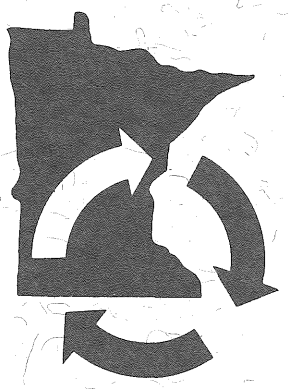
STATE STRATEGY

FOR

RECYCLING MARKET DEVELOPMENT



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The Minnesota Office of Waste Management

In Conjunction With

The Market Development Coordinating Council

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Passage of legislation from the Select Committee on Recycling and the Environment (SCORE) in late 1989 significantly expanded efforts to develop recycling markets in Minnesota. The Office of Waste Management (OWM) has taken the lead in spearheading these statewide market development activities.

Creation of this state strategy was a cooperative effort involving industry, nonprofit organizations, and all levels of government. In March 1990, the OWM convened the first meeting of the Market Development Coordinating Council (MDCC), an eighteen member advisory council comprised of representatives from state agencies, local government units, private recycling markets, and private recycling collectors. At a day long retreat in May, the OWM and the MDCC met with recycling market development experts from across the country to identify critical issues and develop the broad outlines of the strategy. Subsequently, informal resource advisory groups were convened to provide industry expertise on paper, plastic, and compost recycling market development issues.

I am pleased to acknowledge the contribution of MDCC members in providing recommendations and advice throughout the development of the strategy. My thanks also go to participants of the resource advisory groups for review and comment on the draft document.

Special thanks are extended to William Ferretti, William Franklin, Thomas Hemphill, Susan Kinsella, Mary Kohrell, Thomas Peek, and Jason Willett for sharing their insights and expertise.

Finally, I am pleased to acknowledge the contribution of Laura Millberg of the OWM staff as principal author.

With the *State Strategy for Recycling Market Development* to guide us through the next biennium, the OWM is aggressively pursuing the challenge of developing markets for recycling.

Michael Robertson
Director

STATE STRATEGY FOR RECYCLING MARKET DEVELOPMENT

EXECUTIVE SUMMARY

OBJECTIVES OF RECYCLING MARKET DEVELOPMENT

The ultimate importance of developing recycling markets is to accomplish these five objectives:

* ***Assist local governments and state offices in achieving the recycling goals in the SCORE (Select Committee on Recycling and the Environment) legislation through the development of recycling markets, while focusing on longer-term market development for additional materials in the waste stream that currently are not recovered, or are recycled only to a limited extent.***

* ***Foster resource conservation attitudes, practices, and policies in Minnesota and the region through a reordering of economic incentives that encourage recycling market development.***

* ***Strengthen sustainable environmental protection efforts that lessen the reliance on landfills and incinerators by stimulating markets for products and packaging that utilize recovered materials at their highest possible value, and result in closed-loop recycling whenever feasible.***

* ***Encourage community-based economic development through expansion of markets for the recycling industry.***

* ***Promote the most effective combination of public and private sector resources for recycling, including incorporation of the existing recycling infrastructure.***

The state strategy must be implemented with attention to the waste management hierarchy so that the importance placed on recycling does not negatively impact source reduction efforts.

BARRIERS TO THE USE OF RECOVERED MATERIALS AND RECYCLED PRODUCTS

The following seven barriers have been identified as a comprehensive description of the difficulties confronting recycling market development efforts in Minnesota:

1. ***Lack of Demand***
2. ***Higher Costs***
3. ***Insufficient and Inconsistent Quality***
4. ***Insufficient Availability***
5. ***Public Confusion***

6. *Public Prejudice*

7. *Uncertain Control and Responsibility*

COMPREHENSIVE STRATEGY FOR OVERCOMING THESE BARRIERS

The comprehensive strategy for recycling market development is to stimulate demand for recycled products and packaging while reordering economic incentives so that more goods are produced using recovered materials. This strategy will address all seven barriers to the use of recovered materials and recycled products. The following nine areas for action have been identified as necessary to accomplish the strategy:

1. ALTER THE ECONOMIC INCENTIVES FOR USE OF VIRGIN AND RECOVERED MATERIALS

Altering the economic incentives involves a two-tiered approach. Incentives such as grants and low interest loans must be provided immediately to stimulate markets for recovered materials. In addition, longer-term efforts should be undertaken to remove the special treatment accorded to virgin resource extraction. Lobbying for changes in the federal tax code and reviewing public sector resource management practices will help identify the true value and costs of recovered compared with virgin materials.

2. INTERNALIZE MORE OF THE ENVIRONMENTAL COSTS

Approaches to incorporate more of the environmental costs in the prices of goods and services include implementing volume/weight-based pricing, facilitating closed-loop recycling, setting recovery targets for specific materials, minimizing use of materials that are not likely to be recycled, developing incentives to overcome the pollution potential associated with recycling, and developing policy recommendations based on cradle to grave environmental research.

3. IMPLEMENT AN AGGRESSIVE PUBLIC SECTOR PROCUREMENT CAMPAIGN

Approaches to implementing an aggressive procurement campaign build on the SCORE directives. As the lead agency for public sector procurement, the Department of Administration has the opportunity to actively promote and enforce preferences for recycled products, aggressively expand participation in the cooperative purchasing program to all levels of government, initiate extensive performance testing of recycled products/materials, and take an active role in developing national material standards.

4. FACILITATE DEVELOPMENT AND PROMOTION OF RECYCLED PRODUCTS

The "Buy Recycled" program -- established by the OWM and the Department of Administration to educate purchasers, identify/test recycled products, and create buying opportunities -- should be expanded with a targeted effort to reach more of the private sector. Performance testing needs to be accelerated and results disseminated. Efforts to facilitate greater availability of recycled products should be pursued with distributors and retailers. In addition, the feasibility of promotion councils -- modeled on the various councils created to promote agricultural commodities -- should be explored as an approach to build public support for recycled products.

5. PUSH FOR LABELING AND STANDARDS

This action area calls for supporting development of national standards for recycled content, recyclability, and degradability, as well as pushing for adoption of a national labeling system to communicate those standards. If no significant action is forthcoming by the federal government within the next 18 months, however, a state or regional system of labeling and standards should be pursued.

6. ORGANIZE COOPERATIVE EFFORTS

The state should disseminate information about cooperative arrangements, facilitate coordination of recovered material supplies where necessary to spur market development, and work cooperatively with traditional community economic development programs to foster recycling expansion.

7. DEVELOP AN EFFICIENT TRANSPORTATION NETWORK

This action area calls for conducting a transportation systems study and rapidly implementing the study recommendations. Opportunities for transportation system enhancement will be addressed, such as the access of haulers to containers and scales outside traditional business hours, the need to increase backhauling opportunities, the impact of the transportation rate structure on the recycling industry, potential cooperative transportation efforts, feasibility of a statewide transportation network computer or hotline, and mechanisms to best utilize rail and waterway transport options.

8. IMPROVE ACCESS TO MARKET INFORMATION

Greater access to market information can be provided by identifying recycling data needs, developing standard measurement guidelines, preparing technical assistance materials to support market development efforts, and identifying crisis management options to deal with potential disruptions in the marketplace and guarantee markets for recovered materials.

9. EXPAND CONSUMER WASTE EDUCATION EFFORTS

The approach to expand consumer waste education efforts includes implementation of the Waste Education Grant Program, increased emphasis in waste education toward market development efforts by public institutions and businesses, and implementation of an education campaign to help consumers understand any new labeling standards.

MATERIALS PRIORITIZATION

The prioritization of recovered materials for market development efforts is:

1. ***Paper:*** First-ranked because it comprises such a large portion of the municipal solid waste stream and encompasses a number of source-separated recyclable materials. Counties will not be able to meet SCORE goals without increasing both the amounts and grades of paper recycled.

2. ***Plastic:*** Second-ranked because increased public attention to the management of waste plastic and the rapid expansion of plastic recycling activity in the state have created a window of opportunity for market development of this material. In addition, plastic is a significant and growing percentage of the waste stream.

3. ***Problem Materials:*** Third-ranked due to problems with toxicity, low value and limited markets, lack of adequate recycling technologies, and/or landfill capacity problems.

4. ***Compost:*** Fourth-ranked because the yard waste ban and the growing importance of composting as a solid waste management method are dramatically increasing quantities of yard waste compost and municipal solid waste (MSW) compost.

5. ***Glass:*** Fifth-ranked because of the limited number of, and distance to, markets, as well as the potential for significant amounts of glass to be rejected and landfilled due to color contamination. New markets will help counties achieve SCORE goals.

MATERIAL-SPECIFIC STRATEGIES

PAPER

The strategy for recovered paper is to promote separation and sorting to achieve the highest material value and promote closed-loop recycling. Old newsprint (ONP) is the focus for immediate action because markets are anticipated to remain very weak at least until the deinking expansions at Thunder Bay, Ontario come on line in mid-1991 and 1992. Mixed paper then gains focus as the top priority because sorting and quality problems make it difficult to market. The paper grades needing less market development attention include old corrugated containers (OCC) and fully-sorted office paper.

PLASTIC

The strategy for recovered plastic is to promote source separation and sorting of resins to achieve the highest material value and promote closed-loop recycling. The targeted approach focuses on developing cost-effective collection efforts, expanding processing capacity, and matching the material supply with the growing end-market demand. For the longer-term, the intention is to reach agreement with industry on phasing out specific resins if recycling opportunities continue to be too limited or costly.

PROBLEM MATERIALS

The strategy is to separate problem materials and identify markets to handle both the hazardous and recoverable materials. The targeted approach focuses on household batteries, used oil, and tires. Other categories such as demolition materials, wood wastes, electronics, and fluorescent lightbulbs will be assessed for future market development needs. Market development activities for problem materials are administered by the Office of Waste Management (OWM), with the exception of tires, which the Minnesota Pollution Control Agency (MPCA) administers.

COMPOST

For all compost, the strategy is to facilitate development of markets by working with the industry to develop classifications that more adequately identify the quality and suitability of compost for various uses. The targeted approach to compost focuses on research, information dissemination, and development of public sector markets. Landspreading of yard waste will be facilitated where that is the more cost-effective management approach.

GLASS

The strategy for recovered glass is to encourage source separation for highest value, and to develop end markets for reject color-mixed cullet. The targeted approach focuses on the development of smaller-scale manufacturing to create end markets for sorted glass, and on further exploration of road paving applications as a market for reject cullet.

COORDINATION OF ROLES

The following seven areas for action have been identified as necessary to coordinate roles and responsibilities for recycling market development:

1. ***Track the materials supply available for processing and remanufacturing.***

2. ***Share data and coordinate its dissemination.***

3. ***Coordinate technical assistance activities for local governments and the private sector.***

4. ***Identify available financial assistance programs for local governments and the private sector.***

5. ***Coordinate involvement in regional and national efforts.***

6. ***Develop inter-agency referral procedures.***

7. ***Coordinate promotion of Minnesota recycling market development efforts within the state and nationally.***

ORGANIZATIONAL ROLES

The following organizations have been identified as having significant roles in the development of recycling markets in Minnesota. The Market Development Coordinating Council is striving to coordinate market development efforts among the various organizations.

Office of Waste Management (OWM)
The Office of Waste Management is the lead agency in Minnesota spearheading recycling market development initiatives. Three financial assistance programs are administered by the OWM to support recycling market development. The OWM also serves an overall technical assistance function for local units of government, the private sector, and other state agencies.

Metropolitan Council
The Solid Waste Division of the Metropolitan Council engages in a variety of recycling market development activities in the seven county metro area. These activities range from providing financial assistance for local government and private sector initiatives to working directly with the recycling industry on stabilizing markets.

Minnesota Department of Administration (Admin)
The Department of Administration has been designated by the Legislature as the lead agency to coodinate an aggressive recycled products procurement program for implementation by all levels of government in Minnesota.

Minnesota Pollution Control Agency (MPCA)
The Minnesota Pollution Control Agency has recycling market development-related functions in a number of areas, including collecting data as part of its permitting responsibilities, conducting a four season waste composition study, revising rules governing use of compost, administering a grant/loan program for waste tires, and enforcing legislation on collection systems for batteries.

Counties
There is great diversity in the scope of recycling market development activities undertaken by the 87 counties in Minnesota. Some of this activity is being organized by the Association of Minnesota Counties (AMC), a member association. The Solid Waste Management Coordinating Board (SWMCB), created by a joint powers agreement, is another county-related organization with an emerging role in recycling market development.

Minnesota Department of Transportation (MnDOT)
Through its product testing, specifications setting, transportation analysis, and procurement functions, the Transportation Department is playing an increasing important role in recycling market development.

Department of Trade and Economic Development (DTED)
The Department of Trade and Economic Development has no specific recycling market development responsibilities. The strong community development component to recycling market development, however, highlights the importance of coordinating with DTED activities and resources.

University of Minnesota (U of M)
The University of Minnesota is actively conducting research in a variety of areas related to recycling market development, including plastic films, animal bedding, composting, recycling equipment, and waste education.

Nonprofit Organizations
The types of nonprofit organizations involved in a broad variety of recycling market development activities include private organizations, governmental member associations, trade associations, business associations, and private research/public policy organizations.

Greater Minnesota Corporation (GMC)
The mandate of the Greater Minnesota Corporation financial investments program is consistent with the significant potential of recycling market development to stimulate the rural economy. GMC financial assistance to companies for recycling-related product development is being coordinated with other state programs to avoid overlap or duplication.

Legislative Commission on Waste Management (LCWM)
Though the Legislative Commission on Waste Management has no distinct role in recycling market development, the Commission does have the potential to serve as a good testing ground for market development policy ideas and to assist in developing legislation.

Office of the Attorney General
The Office of the Attorney General is playing an increasingly important role in the development of labeling and standards for recycled and recyclable materials.

Financial/Economic Development/Business Community
It is very important for the financial, economic development, and business communities to support recycling market development with investment dollars, utilization of recovered materials as feedstock in manufacturing processes, and the purchase of recycled and recyclable products/packaging/materials.

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INTRODUCTION

OBJECTIVES OF RECYCLING MARKET DEVELOPMENT

The public sector ultimately is responsible for managing solid waste in order to protect the environment. In fulfilling this responsibility, government seeks to avoid unduly intruding on private sector activities or pre-empting private sector initiative. This state strategy for recycling market development affirms the importance of the private sector's role in developing markets, and strives for a cooperative effort in tackling recycling and resource conservation problems. The intent is to build on the existing recycling infrastructure. The strategy is designed to stimulate markets, in part by reordering economic incentives, as necessary to serve the public interest.

The ultimate importance of developing recycling markets is to accomplish these five objectives:

* ***Assist local governments and state offices in achieving the recycling goals in the SCORE legislation through the development of recycling markets, while focusing on longer-term market development for additional materials in the waste stream that currently are not recovered, or are recycled only to a limited extent.***

* ***Foster resource conservation attitudes, practices, and policies in Minnesota and the region through a reordering of economic incentives that encourage recycling market development.***

* ***Strengthen sustainable environmental protection efforts that lessen the reliance on landfills and incinerators by stimulating markets for products and packaging that utilize recovered materials at their highest possible value, and result in closed-loop recycling whenever feasible.***

* ***Encourage community-based economic development through expansion of markets for the recycling industry.***

* ***Promote the most effective combination of public and private sector resources for recycling, including incorporation of the existing recycling infrastructure.***

This strategy focuses on recycling, the second priority of the solid waste management hierarchy. The first waste management priority is source reduction. Too strong an emphasis on recycling conceivably could inhibit or deter source reduction efforts. Although this strategy does not specifically incorporate source reduction activities, its purpose is to foster appropriate waste management solutions. Post-consumer recovered materials must not be stressed to the detriment, either intentionally or by default, of refillable packaging and reusable products. This strategy must be implemented with attention to the waste management hierarchy so that the importance placed on recycling does not negatively impact source reduction efforts.

The marketplace is dynamic, and so the state strategy will be continually evolving. Information on which to base recommendations about the environmental soundness of one recyclable material compared with another is lacking. The effectiveness of various market development approaches has only begun to be evaluated. As new data becomes available, and elements of the strategy begin to make an impact, the strategy must be reassessed and updated.

CHAPTER I: COMPREHENSIVE STRATEGY

BARRIERS TO THE USE OF RECOVERED MATERIALS AND RECYCLED PRODUCTS

The process of identifying barriers to the use of recovered materials as feedstock for new products and packaging was formally initiated in Minnesota by the Center for Urban and Regional Affairs (CURA) at the University of Minnesota. In cooperation with the Minnesota Project, and funded by a grant from the Northwest Area Foundation, CURA undertook a project designed to explore strategies for marketing materials diverted from the solid waste stream. A market status report was prepared under contract to CURA as a background document for the centerpiece of the project, a two-day workshop in December 1989 to develop a "Blueprint for Action" on marketing recovered materials.

The CURA blueprint served as the starting point for efforts to develop a state strategy capable of guiding recycling market development in Minnesota through the next biennium. The importance of closing the loop to guarantee stable markets for Minnesota recovered materials dictated that barriers to the use of recycled products, as well as recovered materials, be identified and addressed. During a day-long retreat in May 1990, the Office of Waste Management (OWM) Market Development Unit and the Market Development Coordinating Council (MDCC) selected the following barriers as a comprehensive description of the difficulties confronting recycling market development efforts in Minnesota:

1. ***Lack of Demand***
2. ***Higher Costs***
3. ***Insufficient and Inconsistent Quality***
4. ***Insufficient Availability***
5. ***Public Confusion***
6. ***Public Prejudice***
7. ***Uncertain Control and Responsibility***

Lack of Demand

Lack of demand is the overriding issue, to which the other barriers contribute. Demand by intermediate processors for post-consumer recovered materials is limited by lack of manufacturing end-markets. Lack of demand by manufacturers is due in part to both real and perceived concerns about cost, quality, and availability of supply. In addition, factors such as lack of technical expertise in the use of recovered materials as feedstock, lack of economic incentives for use of recovered materials compared with virgin materials, lack of available financing, and overall discomfort with change contribute to insufficient demand by manufacturers.

Because the recycling loop cannot be closed without manufacturers being able to sell their recycled end-products, lack of demand is a crucial barrier. Insufficient demand for recycled products and packaging results in part because consumers are not sufficiently informed about their quality and availability. Businesses often have longstanding procurement practices that exclude recycled products and packaging. Lack of demand also results from real or perceived concerns about product quality and cost,

brand loyalty, prejudices against recycled goods, discomfort with change, and market choices based on self-interest rather than societal need.

Higher Costs

Post-consumer recovered materials may be higher cost to manufacturers because many virgin raw materials qualify for tax incentives or public sector subsidies. Furthermore, virgin raw material prices do not reflect the environment costs of their production and ultimate disposal. Prices of post-consumer recovered materials, on the other hand, already include the recycling collection, processing, and transportation costs of avoided disposal. Furthermore, manufacturing technologies to use recovered materials may have fewer economies of scale, require significant new capital investment, or necessitate additional research and development expense.

Consumers, businesses, and public institutions may find recycled products and packaging to be more expensive because manufacturers pass through the higher material or production costs. Sometimes "premiums" are charged for recycled products because insufficient competition exists to contain prices.

Insufficient and Inconsistent Quality

Many quality issues first become apparent during the collection process. Supplies of post-consumer recovered materials may vary greatly in composition from week to week or month to month. Unstable markets lead to persistent change in the types and specifications of materials collected, resulting in confusion among participants and contamination of the recovered material. This difficulty is complicated by the lack of uniformity or recyclability of many products and packaging.

The insufficient and inconsistent quality of post-consumer recovered materials leads to quality problems in manufacturing recycled products and packaging. Inadequate technology to deal with inconsistencies in the feedstock is a serious problem. With questionable demand for recycled goods, many manufacturers are reluctant to invest in new processes to address quality issues.

Insufficient Availability

Availability of high quality recovered materials is a concern for manufacturers that need dependable supplies of feedstock to meet production schedules. This barrier creates a chicken and egg dilemma, since manufacturers are resistant to utilizing recovered materials until the supply is guaranteed, and local governments have difficulty justifying collection programs until dependable markets have been located. Although the SCORE mandates have helped guarantee supplies, insufficient availability of high quality materials remains a significant barrier.

Insufficient availability of recycled products and packaging results in part from insufficient availability of high quality recovered materials. The time lag for investment in new plant and equipment to produce recycled goods also is an important factor. Difficulties with manufacturing technologies have an impact on availability. In addition, the concern that consumers might still identify recycled products with the quality problems experienced in the early 1970s continues to make some manufacturers reticent to expand production of recycled products.

Public Confusion

Public confusion exists in part because recycling is a complex issue. The strict material specifications required by some production processes are difficult to convey to consumers participating in recycling collection programs. Ongoing changes in the materials accepted for collection have added to the confusion and frustration. This situation has been exacerbated further by wide-ranging manufacturer claims about recyclability, recycled content, and degradability of products and packaging at the retail level.

Public Prejudice

Public prejudice is a significant barrier to increasing the supply of recovered materials. Many consumers are willing to save newspapers but balk at the "messy" work of rinsing out containers. Furthermore, the concerns of residents and communities about the environmental impacts associated with any waste management project can present problems in siting recycling processing facilities and manufacturing expansions to produce recycled goods.

Prejudice against recycled products is a problem as well. Despite the public attention being paid to recycling, significant prejudice still exists among consumers, businesses, and government against anything that is not "brand new."

Uncertain Control and Responsibility

Control and responsibility issues for supplies of recovered materials seriously complicate recycling market development efforts. Commercial/institutional collection programs are characterized by divided -- and often conflicting -- responsibilities between the janitorial and recycling functions. Local governments typically are responsible for the operation of recycling collection programs, but haulers control the materials collected. Significant quantities are required for recovered materials to be marketed cost-effectively, but individual haulers each possess part of the supply. The lack of clarity about what parties legally own the recovered materials inhibits brokers and manufacturers from negotiating contracts to secure long-term stable supplies.

COMPREHENSIVE STRATEGY FOR OVERCOMING THESE BARRIERS

The comprehensive strategy for recycling market development is to stimulate demand for recycled products and packaging while reordering economic incentives so that more goods are produced using recovered materials. This strategy will address all seven barriers to the use of recovered materials and recycled products. The following nine areas for action have been identified as necessary to accomplish the strategy:

1. ***Alter the Economic Incentives for Use of Virgin and Recovered Materials***
2. ***Internalize More of the Environmental Costs***
3. ***Implement An Aggressive Public Sector Procurement Campaign***
4. ***Facilitate Development and Promotion of Recycled Products***
5. ***Push for Labeling and Standards***
6. ***Organize Cooperative Efforts***
7. ***Develop an Efficient Transportation Network***
8. ***Improve Access to Market Information***
9. ***Expand Consumer Waste Education Efforts***

The strategy proposes a combination of efforts. The vast purchasing power of government will be used to jump-start demand, and ultimately reduce product costs, through an aggressive public sector

procurement campaign. The development and promotion of recycled products for consumers and businesses will be facilitated to increase the variety and quality of products purchased. A push for labeling and standards will be necessary to assure that the recycled content of products is clearly identified. In addition, purchasers will need to be educated about recycled products and the quality of recovered materials required to produce them. Such expanded consumer waste education efforts will tackle the barriers of public confusion and prejudice.

A reordering of economic incentives is of critical importance. Altering the economic incentives for use of virgin and recovered materials will help eliminate disparities in the cost of recycled feedstock. Internalizing more of the environmental costs of producing and disposing of products and packaging will decrease the relative cost of recycled products. Greater market power, improved quality, reduced costs, and increased supply will be potential benefits from organizing cooperative arrangements. Cooperative efforts also will provide a mechanism to tackle the barrier of uncertain control and responsibility. Costs and availability will be addressed by developing an efficient transportation network. Finally, improving access to market information will help the recycling market operate more competitively.

The nine areas for action constitute a comprehensive statewide strategy for developing recycling markets in Minnesota. The relevant market development actors that will carry out each activity to implement the strategy are listed in order of their responsibilities. (See Appendix: Glossary of Terms)

1. ALTER THE ECONOMIC INCENTIVES FOR USE OF VIRGIN AND RECOVERED MATERIALS

The value and costs of recovered materials compared with virgin materials have been distorted by the emphasis in our economy on virgin resource extraction rather than conservation. This emphasis has been written into the tax code through depletion allowances and tax credits for virgin materials, as well as embodied in everything from production processes to resource management practices. The transition to a more recycling-oriented economy is severely hampered by these distortions.

Altering the economic incentives involves a two-tiered approach. Incentives such as grants and low interest loans must be provided immediately to stimulate markets for recovered materials. In addition, longer-term efforts should be undertaken to remove the special treatment accorded to resource extraction. Lobbying for changes in the federal tax code and reviewing public sector resource management practices will help identify the true value and costs of recovered compared with virgin materials.

The results of altering economic incentives will be lower relative costs, greater availability, and increased demand for recovered materials and recycled products. More consistent economic policies will reduce public confusion and prejudice, as well.

Short-Term (through 6/91)

a. Solicit proposals for recycling market development grants/loans to local governments, public research institutions, and the private sector. Award and begin administering grants/loans. (OWM-MD, Met Council)
b. Develop and pursue adoption of legislation requesting authority to establish a revolving loan fund for market development loans. (OWM-MD/PD, LCWM)
c. Secure continued funding of market development grant and loan programs. (OWM, Met Council)
d. Contribute to generic environmental impact statement on timber harvesting being conducted by the Environmental Quality Board. (OWM-MD, DNR, Nonprofits)
e. Develop technical assistance materials targeted to the recycling industry on available sources of financing and business assistance. (OWM-MD)

Longer-Term (7/91-6/93)

a. If adopted, administer a revolving loan fund for recycling market development loans to the private sector. (OWM-MD)
b. Solicit second round proposals for recycling market development grants and loans. Award and administer the grants/loans. (OWM-MD, Met Council)
c. Establish an interagency/industry task force to examine the impact of state forest and mineral management policies and promotion efforts on recycling market development. (OWM-MD, DTED, DNR, LCMR, EQB, Nonprofits)
d. Begin lobbying at the federal level for reduction/elimination of virgin material subsidies/incentives that distort the economics of, or otherwise negatively impact, recycling market development efforts. If feasible, participate in multi-state efforts. (OWM/PI)
e. Modify existing economic incentives (for example, economic development incentives for business expansion) to encourage use of recovered materials. (OWM-MD/PD, LCWM, DTED)
f. As necessary, seek additional ways (for example, disposal bans) to guarantee larger, more stable supplies of recovered materials. (OWM-MD/PD, LCWM)
g. Explore the necessity of adopting new economic incentives (for example, tax credits/exemptions) if other efforts are not sufficient to counter incentives for using virgin raw materials. (OWM-MD/PD, LCWM)

2. INTERNALIZE MORE OF THE ENVIRONMENTAL COSTS

Quantifying environmental costs is a very complex and controversial process. Cradle to grave environmental studies are attempting to address the issue. The environmental costs that ultimately need to be incorporated in the prices of goods and services include everything from the costs of recycling collection efforts, to the pollution created by extraction and manufacturing processes, to the superfund costs of landfill cleanups. Efforts to internalize more of the environmental costs will make it easier to determine the costs and benefits of recycling compared with disposal. This will help focus recycling activities in the most cost-effective areas and thus stimulate recycling market development.

Approaches to internalize more of the environmental costs include implementing volume/weight-based pricing, facilitating closed-loop recycling, setting recovery targets for specific materials, minimizing use of materials that are not likely to be recycled, developing incentives to overcome the pollution potential associated with recycling, and developing policy recommendations based on cradle to grave environmental research.

Much needed stability for market development investments will be created by setting recovery targets for materials that prove cost-effective to recycle when all the benefits of recycling are compared with the consequences of disposal. These recovery targets will provide reliable information to the private sector about the available supply of recovered materials over a given period of time.

Emphasis on closed-loop recycling will offer a number of potential benefits to recycling market development efforts. First, closed-loop recycling will build demand for recovered materials more quickly, because it is easier to sustain demand for established products made from new -- that is, recycled -- materials than to create demand for new recycled products. Second, market development activities involving closed-loop recycling typically would be undertaken by established firms that have better access to financing than new businesses. Third, once the private sector is dependent on the supply of recovered materials to manufacture traditional product lines, industry will have a greater stake in the issues of cost, quality, and coordination of supply that are associated with collecting those materials. Finally, closed-loop

recycling requires higher quality materials that will command higher prices and thus better support the collection infrastructure.

Overall, internalizing more of the environmental costs will increase demand for recovered materials, decrease the relative cost of recycled feedstock, improve material availability, and reduce public confusion and prejudice. Greater demand for recycled products at lower relative prices will be a natural consequence of these changes.

Short-Term (through 6/91)

a. Facilitate local government implementation of volume/weight-based pricing for waste disposal that includes a charge for recycling, but also contains incentives to recycle. If necessary, pursue adoption of legislation to clarify the SCORE requirement and timeline. Explore the value of differing incentives for urban and rural areas. (OWM-PD/LGA, Met Council)
b. Monitor progress/conclusions of cradle to grave environmental studies. (OWM-PD)
c. Facilitate development of closed-loop recycling, as feasible. (OWM-MD, Met Council, DTED, GMC)

Longer-Term (7/91-6/93)

a. Consistent with the SCOPE recommendations, set specific recovery targets for post-consumer materials, products as well as packaging. (OWM-PD/MD)
b. Explore the role of the private sector in developing and paying for recycling collection systems necessary to support market development investments. (OWM/PD/MD, Nonprofits)
c. Work with industry to explore pollution and waste generation issues associated with using various recovered materials as feedstock in manufacturing processes. Develop incentives to overcome the pollution potential of recycling industries. (OWM-MD/PD, MPCA)
d. Propose policy recommendations for recycling market development efforts based on assessment of cradle to grave environmental analyses. (OWM-MD/PD)
e. Continue facilitating development of closed-loop recycling, to the extent that research results show this approach to be environmentally preferable. (OWM-MD, Met Council, DTED, GMC, Nonprofits)
f. Explore the necessity of adopting/implementing legislation on fees, taxes, sales bans, or disposal bans at the state level if other efforts are not sufficient to internalize environmental costs and minimize the use of materials that are not likely to be recycled. (OWM-PD/MD, Met Council, Local Govts, LCWM)

3. IMPLEMENT AN AGGRESSIVE PUBLIC SECTOR PROCUREMENT CAMPAIGN

Procurement policy offers one of the most effective means to quickly stimulate demand for recycled products, and consequently, recovered materials. The SCORE legislation included a strong state procurement policy for recycled products.

State agencies are required to purchase recycled materials when the specifications allow their practical use and the price differential is not more than ten percent. If possible, state agencies should purchase materials recycled from waste generated in the state. All public agencies are required to purchase uncoated office paper and printing paper whenever practicable. All political subdivisions, educational

institutions, and other public agencies are directed to aggressively pursue procurement practices that promote development of markets for recovered materials and compost, and whenever practical, to procure products containing recycled materials.

Approaches to implementing an aggressive procurement campaign build on the SCORE directives. As the lead agency for public sector procurement, the Department of Administration has the opportunity to actively promote and facilitate preferences for recycled products, aggressively expand participation in the cooperative purchasing program to all levels of government, initiate extensive performance testing of recycled products/materials, and take an active role in developing national material standards.

By dramatically increasing demand for recycled products to more economically efficient levels, an aggressive public sector procurement program -- over time -- will reduce the cost of recycled products, guarantee higher quality, and increase availability. Larger markets for recycled products make it likely that vendors will promote recycled products more widely, thereby lessening public confusion and prejudice. Finally, by giving preference to recycled products despite higher costs, a strong public sector procurement program actively assumes responsibility for moving recycling market development out of its chicken and egg dilemma.

Short-Term (through 6/91)

a. Give preferential treatment to recycled content and recyclability criteria in bid specifications for repetitive contracts. (Admin)
b. Actively promote and facilitate the recycled content weighted preference and/or ten percent price preference in spot contracts for state agencies. (Admin)
c. Provide technical assistance to state agencies and local units of government on procurement policies and practices for recycled products and compost. (Admin, OWM-MD/PI)
d. Develop an aggressive campaign to promote the cooperative purchasing program for recycled products to all state agencies and local units of government in Minnesota. (Admin)
e. Initiate performance testing of recycled materials. (MnDOT, Admin)
f. Work cooperatively with ASTM on national standards for recycled-content paper. (Admin)

Longer-Term (7/91-6/93)

a. Implement aggressive promotion of the cooperative purchasing program. Develop mechanism to measure success. (Admin)
b. As necessary, pursue executive order mandating specific recycled product procurement goals for state agencies. (Admin, OWM-MD)
c. Conduct and/or contract out for performance testing of recycled products/ materials and actively disseminate the results. (MnDOT, Admin, OWM-MD)
d. Require all vendors to identify the recycled content and recyclability of their products. (Admin)
e. Require recycled content and recyclability of packaging, as well as products, procured through repetitive contracts. (Admin)
f. Cease providing virgin raw material alternatives for all recycled products stocked by Central Stores. (Admin)
g. Obtain testimonials for use in promoting recycled products carried by Central Stores. (Admin)

h. Continue providing technical assistance to state agencies and local units of government on developing markets through procurement policies and practices. (Admin, OWM-MD/PI)

i. Develop a life-cycle costing methodology that uses recycled content as an evaluation factor. (Admin)

4. FACILITATE DEVELOPMENT AND PROMOTION OF RECYCLED PRODUCTS

Strengthening demand for recycled products is crucial to the strategy of developing sufficient markets for post-consumer recovered materials through a demand-pull approach. Consumer and business demand for recycled products must be tapped to increase economies of scale and improve competitiveness with products made from virgin raw materials.

The "Buy Recycled" program -- established by the OWM and the Department of Administration to educate purchasers, identify/test recycled products, and create buying opportunities -- should be expanded with a targeted effort to reach more of the private sector. Performance testing needs to be accelerated and results disseminated. Efforts to facilitate greater availability of recycled products should be pursued with distributors and retailers. In addition, the feasibility of promotion councils -- modeled on the various councils created to promote agricultural commodities -- should be explored as an approach to build public support for recycled products.

Facilitating development and promotion of recycled products will increase demand, reduce public confusion about the value of recycling, and combat public prejudice. Resulting economies of scale will improve product quality and reduce prices.

Short-Term (through 6/91)

a. Target a "Buy Recycled" education program to advertising and public relations firms. (OWM-PD/MD)

b. Identify and begin developing technical assistance materials for businesses, consumers, and local governments on purchasing recycled products and packaging. (OWM-MD)

c. Hold Second Annual "Buy Recycled" Products Workshop. (OWM-PI/MD, Admin)

d. Facilitate performance testing of recycled products/packaging and promote results. (OWM-MD, Admin, MnDOT)

e. Address public waste education campaign in part to promote "Buy Recycled" to consumers. (OWM-PD/PI/MD)

f. Create a "Buy Recycled" video for technical assistance uses. (OWM-PI/MD)

Longer-Term (7/91-6/93)

a. Continue developing technical assistance materials on recycled products and packaging that publicize availability, performance test results, testimonials, and institutional barriers/opportunities in purchasing. (OWM-MD, Admin)

b. Explore the potential for a recycled products/packaging hotline. (OWM-MD/PI)

c. Continue facilitating performance testing of recycled products/packaging/materials. As possible, assist product testing and standard setting organizations to address quality concerns regarding recycled products and packaging. (Admin, OWM-MD, MnDOT, DNR, Local Govts)

d. Work with distributors and retailers to increase the availability of recycled products and packaging. (OWM-MD)

e. Hold additional "Buy Recycled" conferences as warranted. (OWM-PI/MD, Admin)
f. Establish a recycling market development component to the Governor's Award Program. (OWM-MD, MDCC)
g. Explore creating promotion councils for recycled products. Evaluate success of trade associations in performing this role. (OWM-MD, DTED, MDA)

5. PUSH FOR LABELING AND STANDARDS

Although the impetus within the public sector for labeling initiatives is to provide information for recycling purposes, the private sector sees labeling as a marketing opportunity. An example of this conflict is the use of the recycling arrows as part of the plastics industry resin coding system. Truth in labeling laws may be necessary to separate identification issues from marketing ones.

This action area calls for supporting development of national standards for recycled content, recyclability, and degradability, as well as pushing for adoption of a national labeling system to communicate those standards. If no significant action is forthcoming by the federal government within the next 18 months, however, a state or regional system of labeling and standards should be pursued.

Labeling for recycled content is crucial for stimulating demand for recycled products among businesses and consumers. General confusion now prevails about the percentage of recycled material contained in any given product and how much of that material is post-consumer. Buying recycled needs to be simplified so that even unmotivated purchasers can understand the choices.

Labeling for recyclability is important for improving the quality and consistency of post-consumer materials collected, as well as reducing contamination by materials that appear to be similar but are not.

Toxics labeling and the potential impact of toxic residues contaminating recovered materials and recycled products also must be addressed.

Short-Term (through 6/91)

a. Push for timely action by the federal government on labeling and standards -- applicable to products as well as packaging -- for recycled content, recyclability, and degradability, based on the groundwork laid by CONEG/NERC. (OWM-PD/MD, AG, Nonprofits)
b. Monitor continuing efforts of CONEG/NERC, as well as other regional organizations, to develop labeling and standards. (OWM-PD/MD, AG)
c. Work with the plastics industry nationally to improve the coding/identification system and separate it from marketing objectives. (OWM-MD/PD, Nonprofits)
d. Report to the Legislature that voluntary industry compliance, legislation in other states, controversy about the use of recycling arrows in coding, and the plastics coding system under development by ASTM make it inadvisable to expend the resources necessary to promulgate and enforce rules for plastic container labeling in Minnesota at this time. (OWM-MD)

Longer-Term (7/91-6/93)

a. In mid-1992, evaluate federal action on labeling and standards, including labeling by type/grade for all plastics products and packaging. (OWM-PD/MD)
b. If necessary, develop a state or regional labeling system with product and packaging standards for recycled content, recyclability, and degradability. Design

the system for maximum ease of use by consumers. Pursue legislation as warranted. (OWM-PD/MD, LCWM)

c. Explore the feasibility of including labeling requirements in the Department of Administration's bid specifications for repetitive contracts. (Admin)

d. Explore the need for special packaging, labeling, and/or handling of containers for toxic products. (MPCA, OWM-MD/PD, MDA, AG)

6. ORGANIZE COOPERATIVE EFFORTS

Cooperative arrangements can be pursued at many different levels to help control the costs of collection, processing, and marketing materials, as well as manufacturing and purchasing recycled products. Local units of government can participate in cooperative efforts that range in complexity from equipment sharing to joint marketing contracts to educational activities. Such arrangements might involve public/private partnerships. The state also has a number of options to undertake cooperative arrangements, including interagency agreements, multi-state compacts, and piggybacking on regional efforts in other parts of the country.

The state should disseminate information about cooperative arrangements, facilitate coordination of recovered material supplies where necessary to spur market development, and work cooperatively with traditional community economic development programs to foster recycling expansion.

Organizing cooperative efforts will increase demand for recovered materials, reduce costs, improve quality, and heighten availability. Issues of control and responsibility can be clarified and resolved through efforts to develop recycling markets cooperatively.

Short-Term (through 6/91)

a. Work with public and private collectors/brokers to facilitate coordination of supplies of recovered materials not currently available in sufficient quantities to meet needs of remanufacturers. (OWM-MD, Met Council, Admin, Nonprofits)

b. Use County Market Development Grant Program as vehicle to explore the interest of local governments in regional cooperative efforts, involving equipment sharing, cooperative transportation/backhauling arrangements, joint marketing contracts, combined storage/processing/facility utilization, cooperative purchasing, and/or joint educational activities. (OWM-MD, Met Council, Local Govts, Nonprofits)

c. Promote use of the *Minnesota Recycling Directory*. (OWM-MD/PI, Nonprofits)

Longer-Term (7/91-6/93)

a. Disseminate information for local governments on organizing cooperative arrangements. Provide technical assistance, as necessary, on improving the quality of post-consumer materials collected. Stress the impact of contamination on processing and remanufacturing operations. (OWM-MD/LGA, Met Council, Admin)

b. Continue facilitating coordination of recovered material supplies where necessary to spur market development. Explore need for a statewide/regional marketing information line. (OWM-MD, Met Council, Admin)

c. Evaluate benefits of negotiating cooperative agreements with the Great Lakes States or other multi-state groups. Pursue as feasible. (OWM-PD/MD, Admin, Nonprofits)

d. Obtain evaluation data from other states. (OWM-MD/PD, Admin, Nonprofits)

7. DEVELOP AN EFFICIENT TRANSPORTATION NETWORK

The SCORE legislation required that the Office of Waste Management and the Department of Transportation develop an efficient transportation system for use by counties that will move recovered materials to processing centers and markets. The system may include regional collection centers.

This action area calls for conducting a transportation systems study and rapidly implementing the study recommendations. Opportunities for transportation system enhancement will be addressed, such as the access of haulers to containers and scales outside traditional business hours, the need to increase backhauling opportunities, the impact of the transportation rate structure on the recycling industry, potential cooperative transportation efforts, feasibility of a statewide transportation network computer or hotline, and mechanisms to best utilize rail and waterway transport options.

Developing an efficient transportation network will reduce costs and improve availability of recovered materials and -- consequently -- recycled products.

Short-Term (through 6/91)

a. Create an advisory committee on the transportation of recovered materials to identify issues, as well as provide input on the direction and scope of a transportation study. (OWM-MD, MnDOT)
b. Develop RFP for a recycling transportation systems study that will develop recommendations for statewide improvements based on a review of existing transportation systems, the recycling infrastructure, rate schedules, scale access, and material flows. Solicit proposals and award the contract. (OWM-MD)
c. Begin coordinating transportation of recovered materials collected by public sector facilities. (Admin, MNDot)

Longer-Term (7/91-6/93)

a. Coordinate implementation of recommendations from the transportation study. (OWM-MD)
b. Develop technical assistance information on recycling transportation. (OWM-MD)
c. Work with the advisory committee as needed to obtain input on efforts at improving the transportation system. (OWM-MD)
d. Expand the coordination of transportation for recovered materials collected by public sector facilities. (Admin, MDE, OWM-LGA)

8. IMPROVE ACCESS TO MARKET INFORMATION

Access to information is the crucial link in a market economy. Recovered materials can be viable alternatives to virgin materials only if markets have information about available supplies and suppliers have information about potential markets. Currently, recyclers appear reluctant to provide information about supplies and markets, due to the confidentiality of trade information and concerns about divulging business dealings.

The access to market information can be improved by identifying recycling data needs, developing standard measurement guidelines, preparing technical assistance materials to support market development efforts, and identifying crisis management options to deal with potential disruptions in the marketplace and guarantee markets for recovered materials.

Improving access to market information will increase demand for recovered materials, impact cost and quality by heightening competition, and improve availability.

Short-Term (through 6/91)

a. Distribute *1991 Minnesota Recycling Directory*. (OWM-MD)
b. Develop standard measurement guidelines and resolve issues such as how to access, evaluate, maintain, and disseminate the recycling information collected. (OWM-PD, MPCA, Met Council, SWMCB)
c. Identify recycling market development information needs of local governments and the private sector. (OWM-MD/LGA, MDCC)
d. Develop communications and technical assistance materials to support market development programs. (OWM-MD, Met Council)

Longer-Term (7/91-6/93)

a. Identify additional sources of data on supplies/markets. Continue developing information collection/dissemination processes to support recycling market development efforts. (OWM-MD/PD, MPCA, MDCC)
b. Identify crisis management options to deal with potential disruptions in the marketplace for Minnesota recovered materials. Explore feasibility of export markets, storage alternatives, and micro markets. (OWM-MD, Met Council, Admin)
c. Develop technical assistance information on the economics of recycling to help local governments evaluate the cost-effectiveness of various collection/marketing options and move toward SCORE goals. (OWM-PD/LGA, Met Council)
d. Explore potential for a waste exchange to benefit recycling market development efforts, especially in dealing with small quantities of recovered materials. (OWM-MD/PD/LGA, Local Govts, Nonprofits)
e. Reassess information needs of local governments and the private sector as markets are developed. Adjust communications materials and technical assistance efforts accordingly. (OWM-MD/LGA/PD)

9. EXPAND CONSUMER WASTE EDUCATION EFFORTS

Waste education is integral to recycling market development. Expanded education activities are needed to help consumers understand any new labeling standards, meet the needs of various size communities for recycling information, and support expanded interest in recycled products among businesses and public institutions.

The approach to expand consumer waste education efforts includes implementation of the Waste Education Grant Program, increased emphasis in waste education toward market development efforts by public institutions and businesses, and implementation of an education campaign to help consumers understand any new labeling standards.

Efforts in waste education will increase the quality and availability of recovered materials, reduce public confusion and prejudice, and strengthen demand for recycled products.

Short-Term (through 6/91)

a. Develop Waste Education Grant Program to foster recycling information and implementation projects. Award and administer grants. (OWM-PD)

b. Seek continued funding of Waste Education Grant Programs. (OWM-PD)
c. Target a portion of the public waste education campaign toward consumer awareness of recycled products. (OWM-PD/PI/MD)

Longer-Term (7/91-6/93)

a. Use the information obtained from focus groups to develop waste education strategies tailored to the needs of different size communities. (OWM-PD)
b. Increase the emphasis in waste education toward recycling and market development efforts by public institutions and businesses. (OWM-PD/MD)
c. Award and administer additional Waste Education Grants, if further funding is authorized. (OWM-PD)
d. Design and implement a public education campaign to help consumers understand any new labeling standards. Provide more information on how to discriminate between unregulated claims made by manufacturers. (OWM-PD/PI/MD)

CHAPTER II: MATERIALS-ORIENTED STRATEGY

MATERIALS PRIORITIZATION

The materials prioritization for the state strategy has been developed through a comprehensive process. It incorporates recommendations from the Center for Urban and Regional Affairs (CURA) Report "Building a Strategy for Marketing Minnesota's Secondary Materials," conclusions of the Franklin Associates Ltd. "Directed Research Market Study," advice from industry resource groups convened to explore these issues, and expertise of state agencies, local governments and nonprofits.

The prioritization of recovered materials for market development efforts is:

1. ***Paper:*** First-ranked because it comprises such a large portion of the municipal solid waste stream and encompasses a number of source-separated recyclable materials. Counties will not be able to meet SCORE goals without increasing both the amounts and grades of paper recycled.

2. ***Plastic:*** Second-ranked because increased public attention to the management of waste plastic and the rapid expansion of plastic recycling activity in the state have created a window of opportunity for market development of this material. In addition, plastic is a significant and growing percentage of the waste stream.

3. ***Problem Materials:*** Third-ranked due to problems with toxicity, low value and limited markets, lack of adequate recycling technologies, and/or landfill capacity problems.

4. ***Compost:*** Fourth-ranked because the yard waste ban and the growing importance of composting as a solid waste management method are dramatically increasing quantities of yard waste compost and municipal solid waste (MSW) compost.

5. ***Glass:*** Fifth-ranked because of the limited number of, and distance to, markets, as well as the potential for significant amounts of glass to be rejected and landfilled due to color contamination. New markets will help counties achieve SCORE goals.

This materials prioritization is intended to be consistent with the objectives of the state strategy. As further research is conducted, the prioritization may be altered to reflect new information on the comparative cradle to grave environmental soundness of these and other recovered materials.

MATERIAL-SPECIFIC STRATEGIES

The materials-oriented strategy for recycling market development is to address the particular barriers impacting each type of recovered material. This strategy complements and supports the comprehensive strategy of stimulating demand for recycled products and packaging while reordering economic incentives so that more goods are produced using recovered materials. Specific strategies for each material type are described below, followed by action areas for implemention.

PAPER

Paper is the first-ranked priority because it constitutes the largest percentage of the waste stream, both by volume and weight. Paper is a broad category that encompasses old newsprint (ONP), fully-sorted office paper, mixed paper, and old corrugated containers (OCC). Markets for these paper grades are heavily interrelated because of significant opportunities for substitution, especially by lower grades as markets for higher grades improve.

The strategy for recovered paper is to promote separation and sorting to achieve the highest material value and promote closed-loop recycling. ONP is the focus for immediate action because markets are anticipated to remain very weak at least until the deinking expansions at Thunder Bay, Ontario come on line in mid-1991 and 1992. Mixed paper then gains focus as the top priority because sorting and quality problems make it difficult to market. The paper grades needing less market development attention include OCC and fully-sorted office paper. The private sector largely has taken care of developing markets for these grades. A remaining issue is collection from small and medium generators, both commercial and residential. More work is needed in developing cooperative collection programs for small/medium commercial generators and addressing recycling issues for "junk" mail in the residential sector.

Overall, paper grades present an excellent opportunity for demand-pull activities to promote market development. Increasing numbers of business and consumer paper products are being manufactured with recycled paper, in addition to significant amounts of the paper packaging used for consumer products.

Current Activities (through 12/90)

Old Newsprint (ONP): The immediate approach is to foster "micro" market development and storage alternatives for ONP, as well as provide technical assistance for cooperative arrangements likely to result in more stable markets.

a. Develop information for counties about current market conditions and alternatives for marketing the supply of ONP. (OWM-MD, Met Council)

b. Continue identifying local "micro" markets for ONP such as animal bedding, hydromulch, and cellulose insulation. (OWM-MD/LGA, Local Govts, Nonprofits)

c. Facilitate rapid development of animal bedding markets where feasible as a low-cost option to address localized ONP market imbalances. Evaluate cost-effectiveness based on anticipated longer-term market conditions. (OWM-MD/LGA, Local Govts)

d. Work with counties/municipalities in greater Minnesota to secure short-term storage capacity if a temporary or localized market glut evolves. (OWM-MD/LGA)

e. Identify and facilitate cooperative efforts involving local units of government and private sector wastepaper brokers/packers necessary to meet end-market quality needs and begin securing long-term stable markets. (OWM-MD, Met Council, SWMCB, Local Govts, Nonprofits)

f. Provide technical assistance to local governments interested in obtaining contracts to supply new deinking facilities. (OWM-MD)

Mixed Paper: The immediate approach is to facilitate business expansion of mixed paper recycling markets.

a. Begin discussions with directory publishers about recycling telephone directories. Explore policy recommendations and regulatory avenues to require closed-loop recycling of Minnesota telephone directories. (OWM-MD, Met Council, PUC, DPS, LCWM)
b. Work with Minnesota paper producers to secure increased use of Minnesota mixed paper. (OWM-MD, MPCA, DTED)
c. Solicit proposals for developing new or expanded facilities that use Minnesota mixed paper as a feedstock. (OWM-MD)
d. Solicit proposals/applications to fund county initiatives for mixed paper, and R&D such as applied research on chemical composition and product applications for paper deinking sludge. (OWM-MD, Met Council, GMC)
e. Explore need for policy recommendations on reducing toxics in paper products and production. (SCOPE, OWM-PD/MD, MPCA)
f. Research technical opportunities/limits to substitute paper grades. (OWM-MD)

Short-Term (1/91-6/91)

Mixed Paper: The targeted short-term strategy for mixed paper is to provide technical and financial assistance to both the public and private sectors, focusing on telephone directories, magazines (OMG), and "junk" mail.

a. Award and administer grants/loans to facilitate expansion of mixed paper end-markets. (OWM-MD, Met Council)
b. Pursue adoption of policy recommendations on recycling of telephone directories. Work with directory publishers on developing markets. (OWM-MD, Met Council, PUC, DPS, LCWM)
c. Identify potential magazine (OMG) end markets. Work with counties/ municipalities to begin developing OMG collection programs with sufficient quality controls to meet needs of end markets, based on cooperative efforts wherever possible. (OWM-MD/LGA, Met Council, SWMCB)
d. Pursue policy recommendations on "junk" mail and glossy/coated paper stock, to facilitate implementation/operation of household and office deinking grade collection programs and remove quality impediments to market development. (OWM-MD/PD, LCWM)
e. As necessary, provide technical assistance on developing cooperative recycling collection programs to service small/medium commercial generators of mixed paper. (OWM-MD/LGA, Met Council, SWMCB, Nonprofits)
f. Coordinate with national groups on efforts to reduce toxics in paper products and production. Where appropriate, promote use of nonmetallic inks and non-chlorinated bleaching processes by Minnesota businesses. Develop policy recommendations, as necessary. (OWM-PD/MD, MPCA, DTED)

ONP: The targeted short-term approach for ONP is to facilitate diversification of end markets through business expansion and cooperative efforts.

a. Work with Minnesota newspaper publishers, readers and advertisers to increase demand for recycled newsprint. (OWM-MD/PD, Met Council, Local Govts, Nonprofits)
b. Further facilitate development of local "micro" markets that are technologically capable of substituting mixed paper as demand for ONP increases. (OWM-MD, DTED, Local Govts, Nonprofits)
c. Continue facilitating negotiation of long-term, ONP contracts at reasonable prices, especially for local governments/collectors joining in cooperative arrangements. (OWM-MD)

Old Corrugated Containers (OCC): For the short-term, OCC requires technical assistance to local governments and the private sector on cooperative arrangements and public education.

a. As necessary, provide technical assistance on developing cooperative recycling collection programs to service small/medium commercial generators of OCC. (OWM-MD/LGA, Met Council, SWMCB, Nonprofits)
b. Begin extending public education and promotion efforts to recycling of OCC by commercial generators. (OWM-MD/PD/LGA, Met Council, Local Govts, Nonprofits)

All Grades: In general, the short-term strategy for paper includes expanding demand for recycled products.

a. Develop an information network and dissemination process for data on supply, markets, and trends, i.e. Markets Report, information sheets, workshops. (OWM-MD/PI/LGA, Met Council)
b. Implement a significantly expanded "Buy Recycled" campaign to build demand for recycled paper products among consumers, businesses, and government. (Admin, OWM-PI/MD/PD)

Longer-Term (7/91-6/93)

Mixed Paper: The longer-term strategy involves further private sector expansion and increasing the grades of mixed paper targeted for market development.

a. Continue administering grants/loans for developing mixed paper end markets. (OWM-MD, Met Council)
b. Develop information dissemination process for public research results. (OWM-MD/PD/PI, Met Council)
c. Work with industry to position mixed paper as a cost-effective substitute for low-end ONP uses. (OWM-MD, DTED)
d. As necessary, continue pursuing end markets for telephone directories and OMG. (OWM-MD, Met Council)
e. Implement policy recommendations for "junk" mail. (OWM-MD/PD)
f. Facilitate closed-loop recycling of paperboard/boxboard for selected consumer products, including direct food-contact uses to the extent practicable and consistent with FDA requirements. (OWM-MD, Met Council, DTED, GMC)

All Grades: The longer-term strategy for all paper grades is to encourage Minnesota manufacturing and purchase of recycled products.

a. Continue working with existing Minnesota paper mills and building products companies to increase use of Minnesota waste paper. Provide technical assistance. (OWM-MD, DTED, MPCA)
b. As necessary, intensify promotion efforts on waste reduction and use of recycled paper products. (OWM-MD/PI/PD, Admin, Local Govts, Nonprofits)
c. Evaluate impact of market development efforts. (OWM-MD, Met Council)

PLASTIC

Plastic is the second-ranked priority because public interest in the management of waste plastic, and a rapid expansion of plastic recycling activity in the state, has created a window of opportunity for market development of this material. In addition, plastic constitutes a growing portion of the waste stream and a significant percentage by volume. Currently, only a small percentage of plastic is collected in Minnesota. Several pilot projects are in progress, however, as well as a number of public and private collection programs. Furthermore, packaging ordinances restricting the use of plastic are pushing implementation of collection programs.

Plastic is a broad category that currently includes an industry-designed coding system. Potentially recyclable plastic generally consists of six post-consumer resin types. Collection systems range from source-separated HDPE and/or PET to mixed plastic. Different resins have different market values related to demand for their use in products, resin availablility, and resin characteristics. There are also grades within each resin type based on quality, with the highest value accruing to the greatest purity. Thus, the quality control in the collection process is very important for plastic recycling.

The strategy for recovered plastic is to promote source separation and sorting of resins to achieve the highest material value and promote closed-loop recycling. The targeted approach focuses on developing cost-effective collection efforts, expanding processing capacity, and matching the material supply with the growing end-market demand. Longer-term, the intention is to reach agreement with industry on phasing out specific resins if recycling opportunities continue to be too limited or costly.

Current Activities (through 12/90)

Sorted or Separated Resins: Immediate efforts focus on understanding the market and facilitating the coordination of supply through private and public sector cooperative arrangements.

a. Prepare RFP to develop expanded capacity for reclaiming multiple plastic resins. (OWM-MD)
b. Solicit proposals/applications for R&D on new sortation/process technologies and new product applications that replace virgin resins with recycled resins. (OWM-MD, Met Council)
c. Facilitate cooperative arrangements to increase aggregate supply. (OWM-MD, Met Council, Nonprofits)
d. Work with manufacturers and trade associations to understand end-market conditions and needs. (OWM-MD)

***Commingled or Mixed Resins:** Immediate efforts involve identifying private sector opportunities to expand manufacturing capacity for use of mixed resins that are available from mixed-plastic collection programs or result from contamination problems in source-separated programs, but are not economically feasible to sort or separate. (OWM-MD, Met Council, DTED)*

***All Plastic:** Current efforts involve exploring alternatives to eliminate the potential for contamination of recovered and recycled plastic by toxic residues and, if necessary, developing policy recommendations or RFP/applications to address the problem. (OWM-MD/HW/PD, MPCA)*

Short-Term (1/91-6/91)

***Sorted or Separated Resins:** The short-term strategy is to continue efforts to facilitate the coordination of supply and recycling of additional resins.*

a. Facilitate sufficient coordination of supply in Minnesota to attract a major plastic reclaimer capable of upgrading a variety of resin types into their highest-value clean flake/pellet. Provide technical assistance. (OWM-MD, Met Council)
b. Award and administer grants/loans to expand reclaiming capacity and conduct new product R&D. (OWM-MD, Met Council)
c. Develop an information network and dissemination process for data on supply, markets, and trends. Assess potential demand for recovered resins. (OWM-MD/PI/LGA)
d. Work cooperatively with plastic industry to create marketing/education campaigns for improving supply-side quality. (OWM-MD, Met Council)

***Commingled or Mixed Resins:** Efforts will focus on facilitating development of limited end markets for commingled/mixed resins, focusing to the extent practicable on plastic products with government as well as private sector applications, so that public procurement programs can help jump-start the market. (OWM-MD, Met Council, DTED, Admin, MnDOT)*

***All Plastic:** In the short-term, labeling, collection, and sorting issues will be explored in greater depth.*

a. Review the need for additional or modified labeling to improve sorting capabilities and increase quality control. (OWM-MD/PD)
b. Disseminate available information on economics of collection systems for plastic recycling. (OWM-MD/LGA, Met Council)
c. Explore ways to expand local collection programs to include plastic cost-effectively. (Local Govt, Met Council, SWMCB, OWM-LGA)
d. Work with industry on evaluating sorting technologies. (OWM-MD)

Longer-Term (7/91-6/93)

***Sorted or Separated Resins:** The longer-term targeted approach for plastic will promote manufacturing expansion, with emphasis on closed-loop recycling, utilizing Minnesota sorted resins.*

a. Work toward positioning Minnesota as a national model for plastic recycling collection programs that provide sorted resins with the highest material value. (OWM-MD, Met Council, DTED, Local Govts)
b. As necessary, facilitate development of value-added processing and end markets for plastic films, polystyrene and other resin types with grants/loans and technical assistance. (OWM-MD, DTED)
c. Foster product research and end market development for closed-loop recycling of plastic packaging, both consumer and commercial/industrial. To the extent practicable, address direct food-contact uses consistent with FDA requirements. (OWM-PD/MD, Met Council, DTED, GMC)
d. Develop an information dissemination process for public research results from plastic grant/loan projects. (OWM-MD/PI, Met Council)
e. Evaluate impact of market development efforts. (OWM-MD, Met Council)

Commingled or Mixed Resins: For the longer-term, the strategy is to improve the efficiency of plastic recycling by working with the private sector to consolidate and standardize resins.

a. Work with the industry to achieve a cost-effective consumer recycling infrastructure for plastic. Reach agreement on phasing out specific resins if recycling opportunities are too limited or costly. (OWM-MD/PD)
b. Work with the industry to develop collection systems and encourage development of end markets for commercial/industrial plastics in the waste stream. Explore the potential for a waste exchange. (OWM-MD)

PROBLEM MATERIALS

Problem materials are the third-ranked priority due to their toxicity or other special concerns. No technology has been developed for reclamation of household alkaline batteries, but as the mercury content is reduced, the need for recycling will diminish. Household batteries such as lithium and lead-acid, however, continue to present a toxic threat. Other problem materials, such as demolition materials and wood wastes, are high-volume, low-value materials characterized by limited market capacity.

The strategy is to separate problem materials and identify markets to handle both the hazardous and recoverable materials. The targeted approach focuses on household batteries, used oil, and tires. Other categories such as demolition materials, wood wastes, electronics, and fluorescent lightbulbs will be assessed for future market development needs. Market development activities for problem materials are administered by the OWM, with the exception of tires, which the MPCA administers.

Current Activities (through 12/90)

Used Oil: The current approach involves evaluating used oil management options and selecting a course of action.

a. Determine the best approach for shifting management of used oil to rerefining for its highest material value, either through development of an in-state facility or tying into a regional facility. (OWM-MD)
b. If rerefining is determined to be infeasible, explore ways to encourage the existing industrial burning markets. (OWM-MD/HPW)

Tires: The current focus is on tire-derived fuel (TDF).

a. Contact utilities/industries with appropriate boilers to encourage use of TDF. (MPCA)
b. Fund stack tests for TDF. (MPCA)
c. Work with processors to facilitate development of alternative markets for processed tire material. (MPCA)

Short-Term (1/91-6/91)

Household Batteries: The short-term strategy involves research and cooperative efforts with other states.

a. Pursue recommendations of MPCA study on household batteries. (OWM-MD/HPW, MPCA, LCMR)
b. Award and administer grant for a feasibility study on recovery processes for household batteries that cannot currently be recycled, if a suitable proposal is submitted in response to the Directed Research RFP. (OWM-MD)

Used Oil: The short-term focus is on implementing the selected used oil management option and increasing collection of used oil.

a. Shift management to rerefining, if feasible. Otherwise, encourage continued industrial burning as the primary end use. (OWM-MD)
b. Promote increased collection of do-it-yourselfer generated used oil. (OWM-HPW)

Tires: Short-term efforts attempt to match producers of processed tire material with manufacturers that can use the material in end products.

a. Award and administer grants and loans for tire processing and market development. (MPCA)
b. Initiate study to develop specifications for tire chips to be used as light-weight fill. (MPCA)
c. Develop and conduct one-day markets seminar in conjunction with Solid Waste Conference to facilitate government/industry relationships and provide a higher profile for crumb rubber. (MPCA)

Major Appliances: Short-term followup is needed to evaluate whether sufficient recycling opportunities have been developed in greater Minnesota as a result of the major appliance legislation, and a major appliances task force will be created to address remaining issues. (OWM-HPW)

Miscellaneous Problem Materials: Monitoring, with the potential for conducting feasibility studies as needed, is the short-term approach to other waste streams such as demolition materials, wood wastes, electronic goods, and fluorescent lightbulbs. (OWM-HPW/MD)

Longer-Term (7/91-6/93)

Used Oil: Continue to implement the selected end-use option for used oil and provide additional public education. (OWM-MD/PD/HPW, Local Govts, Nonprofits)

Household Batteries: The longer-term strategy focuses on reassessing the scope of the problem as manufacturers reduce mercury content and, as necessary, beginning discussions with other midwestern states and industry on strategies for source reduction, collection, storage, toxics reduction, and recovery process alternatives regarding household batteries. (OWM-MD/HPW/PD, MPCA)

Tires: For the longer term, facilitate a shift from TDF to new recycling markets for processed tire material.

a. Work with public and private sector markets to develop new formulations and applications for processed tire material, especially crumb rubber. (MPCA, MnDOT, DNR, U of M)
b. Conduct study to use polymer and crumb rubber in asphalt. (MPCA, LCMR)
c. Work with processors to produce crumb rubber that meets manufacturer specifications for various products. (MPCA)

Miscellaneous Problem Materials: Pursue longer-term recycling market development as needed for various materials, including demolition materials, wood wastes, electronic goods, and fluorescent lightbulbs.

a. Solicit proposals for a needs assessment and composition study on demolition materials to identify the scope of the problem. Coordinate market development efforts with the restrictions on materials accepted at demolition landfills. (OWM-MD/HPW/PD, Met Council, MPCA)
b. If necessary, solicit proposals for R&D on the recovery of mercury from fluorescent lightbulbs. (OWM-MD/HPW)
c. Explore the potential for a waste exchange, the need for processing capacity, and options for recycling/reuse. Provide technical assistance to facilitate development of end markets for each of these materials, as necessary. (OWM-MD/HPW)
d. Examine whether additional markets are needed for wooden spools and pallets from the commercial/industrial sector. (OWM-HPW/MD)

COMPOST

Compost is the fourth-ranked priority because landfill abatement measures are generating ever-larger quantities with insufficient attention to market needs. Yard waste is the most immediate concern, particularly in the metropolitan area, because compost sites will need to move material on a regular basis in order to continue accepting the yard waste banned from landfills. Even before the SCORE legislation was adopted, MSW compost was identified as a market development priority. Because a number of facilities are scheduled to come on line in 1991, market development for MSW compost is a longer-term priority.

For all compost, the strategy is to facilitate development of markets by working with the industry to develop classifications that more adequately identify the quality and suitability of compost for various uses.

The targeted approach to compost focuses on research, information dissemination, and development of public sector markets. Landspreading of yard waste will be facilitated where that is the more cost-effective management approach.

Current Activities (through 12/90)

Yard Waste: Current efforts for yard waste focus on identifying public sector market requirements and quantities being generated.

a. Identify scope of problem in greater Minnesota. (OWM-MD/G/LGA)
b. Explore factors inhibiting use of yard waste compost by the Minnesota Department of Transportation. (OWM-MD)

All Compost: Initiate process for information dissemination.

a. Develop and distribute a comprehensive compost manual on infrastructure, operations, testing, markets, and research. Provide technical assistance. (OWM-G, MPCA)
b. Begin organizing a cooperative effort among state/local government, research institutions, and the compost industry to develop an information network and dissemination process. (OWM-G/MD)
c. Review need for new/revised rules on the human health and environmental impacts of compost/landspreading. (MPCA)

Short-Term (1/91-6/91)

Yard Waste: The short-term strategy entails facilitating information dissemination and the development of a voluntary classification system, as well as promoting landspreading as a cost-effective alternative.

a. Facilitate development of standard definition of terms and a voluntary classification system for yard waste compost that adequately identifies its inputs, quality/maturity, and suitability for various uses -- especially by public sector and residential markets. (OWM-G/MD, MPCA, MnDOT)
b. Continue organizing a cooperative information dissemination process for market data, research results, and new technology, i.e. Markets Report, information sheets, seminars. (OWM-G/MD)
c. Work with trade associations to create marketing/education campaigns on the value and uses of compost, targeted to specific end-markets. (OWM-G/MD)
d. Develop public education materials for the residential sector on reducing contaminants in yard waste. (OWM-PD/G/MD, Met Council)
e. Promote landspreading of yard waste or compost as a cost-effective alternative for counties experiencing cost or quality/maturity problems with composting. (OWM-G/LGA/MD, Met Council, Nonprofits)

MSW Compost: The strategy for MSW compost is to supplement the market activities of private vendors and facility operators with state-level research on risks and benefits.

a. Coordinate research activities in Minnesota. If necessary, update the literature search and review compost activity in other states/countries. (OWM-G, MPCA, LCMR, Local Govts)
b. As necessary, develop contract for in-depth study of MSW compost, including performance testing, market demonstrations, and analysis to identify risks and benefits for various markets. (OWM-MD/G)
c. Facilitate a cooperative effort, including trade associations, to review the adequacy of the compost classification system. (OWM-G, MPCA, MnDOT)

Longer-Term (7/91-6/93)

MSW Compost: The longer-term strategy involves continued research efforts and development of policy recommendations.

a. If necessary, award and administer contract for in-depth study on risks and benefits. (OWM-MD/G)
b. Compile/disseminate supply data on new MSW compost facilities and provide technical assistance. (OWM-G/MD)
c. Develop/implement policy recommendations based on research conclusions. (OWM-G/MD)

Yard Waste: The longer-term focus is on securing higher-value markets, especially through cooperative efforts.

a. Continue facilitating development of voluntary classification system for public sector markets. (OWM-MD/G)
b. As needed, provide technical assistance and/or education for counties and state agencies to encourage additional use of compost by public sector markets. (OWM-MD/WE/G)
c. Continue facilitating efforts of trade associations to educate private sector markets about potential uses of compost and specific recommendations for application. (OWM-G/MD)
d. Explore whether equipment sharing or value-added services such as loading, bagging, and/or labeling are needed to increase product revenues or make local government operations self-sustaining. (OWM-MD/G, Met Council)
e. Evaluate impact of market development efforts. (OWM-MD/G, Met Council)

GLASS

Glass is the fifth-ranked priority because of the high costs associated with transporting glass to the few available end markets, as well as the potential for significant amounts of cullet to be rejected and landfilled due to color contamination. Glass also is a concern due to its presence as a contaminant for other recovered materials, compost, RDF, and mass burn operations.

The strategy for recovered glass is to encourage source separation for highest value, and to develop end markets for reject color-mixed cullet. The targeted approach focuses on the development of smaller-scale manufacturing to create end markets for sorted glass, and on further exploration of road paving applications as a market for reject cullet.

Current Activities (through 12/90)

No action.

Short-Term (1/91-6/91)

Separated Glass Cullet: As resources permit, facilitate the development of local, smaller-scale manufacturing capacity to utilize post-consumer glass as feedstock. (OWM-MD, Met Council, Nonprofits)

All Glass: The short-term strategy is to develop an information network and dissemination process for data on supply, markets, and trends. (OWM-MD)

Longer-Term (7/91-6/93)

Separated Glass Cullet: For the longer term, continue emphasizing small-scale manufacturing and market alternatives in addition to glass bottling/packaging.

a. Solicit proposals/applications for smaller-scale manufacturing facilities that will utilize post-consumer glass as a feedstock. (OWM-MD, Met Council, DTED)
b. Work with industry to explore the potential of substituting recovered glass cullet as a feedstock for manufacturing products traditionally produced with virgin raw materials. (OWM-MD)
c. Facilitate industry movement away from use of green and other colored glass, unless proven economically feasible to recycle. (OWM-MD/PD)

Color-Mixed Glass Cullet: The longer-term strategy involves securing a stable alternative to landfilling color-mixed cullet.

a. Work with MnDot to explore uses of color-mixed glass cullet in road paving applications. Review activities in other states. Explore potential for regional efforts. (OWM-MD, MnDOT, Counties)
b. If necessary, identify and facilitate development of additional markets and applications to utilize color-mixed glass cullet, especially in the public sector. (OWM-MD, Met Council, Admin)

CHAPTER III: ROLES AND RESPONSIBILITIES

To date, recycling market development activities in Minnesota are too new for full coordination to have been achieved between the various agencies and organizations involved. Most SCORE initiatives have been staffed only recently, and program development remains the top priority. The creation of the Market Development Coordinating Council (MDCC) is greatly assisting efforts at coordination and cooperation, however. The MDCC provides a forum for discussion of issues, and establishes professional relationships that will facilitate coordinated responses in the future.

COORDINATION OF ROLES

The following seven areas for action have been identified as necessary to coordinate roles and responsibilities for recycling market development:

1. ***Track the materials supply available for processing and remanufacturing.***

2. ***Share data and coordinate its dissemination.***

3. ***Coordinate technical assistance activities for local governments and the private sector.***

4. ***Identify available financial assistance programs for local governments and the private sector.***

5. ***Coordinate involvement in regional and national efforts.***

6. ***Develop inter-agency referral procedures.***

7. ***Coordinate promotion of Minnesota recycling market development efforts within the state and nationally.***

ORGANIZATIONAL ROLES

Office of Waste Management (OWM)

The Minnesota Office of Waste Management's Recycling Market Development Program was established in 1987 to help develop new markets for recovered materials in Minnesota. Passage of the recycling legislation in September 1989 has allowed the program to expand its technical and financial assistance to local units of government and the private sector. The OWM is the lead agency in Minnesota spearheading recycling market development initiatives.

In 1990, the OWM established the Market Development Coordinating Council (MDCC) to assist in coordinating recycling market development efforts in Minnesota. The eighteen MDCC members represent state agencies, local government, and private industry.

Three financial assistance programs are administered by the OWM to support recycling market development. The County Grant Program assists implementation of projects that will enhance the quality of recovered material supplies, create or expand manufacturing capacity to use recovered materials, or increase the demand for recycled products. The Capital Loan Program provides assistance to businesses

or nonprofits for capital investment projects that will create or expand manufacturing capacity to use recovered materials as feedstock. The Directed Research and Feasibility Study Grant Program finances process and product development efforts by research institutions and private organizations. The OWM supports all funded projects with technical and informational assistance.

The OWM also serves an overall technical assistance function for local units of government, the private sector, and other state agencies. This includes help with tracking and accounting for supplies of recovered materials. The OWM publishes the *Minnesota Recycling Directory,* which provides information on recyclers, end-markets, and material specifications. Specialized assistance is provided to locate recovered materials supply, determine end-market conditions, and connect suppliers with markets. The ability to obtain accurate supply and market data impacts the value of the materials tracking and information dissemination functions that the OWM provides. OWM efforts to develop standard measurement guidelines will assist local governments and the private sector in reporting comparable information.

The OWM administers a "Buy Recycled" program, coordinated with the Minnesota Department of Administration (Admin), to stimulate demand for recycled products. Recycled product activities include identifying available products and distributors, facilitating performance testing and disseminating the results, educating public and private sector purchasers about recycled products, working to increase the availability of recycled products, and creating buying opportunities through workshops and trade fairs.

The OWM also is mandated, in conjunction with the Minnesota Department of Transportation (MnDOT), to develop an efficient system to transport recovered materials to markets and processing centers. An advisory committee has been formed, and a study will be performed to review existing transportation systems and develop recommendations for a statewide system. The OWM will coordinate implementation of recommendations from the study.

Waste education responsibilities also are centered in the OWM, conducted with the advice of the Waste Education Coalition. A Waste Education Grant Program is under development to foster reccyling information projects and educational facilities recycling implementation. In addition, a public education campaign is being designed, with focus groups to explore the differing needs of various size communities for waste education.

Metropolitan Council

The Solid Waste Division of the Metropolitan Council engages in a variety of market development activities in the seven county metro area. These activities range from providing financial assistance for local government and private sector initiatives to working directly with the recycling industry to stabilize markets.

The Landfill Abatement Account funds several grant programs that support market development activities. The Capital Assistance Grant Program assists with the purchase of machinery or equipment that will contribute directly to landfill abatement. The Technology and Research Grant Program helps adapt or develop technology for landfill abatement. The Education and Technical Assistance Grant Program provides services to the public, abatement implementors, and decision-makers.

The Metropolitan Council intentionally is utilizing the Landfill Abatement Account to fund niches that are specific to the metro area and complementary -- not duplicative -- of OWM market development activities. For example, the Capital Assistance Grant Program focuses on implementing demonstration projects, creating prototypes, and purchasing specialty equipment, rather than developing full-fledged processing/manufacturing facilities. The emphasis is heavily waste abatement oriented, rather than having an economic development focus.

In addition, a waste composition study recently was undertaken by the Met Council which will provide data of use to market development efforts when completed during Fall 1991.

Efforts to coordinate the market development activities of the OWM and Met Council are being expanded in such areas as awarding grants/loans, sharing technical expertise on projects, reviewing results of funded projects, and disseminating results to constituency groups. Membership on the MDCC is helping facilitate such coordination.

Minnesota Department of Administration (Admin)

The Department of Administration has been designated by the Legislature as the lead agency to coordinate an aggressive recycled products procurement program for implementation by all levels of government in Minnesota. Membership of the Department on the MDCC is facilitating this role.

It is the responsibility of the Department of Administration to identify recycled products, conduct performance testing, and establish bid evaluation criteria that give a weighted preference and/or up to a ten percent price preference for recycled content. Recycled and recyclable office supplies/materials must be offered to state agencies and local units of government through a cooperative purchasing program. These responsibilities require a proactive role promoting and encouraging acceptance of recycled/recyclable products and including these considerations in product bid specifications.

Other procurement-related initiatives are being pursued by the Department of Administration, as well. Admin is exploring the need to require, or give preference to, products in recycled content packaging. The Department also is participating in national efforts to set materials and testing standards.

The Department of Administration faces important challenges in the procurement arena. Admin must promote and facilitate the recycled products preference mandate among government agencies that are much more concerned about budgets than about recycling market development. The attitude that recycling and buying recycled are things to consider only when convenient needs to be addressed for all levels of government. The mandates in the SCORE bill provide the framework for an aggressive procurement campaign, but a strong commitment to the spirit of those mandates during implementation is key to the effective use of procurement to create significant demand for recycled materials and products.

Minnesota Pollution Control Agency (MPCA)

The MPCA has market development-related functions in a number of areas. First, MPCA has begun collecting recycling markets data as part of its permitting responsibilities. Second, the agency is in the midst of a four season waste composition study of four sites in greater Minnesota that will yield important supply information for recycling markets. Third, the agency is considering revising the rules governing use of compost, which will directly impact compost producers and markets. Fourth, the agency administers a market development grant and loan program for waste tires that parallels the OWM market development programs for other recovered materials. And finally, the MPCA has enforcement responsibility for legislation mandating reductions in the mercury content of household batteries and creation of collection systems for commercial/industrial batteries that will impact the need for new markets.

The MPCA requires facilities that collect or process source-separated recovered materials or compost yard waste to provide a notice of operation and complete annual reports through the permit-by-rule process. The "Minnesota Recycling Facility Annual Operating Report" asks for information on markets, tonnage, prices, and inventory for each recovered material and compost. In addition, information on ownership structure, type of operation, drop-off charges, and service area is requested for each facility. To date, compliance in filing or completing all the information required in the annual report has been weak,

especially among the larger private recyclers. Furthermore, questions remain about how MPCA will handle the confidential information that is submitted, since the Agency lacks the MIS resources internally to create an automated database and generate analyses from the reports.

The four-season waste composition study being conducted by MPCA will provide valuable information on the current recovery rates and potential supply of recovered materials. This information will be supplemented by the results of the Metropolitan Council waste composition study. An MPCA representative is on the selection committee for the Met Council study to assist in coordinating the two efforts. Both organizations will need to work with the OWM to assure that results are disseminated to all interested parties in both the public and private sectors.

If the MPCA decides to revise the compost rules, the intention is to address the uses and application rates for MSW compost. Revision efforts need to be coordinated with activities proposed or being conducted by the OWM, University of Minnesota, and various trade associations. Membership on the MDCC is helping facilitate such coordination.

Responsibility for waste tire market development rests with the MPCA. This activity closely parallels the OWM market development efforts for other recovered materials. Coordination between these two units could be mutually beneficial in sharing information on proven methods, lessons learned, new approaches, research results, and other relevant issues.

Battery legislation adopted by the 1990 Legislature could alter the need for some battery recycling markets. Within a few years alkaline household batteries may no longer present a toxic threat for landfilling or incineration, since manufacturers are required to dramatically reduce the mercury content. Other household batteries, such as lithium and small lead-acid batteries, constitute a growing problem, however. In addition, commercial/industrial batteries may require increased market development efforts if the collection provisions of the 1990 law yield a significant supply of waste batteries for recycling. The MPCA and the OWM need to coordinate efforts to deal with this rapidly changing market situation. Completion of the MPCA study on household batteries is the first step in this process.

Counties

There is great diversity in the scope of recycling market development activities undertaken by the 87 counties in Minnesota. Some counties delegate collection and/or marketing of recovered materials to private companies or nonprofits. Other counties are heavily involved in processing materials and contracting directly with markets. Counties have discretionary authority to spend SCORE money on market development activities, as well as problem materials management and information/education programs. Furthermore, counties can participate in specific projects utilizing state or regional market development grant and loan programs, either individually or through sponsorship of another organization. Regardless of their market development activities, however, counties are responsible for assuring that collected materials are taken to processing centers or end markets for upgrading or remanufacture.

Some activity among counties in the area of recycling market development is being organized by the Association of Minnesota Counties (AMC), a member association. The primary mission of AMC in the area of recycling market development is to disseminate information to its member counties. The Association publishes a newspaper every month, ten months each year. In addition, during the legislative session AMC distributes biweekly and -- toward the end of the session -- weekly "Updates" for member counties.

The AMC intends to be proactive on recycling market development. As a new initiative, the AMC is exploring the potential for organizing a cooperative marketing project with fifteen member counties in northwestern Minnesota. An opportunity for greater coordination between the AMC and the OWM,

Department of Administration, or another agency/organization includes joint sponsorship of workshops or training sessions on buying recycled, cooperative marketing, quality issues, and how to work with the private sector. AMC also anticipates playing a role in advertising workshops offered by other groups and in using the AMC newspaper as a forum to communicate about "Buy Recycled" activities.

The Solid Waste Management Coordinating Board (SWMCB) is another county organization with an emerging role in recycling market development. A joint powers agreement finalized in July 1990 created the SWMCB. The Board is composed of two members from each of the seven metropolitan counties. Representatives from the LCWM, OWM, MPCA, and Met Council sit as nonvoting ex officio members. The mission of the SWMCB is coordination of the metropolitan area approach to solid waste management. Though no market development activities were undertaken in 1990, a primary purpose of the Board is to coordinate activities and make recommendations for action to local units of government, counties, the Metropolitan Council, the OWM, MPCA and the Legislature in the area of recycling market development.

Minnesota Department of Transportation (MnDOT)

Through its product testing, specifications setting, and procurement functions, the Transportation Department is playing an increasingly important role in recycling market development.

Use of compost as a soil amendment to establish trees and shrubs has become a standard procedure on all MnDOT highway landscaping projects. MnDOT's standard specifications for compost have been made more stringent for 1991. The compost must be Grade II, registered for sale by the Department of Agriculture, and supported by a letter from the compost facility stating that the material will have been fully composted prior to MnDOT using it. MnDOT is working with the Department of Agriculture on quality control issues. All kinds of compost are being used by MnDOT, including animal, poultry, yard waste, and some MSW compost. In addition, MnDOT is planning a research project with the University of Minnesota Natural Resources Research Institute on testing different blends of compost for use in establishing turf.

MnDOT is exploring uses for two waste materials pertinent to recycling market development efforts: roofing shingles and tires. MnDot has constructed test sections of a recreational trail using processed shingle scrap as part of the bituminous mix, and is attempting to construct and evaluate highway projects which employ shingle scap in the bituminous paving mixture. Research has been conducted on the use of asphalt-rubber in interlayer, sealcoat, crack sealing, and asphalt concrete systems, but the resulting benefits have not been sufficient to justify increased costs. At present, further analysis is being made of the lightweight fill concept, attempts are being made to construct rubber-modified asphalt concrete overlays, and a paving mix with reclaimed rubber suitable for jogging and bike paths is being tested in a pilot project with the MPCA and DNR.

Other recycling market development activities by MnDOT include performance testing of plastic lumber and working with the OWM to develop an efficient system to transport recovered materials to markets and processing centers.

Department of Trade and Economic Development (DTED)

The Department of Trade and Economic Development has no specific recycling market development responsibilities. Yet recycling market development has a strong economic development component, especially in Greater Minnesota. Recovered materials are a homegrown feedstock available to spur the creation or growth of manufacturing facilities in the state. This view of recycling is consistent with the focus of DTED community development activities.

DTED operates primarily on a project-specific basis. To a great extent, the agency's involvement in recycling market development is likely to be centered on this approach. Once a business opportunity

or technology is identified and brought to the agency's attention, DTED can publicize it by means of quarterly Star Cities meetings, agency newsletters, and specific contacts with relevant industries or communities. Furthermore, DTED industry specialists can be requested to work with applicants to assist in the development of at least one quality proposal in response to an RFP.

DTED has several resources that can benefit recycling market development activities. A Directory of Manufacturers database can provide a rapid search by SIC codes, and the TOOLS software potentially can be used to make connections for materials utilization. National promotion efforts also can be coordinated through the publicity materials of DTED, with the capability to selectively target success stories to specific industries.

To facilitate DTED involvement in recycling market development activities, professional relationships between DTED and the OWM need to be fostered. DTED membership on the MDCC already is leading to such inter-agency involvement.

In addition, the DTED Office of Science and Technology oversees the peer review process for state-funded research and development projects. This office will assist the OWM with implementing a peer review process for the Recycling Market Development Directed Research Grant Program.

University of Minnesota (U of M)

The University of Minnesota is actively conducting research in a variety of areas related to recycling market development. The soils program is measuring the biodegradation of plastic films. Mining technology is being used to reclaim metals from landfills. In mechanical engineering, improved balers, compactors, and chippers are being developed. Research is being conducted on fish waste, disposable diapers, and residential composting. In addition, product development is being done on newsprint and, to a limited extent, mixed paper as livestock bedding. Furthermore, new educational tools are being created with applications in waste education, and special containers are being developed for the home to simplify residential recycling efforts.

A important issue for University of Minnesota efforts in recycling market development is dissemination of research results. Several avenues exist for this effort, including county extension publications, public fact sheets, and reports. The need for additional methods of information dissemination should be explored.

Better coordination with state agency activities in recycling market development also needs to be pursued. Membership on the MDCC is helping facilitate such coordination.

Nonprofit Organizations

The types of nonprofit organizations involved in recycling market development include private organizations such as the Developmental Achievement Centers (DAC), governmental member associations such as the Association of Minnesota Counties (AMC), trade associations such as the Minnesota Waste Association (MWA), business associations such as the Minnesota Business Partnership, and private research/public policy organizations such as The Minnesota Project.

Nonprofit organizations participate in a broad variety of recycling market development activities in Minnesota. Nonprofits may be working to define the role of their members in recycling market development efforts, serving a coordinating function, or providing input on state/national recycling policy. Some nonprofits are participating in specific projects through the state and regional market development grant and loan programs available to them. Education and promotion activities are important functions for many nonprofits, utilizing newsletters and other communications media. Furthermore, nonprofits have

tremendous potential to spur recycling market development through the role of buying and promoting the use of recycled and recyclable products.

Greater Minnesota Corporation (GMC)

The GMC recently has been reorganized to focus on three priority areas. First, the GMC will provide technical and financial assistance to the traditional agricultural and natural resources industries to identify new uses for current commodities. Second, GMC manufacturing centers will offer technical assistance to help Minnesota manufacturers utilize advanced and appropriate technologies. Third, the GMC will make financial investments to stimulate product development.

The mandate of the Greater Minnesota Corporation financial investments program is consistent with the significant potential of recycling market development to stimulate the rural economy. GMC financial assistance to companies for recycling-related product development is being coordinated with other state programs to avoid overlap or duplication. Membership of the GMC on the MDCC is simplifying this task.

Efforts to coordinate the OWM and GMC grant programs already have been initiated, but require further delineation. Potential areas for coordination include: assisting with the peer review process, sharing technical expertise on projects, developing evaluation criteria, providing referrals, and disseminating research results.

Legislative Commission on Waste Management (LCWM)

The Legislative Commission on Waste Management provides legislative oversight for all solid waste issues assigned to state agencies. During the interim, the Commission holds hearings on solid waste activities and proposed legislation. The LCWM traditionally has introduced an omnibus waste bill to address miscellaneous issues relating to solid and hazardous waste. Throughout the session, LCWM staff takes this bill through the legislative process and tracks the progress of all solid waste legislation.

The LCWM has no distinct role in recycling market development, other than its membership on the MDCC. The Commission has the potential, however, to serve as a good testing ground for market development policy ideas and to assist in developing legislation.

Office of the Attorney General

The Office of the Attorney General is playing an increasingly important role in the development of labeling and standards for recycled and recyclable materials. At present, the AG is participating in a ten-state Task Force on Environmental Marketing to explore the issues raised by the profusion of manufacturers claims about the environmental benefits of products and packaging. In addition, the Attorney General is working with Green Seal, a private environmental labeling organization.

Financial/Economic Development/Business Community

Commercial lending requirements are very stringent for small businesses in general at this time, due in part to the savings and loan crisis and a deepening recession. This situation is compounded for the emerging recycled-products industry because many lending institutions consider recycling to be a more risky type of investment.

It is very important for the financial, economic development, and business communities to support recycling market development with investment dollars, utilization of recovered materials as feedstock in manufacturing processes, and the purchase of recycled and recyclable products/materials.

The community also has the resources to provide siting assistance for new or expanded processing and remanufacturing facilities.

APPENDIX: GLOSSARY OF TERMS

Admin	Department of Administration
AG	Office of the Attorney General
AMC	Association of Minnesota Counties
DNR	Department of Natural Resources
DPS	Department of Public Service
DTED	Department of Trade and Economic Development
EQB	Environmental Quality Board
GMC	Greater Minnesota Corporation
LCMR	Legislative Commission on Minnesota Resources
LCWM	Legislative Commission on Waste Management
MDA	Minnesota Department of Agriculture
MDCC	Market Development Coordinating Council
MDE	Minnesota Department of Education
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
Nonprofits	Includes trade associations, government member associations, business associations, and private research/public policy organizations
OWM-HPW	Office of Waste Management, Hazardous and Problem Wastes
OWM-LGA	Office of Waste Management, Local Government Assistance
OWM-MD	Office of Waste Management, Grants and Market Development
OWM-PD	Office of Waste Management, Solid Waste Program Development
OWM-PI	Office of Waste Management, Public Information
PUC	Public Utilities Commission
SCOPE	Select Committee on Packaging and the Environment
SCORE	Select Committee on Recycling and the Environment
SWMCB	Solid Waste Management Coordinating Board (formerly Regional Solid Waste Management Task Force)