

Statute Requires Resilient Transportation Supported by Geotechnical Assets

Geotechnical Asset Management Joint Section Subcommittee

Transportation Research Board

2020 Annual Meeting

Washington, D.C.

January 13, 2020

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Topics

- Game Changing Policy Reminders
- Our Challenge
- Proposed Legislation
- Lessons Learned

Game Changing Policy Reminders

- MAP-21 and FAST are federal laws that require transportation investments to be based on measured outcomes “performance-based.”
 - Moving Ahead for Progress in the 21st Century (2012)
 - Fixing America’s Surface Transportation (2015)
 - FHWA Performance Based Asset Preservation
 - ASCE, ASTM, and AASHTO Professional Standards

Challenge, Choice, and Collaborate

- Challenge: Geotechnology doesn't have lobbyists.
- Choice: Do nothing or desire a more resilient future.
- Collaborate:
 - Never doubt what a small group can accomplish.
 - Engage professional associations and the public.
 - Listen to leaders who encourage action.
 - Elected decision makers and DOT leadership.
 - “Tell me something I don't know that I'm not going to like.”
 - “Keep pushing and asking questions.”

Listen to Leaders who Encourage Action

THE FUTURE OF TRANSPORTATION

received 4/29/09
D.C. Oberstar Staff

0 CRITICAL ASSET PRESERVATION

I-Maint	Hwy - BRIDGE
NHS	

Critical Asset Preservation

0 HIGHWAY SAFETY IMPROVEMENT

R/R Safety	Motorcycle Safety
R.R. Gr. Xing	etc.

Safety Improvement

0 SURFACE TRANSPORTATION PROG

Enhancements - 10% set-aside
MPO Sub-Allocations - based on Population

Enhancements

0 CONGESTION MITIGATION & AIR QUALITY IMPROVEMENT

15% of HWY miles - in urban
50% of VMT

Reduce Congestion and Air Quality Improvement

Surface only? Critical Asset = Highway

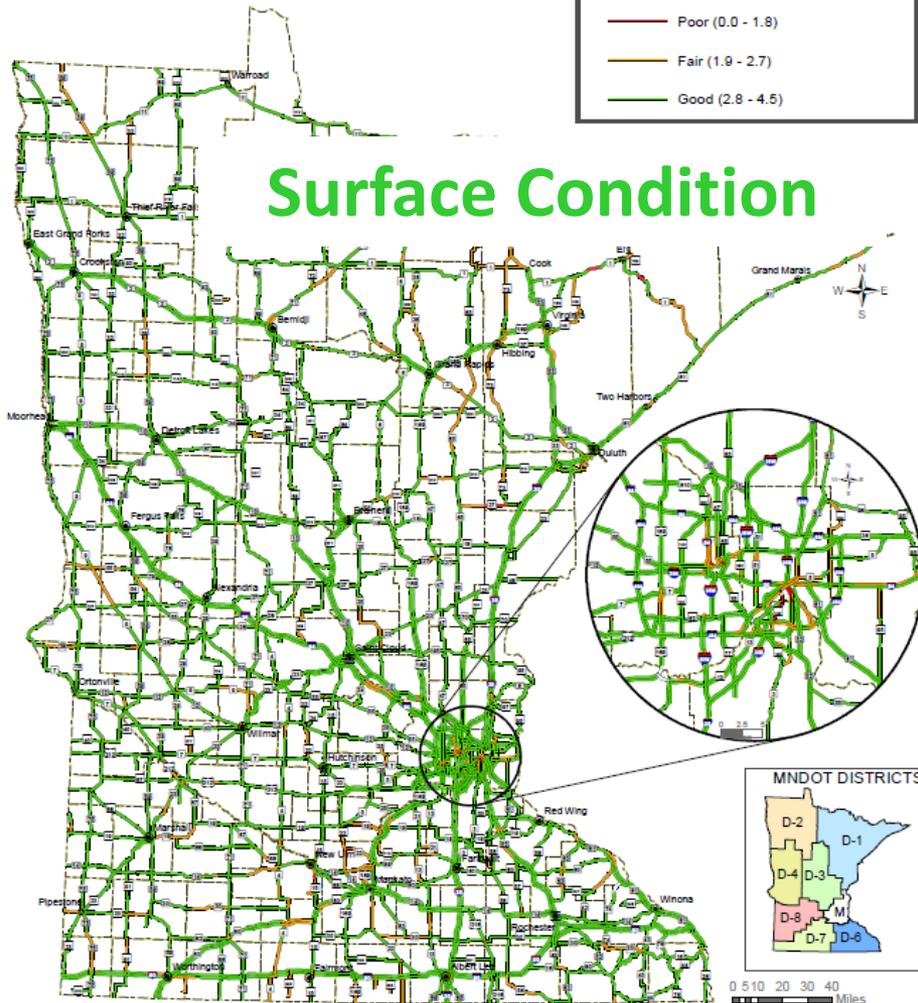
mn DEPARTMENT OF TRANSPORTATION

STATEWIDE
2016 PAVEMENT CONDITION

Pavement Quality Index (PQI)

- Poor (0.0 - 1.8)
- Fair (1.9 - 2.7)
- Good (2.8 - 4.5)

Surface Condition



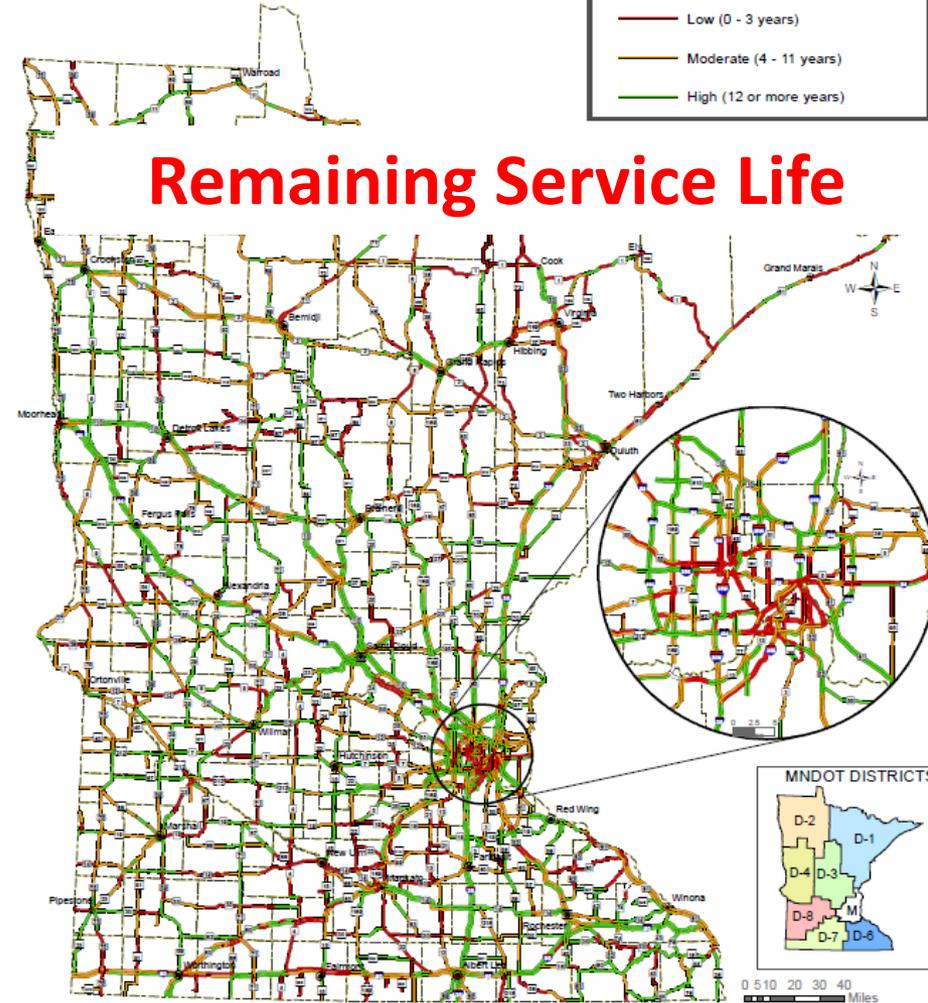
mn DEPARTMENT OF TRANSPORTATION

STATEWIDE
2016 PAVEMENT CONDITION

Remaining Service Life (RSL)

- Low (0 - 3 years)
- Moderate (4 - 11 years)
- High (12 or more years)

Remaining Service Life



Bipartisan Investment and Reform 2009

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

THE SURFACE TRANSPORTATION AUTHORIZATION ACT OF 2009

A BLUEPRINT FOR INVESTMENT AND REFORM

Presented by

*Chairman James L. Oberstar, Ranking Member John L. Mica,
Chairman Peter A. DeFazio, and Ranking Member John J. Duncan, Jr.*

June 18, 2009

Bipartisan Investment and Reform 2009

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CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT	
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SURFACE TRANSPORTATION PROGRAM	
FREIGHT IMPROVEMENT PROGRAM	
OFFICE OF PUBLIC BENEFIT, TOLLING REQUIREMENTS, AND	
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30%
of the
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“FHWA will shine light on the transportation system so that the states are accountable to the people.”

“Build trust and confidence at the state level so that the people support greater investments.”

Action is Helped by Preparation

- Engage the Profession (America Society of Civil Engineers)
 - ASCE 2019 Minnesota Infrastructure Report Card
- Evaluate Performance (Office of the Legislative Auditor)
 - State Highways and Bridges 2008
 - Pavement Surface Selection 2014
 - Highway Project Selection 2016
 - Measuring Financial Effectiveness 2018
- Develop Standards and Manuals (National Academies)
 - Geotechnical Research: How Organizations Encourage Innovation 2014
 - Transportation Asset Management Annual Conference 2016
 - Guide to Sustaining a Culture of Innovation in DOTs 2018
 - Geotechnical Asset Manual 2019

Geotechnical Asset Manual

- Geotechnical assets contribute to the ability of a transportation agency to perform the strategic mission.
- Transportation agencies will therefore need to look beyond the two legacy asset categories named in Federal authorization and better understand the impact of all assets, including geotechnical assets, on the system that they must manage responsibly and cost effectively.

Geotechnical Asset Manual 2019

- **Geotechnical asset:** embankment, retaining wall, slope, or constructed subgrade that contributes to the performance of the transportation system.
- **Geotechnical component:** ground reinforcements (such as geogrids and geotextiles), groundwater drainage, rock bolts, and concrete materials that help the asset perform as expected.

Proposed Legislation Minnesota

- Minnesota Statutes 2019, section 174.03, is amended by adding a subdivision to read:
- Trunk highway performance, resiliency, and sustainability required. (a) The commissioner must implement performance measures and annual targets for the trunk highway system in order to maintain and construct resilient infrastructure, enhance the effectiveness of all transportation modes within trunk highway rights-of-way, and achieve the state transportation goals established in section 174.01.

Note: Very important to be aware of the goals.

Minnesota Transportation Goals (174.01)

- Minimize fatalities and injuries
- Increase multimodal access for all
- Ensure economic well-being and quality of life
- Provide reasonable travel time for commuters
- Enhance economic development
- Encourage tourism
- Provide transit services to all counties
- ➔ • Promote accountability through performance management
- ➔ • Utilize technological advancements
- ➔ • Maximize long term benefits
- ➔ • Prioritize funding to maintain a state of good repair

Proposed Legislation (continued)

- (b) At a minimum, transportation planning processes must include:
 - (1) an inventory of assets, including but not limited to bridge, pavement, geotechnical, pedestrian, bicycle, and transit asset categories;

Note: Build a coalition of minority interests to create a majority.
Stand together. Stick together.

Note: All these asset categories are developing performance measures.

Proposed Legislation (continued)

- (2) lead (predictive) and lag (resulting) performance measures and annual performance targets for assets in each category, identified in collaboration with the public, to be achieved by each district of the department;
- (3) gap identification and an explanation of the difference between performance targets and current status;

Proposed Legislation (continued)

- (4) life cycle assessment and corridor risk assessment as part of asset management programs in each district of the department; and
- (5) an annual investment plan for each district of the department based on funding expected during the next ten years.

Proposed Legislation (continued)

- (c) Annually by December 15, the commissioner must report trunk highway performance measurement, annual targets, and identify gaps including information detailing the department's progress on achieving the state transportation goals, to the chairs and ranking minority members of the legislative committees having jurisdiction over transportation policy and finance. The report must be signed by a professional engineer licensed in Minnesota.

Results and Current Status

2018

- Bipartisan Bill Authorship
- Bipartisan Support to Enhance Asset Performance Measures
- Unanimous Vote by House Transportation Policy Committee

2019

- New Governor
- New Transportation Commissioner
- New Legislature
- New Minnesota Law: The commissioner must maintain an inventory of transportation assets, including but not limited to bridge, pavement, geotechnical, pedestrian, bicycle, and transit asset categories. (Minnesota Statutes, Section 174.03, Asset Management)

2020

- Geotechnical asset engineer position filled.
- Implementation continues so that the people's investments are used effectively.

Thanks for Listening. Please ask questions

It's not rocket science. It is rock science and some political science. 😊



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