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# Preserving the Quality of State Highways Will Be an Increasing Challenge

## SUMMARY

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Minnesota's state trunk highway system will face growing preservation needs, according to a study by the Legislative Auditor. The study examined the condition of highways and bridges on the state system, as well as past and projected funding levels. The trunk highway system includes about 10 percent of the miles of roads in Minnesota and about 60 percent of the traffic.

The study found that the Minnesota Department of Transportation (Mn/DOT) has been able to keep trunk highway pavements and bridges in generally good condition. As of the fall of 1996, 70 percent of trunk highway pavements were in good or very good condition. Only 6 percent were in poor condition. Mn/DOT has benefited from stable highway construction prices, which have increased less than 20 percent since 1980.

The trunk highway system has, however, a backlog of bridges with structural deficiencies, which would cost at least \$100 million to eliminate. Mn/DOT is also facing an emerging problem with steel fatigue on some of

its bridges. If these bridge problems are not dealt with over the next decade or so, Minnesota will likely face an even greater escalation in bridge

funding needs when many bridges reach the end of their expected lives beginning around 2015.

Because of the aging of Minnesota's trunk highways, Mn/DOT will probably need to resurface or rehabilitate highways more frequently in the future. Over the past decade, highways have needed resurfacing every 15 years. Using Mn/DOT's pavement management system, we estimated that resurfacing needs may increase between 13 and 28 percent. Increasing truck traffic and the diminished life expectancy of each successive overlay are responsible for these trends.

The trunk highway system also faces continued growth in traffic levels and congestion. The

number of congested miles of trunk highways in the Twin Cities metropolitan area is expected to grow significantly over the next 25 years. The

### *Program Evaluation Report* **Highway Spending** *April 3, 1997*

#### **Key Findings**

- Mn/DOT has been able to keep most trunk highway pavements in good condition, but faces increasing resurfacing needs in the future.
- Most bridges are currently in good condition, but there is a backlog of structurally deficient bridges and an emerging problem with steel fatigue in some bridges.
- Mn/DOT probably does not perform enough preventive maintenance.

#### **Recommendations**

- Mn/DOT should better define and periodically report on its funding needs.
- Mn/DOT should reexamine the rationale for mandating a construction standard of 12-foot lanes on all paved rural trunk highways and county state-aid highways.

*For copies of either the full report or summary, call 612/296-4708.*

Metropolitan Council projects that the average speed during the afternoon peak hour will decline more than 20 percent on major metropolitan area roads by the year 2020 even if current funding levels keep up with inflation.

The study also found that Mn/DOT does not do enough preventive maintenance on highways and bridges. Preventive maintenance is generally performed on highways and bridges in good condition and helps to extend their expected lives and keep them in better condition than would otherwise be the case. Although Mn/DOT generally agrees that too little preventive maintenance is performed, it finds it hard to justify spending more on facilities in relatively good condition when the system has more pressing needs. An increased investment in preventive maintenance would be beneficial in the long run but will probably require additional funding in the short run.

Projected funding through the year 2001 is expected to be close to the average level of funding over the last 10 years. Without an increase in funding, Mn/DOT may be hard pressed to maintain current conditions on the trunk highway system.

Despite this concern, the study also found that Mn/DOT has not done an adequate job of demonstrating trunk highway needs to policy makers. Mn/DOT does not have an adequate estimate of future pavement resurfacing needs and should revise its estimate of bridge repair and replacement needs. The report recommends that Mn/DOT should periodically prepare a report on the funding needs of the trunk highway system. Needs should be defined in terms of what funding is necessary to achieve specific performance targets and should incorporate benefit-cost criteria where appropriate.

The report also recommends that Mn/DOT reexamine the rationale for retaining a construction design standard of 12-foot lanes for all paved trunk highways and county state-aid highways in rural areas. National studies, as well as Mn/DOT's own benefit-cost analysis, show that the additional costs of 12-foot lanes, rather than 11-foot lanes, exceed the benefits for certain low volume rural highways.

Copies of the report, *Highway Spending*, may be obtained from the Office of the Legislative Auditor or on the World Wide Web at <http://www.auditor.leg.state.mn.us/pe9706.htm>. For further information, contact John Yunker or Roger Brooks at the Office of the Legislative Auditor (612/296-4708).