

Minnesota Environmental Initiative

Integrated Solid Waste Management Stakeholder Process

Report to the Minnesota Pollution Control Agency

December 31, 2009

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Minnesota Environmental Initiative Integrated Solid Waste Management Stakeholder Process Final Report

December 31, 2009

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The Integrated Solid Waste Management Stakeholder Process (the Process) was convened to bridge the goals of the Waste Management Act¹ and the Minnesota Climate Change Advisory Group's (MCCAG)² greenhouse gas (GHG) emission reduction targets for the solid waste sector. To begin the effort to bridge these two goals, the Minnesota Pollution Control Agency (MPCA) elected to have the Process focus on the four most densely populated regions in the state where the majority of waste is generated. For the purposes of the Process, these four regions were termed "centroids" and encompassed the areas surrounding the cities of Duluth, Rochester, St. Cloud, and the Twin Cities metropolitan area. The municipal solid waste (MSW) generated in these four centroid regions combined makes up approximately 70% of the total waste generated, by tonnage, in the state of Minnesota.

In the fall of 2008, the Minnesota Environmental Initiative (MEI) was contracted by the MPCA to design, lead, and facilitate the Process. MEI assembled a seventeen member Work Group of diverse stakeholders representing industry, state and local governments, environmental organizations, and others. The MPCA charged the Work Group to develop elements of a plan to reduce GHG emissions through changes in the way solid waste is managed in the four centroids that would achieve 70% of the statewide GHG emission reduction target set by MCCAG for the solid waste sector. The statewide MCCAG target was 75 million metric tons of carbon dioxide equivalent (MMT_{CO₂e}) cumulatively from 2005 to 2025, and the 70% prorated goal for the centroids used in this Process was 52.5 MMT_{CO₂e}.

Over a period of twelve months the Work Group developed a broad-ranging suite of well thought out strategies to help lower GHG emissions from the solid waste sector within the four centroids. The majority (22) of the 38 recommended strategies are unanimously supported by all members of the Work Group, and the remaining recommended strategies (16) are supported by a majority of the Work Group members.

From the outset of the Process, the Work Group consented that the state's existing Waste Management Hierarchy³ (the Hierarchy) should continue to guide policy decisions regarding preferred ways to manage MSW. As such, the majority of the Work Group's recommended strategies focus on increasing source reduction and recycling efforts, which fall in the upper-end of preference within the Hierarchy. The Work Group recommended thirteen (13) strategies to reduce solid waste generation in the centroids, which focus on increasing efforts to source reduce personal computers, phone books, cardboard, junk mail, office paper, food waste, and plastic bags. Additional recommended mechanisms to reduce waste in the centroids include legislation to establish a

¹ Minnesota Statutes Chapter 115A

² <http://www.mnclimatechange.us/MCCAG.cfm>

³ Minnesota Statute 115A.02 lists the following waste management practices in order of preference:

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

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framework to advance product stewardship efforts, modifications to the pricing structure for waste collection service to better align economic signals with quantities of waste at the point of generation, and increased education, assistance, and recognition programs to support and promote source reduction activities.

The Work Group also recommended twelve (12) strategies to increase recycling in the centroids. Recommended mechanisms to achieve substantial increases in recycling include setting aggressive statewide recycling goals, modifying local ordinances to increase commercial and institutional recycling, increasing public education about the benefits of source reduction and recycling, incentivizing residential recycling, and tasking the MPCA to investigate the feasibility of requiring the removal of recyclable material prior to waste disposal or energy recovery. Other supported strategies aim to increase recycling of mattresses through increased opportunities to recycle, carpet through extended producer responsibility, and beverage containers (glass, aluminum, and plastic) by implementing a statewide container deposit. Finally, the Work Group felt it was essential that the state further support the development of recycling end markets to support and expand local recycling programs and the influx of recyclable material that will result from the implementation of the Work Group's recommendations.

To better manage organic material in the waste stream (food waste and non-recyclable paper), the Work Group recommended increasing composting of source-separated organic material through an array of efforts to be adapted and tailored as appropriate in each centroid.

Regarding recommendations on the lower-end of the Hierarchy, the Work Group recommends three strategies, one for waste-to-energy (WTE) and two regarding landfill disposal. The WTE recommendation calls for existing WTE facilities in the state to be operated at their permitted capacity to minimize the amount of waste being disposed in landfills, and that WTE facilities pursue infrastructure improvements to enhance the efficiency of their operations. The first landfill strategy recommends increasing the rate of capture and utilization of methane gas generated at landfills throughout the state, while the second landfill strategy recommends increasing landfill disposal fees to divert waste away from landfills and shift waste to other management methods higher up on the hierarchy.

Other supporting strategies recommended by the Work Group include: increased promotion of green building and sustainable development initiatives, and improvements to information, including an updated assessment of the statewide and centroid-specific waste streams, and further research on GHG modeling, volatile organic compound (VOC) emissions from compost facilities and landfills for all compostable material, and enhancements to commercial recycling data. Also, during the final Work Group meeting, the Work Group advanced two strategies by majority support as mechanisms to support the implementation of the other recommendations: organized collection, and voluntary agreements between haulers and local units of government to achieve improved service outcomes.

While the Work Group primarily focused its efforts on developing strategies to reduce greenhouse gas emissions, there was strong sentiment within the Work Group that the successful implementation of the recommended strategies would be largely contingent upon the availability of adequate funding provided to local units of government to administer solid waste programs, and sufficient funding at the state level to support market development, education, and technical assistance programs administered through the MPCA. The Work Group did develop a strategy to recommend modifications to the existing allocation of funding to counties through the SCORE

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program, and in addition to that strategy, the Work Group generated a list of unanimously supported high-level funding principles to help guide decision makers as the state develops a plan for the implementation of the Work Group's recommended strategies.

To assess the projected impacts of the Work Group's recommended strategies, the Process used the U.S. Environmental Protection Agency's (EPA) WASTE Reduction Model (WARM) and a few MPCA adjustments to the WARM model outputs related to the GHG cuts/ton for composting organics and the higher efficiencies of WTE facilities in Minnesota as compared to the WARM defaults. According to the estimated impacts of the recommended strategies using the WARM model and the MPCA adjustments, implementation of the Work Group's recommended strategies will enable the state to achieve significant reductions in greenhouse gases totaling approximately 47.2 MMTCO_{2e} by 2025, which is approximately 10% below the original Process goal of 52.5 MMTCO_{2e}. The Work Group and the MPCA acknowledged this shortfall and pointed to the imprecision and imperfections within the WARM model, which are described in detail in the Process Background section of this report, as a major contributing factor to the group not reaching 52.5 MMTCO_{2e} in GHG emission reductions. As the projected impacts are merely model estimations, it is certainly conceivable that a 10% difference is within the margin of error for WARM's current GHG emission modeling capabilities. Therefore, it should be acknowledged that the Work Group, at a minimum, has adequately fulfilled its charge by recommending changes to the management of solid waste in the four centroids that will result in significant GHG reductions very near to the order of magnitude recommended by the MCCAG. Please reference Figure 5 on page 20 for a visual depiction of the GHG emission reductions projected by WARM to result from the implementation of the Work Group's recommended strategies.

In addition to yielding significant reductions in GHG emissions as a result of the recommended strategies, the Work Group should be commended for their strategies to move waste up the Waste Management Hierarchy. As demonstrated in the report, the Work Group's recommended strategies will result in the following average projected percentages for waste management methods across the four centroids by 2025: 6.08% Source Reduction (cumulatively to 2025); 60% Recycling; 6.5% Organics Management; 24.1% Waste-to-Energy; and 9.4% Landfill Disposal. For comparison, the 2005 baseline for waste management method percentages across the four centroids are: 40% Recycling; 2.7% Organics Management; 17% Waste-to-Energy; and 35% Landfill Disposal. Please reference Tables 1 and 2 on page 21 that illustrate five-year projections of percentage and volume of waste changes by management method due to the impacts of implementing the Work Group's recommendations.

While the 38 recommended strategies provide guidance and direction to the state by comprising the elements of a plan to achieve significant GHG emission reductions through solid waste management, the state must ultimately work with, and lead, numerous partner organizations to systematically and effectively implement the recommendations.

As the MPCA develops its 2009 Solid Waste Policy Report and works with counties to update local solid waste management plans, it should assess the implementation mechanisms available to support the recommended strategies, the amount of resources that will be required to implement the strategies, and various mechanisms that could be used to fund the recommended strategies. A comprehensive implementation plan should then be developed and put into action in order to ensure that the recommended strategies are brought to fruition and that the GHG emission reductions that are projected to result are achieved.

The Integrated Solid Waste Management Stakeholder Process (the Process) stemmed from the 2007 Minnesota Pollution Control Agency (MPCA) Solid Waste Policy Report to the Minnesota Legislature that identified a need to convene a multi-stakeholder group to develop strategies to bridge the goals of the Waste Management Act and the Minnesota Climate Change Advisory Group's (MCCAG) greenhouse gas (GHG) emission reduction targets for the solid waste sector. MCCAG set a statewide goal for the solid waste sector of reducing GHG emissions by 75 million metric tons of carbon dioxide equivalent (MMT CO_2e) cumulatively from 2008 to 2025.

Centroids Description

To begin the effort to bridge the goals of the Waste Management Act and MCCAG, the MPCA elected to have the Process focus on four major population areas, or “centroids,” where the majority of waste is generated in the state. The four most densely populated regions in the state are the areas surrounding the cities of Duluth, Rochester, St. Cloud, and the Twin Cities metropolitan area. For the purposes of this process, the centroids were defined as follows:

- Duluth Centroid: Carlton, Cook, Lake and St. Louis Counties, and the Western Lake Superior Sanitary District
- Rochester Centroid: Dodge and Olmsted Counties
- St. Cloud Centroid: Benton, Sherburne and Stearns Counties
- Twin Cities Centroid: Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, Washington and Wright Counties

See Figure 1: Centroid Regions Used in the Integrated Solid Waste Management Stakeholder Process on page 11 for a visual depiction of the centroid regions used in the Process.

The municipal solid waste (MSW) generated in these four centroid regions combined makes up approximately 70% of the total waste generated, by tonnage, in the state of Minnesota (see Figure 2: Centroid Percentage of Minnesota's Total MSW).

For the purposes of this process, MPCA set a prorated goal of reducing GHG emissions by 52.5 MMT CO_2e in the four centroids by the year 2025. The GHG reduction target of 52.5 MMT CO_2e was determined by calculating 70% of the statewide MCCAG goal of 75 MMT CO_2e , based on the fact that waste generation in the centroids makes up roughly 70% of the total waste stream statewide.

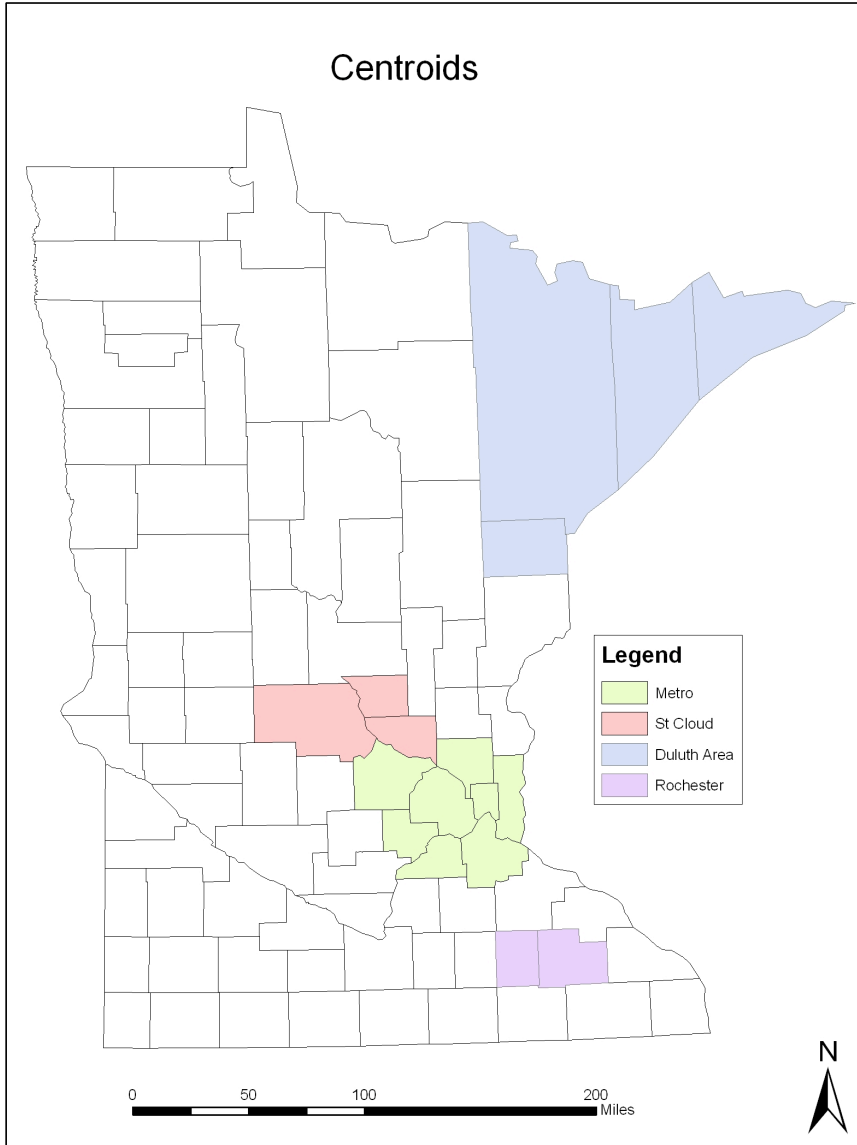


Figure 1: Centroid Regions Used in the Integrated Solid Waste Management Stakeholder Process

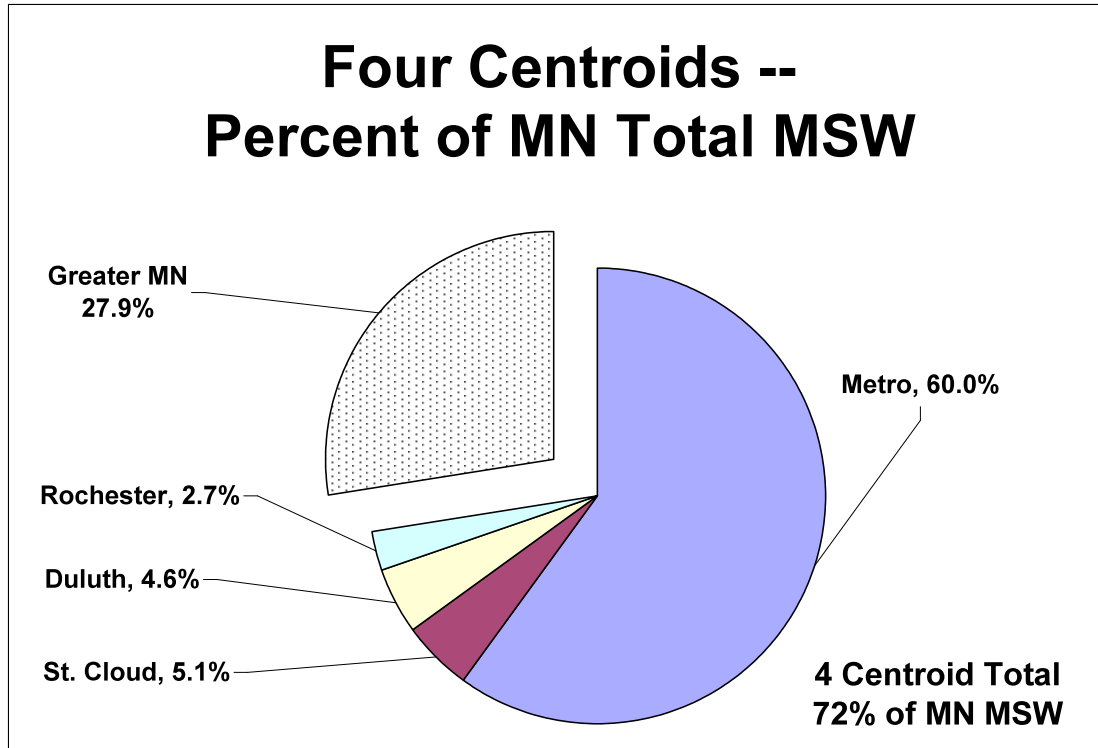


Figure 2: Centroid Percentage of Minnesota's Total MSW

Baseline Data Collection and Dissemination

To support the Process, Foth Infrastructure & Environment, LLC (Foth) was sub-contracted by the MPCA to collect and analyze data on MSW generation and composition in the four centroids. Data regarding the types, locations, and quantities of MSW to reduce, recycle or manage to reduce GHG emissions in the four centroids was compiled by Foth and provided to the Work Group in February 2009. This data was compiled using MPCA's SCORE report data, the 1999 Statewide Waste Composition Study, and waste composition studies from 5 resource recovery facilities, one transfer station and one landfill in the centroid areas. This information was synthesized to develop 2005 centroid-based waste composition data (in tonnages) to use as baseline data for the model.

Foth also normalized the data to the material input categories used in the WARM model in order to facilitate the projection of emission reductions that would result from shifting waste within material categories to different management methods. The complete Foth 2005 Baseline Data is included as Appendix F.

Measurement of Progress Toward the Goal: EPA WARM Model

To measure projected impacts of the recommended strategies and assess the Work Group's progress toward achieving the GHG emission reduction goal of 52.5 MMTCO_{2e}, the MPCA used the U.S. EPA measurement tool known as the WASTE Reduction Model (WARM) (http://www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html). Like many calculation tools, the WARM model has inadequacies and deficiencies, and output results for GHG impacts of recommended strategies should be viewed as rough estimations only that will be subject to revision and refinement as state and federal agencies implement improvements to the model in the coming years. A detailed list of WARM model limitations follows:

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- In general, modeling was limited by the material categories available in WARM and existing waste composition studies had to be modified to fit the WARM categories. As described earlier, Foth provided baseline data to the Process which used the MPCA's SCORE report data; the 1999 Statewide Waste Composition Study; and waste composition studies from 5 resource recovery facilities, one transfer station and one landfill in the centroid areas to develop 2005 centroid waste composition tons for the model. Not all waste composition studies use the same material categories; therefore many assumptions had to be made when grouping categories together to fit into the model's categories. The MPCA was not able to independently verify all of the assumptions and data that went into the baseline information. Because of these assumptions, quantities of materials should be considered estimates and may vary considerably from actual quantities.
- WARM does not have a "reuse" category. Therefore, reuse cannot be modeled and GHG emission reductions related to reuse programs cannot be estimated.
- WARM contains limited categories for material types that can be source reduced. Therefore, source reduction benefits cannot be fully quantified since many material types cannot be modeled as source reduced.
- In regards to organics management, WARM currently only allows for one type of organics management method (composting) and does not allow for alternative management options for organic material (e.g. food-to-people, food-to-animals, anaerobic digestion, etc.). In addition, WARM contains limited categories for material types that can be composted, most notably, non-recyclable paper types are not modelable as compostable in WARM.
- Aluminum can recycling in WARM results in higher GHG cuts than source reduction of aluminum cans because of its high recycled content. (In general, materials with high recycled content show a lower benefit for source reducing than they otherwise would because they are not displacing as much virgin material, which requires more energy to extract and produce.)
- WARM only models one of each type of waste facility in a scenario for gas capture (from landfills) and distances (to landfills, and recycling, composting and WTE facilities), so these must be averaged. Distances are from the curb to the facility; the model uses national averages from the facility to markets. WARM assumptions for these general inputs for the process were:
 - Average one-way transportation distances (using Twin Cities metro area distances):
 - Recycling – 12 miles
 - Composting – 20 miles
 - Waste-to-Energy – 25 miles
 - Landfill – 50 miles
 - Default landfill gas capture – 37% plus energy recovery (The weighted average of the four centroid assumptions)
- There is no variable in the model for users to model higher efficiency waste-to-energy facilities (WARM default is at 17%, many WTE facilities in MN are at 70+%). Also, metal recovery rates are set by the model and do not necessarily reflect the rates achieved at Minnesota WTE facilities.

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- Non-MSW wastes, such as construction and demolition (C&D), industrial waste, and residuals from WTE facilities are not included in the model and were not considered in strategies proposed by the Work Group.

In spite of these significant limitations, the WARM model was determined to be the most accessible and comprehensive tool available to calculate projected GHG emissions from solid waste management activities at the time of this process. In addition to being the most accessible tool available, WARM was also the tool used by MCCAG, it is a peer-reviewed model, it includes five greenhouse gases (not just CO₂), and it is widely used in public and private sectors for policy-making, stakeholder processes, and education. All models have their deficiencies, it is important to be aware of their limitations, and these limitations were discussed and considered by the Work Group throughout the process.

MPCA's WARM model inputs and assumptions are well documented for each strategy that was modeled, and for strategies that were determined unable to be modeled, rationale for why they were not modeled is given. In two instances, the MPCA attempted to address WARM inadequacies by supplementing model output data results according to best professional judgment when reasonable and feasible to do so. Those instances were:

- 1) increasing the GHG cuts/ton for composting organics from the current WARM default of 0.2 MTCO₂e, to the projected new EPA WARM GHG cuts/ton for composting organics of 0.5 MTCO₂e; and
- 2) additions to account for the higher efficiencies of Minnesota WTE facilities (approximately 28% efficiency on average) as compared to the WARM default (18% efficiency).

MPCA staff are also working to continually improve upon the methodology and data used to calculate projected GHG emissions from solid waste management activities and will continue to research and evaluate methods and tools to more accurately calculate GHG emissions from all waste management methods and material types, as called for in strategy *6.9 Improvements to Information*.

At the time of this Process, the WARM model is able to account for the following types of waste material: Aluminum Cans, Branches, Carpet, Clay Bricks, Concrete, Copper Wire, Corrugated Cardboard, Dimensional Lumber, Fly Ash, Food Scraps, Glass, Grass, High-Density Polyethylene (HDPE), Low-Density Polyethylene (LDPE), Leaves, Magazines/3rd-Class Mail, Medium-Density Fiberboard, Mixed Metals, Mixed MSW, Mixed Organics, Mixed Paper (general), Mixed Paper (primarily from offices), Mixed Paper (primarily residential), Mixed Plastics, Mixed Recyclables, Newspaper, Office Paper, Personal Computers, Polyethylene Terephthalate (PET), Phonebooks, Steel Cans, Textbooks, Tires, and Yard Trimmings. A ton of each distinct material can be managed in one of eight ways: source reduced, recycled, composted, combusted, landfilled gas-to-energy, landfilled gas flaring, landfilled gas capture at national average, or landfilled with no gas recovery. As previously described, the model does not allow certain material types to be managed using certain management methods, which further restricts flexibility in projecting impacts from alternative approaches to waste management.

For each material, WARM assigns a GHG emission reduction multiplier factor, either through reduction in emissions (negative multiplier) or through an increase in emissions (positive multiplier). The WARM multiplier factors also enable an at-a-glance comparison of the GHG reduction value WARM places on certain materials managed via certain methods (e.g., a ton of Personal Computers

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(PCs) source reduced yields a GHG reduction value in WARM of -55.97 MTCO₂e, while a ton of recycled PCs yields a GHG reduction in WARM of -2.27 MTCO₂e). See Appendix E: WARM Material Multiplier Table for the complete list of WARM multipliers per material type and management method.

Charge to the Work Group

In the fall of 2008, the Minnesota Environmental Initiative (MEI), was contracted by the MPCA to independently design, lead, and facilitate the Process. MEI assembled a seventeen member Work Group consisting of diverse representatives from industry, state and local governments, environmental organizations, and others (see Appendix A: Work Group Roster). The charge put forth to the Work Group was to develop elements of a plan to achieve the GHG emission reduction goal of 52.5 MMTCO_{2e} in the solid waste sector within the four centroids (see Appendix B: MPCA Charge to the Work Group).

Developing Common Understanding

Between December 2008 and June 2009, the Work Group met ten times. Early meetings focused on establishing common baseline understanding of the group's purpose, the history and current status of the waste management system in Minnesota, options to reduce greenhouse gas emissions through solid waste management, and the available tools that could be used to measure projected GHG emission reductions. Work Group members and outside experts gave presentations to the group on the management methods of the Waste Management Hierarchy and the systems currently in place in several of the centroids. Presentations were also provided to the Work Group on waste management practices in other parts of the United States, Canada, and in the European Union.

Management Method Sub-Groups

In March 2009, the Work Group formed management method sub-groups to generate straw proposal strategies to reduce greenhouse gas emissions through solid waste management. Five sub-groups were formed: Source Reduction (including Reuse), Recycling, Organics Management, Waste-to-Energy, and Landfill. Each sub-group was chaired by a member of the Work Group and sub-groups were comprised of self-selected Work Group members and other issue experts. Sub-group meetings were convened between meetings of the full Work Group and were managed by the sub-group chairs and supported by MEI staff.

The five management method sub-groups generated more than eighty (80) straw proposals, which are included in this report as Appendices G-K. A number of strategy proposals were developed in more than one management method sub-group and MEI staff compiled these "cross-cutting" proposals into a separate document, found in Appendix L: Cross-Cutting Straw Proposals.

The Process had originally been designed to begin in late 2008 and to conclude by June 30, 2009. From the first meeting of the Work Group, there was a strong sentiment within the group that the original timeline was far too short to adequately complete the charge. Throughout early 2009, stakeholders continued to express their desire to extend the process beyond the original deadline of June 30, 2009 in order to yield high-quality and well-developed recommendations. A contract extension was pursued and granted to MEI by the MPCA in the spring of 2009, making the new deadline for the process to be completed December 31, 2009.

Summer Centroid Work

In the summer of 2009, the Work Group charged four centroid sub-groups to develop implementation plan scenarios to meet their centroid-specific proportion of the 52.5 MMTCO_{2e} GHG reduction target, calculated for each centroid region based on waste generation. As such, the reduction targets set for each centroid were: Duluth: 3.3 MMTCO_{2e}; Rochester: 2.0 MMTCO_{2e};

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St. Cloud: 3.7 MMTCO₂e; Twin Cities Metro: 43.5 MMTCO₂e (see Figure 3: GHG Reduction Goals by Centroid). The four centroid sub-groups were comprised of solid waste practitioners and other individuals from each centroid. The centroid sub-group recommendations were designed to better inform the Work Group as they continued the development of their recommendations for the Process (see Appendix M: Centroid Sub-Group Charge). To aid their development of proposed scenarios, centroid sub-groups were given an extensive toolkit, which included, among other things, background information on the Process and the management method straw proposals developed by the Work Group Management Method Sub-Groups.

The centroid sub-groups were extremely helpful to the Process, as they brought real-world perspectives and regional expertise regarding the feasibility of strategy implementation in each of the four centroids. In addition, over the summer months the MPCA staff developed a more acute understanding of and sophisticated internal capacity to run the WARM model in order to measure projected impacts of individual strategies on GHG emissions. Centroid sub-groups were chaired by at least one self-selected member of the Work Group and were managed by MPCA staff with minimal support from MEI. The centroid sub-groups met throughout the summer to develop their proposed implementation plan scenarios for the Work Group to consider and each sub-group held at least one regional public input meeting (see Appendices O-R: Centroid Implementation Plans). It is important to note that three out of the four centroid sub-groups proposed scenarios that met their respective proportional sub-set of the GHG reduction target, and, cumulatively, all the scenario proposals from the four centroids combined reached or exceeded the 52.5 MMTCO₂e goal, since some centroids exceeded their respective targets.

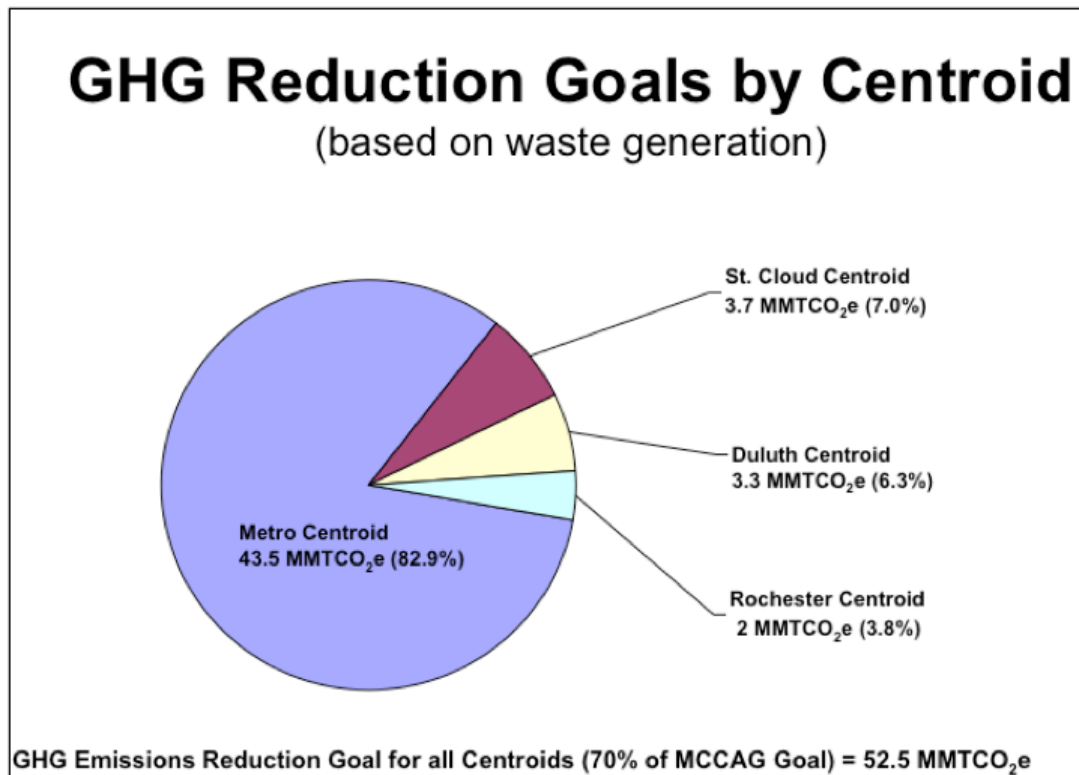


Figure 3: GHG Reduction Goals by Centroid

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Refining and Finalizing Recommended Strategies

The Work Group reconvened in the fall of 2009 to review the proposed centroid scenarios and to develop a suite of recommended strategies to meet the overall GHG reduction goal for the Process of 52.5 MMTCO_{2e}. Between September 11 and December 21, 2009 the Work Group met an additional seven times. The strategies that comprised the proposed centroid scenarios formed the basis for the Work Group's recommended strategies. Centroid strategy proposals were reviewed and discussed in order of the Hierarchy, and were modified and/or added to in order to form the recommendations contained within this report. Work Group members also elected to add several additional strategies that were not included in the centroid scenarios to their recommendations.

Between fall Work Group meetings, MEI used an online survey tool to gauge members' levels of support for the various strategy proposals in order to help facilitate discussions and refine the list of recommended strategies. Ultimate decisions about strategies to include in the final set of recommendations were made during Work Group meeting discussions facilitated by the Process Chair, Ron Nargang of MEI. A vote was taken on each strategy, and for those strategies that were not unanimously supported, non-supporting members of the Work Group collaborated offline to develop language to include in the report regarding their opinions of the strategy and, in some cases, their proposed alternatives to the strategy. These non-supporting members are identified by name and their opinions and alternatives follow the strategy outlined in the recommendations.

Public Input to the Process

As mentioned previously, during the summer of 2009 each centroid held at least one public input meeting as they were developing their proposed scenarios for the Work Group. In addition, MEI held two public meetings in the fall of 2009 to gather further input for the Work Group on the draft recommended strategies. A public meeting was held on October 12, 2009 in Duluth in conjunction with a regularly scheduled meeting of the Northeast Waste Advisory Council (NEWAC), and a public Stakeholder Input Group meeting was held on the evening of November 18, 2009 in West Saint Paul. In addition, an online open public comment period on the draft recommended strategies took place from November 24 to December 8, 2009 and written comments received during this period were shared with the Work Group and discussed during their December 21 meeting. All written comments received during the online public comment period and at the Fall 2009 public input meetings are included in Appendix D of this report. MEI would like readers to note that two strategies (6.1 Organized Collection and 6.1A Industry Alternatives to Organized Collection) were added to the recommendations at the final meeting of the Work Group on December 21, 2009, and as such, there was no opportunity for written public comments to these two strategies.

Summary of Process Outcomes and Organization of Recommendations

The Work Group developed twenty-two (22) unanimously supported strategies to reduce greenhouse gas emissions within the solid waste sector and an additional sixteen (16) strategies that were supported by a majority of members, for a total of thirty-eight (38) recommended strategies. The majority of the recommended strategies are Source Reduction (13) and Recycling (12) strategies, while the remaining thirteen (13) strategies are Organics Management, Waste-to-Energy (WTE), Landfill Disposal or Other Supporting Strategies. Overall, the Work Group did an excellent job developing a broad-ranging suite of well thought out strategies to help lower GHG emissions from the solid waste sector within the four centroids. Several recommended strategies were controversial and required a great deal of compromise, and Work Group members should be commended for their willingness to rise to the challenge and collaborate to develop strategies that most or all members can support.

Estimated GHG and Waste Volume Impacts from the Work Group's Recommendations

In total, according to the estimated impacts of the recommended strategies using the WARM model and the MPCA adjustments, implementation of all of the Work Group's recommended strategies will enable the state to achieve significant reductions in greenhouse gases of approximately 47.2 MMTCO_{2e} by 2025, which is approximately 10% below the original Process goal of 52.5 MMTCO_{2e}. The Work Group and the MPCA acknowledged this shortfall and pointed to the imprecision and imperfections within the WARM model, which are described in detail in the Process Background section of this report, as a major contributing factor to the group not reaching 52.5 MMTCO_{2e} in GHG emission reductions. As the projected impacts are merely model estimations, it is certainly conceivable that a 10% difference is within the margin of error for WARM's current GHG emission modeling capabilities. Therefore, it should be acknowledged that the Work Group, at a minimum, has adequately fulfilled its charge by recommending changes to the management of solid waste in the four centroids that will result in significant GHG reductions very near to the order of magnitude recommended by the MCCAG.

With respect to GHG impacts of certain strategies, Figure 4: WARM Results for Unanimously Supported Strategies, and Figure 5: WARM Results for Unanimously and Majority Supported Strategies illustrate the relative WARM calculated impacts of unanimously and majority supported strategies grouped by management method. The overall WARM result for the unanimously supported strategies is approximately 15.5 MMTCO_{2e}, while the overall WARM estimated impact of unanimously plus majority supported strategies is approximately 44.7 MMTCO_{2e}. As previously indicated in the Process Background section of the report, the MPCA adjusted the overall WARM results for organics and WTE efficiency. The organics adjustment adds approximately 2 MMTCO_{2e} and the WTE efficiency adjustment adds approximately 0.4 MMTCO_{2e} to the overall WARM calculation, yielding the previously stated overall estimated reduction in GHG emissions resulting from the Work Group's recommendations of 47.2 MMTCO_{2e}, cumulatively by 2025.

Comparing impacts for unanimously and majority supported strategies yields the following:

- Source Reduction – unanimously supported source reduction strategies estimated to yield approximately 2.2 MMTCO_{2e}, and majority supported source reduction strategies estimated to yield approximately an additional 5.1 MMTCO_{2e}
- Recycling – unanimously supported recycling strategies estimated to yield approximately 13.3

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MMT CO_2e , and majority supported recycling strategies estimated to yield approximately an additional 19.5 MMT CO_2e

- Overall – all unanimously supported strategies estimated to yield approximately 15.5 MMT CO_2e , and all majority supported strategies plus the MPCA adjustments are estimated to yield approximately an additional 31.7 MMT CO_2e
- As a reminder, several recommended strategies were not able to be modeled in WARM or were not supplemented with any adjusted model output data by the MPCA, and actual GHG emission reductions could be greater than the model projects due to the impacts resulting from these additional, not modeled strategies.

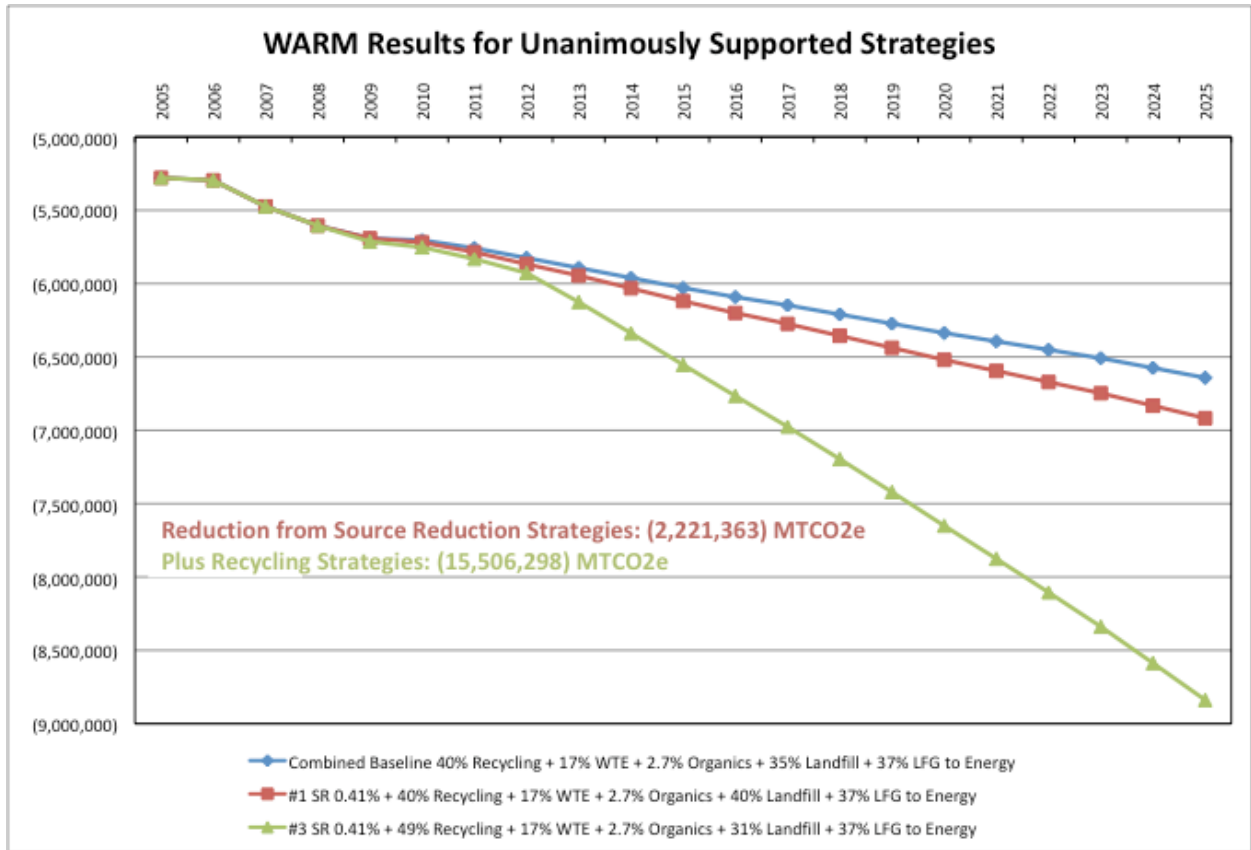


Figure 4: WARM Results for Unanimously Supported Strategies

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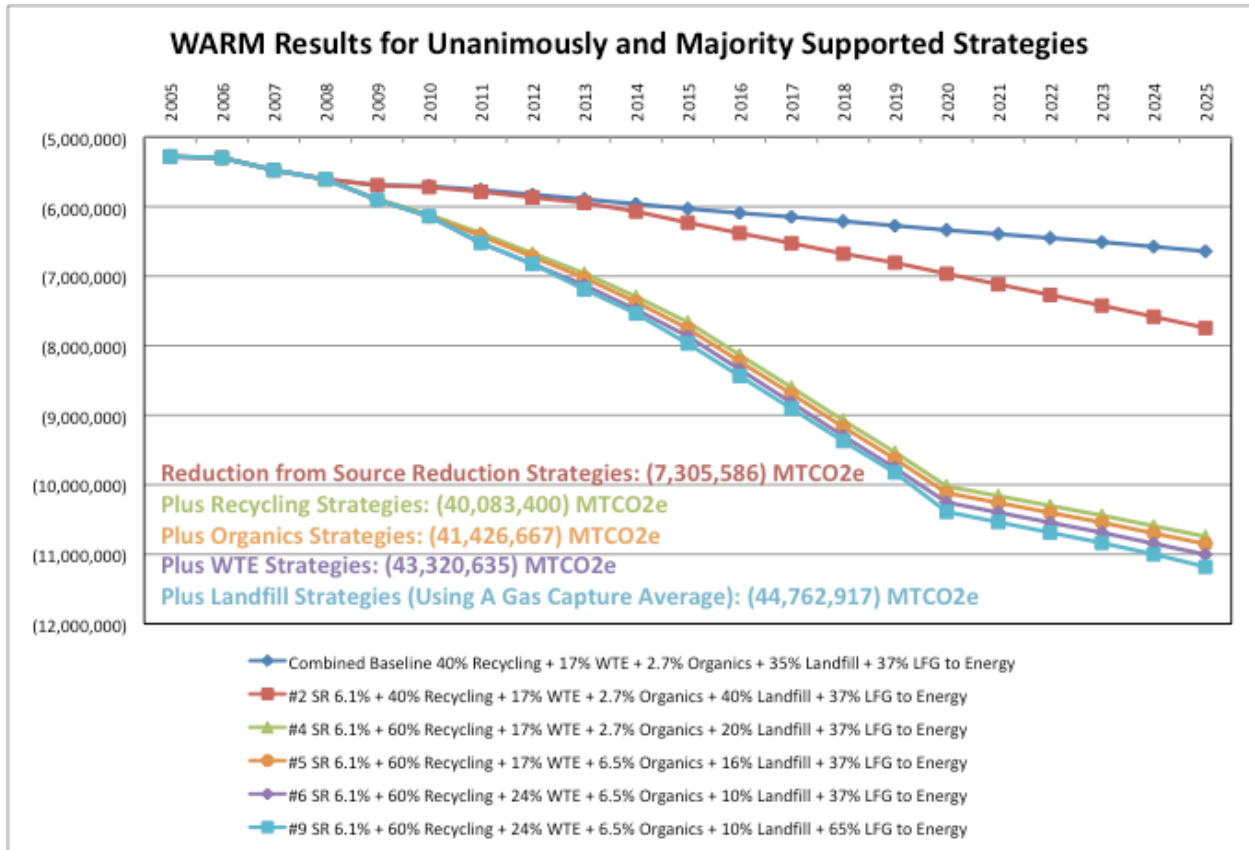


Figure 5: WARM Results for Unanimously and Majority Supported Strategies

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In addition to the GHG reduction impacts of the Work Group’s recommendations, below are two tables (Table 1 and Table 2) that illustrate five-year projections of percentage and volume of waste changes by management method anticipated to result from implementation of the Work Group’s recommendations.

Management Method	Percentage of Waste Managed			
	2010	2015	2020	2025
Source Reduction (cumulative)	0.016%	1.02%	3.52%	6.08%
Recycling	43.2%	50%	60%	60%
Organics	3.8%	6.5%	6.5%	6.5%
Waste to Energy	21.6%	26%	25%	24.1%
Landfill	31.4%	17.5%	8.5%	9.4%

Table 1: Percentage of Waste Managed by Management Method After Implementing Recommendations

Management Method	Volume of Waste Managed (in tons)			
	2010	2015	2020	2025
Source Reduction (cumulative)	701	47,303	167,106	294,573
Recycling	1.92 million	2.36 million	2.95 million	3.06 million
Organics	166,426	306,429	319,421	331,421
Waste-to-Energy	957,849	1.23 million	1.23 million	1.23 million
Landfill	1.39 million	822,717	418,246	480,091

Table 2: Volume of Waste Managed by Management Method After Implementing Recommendations

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Additional Concepts Discussed

In addition to the 38 recommended strategies, numerous other strategy concepts were discussed throughout the process that are not included in the recommended strategies because the Work Group did not reach an adequate level of support to advance them. To inform the MPCA and other decision makers, the Work Group's decisions regarding two of the more controversial strategy concepts that were discussed, but not advanced, are detailed below:

- **New Waste-to-Energy Capacity:** The Work Group did not support by consensus or a majority new additional WTE capacity in any of the centroids and, thus, by default, the decision as to whether or not to add new WTE capacity within a centroid will be left to local units of government and their constituent communities.
- **Control of Waste:** The Work Group discussed several strategy options to control the flow of waste and support the recommended strategies, including organized collection, flow control, and alternatives such as voluntary agreements and new licensing requirements and city ordinances. At the November 20 meeting, the Work Group also had a limited discussion of waste governance. Having recognized that issues surrounding the control of waste are highly controversial, Work Group members preferred to first prioritize discussion and strategy development during the meetings on other topics that had higher probability to produce recommendations with majority or unanimous support. After a limited amount of discussion at the November 20 meeting, the Work Group was unable to reach consensus or clear majority on any strategy proposals to control the flow of waste. However, at the Work Group's final meeting, organized collection, flow control and their alternatives were again discussed and the Work Group voted by majority to recommend both organized collection and industry alternatives to organized collection (strategies 6.1 and 6.1A, respectively). While flow control and its alternatives were discussed, the Work Group ultimately decided not to vote on these strategies because the proposed strategy language for these respective strategies was too vague and, thus it was not prudent to take a vote. Finally, MEI would like to again highlight to readers that because both strategy 6.1 Organized Collection, and strategy 6.1A Industry Alternatives to Organized Collection were added at the last meeting there was no opportunity for written public comments to these two strategies.

Organization of Work Group Recommendations

The recommended strategies to achieve GHG emission reductions are listed in order of preferred management method, according to the Waste Management Hierarchy. As such, each strategy is categorized with a numerical label according to the management methods of the Hierarchy:

- 1.0 Source Reduction Strategies
- 2.0 Recycling Strategies
- 3.0 Organics Management Strategies
- 4.0 Waste-to-Energy Strategies
- 5.0 Landfill Strategies
- 6.0 Other Supporting Strategies

When individual strategies were originally proposed during the Process, they were assigned distinct numerical labels to better differentiate strategy proposals from one another. The units digit for each

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strategy label represents the Hierarchy management method (according to the list above), and the tenths digit is the specific numerical label given to that strategy (e.g., 1.3 Source Reduce Personal Computers). Each strategy has retained its distinct numerical classification throughout the Process, and, for clarity and consistency, strategies are listed in this document according to their original numerical label. For three strategies the units digit no longer corresponds correctly to the Hierarchy classification system developed for this process. Those strategies are: *1.12 Require Retailers to Provide Plastic Bag Recycling*, *1.16 Increased Promotion and Expansion of Voluntary Plastic Bag Recycling Program*, and *4.9 Maximize Recovery of Recyclable Material Prior to Disposal of Municipal Solid Waste*. All three of these strategies are recycling strategies and are listed in the correct management method section (2.0 Recycling Strategies) in this report, regardless of their original, and now incorrect, numerical label.

Recommended strategies are presented in two sections of the report, based on their level of support within the Work Group: Strategies with Unanimous Support and Strategies with Majority Support. Please reference the Table of Contents on page 3, which lists each of the recommended strategies in order of management method within these two groupings. For those strategies that were not supported unanimously, non-supporting members and their opinions and/or alternatives are listed following the strategy. For written public comments received that were specific to an individual strategy, MEI, to the best of our abilities, attempted to reference specific comments to the strategy to which they pertain at the end of that strategy. Again, the full text of all public comments received can be found in Appendix D of this report and readers are encouraged to read each and every comment.

Members of the Work Group were responsible for drafting the written content of the recommended strategies, and modifications to the written text of the recommendations were suggested and approved by the Work Group during meetings. In an effort to standardize the format of the strategy recommendations, MEI equipped Work Group members with a strategy template to fill out as they drafted strategy proposals. However, as a result of multiple authors drafting strategy text and the fact that MEI has not taken editorial license to modify the agreed-upon language of the Work Group's recommended strategies, there is some inconsistency in the level of detail and type of information included in each strategy recommendation.

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Each strategy details to the greatest extent possible the following information:

- Strategy Description/Recommendation
- Background Information
- Measurement Method
- Goals/Timeframe/Mileposts
- MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)
- Potential Implementation Parties
- Costs
- Funding Mechanisms
- Barriers/Issues
- Opportunities
- General Comments
- Non-Supporting Members and Their Opinions and Alternatives⁴
- References to Specific Public Comments (found in Appendix D)⁵

Funding Recommendations

Consistent with the charge to the Work Group, the Process was structured to prioritize the generation of a list of supported strategies to achieve GHG reductions over detailing associated costs and recommended funding sources. Following the Work Group's recommended strategies is a list of ten unanimously supported high-level funding recommendations that was brainstormed and endorsed by the Work Group on November 20, 2009. These principles were developed to better inform decision makers regarding funding mechanisms to support the recommended strategies and better support the solid waste management system.

Other Notes on Recommendations

The following is additional information regarding the Work Group's recommended strategies:

- The Work Group advanced several strategies in this Process and felt it was important to point out that two supporting mechanisms are essential to the successful implementation of all the strategies: developing end markets to support the expansion of recycling activities, and providing sufficient funding to implement all of the recommended strategies.
- While this Process focused on four population "centroids," the majority of the supported strategies are designed to be, or could be, implemented statewide, and by implementing the strategies statewide the state can make progress toward achieving the MCCAG statewide GHG emission reduction goal of 75 MMTCO₂e for the solid waste sector.

⁴ Only strategies that are majority, but not unanimously, supported list the Work Group members who do not support that strategy and their opinions and/or alternative ideas.

⁵ At the request of the Work Group, MEI has attempted to the best of our ability to cross-reference public comments that were specific to an individual strategy to the strategy to which they pertain. Please note that readers are encouraged to read each and every public comment in its entirety, as many public comments are general in nature and therefore may not have been cross-referenced to a given strategy.

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- For this Process, and the strategies that resulted from it, the term “Waste-to-Energy” or “WTE” refers to either mass-burn or refuse-derived fuel (RDF) facilities because these are the two types of WTE facilities currently operating in Minnesota. It is important to note that WARM only allows for mass-burn facility modeling and does not account for efficiency improvements due to co-generation of heat and power. Minnesota does have some RDF facilities, but all WARM modeling in respect to WTE was calculated using the WARM mass-burn input. As previously noted, WARM results for WTE strategies were adjusted to account for efficiencies of Minnesota WTE facilities. Finally, there are other facilities besides mass-burn and RDF that generate energy from processing waste, and these other or emerging technologies were not included in the Work Group’s strategies regarding WTE for this process.
- Two strategies that were included in the Work Group’s Draft Recommended Strategies document (dated November 24, 2009) that was open for public comment no longer appear in the final strategy recommendations. These strategies are: *2.7 Increase Carpet Recycling*, which was voted unanimously to be removed from the report at the final meeting on December 21 since *2.14 Increase Carpet Recycling through Producer Responsibility* lists more aggressive recycling rate targets for carpet recycling and had received unanimous support; and *2.12 Subsidize Local Markets’ Use of Locally Source Recycled Materials in New Products*, which the Work Group opted to incorporate into the “Opportunities” section of strategy *2.5 End Market Development*.

Strategies with Unanimous Support

1.0 SOURCE REDUCTION STRATEGIES

1.3 Source Reduce Personal Computers

Strategy Description/Recommendation

Source reduce computers by extending the life of personal computers (PCs) and delaying the purchase of replacement computers by one year or more. This would be accomplished through:

1. Public sector purchasing policy adoption (either through legislation, executive order, and/or requirements through grant programs) to delay the current replacement schedule of existing computers and utilize upgrades or other tools necessary to allow existing computers to continue to operate. May include an educational component.
2. Educational outreach to businesses and residents to voluntarily participate in this effort.

If existing PCs are not energy efficient, this strategy recommends replacing those PCs according to the current replacement schedule first and then extending the life of the replacement PC. Further, the strategy recommends that all new purchases are energy efficient or small form factor PCs and/or PCs with proven life cycle extending factors, such as longer warranty, easily upgradable tools, and available replacement parts. Lastly, this strategy recommends the conversion to flat panel monitors as opposed to cathode-ray tubes (CRTs) to reduce the mass of PC waste being produced. This could be a local effort and a State initiative.

Measurement Method

Procurement policies and reports from targeted institutions, and surveys of turnover rates of business and residential community.

Goals/Timeframe/Mileposts

By 2012, extend average computer life by one year.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Personal computers reduced 6% by 2025, based on extending the life of PCs purchased by the governmental sector (15% of the commercial sector)
Gradual, starting in 2011 continuing to 2025

Potential Implementation Parties

State and local government agencies, other large institutions (schools, hospitals, etc.), businesses, general public.

Costs

Minimal/Low. Some government staff time to work with public entities, businesses, and public on educational materials and advertising costs (Rochester Centroid estimated \$25,000 for staff time for their centroid). Cost savings or an overall reduction in costs may also be realized.

Funding Mechanisms

Additional (new) SCORE funds supplemented by existing solid waste fees, Solid Waste Enterprise Fund, or other State funding.

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Barriers/Issues

Changing technology/software upgrades may require new computers, compatibility with networks; new computers may be more energy efficient.

Opportunities

Cost savings to implementing entities. Current economic conditions make this more appealing to businesses and public entities because they will recognize a savings in PC purchases.

General Comments

Olmsted County Public Works implemented this approach from 1995 to 2000. Physical mass in PCs is already being reduced through improvements in technology. Current economic conditions are impacting the rate of new PC purchasing. An online purchasing tool, EPEAT, is available, which rates computers and other electronics on a number of environmental criteria, including product longevity and life cycle extension.

References to Public Comments Specific to 1.3 Source Reduce Personal Computers (see Appendix D)

Morris, Douglas R., Waste Management Director, Crow Wing County – Comment Re: Strategy 1.3: p. 47

Strategy Description/Recommendation

The Public Utilities Commission (PUC) should modify or repeal its rule requiring directory delivery (see barriers below).

Enact H.F. 170 establishing mandatory opt-out systems for telephone directories.

Background Information

Residents and businesses in Minnesota annually receive phone books (the industry refers to them as telephone directories). In the metro area multiple companies deliver phone books whether or not residents and businesses request them. The MPCA estimates that 13,000 tons of phone books were distributed in Minnesota in 2006 - nearly 13 pounds per household.

Telephone directories were banned from disposal in municipal solid waste (MSW) in Minnesota in 1992. Under the state law, publishers of telephone directories are subject to the following:

- Provide for the collection and delivery to a recycler of waste telephone directories.
- Inform recipients of directories of the collection system.

Telephone directory publishers used to site dumpsters in grocery store parking lots to collect out-dated phone books. As processing capacity for phone books developed at materials recovery facilities, recycling haulers began offering curbside collection of phone books. Now metro area telephone directory publishers no longer provide drop off dumpsters for old phone books. Instead they inform residential recipients to put out-dated phone books in their curbside recycling.

Despite the increased convenience of curbside collection, Minnesota's 2006 recycling rate for telephone directories was estimated at just 11%, down from 35% in 2003.

Based on 2006 estimates for recycling, 11,538 tons of phone books were discarded as municipal solid waste in Minnesota. A 2007 waste composition study at the Hennepin Energy Resource Center (HERC) found that telephone books constituted 3.8% of the waste delivered to the facility.

It appears that telephone directory publishers are not fulfilling the intent of the disposal ban, which would shift responsibility to phone book companies to manage out-dated phone books and to keep phone books out of the waste stream.

More Books

Additional companies have entered the telephone directory market in Minnesota in the past two decades. While there used to be only the local phone company's book new companies such as Yellowbook, Verizon, Frontier and at least 40 other companies are distributing telephone directories in Minnesota. Many metro area residents receive phone books from multiple competing companies.

Voluntary Efforts

The Product Stewardship Institute (PSI) worked with the Yellow Pages Association (YPA) and Association of Directory Publishers (ADP) from 2006 to 2008. PSI developed a Final Product Stewardship Action Plan for Phone Books. Meanwhile the two major industry trade associations

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issued Joint Environmental Guidelines that included a voluntary pledge by individual publishers to address key issues. PSI found that the voluntary guidelines were too general and “believes that the policy presented did not include the details that were expected, and believes that the spirit of collaboration is not being honored.” While PSI remains open to working with the YPA and ADP, no additional collaboration has occurred.

Opt-Out

Several states including Minnesota have discussed legislation to create opt-out systems for telephone directories. With an opt-out system publishers would be required to allow residents and businesses to decline delivery of directories, and publishers would be required to publicize that system.

Only 12 of 43 providers surveyed by the MPCA in 2008 said they have an opt-out option for residents and businesses that don't want directories delivered to them. Each company has its own program. Qwest has a website and phone number residents can use to decline delivery (or order additional books), while others only have phone numbers for residents to use. Such phone numbers often lead callers to a voice mail system with multiple options many of which are unrelated to directory delivery.

In the 2009 legislative session Representative Gardner introduced H.F. 170, which would require telephone directory publishers to offer an opt-out system for their directories, and that those systems would have to be advertised on the outside front cover of each directory.

Measurement Method

- Number of residents who opt out
- Tons of phone books collected by recyclers
- Tons of phone books disposed of at recovery facilities

Goals/Timeframe/Mileposts

Enact in 2010, implement within 12 months. Source reduce phone books by 10%.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

- Source reduce phone books by 10% overall.
- Gradual, starting in 2011, reaching 10% by 2025.

Potential Implementation Parties

Telephone directory publishers, MPCA, Department of Commerce.

Costs

Add to current customer service programs of publishers to include tracking system if not already established.

Barriers/Issues

PUC order requires phone book distribution:

In its December 2, 1996 ORDER RESOLVING ARBITRATION ISSUES in the Consolidated Arbitration Case, at page 59:

Directory distribution. The Commission finds that US WEST must facilitate the distribution by US WEST Direct of one white and one yellow pages directory to every telephone subscriber within the geographic area covered by the directory.

Opposed by telephone directory publishers.

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General Comments

Ideally it would be nice to have a central clearinghouse of telephone directories so people could opt out of books at one site.

References to Public Comments Specific to 1.5 Source Reduce Phone Books (see Appendix D)

Healy, Amy P., Director, Public Policy, Yellow Pages Association – Comment Re: Strategy 1.5: p. 19; Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall Comment/Comments to Multiple Strategies: p. 34; Morris, Douglas R., Waste Management Director, Crow Wing County – Comment Re: Strategy 1.5: p. 47; Muller, Alan, Minneapolis Neighbors for Clean Air/Neighbors Against the Burner – Overall Comment/Comments to Multiple Strategies: p. 50; Pratt, Tim, Association of Recycling Managers – Overall Comment/Comments to Multiple Strategies: p. 60; Rondano, Annette, St. Paul small business owner/Minneapolis CEAC member since 2009 – Overall Comment/Comments to Multiple Strategies: p. 64; Young, Randy, President/CEO, Minnesota Telecom Alliance – Comment Re: Strategy 1.5: p. 70

1.6 Source Reduce Cardboard

Strategy Description/Recommendation

Source reduce cardboard (OCC) – State/local government and manufacturing industry initiative to promote reusable containers versus cardboard boxes and the packaging goals set forth in 115A.5501 and 115A.5502. This change in packaging has been shown to be cost effective in certain manufacturing and distribution systems. This has ranged from reuse of cardboard containers with snack food distribution to pizza packaging to creating durable packages for high-tech manufactured goods.

Measurement Method

Number of manufacturers adopting new reusable transport packaging in Minnesota.
Waste composition studies & SCORE numbers.
Identify container manufacturers and obtain customer information.

Goals/Timeframe/Mileposts

By 2012: OCC reduced by 10%; Continue to 2025

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled – MPCA assumes negligible reduction in corrugated cardboard from implementing this strategy.

Potential Implementation Parties

Minnesota manufacturing companies, packaging design firms, MPCA, grocery stores and other retailers, State Legislature, general public.

Costs

Unknown costs due the variation in packaging development costs and package types. Container costs and shipping would be the responsibility of the businesses as they are now. If funding were available, then MPCA and Minnesota Waste Wise could coordinate staff, manufacturers, and contractor funding (\$75,000 or 1 FTE).

Funding Mechanisms

State funding and manufacturers or retailers could potentially purchase containers with funds saved by avoided disposal and corrugated replacement costs.

Barriers/Issues

Retailers get little return on investment of time for deposit-trade-in program if offered to general public.

Opportunities

Some large businesses (Target and others) are already doing this and are having success.

References to Public Comments Specific to 1.6 Source Reduce Cardboard (see Appendix D)

Minnesota Solid Waste Administrators Association 2010 Policy Platform: p. 73

Strategy Description/Recommendation

Increase promotion of existing junk mail opt-out services and/or invest in technical assistance staff to help people navigate the opt-out system.

Background Information

Unwanted mail shipped in the U.S. was close to 6,000,000 tons (based on EPA waste sort) in 2007. That is over 40% of the paper generated by weight. Recycling of unwanted mail has risen but there were still over 3,500,000 tons thrown away in 2007. This quantity could be reduced by improving the national voluntary opt-out system that the DMA currently runs and by promoting these services to people so they know that they are out there.

Currently, there is a system in place to get rid of unwanted mail. The current system requires people to create an account, then log in to their account and select the mailers that they wish to receive or not receive in the future.

There are some problems with the existing system. The opt-out system changes often, which makes it hard for customers to opt out and some of the services do not provide customers the option to opt out for life. Some of the systems ask for personal information that people are not willing to give to a third party, such as a social security number. If industry would be willing to work on changing the system so it is more consistent (doesn't change except for necessary changes and upgrades), allows people to opt out for life, and doesn't require certain personal information, it would be more customer friendly and more people would be able to use it.

Promotion of these opt-out services is not widely publicized either, so spending money on promoting the services and some money to help people navigate through the system (as technical assistance or staff time) would help more people to opt out.

Measurement Method

Waste composition study, number of pieces of information used, DMA reports the number of people that have opted out in Minnesota.

Goals/Timeframe/Mileposts

2013; Source reduce magazines, third class mail by 10%

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Source reduce third class mail, magazines 10% overall.

Gradual, starting in 2013 and reaching full 10% by 2025.

Potential Implementation Parties

Counties and residents of Minnesota, non-profits, for-profit opt-out companies, DMA, financial institutions.

Costs

Money would be needed to publicize the options available and to create educational material.

Funding Mechanisms

Solid Waste fees, additional (new) SCORE funds, product stewardship initiative and mass mailers pay.

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Barriers/Issues

Implementation, compliance, there isn't any consistency in the DMA program because it changes frequently, making it difficult for customers to opt out. Needs to be more customer friendly.

Opportunities

Waste reduction, saves trees, saves time, resources are not wasted on people that do not want the mail in the first place.

General Comments

Support/publicize existing national opt-out registry and/or design parallel state initiative, and add option for lifetime opt-out option versus existing 5-year timeframe.

References to Public Comments Specific to 1.7 Source Reduce Junk Mail (see Appendix D)

Pratt, Tim, Association of Recycling Managers – Overall Comment/Comments to Multiple Strategies: p. 60; Rondano, Annette, St. Paul small business owner/Minneapolis CEAC member since 2009 – Overall Comment/Comments to Multiple Strategies: p. 64

Strategy Description/Recommendation

Start with improving government office paper reduction and promoting it to businesses and the public.

MPCA initiate a “Green Office Challenge,” similar to what Chicago is doing in partnership with ICLEI, that will spur governments and businesses to save energy, increase recycling and water efficiency and reduce waste: <http://www.chicagogreenofficechallenge.org/>

Strategies related to office paper reduction include:

- Reduce your paper piles: Find out how much copier/printer paper your office uses and establish milestones to reduce paper use.
- Conserve paper: Use both sides! Use double sided copying and printing as default on all capable machines and instruct staff with clear signage on usage.
- Think before you print: Circulate documents electronically instead of using paper-based memos or fax. Include this in your office policy.

Have state agencies participate in the Challenge, which can be done through a Governor’s Executive Order. MPCA has developed the Office Paper Reduction Toolkit which could be a resource used in the Challenge.

Request that the Department of Administration clarify rules on use of electronic signatures and on electronic storage so that documents can be generated and stored electronically.

Promote State Auditor’s ruling that bids, RFP and RFI may be solicited via websites rather than published sources. Ask the Auditor’s office for clarification on allowing bids to be submitted on electronic storage devices rather than on paper.

Fully fund the Green Step Cities program of the MPCA, which promotes cities that are reducing GHG reductions through various methods including waste reduction.

Provide technical assistance to businesses to work with them on reducing office paper. Work on setting up an in-house staff team at each unit of government or business including information technology staff to provide on-going changes in the areas of: default margins, printer and copier defaults, pop-ups for print previews, etc.

Background Information

The United States alone, which has less than 5% of the world’s population, consumes 30% of the world’s paper. One reason may be that the average office worker uses 10,000 sheets of copy paper each year. The entire lifecycle of office paper consumes significant energy and other resources. That’s why source reduction of office paper has the fifth highest value in terms of greenhouse gas emissions reduction according to the WARM model (-8.01 MTCO_{2e} per ton).

Governments and businesses can save money and reduce greenhouse gas emissions through source reduction of office paper. For instance, Bank of America cut its paper consumption by 25% in two years by increasing the use of online forms and reports, e-mail, double-sided copying, and lighter-weight paper. Minneapolis saved \$2,000 this year by posting its 654-page budget book online. It still printed 144 copies, but that’s 80 fewer than last year. And it plans to

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print only 44 copies next year, said spokesman Matt Lindstrom (“Laptops helping local governments conserve,” Star Tribune 10/05/2009).

Measurement Method

Individual baselines must be established at each organization most likely done through purchasing records.

Goals/Timeframe/Mileposts

Promotion can begin in 2010, must be on-going.

Implement resource management contracting for waste services as existing contracts expire.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Source reduce office paper 10% overall.

Gradual, starting in 2010 and reaching full 10% by 2025.

Potential Implementation Parties

MPCA, local units of government, League of Minnesota Cities, businesses.

Costs

Program promotion, technical assistance.

Funding Mechanisms

MPCA funding

Barriers/Issues

Time, staffing constraints, behavior changes.

Opportunities

Government leads by example, cost savings for implementing parties.

1.9 Awards Program for Source Reduction

Strategy Description/Recommendation

Institute an awards program honoring exceptional examples of source reduction to inspire others to also incorporate source reduction into their business practices. The awards program would need to have a ceremony that publicizes the projects so others would see, learn about and replicate the award winning projects.

The award program could also be used as an incentive to motivate businesses to move towards source reduction. For instance in Florida, they have a program called Green Lodging. Green Lodging awardees are provided technical assistance on how to become Green Lodging certified, are promoted and Florida employees are required to stay at Green Lodges when traveling.

Wisconsin also has a program called Green Tier. Green Tier is based on a collaborative system of contracts and charters crafted jointly by participating businesses and the DNR. These contracts and charters streamline environmental requirements in many cases and encourage new environmental technologies. Green Tier is designed to help environmentally responsible companies achieve environmental and economic gains.

<http://dnr.wi.gov/org/caer/cea/environmental/>

This Awards Program could be started right away and incorporated into the existing Governor's Awards Program or MEI Awards Program.

Measurement Method

Each applicant submitting a source reduction project for consideration would be required to provide measurements of their source reduction and what they estimate will happen in the future. Each applicant would be asked to report any other organizations that inquire and replicate award-winning projects.

Goals/Timeframe/Mileposts

Immediate and ongoing.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - program is for overall source/waste reduction, and is not material-specific. Since there is no general reduction category in WARM, this strategy could not be modeled.

Potential Implementation Parties

MPCA, MEI

Costs

A ceremony that assures recognition requires some money to be spent on presentations, a master of ceremonies, etc. A ceremony that would be well attended, showcases the projects and honors the award winners could be done for between \$10,000 and \$30,000.

Funding Mechanisms

Partnerships could be pursued with Chambers of Commerce or other large corporations, but it would have to be a sponsorship and a third party that would award the winners so the judging would be unbiased. Another funding option could be to work with MPCA's Governor's Award Program or MEI's Environmental Initiative Awards Program.

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Barriers/Issues

If the ceremony is not well attended organizations won't be inspired to work on similar projects. There might not be enough applicants. Consistent funding could be hard to get. Watching award winning projects might not translate into others doing similar projects.

Opportunities

There are already existing award programs to partner with. Many organizations are doing environmental projects and this is a good way to showcase them.

General Comments

There are two award programs that currently exist and it seems like it would make more sense to partner or change the existing programs instead of create an entirely new program. The other two award programs mentioned from Florida and Wisconsin could be added to the existing programs to make an existing award program even better.

References to Public Comments Specific to 1.9 Awards Program for Source Reduction (see Appendix D)

Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall Comment/Comments to Multiple Strategies: p. 34

1.10 Food Waste Reduction Campaign

Strategy Description/Recommendation

Educate generators of food waste about food waste issues and reduction measures including food planning, portion advice, date label advice, money savings, recipes, tips, and food storage.

Coordinate with public health staff developing proposals for Statewide Health Improvement Program (SHIP) funding to reduce “waist” and “waste.” The portion control aspect of the prevention program would serve to minimize the size of people and the amount of food waste entering the municipal solid waste stream – either through organics collection programs or trash collection programs.

Measurement Method

Point source waste generation numbers.

Goals/Timeframe/Mileposts

SHIP application deadlines

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - Food cannot be source reduced in WARM (there is no food category for source reduction in WARM).

Potential Implementation Parties

Government, residents, service providers, non profits, Saint Paul – Ramsey County Department of Public Health (Healthy Communities and Environmental Health Sections), others.

Costs

Unknown

Funding Mechanisms

The SHIP funding may include opportunities for portion control, obesity prevention and calorie labeling.

Barriers/Issues

Hard to measure

Opportunities

Source reduction of food waste is the cheapest, most effective strategy to reduce waste and carbon emissions associated with food waste. Saves consumer money in purchases and disposal costs.

Approximately 20% of world’s climate change emissions are related to production, processing, transportation and storage of food. Opportunity to partner with health-related organizations. Build upon research findings from food-to-hogs and plate waste reduction through R/W RRP and research findings on obesity prevention programs.

General Comments

This joint approach to sharing information would be new in Minnesota and may hold strong local appeal.

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1.13 Expand Technical Assistance for Source Reduction

Strategy Description/Recommendation

1. Significantly increase the number of RETAP engineers working on source reduction at organizations.
2. Develop and expand specific sectors that MnTAP staff work with on Pollution Prevention (P2).
 - Provide resources such as money
 - Make organizations accountable for numbers
 - Perception and accessibility are important
3. Technical assistance delivered through numerous partners.
 - Small business programs, Minnesota Waste Wise, business associations, extension services, vendors (procurement), and non-profits
 - Provide resources such as money to work on source reduction
 - Make organizations accountable for numbers
 - Perception and accessibility are important
 - Can't increase technical assistance efforts without additional resources

Partner with other organizations that already have access to work with companies on other issues and then work with them or train them to provide technical assistance on waste reduction.

Many organizations have stated that they would like to be more “green” but do not know how. Technical assistance helps organizations, both small and large, to set up P2 implementation at their organization. P2 assistance could also help out with resource management (RM) contracts at larger urban businesses.

In 2006-07 P2 and technical assistance helped save the following:

Program	Waste reduced (tons)	Waste reused (tons)	Water conserved (gallons)	GHG emissions avoided	Energy conserved	Cost savings
Governor's Awards Program	1,115	36,950	25.3 billion	14,465 MTCE	1.5 million kWh 9.2 million KBTU 250 million gallons of fuel	\$522.8 million
Minnesota Technical Assistance Program	2,825	5,500	0.2 billion	3,163 MTCE	18,468,200 kWh 402,600 BTU	\$4.78 million
Waste Wise	335	125	NA	175 MTCE	NA	\$2.9 million
Total	4,275	42,575	25.5 billion	17,803 MTCE	20 million kWh 9.6 million KBTU 250 gallons of fuel	\$530 million

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Expanding P2 assistance helps with reduction, recycling and potentially composting.

Measurement Method

Analysis of trash bills before and after recommendations are implemented, the amount of waste leaving the organization, any savings from P2 (including procurement savings).

Goals/Timeframe/Mileposts

Minimum of ten years with milestones starting annually in year two. For new technical assistance programs outside of MnTAP, RETAP and Waste Wise, the initial stage would be creating a partnership. The next stage would be training staff from partnering organizations on waste reduction and having MPCA staff go into businesses to work on waste reduction. The program would take a while to start and gain momentum.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - reduction in waste is reported for general waste, not material-specific. Since there is no general reduction category in WARM, this strategy could not be modeled.

Potential Implementation Parties

RETAP, MPCA, local units of government, businesses and potentially LEAN consultants, non-profits, small business assistance programs, business associations, extensions services, vendors (procurement) and businesses.

Costs

Salaries, travel and training, potentially money for vouchers that could be paid back as loans (money would be used towards implementing projects with quick paybacks when organizations do not have the initial capital to invest).

Funding Mechanisms

Potentially state money or from fees assessed to businesses for services.

Barriers/Issues

Sustaining the program – how does it continue, diversity of sectors, diversity of cultures and languages, perceived government interference, trash billing, annual budgets.

Opportunities

Build on existing technical experience, outside help from non-government entities, and partnerships.

General Comments

The existing RETAP, MnTAP employees could work in the metro centroid area and new employees could be hired to work in other centroid areas.

References to Public Comments Specific to 1.13 Expand Technical Assistance for Source Reduction (see Appendix D)

Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall Comment/Comments to Multiple Strategies: p. 34

2.0 RECYCLING STRATEGIES

2.2 Commercial and Institutional Recycling

Strategy Description/Recommendation

Extend opportunity to recycle to non-residential sectors by developing recycling requirements for public entities and businesses. Implement public space recycling requirements for all commercial, institutional, and park facilities requiring recycling containers wherever there is a trash container.

Create new ordinances that require the opportunity to recycle at commercial entities (e.g., all business entities that contract for 16 cubic yards or greater per week of garbage collection service must separate corrugated cardboard and office paper for recycling and provide for the collection of these materials). Provide communications and assistance to commercial and institutional entities.

The state and local governments will need to play a key role in partnering with organizations that provide services to businesses including waste reduction. Businesses are wary of governmental programs and regulations and need to understand how waste reduction programs can benefit their bottom line.

Measurement Method

Include institutional and commercial sectors in SCORE reporting.

Goals/Timeframe/Mileposts

50% by 2015, 60% by 2025

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

4% increase in recycling of cardboard, office paper, other typical commercial recyclables. Gradual, starting in 2011 through 2015, then maintain to 2025.

Potential Implementation Parties

MN Legislature, MPCA, MN Department of Commerce, Department of Education, regional/local governments (counties, economic development agencies, cities and townships), private sector, non-profits, private haulers, end markets.

Funding Mechanisms

SCORE Funds, permit and licensing fees.

Barriers/Issues

- Lack of enforcement.
- Adequate funding for implementation and education about requirements and goals.
- There is an inherent motivational and educational problem for local units of government to understand county goals and have the desire to meet them.
- Need for significant technical support to provide assistance in program establishment in all applicable locations.
- Increased financial burden on strapped school systems.

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Opportunities

- MPCA should promote and facilitate the use of resource management contracts
- This could lead to the use of more resource management contracts.
- Develop Public/Private partnerships to promote recycling through the expansion of programs such as ReTap, Waste Wise, and CERTS.
- Develop strong small business recycling programs.
- Encourage/incentivize company sustainability plans.
- Enhance value for end markets through increased participation.
- Opportunities for private business partnership/sponsorships with schools.
- Create a simple template planning tool for schools, other entities.
- Increase technical assistance to entities.

References to Public Comments Specific to 2.2 Commercial and Institutional Recycling (see Appendix D)

Curry, John, Policy Director, Audubon Minnesota – Overall Comment/Comments to Multiple Strategies: p. 13

2.4 Incentives for Residential Recycling

Strategy Description/Recommendation

Incentives for residential recycling, disincentives not to recycle.

This strategy encompasses incentives that motivate residents to recycle. Incentives would be provided by local units of government and/or haulers. Potential incentive programs include:

1. Awards programs: Cities/counties offer prizes for residents who recycle
2. Recycling Rebates: Residents participating in curbside recycling programs receive a rebate on their annual garbage bill or other incentives.
3. Community Competition/Peer Pressure: This concept is new to solid waste management, but has been used in the energy sector. This program would provide residents with information on their garbage-to-recycling ratio and indicate how his/her household is doing relative to other households in the neighborhood. In the energy sector, this approach has led to positive behavior change.
4. Revenue sharing to communities within city contracts.
5. Expanded redemption centers for aluminum recovery.

Measurement Method

SCORE

Goals/Timeframe/Mileposts

Increase recycling to 60% by 2014 (curbside recyclables plus LDPE, Mixed Metals, Mixed Paper, Mixed Plastics, Mixed Recyclables, Personal Computers).

Gradual increase from 2009 to 2014.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

5% increase in recycling of curbside recyclables.

Initial bump in 2012, then maintain through 2025.

Potential Implementation Parties

Haulers, local governments (cities and counties)

Costs

Incurred by haulers and/or local governments; relatively low increased net cost

Funding Mechanisms

SCORE funding, generator

Barriers/Issues

Centroids with high existing recycling rates may not see much of an impact, recycling markets, non-recyclable materials.

Opportunities

Partnerships between hauling community and local units of government, direct engagement of residents.

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References to Public Comments Specific to 2.4 Incentives for Residential Recycling (see Appendix D)

Curry, John, Policy Director, Audubon Minnesota – Overall Comment/Comments to Multiple Strategies: p. 13

Strategy Description/Recommendation

Support state development of improving utilization of existing or new recyclable materials for end product use within the local or regional infrastructure. This would include both final end use and processing technology to enhance or meet demand for recyclables. MPCA should commit to review and evaluate past end market development initiatives to identify successes and failures of past programs.

Measurement Method

Increase in demand capacity.
Commodity value sustainability or improvement.

Goals/Timeframe/Mileposts

Invigorate State recycled materials market development program by 2012. Increase recycling rates of non-traditional recyclables: plastics #3-7, glass, Styrofoam, all waste types.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

< 1% increase in overall recycling. LDPE up by 15%, PET up by 5%, mixed plastic up by 6.4%, mixed MSW up by 5%.
Gradual, starting in 2014.

Potential Implementation Parties

Government, private sector and non-profit organizations.

Costs

TBD: \$500,000 increase over past state market development cost per year.

Funding Mechanisms

Planning and promoting existing state and local resources, secure existing SCORE funding that has been diverted from its original intent, State grants/loans.

Barriers/Issues

Collection infrastructure, funding, resources, State support, lack of demand or supply, quality of recycled material.

Opportunities

A specific opportunity to develop end markets exists for currently hard to recycle materials in the waste stream (e.g., plastics #3-7, mattresses, e-waste, carpets, phone books, etc.). One approach to develop end markets for these materials would be to subsidize the development of new end markets for locally sourced hard to recycle materials in the waste stream. Such a statute could be implemented by the MPCA for additional problematic materials as appropriate, especially plastics #3-7, or materials made from recycled e-waste, mattresses, or carpets.

Increased recycling of non-traditional materials, reduction of natural resources, public and private partnerships.

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General Comments

There are several tactical approaches to end market development:

- Providing resources (financial – grants/loans or technical assistance) to potential partners in developing increased end market opportunities.
- Assist in driving product stewardship within the scope of creating market demand.

Any economic development initiative that supports markets for recycled material will support Minnesota's green jobs initiatives.

References to Public Comments Specific to 2.5 Develop End Markets (see Appendix D)

Curry, John, Policy Director, Audubon Minnesota – Overall Comment/Comments to Multiple Strategies: p. 13; Pratt, Tim, Association of Recycling Managers – Overall Comment/Comments to Multiple Strategies: p. 60

2.8 Increase Reduction and Recycling Education

Strategy Description/Recommendation

This strategy emphasizes partnerships in education between public and private entities and could include the use of existing programs and resources, as well as the development of new tools. One existing campaign that could be used to implement this strategy is Recycle More Minnesota (RMM). RMM is an MPCA campaign focused on providing tools and resources to assist local governments in promoting recycling. Last year, Curbside Value Partnership (CVP) conducted a study examining the impacts of increasing recycling education and marketing in two Minnesota regions. Results from this study indicated an initial 11% increase in recycling rates following the education and marketing campaign.

This strategy should include partnerships between counties on educating Minnesotans on source reduction as well as recycling. The MPCA has readily available tools to promote source reduction on the following topics: junk mail, office paper, reusable shopping bags, generic waste reduction, the Governor's Awards Program and a few other topics. When the MPCA ran a previous junk mail campaign reduction there was a large increase in the number of Minnesotans that registered with the Direct Marketing Association to get their names removed from lists. Future reduction topic areas for education could include tap water vs. bottled water, extending the life span of your computer, and the reduction of food waste.

Measurement Method

SCORE

Goals/Timeframe/Mileposts

Gradual increase in recycling of typical curbside recyclables until 2025.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

5% increase in recycling of curbside recyclables by 2025.

Gradual, starting in 2014 and reaching full 5% by 2025. (MPCA assumed that the individual source reduction strategies would account for any source reduction that would be gained via this strategy.)

Potential Implementation Parties

MPCA, Department of Education, local governments, schools, non-profits, haulers, neighborhood groups, Department of Health, businesses.

Costs

Funding for outreach campaigns (materials, distribution, etc.), salaries for local government staff, education about awarded projects.

Funding Mechanisms

SCORE funds, solid waste fees

Barriers/Issues

Behavioral change, measuring behavioral change and impact on solid waste volumes and composition, staffing, adequate funding for expanded education efforts.

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Opportunities

Reach different/new populations; could target K-12 students; increase educational efforts by the state; increase cooperation between public, private, and institutional entities.

General Comments

Might be difficult to measure the impact.

References to Public Comments Specific to 2.8 Increase Reduction and Recycling Education (see Appendix D)

Curry, John, Policy Director, Audubon Minnesota – Overall Comment/Comments to Multiple Strategies: p. 13; Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall Comment/Comments to Multiple Strategies: p. 34

2.10 Increase Mattress Recycling

Strategy Description/Recommendation

Increase mattress recycling through establishing convenient drop-off programs for residents, mattress retailers, the hospitality industry, universities and other government institutions at recycling centers, transfer stations, landfills and other public places.

Measurement Method

SCORE

Goals/Timeframe/Mileposts

Metro, Rochester, St. Cloud and Duluth Centroids mattress recycling rate increases to 35% by 2012 and 50% by 2025.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

N/A – cannot be modeled because there is no mattress material category in WARM.

Potential Implementation Parties

Not-for-profit organizations, local units of government, mattress retailers, hospitality industry and institutions such as universities and prisons.

Costs

One processing facility (1,500 – 2,000 sq. ft.) per centroid. Equipment costs per facility estimated at \$250,000 each. Not-for-profit labor cost between \$7.00 - \$14.00 per hour for mattress deconstruction and processing. Drop-off site collection equipment (used 48' trailer or modified Sea Van container) \$10,000 per site assuming existing recycling center, transfer station or landfill site to be used. Transportation cost estimated at approximately \$10,000/year for twice/month delivery from drop-off sites to processing center. More information needed as distances vary.

Funding Mechanisms

Capital investments and grants for processing and collection infrastructure, market development grants, retail fee placed on the sale of new mattresses and box springs.

Barriers/Issues

Lack of end markets for cotton and shoddy materials and the research and development funds needed to develop value added or new products. Funding to acquire special baling equipment for spring steel. No financial commitment from the mattress manufacturing industry or International Sleep Products Association (ISPA) in providing assistance in meeting these needs. A lifecycle analysis is needed on mattresses and box springs.

Opportunities

The Natural Resources Research Institute (NRRI) at the University of Minnesota – Duluth has and is actively working with regional industries in Duluth and the metro area testing the use of mattress cotton in the production of industrial wipes and various filtration mediums for storm water applications. Matt Inc. in Floodwood, MN is now using mattress cotton from the Goodwill Industries Mattress Processing Facility in the production of oil filters for diesel locomotives. Considerable landfill space savings by removing mattresses due to non-compactive

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nature. Testing and ultimately displacing the use of virgin materials with used mattress textiles within regional industries leading to program sustainability.

General Comments

Despite the challenges, mattress recycling, through Goodwill Industries in Duluth, has been in existence for over five years serving, 14 collection sites in 10 counties in Minnesota and Wisconsin. In June 2008, PPL Industries and Hennepin County established the first metro area mattress recycling program. Very feasible to implement in other areas provided partnerships are developed between non-profit, public and private agencies, funding is provided to establish processing and collection infrastructure, and differential tipping fees are put into place at disposal sites.

2.13 Support State Procurement Standards that Favor Products with Recycled Content

Strategy Description/Recommendation

Institute state procurement standards (which could extend to funds granted to other entities) that favor products with recycled content to include specific materials where local markets and products need to be supported:

“Whenever a comparable product with post-consumer recycled content is available which is within 10% of the price of a similar product without such recycled content, the state entity shall purchase the product with post-consumer recycled content. Higher percentages of recycled content shall be favored over those with lower percentages.”

Whenever such a selection is made under this statute, the fact that the recycled product was selected and the cost differential between that product and the less-preferred alternative shall be reported to the Office of Management and Budget.

Such a statute could be overarching, to be “blinked on” via administrative order of the MPCA for new products and markets as appropriate, for example to support recycling of all plastics (especially #3-7) and other problematic materials such as materials made from recycled e-waste, mattresses, or carpets.

Measurement Method

Mandatory reporting

Goals/Timeframe/Mileposts

Immediate and ongoing. Growth and development of recycling markets for hard-to-recycle products targeted under the orders (i.e., Plastics #3-7, mattresses, e-waste, carpets, phone books, etc.).

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - no data exists on how purchasing practices actually relate to recycling rates (basically impacts end markets).

Potential Implementation Parties

MPCA, State of Minnesota, and entities that receive state funds

Costs

Maximum 10% of materials budgets for selected items within state procurement budgets, less value of local recycling markets (jobs, tax revenue, support for waste management goals for targeted materials).

Funding Mechanisms

Existing state appropriations

Barriers/Issues

Need to pass a statute; current fiscal tightness.

Opportunities

Plastics #3-7, mattresses, e-waste, carpets, phone books, etc.

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References to Public Comments Specific to 2.13 Support State Procurement Standards that Favor Products with Recycled Content (see Appendix D)

Kleinschmit, Jim, Institute for Agriculture and Trade Policy – Comment Re: Strategy 2.13: p. 32;
Pratt, Tim, Association of Recycling Managers – Overall Comment/Comments to Multiple Strategies: p. 60

2.14 Increase Carpet Recycling through Producer Responsibility

Strategy Description/Recommendation

Carpet should be subject to producer responsibility. An agreement should be reached (if possible) with the industry as to how to implement producer responsibility for mandatory take-back of carpet for recycling by 2015.

Removal of carpet pre-demolition should also be part of this approach. Starting in 2010, MPCA should begin meeting with contractors, building owners and other stakeholders to develop a plan for capture and recycling of carpet waste prior to demolition/renovation projects and by 2015, MPCA should, in partnership with contractors, enact strategies to capture and recycle carpet waste prior to demolition/renovation projects.

Background Information

Carpet is an ideal “source-separated” removal from the waste stream. Nearly all carpet is isolated from the waste stream by installers before it is mixed in at WTE, landfills and/or transfer stations. Carpet occupies increasingly scarce landfill space, leaving costly voids; it is difficult to handle at RDF and other WTE facilities. A voluntary, education and incentive-based agreement (the federal CARE Agreement) is not even close to achieving its goal of 40% recycling by 2012. Carpet is an ideal product for producer responsibility, reinforced with a disposal ban.

Measurement Method

Waste survey measurements versus reported recycling from SCORE or direct from reusers.

Goals/Timeframe/Mileposts

Increase carpet recycling through producer responsibility.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Carpet recycling at 40% by 2015; 75% by 2025

Potential Implementation Parties

MPCA, carpet manufacturers, carpet retailers, installers, haulers, recycling facilities, building owners/general public/generators.

Costs

TBD - based on reuse/recycling strategies employed by industry.

Funding Mechanisms

Per-square-yard disposal fee assessed at time of purchase of carpet, based on program expenditures.

Barriers/Issues

Limited end markets, haul distances/transportation costs, storage costs.

Opportunities

More efficient management of bulky materials; preserving scarce landfill space, improving WTE handling; removing high greenhouse gas generating material from waste stream.

Brotex is located in St. Paul, MN.

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General Comments

With large supply of waste carpet, raw material costs will be low for recyclers, supporting existing and perhaps new re-users. Presently, retailers who have sufficient quantities are recycling because they can reduce disposal costs.

Producer responsibility, product fee and requirement that installers/retailers take back carpet for recycling.

Market development is needed.

Implementation mechanism is product stewardship approach.

References to Public Comments Specific to 2.14 Increase Carpet Recycling through Producer Responsibility (see Appendix D)

Buckley, Jean, City of Bloomington – Overall Comment/Comments to Multiple Strategies: p. 12;

Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall

Comment/Comments to Multiple Strategies: p. 34; Lange, Nancy, Izaak Walton League of America

– Overall Comment/Comments to Multiple Strategies: p. 39; Pratt, Tim, Association of Recycling

Managers – Overall Comment/Comments to Multiple Strategies: p. 60

6.0 OTHER SUPPORTING STRATEGIES

6.3 SCORE Funding Mechanism Repair and Enhancement

Strategy Description/Recommendation

Step 1. Revise SWMT allocation to direct specific percentage of tax revenues for SCORE pass-through grants to counties.

Expected Results if Growth of SWMT is Divided According to Current Allocation Formula:

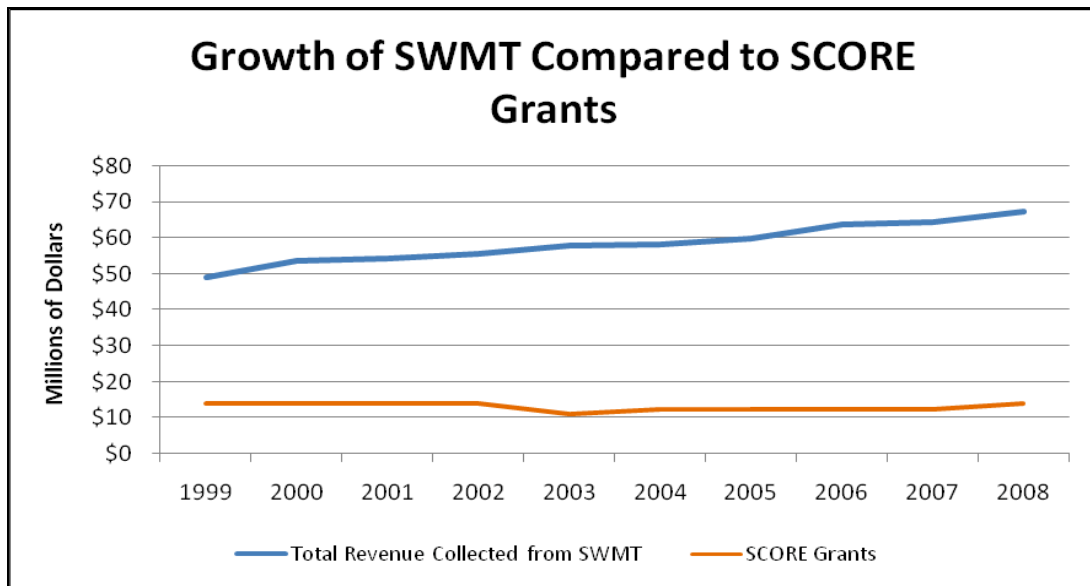
Fiscal Year	SWMT Revenue	State General Fund	Environmental Fund	Base Funding for SCORE Grants
FY10	\$ 69.3	\$ 20.8	\$ 48.5	\$ 14.5
FY11	\$ 71.5	\$ 21.5	\$ 50.0	\$ 15.0

Step 2. Revise SWMT allocation to original intent of SCORE by directing all SWMT revenue to fund solid waste-related programs, incentives, and infrastructure.

Background Information

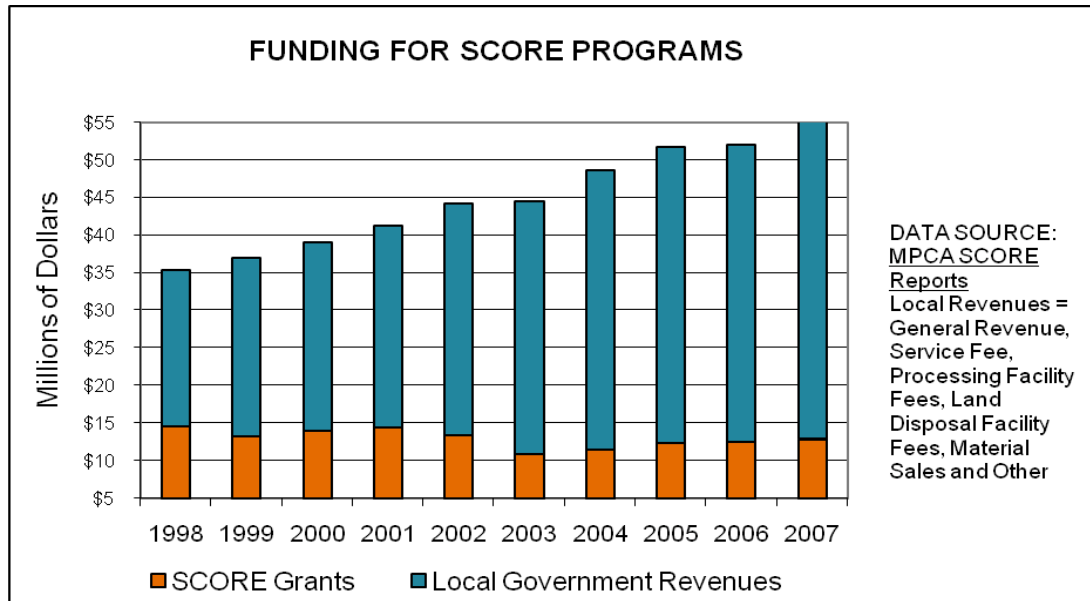
The 1989 Select Committee on Recycling and the Environment Legislation (SCORE) established a tax to pay for services needed to meet new statewide recycling goals. The SCORE Tax was modified in 1996 to become the Solid Waste Management Tax (SWMT). Today, businesses and institutions in Minnesota pay a 17% tax on their garbage bill and residents pay a 9.75% tax. In 2008, the tax raised about \$67 million.

By legislative action, 70% of the SWMT is dedicated to Minnesota Pollution Control Agency’s Environmental Fund and 30% stays in the state’s general fund. In fiscal year 2008, the Environmental Fund received \$47 million in SWMT revenue. In turn, the MPCA allocated \$14 million in SCORE Grants to Counties to provide recycling and other waste abatement services. \$14 million is the same amount that was allocated in 1999 (see chart below).



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Ever since SCORE passed in 1989, the relative percentage of funding directed to solid waste purposes has decreased, save for a minor increase in funding in 2009. As a result, counties and cities have had to make up for an ever-increasing funding deficit. This has led to reluctance to take on new programs and even reluctance to fund existing programs. Increasing SCORE funding will lead to increased reduction and recycling.



In 1991, the counties received \$15,550,000 in SCORE grants and that gave us \$9.30 per household to manage our programs. Our FY 09 allocation is a third less: \$6.21 per household.

Meanwhile the size of the waste stream continues to increase and the number of homes and businesses that need information and services increases.

Measurement Method

Successful statutory revisions.

Goals/Timeframe/Mileposts

2010 Legislative Session

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - no data exists correlating increased funding with increases in source reduction/recycling/composting. Also, since there is no general reduction category in WARM, source reduction effects of this strategy could not be modeled.

Potential Implementation Parties

Minnesota State Legislature, Minnesota Pollution Control Agency (MPCA)

Costs

Step 1. Any additional revenue would come out of additional revenues coming from existing tax funding as a set percentage of revenue raised. Funding could potentially decrease if overall SWMT revenues dip below current levels; this is not expected to occur.

Step 2. Upon passage of SCORE in 1989, stated legislative intent was that funding raised would be used for solid waste management purposes. Subsequently, significant portions of funding

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raised have been diverted to non-solid waste environmental programs within the MPCA. In addition, 30% of the SWMT revenue goes to the general fund for non-solid waste or environmental purposes. Directing all SWMT revenue to solid waste purposes would leave unfunded programs in other areas.

Funding Mechanisms

Solid Waste Management Tax

Barriers/Issues

- Overall state financial situation.
- Directing all SWMT revenues to solid waste opportunities leaves “hole” in budget.
- Reluctance of legislature to direct new funding to existing efforts.

Opportunities

- Make good on commitment made to counties in 1989.
- Expand overall reduction and recycling funding pool and encourage new efforts.
- Prevent existing programs from going defunct.

References to Public Comments Specific 6.3 SCORE Funding Mechanism Repair and Enhancement (see Appendix D)

Curry, John, Policy Director, Audubon Minnesota – Overall Comment/Comments to Multiple Strategies: p. 13; Kleinschmit, Jim, Institute for Agriculture and Trade Policy – Comment Re: Strategy 6.3: p. 32; Pratt, Tim, Association of Recycling Managers – Overall Comment/Comments to Multiple Strategies: p. 60; Minnesota Solid Waste Administrators Association 2010 Policy Platform: p. 23; Association of Minnesota Counties 2009-2010 Policy Positions: p. 76

Strategy Description/Recommendation

Increase promotion of and participation in green building programs such as LEED, MN Greenstar, and B-3.

Background Information

Green building programs such as LEED, MN Greenstar, and B-3 include provisions that reward reuse of materials, use of durable materials that last longer, and use of materials with recycled content. Increased promotion of and participation in such programs will result in greater reuse, waste reduction, recycling, and utilization of materials made with recycled content.

For example, from the introduction to LEED on the U.S. Green Building Council website:

Materials & Resources

During both the construction and operations phases, buildings generate a lot of waste and use a lot of materials and resources. This credit category encourages the selection of sustainably grown, harvested, produced and transported products and materials. It promotes the reduction of waste as well as reuse and recycling, and it takes into account the reduction of waste at a product's source.

From the State of Minnesota's Sustainable Buildings Guidelines (B3-MSBG):

M.3 Waste Reduction and Management

Intent

Minimize use of resources and negative environmental impacts through careful reduction and management of wastes generated during the construction process and building occupancy.

P.2 Planning for Conservation

Maximize utilization of facilities and modify them less over time by careful analysis of needs and resources. Building less, remodeling existing facilities, and designing for flexibility lead to reductions in cost, energy, and environmental impacts of materials.

Measurement Method

Tonnages at construction and demolition (C & D) landfills, number of buildings certified by above programs.

Green building certification programs collect data on percentage of C&D waste diverted, percentage of materials with recycled content used in the project, etc.

Documentation submitted for projects may include actual pounds/tons diverted. B3-MSBG may also collect information on square footage avoided being built through planning for conservation.

Goals/Timeframe/Mileposts

Ongoing/certification mileposts.

Targets: Dimensional lumber, Fiberboard, mixed metals, carpet, clay bricks, concrete (not all potential targets can be modeled in WARM).

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - many of the material types targeted in this strategy are not modelable in WARM (categories are not included)

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Potential Implementation Parties

U.S. Green Building Council – Minnesota Chapter (USGBC-MN), National Association of the Remodeling Industry – Minnesota Chapter (NARI-MN), University of Minnesota – Center for Sustainable Building Research (CSBR) (which administers the B3 program under contract to the Departments of Administration and Commerce), Green Communities Initiative, MPCA, local governments (cities and counties), The Green Institute, League of Minnesota Cities (LMC), Association of Minnesota Counties (AMC).

Costs

Most costs would be borne by the developer or owner for the actual work.

Promotional costs would be borne by the partners including the MPCA:

- Continued sponsorship of Living Green Expo
- Continued sponsorship of the Eco Experience
- Implement Green Step Cities program

Potential incentive costs

Funding Mechanisms

Private funding, SCORE

Barriers/Issues

Can be higher up-front costs for development (not always the case).

Opportunities

- Growing desire among businesses, residents and governments to be more sustainable.
- Long-term cost savings for buildings.
- Additional GHG reductions through energy and resource conservation.
- Green building outreach is an integrated way to reach people interested in environmental behaviors and get them to make appropriate choices.
- LEED for Existing Building Operations and Maintenance requires building owners to create plans for purchasing of ongoing consumables or durable goods – an excellent entry point for resource management contracting.
- Green building actively promotes purchase of building products with recycled content.
- It encourages minimizing the amount built, and reusing or recycling the waste that is created.

General Comments

Relatively easy to implement promotions, more difficult to achieve actual implementation.

References to Public Comments Specific to 6.4 Promotion of Green Building (see Appendix D)

Buckley, Jean, City of Bloomington – Overall Comment/Comments to Multiple Strategies: p. 12; Kleinschmit, Jim, Institute for Agriculture and Trade Policy – Overall Comment/Comments to Multiple Strategies: p. 33; Lange, Nancy, Izaak Walton League of America – Overall Comment/Comments to Multiple Strategies: p. 39; Millberg, Laura, MPCA – Comment Re: Strategy 6.4: p. 41; Newmark, Richard, Citizen member, Woodbury Environmental Advisory Commission – General Comment Re: Green Building Requirements: p. 55

6.5 Increased Bonding Funding for Promotion of Green Building

Strategy Description/Recommendation

Allow bonding money recipients to qualify for up to 5% additional funding if they meet both required and recommended actions of the Minnesota Sustainable Building Guidelines (B-3 standards).

Background Information

Currently all new buildings funded by state bonding money must demonstrate that the projects meet the state's B-3 standards which include standards for: Performance Management, Site and Water, Energy and Atmosphere, Indoor Environmental Quality, Materials and Waste. Beginning in 2009 all similarly funded remodeling projects of more than 10,000 sq. ft. must also meet the B-3 standards. B-3 standards include required and recommended actions (<http://www.msbg.umn.edu/>) See also example below.

From the State of Minnesota's Sustainable Buildings Guidelines (B-3 standards)

M.3 Waste Reduction and Management

Intent

Minimize use of resources and negative environmental impacts through careful reduction and management of wastes generated during the construction process and building occupancy.

Required Performance Criteria

A. Construction waste: Minimize waste generated from construction, renovation and demolition of buildings through detailing and specifications.

B. Construction waste: Divert at least 75% (by weight) construction, demolition, and land clearing debris from landfill disposal.

C. Packaging waste: Reduce and recycle packaging waste associated with the construction process, and encourage manufacturers to ship their product using reusable, recyclable, returnable, or recycled content packaging. Reuse or return 50% of all packaging material, by weight, to suppliers or manufacturers.

D. Operations waste: Reduce and recycle at least 50% of the waste generated during building operation. Provide dedicated recycling areas, processing and holding space, and reverse distribution space in the building.

Recommended Performance Criteria

E. Construction waste: Reuse, recycle and/or salvage an additional 15% (90% total by weight) of the construction, demolition, and land clearing waste.

F. Packaging waste: Return an additional 25% (75% total by weight) of all packaging material to suppliers or manufacturers

Note: Portions of this guideline are adapted from LEED Version 2.0.

Measurement Method

Can be incorporated into the Department of Administration's current tracking program

Goals/Timeframe/Mileposts

Legislature implement in 2010, then ongoing.

Targets: Dimensional lumber, Fiberboard, mixed metals, carpet, clay bricks, concrete (not all potential targets can be modeled in WARM).

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MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - many of the material types targeted in this strategy are not modelable in WARM (categories are not included)

Potential Implementation Parties

Legislature, Department of Administration, Department of Commerce, local governments (cities and counties), LMC, AMC.

Costs

Not necessarily any additional costs.

Funding Mechanisms

Increased bonding funding, or reallocation formula for existing bonding funding.

Barriers/Issues

- Lawmakers may prefer funding more projects rather than setting aside money to encourage better projects.
- Can be higher upfront costs for development (not always the case).

Opportunities

- Growing desire among governments to be more sustainable.
- Can generate more green jobs.
- Long-term cost savings for buildings.
- Government serves as role model.
- Additional GHG reductions through energy and resource conservation.

References to Public Comments Specific to 6.5 Increased Bonding Funding for Promotion of Green Building (see Appendix D)

Kleinschmit, Jim, Institute for Agriculture and Trade Policy – Overall Comment/Comments to Multiple Strategies: p. 33; Lange, Nancy, Izaak Walton League of America – Overall Comment/Comments to Multiple Strategies: p. 39; Millberg, Laura, MPCA Green Building program – Overall Comment/Comments to Multiple Strategies: p. 41; Newmark, Richard, Citizen member, Woodbury Environmental Advisory Commission – General Comment Re: Green Building Requirements: p. 55

6.6 Public Entity Requirement to Meet B-3 Standards

Strategy Description/Recommendation

Currently only projects that receive bonding money from the state are required to meet B-3 standards. That requirement should be extended to city, county, state agency, and school district building and/or remodeling projects of 10,000 sq. ft. or greater, regardless of the funding source for the project.

Measurement Method

Can be incorporated into the Department of Administration's current tracking program.

Goals/Timeframe/Mileposts

Legislature implement in 2010, then ongoing.

Targets: Dimensional lumber, Fiberboard, mixed metals, carpet, clay bricks, concrete (not all potential targets can be modeled in WARM).

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - many of the material types targeted in this strategy are not modelable in WARM (categories are not included)

Potential Implementation Parties

Legislature, Department of Administration, Department of Commerce, local (cities and counties) governments, LMC, AMC.

Costs

Can be higher upfront costs for development (not always the case). Would be borne by government.

Funding Mechanisms

Increased bonding funding, or reallocation formula for existing bonding funding.

Local government funding.

Barriers/Issues

- Lawmakers may prefer funding more projects rather than setting aside money to encourage better projects.
- Animosity toward a government mandate.

Opportunities

- Growing desire among governments to be more sustainable, can generate more green jobs.
- Government as role model.
- Long-term cost savings for buildings.
- Additional GHG reductions through energy and resource conservation.

References to Public Comments Specific to 6.6 Public Entity Requirement to Meet B-3 Standards (see Appendix D)

Kleinschmit, Jim, Institute for Agriculture and Trade Policy – Overall Comment/Comments to Multiple Strategies: p. 33; Lange, Nancy, Izaak Walton League of America – Overall Comment/Comments to Multiple Strategies: p. 39; Millberg, Laura, MPCA Green Building

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program – Overall Comment/Comments to Multiple Strategies: p. 41; Newmark, Richard, Citizen member, Woodbury Environmental Advisory Commission – General Comment Re: Green Building Requirements: p. 55

6.7 Promotion of Sustainable Development

Strategy Description/Recommendation

MPCA should work with partners to promote sustainable development through Green Step Cities, non-profit green building certification programs in Minnesota, and similar efforts.

Background Information

Cities can promote source reduction and recycling through city codes – specifically promotion of sustainable development.

Currently, there is an opportunity to reach out to cities. Cities in the metro area completed their Comprehensive Plans in 2008. In 2009 they began updating their city codes to reflect the changes made in the Comprehensive Plan. Cities should include encouragement of sustainable development standards in their updated codes. Sustainable development standards use a whole-system approach that seeks to preserve resources, reduce operating costs, and reduce environmental and public health impacts. The U.S. Green Building Council – Minnesota Chapter has been reaching out to local governments and the Urban Land Institute to increase the sustainability of communities.

Cities can use the city code to encourage developers or they can use the code to create requirements and incentives.

Here's an example of how the city of Shoreview updated a portion of its city code to encourage developers to incorporate the expectation that developers will include recycling service in their development plans.

Example from Shoreview City Code on Erosion Control:

g) Construction Site Waste and Recycling. The site shall be maintained in a clean and orderly manner. Waste and recycling shall be stored in appropriate containers, collected regularly, and handled in conformance with the regulations of the City and requirements of the MPCA.

Examples of requirements include: design standards that stipulate more durable materials and/or recycled content materials, performance standards for buildings that include provision of recycling service, PUD requirements for waste reduction and recycling in both the construction/remodeling and on going operations.

Examples of incentives include: TIF agreements stipulating waste reduction and recycling; bonuses for floor area ratio, surface area coverage, and/or density in exchange for waste reduction and recycling targets.

Measurement Method

Assistance provided to cities through Green Step Cities program.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - many of the material types targeted in this strategy are not modelable in WARM (categories are not included)

Goals/Timeframe/Mileposts

Cities implement in 2010, then ongoing.

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Targets: Dimensional lumber, Fiberboard, mixed metals, carpet, clay bricks, concrete (not all potential targets can be modeled in WARM).

Potential Implementation Parties

MPCA, LMC, AMC, local (cities and counties) governments, developers, Met Council, private consulting firms (e.g. <http://www.crplanning.com/susdo.htm>: State-funded Sustainable Development model ordinances).

Costs

Would take a coordinated and comprehensive plan. May need to provide technical assistance to cities or consultants.

Ongoing funding from the MPCA of the Green Step Cities program.

Incentive funding to developers.

Funding Mechanisms

Local government funding – minimal cost.

Barriers/Issues

Not all cities are receptive to this concept.

Opportunities

- Growing desire among governments to be more sustainable, can generate more green jobs.
- Government as role model.
- Long-term cost savings for buildings.
- Additional GHG reductions through energy and resource conservation.

References to Public Comments Specific to 6.7 Promotion of Sustainable Development (see Appendix D)

Buckley, Jean, City of Bloomington – Overall Comment/Comments to Multiple Strategies: p. 12;
Millberg, Laura, MPCA Green Building program – Comment Re: Strategy 6.7: p. 41; Newmark, Richard, Citizen member, Woodbury Environmental Advisory Commission – General Comment Re: Green Building Requirements: p. 55

6.8 Updated Statewide and Centroid Waste Sorts

Strategy Description/Recommendation

MPCA should conduct statistically significant statewide and/or centroid-based waste composition studies at all types of disposal facilities (WTE, landfills, transfer stations where waste is leaving the state).

Background Information

A comprehensive waste sort will provide a representative, statistically defensible estimate of the composition of Minnesota's municipal solid waste (MSW) stream. This information is necessary to understand the need for reduction of any one of the components of the waste landfilled or incinerated in Minnesota.

The last comprehensive, statewide sort was completed in 1999. Our understanding of the actual waste composition is based on data gathered 10 years ago. Since that time a number of materials have been banned (e.g., CRTs) and other management options have come about (e.g., carpet recycling). In addition, household consumption and ultimate disposal behaviors may have changed due to economics and education actions.

An updated waste sort is important now because it can accomplish the following goals:

- Establish a baseline for measuring future success in achieving waste management objectives
- Assess progress in reduction and recycling since 1999 (and since the previous sort in 1992)
- Assist the State and its partners in setting future policy direction and management priorities

Goals/Timeframe/Mileposts

Conduct in 2010; update no less than every 5 years.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - waste sorts and improvements to information don't directly affect the management methods.

Potential Implementation Parties

MPCA, disposal facilities

Funding Mechanisms

The cost of conducting waste sorts should be covered by proceeds from the solid waste disposal tax.

Opportunities

Close the gap on available recycling data.

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References to Public Comments Specific to 6.8 Updated Statewide and Centroid Waste Sorts (see Appendix D)

Pratt, Tim, Association of Recycling Managers – Overall Comment/Comments to Multiple Strategies: p. 60

6.9 Improvements to Information

Strategy Description/Recommendation

The MPCA will continue to identify methods, either through suggested enhancements to the EPA WARM model or through supplementary MPCA modeling, to more accurately calculate the greenhouse gas emissions from all waste management methods and material types.

Of special interest is to have the MPCA evaluate and continue to research a more accurate calculation for the greenhouse gas emission reductions achieved and volatile organic compound (VOC) emissions created from compost facilities and landfills for all compostable materials.

In addition, there is a need to improve the quantity and quality of available commercial recycling data. MPCA should partner with counties and industry to improve commercial recycling information gathering and develop reporting models to ensure clear and consistent data collection and avoid any double counting.

Goals/Timeframe/Mileposts

Evaluations complete by 2015; reassess research needs after evaluations complete.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - waste sorts and improvements to information don't directly affect the management methods.

Potential Implementation Parties

MPCA, partnerships with local units of government, industry and facility operators.

Costs

Study costs will vary; staff time.

Funding Mechanisms

MPCA budget items

Barriers/Issues

- Budget, limited staff time
- Without the development of reporting models, industry will have difficulty meeting the commercial recycling reporting requirements.

Opportunities

- Better understanding of GHG emission reductions and VOC emissions.
- Close the gap on available recycling data.

References to Public Comments Specific to 6.9 Improvements to Information (see Appendix D)

Buckley, Jean, City of Bloomington – Overall Comment/Comments to Multiple Strategies: p. 12

Strategies with Majority Support

1.0 SOURCE REDUCTION STRATEGIES

1.1 Enact the Minnesota Product Stewardship Framework Law

Strategy Description/Recommendation

Industry should be encouraged to independently develop Product Stewardship plans and to promote those plans to the public and government.

The legislature should enact The Minnesota Product Stewardship Act. The framework legislation should be expanded to include source reduction (including packaging reduction) and product redesign into stewardship plans. Similarly legislation should stipulate that plan goals should be enforceable and seek to maximize material recovery for reuse, recycling and/or composting. The criteria for identifying products to be managed should include the ability to reduce greenhouse gas emissions through source reduction and the ability to significantly increase recycling rates of materials whose manufacturing, use and/or end-of-life disposal have high levels of greenhouse gas emissions.

Background Information

Product Stewardship, also known as Extended Producer Responsibility (EPR), is a strategy to place responsibility for end-of-life management of products and associated packaging on producers and consumers rather than on taxpayers, ratepayers or local governments.

An example is the Minnesota Electronics Recycling Law which requires that manufacturers of designated electronic devices that are sold in the state to “annually recycle or arrange for the collection and recycling of an amount of designated electronic devices equal to the total weight of its video display devices sold to households during the preceding program year.”

The goals of producer responsibility are to:

- Stimulate eco-design
- Enhance source reduction, reuse and recycling
- Include environmental costs in the product price

EPR programs can be initiated by private industry or through government action. Product stewardship is implemented through participation of all parties who have a role in designing, producing, or selling a product or product components; parties that refurbish or recycle the product; and parties that collect and transport the disposed product. However, the greater the ability of a party to influence the life-cycle impacts of the product, the greater the degree of responsibility the party has for addressing those impacts.

Product stewardship programs may also result in an expanded collection infrastructure, creating more convenience for residents and creating business opportunities for retailers and processors. For example, several electronics retailers in Minnesota are now offering in-store and/or mail-in collection of certain waste electronics from residents. Similarly, paint retailers have voiced an interest in collecting leftover paint as a service for their customers.

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When producers are responsible for ensuring their products are reused, recycled or otherwise managed responsibly, and when health and environmental costs are included in the product price, there is an incentive to design products that use fewer resources, reduce unnecessary product elements and/or packaging, are easier to repair or reuse, use recycled materials, are more durable, are easier to recycle, and are less toxic.

EPR in Action: An article from Recycling Today magazine dealing with changes in electronics manufacturing demonstrates the benefits of product stewardship:

“Original equipment manufacturers (OEMs) are reducing the number of screws and other fasteners as well as reducing the amount of lead in their products. Additionally, many OEMs are replacing engineered plastic components with easier-to-recycle materials such as aluminum and other metals, says Parker Brugge, vice president of environmental affairs and industry sustainability for the Consumer Electronics Association (CEA), Arlington, VA.

One of the biggest areas of growth in design for recycling is in reducing the amount of virgin plastics going into new electronics and making plastic components easier to recycle by limiting the types of plastics used and labeling them so they can be easily sorted.

Panasonic reports that from the 1980s to the 2000s, the company has reduced the total number of types of plastic it uses from 13 to two and also has reduced the number of plastic parts in its products from 39 to eight. As a result, the company reports a much more efficient recycling process.

Additionally manufacturers have stepped up their efforts to use recycled plastic in their new products, which can benefit recyclers.

‘Some manufacturers have incorporated significant amounts of recycled plastic in their products,’ says Eric Harris, director of government and international affairs for the Institute of Scrap Recycling Industries Inc. (ISRI), Washington, D.C. ‘This creates demand for recycled plastics from computers, which increases the value that recyclers can capture for the material.’” (Recycling Today, April 2009)

Minnesota’s Current Approach: Current product stewardship initiatives in Minnesota have been centered on individual products – rechargeable batteries, CRT landfill disposal ban, and electronics.

In the 2009 legislative session, product stewardship bills were introduced on seven different products: beverage containers, CFLs, electronics, paint, pharmaceuticals, phone books, and plastic bags.

The ISWM centroid plans included recommendations for EPR. The calculations were run through the WARM model after identifying individual product types that corresponded with WARM model categories. Examples include: beverage containers, cardboard, carpet, CFLs, computers, mattresses, phone books, and plastic bags.

An Alternative – EPR Framework: There is an alternative to this “product by product” approach called an Extended Producer Responsibility Framework.

The framework establishes criteria, processes, and plans to provide a consistent yet flexible approach and a common set of expectations for identifying and evaluating products to be managed through EPR and for developing a stewardship program for those identified products (stewardship programs will operate differently for each product). This comprehensive framework approach is more efficient than trying to address individual products on a case-by-case basis. The framework also recognizes that not all products are suited to a stewardship approach. The

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framework approach also calls for greater consistency across jurisdictions since the plans are developed and managed by industry and thus less susceptible to local political considerations.

In addition, the framework approach establishes the requirement for environmentally sound processing practices and the requirement for product-specific performance measures.

During the 2009 legislative session Representative Gardner introduced H.F. 2407 – The Minnesota Product Stewardship Act. This bill would create a framework whereby the MPCA would work with citizens and industry (using a determined set of criteria) to annually identify products best managed through product stewardship and to develop product stewardship plans for those products.

Measurement Method

Reporting to MPCA from industry partners.

Goals/Timeframe/Mileposts

Enact a Product Stewardship Framework in 2010. Identification of products would begin in 2012 and programs would be implemented as they are worked out.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

1.9% source reduction, 5% increase in recycling of plastics mainly (LDPE, PET, HDPE) and some corrugated cardboard.

Gradual, starting in 2014 and reaching full 1.9% reduction and 5% recycling by 2025.

Potential Implementation Parties

MPCA, industry and other private partners, legislature, and local government.

Costs

The costs for implementing stewardship plans would be borne by manufactures and consumers. Transparency of those costs and education about those costs lead to consumer acceptance. Local government is expected to see a costs savings through this approach.

Through the internalization of end-of-life management costs, product stewardship may offer a more economically efficient approach for reducing waste, creating reuse opportunities and infrastructure, and addressing the collection and recycling of certain products rather than relying on fees, taxes, disposal bans or other regulatory tools.

Additionally, internalizing the costs of end-of-life management into the price of the product sends the correct market signals to the purchaser so they can make informed decisions on their purchase. Externalizing those costs onto ratepayers or the general taxpayer ensures that the consumer cannot determine the full cost of a product and therefore cannot make an educated decision at point of purchase.

Funding Mechanisms

Agency funding, registration fees

Barriers/Issues

- Each product stewardship plan requires time for all parties to negotiate implementation.
- Potential for information overload if consumers face multiple disposal mechanisms.
- Has worked well for electronics and rechargeable batteries, has not worked well for carpet and telephone books.

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- Agency funding and staffing to monitor compliance.
- Legislature must remain engaged in holding the agency accountable.

Opportunities

Creates private and public partnerships that can leverage the best of both parties.

EPR can result in cost savings for local units of government. For example, Hennepin County, which has operated a collection program for waste electronics since 1992, realized cost savings of \$681,982 during the first program year of the Minnesota Electronics Recycling Act.

Members Not Supportive of 1.1 Enact the Minnesota Product Stewardship Framework Law and Their Opinions and Alternatives

Non-Supporting Members

Mark Stoltman (for Doug Carnival), Mike Robertson

Non-Supporting Members' Opinions and Alternatives

- Business community believes the framework concept is too broad and does not sufficiently define what products could be included, nor the criteria that will be used to determine how products would be prioritized and targeted. Arguably, any product could be subjected to MPCA regulation.
- Disposal of problem materials (including household hazardous waste) has been dealt with in the Waste Management Act and these materials should not be subjected to extended producer responsibility.
- Need to better define what is meant by “producer,” and provide further detail as to how the complexities presented by specific products will be handled.
- Industry feels the notice period (30 days) that is currently required in the process is too short.
- Industry has concerns over the technical capacity/expertise of an authoritative body that would weigh the environmental impacts of products when it comes to listing priority products to target for removal from the waste stream. Representative Gardner’s framework bill listed the MPCA Board as the authoritative body to recommend products to be targeted, but industry believes that the MPCA Board does not have the appropriate technical expertise to do this.

References to Public Comments Specific to 1.1 Enact the Minnesota Product Stewardship Framework Law (see Appendix D)

Curry, John, Policy Director, Audubon Minnesota – Overall Comment/Comments to Multiple Strategies: p. 13; Hubbard, Susan & Tim Brownell, Eureka Recycling – Overall Comment/Comments to Multiple Strategies: p. 23; Kleinschmit, Jim, Institute for Agriculture and Trade Policy – Comment Re: Strategy 1.1: p. 32; Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall Comment/Comments to Multiple Strategies: p. 34; Lange, Nancy, Izaak Walton League of America – Overall Comment/Comments to Multiple Strategies: p. 39; Pratt, Tim, Association of Recycling Managers – Overall Comment/Comments to Multiple Strategies: p. 60; Richter, Trudy, Executive Director, Minnesota Resource Recovery Association – Overall Comment/Comments to Multiple Strategies: p. 61; Risser, Sarah, Sierra Club – Comment Re: Strategy 1.1: p. 63; Rondano, Annette, St. Paul small business owner/Minneapolis CEAC member since 2009 – Overall Comment/Comments to Multiple Strategies: p. 64; Sheehan, Bill,

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Ph.D., Executive Director, Product Policy Institute – Comment Re: Strategy 1.1: p. 68; Minnesota Solid Waste Administrators Association 2010 Policy Platform: p. 73; Association of Minnesota Counties 2009-2010 Policy Positions: p. 76

Strategy Description/Recommendation

Expand volume-based pricing/unit-based pricing. Require cities and counties to adopt and implement Pay-as-You-Throw (PAYT) ordinances where incremental price increases are proportional to container size increases as well as to the frequency of service. In order to truly make materials recovery successful and economically viable, the city must refine and specify its required unit-based pricing for trash, or the PAYT system.

This strategy calls for a more specific pricing structure than the legislation that is currently in place for volume-based pricing. This strategy requires that the price differential would change by a minimum of 80% when a container doubles in size or doubles in the frequency of service.

Example: 30 gallon cart per week service = \$10/month; 60 gallon cart per week = \$18/month; 90 gallon cart per week = \$26/month

This strategy also requires haulers to have a very transparent bill so the customer is aware of the amount that they are being charged and the volume of trash that is being thrown away. Ideally, the system would be a unit-based system so that the customer is aware of the waste they are generating. Structuring waste bills similarly to a utility bill (i.e., water or electric) would provide the customer with a clear incentive to reduce their waste.

Measurement Method

Compliance of all haulers with existing volume-based pricing requirements, reduction of waste volumes, increase in recycling and composting rates.

Goals/Timeframe/Mileposts

2011-2014

Curbside recyclable materials: 5.5% increase in source reduction rate, 5% increase in recycling rate, 5-6% increase in composting rate.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

4% source reduction, 5% increase in recycling of all materials.

Gradual, starting in 2014 and reaching full 4% reduction and 5% recycling by 2025.

Potential Implementation Parties

MPCA, local governments, private haulers, county ordinances and enforcement. Local units of government would need to have licensing requirements or use organized collection to ensure compliance.

Costs

Low implementation costs to municipalities, reduced costs to the customer. Increased costs to implement for haulers, increased costs for enforcement, illegal dumping, burning and burying.

Funding Mechanisms

Generator

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Barriers/Issues

- Additional enforcement and education would be needed.
- Resistance to change, staff for enforcement, potential for an increase in illegal dumping, burning or burying.
- Enforcement and compliance would be challenging.
- Private sector haulers will be concerned about proprietary pricing information.
- Public will have concerns about increased costs for current levels of service.
- Price for service becomes unhinged to costs for service.
- Capital costs to haulers to provide new carts of different sizes to customers.
- Application in multi-family units with central disposal.
- Some additional administration and enforcement burden.
- Bag systems create problems with the automated collection systems that industry is moving toward. Bag systems increase workers compensation and other safety costs.

Opportunities

- Minnesota cities and national studies reported that have this type of system had minimal illegal dumping if residents were well informed about the system before changes were implemented.
- Source reduction increases of 6% have been documented.
- Recycling and composting increases.
- Cost based on generation (reduced cost for disposal as waste reduces).
- Transparent and equitable pricing.
- Creates recognizable price incentives for reducing refuse service and source reduction efforts.
- Allows for customers to financially benefit by diverting waste into recycling streams.
- Could also include provisions that require transparency in pricing.

General Comments

Background exists, but has not been enforced. Proposed by St. Cloud, Duluth and Metro centroids.

The Skumatz Economic Research Association (SERA) has completed several studies that, taken together, suggest the following: Pay-as-You-Throw programs (or unit-based pricing for trash) decrease residential disposal by approximately 17% in weight, with 8-11% being diverted directly into recycling and yard waste programs. 5-6% by weight is diverted into curbside and drop-off recycling collection programs. 4-5% by weight is diverted into yard waste programs, where available. 6% by weight is removed from the waste stream via source reduction efforts (e.g., buying in bulk, selecting items with less packaging, etc.).

Research has shown that garbage collection rates that conform more closely to the actual percentage increase in service (e.g., twice the fee for twice the capacity) have a higher positive impact on the amount of recycled material than rates that progress less steeply than the percentage increase in level of service. In one SERA study comparing 30- and 60-gallon garbage service, low levels of percentage difference in fee structure (20% to 30% more for 60-gallon than for 30-gallon) resulted in an increase in recycling tonnage that hovered between 0.4% and 0.6%.

At higher levels of rate increase (e.g., an 80% increase for doubling garbage service capacity), the resulting increase in residential recycling is near 4.5%. Clearly, steeper increases for higher levels of garbage service have a significant positive impact on residential recycling tonnage.

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Members Not Supportive of 1.2 Volume-Based Pricing and Their Opinions and Alternatives

Non-Supporting Members

Ryan O’Gara, Mark Stoltman (for Doug Carnival), Mike Robertson

Non-Supporting Members’ Opinions and Alternatives

- Waste hauling industry prefers incentive-based approaches rather than punitive approaches to motivate behavior change.
- Waste hauling industry cites added labor costs due to human abuse of the system (crushing trash to fit more volume into a smaller container, etc.).
- Haulers prefer to retain ability to propose flexible and tailored pricing structures, based on individual community needs and priorities, and feels this proposal threatens this flexibility.
- Proposal to apply an 80% price increase to a “base rate” does not fit well with the variable labor costs used to determine service fees.
- Waste hauling industry cites implementation of a volume-based pricing system would lead communities to implement organized collection.
- Waste haulers note that there are a variety of factors that go into residents’ rates and those factors differ from one hauler to another, including: disposal location and distance to disposal site, transportation costs/fuel costs/truck maintenance costs, and route density in different communities.

References to Public Comments Specific to 1.2 Volume-Based Pricing (see Appendix D)

Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall

Comment/Comments to Multiple Strategies: p. 34; Lange, Nancy, Izaak Walton League of America

– Overall Comment/Comments to Multiple Strategies: p. 39; Morris, Douglas R., Waste

Management Director, Crow Wing County – Comment Re: Strategy 1.2: p. 46; Risser, Sarah, Sierra

Club – Comment Re: Strategy 1.2: p. 63

1.11 Institute a Ban or Tax on Single-Use Plastic Shopping Bags

Strategy Description/Recommendation

Institute a ban or tax on single use plastic bags.

Background Information

Numerous countries and cities have banned thinner, single-use plastic bags and in some cases they also tax thicker plastic bags. Stores in some countries have instituted fees in an effort to reduce plastic bag usage. A sample of participating countries/cities include:

Africa:

Eritrea, Rwanda, Somalia, Tanzania – ban

South Africa, Kenya, Uganda – banned thinner plastic bags and imposed taxes on thicker ones

Asia:

Bangladesh – ban

China – banned thinner plastic bags and imposed taxes on thicker ones

Hong Kong – tax

South Korea – some stores voluntarily began charging

Mumbai, India – ban

Taiwan – ban on lightweight bags

Australia:

South Australia – ban on lightweight bags

Europe:

Belgium, Ireland – tax

Italy – tax began in 2006 and will be replaced with a ban in 2010

Germany, Netherlands, Switzerland – some stores voluntarily began charging

United Kingdom – various cities have bans

Americas:

Mexico City – ban on lightweight bags that are not biodegradable

Oakland – ban (currently unenforced due to ongoing litigation)

Palo Alto – ban

San Francisco – ban at certain types of stores

Los Angeles – ban goes into effect in July 2010

Maui, Hawaii – ban goes into effect in 2011

Whole Foods stores discontinued plastic bags usage

Ikea charges a fee

San Francisco reports 5 million fewer plastic bags are used every month as a result of the ban. In Ireland bag usage has dropped 95%. Ban and tax initiatives are often coupled with promotion of reusable bags.

Reduction of film plastic (HDPE or #2 and LDPE or #4) realize significant CO₂e reductions. Each ton of HDPE not produced equals a 1.8 MTCO₂e reduction; for LDPE each ton not produced equals a 2.29 MTCO₂e reduction.

Other arguments for limiting the use of plastic bags include the fact that the bags litter streets and streams (according to a UN report they are the second leading cause of litter behind cigarette butts), and that bags lead to health problems and death of wildlife that eat or attempt to

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eat the littered bags. Bangladesh and Mumbai, India banned plastic bags because bags clogged storm water systems leading to increased flooding and deaths. According to the United States Consumer Product Commission, the Commission receives “an average of about 25 reports a year [nationwide] describing deaths to children who suffocated due to plastic carryout bags.”

Measurement Method

Sales figures from businesses.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

90% reduction in plastic bags (assumed 51% of LDPE is bags, therefore reduced LDPE category by 46%) over a 5-year period, from 2014-2019.

Potential Implementation Parties

MPCA, grocery stores and other retailers.

Funding Mechanisms

Tax on thicker bags.

Barriers/Issues

- Opposed by grocery stores and the plastics industry.
- Does not address environmental impacts of paper bags.
- Must include consumer education on changing habits.
- Politically difficult to enact.

Opportunities

- Reduces litter.
- Reduces harmful impacts on humans, wildlife and on water bodies.
- Currently only about 10% of plastics bags are recycled nationwide.

Members Not Supportive of 1.11 Institute a Ban or Tax on Single-Use Plastic Shopping Bags and Their Opinions and Alternatives

Non-Supporting Members

Doug Carnival, Julie Ketchum (for Mike Robertson), Peg Wander

Non-Supporting Members' Opinions and Alternatives

Opinions of Opponents to Institute a Ban or Tax on Single-Use Plastic Shopping Bags:

- Business community is not in favor of bans or taxes and prefers other means to source reduce the use of single-use plastic bags, i.e. outreach and education programs to business community to encourage reductions in single-use plastic bags.
- There is a current market for plastic bag material and an existing infrastructure to support recycling of this material. Minnesota Waste Wise has a very successful voluntary plastic bag recycling program, “It’s in the Bag,” that should be continued and expanded to increase plastic bag and film recycling in the centroids (see strategy 1.16 Increased Promotion and Expansion of Voluntary Plastic Bag Recycling Program)

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Alternatives to Institute a Ban or Tax on Single-Use Plastic Shopping Bags:

- Continue and expand promotion and participation in voluntary plastic bag and film recycling through “It’s in the Bag” program – see strategy 1.16 Increased Promotion and Expansion of Voluntary Plastic Bag Recycling Program
 - Background Information: “It’s in the Bag” currently operates in the Twin Cities metro area and Duluth and provides plastic bag recycling for consumers, and plastic film and bag recycling for businesses. Since October 2003, “It’s in the Bag” has recycled more than 5 million pounds of plastic bag and film that has been used to create approximately 770,478 square feet of decking.
 - Potential Implementation Parties: Minnesota Waste Wise, Trex Company, local vocational centers.
 - Costs: Participating stores pay a “pick-up fee” of \$4 per pick-up that goes directly to the vocation centers that employ adults with disabilities to collect, transport and process the material. Expanding the program statewide would most likely require funding one more FTE through Waste Wise.
 - Funding Mechanisms: Corporate sponsorship, pick-up fees

References to Public Comments Specific to 1.11 Institute a Ban or Tax on Single-Use Plastic Shopping Bags (see Appendix D)

Healy, Kit – Comment Re: Strategy 1.11: p. 19; Risser, Sarah, Sierra Club – Comment Re: Strategy 1.11; Risser, Sarah, Sierra Club – Comment Re: Strategy 1.11: p. 63

1.14 Resource Management Contracting

Strategy Description/Recommendation

The MPCA should continue to explore the best way to develop Resource Management Contracts and should promote identified best practices in Resource Management Contracting, with state agencies leading by example.

Background Information

Resource Management Contracting (RMC) is an alternative type of contracting meant for large, commercial/industrial/manufacturing/public organizations in an urban region. The contract focuses on customer assistance for solid waste instead of the volume of waste hauled away. The waste contractor is paid for their customer assistance and expertise in waste. The incentive is to work with the client to reduce, reuse, and recycle as much as possible and then haul the waste that is left over at the end.

These contracts look at shared costs and revenue for recycling programs, reuse programs, organics diversion and behavior change of employees when it comes to thinking about waste. RMCs also look at right-sizing containers and hauling frequency. Often times education is included in the contract and a determination is made on whose responsibility education will be, whether it is the hauler's or the institution's. This is a good step because education is often forgotten about and with an RMC, roles and responsibilities are clearly defined. RMC programs are relatively new and are still developing but seem to prove to be promising.

Measurement Method

Measurement is a crucial part of the RMC. Organizations developing an RMC are strongly encouraged to require their hauler to provide a baseline before the resource management services are determined and implemented. This helps the organization determine what is currently happening before anything changes. The baseline helps people see what needs to change as well as successes that are happening and what changes could be made in the future.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - reduction in waste is reported for general waste, not material-specific. Since there is no general reduction category in WARM, this strategy could not be modeled.

Potential Implementation Parties

All medium to large organizations in an urban area that are negotiating new hauling contracts. Haulers and potentially third party contractors for education would also be implementation parties.

Costs

Most costs would be on the organizations contracting for new services and the haulers. It would be a good idea for MPCA and other government agencies to also negotiate RMCs.

It would be nice to offer assistance to other organizations to try RMCs while it is in its infancy stages so we can document how it is working and learn so new contracts can be even better.

Funding Mechanisms

Grants to organizations. Organizations negotiate with haulers during their contract negotiations.

Barriers/Issues

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RMCs are new and many organizations that the MPCA has worked with have a hard time understanding the concept without some guidance. RMCs also require organizations to have a “new” contract so the organization has to wait until their current contract has expired and then go to a new one with the hauler. There are a lot of things that the MPCA is learning as more and more organizations adopt RMCs, but it could be awhile before RMC is “mainstream.”

Change is the biggest barrier. Something new takes awhile to catch on. It is a hard concept to grasp at first. Contracts are usually negotiated for a length of time and you need to wait until the contracts are up to change them.

Haulers might not like the idea.

Opportunities

There are several opportunities presented by RMC:

- Better tracking system of waste in the commercial sector.
- More opportunities for recycling, organics capture, and opportunities for reuse.
- Provides companies with an incentive to learn about their waste hauling bill. (In the MPCA’s experience many organizations don’t seem to analyze their waste bills.)
- Big potential to reduce waste, increase recycling, increase food reuse and organics recovery.
- Big potential for education. Organizations would pay more attention to their “resources.” Recently a study showed that people that were given more information on their utility bills and compared to others (that are similar to their demographics) showed a 6% behavior change towards conservation. With a normal hauling contract this comparison would be hard to make but with RMC, you could use this type of social marketing and peer pressure in the future.

Members Not Supportive of 1.14 Resource Management Contracting and Their Opinions and Alternatives

Non-Supporting Member

Julie Ketchum (for Doug Carnival)

Non-Supporting Members’ Opinions and Alternatives

- Strategy should more strongly articulate that it is to be directed at government entities

1.15 Promote Zero Waste Model Cities or Counties through Assistance and Special Grants

Strategy Description/Recommendation

State would employ a zero waste specialist and would make grants (two years, potentially renewable for another two) available on a competitive basis for public entities wanting to move to zero waste.

Background Information

Zero Waste is a strategy for managing waste as a resource that has been adopted by communities and businesses around the U.S., as well as in other countries. It is a philosophy and a design principle, which takes a systems approach to the flow of materials and wastes. It mimics natural systems in which balanced ecosystems make use of all wastes. The approach is consistent with comprehensive solid waste planning but sets a goal and implementation plans for eliminating waste through source reduction, recycling, composting, and holding producers responsible for producing products that can be fit into this system. There is a developing movement around the country in cities, counties, and businesses that provides motivation and tools for communities that want to do something progressive about their waste stream. Some cities in Minnesota (e.g., Saint Paul) have already adopted the zero waste principle, but need support for implementation. Other entities might be encouraged to take this step with some financial support.

Measurement Method

Measurement would be built into the grant agreement and the technical assistance. There would be before and after measurements of key waste streams, sector streams, etc. Recipients would develop ways of measuring progress.

Goals/Timeframe/Mileposts

The state could begin education and promotion regarding zero waste almost immediately, by feeding it into their existing programs. Grant competition could come in 2010-2011, depending on when funding becomes available. Reports from grant recipients would be required annually. They might also be responsible then for spreading the word to other entities.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - No data exists correlating the effect of staffing at the state level and grants with improvements in source reduction/recycling/composting. Also, since there is no general reduction category in WARM, source reduction effects of this strategy could not be modeled.

Potential Implementation Parties

State government through the MPCA, willing local units of government, interested businesses, non-profits, other institutions interested in zero waste.

Funding Mechanisms

Additional SCORE funds; EPA grants.

Barriers/Issues

Funding; skepticism about zero waste; current stresses on local government.

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Opportunities

- Opportunity to motivate non-profits and citizens around a progressive, exciting new concept regarding waste.
- Message to get the state off the plateau in reduction, recycling, and composting.
- Successful examples can spread to other entities.

General Comments

This strategy could be piloted in all counties/cities in one centroid, but it is probably better to seek interested applicant communities wherever they are, perhaps in a range of sizes.

Members Not Supportive of 1.15 Promote Zero Waste Model Cities or Counties through Assistance and Special Grants and Their Opinions and Alternatives

Non-Supporting Members

Doug Carnival, Julie Ketchum (for Mike Robertson), Ryan O’Gara

Non-Supporting Members Opinions’ and Alternatives

- Strategy is unclear about what the developed grants will support.
- Potentially, grants appropriated through this strategy could take funding away from other, more impactful strategies detailed in this report.
- Other strategies in this report are aimed at increasing source reduction, recycling and organics capture rates and these strategies will make progress toward reducing waste disposal.

References to Public Comments Specific to 1.15 Promote Zero Waste Model Cities or Counties Through Assistance and Special Grants (see Appendix D)

Hone, Nancy, Founder/Coordinator, Neighbors Against the Burner-----REPRESENTING CITIZEN STAKEHOLDERS – Overall Comment/Comments to Multiple Strategies: p. 21; Muller, Alan, Minneapolis Neighbors for Clean Air/Neighbors Against the Burner – General Comment Re: Climate change emissions: p. 52; Risser, Sarah, Sierra Club – Comment Re: Strategy 1.15: p. 63; Schmidt, Gregory V. – Overall Comment/Comments to Multiple Strategies: p. 66

2.0 RECYCLING STRATEGIES

1.12 Require Retailers to Provide Plastic Bag Recycling

Strategy Description/Recommendation

Require retail stores with a minimum square footage floor space to provide recycling programs for plastic bags.

Background Information

Some cities and states are requiring stores with a large square footage to provide recycling programs for plastic bags. A sample of participating cities/states include: California, Delaware, New York City, New York State.

Recycling of film plastic (HDPE or #2 and LDPE or #4) realize significant CO₂e reductions. Each ton of HDPE not produced equals a 1.4 MTCO₂e reduction; for LDPE each ton not produced equals a 1.71 MTCO₂e reduction.

Plastic bags are not accepted in curbside collection programs because when bags are mixed with other recyclables the bags can be contaminated with other materials, dirt and miscellaneous fluids. Manufacturers that use plastic bags and film in their processes need to have very clean material that is consistent in its composition.

Other arguments for increasing the recycling of plastic bags include the fact that the bags litter streets and streams (according to a UN report they are the second leading cause of litter behind cigarette butts), and that bags lead to health problems and death of wildlife that eat or attempt to eat the littered bags. According to the United States Consumer Product Commission, the Commission receives “an average of about 25 reports a year [nationwide] describing deaths to children who suffocated due to plastic carryout bags.”

Measurement Method

Tonnage figures from businesses

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Retail bags are insignificant portion of the waste stream, so no increase to the overall recycling rate was assumed.

Potential Implementation Parties

MPCA, grocery stores and other retailers, plastics processors, plastics manufacturers.

Funding Mechanisms

Sale of recycled plastic bags to manufacturers.

Barriers/Issues

- Opposed by grocery stores and the plastics industry, but not to the same degree as a ban or tax.
- Does not address environmental impacts of paper bags.
- Must include consumer education on changing habits.
- Politically difficult to enact.

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Opportunities

- A number of retailers view this as a preferable alternative to a ban or tax.
- Reduces litter.
- Reduces harmful impacts on wildlife and on water bodies.
- Currently only about 10% of plastics bags are recycled nationwide.

Members Not Supportive of 1.12 Require Retailers to Provide Plastic Bag Recycling and Their Opinions and Alternatives

Non-Supporting Members

Doug Carnival, Julie Ketchum (for Mike Robertson)

Non-Supporting Members' Opinions and Alternatives

Opinions of Opponents to Require Retailers to Provide Plastic Bag Recycling:

- Minnesota Waste Wise has a very successful voluntary plastic bag recycling program, "It's in the Bag," that should be continued and expanded to increase plastic bag and film recycling in the centroids.

Alternatives to Require Retailers to Provide Plastic Bag Recycling:

- Continue and expand promotion and participation in voluntary plastic bag and film recycling through "It's in the Bag" program – see strategy 1.16 Increased Promotion and Expansion of Voluntary Plastic Bag Recycling Program
 - Background Information: "It's in the Bag" currently operates in the Twin Cities metro area and Duluth and provides plastic bag recycling for consumers, and plastic film and bag recycling for businesses. Since October 2003, "It's in the Bag" has recycled more than 5 million pounds of plastic bag and film that has been used to create approximately 770,478 square feet of decking.
 - Potential Implementation Parties: Minnesota Waste Wise, Trex Company, local vocational centers.
 - Costs: Participating stores pay a "pick-up fee" of \$4 per pick-up that goes directly to the vocational centers that employ adults with disabilities to collect, transport and process the material. Expanding the program statewide would most likely require funding one more FTE through Waste Wise.
 - Funding Mechanisms: Corporate sponsorship, pick-up fees

References to Public Comments Specific to 1.12 Require Retailers to Provide Plastic Bag Recycling (see Appendix D)

Pfuhl, Jamie, Minnesota Grocers Association – Overall Comment/Comments to Multiple Strategies:
p. 59

1.16 Increased Promotion and Expansion of Voluntary Plastic Bag Recycling Program

Strategy Description/Recommendation

Continue and expand promotion and participation in voluntary plastic bag and film recycling through “It’s in the Bag” program.

Background Information

Program Summary: “It’s in the Bag” is a Minnesota-based plastic bag and film recycling program managed by Minnesota Waste Wise. The “It’s in the Bag” program currently operates in the Twin Cities metro area and Duluth.

Plastic Bag Recycling for Consumers: Consumers deposit clean and dry plastic bags in specially designed “It’s in the Bag” collection bins found at participating retail locations (typically grocery stores). Work crews from local vocational centers that employ adults with disabilities then collect and transport the material to a processing facility where additional work crews sort and bale the material. The material is then shipped to Trex Company, Inc. where it is recycled into composite lumber used in the construction of decks and railings.

Plastic Film and Bag Recycling for Businesses: Businesses collect clean and dry plastic film and bag waste generated from operations (typically stretch wrap) and store the material in a designated container onsite. Work crews from a local vocational center that employs adults with disabilities then collect and transport the material to a processing facility where additional work crews sort and bale the material. The material is then shipped to Trex Company, Inc. where it is recycled into composite lumber used in the construction of decks and railings.

Program Results: More than 5 million pounds of plastic bags and film have been recycled through the “It’s in the Bag” program since October 2003. This amount equates to approximately 770,478 square feet of Trex Company, Inc. decking, or 1,541 decks that are 500 square feet in size.

Measurement Method

Weight of plastic bag/film material collected at participating retail locations.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Retail bags are insignificant portion of the waste stream, so no increase to the overall recycling rate was assumed.

Potential Implementation Parties

Minnesota Waste Wise, Trex Company, local vocational centers.

Costs

Participating stores pay a “pick-up fee” of \$4 per pick-up, which goes directly to the vocational center for their costs. Waste Wise program costs: staff time, website, travel, etc. Expanding the program to be comprehensive and statewide would most likely require funding one more FTE through Waste Wise.

Funding Mechanisms

Corporate sponsorships, pick-up fees

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Members Not Supportive of 1.16 Increased Promotion and Expansion of Voluntary Plastic Bag Recycling Program and Their Opinions and Alternatives

Non-Supporting Members

Don Arnosti, Tim Brownell, Sarah Risser (for Brett Smith)

Non-Supporting Members' Opinions and Alternatives

Opinions of Opponents to Increased Promotion and Expansion of Voluntary Plastic Bag Recycling Program:

- Voluntary approach to plastic bag recycling is not sufficiently successful; current recycling rate for plastic bags is approximately 5%.
- Mandatory recycling is needed to achieve desired recovery rates for plastic bags.

Alternatives to Increased Promotion and Expansion of Voluntary Plastic Bag Recycling Program:

- Require Retailers to Provide Plastic Bag Recycling (see strategy 1.12)
 - Background Information: Some cities and states are requiring stores with a large square footage to provide recycling programs for plastic bags. A sample of participating cities/states include: California, Delaware, New York City, New York State.
 - Recycling of film plastic (HDPE or #2 and LDPE or #4) realize significant CO₂e reductions. Each ton of HDPE not produced equals a 1.4 MTCO₂e reduction; for LDPE each ton not produced equals a 1.71 MTCO₂e reduction.
 - Plastic bags are not accepted in curbside collection programs because when bags are mixed with other recyclables the bags can be contaminated with other materials, dirt and miscellaneous fluids. Manufacturers that use plastic bags and film in their processes need to have very clean material that is consistent in its composition.
 - Other arguments for increasing the recycling of plastic bags include the fact that the bags litter streets and streams (according to a UN report they are the second leading cause of litter behind cigarette butts), and that bags lead to health problems and death of wildlife that eat or attempt to eat the littered bags. According to the United States Consumer Product Commission, the Commission receives “an average of about 25 reports a year [nationwide] describing deaths to children who suffocated due to plastic carryout bags.”
 - Strategy Description/Recommendation: Require retail stores with a minimum square footage floor space to provide recycling programs for plastic bags.
 - Measurement Method: Tonnage figures from businesses
 - Potential Implementation Parties: MPCA, grocery stores and other retailers, plastics processors, plastics manufacturers.
 - Funding Mechanisms: Sale of recycled plastic bags to manufacturers.
 - Barriers/Issues: Opposed by grocery stores and the plastics industry, but not to the same degree as a ban or tax; Does not address environmental impacts of paper bags; Must include consumer education on changing habits.

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- Opportunities: A number of retailers view this as a preferable alternative to a ban or tax; Reduces litter; Reduces harmful impacts on wildlife and on water bodies; Currently only about 10% of plastics bags are recycled nationwide.

References to Public Comments Specific to 1.16 Increase Promotion and Expansion of Voluntary Plastic Bag Recycling Program (see Appendix D)

Pfuhl, Jamie, Minnesota Grocers Association – Overall Comment/Comments to Multiple Strategies:
p. 59

Strategy Description/Recommendation

Adopt state legislation that requires the following:

- Achieve a 50% recycling goal by 2015 and a 60% recycling goal by 2020.
- Extend the current ‘Opportunity to Recycle’ law to commercial and institutional sectors.
- Modify local ordinances to require all licensed events to have a recycling plan.
- Recycling capacity for residential and commercial/institutional points of generation must be equal to or greater than the capacity for trash.
- If by 2013 it appears that the 50% recycling goal is not likely to be met by 2015, then the MPCA must present a plan to the Minnesota Legislature in 2014 for a disposal ban on recyclables to disposal (WTE or landfill) at the point of generation that elucidates the implications of such a ban. The MPCA must then implement that ban in 2015, or require that individual materials that do not reach a 75% recycling rate by 2015 must fall under the Product Stewardship Framework process, if adopted.

MPCA should provide educational resources on an ongoing basis to support industry in educational efforts to residential and commercial customers to increase the recycling rate to 60% by 2020 (e.g., Recycle More, Rethink Recycling campaigns).

Measurement Method

Annual reporting of tons collected or received by the haulers and end markets. Waste sort data showing reductions in recyclable materials sent to disposal facilities.

Goals/Timeframe/Mileposts

Increase recycling rate of traditional curbside materials to 50% by 2015 and 60% by 2020

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

50% recycling rate for curbside recyclables, carpet, etc. by 2015.

60% recycling rate for curbside recyclables, carpet, etc. by 2020.

Potential Implementation Parties

MN Legislature, MPCA, Regional/local governments (counties, SWMCB, WLSSD, economic development agencies, cities and townships), non-profits, private sector, private haulers, materials recovery facility (MRF) operators.

Funding Mechanisms

Additional SCORE money to counties and cities, service fees, recyclable material revenues

Barriers/Issues

- Small haulers may have difficulty meeting this requirement.
- Strong opposition to implementation of disposal bans – enforcement must be at the point of generation, not at the disposal sites.
- Concerns over accurate measurement mechanisms to determine compliance/achievement.
- Challenges with implementation outside of centroids (reconciling stakeholder process charge with statewide goal).
- Proposal potentially changes the entity responsible for meeting recycling goals (currently responsibilities resides with counties and goals are tied to SCORE funds).

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Opportunities

- Creates strong incentive for both commercial and residential sectors to meet goals.
- Requires cooperation of public and private sector to meet goals to avoid mandatory triggers.
- Provides incentives for producers to participate in solutions so that it doesn't get legislated upon them.

General Comments

Need to rely on a standardized definition for “recyclables” in determining what materials would be subject to a ban or included in product stewardship initiatives.

Members Not Supportive of 2.1 Recycling Legislation and Their Opinions and Alternatives

Non-Supporting Members

Ryan O’Gara, John Helmers (for Mike Cousino), Mike Robertson, Mark Stoltman (for Doug Carnival)

Non-Supporting Members’ Opinions and Alternatives

- Waste hauling industry is concerned with the feasibility of requiring equal capacity for recycling and trash, particularly at multi-family dwellings where adequate space may be an issue.
- Industry desires further clarity on the “service fees” that would provide funding to support this strategy.
- Business community is skeptical of disposal bans because of a lack of indication that it would be practical to enforce at the point of generation.
- The last sentence of the fifth bullet in the strategy description – “The MPCA must then implement that ban in 2015, or require that individual materials that do not reach a 75% recycling rate by 2015 must fall under the Product Stewardship Framework process, if adopted.” – should be removed because the Work Group cannot say that the MPCA must implement a ban because it is unknown how the Legislature will resolve the MPCA’s proposal for a ban on recyclables to disposal.

References to Public Comments Specific to 2.1 Recycling Legislation (see Appendix D)

Curry, John, Policy Director, Audubon Minnesota – Overall Comment/Comments to Multiple Strategies: p. 13; Kleinschmit, Jim, Institute for Agriculture and Trade Policy – Comment Re: Strategy 2.1: p. 32; Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall Comment/Comments to Multiple Strategies: p. 34; Lange, Nancy, Izaak Walton League of America – Overall Comment/Comments to Multiple Strategies: p. 39; Morris, Douglas R., Waste Management Director, Crow Wing County – Comment Re: Strategy 2.1: p. 47

Strategy Description/Recommendation

Support implementation of a statewide container deposit by 2011.

Measurement Method

Passage of legislation and successful implementation.

Goals/Timeframe/Mileposts

Legislation passes in 2011; attain 80-90% recovery of beverage containers (aluminum cans, steel cans, HDPE, PET, glass) by 2012.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

90% recycling of beverage containers.

Law passes in 2010, bump to 90% recycling of beverage containers by 2012.

Potential Implementation Parties

State Legislators, MPCA, beverage manufacturers, bottling industry, trade associations, redemption centers, local units of government, recycling industry.

Funding Mechanisms

Deposits, solid waste fees

Barriers

Opposition from Beverage/Bottling Industry, establishing infrastructure, political opposition, impacts on existing recycling systems, local funding constraints.

Issues

Unredeemed deposits:

- Amount?
- Allocation – who receives?

Cost to operate the system:

- Existing curbside costs?
- Costs of container deposit system

Redemption Locations:

- Retail?
- Regional redemption centers?
- Other?

Curbside programs:

- How do containers fit within the existing system?
- How does the existing system change without containers?

Jobs:

- How many jobs would be lost?
- How many would be created?

Sales:

- Impact on sales?

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Opportunities

Similar programs have been successful in eleven other states (average redemption rate 78%).

Could create jobs, increases recycling rates, reduces litter, could lead to better packaging, better feedstock for recycling.

Members Not Supportive of 2.9 Container Deposit and Their Opinions and Alternatives

Non-Supporting Members

Mike Cousino, Ryan O’Gara, Mike Robertson, Mark Stoltman (for Doug Carnival), Peg Wander

Non-Supporting Members’ Opinions and Alternatives

Opinions of Opponents to Container Deposit:

- Deposits will disrupt existing recycling infrastructure.
 - Beverage containers are highly valuable material in any recycling system (particularly aluminum).
 - Current recycling service contracts are built on inclusion of all materials currently collected in traditional curbside programs.
 - Removing highly valuable containers (i.e., aluminum cans) from existing recycling systems lowers revenue and program participation, while keeping costs virtually flat.
- The promise of revenue from unredeemed deposits will not come true.
 - Advocates say that millions in revenue from unredeemed deposits will be spent on the recycling system.
 - There is no guarantee and this is unlikely to happen. The history of the solid waste tax in Minnesota is illustrative of what will happen. Solid waste tax revenue is now diverted to fund other programs and is used to reduce the budget deficit.
 - A recent example in California: the legislature took deposit revenue from recycling programs for deficit reduction and then proposed to increase the deposit.
 - Financial pressure on the state budget is not likely to end soon. Any revenue fund will be subject to taking to relieve the general fund budget.
- Creating a new, separate collection system for beverage containers will produce more greenhouse gases, not less.
 - Separating beverage containers from the existing collection and transportation system will consume more energy (and produce more GHG emissions) in facility management and vehicle miles traveled.
 - See the study of the State of Rhode Island (*Analysis of Beverage Container Redemption System Options to Increase Municipal Recycling in Rhode Island*, May 2009)
- 80% goal is arbitrary and probably not achievable with deposits.
 - Underlying data that led to 80% goal is unreliable, particularly for aluminum cans.
 - Redemption rates reported in other states include out-of-state containers that can skew the numbers.

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- Recovery rates of 50% - 60% are probably more realistic and more achievable without a deposit system.
- Product stewardship accomplishments of beverage containers/companies should be noted.
 - Virtually all packaging is 100% recyclable.
 - Product design for recycling.
 - Investment in recycled content.
 - Funding and public-private partnerships through existing recycling programs.
- Alternatives to container deposit can leverage existing investments.
 - Best practices for recycling programs (64-gallon carts with biweekly, single stream collection; variable rate pricing for trash; mandatory bar and restaurant recycling).
 - Require and enforce public space and event recycling.
 - Multi-family recycling initiatives.
 - Improvements to commercial and institutional recycling.

Alternatives to Container Deposit:

- Public entity recycling (public buildings, schools, publicly funded buildings/projects, parks and recreation – see strategy 2.2 *Commercial and Institutional Recycling*)
 - Goals/Timeframe/Mileposts: Achieve 60% recycling by 2015; 80% by 2025
 - Potential Implementation Parties: School districts, local and state government
 - Funding Mechanisms: Solid waste tax, state grants, local funds
 - Opportunities: Recover recyclables and set an example while stressing the importance of recycling.
- Single stream recycling; biweekly collection with large carts on wheels
 - Goals/Timeframe/Mileposts: All households with curbside collection must have single stream collection by 2015; all commercial facilities by 2025
 - Potential Implementation Parties: Cities, counties, waste haulers/recyclers
 - Costs: Expansion of single stream processing infrastructure
 - Funding Mechanisms: Solid waste tax, grants to recyclers for conversion and single stream processing
 - Opportunities: Rewards for participation
- Parallel access: match all recycling with waste service at public facilities and all households (curbside recycling service must be provided alongside refuse collection)
 - Goals/Timeframe/Mileposts: All households by 2015; 60% of public facilities place recycling bins where there are waste bins by 2015.
 - Potential Implementation Parties: Cities, counties, state, waste haulers, recyclers.
 - Costs: Recycling costs paid by homeowner, city, county, recycler.
 - Funding Mechanisms: SCORE funds, solid waste tax
 - Opportunities: Convenient recycling compared to drop-off centers.

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References to Public Comments Specific to 2.9 Container Deposit Legislation (see Appendix D)

Archer, Joan, Minnesota Beverage Association – Overall Comment/Comments to Multiple Strategies: p. 5; Archer, Joan & Tom Koehler, Minnesota Environmental Coalition of Labor & Industry (MECLI) – Overall Comments/Comments to Multiple Strategies: p. 9; Austin, Paul, Conservation Minnesota – Comment Re: Strategy 2.9: p. 10; Austin, Paul, Conservation Minnesota – Comment Re: Strategy 2.9: p. 11; Curry, John, Policy Director, Audubon Minnesota – Overall Comment/Comments to Multiple Strategies: p.13; Kleinschmit, Jim, Institute for Agriculture and Trade Policy – Comment Re: Strategy 2.9: p. 32; Meierotto, Joan, Audubon – Comment Re: Strategy 2.9: p. 40; Olson, Ben & Sarah Heuer, Minnesota Environmental Responsibility Network – Comment Re: Strategy 2.9: p. 57; Pfuhl, Jamie, Minnesota Grocers Association – Overall Comment/Comments to Multiple Strategies: p. 59; Pratt, Tim, Association of Recycling Managers – Overall Comment/Comments to Multiple Strategies: p. 60; Risser, Sarah, Sierra Club – Comment Re: Strategy 2.9: p. 64

4.9 Maximize Recovery of Recyclable Material Prior to Disposal of Municipal Solid Waste

Strategy Description/Recommendation

MPCA would fund and commission a comprehensive study to analyze the financial impact and effectiveness of requiring pre- or post-processing of all municipal solid waste (MSW) being disposed of in either a landfill or waste-to-energy (WTE) facility in Minnesota. A pre-processing facility would be defined as a facility that separates out recyclable materials, organics and/or refuse-derived fuel for integration with various apparent facilities. Costs, benefits and risks would be examined in sufficient detail to determine if and how pre- or post-processing could be required to meet desired resource recovery rates.

Measurement Method

Completion of study that is acknowledged as complete and putting forward sound findings.

Goals/Timeframe/Mileposts

Complete in 2010

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled – study only

Potential Implementation Parties

MPCA with the participation of local, State and Federal governments, haulers, and facility owners.

Costs

Up to \$450,000

Funding Mechanisms

Appropriation of State funds

Barriers/Issues

Tight budgets, claims that there is not need for study (preference for source separation, past studies, performance of existing pre-sort systems, and preconceived notions about processing versus landfilling).

Opportunities

Reduced GHG emissions by recovering recyclable materials that are not removed from waste stream by generator. Reduction of GHG by subsequent processing of non-recyclable materials. Increase recycling of ferrous metals, non-ferrous metals, and potentially other recyclable materials.

General Comments

Various pre-sort technology is proven, some systems have failed, and some technologies are new. There are several particular unknowns that must be resolved before moving ahead on pre-sort: scale, technical approach, costs, recycling potential, integrating pre-sort into other (related) recovery systems including energy recovery, RDF, composting, and anaerobic digestion.

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Members Not Supportive of 4.9 Maximize Recovery of Recyclable Material Prior to Disposal of Municipal Solid Waste and Their Opinions and Alternatives

Non-Supporting Members

Tim Brownell, Brett Smith

Non-Supporting Members' Opinions and Alternatives

- Strategy only calls for a study.
- Preference is a strategy that called for a requirement for pre- or post-processing prior to disposal to allow more capture of recyclable materials.
- Strategy title is misleading and should reflect that the strategy is only a feasibility study, i.e. “Study the Feasibility of Recovery of Recyclable Material Prior to Disposal of Municipal Solid Waste.”
- This strategy must clearly state that pre-processing of waste would not be eligible for processing tax credits.
- Strategy must clearly state that pre-processing of waste would not qualify this activity as “recycling” and move this disposal method “up the hierarchy.” It must be a mandatory requirement prior to disposal of waste either to a landfill or to a WTE facility.

References to Public Comments Specific to 4.9 Maximize Recovery of Recyclable Material Prior to Disposal of Municipal Solid Waste (see Appendix D)

Richter, Trudy, Executive Director, Minnesota Resource Recovery Association – Overall Comment/Comments to Multiple Strategies: p. 61

3.0 ORGANICS MANAGEMENT STRATEGIES

3.1 Source Separated Organics Management

Strategy Description/Recommendation

Each centroid (comprised of counties and a sanitary district) sets a goal of managing 5-7% of their total MSW stream as source-separated organic material (SSOM) by utilizing Food-to-People, Food-to-Animals, composting and anaerobic digestion by 2015. Organics managed within landfills or WTE facilities are not considered part of this goal. Source separated organic material includes food waste and non-recyclable and food-soiled paper.

Definitions: Food-to-People programs recover fresh or prepared food that is still fit for human consumption and distribute it through networks of social agencies. Food-to-Animal programs collect food scraps and cook and process the food to eliminate harmful bacteria and feed directly to pigs or process bakery and food by-products into a nutritious livestock feed ingredient. Composting recovers organic material separated by the source by an individual homeowner or business and delivered to a centralized site and processed into a soil amendment. Anaerobic digestion receives organics separated by the generator and through a digestion process generates biogas and digestate, which can be further processed into a soil amendment.

Actions Recommended for MPCA

Climate Change Benefits: MPCA should research and document the greenhouse gas impacts of organics composting and anaerobic digestion. Better quantification of GHG implications of organics management would enhance the ability to assess benefits of expanded management programs relative to other management options and recommend program expansions accordingly.

Rule Development: MPCA should continue to develop and improve appropriate rules and regulations for compost and anaerobic digestion facility siting, processing operations, best management practices, etc., taking into account the environmental impacts of such management methods. Regarding the emissions of volatile organic compounds (VOCs) from composting operations, the following summary principles summarize available knowledge to date:

- 1) VOCs are emitted during aerobic or anaerobic composting.
- 2) Additional data regarding VOC emissions from composting needs to be collected and analyzed.
- 3) The best available research to date suggests that VOCs and other environmental impacts from composting operations can be controlled utilizing best management practices, including facility siting, design, engineering, and other regulatory requirements.
- 4) MPCA should proceed with continued evaluation of regulatory requirements in other states, assessment of environmental impacts of composting, and use this information in the development of rules.
- 5) Rules and regulations need to be revised to provide direction to composting operations in different circumstances and situations, and to standardize best management practices. MPCA should make interested parties aware that rules are under development and their anticipated schedule for promulgation.

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Educational Materials: MPCA should work with counties and local communities to provide appropriate educational resources to residents and commercial customers about source separated organics management.

General Strategies (to be adapted and tailored as appropriate in each centroid):

Backyard Composting: Educate and promote backyard composting of source separated organic material.

Residential Curbside Source-Separated Organic Collection: Each city should evaluate the feasibility and opportunities to implement curbside collection of organics and provide intensive outreach/education programs to gain minimum 50% participation. Cities should consider requiring haulers to provide an opportunity to recycle organics if voluntary efforts do not achieve necessary results to obtain this goal. Capital costs of bins and collection need to be recognized and accounted for. Costs to the generator can be offset by reducing municipal solid waste (MSW) collection frequency and downsizing waste container size.

Restaurants, Cafeterias, Institutions and Businesses that Generate Significant Organic Waste: Intensive outreach and support (Duluth centroid, and Hennepin County models) to sectors that generate high quantities of organic material. Required by ordinances if voluntary efforts are not achieving necessary results to obtain goal. Reduced disposal costs (tip fees) and reduced solid waste taxes and fees to these institutions should offset any increased costs for source separation.

Anaerobic Digestion (AD): Continue feasibility work being conducted in Metro centroid by Hennepin, Ramsey and Washington Counties and the St. Paul Port Authority to research AD; characterize organic wastes for digestion potential; determine most advantageous ownership structure; calculate capital and management costs; and identify sources of material. Expand AD capacity to other centroids with sufficient quantities based on feasibility evaluation in Metro.

Centroid-Specific Targets and Implementation Plans

Metro: 7% by 2015

- Permit and open additional compost and or AD sites with sufficient capacity to meet the 2015 goal.
- Plan the expansion of successful Hennepin County residential and institutional programs and other successful models throughout the region, beginning in 2010.

Duluth: 5% by 2015

- Consider replicating Duluth/WLSSD's existing successful institutional source separated organics composting program in other communities, as appropriate.
- Support household source separated program where densities permit.
- Promote individual household composting where low densities or volumes exist.

St. Cloud: 5% by 2015

- Study successful pilots for decision on which strategies to implement, beginning in 2010.
- Replicate selected models throughout region by 2012.
- Promote individual household composting where low densities or volumes exist.

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Rochester: 5% by 2015

- Study successful pilots for decision on which strategies to implement, beginning in 2010.
- Replicate selected models throughout region by 2012.
- Promote individual household composting where low densities or volumes exist.

Measurement Method

Progress toward these goals should be measured by tons of SSOM received at compost sites or ADs and periodic (at least every five years) waste composition studies at all types of waste management facilities to measure recovery rates and amount of SSOM remaining in disposal stream.

Goals/Timeframe/Mileposts

Meet target rates for diversion of food waste, non-recyclable and food contaminated paper (see above) by 2015, implementation activities begin in 2010.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

6.5% of organic material composted by 2015, maintained through 2025.

Additions to WARM Model calculations regarding composting organics: The current WARM GHG cut/ton for composting organics is 0.2 MTCO_{2e}. Based on discussions with the U.S. EPA, a new, higher number has been calculated, and should be added to the model in the near future of 0.5 MTCO_{2e} cut/ton. MPCA used the new, higher number in the calculation for this recommendation which showed an increase of 1,998,565 MTCO_{2e} (increase from 1,332,377 to 3,330,942 MTCO_{2e}) calculated by multiplying the organics result by 2.5, which is the increase from 0.2 to 0.5.

Potential Implementation Parties

Cities, counties, regional authorities, private firms, haulers, all organic waste generators, MPCA, end users of compost, others.

Costs

Curbside collection costs for residential range from \$2.25-\$5.00 per household per month. Collection for Food-to-Hogs is \$30-35 per ton. Tipping fees at compost sites are around \$40 per ton. AD costs are unknown at this time.

Funding Mechanisms

Increased SCORE funding to counties to implement tailored programs, tax incentives.

Barriers/Issues

- Shortage of permitted composting sites for composting and AD processes.
- Need to revise current compost rules to include rules more appropriate to composting of SSOM/yard waste and make AD more feasible.
- On-going financial support for necessary outreach, education, training programs.
- Legislation to support and enforce goals (e.g., May include financial support, establishing numerical goals, requiring education programs, reworking current statutory definitions. Also, it is believed by many that achievement of higher than a 7% diversion goal may require an organics disposal ban.).

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- Local ordinance revisions to support backyard composting of kitchen scraps and to facilitate implementation of curbside collection of source separated compostable materials.
- Acquisition of initial capital (some strategies require this).
- Market development assistance for compost utilization needed.

Opportunities

- Diversion of a large portion of the existing disposal stream otherwise being landfilled.
- Recycling of organic matter for beneficial reuse.
- Long-term storage of carbon through net soil-building as soil amendments.
- Reduction in use of water, pesticides and fertilizer when compost used in agricultural or residential applications.
- Anaerobic digestion allows efficient capture of methane for renewable energy applications, displacing fossil fuel carbon emissions.
- Expands total employment vs. putting material in WTE or landfills.
- Removes moisture from remaining MSW material, improving refuse-derived fuel (RDF) thermal efficiency.
- Removes source of methane generation from solid waste landfills, reducing “open face” methane generation, allowing better overall life-cycle methane capture rates and improved carbon performance at the landfills.
- Increases useful life of existing permitted landfills by reducing total MSW disposal.

General Comments

Several members of the Work Group have voiced concerns over the sustainability of expanded composting, anaerobic digestion efforts, and the necessary revisions to the relevant regulations, and the current lack of end markets for finished compost.

Members Not Supportive of 3.1 Source Separated Organics Management and Their Opinions and Alternatives

Non-Supporting Members

Mike Cousino, Jack Ezell, Ted Troolin

Non-Supporting Members’ Opinions and Alternatives

- “Centroids” do not exist beyond this process. Centroid’s are a process-created regional grouping of counties/sanitary districts and have no authority for waste management activities.
- This strategy sets centroid goals of managing 5-7% of MSW as source-separated organic material (SSOM) by 2015. These percentage targets are too prescriptive and don’t allow local units of government to develop targets that work best within their respective areas.
- Waste management planning is done at the county level and goal setting should be done at the county level as well, using the existing planning and goal setting processes.
- Counties submit 5-year management plans to the MPCA to qualify for SCORE funding. If the MPCA holds counties to these SSOM percentage targets in their management plans, county representatives are concerned that their SCORE funding could be in jeopardy if their plans do not include the SSOM percentage goals set forth by the Work Group.
- Setting a 5-7% target is premature until further research and planning is conducted to determine if these percentages targets are feasible.

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- Feasibility to achieve these targets, or higher targets set by the local units of government, will be dependent on advancements in technology, permitting, regulation, funding, etc.
- Currently it is uncertain where the resulting organic material will go, as there is no structure in place today that can accept the levels of material called for in the strategy.
- Cost is a major consideration in all county planning. This strategy does not detail the full cost to implement the percentage targets and, thus, county representatives are unable to fully support this strategy without full knowledge of cost implications.
- In Olmsted County, collecting SSOM is not necessary as organic material can go to the county's Waste-to-Energy facility that will yield greenhouse gas emission reductions by reducing the need to burn fossil fuel as an energy source, as well as helping Minnesota achieve the renewable energy goal set forth in the Next Generation Energy Act.

References to Public Comments Specific to 3.1 Source Separated Organics Management (see Appendix D)

Curry, John, Policy Director, Audubon Minnesota – Overall Comment/Comments to Multiple Strategies: p. 13; Hubbard, Susan & Tim Brownell, Eureka Recycling – Overall Comment/Comments to Multiple Strategies: p. 23; Kleinschmit, Jim, Institute for Agriculture and Trade Policy – Comment Re: Strategy 3.1: p. 32; Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall Comment/Comments to Multiple Strategies: p. 34; Lange, Nancy, Izaak Walton League of America – Overall Comment/Comments to Multiple Strategies: p. 39; Morris, Douglas R., Waste Management Director, Crow Wing County – Comment Re: Strategy 3.1: p. 48; Pfuhl, Jamie, Minnesota Grocers Association – Overall Comment/Comments to Multiple Strategies: p. 59; Pratt, Tim, Association of Recycling Managers – Overall Comment/Comments to Multiple Strategies: p. 60

4.0 WASTE-TO-ENERGY STRATEGIES

4.11 Existing Waste-to-Energy Infrastructure is Operated at High Efficiency

Strategy Description/Recommendation

Achieve the full cost-effective utilization of existing waste-to-energy (WTE) facilities, in accordance with permit conditions and within the context of 115A.03. This would require redirecting waste away from landfills to processing and WTE projects. In addition, provide long-term commitments of mixed municipal solid waste (MMSW) to create investments to increase the efficiency of WTE.

Efficiency improvements include but are not limited to:

- Increased heat recovery (thermal efficiency)
- Co-generation of electricity and thermal (combined heat and power)
- Recovery of recyclables
- Recovery of oversized and bulky waste
- Ash recovery
- New air pollution control systems or combustion enhancements

This strategy will require new, effective, long-term waste delivery arrangements.

Measurement Method

By 2011 all WTE facilities are operating at capacity, have long-term delivery agreements, and have formulated a project specific plan to increase efficiency by planning one or more of the enhancements listed above.

Goals/Timeframe/Mileposts

Waste delivery arrangements in 2011.

Efficiency planning and proposals in 2012.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Starting in 2011, maintained through 2025.

To handle projected residuals, MPCA modeled using all the permitted WTE capacity (1,228,000 tons per year) before sending any MSW to landfill.

Additions to WARM Model calculations regarding additional efficiencies in Minnesota's Waste-to-Energy (WTE) facilities: MPCA multiplied the WTE GHG cuts, calculated in WARM, by 1.1 because WARM assumes WTE plants are 18% efficient, but MN plants are at approximately 28% efficiency, this yields approximately an additional 427,388 MTCO_{2e}.

Potential Implementation Parties

Waste haulers; local, State and Federal governments; all existing facility owners.

Costs

This may save money through full utilization of capacity, increased efficiency, and amortization of costs over a logical time horizon. Waste generators would bear the cost of WTE and waste processing as it may be priced higher than landfills.

Funding Mechanisms

Tipping fees

Barriers/Issues

Bias against WTE, perception that existing WTE projects compete with reduction, reuse, and recycling. Merchant landfill business interests.

Opportunities

Expanded renewable energy production, lots of waste left to handle using other techniques, jobs in high tech waste treatment, potential for economic development/co-location of thermal load (district/institutional heating and cooling, food processing, manufacturing, etc.). Significant reduction of landfilling.

General Comments

Technology is proven but costs are site and plant specific.

Several WTE facilities have not been operated at capacity due to the failure of waste assurance through subsidy programs.

Members Not Supportive of 4.11 Existing Waste-to-Energy Infrastructure is Operated at High Efficiency and Their Opinions and Alternatives

Non-Supporting Members

Don Arnosti, Tim Brownell, Jim Kleinschmit, Brett Smith

Non-Supporting Members' Opinions and Alternatives

- Not supportive of increasing capacity utilization of existing facilities up to permitted capacity. This could, over time, compete with other management methods higher on the Waste Management Hierarchy (such as recycling and composting), as the strategy calls for long-term commitment of waste to these facilities.
- Objections to locking in a long-term supply of waste (2011) prior to “Efficiency Planning and Proposals” (2012). This does not assure that the efficiency benefits outweigh the environmental, health and economic costs to the public for these privately run facilities.
- Some are supportive of increasing efficiency, and suggest that the strategy be split into two aspects: 1) increase efficiency; 2) increase utilization to permitted capacity.
- Strategy title is misleading and should be retitled to better reflect the strategy, i.e. “Maximize Utilization of Existing Waste-to-Energy Facilities Based on Current Permitted Capacity to Pay for Efficiency Improvements.”

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References to Public Comments Specific to 4.11 Existing Waste-to-Energy Infrastructure is Operated at High Efficiency (see Appendix D)

Berglund, Gena – Overall Comment/Comments to Multiple Strategies: p. 11; Britton, Felicity, Linden Hills Power & Light – Comment Re: Strategy 4.11: p. 12; Davis, Leslie, President, Earth Protector, Inc. – Overall Comment/Comments to Multiple Strategies: p. 14; Decker, Diadra, Citizen – Overall Comment/Comments to Multiple Strategies: p. 16; Eyrich, Ardell, a resident of Minnesota – Overall Comment/Comments to Multiple Strategies: p. 17; Ferguson, Beverly, Professor Emerita, Metropolitan State University – Overall Comment/Comments to Multiple Strategies: p. 17; Gonder, Jan L. – Comment Re: Strategy 4.11: p. 17; Greenfield, Janice, Neighbors Against the Burner – Comment Re: Strategy 4.11: p. 18; Greenwood, Carol, writing as a private citizen – Overall Comment/Comments to Multiple Strategies: p. 19; Hone, Nancy, Founder/Coordinator, Neighbors Against the Burner----- REPRESENTING CITIZEN STAKEHOLDERS – Overall Comment/Comments to Multiple Strategies: p. 21; Keen, Bryan – Comment Re: Strategy 4.11: p. 26; Kieselhorst, John, Concerned St. Paul resident – Overall Comment/Comments to Multiple Strategies: p. 26; Klave, Gregory L. – Overall Comment/Comments to Multiple Strategies: p. 30; Lind, Nathan – Comment Re: Strategy 4.11: p. 40; Moe, Marne – Overall Comment/Comments to Multiple Strategies: p. 43; Morris, Douglas R., Waste Management Director, Crow Wing County – Comment Re: Strategy 4.11: p. 48; Muller, Alan, Minneapolis Neighbors for Clean Air/Neighbors Against the Burner – Overall Comment/Comments to Multiple Strategies: p. 50; Muller, Alan, Minneapolis Neighbors for Clean Air/Neighbors Against the Burner – General Comment Re: Climate change emissions: p. 52; Norkus-Crampton, Lara – Overall Comment/Comments to Multiple Strategies: p. 55; Nye, Janet, Minneapolis, MN – Comment Re: Strategy 4.11: p. 57; Reilly, Rebecca, City of Minneapolis – Overall Comment/Comments to Multiple Strategies: p. 60; Richter, Trudy, Executive Director, Minnesota Resource Recovery Association – Overall Comment/Comments to Multiple Strategies: p. 61; Rondano, Annette, St. Paul small business owner/Minneapolis CEAC member since 2009 – Overall Comment/Comments to Multiple Strategies: p. 64; Scheidt, Jim – Comment Re: Strategy 4.11: p. 66; Schmidt, Gregory V. – Overall Comment/Comments to Multiple Strategies: p. 66; Spear, Connie, University of MN HSRC – Comment Re: Strategy 4.11: p. 69; Sponheim, Sarah – Overall Comment/Comments to Multiple Strategies: p. 69; No Name Provided – Comment Re: Strategy 4.11: p. 72

5.0 LANDFILL DISPOSAL STRATEGIES

5.1 Methane Management at All Landfills

Strategy Description/Recommendation

All municipal solid waste (MSW) landfills in the state of Minnesota must meet a minimum capture and destruction rate of all methane generated throughout the remaining life span of each landfill, including active and post-closure emissions. At a minimum, all captured methane must be flared, but when technically and financially feasible, energy production from recovered methane is preferable.

MPCA will determine minimum capture rate based on maximum available control technology (MACT), and determination of actual capture rates through appropriate monitoring with best available technology would be required. Additional research completed by MPCA and the landfill industry will inform measurement techniques and improve the body of available data on achievable methane recovery rates.

The intent of this strategy is to hold harmless facilities that have voluntarily implemented landfill gas equipment, and through its rulemaking process, the MPCA will determine the most appropriate way to provide this assurance.

Current rules for landfill operators are limited to 20-30 years of post-closure care funding, though the legal liability of operators is open-ended. At the request of the Legislature in 2008, the MPCA is rewriting landfill rules to “ensure” that the public doesn’t ever have to pick up the cost of groundwater contamination from landfills, including events that could happen long after the landfills close for business. Once promulgated, these new rules will make tangible progress toward perpetual-care funding for landfills.

Measurement Method

Methane release cannot be continuously monitored; need to monitor via computer modeling.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

The WARM model is only able to model one landfill methane capture method at a time.

Original MPCA WARM model used average 65% gas-to-energy (to account for the fact that several landfills will only flare their gas); gradual increase, reaching 65% by 2025.

In order to show a general range of landfill strategy results, the MPCA ran two subsequent model runs to show two results for landfilling: 75% collection and flaring of landfill gas, and 75% landfill gas-to-energy. The difference between these two options is approximately 950,000 MTCO₂e of additional GHG emission reductions when using landfill gas-to-energy rather than flaring.

Potential Implementation Parties

Landfill owner/operators (public & private)

Costs

Capital investment in gas collection systems, engineering modifications, permitting modifications, operation and maintenance.

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Funding Mechanisms

Landfill tipping fees

Barriers/Issues

Any state or federal requirements on landfill gas (LFG) control in an effort to reduce GHG emissions would remove the additionality (or voluntary) aspect to these projects, and the smaller landfills wouldn't be eligible to sell carbon offsets.

These projects are expensive for the smaller landfill with limited revenue from gate receipts.

Redirect the focus to economic incentives versus mandates.

According to the MPCA projected 2011 methane emissions from the 21 landfills in Minnesota:

- 69.2% of the waste being landfilled are to landfills required to have active LFG control by NSPS (total of 4 landfills).
- With Clay County, Crow Wing, East Central, and part of Ponderosa having active LFG control voluntarily, the total is about 75% of the waste being landfilled.
- These 4 sites could gain \$263,000 to \$1,040,000 on the current carbon market.
- Adding the next 7 largest sites voluntarily (15 of the 21 landfills) gets to 90% of the waste being landfilled.
- These 7 sites could gain \$420,000 to \$1,660,000 on the carbon market.

Technically it is doubtful that methane generation at a landfill can be continuously monitored, therefore would need to use computer modeling to project methane emissions. Difficult to measure gas output at early and late stages of landfill development due to very low gas production.

This would need to include provisions for increasing methane destruction through oxidation in cover materials. This will be a viable option for smaller or closed units covered with earthen covers. Maintaining 75% will be impossible at the tail end of the gas curve with geomembrane covers. As the curve goes down the amount of methane to be collected and controlled diminishes to a point of infeasibility. This is the point at which oxidation should take over.

Opportunities

Source of renewable energy

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Members Not Supportive of 5.1 Methane Management at All Landfills and Their Opinions and Alternatives

Non-Supporting Members

Tim Brownell, Brett Smith

Non-Supporting Members' Opinions and Alternatives

- Industry has stated that it can achieve a 90% landfill methane capture rate. Strategy should require landfill operators to achieve 90% capture rate as opposed to MACT determination.
- It must be clear that the capture rate pertains to the full life-cycle generation of methane at landfills, not just in the closed cells.
- Methane capture at all landfills should be required to be used as energy and not flared.
- Best Available Technology monitoring must include continuous, active monitoring of all phases of the landfill to determine the true and accurate capture rate of methane discharges on all working/active cells of the landfill, as well as the closed cells with active capture systems. Modeling of methane capture can supplement this data, but capture rate reporting cannot be fully reliant on modeling alone.
- Capture rate information must be fully auditable and follow protocols developed by the MPCA.

References to Public Comments Specific to 5.1 Methane Management at All Landfills (see Appendix D)

Hubbard, Susan & Tim Brownell, Eureka Recycling – Overall Comment/Comments to Multiple Strategies: p. 23; Lange, Nancy, Izaak Walton League of America – Overall Comment/Comments to Multiple Strategies: p. 39; Morris, Douglas R., Waste Management Director, Crow Wing County – Comment Re: Strategy 5.1: p. 48; Richter, Trudy, Executive Director, Minnesota Resource Recovery Association – Overall Comment/Comments to Multiple Strategies: p. 61

5.2 Increase Landfill Disposal Fees to Align Price Structure with Waste Management Hierarchy

Strategy Description/Recommendation

Increase landfill disposal fees.

Measurement Method

Reduction in waste going to landfills.

Goals/Timeframe/Mileposts

Implemented in 2011.

Mixed waste, recyclables (plastic, glass, paper, metals).

Result in approximately 50% recycling rate; slight increase in composting and WTE.

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Contributes to 60% recycling goal, but not modeled directly.

Potential Implementation Parties

MPCA, State Legislature, regional and local units of government.

Costs

Increased costs to residents and businesses.

Barriers/Issues

May drive waste out of the state. Will not increase recycling if end markets do not exist. Taxes are already significant (9.75% for residential, 17% for commercial) in addition to other taxes, service charges, fees. May encourage illegal dumping, burn barrels.

Opportunities

Higher cost to landfill moves waste to other management methods higher up on Waste Management Hierarchy.

General Comments

Metro landfill abatement fee is in place on two metro area landfills.

Members Not Supportive of 5.2 Increase landfill Disposal Fees to Align Price Structure with Waste Management Hierarchy and Their Opinions and Alternatives

Non-Supporting Members

Mike Cousino, Jack Ezell, Ryan O’Gara, Mike Robertson, Peg Wander

Non-Supporting Members’ Opinions and Alternatives

- May drive waste out of state to other landfills with potentially lower methane capture rates.
- Will not increase recycling if end markets do not exist or are not developed.
- Taxes are already significant (9.75% for residential, 17% for commercial).
- May encourage illegal dumping and/or use of burn barrels.

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References to Public Comments Specific to 5.2 Increase Landfill Disposal Fees to Align Price Structure with Waste Management Hierarchy (see Appendix D)

Kordiak, Jim, Chair, Solid Waste Management Coordinating Board – Overall
Comment/Comments to Multiple Strategies: p. 34; Morris, Douglas R., Waste Management
Director, Crow Wing County – Comment Re: Strategy 5.2: p. 50

6.0 OTHER SUPPORTING STRATEGIES

6.1 Organized Collection

Strategy Description/Recommendation

Promote the implementation of organized collection of MSW services through lessening the requirements and timeframes on governmental units to implement organized collections, as well as to encourage joint purchasing efforts/cooperatives for the procurement of waste services.

Measurement Method

Reporting of all materials collected would/could be a requirement of all contracts allowing for accurate measurement of tons captured.

Goals/Timeframe/Mileposts

Implement 2011 - 2013

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled - contributes to the 60% recycling rate goal, but was not modeled directly

Implementation Parties

MN Legislature, MPCA, MN Dept of Commerce, Regional/local governments (counties, SWMCB, WLSSD, economic development agencies, cities and townships), non-profits, private haulers, private sector

Costs

Low costs/medium costs. Legal and administrative costs paid by municipalities to follow the current mandated organizing statute process. Costs currently paid by residents directly to their hauler would be transferred to the local unit of government to pay. Per household costs for collection service have been shown to be lower in organized programs than under non-organized (open) collection systems.

Funding Mechanisms

Usually funded either through property tax or service fee increases.

Barriers/Issues

- Private haulers strongly oppose organized collection. Small haulers fear it will limit their opportunities to compete. Large haulers believe that if their market share grows too large they may face additional government scrutiny/regulation
- This should be done through public/private partnerships
- Vocal groups of residents protest to elected officials saying they like the ability to choose their hauler for themselves. Creates political issues for city councils, etc.
- There exist other ways to address opportunities (i.e. citywide licensing, etc)
- Could create monopolies
- Could put small haulers out of business
- The organized collection process is quite long and onerous for all parties involved. Currently the process to follow the organized collection statute takes a municipality approximately one year to complete

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Opportunities

- Creates opportunity to provide community-wide education about reduction and recycling programs
- Can increase overall capture of materials by providing consistent service to all residents
- Can provide for multiple haulers to provide services by splitting cities into regions or allowing different haulers to collect each stream
- Licensing requirement, citizen mandate as alternative to organized collection
- One hauler may be able to take over the market
- Allows the city to control the waste contract for the entire community, possibly meaning more opportunities for WMC.
- Gives waste generators flow control so they can designate that waste be managed by a method higher in the hierarchy.
- Lengthens street life because of decreased heavy truck traffic, thus allowing cities to reduce or delay property tax assessments for road maintenance or replacement.
- Allows cities to negotiate rates with haulers and thus create greater price differentials between different levels of service and influence residents to reduce their waste and recycle more of their waste.
- Decreased diesel truck traffic decreases particle emissions resulting in cleaner air.
- Route efficiency decreases greenhouse gas emissions.
- Route efficiency results in less neighborhood noise pollution.
- Decreased number of trucks on residential streets reduces the odds of accidents occurring.
- Gives cities greater control over determining the best provision of service to their residents. Currently there is an artificially high threshold for switching to organized garbage service - a threshold that does not exist when cities consider organizing other services such as recycling and Wi-Fi.
- Allows for transparency and consistency in pricing.
- Associated educational efforts expand and enhance resident's knowledge about the full range of services and costs for waste disposal and recycling.
- Can guarantee market share for small haulers that are part of a consortium.
- Reduces confusion for new residents unsure how and what criteria to use to pick a garbage hauler.
- Would create the densities of materials to make collection programs more affordable, as well as to provide opportunities for all residents to participate.
- Municipalities would also have the pricing controls to then incentivize the diversion of SSOM out of the garbage can and into an organics container.

General Comments

The political barriers to implementing this strategy are large. Would require strong state initiative to implement.

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Members Not Supportive of 6.1 Organized Collection and Their Opinions and Alternatives

Non-Supporting Members

Julie Ketchum (for Doug Carnival), Ryan O’Gara, Mike Robertson, Peg Wander

Non-Supporting Members’ Opinions and Alternatives

Opinions of Opponents to Organized Collection:

- Organized collection has many potentially harmful impacts to hauling industry businesses, as outlined in the “Barriers/Issues” section of the strategy.
- Voluntary efforts, as outlined in strategy 6.1A Industry Alternatives to Organized Collection, can provide all of the desired benefits that proponents of organized collection seek, as described in the “Opportunities” section of strategy 6.1A.

Alternatives to Organized Collection:

- See strategy 6.1A Industry Alternatives to Organized Collection

References to Public Comments Specific to 6.1 Organized Collection (see Appendix D)

Hubbard, Susan & Tim Brownell, Eureka Recycling – Overall Comment/Comments to Multiple Strategies: p. 23; Morris, Douglas R., Waste Management Director, Crow Wing County – General Comment Re: Solid Waste: p. 46

6.1A Industry Alternatives to Organized Collection

Strategy Description/Recommendation

Voluntary cooperation with local units of government to achieve improved service outcomes (e.g., days zoning, strategic routing, safety measures, agreements for waste delivery).

Goals/Timeframe/Mileposts

Immediate

MPCA WARM Model Input Assumptions (Material Type and Quantity Changed)

Not modeled – MPCA feels that this strategy does not represent any change from current conditions

Potential Implementation Parties

Cities, haulers, residents

Barriers/Issues

Cooperation with local governments

Opportunities

- Solutions implemented by agreement and cooperation.
- These approaches have been successful in every community that has considered organized collection. Each of the twelve communities has decided to abandon pursuit of organized collection (Ramsey/Washington Counties, Olmsted County, Coon Rapids, Falcon Heights, Arden Hills, Prior Lake, Sauk Rapids, Greenwood, Carver, Lauderdale, Pine Island, and Stillwater Township).
- Citizens overwhelmingly opposed the plan preferring to maintain control of the decision individually. After input from citizens, many communities took the route described in this strategy. They worked with haulers to reach voluntary agreements to solve specific issues of concern in their own communities.

Members Not Supportive of 6.2 Industry Alternatives to Organized Collection and Their Opinions and Alternatives

Non-Supporting Members

Don Arnosti, Tim Brownell, Jeff Harthun (for Carl Michaud), Jim Kleinschmit, Tim Pratt, Brett Smith

Non-Supporting Members' Opinions and Alternatives

Opinions of Opponents to Industry Alternatives to Organized Collection:

- Organized collection, as opposed to the voluntary efforts outlined in this strategy 6.1A Industry Alternatives to Organized Collection, provides an important mechanism to support the Work Group's recommended strategies as outlined in the "Opportunities" section of strategy 6.1 Organized Collection.
- The proposal offers no concrete actions that would result in decreased greenhouse gas emissions.

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- The agreements between LGUs and haulers mentioned in the proposal have not demonstrated a reduction in waste, an increase in recycling or a decrease in greenhouse gas emissions.
- Various forms of organized collection have been demonstrated in other parts of the U.S. and the world to be valuable tools to achieve waste reduction, recycling, processing, and other waste management goals, generally viewed to be in the best interests of the public. Without such tools, relying on the private waste industry to do the right thing, in this case, may not yield the desired results.

Alternatives to Industry Alternatives to Organized Collection:

- See strategy 6.1 Organized Collection

Funding Recommendations

During the November 20 Work Group meeting, members participated in a brainstorming session to develop high-level funding recommendations beyond strategy 6.3 *SCORE Funding Mechanism Repair and Enhancement* that could be used to fund the recommended strategies and better support the solid waste management system. Below is the list of unanimously supported funding recommendations of the Work Group.

Funding Recommendations

1. All of the Solid Waste Management Tax revenue should go to integrated solid waste management purposes and programs.
2. In general, the full cost of waste management should be borne by the generators of waste.
3. The full cost of difficult-to-manage or problem materials should be borne by manufacturers/producers.
4. Minnesota's waste management financial resources and incentives should focus on moving waste up the Waste Management Hierarchy and progress toward this goal should be measured regularly through transparent reporting.
5. Fees, surcharges, taxes, and tax incentives should accurately reflect long-term societal goals to lower GHG emissions, keep environmental toxicants out of the waste stream, and change behavior to incentivize less waste generation.
6. Full life-cycle analysis of materials (by product) should be factored into the costs of waste management and should be imputed to waste generators.
7. Property taxes should not be used as a primary source for waste management funding.
8. Develop mechanisms (grants, etc.) that incentivize and encourage private sector innovations to achieve GHG emission reductions in waste management.
9. Provide funding to engage and educate the public in understanding the value of waste reduction activities and climate change impacts.
10. Provide financial assurance for commodity market fluctuations to balance down markets and provide needed reliable funding mechanisms to support commodity recycling and the Waste Management Hierarchy.

The Integrated Solid Waste Management Stakeholder Process successfully developed thirty-eight (38) recommended strategies that, if implemented, will allow the state to achieve significant reductions in greenhouse gas emissions from the solid waste sector in the four centroids used for this Process. However, as described in the report, the recommended strategies do fall an estimated 10% below the original Process goal (the recommended strategies are estimated to yield 47.2 MMTCO_{2e} by 2025 and the original Process goal was 52.5 MMTCO_{2e}). Again, the Work Group and the MPCA acknowledged this shortfall and pointed to imperfections in current GHG modeling as a major contributing factor to the Process not reaching the original goal. Therefore the Work Group, at a minimum, has adequately fulfilled its charge by recommending changes to the management of solid waste in the four centroids that will result in significant GHG reductions very near to the order of magnitude recommended by the MCCAG.

In addition to yielding significant reductions in GHG emissions as a result of the recommended strategies, the Work Group should be commended for their strategies to move waste up the Waste Management Hierarchy. As shown in the report, the Work Group's recommended strategies will result in the following average projected percentages for waste management methods across the four centroids by 2025: 6.08% Source Reduction (cumulatively to 2025); 60% Recycling; 6.5% Organics Management; 24.1% Waste-to-Energy; and 9.4% Landfill Disposal. For comparison, the 2005 baseline for waste management method percentages across the four centroids are: 40% Recycling; 2.7% Organics Management; 17% Waste-to-Energy; and 35% Landfill Disposal.

Many individuals and stakeholders should be congratulated for their support of the Process. First and foremost, the Work Group members and their alternates devoted significant time and energy into this Process and should be acknowledged for their efforts. As described in the report, Work Group members collaborated to develop strategies that most or all members can support, including some highly controversial strategies. The MPCA should also be commended for two reasons in particular: first for their technical support throughout the Process, without which this Process could not have measured the projected impacts of strategies; and second for their willingness to extend the process timeline at the request of the Work Group. A third group of individuals that should be congratulated for their efforts in this process are the members of the centroid sub-groups. The centroid sub-groups' work was a turning point in this Process that helped lead to the development of final recommendations, and centroid sub-group members should recognize that the Process would not have yielded the level of support or detail on strategies that this Process produced without their input. Finally, the broader stakeholders, who attended Work Group meetings and public input meetings, and submitted written comments for the Work Group to review, were very helpful for the Work Group in their development of recommended strategies.

While the thirty-eight recommended strategies provide guidance and direction to the state by comprising the elements of a plan to achieve significant GHG emission reductions through solid waste management, the state must ultimately work with, and lead, numerous partner organizations to systematically and effectively implement the recommendations.

As the MPCA develops its 2009 Solid Waste Policy Report and works with counties to update local solid waste management plans, it should assess the implementation mechanisms available to support the recommended strategies, the amount of resources that will be required to implement the

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strategies, and various mechanisms that could be used to fund the recommended strategies. A comprehensive implementation plan should then be developed and put into action in order to ensure that the recommended strategies are brought to fruition and that the GHG emission reductions that are projected to result are achieved.

As the measurement tools and available data on types and quantities of municipal solid waste continue to improve, MPCA should check the state's progress on achieving the strategies' intended outcomes and adjust the implementation plan as needed.

Finally, where possible, MEI would encourage the state to pursue opportunities to leverage public-private partnerships in ways to advance the goals of the Waste Management Hierarchy and achieve GHG reductions through solid waste management.