Admin Minnesota

DEPARTMENT OF ADMINISTRATION

DATE: September 21, 20006

TO: Environmental Quality Board Members

FROM: Dana B. Badgerow, Commissioner

SUBJECT: **Department of Administration Response to Legislative-Citizens Commission on Minnesota Resources Request**

The Minnesota Department of Administration plays an ongoing role in environmentally-responsible procurement and disposal; management of the state fleet; design, construction and maintenance of state buildings; protection and management of Minnesota's historic and cultural resources; development, coordination and management of environmental information systems; and development and coordination of state environmental policy. In carrying out these functions, we strive to meet customer needs in a sustainable manner by providing leadership in conserving natural and economic resources and in coordinating the development of related policy.

What are the pressing natural resources issues for your agency?

Information systems. The past decade has seen an explosion in information systems management capability. Agencies have developed geographic information systems and databases that enable them to more efficiently and effectively address their program needs. The emerging challenge of today's natural resource issues is the need for information systems that cut across agency boundaries, that integrate air, land, water, fish, wildlife and other resource data, and that help people understand threats, trends and opportunities to manage and protect resources put at risk.

Land use change. Indiscriminate land use change may be one of the most significant threats to Minnesota's natural resources. Whether the change breaks up large forest tracks, intrudes on environmental corridors and wildlife habitat, or contaminates air, land and water, such change can adversely affect communities and economies, as well as natural resources.

Water sustainability. The protection of water quality and management of supplies have emerged as major natural resource issues that may potentially affect the state's prosperity and livability.

Climate change. The changing climate is likely to have a pervasive effect on Minnesota's efforts to protect natural resources, just as it will on our economy, ranging from higher energy use in buildings to water use on the farm. We need to understand not only how we contribute to the problem, but how we might adapt to it in a way that provides us economic opportunity and environmental sustainability.

Historic and cultural resources loss. Minnesota's historic and cultural legacy is at risk from lack of information as much as development. The status, condition and threats to these resources need to be identified and plans adopted to protect them.

Cumulative effects. Whether from habitat destruction, economic growth, land use change or climate change, our natural resources often are put at risk by small decisions that on their face may seem inconsequential. Understanding where, how and when decisions may have significant cumulative implications is essential to protection and management of Minnesota's natural resources.

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Sustainable development. Taken together, the above issues come down to learning how to live and conduct business in a manner compatible with natural resource limits. In this we have much to learn.

What are your recommendations to enhance and/or preserve natural resources and address the issues identified?

Information systems. To address the critical issues identified requires high-quality contemporary geo-spatial data. Administration can play a key role in coordinating its collection, integration and dissemination, and the LCCMR can help with the funding, as LCMR has in the past. Future investments by LCCMR in key geo-spatial data will help ensure that natural resource managers and decision makers have the GIS information they need to make effective, informed decisions. A state blueprint, providing strategic direction for GIS and investments in critical data resources has been prepared by the Minnesota Governor's Council on Geographic Information: *A Foundation for Coordinated GIS, Minnesota's Spatial Data Infrastructure* (see http://server.admin.state.mn.us/resource.html?Id=9084). The Minnesota Spatial Data Infrastructure parallels the National Spatial Data Infrastructure, a nationwide strategy established in 1994, but is adapted to focus upon Minnesota's business needs and priorities.

LCMR also has long supported the continued collection of natural resource data in a way that guarantees maximum benefit to the state as a whole, and is consistent and compatible with Minnesota best practices. It is important that spatial data conform to geographic information system guidelines and standards as adopted by the Minnesota Geographic Data Clearinghouse at the Land Management Information Center.

Land use change. Minnesota must develop a better understanding of where land use change poses the greatest threat to our environment, our economy – including agriculture – and communities. We need to understand how state policies and programs may contribute to the problem and how the state might work with local governments to better manage it.

Water sustainability. The state is taking major steps to address impaired waters, but will need to identify permanent sources of funding to address impairments, while also supporting preservation of unlisted waters. This should take care of most surface water quality issues. Ground water quality remains a concern, however, and while agencies have come together to monitor the resource, more needs to be done to assess trends and adopt measures to protect this major state asset. As Minnesota continues to grow and prosper, the availability of supplies to meet long term needs is emerging as a serious concern that warrants new efforts to better understand the state's ground water supplies and the amount of water that can be withdrawn on a sustainable basis.

Climate change. While the state is taking many of the steps needed to reduce the threat of climate change, such as designing high performance buildings and leading the way on biofuels and renewable energy development, it might have greater effect with a comprehensive approach to the issue. The state should assess its role in the release of climate change gases, determine what it can do to reduce emissions, decide how it can model behavior for others, and plan the steps it should take to make changes internally while encouraging others outside of state government to make like changes.

Historic and cultural resources. The location, status, condition and threats to unmarked burial sites, archaeological sites, Indian sacred sites and traditional cultural resources need to be assessed with plans developed for how should they be preserved and managed. This should include: a) a survey of known and reported burial sites and development of a management strategy, b) an archaeological survey of poorly understood areas, and c) a survey of sacred sites and traditional cultural resources to develop a database of sensitive locations and a management plan.

Cumulative effects. The Environmental Quality Board is considering changes to the state's Environmental Review rule to better address cumulative effects issues. State and local governments would be able to address cumulative effects more effectively in the future with a greater understanding of the science and practical tools for their systematic assessment.

Sustainable development. Administration operates much of the business of state government, and strives to do so in a way that models sustainable behavior both to the benefit of state government and to Minnesotans. The department seeks approaches that foster continuous improvement in all areas, from using products without toxic materials to buildings with little environmental footprint, with the goal being a state government that functions as a sustainable corporation. Research is needed to inform these efforts.

What priorities are identified in each agency's strategic plans for the management of natural resources?

The Department of Administration strategic plan calls for conserving natural and economic resources through resource recovery, the wise use of energy, and sustainable design. It advocates the development of sound policy and better-informed decisions based on well-grounded research and experience.

Administration's priorities related to natural resources include: purchasing environmentally-preferable goods and services; promoting and managing recycling in government offices; encouraging employees to car pool and ride the bus; supplying vehicles to meet state and local government transportation needs; recycling and selling the state's surplus goods; helping state agencies save energy; issuing licenses for archaeological work on public land; preserving state assets by managing risk; providing demographic services to state and local government and citizens; coordinating and providing the resources for planning, design and construction of state facilities; managing state grants for local construction projects; providing geographic information and analysis services; and coordinating environmental policy.

What past projects funded through the Trust Fund or Future Resources Fund have made a major impact on how the agency has managed natural resources?

Geographic information systems development. As early as 1963, the Minnesota Outdoor Recreation Resources Commission (renamed LCMR) recognized the important role GIS could play in protecting Minnesota's natural resources. LCMR support helped Minnesota lead the nation in innovative and productive use of geographic information and technology. Highlights of the LCMR support include:

1963: Topographic, geologic and soils maps, and aerial photography
1967: The groundbreaking University of Minnesota Lakeshore Project
1968: Software support for the project: the Environmental Planning & Programming Language
1969: The Minnesota Land Information System, which produced the first state land use map
1971: State park planning project
1975: First automated statewide map of public land ownership and the nation's first digital statewide forest resources map
1977: LMIC, the nation's first state GIS center
1981: Public ownership study, providing maps still used today
1990s: Aerial photography in computer readable form covering the entire state, wetlands data, conversion of historical timber survey maps to a GIS compatible format, mapping the progression of oak wilt through Minnesota's cities and towns

More than 11% of LCMR's budget between 1963 and 2001 was devoted to natural resources data, producing a data resource unparalleled among states.

Comprehensive local water management pilot grants. This assistance fueled the statewide implementation of a voluntary county water planning program and changed the way local and state governments view water management roles in Minnesota.

Timber harvesting generic environmental impact statement. The Forestry GEIS provided the baseline understanding of Minnesota's forest resources necessary for their management on a sustainable basis.

Statewide archaeological survey. The survey provided the fundamental knowledge for site location models, reorganized and greatly enhanced the archaeological record system for the state, and found hundreds of previously unrecorded archaeological sites.

Minnesota shipwreck initiative. The initiative provided for the first comprehensive surveys of Minnesota's Lake Superior and inland shipwrecks, educational materials on shipwrecks, and a shipwrecks management plan. The Minnesota Historical Society webpage developed by this initiative is still the second most popular destination at MHS (http://www.mnhs.org/places/nationalregister/shipwrecks/).

Pilot implementation of Minnesota's archaeological plan. The plan provided for development of prehistoric and contact period historic context documents, radiocarbon dating of Browns Valley Man, survey of the Grand Meadow Chert Quarry (now listed on National Register of Historic Places), and an initiative to bring archaeology to the public through the Internet.

Smart signals: economics for lasting progress. This project questioned basic assumptions about the relationships between the environment, economy and communities. It identified issues concerning the economic implications of state policies and ways to improve them for a healthier Minnesota.

Response to Request for Information
From the Legislative-Citizens Commission on Minnesota Resources
to the Environmental Quality Board

Minnesota Department of Agriculture
September 8, 2006

Pressing Natural Resources Issues

Water

Managing drainage, soil nutrients, and pesticides to achieve water quality goals
Farming depends upon soil productivity, which depends in turn on proper soil moisture and the return to the soil of nutrients taken up by crops. Pesticides may be needed to address invasive pests, weeds, and plant diseases. Farm drainage is an essential part of soil moisture management, and rural drainage (farm and nonfarm) offers promising opportunities for improving water quality. Soil nutrients and pesticides must be managed to prevent or minimize water pollution. Managing nutrients and pesticides is a challenge for farmers, requiring information, and expertise and resources concerning soil and inputs, application rates, and modern cropping and manure management systems, methods, and facilities.

Air and Land

Protection of Minnesota's agricultural production lands
The global economy has transformed the nation's and state's economies, including agriculture. Additionally, new challenges, such as the need to move toward alternatives to fossil fuels, have posed new opportunities for farmers. The agricultural landscape has changed as a result.

At the same time, urban areas have pushed into farming areas, and more nonfarmers have chosen to live in rural areas, resulting in higher land prices, higher property taxes, and more complaints over the smells, sounds, and hours of operation of farms and agriculturally-related businesses. Infrastructure for transportation, public services, and energy, is built or expanded in rural areas, sometimes providing services for agriculture, but also sometimes unnecessarily consuming or damaging agricultural land, and interfering with future agricultural growth.

Other Natural Resources

Renewable energy
Minnesota's agricultural resources offer promising alternatives to our current dependence on fossil fuels. Increasing viability of biomass and wind offers potential solutions to issues of energy independence, water and air pollution, and climate change, while also providing economic opportunities for farmers and rural communities. Minnesota's waterways provide access to markets for farm products that offer an alternative to transportation by road and rail.

Climate change may pose challenges to farmers, requiring changes to crops, cropping practices, and agricultural facilities.

Insect pests, diseases, and weed management
Weeds, insect pests, and diseases not only threaten agricultural crops, but also surrounding natural areas and urban landscapes. New and emerging invasive species are a major threat to Minnesota's agriculture and natural resources. A holistic management approach is needed, balancing adequate control with environmental protection, and addressing root causes. This means not only providing adequate detection of pests and diseases, but also providing timely management assistance and informational resources to farmers, private land owners, natural resources personnel, government support staff, and others, that describe innovative pest management methods, such as biocontrol.

Need for characterization of natural resources: water soil, topography
To adequately address environmental issues for agriculture, better information is needed to make informed decisions; particularly in the characterization of our natural resources through monitoring, measuring and mapping.

Recommendations to Enhance and/or Preserve Natural Resources and Address the Issues Identified

Overall, the MDA recommends that the LCCMR:

- Put a greater emphasis on projects that affect private working lands. Acre for acre, farmers are the largest category of private landowners in the state. Private lands in rural Minnesota are where a large percentage of the state's natural resources exist and are impacted. Conservation and sustainable management of these resources is crucial for the future of Minnesota's rich natural resources heritage.

- Align its priorities with those of the Clean Water Legacy, the Nonpoint Source Management Program (319) Plan, and the criteria for USDA/NRCS Conservation Innovation Grants (CIG). This will enable more substantial projects to address critical water quality and quantity issues in Minnesota.

- Place a greater emphasis on efforts to educate, demonstrate, and encourage adoption of practices.

The following areas of emphasis would address issues discussed above:

- Managing drainage, soil nutrients, and pesticides to achieve water quality goals. Work that would address this issue includes continued research, development, and demonstration of alternative cropping systems and practices; innovative approaches to water monitoring; increased laboratory capacity to work on pesticides and their degradates; conservation drainage practices and designs; and the role of livestock in enhancing natural resources.

- Protection of Minnesota's agricultural production lands. Work that would address this issue includes research and information development on agricultural land preservation, rural planning, and livestock odor and air quality research.

- Renewable energy. Work that would address this issue includes: renewable energy and nexus with efforts to improve environmental quality and enhance economic viability, including wind, biofuels, and terrestrial carbon sequestration, agricultural impacts of climate change and potential solutions; and study of the relative environmental impacts of farm-to-market transportation alternatives.

- Pest, disease, and weed management. Work that would address this issue includes: expansion of the plant pest survey, noxious weed, integrated pest management (IPM) and biological control programs to cover the entire state; education, outreach, and training programs to raise awareness of pest/weed pathways, causes of establishment, consequences of invasions, and IPM scenarios for best management; improved capacity to detect and mitigate harmful plant pests and noxious weed species; cooperative work with other state and federal agencies on state owned lands for pest detection, eradication, and IPM programs; and increased laboratory capacity to work on emerging and existing insect and weed pests, plant pathogens and other organisms that pose a risk to Minnesota's natural environmental as well as the agricultural industry.

- Need for characterization of natural resources: water soil, topography. Work that would address this issue includes: statewide coordination for GIS/LIDAR information; a comprehensive water quality monitoring network; and study of primary aquifers to better estimate groundwater supply in agricultural areas.

Priorities Identified in the MDA's Strategic Plan for the Management of Natural Resources

The mission statement for the MDA is:

> Our mission is to work toward a diverse agricultural industry that is profitable and environmentally sound; to protect public health and safety regarding food and agricultural products; and to ensure orderly commerce in agricultural and food products.

The 2000 MDA Strategic Plan contains the vision statement:

I. **Assume a leadership role in environmental policy and program development**
   1. The department is a leader in agricultural environmental policy development
   2. Provide technical, information, and research assistance on key issues for diverse clientele
   3. Meet Minnesotans' expectations for environmental outcomes

The MDA has participated in other strategic planning efforts that the LCCMR should consult for information and guidance: These include:

- Nonpoint Source Management Program (319) Plan (especially chapters on feedlots, and agricultural erosion, nutrients, and pesticides)
- A Strategic Plan for the Cooperative Management of Gypsy Moth in Minnesota
- Comprehensive State Plan for Exotic Species in Minnesota (in progress)
- 1996 IPM and Sustainable Agriculture Plan for State-Owned Lands
- Minnesota Energy Planning Report 2001 (particularly in regard to wind, anaerobic digestion, and biofuels)
- Pesticide Management Plan (2005)
- Recommendations of the Nitrogen Fertilizer Task Force on the Nitrogen Fertilizer Management Plan (1990)

Past Projects Funded through the Trust Fund or Future Resources Fund that have made a Major Impact on How the MDA has Managed Natural Resources

- LCMR projects on manure digestion in 2003 (Advancing Utilization of Manure Methane Digester Electrical Generation) and 2005 (Manure Digester Compatible Wastes and Multiple-Farm Partnerships) have enabled the MDA and Minnesota to remain leaders in research and development on this topic. These projects helped to leverage other funding sources (private industry), developing and fostering relationships between the MDA, other state and federal agencies, non-profit organizations, private industry, and producers, and thereby enhancing future prospects for development of manure digestion technologies in Minnesota.

- Biological control projects (Leafy Spurge Biological Control, 1999; and Biological Control of European Buckthorn and Spotted Knapweed, 2003. Joint grant with DNR; the MDA handled the Spotted Knapweed portion of the grant) allowed the MDA to research and develop a protocol to help livestock producers statewide manage leafy spurge and spotted knapweed (two highly invasive species that are extremely difficult to manage and are toxic to grazing livestock) using biological control methods. As a result of these LCMR projects, statewide biological control programs are now established, greatly benefiting livestock producers throughout Minnesota.

- NRCS feedlot engineering assistance (Feedlot And Manure Management Practices Assistance, 1995) provided crucial supplementary funding to help provide needed technical assistance to farmers in upgrading their livestock operations for environmental protection.

- The agricultural land preservation projects (Reinventing the Agricultural Land Preservation Program, 1999, and Agricultural Land Preservation, 2001) have provided guidance on how to improve the MDA's program and better partner with the Metropolitan Agricultural Preserves Program, resulted in information and a tool for local governments to assess budgetary impacts of sprawl (providing an incentive to consider land use controls and agricultural land preservation), helped with refinement of GIS land use suitability modeling, and assisted with establishment of the state's first purchase of development rights program (in Dakota County).

- The Reducing Minnesota River Pollution from Lacustrine Soils project (1997) provided extremely valuable information for farmers and state and local water planners in helping reduce sediment and nutrient loading to surface and groundwater.

- Nitrate Education and Testing (1999). This project accelerated knowledge of nitrate levels in private drinking water supplies through development of water testing clinics and education programs for rural well owners. The LCMR funding allowed the MDA to eventually leverage federal and local resources. As a result, the Nitrate Water Testing Program continues, and has proven to be a valuable educational tool.

- Improved Agricultural Systems Overlying Sensitive Aquifers in Southwestern Minnesota (2001). This project was successful in bringing together various state and federal agencies, the University of Minnesota, area farmers and agricultural professionals to develop a response strategy to serious threats to Lincoln Pipestone Rural Water System District's water supplies from elevated nitrate levels. The research and technical assistance provided by LCMR funding enabled the counties to successfully compete for approximately $250,000 in federal cost-share funds to farmers, and resulted in implementation of best management practices.

- Environmental Practices on Dairy Farms (2001). This project resulted in development of an Environmental Quality Assurance (EQA) program to assist dairy producers in complying with environmental quality regulations. A component of the project was the demonstration of GIS mapping of environmental constraints. Similar to the land use suitability modeling for agricultural land preservation discussed above, modeling and mapping of suitability and constraints can provide valuable tools for determining locations for livestock facilities or other land uses.

Memo

MINNESOTA MDH DEPARTMENT of HEALTH

Date: September 8, 2006

To: Dana Badgerow, Chair
Environmental Quality Board

From: Dianne Mandernach, Commissioner
Minnesota Department of Health

Subject: Response to Legislative-Citizen Commission on Minnesota Resources (LCCMR)

The following are the Minnesota Department's of Health's responses to the four questions posed by the LCCMR.

What are the pressing natural resource issues for your agency?
The most pressing natural resource issue for the Department is the health threat posed by contaminated air, water, soil, fish, and food. The MDH provides consultation to other agencies concerning potential health risks and health protective actions (such as remediation of contamination). However, the most effective public health action that the state can take is to prevent harmful contamination from occurring.

In a 2001 letter to Representative Ozment from Pat Bloomgren, former Director of MDH's Environmental Health Division, Ms. Bloomgren explained that "[d]ecision-making about sound environmental management is often based on human health considerations. There are many instances when data on the effects of pollutants show that humans are the most sensitive receptor in an ecosystem."

A number of programs at MDH are designed to protect the public health from unnecessary exposures to contaminants. Contaminants include manufactured (volatile organics, PCBs), natural substances released by human activity (mercury, asbestos fibers in mining), naturally occurring environmental hazards (arsenic, lead, mold, and radiation), and pathogens (E. coli, Cryptosporidium, Salmonella).

Examples of our programs that address these unnecessary or unwanted exposures are:

- Assessment and prevention of drinking water contamination,
- Monitoring of food safety throughout the delivery system – from field to table,
- Monitoring of baseline quality as a benchmark from which to measure relative changes in the environment that might affect human health.

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One of the greatest contamination threats comes from increased groundwater usage, which may result in contaminant levels increasing in public water supply wells (pumping may move plumes toward wells or cause naturally occurring contaminant levels to increase). MDH has already seen this occur in parts of the Metro area and in areas where there are high arsenic or radium levels.

At this time, there are no strategic plans at the state or federal levels to address source water protection for surface waters that are used for drinking. The current emphasis by the Environmental Protection Agency (EPA) on the Total Maximum Daily Load (TMDL) Program diverts efforts to protect surface water and prevent contaminant levels from rising to the point at which remediation is needed.

Currently, there is very limited capability to address the potential for increased contaminant levels even though development pressure (i.e., development of rural areas into urban communities) continues. Additionally, MDH's capability to assist local governments and private well owners with assessing and addressing contamination of private water supply wells has been reduced.

What are your recommendations to enhance/or preserve natural resources and address the issues identified?

- Develop a state strategy that addresses water availability issues as a priority for allocating state resources to support development.

- Develop an equivalent of the federal sole source aquifer program for areas where a single aquifer exists. This can be done with existing data, and demand for groundwater resources in the future will generate interest in providing the state with information needed to make local groundwater allocation or resource protection decisions.

- Develop a state watershed management strategy that includes agency programs that address surface water and federal support such as the Clean Water Act and the Farm Bill. The strategy should identify priority issue areas such as drinking water protection or local intended uses and set priorities for allocating resources to address these issues.

- Address data management issues relating to the exchange of groundwater information between state agencies and between the state and local governments. Many ideas or protocols for doing this have been identified over the past three decades, but there has been no enforcement.

- Screen fish tissue for contaminants that are not routinely monitored at this time.
- Conduct a scientific survey of the amount of fish people eat and evaluate the resulting potential exposure to bioaccumulative contaminants in fish (mercury, PCBs, PBDEs, and other persistent contaminants).

- Assess children's exposure to arsenic from treated lumber or soil on and around playgrounds.

- Sample private wells for nitrate, arsenic, and additional key contaminants through a systematic study to identify potential public health risks.

- Conduct a study of surface and groundwater for the presence and quantity of pharmaceuticals and other consumer by-products.

- Conduct a drinking water survey for the volume of tap water consumed in homes where tap water is the primary or sole source of water intake in Minnesota. This information heavily influences the state's assessment of risks from water contaminants. These data are currently only available from national studies. In addition, important subpopulations have not been studied.

- Study the occurrence and quantities of elemental mercury in school indoor air resulting from spills and the use of mercury in manufactured flooring.

- Study the incidence of carboxyhemoglobin in sensitive subpopulations and populations at risk of high exposures to carbon monoxide.

- Provide consultation services to schools on developing and implementing effective Indoor Air Quality (IAQ) management plans in cooperation with the Department of Education.

What priorities are identified in each agency's strategic plan for the management of natural resources?
According to Department's strategic plan, our central challenge is to "strengthen our impact on the health of Minnesotans in the face of threats and challenges." The first goal of the strategic plan is to ***Focus on Clear Priorities for Improving Health Outcomes.*** Many of the project ideas mentioned would provide useful data and/or possible strategies to improve health outcomes.

What past projects funded through the Trust Fund or Future Resources Fund have made a major impact on how the agency has managed natural resources?
Projects funded by the LCMR have been primarily in the arena of identification of emerging health threats. These have each funded key activities or research that has assisted the Division of Environmental Health in better communicating risk to the public. These projects include:

- Comparative Risks of Multiple Chemical Exposures (1997);
- Measuring Children's Exposure to Environmental Health Hazards (1999);
- Potential for Infant Risk from Nitrate Contamination (1999);
- Integrated Pest Management in Schools (2001);
- Indoor Air Quality and Asthma Management (2003); and
- Economic-based Analysis of Children's Environmental Health Risks (2003).

If you have any questions or need additional information, please do not hesitate to contact Larisa Vishkovetsky at 651-201-4564. Larisa Vishkovetsky will serve as the MDH contact person to assist in this process and to participate in the planning discussions that EQB staff will organize.

Minnesota Department of Natural Resources
500 Lafayette Road • St. Paul, MN • 55155-4037

Gene Merriam, Commissioner
651-259-5555

Date: September 7, 2006

To: Dana B. Badgerow, Chair, Environmental Quality Board

From: Gene Merriam
Commissioner

Subject: Representative Tingelstad's Request

Thank you for the opportunity to highlight pressing natural resource issues and communicate the Department of Natural Resources' strategic work towards addressing these issues. Given the complexity and importance of these issues to Minnesotan's environment and quality of life, we are pleased that the LCCMR and EQB are seeking this input.

This effort will help us focus on the major drivers of natural resource challenges, guide assessments that inform decision making, and build strong partnerships to implement solutions to these challenges. We have an important window of opportunity to make a difference. We should focus our limited resources on the intersection of critical areas where we are likely to show significant results. To successfully address these natural resource challenges we need to engage in core natural resource inventory and assessment programs. These programs fill critical gaps in our understanding of the status of Minnesota's natural resources. They provide a foundation for setting priorities and informing decisions made by private landowners and managers, local governments, state agencies, and non-profit organizations. Finally, we should build strong partnerships to tackle these pressing issues. It takes more than one entity to make a difference. Only by pooling resources of entities with expertise in different areas, such as assessment and prioritization, outreach, easements, and habitat management, can we solve these complex issues.

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NATURAL RESOURCE ISSUES:

PRESSURES AND OPPORTUNITIES

September 7, 2006

Minnesota Department of Natural Resources
500 Lafayette Road
Saint Paul, MN 55155-4037

Compiled by DNR Office of Management and Budget Services
Address comments to Andy Holdsworth (651-259-5536), Bill Becker (x 5527), or
Keith Wendt (x 5563)

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EXECUTIVE SUMMARY

I. Pressing natural resource issues for the DNR

1) *Habitat loss and fragmentation*
2) *Changing forest ownership patterns*
3) *Clean water and sustainable use*
4) *Harmful, invasive species and disease*
5) *Public access and connection to natural resources*

II. Recommendations to address the issues identified:

1) *Habitat loss and fragmentation:* act now to identify, conserve & restore important habitats
   - conduct critical inventories and assessments to identify priority lands;
   - use conservation easements and fee-for-title acquisition;
   - conduct critical management activities which maintain natural processes;
   - provide technical assistance to landowners, developers, and local governments;
   - support conservation programs that both protect natural resources and reward farmers for producing conservation benefits.

2) *Changing forest ownership patterns:* prevent the loss of large forest tracts
   - acquire conservation easements with support for long-term monitoring;
   - investigate additional tools for preventing loss of large forest tracts;
   - expand Forest Stewardship Program to reach more private forest land owners.

3) *Clean water and sustainable use:* assess, protect, and restore Minnesota's waters
   - assess the state's surface and ground waters (stream flow, biotic integrity, etc.)
   - provide technical assistance on water plans and TMDL plan implementation;
   - protect watersheds through targeted grants, restorations and acquisitions;
   - improve watershed measurement tools for monitoring and evaluation;
   - address impacts of expanding drainage in agricultural landscapes.

4) *Harmful, invasive species and disease:* prevent spread of harmful, invasives
   - enhance infrastructure for detecting and responding to invasive species;
   - prevent introduction and control introduced invasive species.

5) *Public access to natural resources:* develop a stewardship ethic through access and connection
   - acquire conservation easements to maintain recreational access to natural lands;
   - enhance state parks & trails as gateways for citizen connection with natural resources.

III. Priorities identified in DNR's strategic plans:

- *Working Lands Initiative*
- *Minnesota Forest Legacy Partnership*
- *Metro Conservation Corridors Partnership*
- *Clean Water Legacy Initiative*
- *Core natural resource inventory and assessment programs*

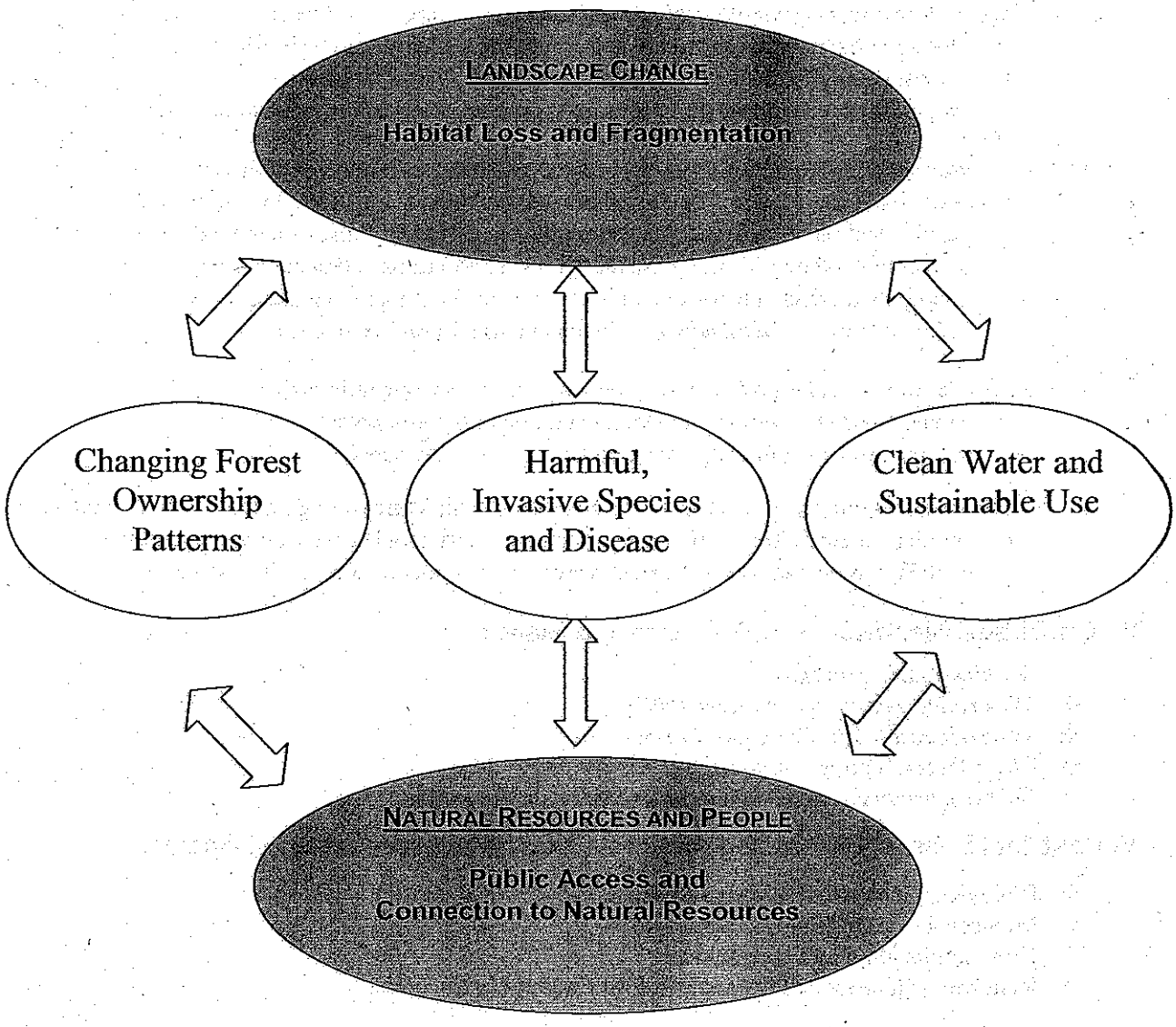
IV. Past ENTF- and FRF-funded projects that have made a major impact:

- Biological Control of Invasive Species
- Minnesota County Biological Survey
- RIM Acquisition and Development
- Restoring Minnesota's Fish and Wildlife Habitat Corridors

I. What are the pressing natural resource issues for the DNR?

The DNR highlights five pressing natural resource issues below. (They are also described in more detail in DNR's ***Strategic Conservation Agenda,*** profiled under "critical trends" in each of the agenda's six key performance areas.) These issues are closely interconnected and are not easily resolved due to the integrated nature of natural resources, land ownership, and management responsibility. They require immediate action because: a) significant natural resource degradation will occur without action; b) citizen expectations will not be met; and c) future problems and associated expenses will be greater without preventive action now. These issues are also much larger than those most appropriately funded by the Environment and Natural Resources Trust Fund (ENTF). Some projects that address these issues may meet the constitutional language and statutory guidelines of the ENTF.

Pressing Natural Resource Issues
-- Key Interactions --



1) *Habitat loss and fragmentation*

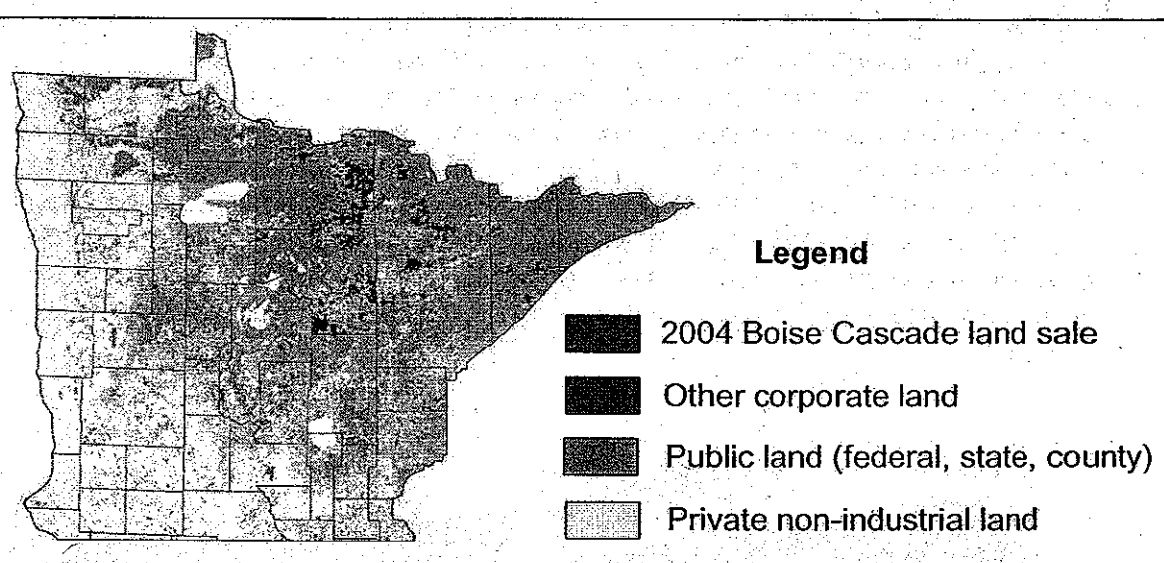
Loss of wetland, grassland, forest, shoreland, and shallow lake habitats is increasing, especially due to urban and residential development and changing agricultural practices. In the greater Twin Cities metropolitan area, nearly 60 acres of undeveloped land is converted to other land uses every day. By 2030, more than 1 million new residents and nearly 500,000 new homes are projected in the 11-county metropolitan area alone. Along Minnesota lakeshores the median number of homes per lakeshore mile has grown from fewer than 3 in 1950 to more than 16 today. Even more are expected as baby boomers retire. Development and removal of lakeshore vegetation can degrade lake water quality, diminish fish and wildlife populations, and limit recreation.

Rural Minnesota has changed dramatically in the past 50 years. Wetlands have been drained, grasslands have been converted to row crops, and fewer livestock roam the landscape. Larger, less diverse farms support less habitat for wildlife. In Minnesota's prairie pothole region, less than 10% of the wetlands and less than 1% of its native grassland remain. In some agricultural regions, expanding drain tiling continues to move more water off the land and degrade water quality and wetland habitat. Although drainage systems help maintain crop production, their environmental consequences need to be evaluated and minimized. With 400,000 acres of conservation reserve contracts expiring in 2007 and another 400,000 in 2008, habitat in agricultural landscapes is further threatened. Habitat losses have contributed to the large number (294) of wildlife species in greatest conservation need and directly reduce Minnesotan's access and connection with natural resources.

Development and removal of lakeshore vegetation can degrade lake water quality, diminish fish and wildlife populations, and limit recreation.

2) *Changing forest ownership patterns*

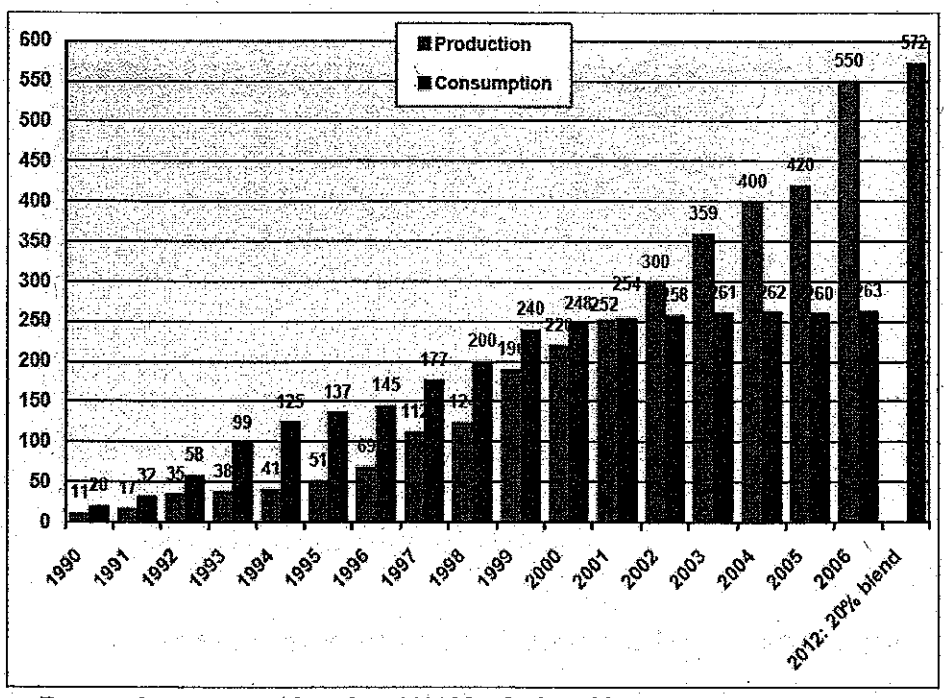
Thousands of acres of forestlands owned by timber and mining companies are being sold in large chunks to Timber Investment Management Organizations (TIMOs). While large timber companies traditionally managed large land holdings for trees, wildlife habitat, and permitted recreational access, TIMOs and the investors they represent generally see these lands as being worth more in real estate transactions. Nearly 1 million acres of large, mostly undeveloped private forest are at risk of being converted into smaller parcels with significant implications for habitat and public access. This results in decreased forest tract size and price escalation which can translate to decreased value as habitat, decreased access for recreation, decreased access for timber harvesting, and increased challenges to forestland conservation.



Ownership trends on Private Forest Lands. Nearly 1 million acres of large, mostly undeveloped private forest are at risk of being converted into smaller parcels.

3) *Clean water and sustainable use*

The health of Minnesota's freshwater habitats is threatened by physical and chemical changes from many causes, including runoff and water appropriation. As of 2004 there were 199 rivers and streams and 916 lakes impaired for one or more pollutants. The number is expected to increase substantially as more water bodies are assessed. Furthermore, a rapidly growing population, increased water consumption rates, emerging water demands, and other factors challenge our ability to maintain adequate water supplies for Minnesota's people and habitats. Between 1990 and 2000, water use grew almost twice as fast as population. Population will grow another 11 percent by 2010. There is also an emerging issue: ethanol production. In 2006, Minnesota ethanol production will require about 2.5 billion gallons of water—more than the water used by Washington County in one year. We must act strategically to clean-up impaired waters and ensure sustainable water use to meet the needs of an increasing- and increasingly demanding- population.



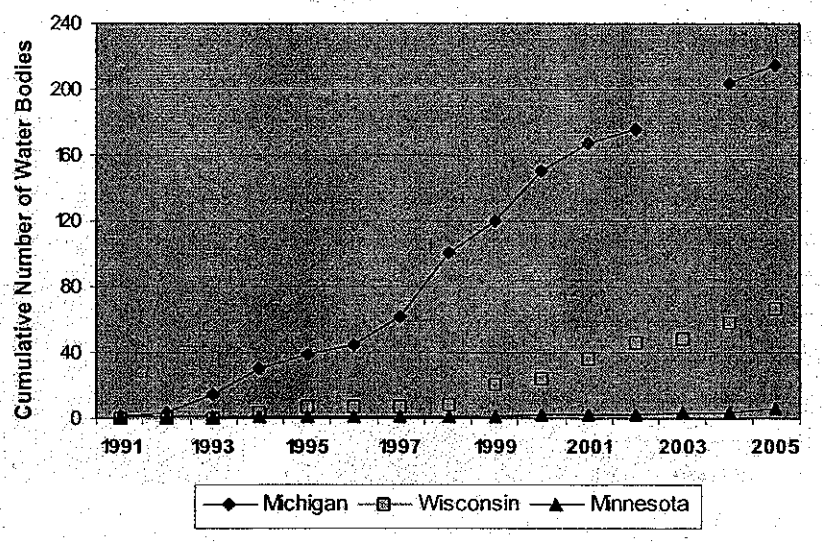
Estimated consumption based on 20% blend ethanol by 2012
Source: Agricultural Marketing Services Division, MN Department of Agriculture

Minnesota ethanol production and consumption (million gallons).
Given that the production of 1 gallon of ethanol requires 4-5 gallons of water, increasing ethanol production has significant implications for water supplies.

4) *Harmful, invasive species and disease*

Harmful, invasive species are nonnative species threatening natural resources and their use. DNR has identified invasive species as one of the greatest land and water challenges facing the state. Harmful invasive species can displace native species, degrade habitat for fish and wildlife, reduce productivity, and limit recreation. Since the first discovery of Eurasian watermilfoil in Lake Minnetonka in 1987, it now infests188 lakes or river segments, including 11 additional infestations just detected this summer. Strategic programs have limited the spread of such harmful invasives as Eurasian watermilfoil, zebra mussels, and purple loosestrife, and are staged to do the same for European buckthorn and garlic mustard. However, invasive species such as Emerald ash borer and Asian carp, and diseases such as chronic wasting disease are poised to invade Minnesota from neighboring states and are pressing threats to forests, fisheries, and, wildlife. A proactive approach to identification of emerging invasive species threats before they are established will help lessen future harmful invasives more effectively.

Number of Water Bodies with Zebra Mussels in the Upper Great Lakes States



5) *Public access and connection to natural resources*

Habitat loss, changing forest ownership patterns, harmful invasive species and disease, and clean water all affect Minnesotan's access to natural resources for hunting, fishing, timber extraction, and wildlife watching (see diagram on page 3). Furthermore, reduced access contributes to the growing physical disconnect between people and natural resources. If Minnesotans lose their connection to natural resources we risk losing citizen's support for natural resource conservation. The percentage of Minnesotans who participated in fishing, hunting, and wildlife watching declined between 1991 and 2001, particularly among young and urban residents. The trend demands creative strategies for recruitment and retention of outdoor enthusiasts, and it demands increasing emphasis on education so citizens appreciate and care for resources they might not encounter every day.

II. What are your recommendations to enhance and/or preserve natural resources and address the issues identified?

1) ***Habitat loss and fragmentation:*** **act now to identify, conserve, & restore important habitats**
   - conduct critical inventories and assessments to identify priority lands;
   - use conservation easements and fee-for-title acquisition;
   - conduct critical management activities which maintain natural processes;
   - provide technical assistance to landowners, developers, and local governments;
   - support conservation programs that both protect natural resources and reward farmers for producing conservation benefits.

2) ***Changing forest ownership patterns:*** **prevent the loss of large forest tracts**
   - acquire conservation easements with support for long-term monitoring;
   - investigate additional tools for preventing loss of large forest tracts;
   - expand Forest Stewardship Program to reach more private forest land owners.

3) ***Clean water and sustainable use:*** **assess, protect, and restore Minnesota's waters**
   - assess the state's surface and ground waters (stream flow, biotic integrity, etc.)
   - provide technical assistance on water plans and TMDL plan implementation;
   - protect watersheds through targeted grants, restorations and acquisitions;
   - improve watershed measurement tools for monitoring and evaluation;
   - address impacts of expanding drainage in agricultural landscapes.

4) ***Harmful, invasive species and disease:*** **prevent spread of harmful, invasives**
   - enhance infrastructure for detecting and responding to the spread of terrestrial invasive species;
   - prevent introduction of invasive species and control populations of introduced invasive species.

5) ***Public access and connection to natural resources:*** **develop a stewardship ethic through access and connection**
   - acquire conservation easements to maintain recreational access to natural lands;
   - enhance state parks & trails as gateways for citizen connection with natural resources.

III. What priorities are identified in each agency's strategic plans for the management of natural resources?

DNR's ***Strategic Conservation Agenda*** uses approximately 90 measurable indicators and targets to paint a picture of natural resource conditions, DNR management activities, and the results DNR hopes to accomplish through our management efforts. Reaching the targets will make critical progress towards tackling these pressing natural resource issues. In light of the three principles highlighted in our introductory comments (focus our limited resources, engage in core natural resource inventory and assessment programs, and build strong partnerships), we highlight five major priorities that encompass many natural resource targets from the *Strategic Conservation Agenda.*

Working Lands Initiative

To meet Minnesota's long-term goals for waterfowl and wildlife populations we will need to restore and protect an additional 2 million acres of prairie wetlands and grasslands while maintaining our existing habitat base. The Working Lands Initiative/Prairie Pothole Partnership is a collaborative public/private initiative to help unify, coordinate, and improve conservation investments in Minnesota's prairie pothole region.

Minnesota Forest Legacy Partnership

Conservation easements are a critical tool for addressing the consequences of changing forest ownership patterns on habitat loss and public access. The DNR has joined with state, federal, and private partners to form the Minnesota Forest Legacy Partnership whose goal is to acquire 75,000 acres of permanent forest conservation easements by 2008. As important forestlands are protected through easements, attention must focus on the task of systematic monitoring to ensure easement properties continue to provide the values for which they were protected.

Metro Conservation Corridors Partnership

The Metro Conservation Corridors Partnership is a consortium of nonprofits and local governments. The Partnership accelerates protection and restoration of key natural lands in the Twin Cities metro area by focusing pro-actively on strategic areas, efficiently leveraging private and public partners and resources, building upon prior investments in public lands, and enhancing the cost-effectiveness of conservation efforts by coordinating them within a regional framework.

Clean Water Legacy Initiative

On June 2, 2006 Governor Pawlenty signed the Clean Water Legacy Act into law. This law will accelerate testing of Minnesota's waters; provide resources to develop specific plans (TMDLs) to clean up Minnesota's most contaminated waters; and provide additional dollars to improve water quality. In collaboration with the other environmental

agencies and other partners, DNR will play an important role in assessment and monitoring of impaired waters, technical assistance for TMDL plans, and non-point source restoration and protection.

Core natural resource inventory and assessment programs

Faced with major natural resource challenges, the need to set strategic priorities, and measure progress towards targets, natural resource inventory and assessment programs are essential for all entities responsible for natural resources. One core program is the Minnesota County Biological Survey (MCBS). Continued support for MCBS is critical to meet its target of 1) surveying 62 counties and portions of five counties by 2007 and all counties by 2021 and 2) providing technical assistance and natural features information to an additional 30 local governments by 2008.

The challenge presented by harmful, invasive species and disease is a core area for assessment and control programs. While continuing mapping and control efforts of aquatic invasive species, we must increase our efforts to map and control terrestrial invasive species.

IV. What past projects funded through the Trust Fund or Future Resources Fund have made a major impact on how the agency has managed natural resources?

Four projects stand out as having had major lasting impact:

***Biological Control of Invasive Species* ($1,090,000 over five biennia)**

This program has supported applied research to develop and release biological elements to control purple loosestrife, Eurasian watermilfoil, European buckthorn and garlic mustard. Each of these invasives in their own right affect the quantity of quality habitat in Minnesota. Their pervasive nature makes biocontrol the most, if not the only, reasonable method of control.

***Minnesota County Biological Survey* ($8,300,000 over eight biennia)**

This inventory of rare and endangered species and natural areas and native habitats throughout Minnesota guides acquisition, permitting and regulation, harvest and many other aspects of DNR's work. In addition it has been critical to environmentally sensitive development in Minnesota.

***RIM Acquisition and Development* ($11,024,000 to DNR since inception of the Environment and Natural Resource Trust Fund)**

Re-Invest in Minnesota includes acquisition and development critical to habitat retention, habitat development and public access to quality habitat. Although the original RIM Coalition envisioned a substantially larger investment, these dollars have provided needed and continued focus on critical habitats.

***Restoring Minnesota's Fish and Wildlife Habitat Corridors* ($20,657,000 over three biennia)**

While most of these dollars have gone to non-governmental organizations for land acquisition and development, this project has accelerated valuable land acquisition through easement and fee simple purchase and the development of the purchased land. In addition it has added effort directed toward addressing the habitat development backlog.

SF-00006-05(4/86)

DEPARTMENT: POLLUTION CONTROL AGENCY

STATE OF MINNESOTA

Office Memorandum

DATE: September 8, 2006

TO: Commissioner Dana B. Badgerow

FROM: Acting Commissioner Brad Moore

PHONE: 651.296.7301

SUBJECT: Representative Tingelstad's Request

I am very pleased to offer you our response to help shape the new Legislative-Citizens Commission on Minnesota Resources' strategic plan. As you are aware, our Agency now embodies the ideas of both the former Office of Environmental Assistance and Minnesota Pollution Control Agency. This response highlights our priorities as we set a new direction for our Agency. There are a number of changes included in our response, but there are three I would like to highlight for you:

- Our mission now includes conservation as well as protection and improvement. The new MPCA is committed to making sure our environmental resources are used wisely, and conservation is an important element of stewardship. We strongly believe our combined resources and coordination of assistance, training, permitting, compliance and outreach approaches will result in the new Agency being able to work more effectively toward this mission.
- Our guiding principles now include recognition that the integration of environmental, social and economic sciences is critical in policy and problem-solving. While we have been practicing this integration for some time, we are now affirmatively stating it in our principles.
- Our vision now calls for Minnesotans to take responsibility to protect our environment. This is central to our mission and vision, creating new goals and objectives that exemplify our new focus on pollution prevention and individual responsibility.

The LCMR has provided funds for a variety of projects and activities throughout the years. We have attached a list for your review.

I have asked David Benke of our staff to respond to any questions you may have regarding our response and to participate in future discussion that you may be planning. Mr. Benke can be reached at (651) 215-0196.

We look forward to working with you as you shape your strategic plan, recognizing that our work together will make it easier to reach our common goal of a better environment in Minnesota.

Minnesota Pollution Control Agency

Mission: Working with Minnesotans to protect, conserve and improve our environment and enhance our quality of life.

Vision: Minnesotans take responsibility to protect our environment.

Air

Vision: Minnesota's air is clean and clear

Air Priorities

1) Minnesota's outdoor air quality will meet or improve upon all environmental and human health-related federal and state ambient air quality standards.
2) Minnesota's outdoor air quality will meet environmental and human health benchmarks for toxic and other air pollutants.
3) Minnesota reduces its contribution to regional, national, global air pollution.
4) Minnesotans act on their environmental knowledge to support healthy ecosystems and the air.
5) Minnesotans buy green products and services that protect air quality.
6) Minnesota businesses produce green products and provide green services by reducing or eliminating the use of environmentally harmful substances that impact air.

Environmental Challenges

Minnesota's clean clear air is a key ingredient in the quality of life we strive for in our state. Minnesota currently meets federal standards for all key air pollutants; however, recent scientific evidence indicates concentrations of fine particles in Minnesota's air are unhealthy for some people. Several times a year ozone and fine particle levels are unhealthy for sensitive individuals and trigger air alerts.

Scientific evidence indicates the earth is experiencing warmer temperatures, due in part to increased emissions from the burning of fossil fuels. In Minnesota, observed changes in climate include higher temperatures and more frequent heavy rainfalls and flooding.

Concentrations of all but one of the toxic air pollutants measured in Minnesota are below cancer health benchmarks at most locations. The greatest concern with toxics is that people are exposed to many chemicals at any given time, and very little is known about the effects of exposure to multiple pollutants. In addition, new scientific studies are showing a link between adverse health effects and proximity to major roads and vehicle exhaust. More studies are needed to better understand the risk to people living near busy streets.

Airborne mercury, from sources inside and outside the state, is at levels that result in fish consumption advisories for nearly all lakes in Minnesota. Health effects may be severe for those not observing consumption advisories.

Minnesota Pollution Control Agency

Future LCCMR Funding

The MPCA is not pursuing any funding in Air at this time.

Water

Vision: Minnesota has clean, sustainable surface and ground water.

Water Priorities

1. Assess the chemical, physical and biological integrity of Minnesota's lakes, streams, and wetlands to identify if designated uses are being met, and provide information on the condition of waters.
2. Maintain and enhance Minnesota's lakes, streams, and wetlands so that water quality standards and designated uses are met and degradation is prevented.
3. Restore the chemical, physical and biological integrity of Minnesota's lakes, streams, and wetlands that do not support designated uses.
4. Minnesotans act on their environmental knowledge to support healthy ecosystems and protect water resources.
5. Prevent or reduce degradation and depletion of ground water.
6. Minnesotans buy green products and services that benefit water resource conservation.
7. Minnesota businesses produce green products and provide green services by reducing or eliminating the use of environmentally harmful substances to water resources.
8. Assess the condition of ground water systems.

Environmental Challenges

Minnesota is both blessed and challenged by being a water wealthy state. The sheer quantity of water resources in Minnesota lakes, streams, wetlands and ground water provides the largest environmental challenge for monitoring, assessment, protection and restoration. With so much of Minnesota's surface area covered or underlain by water, economic development and growth is inevitably going to impact those resources.

The MPCA continues to address more dispersed sources of pollutants with storm water runoff, individual septic systems, and feedlots as examples. More emphasis and funding have been directed to theses sources of pollutants reaching our waters. Although individual sources within these land uses are often small, their cumulative impacts are significant.

Minnesota Pollution Control Agency

Future LCMR Funding

1) Fund watershed management organizations and/or cities for low impact design implementation. For example-geo-mats, rain gardens, etc.
2) Develop and implement a low impact design certification program for engineers and developers. This could be done in collaboration with the University of Minnesota Extension or a community college. Engineers would be licensed, accredited or bonded for low impact design.
3) Provide match money for projects using porous pavement in parking lots.
4) Provide an escrow/trust account for long-term maintenance of low impact design techniques.
5) Fuel demonstration projects to manage sediment and nutrient runoff from agricultural sources.
6) Use demonstration sites to promote education about agricultural practices that protect and improve water quality.
7) Demonstrate agricultural production and protecting water quality are not mutually exclusive.

Land

Vision: Minnesota's land supports desired uses.

Land Priorities

1) Minnesotans act on their environmental knowledge to support healthy ecosystems to protect land resources.
2) Conserve resources and prevent land pollution that reduces options for desired land use.
3) Minimize or reduce the release of contaminants to or from the land.
4) Minnesotans buy green products and services that conserve land resources.
5) Minnesota businesses produce green products and provide green services by reducing or eliminating the use of environmentally harmful substances that impact land resources.
6) Restore contaminated land to productive use.

Environmental Challenges

Minnesota is often recognized as a leader in recycling with one of the nation's highest recycling rates. This success is due to the high participation rates by our citizens and businesses, along with comprehensive recycling programs at the local level. The collected recyclable materials have created a vibrant secondary manufacturing industry in the state. Despite the economic value of the recycling industry to the state's economy, Minnesota's recycling infrastructure faces both technical and financial challenges. Local units of government are dealing with resource reductions by shutting down or reducing recycling services, others are limiting the types of items they collect. Recycling has now become a key component of integrated waste management systems across the state. The results of this may mean fewer materials collected and ultimately resources conserved.

Minnesota Pollution Control Agency

Future LCCMR Funding

1) Reinvigorating recycling and integrated waste management in Minnesota.
2) Brownfield redevelopment and ecosystem enhancement.

Minnesota Pollution Control Agency

Past LCCMR Funding

MPCA Projects

Aquatic Invertebrate Study
Red River Valley Planning and Management
Minnesota River Basin Water Quality Monitoring
Clean Water Partnership Grants to Local Units of Government
Minnesota River Implementation-Continuation
Metropolitan Area Groundwater Model to Predict Contaminant Model
Metropolitan Area Groundwater Model
Water Quality Indicators of Endocrine Disrupting Chemicals
Wastewater Phosphorus Control and Reduction Initiative
Atmospheric and Nonpoint Pollution Trends in Minnesota Lakes
On-site Sewage Treatment Alternatives- Performance, Outreach and Demonstration - Continuation *(PCA/ U of M)*
Accelerating and Enhancing Surface Water Monitoring for Lakes and Streams *(PCA/Minnesota Lakes Association, Rivers Council of Minnesota, the Minnesota Initiative Foundation, and the University of Minnesota)*

OEA Projects

Environmental Education Teacher Training
Sharing Environmental Education Knowledge

Minnesota Department of Transportation
Response to Request of Representative Tingelstad
Legislative-Citizens Commission on Minnesota Resources

- *What are the pressing natural resource issues for your agency?*

The Minnesota Department of Transportation is unique among State agencies in that it operates major infrastructure that plays a vitally important part in the social and economic lives of all citizens of the state. In addition, its operations affect and in turn are affected by the environment of Minnesota, and the need to protect, preserve, restore and enhance the environment. Mn/DOT not only operates this 12,000 mile system of surface transportation, but it plans, constructs, maintains, and replaces it as well.

Through the years, the Minnesota legislature and governor have placed protections on a variety of environmental features. These present a continuing challenge to Mn/DOT to develop transportation infrastructure while at the same time protecting and preserving environmental values and amenities of Minnesota. We are fully committed to meeting these challenges.

Partnerships and Opportunities
As we develop transportation projects, our staff frequently observes opportunities where a substantial environmental benefit or enhancement could be provided. Yet, there may be no funds available, or the possibility of funding and the project schedule cannot be synchronized. These opportunities may take the form of connecting wildlife habitat through vegetative connectivity corridors, providing wildlife crossings across state and local roads, and others. Often these missed opportunities could have enhanced Minnesota vegetative or wildlife resources at a much lower cost than would be the case if they were developed as independent projects.

Recommendation
The federal government does provide Transportation Enhancement funds that have been used to good effect in the state. Natural resource enhancements, such as prairie restorations, wildlife crossings and water quality improvements, although eligible, have underutilized this funding. As you are aware, funding for transportation in Minnesota is not sufficient to meet all the improvements needed in the state. Mn/DOT and local units of government are under increasing pressure to apply all available funds to construction and maintenance. As a result, excellent opportunities to enhance natural resources sometimes fail to utilize enhancement funds due to a lack of a local match.

Possible LCCMR funding of the local match of enhancement projects would provide a significant benefit to the natural resources and citizens of Minnesota. It would allow for the leverage of federal funds available for these purposes, at a favorable ratio. It would assist the formation and implementation of cooperative partnerships between Mn/DOT and local units of government to carry out such initiatives. Exploration of

synchronizing the programming cycles of Enhancement and LCCMR funding would be a logical first step.

Native Species
Over the past several years there has been increasing emphasis on re-establishing native plant species in Minnesota. The Minnesota Department of Transportation routinely establishes native species on our roadsides and in wetland mitigation projects. Yet we and others lack adequate regional and local seed and plant material sources for restoration projects. While a high quality remnant native prairie may contain 300 or more species, our typical restoration project may contain 30 such species, and our best projects may contain 60 species.

Recommendation
Investigate the possibility of establishing a native plant materials center at the University of Minnesota or elsewhere to provide a greater array of native plant species.

Invasive Species
The ability of public agencies and private parties to establish and maintain native species, and indeed desirable introduced species, is threatened by a growing problem from invasive plant species. While we would not catalogue them here, they include purple loosestrife, buckthorn, leafy spurge, and others. Invasive species are a continuing challenge to Mn/DOT, and to others, including private landowners.

Recommendation
We believe the LCCMR should continue with an aggressive program of funding practical research on control of invasive species.

- *What priorities are identified in each agency's strategic plans for the management of natural resources.*

The Minnesota Department of Transportation 2003 Statewide Transportation Plan identifies this commitment. The plan has three strategic directions and ten strategic policies. Policy 10 is, *"Protect the Environment and Respect Community Values."* Within policy 10 are several performance measures, including air quality, CO2 emissions, water quality and erosion control, wetland impacts and mitigation, land use including native species plant replacement, and others. The reader is invited to examine Chapter 6 of the plan at: http://www.oim.dot.state.mn.us/StatePlan/index.html

- *What past projects funded through the Trust Fund or Future Resources Fund have made a major impact on how the agency has managed natural resources?*

We have had two notable projects. First is the, "Prairie and Roadside Corridor Enhancement (PARCE) Project." This project was for the purchase of a corridor of land along Trunk Highway 32 near Fertile. The corridor was 0.25 miles wide and connected several large habitat units. The land acquisition was for restoration to native prairie.

Second is a Prairie Passage – Blue Mounds and Camden State Parks. This project restored native prairie within and along roadsides leading to the two state parks.

These two projects were accomplished with LCMR funding. These projects typify the model we propose as a more usual way the Commission may review and fund valuable projects.

Minnesota Board of Water and Soil Resources
Perspectives for the LCCMR
(Via Environmental Quality Board Staff)

The following views are those of BWSR staff. There was insufficient time between the receipt of the LCCMR request and the due date for discussion by our full board. We structured our response to address the four questions submitted by the LCCMR and invite you to contact us directly if you have any questions.

Steve Woods, Assistant Director
(651) 297-7748.

Q1. What are the pressing natural resource issues for your agency?
Q2. What are your recommendations to enhance and/or preserve natural resources and address the issues identified?

- *Optimizing the federal farm bill-* federal dollars for undertaking conservation work have currently spiked to a level well above historical funding levels. This is good for the state's impaired water strategy, but landowners signing up for these programs face a bottleneck due to technical staff shortages to help them. The longer it takes for a landowner to receive technical assistance, the greater the risk that they will become disenchanted and just walk away from the programs. Funds to remove the bottleneck will allow us to utilize all of the federal funds MN has already attracted. We recommend the LCCMR consider additional funding for technical assistance at the local government level until such time that federal conservation funds recede back to historical levels.
- *Management of public drainage systems-* a 2006 legislative study conducted by BWSR reported over 17,000 miles of public drainage systems. Responsibility for administration of these systems is vested in various local government units (primarily counties and watershed districts). These ditch authorities exhibit various levels of ability to manage historical records, environmental permitting, current maintenance, and future opportunities. There are some good examples of how ditch law has been utilized to improve habitat, water quality, and flood retention but disseminating success stories is difficult when no one agency has responsibility for working with the ditch authorities and serving as "caretaker" for clarifications and updates to state drainage laws. We recommend short-term funding to investigate ways to enhance the ability of drainage authorities to establish buffer strips through federal (CRP), state (RIM-Reserve), or local incentives. The effort could also develop recommended methods for drainage record modernization, best management practices, and other needs identified by drainage authorities.
- *Landowner maintenance of conservation easements-* successful enrolling of conservation easements by BWSR and various nonprofit groups has allowed the state to accomplish many natural resource management goals without having to purchase land outright. This has the advantage of establishing easements over portions of large tracts of land that may not otherwise be available for sale. It also keeps these privately held land on local tax rolls without incurring maintenance funding "tails"

associated with land ownership. As conservation easements increase concurrent with a trend toward small tract ownership, the ability of landowners to both understand and carry out their maintenance responsibilities becomes a problem. We recommend the LCCMR engage nonprofits, DNR, BWSR and the agricultural community to assess how landowners can conduct this maintenance and identify where state level assistance may be required. For example, periodic controlled burns are necessary for managing many of the native prairie species that have been planted in riparian buffers and around wetland restoration projects. Aside from the technical complexity of undertaking burns, insurance and liability issues often present a more formidable obstacle.

- *Accelerating implementation of local priority projects*- the LCMR has accelerated local implementation for several funding cycles. The increased emphasis on implementing the federal Clean Water Act through the Clean Water Legacy Act will increase the need for on-the-ground project completion. Many of the proposed projects contained in local water plans are not able to take advantage of the current spike in federal farm bill conservation dollars. For these project areas, continued support from the LCCMR will ensure that local governments implement the highest priority projects.

Q3. What priorities are identified in your agency's strategic plans for the management of natural resources?

BWSR believes most natural resource management issues are best prioritized and carried out at the local level. It takes all our levels of government working collaboratively to achieve goals, but in the end, local buy-in to undertake projects on the 78% of the state that is in private land ownership is critical if the state wishes to meet it's goals for natural resource management. From this perspective we offer the following priorities:

- Approximately 75% of BWSR's budget goes out to local governments to perform on-the-ground conservation work. This is a worthy percentage for the LCCMR to strive for as well.
- Our conservation easement program is targeted at addressing highly erodible lands and other select landscapes including riparian buffers, restorable wetlands, wellhead protection zones, and frequently inundated flood plain areas.
- BWSR has worked with local governments to refine water-planning activities to address true priorities. By focusing attention and sufficient resources to solve problems, headway can be achieved on issues such as economic development threatened by impaired waters.

Q4. What past projects, funded through the trust fund or future resources fund, have made a major impact on how the agency has managed natural resources?

- *Permanent conservation easements through BWSR- this* program allows for land remain in private ownership and on local tax rolls. Funding of permanent easements on marginal agricultural lands located in riparian areas has had immense water quality and habitat benefits while being economically preferable to purchasing the parcel outright.

- *Geological atlas work through the MN Geological Survey- MGS's* work has been valuable for local communities seeking to protect drinking water supplies, refine zoning, and identify barriers to economic development.
- *County biological surveys through DNR- this* information succinctly identifies priority areas for local governments to protect as opportunities present themselves.
- *Digital Soil Surveys through BWSR-* updating soil survey information is crucial to local zoning decisions, economic development, and performing on-the-ground conservation work.
- *Accelerated local water management implementation through BWSR-* Minnesota has invested broad authorities for local governments to manage water resource issues. These funds were crucial to implementing the on-the-ground land and water treatment projects identified within county and watershed management plans.
- *Conservation Drainage Research through the University of Minnesota-* University worked with MDA to investigate how management of sub-surface water can be accomplished with minimal disturbance to natural hydrologic patterns.
- *Various local demonstration projects-* there have been a number of LCMR appropriations highlighting new technologies such as rain gardens for infiltrating runoff in urban areas, planning and preservation of open spaces via local governments, and various new technologies for water quality treatment.
- *Metro Greenways through DNR- corridor* work championed by DNR and carried out primarily through local government has led communities to think with long-term perspectives towards protection of community assets.