

Policy 9: Energy and the Environment



Summary

Improve the energy efficiency and environmental sustainability of Minnesota's transportation system. Mn/DOT and other transportation agencies will continue to protect and enhance the environment by integrating environmental stewardship in the planning, development, and construction phases of transportation projects as well as in system operations. Working in close coordination with other transportation system providers, Mn/DOT will also strive to reduce emissions and improve energy efficiency through the promotion of travel modes with high occupancy and/or low emission vehicles, increased use of alternative fuels, and adoption of property and right-of-way management practices more capable of offsetting greenhouse gas (GHG) emissions.

9A. Environmental Stewardship in Project Development: Mn/DOT and local transportation authorities will continue to integrate environmental stewardship throughout the transportation project development and system operations processes.

9B. Emissions and Energy Consumption: Mn/DOT will advance the emissions reduction objectives put forward by the Next Generation Act and increase the use of alternative fuels.

Background and Context

Minnesota has a long-held public sector commitment and track record of environmental protection.

Since the late 1960s and early 1970s, when state and federal environmental protection regulations were first enacted, continual progress has been made in reducing environmental impacts related to transportation. Today, and into the future, there remains an expectation that transportation agencies act as responsible stewards of the environment and minimize the social, economic, and environmental impacts of transportation system development and operations (e.g., impacts on air, water, wildlife habitat and cultural resources). In Minnesota, this expectation is reinforced by a long held public sector commitment and track record of environmental protection. Mn/DOT and Minnesota's local transportation authorities strive to protect and enhance the environment by integrating environmental stewardship throughout the planning, development, and construction phases of projects as well as system operations. Mn/DOT will continue to work closely and communicate regularly with local, state, tribal and federal resource management agencies and the United States Department of Transportation (USDOT) toward this objective.

Climate change has emerged as an international concern, and efforts to curb greenhouse gas emissions have become an important public policy objective at the local, state, and federal levels of government. In Minnesota, the transportation sector is the source of an estimated 24 percent of greenhouse gases and, therefore, any comprehensive efforts to curb GHG emissions will likely involve transportation policy and practices. Opportunities for reducing GHG emissions from transportation include: increased use of alternatives fuels, use of vehicles with greater energy efficiency, and reducing the total number of vehicle miles driven, through the

provision of alternative modes (see policies 4 through 8). Each of these opportunities requires a combination of public and private sector involvement for implementation. Over the 20-year planning horizon of this plan, it is anticipated that efforts to increase energy efficiency and curb greenhouse gas emissions will only increase as important public policy concerns.

Strategies

9A. Environmental Stewardship in Project Development

Mn/DOT and local transportation authorities will continue to integrate environmental stewardship throughout the transportation project development and system operations processes.

Over the next 20-year planning horizon, an effort to increase energy efficiency and curb greenhouse gas emissions will be a priority.

Over the last 40 years, Minnesota transportation authorities have done their part to advance environmental stewardship by instituting guidance with proven results. Minnesota has instituted the guidance set forth in the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) of 2005 for greater public and agency involvement and consultation in project planning and environmental review in an effort to better inform the transportation project planning process and develop mitigation strategies. Minnesota has instituted the guidance set forth by the Environmental Protection Agency (EPA) and Federal Highway Administration (FHWA) regarding which, when, and how mobile source air toxics are to be analyzed in the National Environmental Policy Act (NEPA) process.



Energy cost fluctuations and more fuel efficient vehicles have affected travel behavior.

Efforts such as these have led to proven results. For example, as shown in Figure 7.9.1, the Twin Cities Metropolitan Area has consistently met the National Ambient Air Quality Standards (NAAQS) for the six “Criteria” pollutants set by the National Office of Air Quality Planning and Standards even as vehicle miles traveled has grown significantly. This trend for pollutants, at least those attributable to the transportation sector, is expected to continue to decline and forecast to remain in compliance with the standards even though they were modified in May 2008 to make standards for ozone and particulate matter more restrictive.

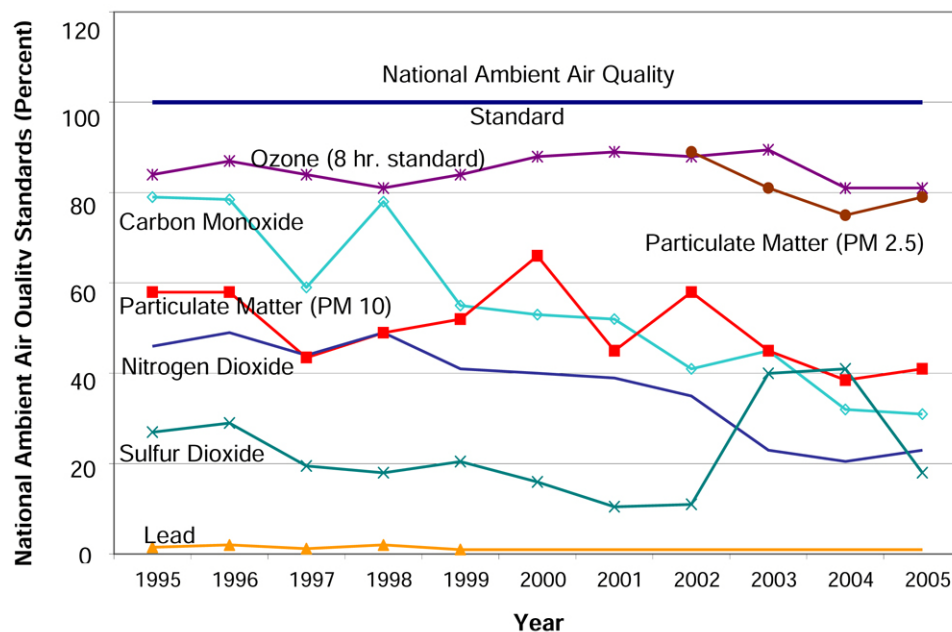


Figure 7.9.1: Trends in Criteria Air Pollutants in the TCMA from 1995 to 2005

Source: Minnesota Pollution Control Agency, 2007 Report to the Legislature

Support and implement system level solutions rather than addressing mitigation only at the individual project level.

While some more traditional concerns regarding environmental stewardship have begun to dissipate, others remain. Water quality continues to be regulated by strict federal, state and local regulations. Regulations relevant to transportation facilities primarily include erosion control during construction and the detention/treatment of storm water runoff. Groundwater protection can also be a factor for projects in wellhead protection areas. Wetland impacts from transportation projects continue to be subject to federal and state wetland regulations requiring avoidance, minimization and mitigation of impacts.¹

Mn/DOT and local transportation authorities will continue to integrate environmental stewardship beginning with long-range planning and continuing through project development and system operations by doing the following:

- a. Maintain and enhance regular communication and collaboration with resource management agencies. Identify additional opportunities to develop formalized programmatic agreements or memorandums of understanding. A collaborative approach to planning and project development stages will allow transportation agencies to effectively avoid or minimize environmental impacts.
- b. Continue to support and implement system level solutions to mitigation requirements as well as at the individual project level. Mn/DOT has been using programmatic approaches to mitigation long before suggested in SAFETEA-LU. Wetland banking and cultural resource investigation/mitigation are systems level approaches to project mitigation. Mn/DOT has developed a longstanding wetland banking system in cooperation with federal and state wetland resource and regulatory agencies. This interagency team has evolved this system so that it is compatible with state and federal regulatory requirements. Mn/DOT has an agreement with the Minnesota Board of Water and Soil Resources to operate this system and develop wetland sites so that acceptable wetland mitigation credits are available for projects as needed. Programmatic approaches are also

used in the cultural resource area. Programmatic statewide cultural resource investigation have been developed for archeological sites (MnModel), historic bridges, railroads and farmsteads. A programmatic agreement on pre-1955 historic bridges has resulted in the preservation and ongoing maintenance of 24 representative historic bridges as mitigation for unavoidable project impacts to other potentially historic bridges. Additional areas for programmatic investigation and mitigation to promote project streamlining will continue to be developed.

- c. Strive to improve compliance with environmental regulations in all aspects of operations. Mn/DOT will continually measure its regulatory compliance rates and modify practices accordingly. Mn/DOT will work with resource agencies to establish agreed upon best practices. For example, as the mobile source air toxics science progresses and FHWA updates its guidance, Minnesota will respond to the guidance set forth by EPA and FHWA.
- d. Mn/DOT will provide technical assistance and communicate best practices and solutions, including water quality management best practices, with both internal and external customers.

9B. Emissions and Energy Consumption

Mn/DOT will advance the emissions reduction objectives put forward by the Next Generation Act and increase the use of alternative fuels.

Minnesota has become a national leader in adopting renewable fuel and fuel efficiency practices.

In 2007, the Minnesota Legislature passed the Next Generation Act that calls for a carbon dioxide emission reduction of 15 percent by 2015, 30 percent by 2025, and 80 percent by 2050 (base year was 2005). National, regional and state studies and commissions have generated multiple strategy recommendations for meeting these goals. Specific strategies for curbing greenhouse gas emissions from the transportation sector have focused largely on reducing the number of vehicle miles traveled, reducing the amount of carbon per unit of fuel (expanded use of alternative fuels), and improving vehicle miles per gallon. Although at the writing of this plan, none of the strategies or proposed policies has been formally adopted, it is expected that the objectives put forth will have an impact on transportation policy and system operations in the future.

The State of Minnesota and particularly state government has become a national leader in adopting renewable fuel and fuel efficiency practices. Citing long-term energy security, and environmental and economic goals, Governor's Executive Order 06-03 calls upon all state agencies and state employees to strengthen the infrastructure to increase the availability and use of alternative fuels and to use alternative fuels in state vehicles whenever practical. In addition to making the transition to E-85 for its light-duty vehicles, Mn/DOT is experimenting with the use of B20, a higher blend of bio-diesel, in its heavy-duty fleet. Furthermore, Governor's Executive Order 04-10 calls for increased fuel efficiency of vehicles, including and not limited to use of hybrid electric cars and hydrogen powered vehicles.

Mn/DOT will advance the emissions reduction objectives put forward by the Next Generation Act and increase the use of alternative fuels by doing the following:²

- a. Promote the use of transportation modes with high occupancy and/or low pollutant emissions to help reduce energy demands and the emission of

greenhouse gases and other pollutants. As discussed in Policies 4, 5, 6, 7, and 8, examples of these transportation modes include rail and waterway for freight along with intercity bus, intercity passenger rail, transit, ridesharing through carpools or vanpools, biking, and walking for people.

- b. Increase energy conservation practices and the use of renewable supplies in the management of facilities and fleets.
- c. Explore methods for managing Mn/DOT right-of-way and properties in ways that more effectively offset greenhouse gas emissions.

Performance Measures and Indicators

Performance measures, indicators, and targets provide quantitative information to managers and/or decision makers. This information is tracked over time to monitor performance and investment levels as well as the changes in performance given changes in levels of investment. Several performance measures and indicators have been either developed or identified for this policy area. A number of these measures and/or indicators are selected for representation and discussion within this policy and are **bolded** below. A full description of all performance measures and indicators associated with this plan is provided in Appendix D.

- **Compliance with Criteria Air Pollutant Standards**
- **Mn/DOT use of Cleaner Fuels**
- National Pollution Discharge Elimination System Compliance – Erosion Control
- Wetlands Affected and Replaced

Developmental Measures

- Carbon Dioxide Emissions from the Transportation Sector

Compliance with Criteria Air Pollutant Standards

Mn/DOT will continue to monitor and report on this measure. It tracks the Twin Cities Metropolitan Area's (TCMA) compliance with federal standards for outdoor levels of ozone, nitrogen dioxide, carbon monoxide, and particulate matter. Data for outdoor levels of ozone, nitrogen dioxide, carbon monoxide, and particulate matter will be collected by the Minnesota Pollution Control Agency. Performance will be measured as a percent of the NAAQS. TCMA air quality presently meets federal standards. The expectation is that TCMA air quality will continue to be at or better than the federal standards. Performance for this measure is illustrated in Figure 7.9.1.

Mn/DOT Use of Cleaner Fuels

Mn/DOT will continue to monitor the use of cleaner fuels by State of Minnesota vehicles. This measure tracks the gallons of gasoline purchased for use in Mn/DOT on-road vehicles. Based on targets established by Executive Order 04-10, issued in September 27, 2004, and using 2005 as a baseline, the state shall do the following:

- Reduce the use of gasoline by on-road vehicles owned by state departments by 25 percent by 2010 and by 50 percent by 2015.

- Reduce the use of petroleum-based diesel fuel used by state departments by 10 percent by 2010 and by 25 percent by 2015.

Figure 7.9.2 shows that Mn/DOT has not yet met the 2010 gasoline consumption target for its on-road vehicles.

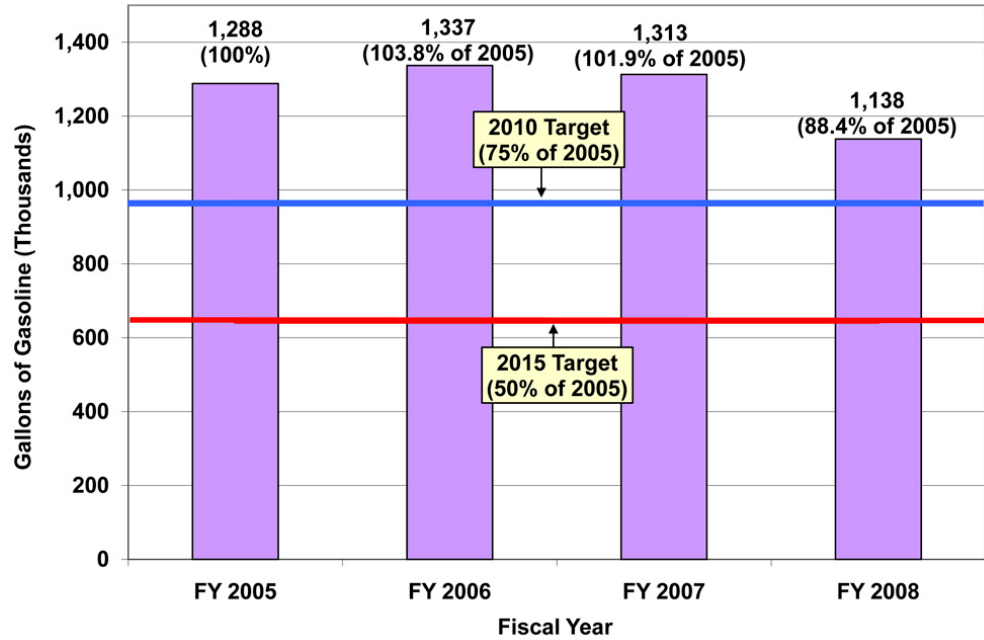


Figure 7.9.2 Mn/DOT Fleet Gasoline Consumption by Year

Source: Mn/DOT Fleet Management

¹ Also known as sequencing.

² These strategies are consistent with the guidance for improved streamlining and greater collaboration/public involvement set forth in SAFETEA-LU, as well as state and federal policy trends favoring increased energy efficiency, use of alternative fuels and reduction in GHG emissions.