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A Statement from the Commissioner

May 21, 2008



Statement to the Joint Committee to Investigate the I-35W Bridge Collapse Mn/DOT Commissioner Tom Sorel

ST. PAUL, Minn. —Chairman Murphy and Chairman Lieder, thank you for the opportunity to briefly address today's release of the joint committee report. Mn/DOT appreciates the hard work and the good intentions that have gone into this report.

Earlier this week, a select group of Mn/DOT employees were given access to a draft of the report; so we – like you – are seeing the final document for the first time today. The limited review afforded Mn/DOT is different than the more extensive review and comment process normally afforded agencies under audit by the Office of Legislative Auditor. So, while we cannot provide substantive comment until we have thoroughly reviewed the report, there are four observations I would like to offer.

First, it must be clearly reiterated that the cause of the I-35W Bridge collapse remains unknown. The National Transportation Safety Board is the expert federal agency in this matter and they are conducting a thorough and objective investigation. The NTSB's conclusions are due sometime near the end of this year. It would be premature to draw any conclusions regarding the cause of the I-35W tragedy prior to release of the NTSB report. I think we would all agree that we all must continue to defer to the NTSB investigation for the cause of the collapse.

Second, I want to assure this committee and the citizens of Minnesota that the bridges throughout our state are safe and sound. Mn/DOT's inspection and maintenance of state bridges meets or exceeds federal guidelines and standards. Minnesota bridges consistently rank among the best in the nation.

As measured by 2007 federal statistics, Minnesota ranks fourth-best in the nation, and tops in the Midwest, in the low percentage of bridges rated structurally deficient or functionally obsolete, with Minnesota's percentage nearly one-half the national average.

The February 2008 Legislative Auditor's report noted that between 2002 and 2006, the overall structural condition of state trunk highway bridges improved, the number of structurally deficient highway bridges was reduced, and Mn/DOT met its aggressive performance targets for structures in good condition.

Furthermore, under Governor Pawlenty's initiative, the accelerated inspection of all Mn/DOT bridges was completed in December 2007 with no major deficiencies found. And Mn/DOT is exceeding federal guidelines in our continuing efforts to conduct engineering reviews and visual inspection of gusset plates on existing truss bridges.

Minnesota's bridge system is safe, and Mn/DOT is working hard to keep it safe.

My third point: Mn/DOT's commitment to the safety of Minnesota bridges is a top engineering and investment priority. As was repeatedly stressed with the Gray Plant Mooty attorneys who crafted this

report, addressing the condition and safety needs of our bridge system never has been - and never will be - subject to question due to budgetary concerns.

We rely on – and invest in - the expert opinions and recommendations of our bridge engineering professionals. And, as just noted, this unwavering commitment has provided Minnesota one of the best and safest bridge systems in the country.

Fourth, Mn/DOT has already embarked on actions to improve processes, policies and practices related to bridge design, maintenance and inspection. These efforts are in response to various Federal Highway Administration Technical Advisories, NTSB recommendations, the recent Legislative Auditor's report, and internal recommendations from our bridge professionals. These multiple initiatives are outlined in a recent memo provided to the joint committee chairs. We believe these improvements will help address many of the recommendations contained in the joint committee's report.

Chairmen and members, Mn/DOT looks forward to conducting a thorough review of this report. I intend to provide the committee a written response to the report in a timely manner. I look forward to coming back and responding to the report. I agree, we all need to work together towards a strong transportation community. That is my goal as Commissioner as well.

Again, thank you for the opportunity to address you today.

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- [Statement from the Governor's office](#)
- [Joint Committee Report](#)



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June 19, 2008

The Honorable Steve Murphy
Chair, Joint Legislative Committee
I-35W Bridge Collapse
325 Capitol
St. Paul, MN 55155

The Honorable Bernie Lieder
Chair, Joint Legislative Committee
I-35W Bridge Collapse
423 State Office Building
St. Paul, MN 55155

Dear Senator Murphy and Representative Lieder:

Thank you for the opportunity to respond to the Investigative Report to the Joint Committee to Investigate the I-35W Bridge Collapse. The Department of Transportation strongly shares the committee's goals that Minnesota bridges be safe and strong, and that the state make the necessary investments and changes to the department's processes to maintain Minnesota's transportation infrastructure.

The report contains six conclusions, nine investigative summaries, and four recommendations with several subparts. At this time, we have reviewed the main report but only limited portions of the five additional volumes. This letter provides clarification of some incorrect information in the report and our response to the recommendations.

The National Transportation Safety Board (NTSB) investigation is expected to be completed later this year. NTSB will not only report the cause of the collapse, but will also issue recommendations with a goal of preventing bridge failures from similar causes. The NTSB work and any subsequent Federal Highway Administration (FHWA) policy changes will be the definitive reports on the I-35W Bridge for state transportation agencies. As Gray Plant Mooty noted on page six of this report, until the NTSB work is complete, "...we do not know whether any of the concerns addressed in this Report are related to the actual cause of the collapse, or even a contributing cause." We agree with that assessment.

Mn/DOT has already taken a number of actions in response to the FHWA Technical Advisories and NTSB Safety Recommendations published since the I-35W collapse. We have also begun implementing recommendations suggested by the Office of Legislative Auditor. The State Bridge Engineer documented these actions in the attached Mn/DOT memorandum of April 17, 2008, which was previously provided to you. The memorandum was also provided to Gray Plant Mooty. We believe these actions directly address the FHWA and NTSB information to date.

RECOMMENDATIONS

1. The Minnesota Legislature should consider enacting the following laws:

- a. Amending Minn. Stat. 174.02, subd. 2 to require that at least one of the four unclassified positions appointed by the Commissioner of Transportation be a registered professional engineer.

Response: Minnesota statute 174.02, subd. 2 provides: "the commissioner may establish four positions in the unclassified service at the deputy and assistant commissioner, assistant to the commissioner or personal secretary levels. The overall purpose of the statute is to *limit* the number of direct appointees the commissioner can add to the department. These positions serve "at the pleasure of the commissioner." The statute is not intended to, and does not, limit or define the top advisors to the commissioner.

We believe it is important for the commissioner to have senior advisors with knowledge and experience in engineering. However, there are a number of potentially appropriate configurations to ensure that people with engineering knowledge and experience are participating in top level decision-making.

We do not believe a statutory mandate is critical to achieving this end. If there are substantive engineering functions needed as part of MnDOT's senior management, the legislature may want to consider what type of engineer is needed and whether those functions are best performed within the agency by a political appointee under section 174.02, subd. 2, or by another classified or unclassified position.

- b. Amending Minn. Stat. 174.01, subd. 2 (9) to include as a goal of the state transportation system "to provide funding for transportation that, at a minimum preserves the transportation infrastructure with highest priority given to the repair or replacement of fracture critical bridges rated in "poor" condition.

Response: We believe newly enacted statutory provisions already address this recommendation. Minnesota Statutes, Section 165.14 titled "Trunk Highway Bridge Improvement Program" establishes a program to accelerate, repair and replace fracture critical and structurally deficient bridges. The associated tier system in the legislation further defines these priorities. Mn/DOT is currently developing a 10-year plan to implement this statute.

c. Amending Minn. Stat. 165.03 to require:

i. Annual in-depth inspections of all fracture critical bridges; and

Response: Inspection frequency is specified in the National Bridge Inspection Standards (Title 23, Code of Federal Regulations, Part 650), which were amended in 2005 and require routine inspection of all bridges on a cycle not to exceed 24 months and a fracture critical cycle not to exceed 24 months. For the last 15 years or more, Mn/DOT's policy has exceeded federal standards by requiring fracture critical bridges and structurally deficient bridges to undergo inspections on a yearly basis. In addition, an in-depth inspection of fracture critical members is currently conducted at least every 24 months in accordance with the federal rules. The State Bridge Engineer has in the past and will continue to require more frequent fracture critical inspections for specific bridges based on specific conditions found during inspections. In the past, some structures have received fracture critical inspections more frequently than annually.

The proposed revision to section 165.103 could divert inspection resources from those judged in need of more frequent inspection to those of lesser concern.

ii. Inclusion of a repair or replacement plan for all bridges with fracture critical members that are rated in "poor" condition for two or more consecutive years in the annual bridge report prepared by county and municipal governments.

Response: This recommendation impacts county and local governments. Therefore, our Division of State Aid for Local Transportation reviewed this recommendation and also consulted with a county engineer to obtain a local perspective. The following response is provided.

Professional discretion is needed to manage the large local bridge system. Counties prioritize their deficient and fracture critical bridges for replacement considering their condition, traffic volume and detour length, and aggressively pursue available funds for the highest priority bridges. They ensure safety by monitoring via inspections and, when needed, place weight restrictions on a bridge. They close the bridges they judge to be no longer safe for service. It's important to allow the local agencies the ability to manage the large and aging local bridge system in the public's best interest. Local governments have benefited and are appreciative of the continued support from the Legislature and Administrations for local bridge replacement bonding funds over the last 30 years.

2. **The Minnesota Legislature should consider the following appropriation measures:**

- a. Developing a centralized emergency funding source for major bridge rehabilitation and replacement projects (such as by providing advance authorization for the issuance of state bonds upon the closure of a major trunk highway bridge).

Response: The department receives a biennial appropriation from the Legislature. When an unforeseen need arises, funding can be shifted from other projects to the new need. In addition, as we have seen when serious floods occur, the Governor can call a special session of the Legislature to address emergency needs. We look forward to discussions regarding the use of debt financing as recommended by the Legislative Auditor. Further, it would be worth exploring the issue of advance authorization for bonding through limited TH bonding authority exercised at the discretion of the Governor to address and expedite emergency major bridge rehabilitation and replacement responses.

- b. Funding for Mn/DOT to develop a plan for successful recruitment and retention of an adequate number of experienced senior management and professional engineers, with particular emphasis on fracture critical bridge inspection engineers.

Response: We share the desire to attract and retain qualified engineers and other professionals. The reality, however, is that the the availability of engineers and the current salary structure for the state make it difficult to compete with private sector employers and, at times, local government. This is particularly true in the Twin Cities Metro area. A number of experienced staff have left state employment in recent years, attracted by salary increases on occasion in excess of 30%. Mn/DOT recently posted positions for two engineers for fracture critical bridge inspection. We received only one internal and one external expression of interest. The creation of these two positions was part of our implementation of the Office of Legislative Auditor recommendations. Our goal is to add approximately eight personnel for fracture critical work. With such a limited pool of applicants, it will be a challenge to staff this effort.

MnDOT has a well-developed and successful Graduate Engineer Program to recruit engineers as they complete college. Even when we successfully hire candidates under that program, we unfortunately lose some of them to other employers after several years due to salary competitiveness issues. Mn/DOT sometimes finds it difficult to retain and attract experienced registered engineers. The department will explore additional options and will look for ways to attract and retain experienced registered engineers.

- c. Funding for Mn/DOT to retain a qualified consulting firm to audit compliance with the provisions of the department's Quality Control/Quality Assurance Plan relating to inspection, maintenance, rehabilitation and replacement of fracture critical bridges.

Response: Additional funding may duplicate existing efforts. During the last year, the Office of the Legislative Auditor has examined Mn/DOT's Bridge inspection program and has made several recommendations to improve the way Mn/DOT documents and follows through with deficiencies found during bridge inspections. We anticipate the Legislative Auditor will review Mn/DOT's progress toward adopting his recommendations during future agency audits.

In addition, as part of the Governor's stem-to-stern review of Mn/DOT's bridge inspection program after the I-35W bridge collapse, a consultant has been hired and is in the process of reviewing Mn/DOT's bridge inspection program and is helping to identify process changes that will improve the quality of the program. This report is due in early summer 2008.

Each year, the FHWA also performs a review of Mn/DOT's Bridge Inspection Program to determine if the program complies with National Bridge Inspection Standards. Its review includes, among other things, examination of inspector qualifications, inspection frequency, inspection reporting, and Quality Control/Quality Assurance procedures. Since the FHWA conducts similar reviews of all state transportation agencies, FHWA is experienced in conducting the review, has a broad knowledge of practices used by other states, and is accountable nationally for its oversight of the National Bridge Inspection Program.

3. The Minnesota Legislature should ensure that it is fully informed about:

- a. The Legislature's role in communicating and maintaining bridge safety as a top infrastructure preservation priority at a time when there is high demand for other transportation services and projects, including new construction.

Response: We agree and welcome the support of the Legislature in communicating to the public the need for preservation of bridges and the infrastructure managed by the Department of Transportation. We believe the reporting requirements within Minnesota Statutes, section 165.14, subdivisions 5 and 6 provide a means for the Legislature to stay informed on bridge safety issues. As we fulfill those reporting requirements, we welcome further discussion of the issues.

- b. The adequacy of Mn/DOT's Quality Control/Quality Assurance Plan, particularly the manner in which the plan sets out decision-making responsibility and provides for the training and oversight of inspectors and their supervisors.

Response: Mn/DOT's Bridge Office is working on changes to its Quality Control and Quality Assurance processes that will more clearly assign and document decision-making responsibilities. One change already initiated is to develop a form to document internal review of fracture critical inspection reports. Additional process changes will be recommended by a consultant, hired under the Governor's stem-to-stern review of Mn/DOT's inspection program. The consultant is meeting with the Bridge Office staff and district inspection staff to help identify quality improvements to Mn/DOT's Bridge Inspection Program. During the next year, changes in processes will be documented in the Bridge Inspection Manual or in Technical Memorandums.

- c. The relationship between Mn/DOT's central administration and the Metro District's bridge inspection, reporting, maintenance and repair functions, particularly with respect to:
- i. Whether the inspection function for fracture critical bridges should become the sole responsibility of the Office of Bridges and Structures for all Mn/DOT districts;
 - ii. Whether a specific person within Mn/DOT should have responsibility for ensuring that all maintenance and repair issues identified in inspection reports for fracture critical bridges are appropriately and timely addressed and, if so, whom; and
 - iii. Whether fracture critical bridges rated in "poor" condition should be subject to greater scrutiny by a senior Mn/DOT official and, if so, by whom.

Response to 3c i thru iii: Regardless of whether functions are centralized or decentralized, we agree that authority and responsibility should be clearly defined in written policy. We will work during the coming year to more clearly define Central and District Office distribution of responsibilities.

Mn/DOT's Central Bridge Office has statewide responsibility for the fracture critical bridge inspection program, which includes providing training to inspectors and setting inspection standards. However, inspections are performed by the Central Bridge Office and by Metro District and District 6. In response to recommendations of the Legislative Auditor, Mn/DOT has directed additional inspection and management resources to the fracture critical bridge inspection effort in the state. The Metro District has added a manager position to oversee the bridge inspection and maintenance efforts of that district. The Bridge Office is in the process of hiring six additional engineers and technician inspectors to perform inspections and to manage the statewide bridge inspection program. District 6 and Metro each plan to add one to two additional bridge inspection staff

Earlier this year, Mn/DOT's Bridge Office developed a structural review process for all fracture critical inspection reports to identify when additional inspection data is needed, when a new load rating should be calculated, and when repairs are needed to restore function to bridge components. Metro District has also developed a process to review its inspection reports and assign responsibility to follow through when prompt repairs are recommended.

4. The Minnesota Legislature should request:

- a. The Federal Highway Administration to gather information on all major bridge deficiencies, as they become known, and to share the information with all state departments of transportation to assure systematic and timely incorporation of newly discovered safety concerns into state bridge inspection practices.

Response: This recommendation does not appear to require a Mn/DOT response.

- b. Mn/DOT to review the procedures it follows in disseminating information regarding new developments on bridge safety, including the internal dissemination of its own policies and practice manuals.

Response: We agree it is important to ensure information regarding bridge safety reaches inspection personnel. For the past 10 years, Mn/DOT has conducted annual training for bridge inspectors from Mn/DOT, local government and consulting firms to enable the bridge inspectors to maintain bridge inspector certification. This training is held at multiple locations in the state for their convenience. We have previously shared information obtained from the FHWA and other national sources as part of that training. We will continue to use that forum and others to disseminate information statewide on bridge safety. We have several technical memorandums and a bridge inspection manual in place. We also will reiterate with our inspection staff statewide the need to familiarize themselves with the current procedures described in our manuals and technical memorandums.

- c. Mn/DOT to submit an annual report to the Governor and Legislature (i) identifying all fracture critical bridges in the state rated in "poor" condition along with a specific plan for repairing or replacing each bridge; (ii) summarizing the recommendations from consultants who have provided significant services on bridge safety and inspection matters during the year, with a status report on the Department's implementation of the recommendations; and (iii) summarizing implementation of the recommendations identified in the Legislative Auditor's report.

Response: Annual reporting of several items is included in this recommendation. The reporting requirements of Chapter 152 address item (i) of this recommendation regarding the status of fracture critical bridges. Mn/DOT has begun implementation of the Legislative Auditor's recommendations and will report our progress to the legislative transportation committees. Item (ii) calls for reporting regarding consultant bridge safety and inspections recommendations and the status of implementation. We caution that this level of detail may consume a considerable amount of Mn/DOT and legislative time. Additionally, opening specific engineering decisions to the political process may not be appropriate. It is also important to remember that Mn/DOT did implement the recommendations URS provided regarding the I-35W Bridge, even modifying our implementation as the consultant revised its recommendations. (See page 8).

- d. Mn/DOT to review its criteria for initiating load re-rating analyses on fracture critical bridges and its use of bridge inspection findings in such analyses.

Response: Based on the information that has become available from the NTSB and FHWA since the collapse of the I-35W Bridge, Mn/DOT is in the process of re-rating truss members and gusset plates for all trunk highway fracture critical bridges. Condition of the members is accounted for in the new ratings. The engineering analysis of the bridges will be completed by the end of June. The field reviews of gusset plate conditions will be completed this year

CLARIFICATIONS

In reviewing the conclusions, summaries and recommendations, we find instances where it appears information was misunderstood and resulting conclusions were inconsistent with the facts. Bridge engineering and the associated transportation funding issues are complex. We understand that these issues are difficult to accurately cover in the compressed timeline that Gray Plant Mooty had available. Rather than prepare an exhaustive point-by-point correction of items in the report, we will focus on clarifying several major points because they relate directly to our response to the recommendations in the report.

Consultant Advice: Conclusion No. 5 and Investigative Summary No. 7 assert that Mn/DOT did not follow through effectively on the advice of consultants. We respectfully disagree. Mn/DOT was aggressively pursuing the steel plating retrofit recommended by URS in June 2006. This was the URS recommendation that most directly benefited the members of the truss identified as critical for fatigue by adding internal redundancy to those members. In 2006, Mn/DOT scheduled the plating retrofit work recommended by URS for contract letting in late 2007.

It was only after URS notified Mn/DOT in December 2006, that non-destructive examination (NDE) and removal of measurable defects was an "equally viable retrofit approach" that Mn/DOT reconsidered the plating retrofit. URS's own internal e-mail of December 13, 2006 (Tab 104 of GPM Report) clearly shows that URS itself concluded that the plating retrofit previously recommended was unnecessary and, instead, a non-destructive examination of the truss was preferable. Once URS shared that information with Mn/DOT, we suspended work on developing the plating retrofit plans and adopted the new URS recommendation. Even if the retrofit were pursued, the contract for the retrofit would not have been underway until late 2007.

The technology to be used for the NDE that URS discussed with Mn/DOT at our meeting of January 17, 2007, consisted of both visual and ultrasonic testing. Mn/DOT did not develop a different testing option as stated in the GPM report. Mn/DOT performed the non-destructive examination recommended by URS work in May 2007. Our inspection staff is trained and certified to conduct ultrasonic testing, and was also available to conduct the testing. The NDE inspection was in May 2007. MnDOT examined more than half the bridge. The remainder was to be examined in the Fall 2007 following the construction project. Contrary to the GPM inference, we did not need URS to perform this. Because we have capable and available staff, Minnesota Statutes 16C.08, Subdivision 2, requires us to use state employees when they are available and able to perform the services.

Investigative Summary No. 7 on pages 61-62 of the Gray Plant Mooty report confuses the non-destructive examination recommended by URS in December 2006 with a prior URS review of acoustic or magnetic monitoring systems. The technologies are not the same and are used for different applications. URS did review potential monitoring systems in November 2006 for possible long-term monitoring of a limited number of fracture critical members of the bridge.

(This monitoring would have focused on specific truss members, not gusset plates.) MaTech was a company contacted by URS that markets the magnetic monitoring systems. Such technology can potentially monitor known cracks or identify the initiation of new cracks when they form. In contrast, the non-destructive examination recommend by URS in December 2006 was to determine if there were existing cracks present in the bridge, not to monitor them or identify newly developed cracking in the future

Construction Loads: Investigative Summary No. 9 discusses construction loads on the bridge. The URS report and discussion of construction loads pertained to a future redecking of the bridge. In the case of redecking, a significant imbalance of loading could occur since the entire nine-inch deck would be removed from portions of the bridge. Gray Plant Mooty transposes this discussion onto the 2007 overlay project.

The URS report and recommendations did not apply to the overlay project; they applied to a possible future redecking project. There is a considerable difference between an overlay project and a redecking project. Removal and replacement of the overlay involves only two inches of the nine-inch deck. Without knowledge of fatal flaw in the gusset design, the overlay project did not present the same load issues as a full redecking project would have. The designer had no reason to expect that, during the overlay project, the contractor would place the amount of load on the bridge that has been identified in the NTSB investigation.

An overlay is a repair that does not generate large loads on the bridge. The designer would not have imagined the contractor would stockpile all the material on the bridge. That practice is not typical. As noted in the Mn/DOT memorandum of April 17, 2008, we have since developed a specification regarding construction material placement on a bridge.

Funding Decisions: Investigative Summary No. 8, "Funding considerations influenced decisions about the Bridge," discusses a number of issues regarding funding. Gray Plant Mooty acknowledges that balancing competing project needs with available funding is part of state government. Since 2001, Mn/DOT has consistently invested heavily in bridge construction projects, particularly in the Twin Cities Metropolitan area. When a safety concern arises about a bridge, it is addressed. Bridge safety is a funding priority and has not been compromised because of funding considerations. For example, the Interstate I-35E Bridge was replaced in 2004 and was a fracture critical bridge with fatigue issues. Construction of the new Wakota Bridge began in 2003, replacing a fracture critical bridge with both condition issues and significant traffic congestion problems. During this same time frame, project development work also began for replacement of the Lafayette Bridge in St. Paul and Dresbach Bridge in southeastern Minnesota, both fracture critical bridges with past fatigue problems. Given the condition of these major structures, each of them was a higher priority for replacement than the I-35W Bridge. Those decisions on priorities were, of course, made without knowledge of the fatal design flaw present in the I-35W Bridge's gusset plates.

The I-35W Bridge was inspected frequently for fatigue problems but none were found in the main fracture critical spans. Had fatigue problems been found in the fracture critical truss spans, Mn/DOT would have accelerated repair or replacement of the I-35W bridge to address the issue. Given what we knew at the time and compared to the condition of other major fracture critical bridges noted above, the need for near-term replacement was not known.

The Gray Plant Mooty report includes a lengthy discussion comparing the cost of the overlay project to redecking. With the benefit of hindsight, questions are raised regarding that choice. It is important to note that the deck for the I-35W Bridge was rated Condition Code 5 (Fair) with only 6% delamination. With the other needed bridge replacements during this period, an overlay of I-35W was a reasonable choice, and the deck would have been adequate until the planned improvements in the 2020 time frame.

Senator Murphy & Representative Lieder

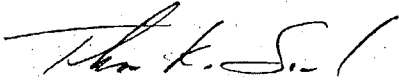
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The URS report concluded that the addition of a continuous composite deck would reduce stresses in many of the truss members, while increasing load in a few. It is important to note that though redecking provides some reduction in stress, and thus somewhat improves the structural redundancy issue, it does not correct it. The I-35W Bridge would still be a fracture critical non-redundant structure following deck replacement. Finally, and perhaps most importantly, neither redecking nor retrofit plating recommended by URS would have addressed the inadequacy of the gusset plates cited by the NTSB.

Thank you for your consideration of these comments.

Sincerely,



Thomas K. Sorel
Commissioner

Attachment: April 17, 2008 memo from Dan Dorgan to Robert McFarlin

bcc: Carolyn Jones
Khani Sahebjam
Rick Arnebeck
Dan Dorgan
Betsy Parker
Erik Rudeen
Bob Winter
Lucy Kender
Tim Henkel
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