain access to county level data.

Finally, counties strongly support directing all revenue generated from the solid waste management tax toward waste management activities, as was originally intended. SCORE funding to counties has not kept pace with tax revenue collection, and too many of these tax dollars are currently diverted into the General Fund.

Thank you again for the opportunity to comment on your report. Our organization appreciates the work of you and your staff in this important evaluation.

Sincerely,

Julie Ring, Executive Director

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