Transportation Performance Management Webinar Series

The Intersection of Risk, Resilience, & Performance Management

Sponsored by AASHTO and FHWA

TPM

U.S. Department of Transportation
Federal Highway Administration

AASHTO
The Voice of Transportation

Wednesday, March 20, 2024
TPM Webinar 21

Transportation Performance Management Webinar Series

- Our TPM webinar series is held every two months, on topics such as communications, system performance management, data sources, and many more to come!

- Today is the 21st webinar in our bi-monthly series

- We welcome ideas for future webinar topics and presentations

- Use the webinar chat panel during the webinar
  - Submit questions for today's presenters
  - Submit ideas for future webinar topics
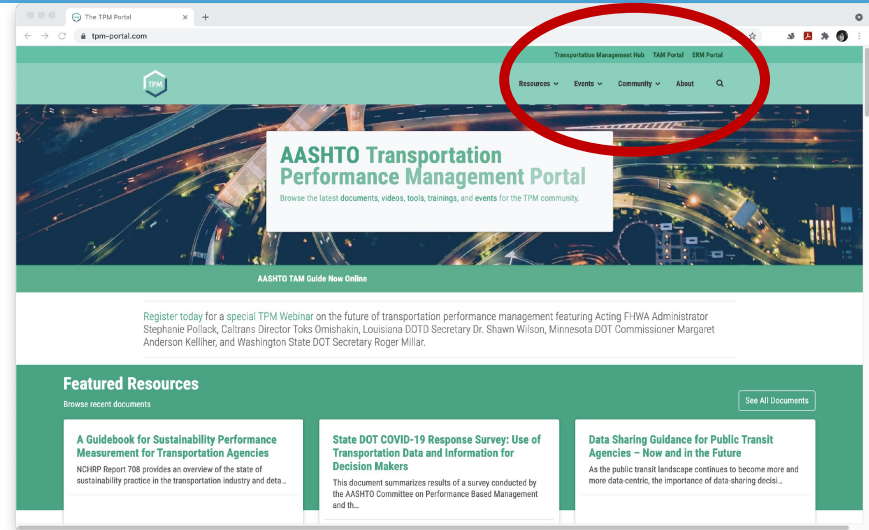
Find us on the AASHTO TPM Portal
https://www.tpm-portal.com

Webinar Agenda

2:00   **Introduction**

- Jean Wallace, Vice Chair, AASHTO CPBM.

2:05   **FHWA Perspective**

- Mshadoni Smith-Jackson, FHWA.

2:10   **AASHTO Risk and Resilience Manual (NCHRP Project 23-32)**

- Anna McLaughlin, AASHTO.

2:20   **Presentation #1. Resilience Improvement Plans (RIPs) and Outcomes: Lessons Learned, Application Beyond Natural Hazards.**

- Michael Simmons Nevada DOT - Stakeholder Engagement

- Stephanie Johnson Delaware DOT - Equity

- Sandy Hertz Maryland DOT - Interdependencies

Webinar Agenda

2:40   **Presentation #2. Risk Community of Practice and Agency Risk Management.**

- Mónica Alemán-Smoot , Texas DOT.

3:00   **Presentation #3. Enterprise Risk Management (ERM) and Performance Outcomes.**

- Jake Granholm, Minnesota DOT.

3:20   **Panel Q&A.**

3:25   **Wrap-Up.**

- Jean Wallace, Minnesota DOT.

FHWA Perspective

Mshadoni Smith-Jackson

FHWA

Craig Thompson, *President*
Secretary, Wisconsin Department of Transportation
Jim Tymon, *Executive Director*

Joint Task Force on the AASHTO Transportation Risk & Resilience Manual
NCHRP 23-32

Anna McLaughlin
Program Director for Transportation Program Management
amclaughlin@aashto.org

- NCHRP project kicked off January 12, 2024.
- The objective of this research is to provide a science-based technical resource to assess risk and resilience in transportation planning, design, construction, operation, and maintenance decisions.
- Multi-year project with a timeline to have a draft AASHTO Manual in 2026.

Joint Task Force on the AASHTO Transportation Risk & Resilience Manual

Committee on Transportation System Security and Resilience

Committee on Performance-Based Management

Chair: Tim Sexton, Minnesota DOT

(Member from the Committee on Transportation System Security and Resilience)

Vice-Chair: William Johnson, Colorado DOT

(Member from the Committee on Performance-based Management, Subcommittee on Risk Management)

AASHTO

Task Force Roles & Responsibilities

- Support the development of the manual as it progresses through the NCHRP research development process

- Focus on broad implementation of the manual and its tools and data sets once it is completed

- Support the overall maintenance of the manual, tools, and data sets once the research is complete

Task Force Goals & Objectives

- **Provide a direct and ongoing connection** between the NCHRP project panel, research team and members of the AASHTO committees.

- **Provide technical expertise** to the NCHRP project panel and research team in subject matter areas of expertise (e.g., bridge design, pavement design, drainage, structural design, etc.).

- **Serve as a review partner and coordinator of comments** from the AASHTO committee members and state DOT on behalf of the NCHRP project panel and research team.

- **Serve as a sounding board** for the NCHRP project panel and research team throughout the research and development of the various products and resources developed through the multi-phased project.

- **Provide support to the NCHRP panel and research team** for managing issues and topics on the development, implementation, and maintenance of Risk & Resilience Manual.

Structure and Membership

Leadership
- Chair: Tim Sexton, MnDOT (CTSSR)
- Vice Chair: William Johnson, CDOT (CPBM, Subcommittee on Risk Management)

Liaisons
- AASHTO
- FHWA
- FTA
- TRB
- NCHRP

Membership (AASHTO Committees)
- Transportation System Security and Resilience
- Performance Based Management
  - Risk Management
  - Asset Management
- Bridges & Structure
  - Bridge Preservation
  - Culverts
  - Bridge Management, Evaluation & Rehabilitation
- Construction
- Materials & Pavement
- Maintenance
- Design
- Environment & Sustainability
- Data Management & Analytics
- Planning

AASHTO 2024 Conference on Data Management & Analytics, Planning, and Performance-Based Management

September 17-20, 2024
Hyatt Regency St Louis at The Arch | St Louis, Missouri

SAVE THE DATE

MoDOT

AASHTO | Committee on Data Management and Analytics | Committee on Planning | Commitee on Performance-based Management

Resilience Improvement Plans (RIPs) and Outcomes: Lessons Learned, Application Beyond Natural Hazards

Stakeholder Outreach

Michael Simmons
Nevada DOT

Equity

Stephanie Johnson
Delaware DOT

Interdependencies

Sandy Hertz
Maryland DOT

12

Resilience Improvement Plans (RIPs) and Outcomes: Lessons Learned, Application Beyond Natural Hazards

Stakeholder Outreach

Michael Simmons
Nevada DOT

Identify Outreach Purpose

Multi-disciplinary participation and input is key to this project to:

- Define resilience as it aligns with the goals of the plan
- Bring holistic perspectives to the development of the resilience plan
- Provide ideas, suggestions, and out-of-the-box thinking
- Advise on decisions
- Provide discipline-specific technical input

Participant Groups

Identify participant groups and establish engagement roles

- ● Project Management Team
- ● Steering Committee
- ● Stakeholder Group

Outreach Approach

Define level of participation for specific stakeholders

- Involved
- Informed
- Aware

Lessons Learned

Stakeholders need to be engaged early and often.

A robust stakeholder engagement process is necessary for project success. Institutional and on-the-ground knowledge about how systems perform, how the organization operates, various system "pain points," availability and use of data are indispensable insights that can only be gleamed through conversations and exploration. Participation, early and often, ensures better outcomes.

Resilience Improvement Plans (RIPs) and Outcomes: Lessons Learned, Application Beyond Natural Hazards

Equity

Stephanie Johnson
Delaware DOT

Incorporating Equity in DelDOT's DRIP

Excellence in Transportation

Every Trip.
We strive to make every trip taken in Delaware safe, reliable and convenient for people and commerce.

Every Mode.
We provide safe choices for travelers in Delaware to access roads, rails, buses, airways, waterways, bike trails and walking paths.

Every Dollar.
We seek the best value for every dollar spent for the benefit of all.

Everyone.
We engage our customers and employees with respect and courtesy as we deliver our services.

Incorporating Equity in DelDOT's DRIP

DelDOT's Equity Analysis Tool:

- **Purpose:**
  - Make informed investment decisions
  - Provide data for public outreach and engagement strategies
  - Create a standardized tool for DelDOT to identify disadvantaged communities as required by Justice40 (EO 14008)

- **Datasets Used:**
  - Residential Land Use/Land Cover
  - Census Data
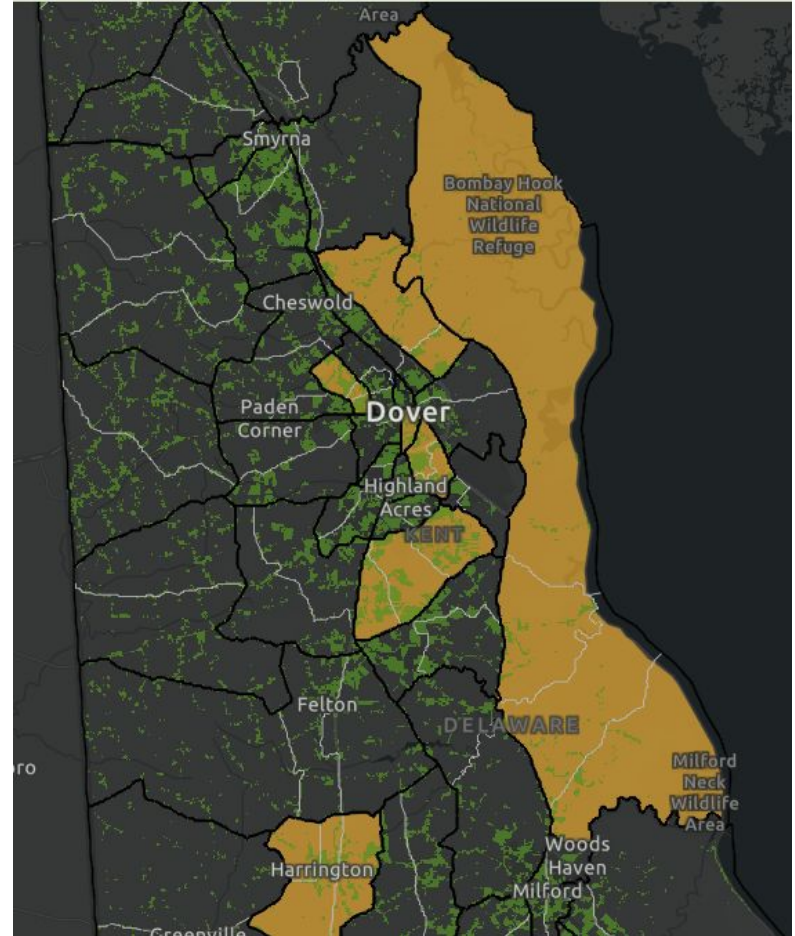
Incorporating Equity in DelDOT's DRIP

DelDOT's Equity Analysis Tool:

- **Methodology:**
  - % of population in poverty greater than State Average AND at least 1 Racial and Ethnic Minority Group is greater than 3x the State Average **OR**
  - Combined Population % of Racial and Ethnic Minority Groups is greater than 2x the State Average **OR**
  - % of Population in Poverty is greater than 2x the State Average **OR**
  - Median Household Income is $\geq$ $45,958 **OR**
  - Language Isolation is $\geq$15%
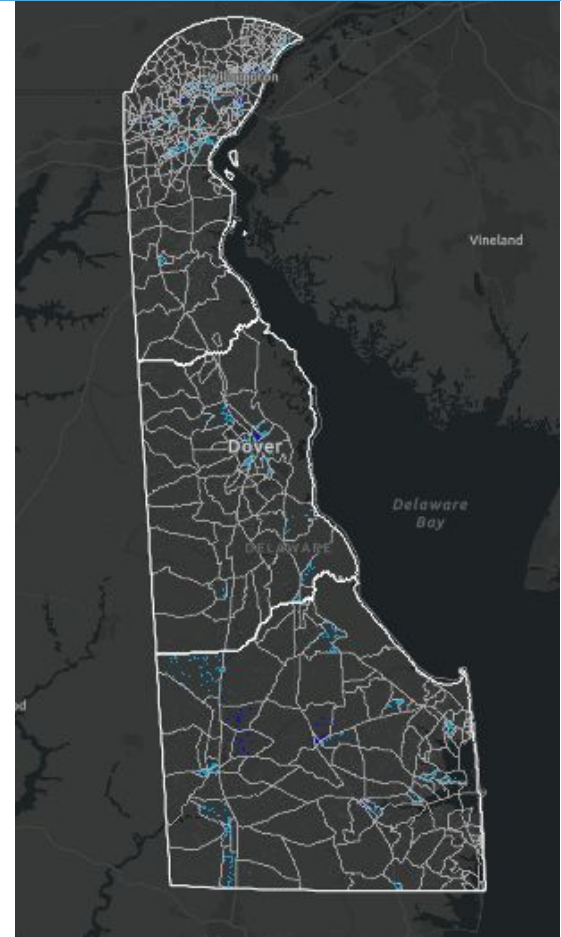
Incorporating Equity in DelDOT's DRIP

Resilience & Equity:

To make the most strategic use of PROTECT funds, a multifaceted investment approach is needed to incorporate the transportation risk assessment being developed externally from the DRIP as well as prioritization factors such as equity, criticality, evacuation needs, route redundancy, and project readiness.

Dataset	Category	Total Category Score	Weight (%)
Frequently Flooded Roadways	Flood History	50	50%
UD Inundation Study			50%
FEMA Floodplain	Flood Data[2]	25	25%
Sea Level Rise[1]			25%
NOAA Flood Frequency			25%
Major River			25%
Traffic Count	Infrastructure/Traffic	15	33%
Road Rating			33%
Essential Routes			33%
Equity Focus Area	Community	10	20%
Essential Facility			20%
Community Size			20%
Employment Density			20%
DTC Ridership			20%

Incorporating Equity in DelDOT's DRIP

Incorporating Equity In Practice:
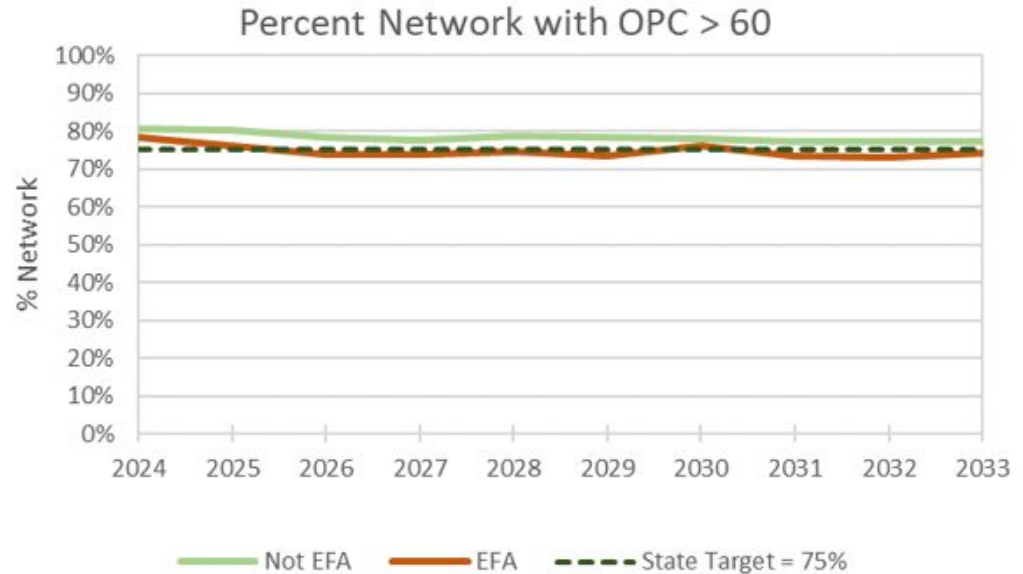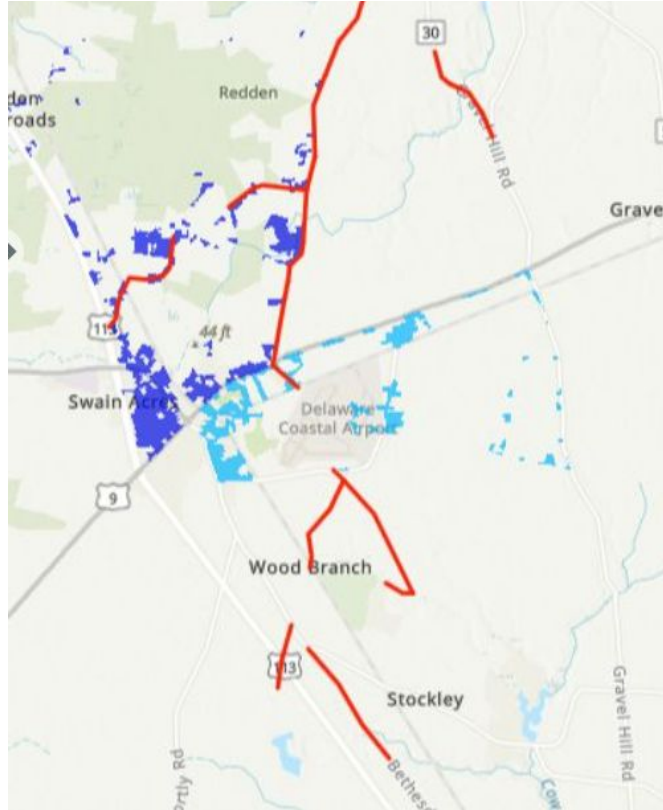
Incorporating Equity in DelDOT's DRIP

- **April 23rd: AASHTO Innovation Showcase
  AASHTO Spring Meeting
  Madison, Wisconsin**

Stephanie Johnson, Director
DelDOT Division of Transportation Resilience & Sustainability
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(302)760-2117

Resilience Improvement Plans (RIPs) and Outcomes: Lessons Learned, Application Beyond Natural Hazards

Interdependencies

Sandy Hertz
Maryland DOT

MDOT's Resilience Improvement Plan

- **Serves as a roadmap for a data-driven investment strategy to address the resilience of critical infrastructure**

- **Establishes the framework to expand upon existing workflows and tools to embed climate and extreme weather considerations into:**

  – project planning and design

  – investment

  – prioritization

  – life-cycle planning

"across all modal administrations to support Maryland's sustainable transportation future"

Maryland's Transportation System
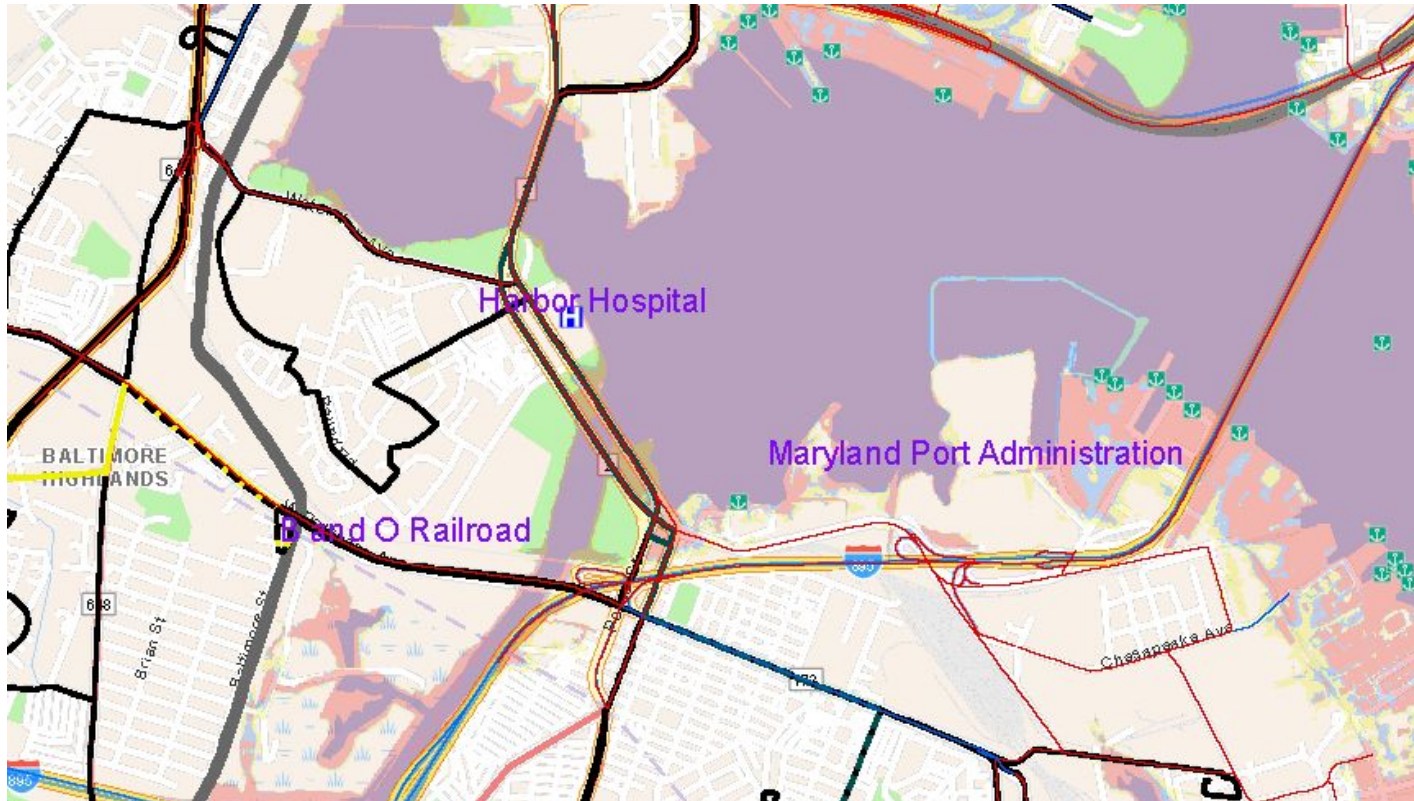
System with Vulnerabilities

Maryland Transit - Light Rail Lines - Light Rail Line

Maryland Transit - Sea Ports - Sea Ports

Maryland Freight Network - Baltimore City Freight Network

— Through Truck Route
— Local Truck Route
— Restricted Route: Local
— Restricted Route: 7:00AM to 7:00PM

Climate Ready Action Boundary (CRAB) Coastal - Flood Depth Grid

2ft or more CRAB Inundated
1ft to 2ft CRAB Inundated
0ft to 1ft CRAB Inundated

Maryland's Transportation System

SHA Only

Hospitals
H

FEMA Hurricane Evacuation Routes
—

MDOT SHA Maintained Roads
—
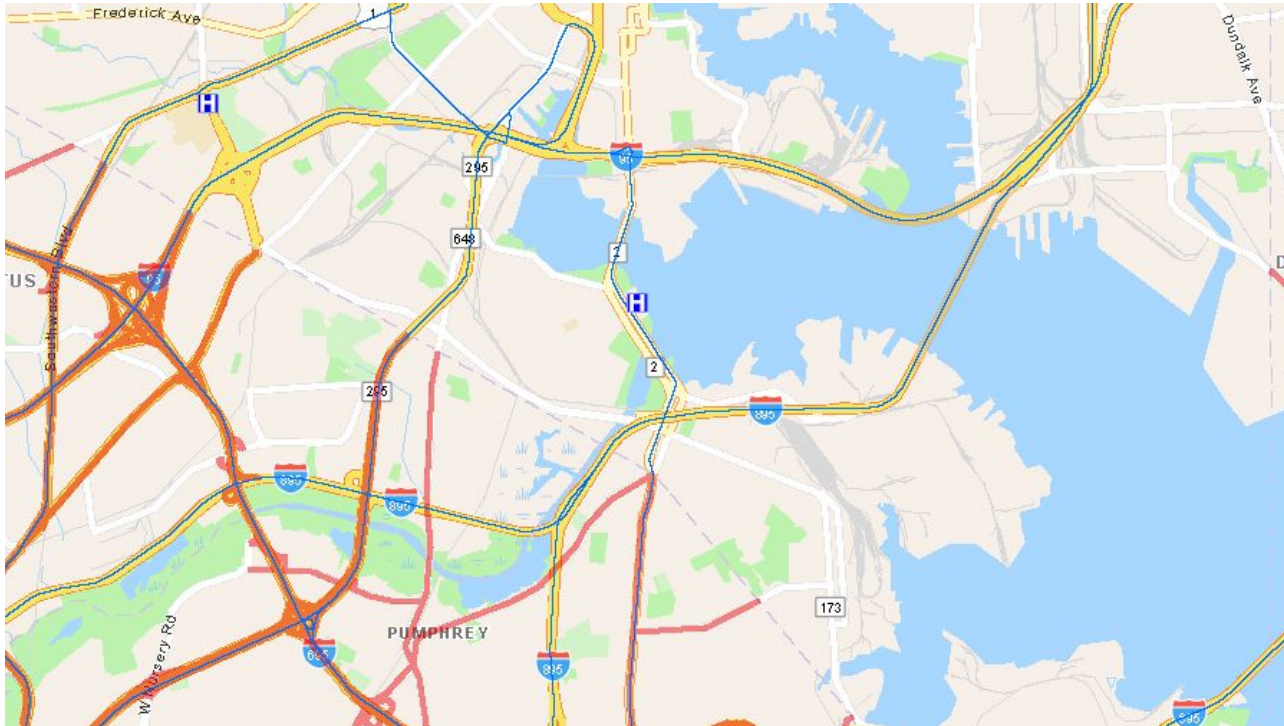
Interdependence Focus - 3 Locations

Location	Roadway Maintenance	Hospital Access	FEMA Evacuation Route	MDTA Asset	MTA Bus Routes	Port Access	Freight Route AADT (2017)	Vulnerable
1	City	Yes	Yes	No	Yes	Yes	1135	No
2	MDTA	Yes	Yes	Yes	Yes	Yes	3191	Yes
3	SHA	Yes	Yes	No	Yes	No	551	No
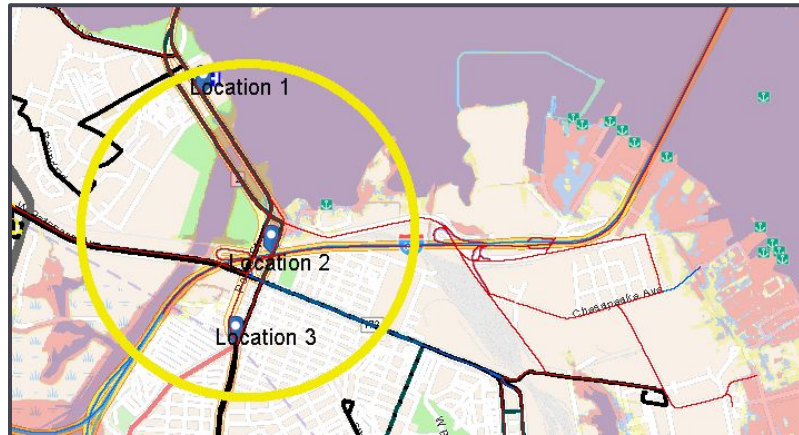
Future flooding at Location 2 would impact multiple modes of transportation, ingress and egress from local communities and emergency services, freight movement on rail and road to and from the Port of Baltimore, commuter bus and light rail service.

Lessons Learned from MDOT's TRIP

- Need to define resilience from an enterprise view

- MDOT modal administrations varied in vulnerability assessment maturity

- Condition-based assessments such as TAMP and SGR will help with project prioritization for assets

- Need to identify and promote consistent source data for natural hazard evaluations

- Modal threat/asset pairs can vary significantly

Enterprise Risk Prevention & Management Program

- The Enterprise Risk Prevention and Management Program (RPM) is an **internal program** that proactively identifies agency wide risks through the review of laws, rules, regulations, policies, and procedures.

- RPM facilitates conversations with **subject matter experts (SMEs)** to analyze and prioritize risks by the **significance** of a risk and **probability** of that risk occurring.

- SMEs assess current controls and develop **mitigation plans** to reduce or eliminate identified risks.

Where we began…

- RPM began in 2011.
- Program is based on Effective Compliance Systems: A Practical Guide for Educational Institutions, 2001.
- RPM began looking for opportunities for process improvements, innovations, efficiencies in 2015.

Where we are now…

- RPM aligns with Enterprise Risk Management terminology and ratings.
- From 2019 to 2023, RPM reviewed 1,933 risks.
- From 2022-2023, RPM monitored 112 action plans to mitigate high risks and implement process improvements.

RPM is a Collaborative Process

Risk management attorney updates risk framework

Reviews framework with General Counsel Division
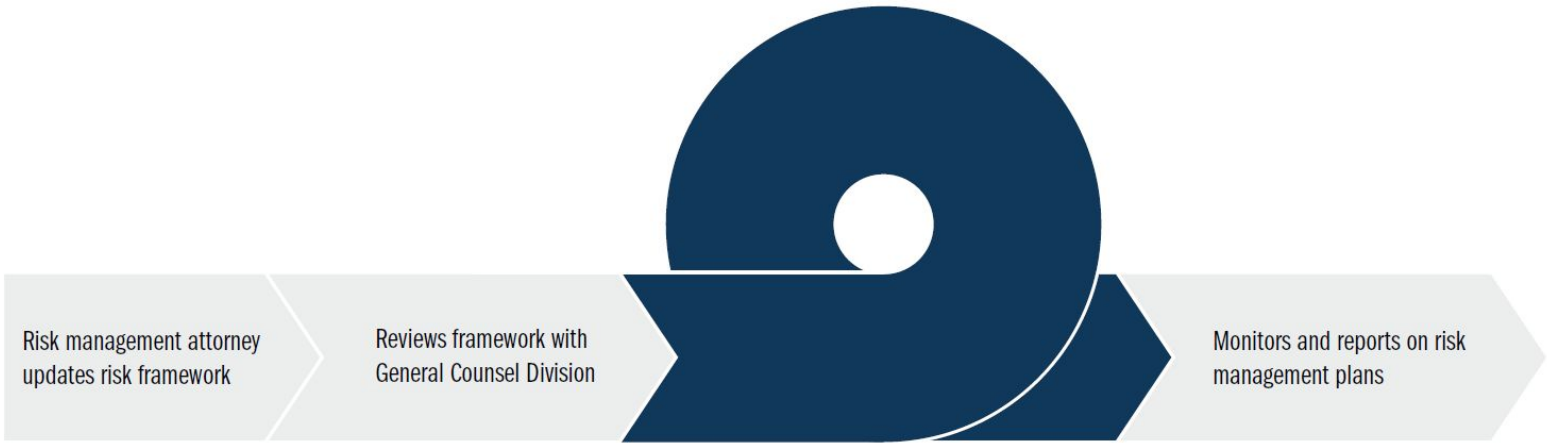
1. Forms and trains subject matter work group
2. Work group identifies and prioritizes risks
3. Survey DE/DDs and chiefs and presents work group findings
4. Presents top risks to select Administration
5. Facilitates risk management plans

Monitors and reports on risk management plans

✔ Proactive approach to identifying solutions

✔ Cross-functional collaboration

✔ Addressing potential threats or risks before they become problems

✔ Increased safety for employees and the public

✔ Cost savings

✔ Improved public perception of TxDOT

Enterprise Risk Prevention & Management Program

Live Captioning

Vegetation Management

Low Ground Clearance Crossings

Ferry Prohibited Items

Program Schedule

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Safety	███	███	███	███								
Assets	███	███	███	███								
Planning and Execution	███	███	███	███								
Contracts			███	███	███	███	███	███	███	███	███	███
AI Risk and Strategic Plan	███	███	███	███	███	███	███	███	███	███	███	
Risk Management COP		███	███			███	███	███		███	███	███
Updated SOP/Material	███	███	███	███								
Dashboard updates		███	███	███	███	███	███					
RPM Database						███	███	███	███	███	███	███
TRB	███	███				███	███					
AASHTO	███	███	███	███	███	███	███	███	███	███	███	███

Purpose

To create an avenue for **knowledge sharing** TxDOT's Risk Management.

Goals

To **recruit** subject matter experts to share risk management knowledge and experience, **develop** a platform to meet and **collaborate**, share risk management information, tools, and techniques, and **promote** risk management agency wide.

Risk Collaborators describing what comes to mind when they think of risk.

- The Risk Management Community of Practice currently has **95 Risk Collaborators** from 33 Divisions and 17 Districts with **18 Risk Champions**.

- Community members engage in discussion about risk and share best practices and ideas that can be used at an enterprise level.

Mónica Alemán-Smoot
Attorney
Risk Prevention and Management Program Manager
Strategic Planning Division
512-305-9506 | _Monica.AlemanSmoot@txdot.gov_

Enterprise Risk Prevention and Management Program:
https://crossroads/divisions/str/enterprise-program
s/risk-prevention-and-management-program.html

Enterprise Risk and Performance Management at MnDOT

Jake Granholm, Performance and Risk Supervisor
Performance, Risk, and Investment Analysis (PRIA)
Office of Transportation System Management (OTSM)

DEPARTMENT OF TRANSPORTATION

MnDOT's ERM Framework and Practice

Enterprise Risk Management Levels at MnDOT

- **Enterprise**: Risks to MnDOT's strategic objectives or risks that involve multiple levels.
- **Responsibility**: ELT and SLT acting in their capital, governance, and operation roles.

(Enterprise)

- **Programs, Products, and Services**: Risks that are common to groups of projects that achieve strategic objectives.
- **Responsibility**: Management groups in coordination with Assistant Commissioners.

(Program/P&S)

- **Projects/Activities**: Risks that are specific to individual projects and ongoing functions.
- **Responsibility**: Office directors, District Engineers, office managers, and staff.

(Projects/Activities)

ERM Steering Committee: Cross-Functional Risk Managers

Committee Scope (current and in-development):

- Assist the senior leader team (SLT), agency management groups, divisions, districts, and offices in using and maintaining an enterprise risk management framework to effectively identify, assess, and respond to cross-functional risks.

- Assess whether existing risk responses align with established enterprise risks strategies and are effective in responding to risks.

- Routinely review MnDOT's enterprise risk management framework and risk register to assure they align with risk management best practices and MnDOT's strategic objectives.

- Support strategies by risk managers to effectively respond to risks.

SLT
ERM Steering Committee
Offices + Districts

Enterprise Risk Register Priorities: Threat and Influence
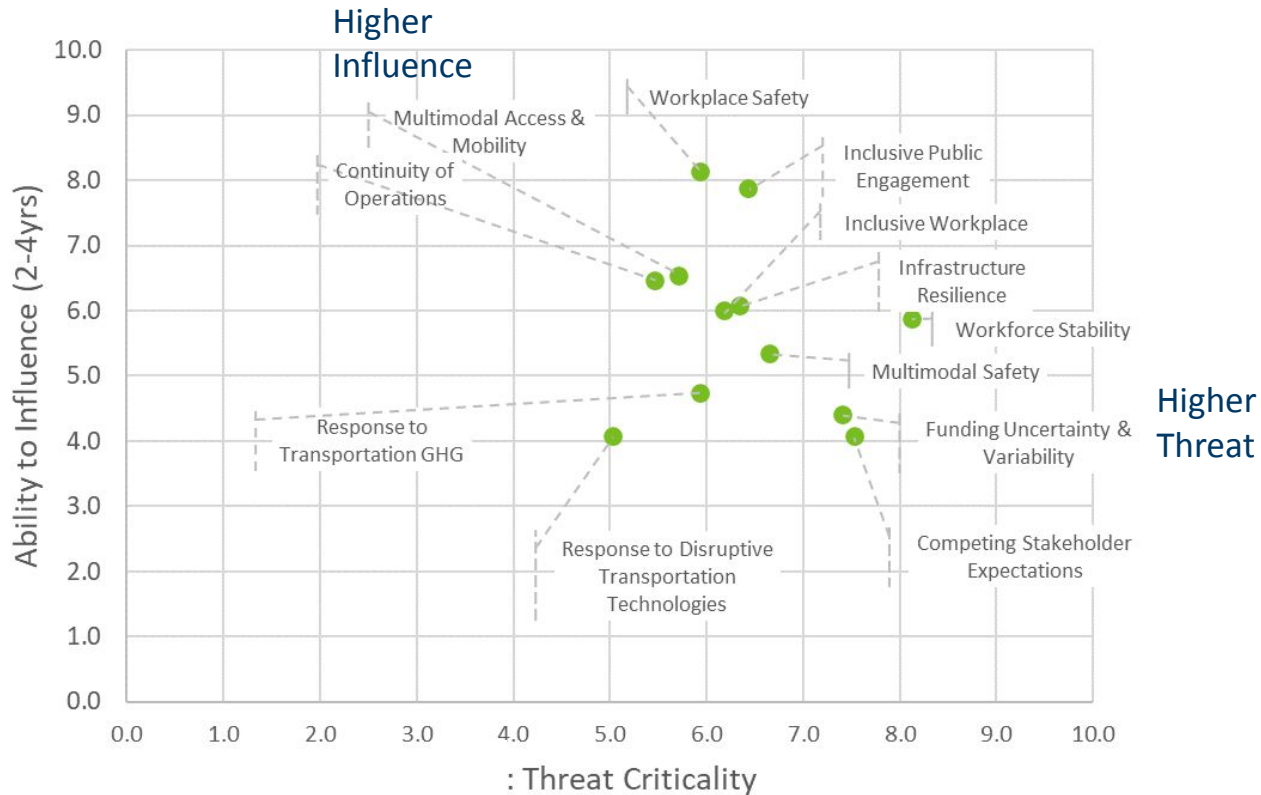
MnDOT Enterprise Risk Register

Enterprise Risk	MnDOT Strategic Objective
Inclusive Workplace	Fostering a Thriving Workforce
Funding Uncertainty and Variability	Maximize Stewardship of Resources
Workforce Stability	Fostering a Thriving Workforce
Multimodal Access & Mobility	Advance Transportation Equity
Workplace Safety	Promote a Safe Culture
Inclusive Public Engagement	Advance Transportation Equity
Infrastructure Resilience	Champion Sustainable Actions
Response to Transportation GHG	Champion Sustainable Actions
Multimodal Safety	Promote a Safety Culture
Response to Advancements in Transportation Technologies	Maximize Stewardship of Resources
Competing Stakeholder Expectations	Maximize Stewardship of Resources
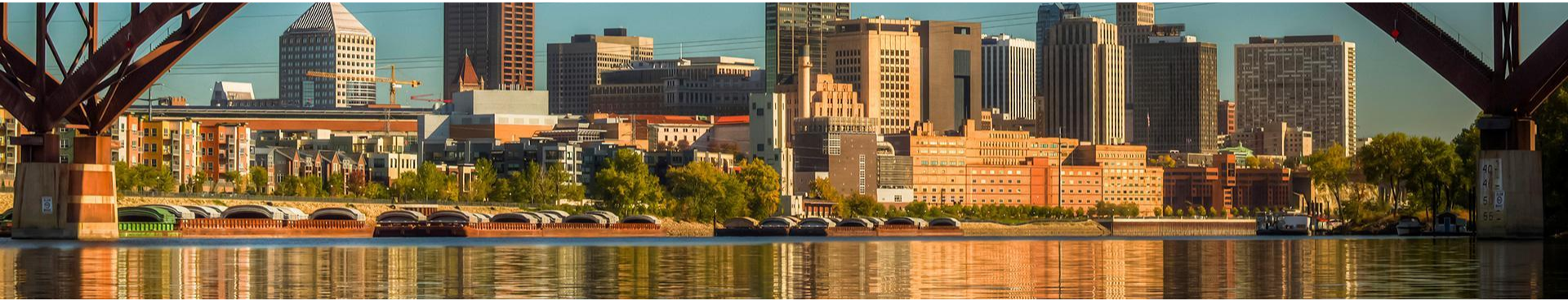
MnDOT's Enterprise Performance Management Practice

Enterprise Tools for Tracking Performance

- Annual performance scorecard

- Transportation system performance report (annual legislative report)

- Transportation system performance dashboard

- Ongoing analysis and research efforts (e.g., multimodal accessibility analysis/destination access)

Transportation System Performance Report 2023
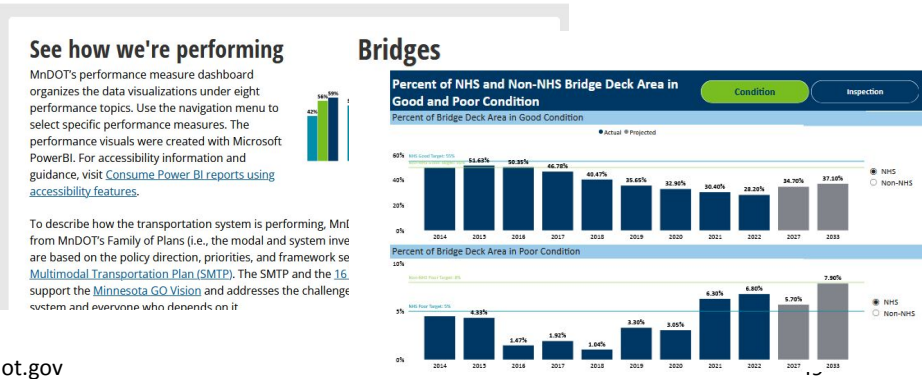
Integrating Risk and Performance Management
Tracking Outcomes for Risk Management Strategies

Managing Enterprise Risks and Performance

Identify and establish risk context

- **Guiding documents:**
  - Statewide Multimodal Transportation Plan
  - MnDOT's Strategic Plan
  - Enterprise Risk Register
- **Supports Minnesota GO 50-year vision**

Assess risks and further define context

- **Agency groups:**
  - Leadership committees/councils
  - Management groups
  - MnDOT specialty offices
- **Use risk assessments to help establish priorities**

Identify risk responses and risk management strategies

- **Family of plans**
  - Investment plans
  - Modal plans
  - Office business plans
- **Integrates performance planning and risk management to establish priorities for projected funding.**
- **Considers impact of investments on performance targets.**
- **Establishes performance targets**

Performance and risk response monitoring

- **Performance reporting sources**
  - Annual performance scorecard
  - Performance dashboard
  - Annual transportation system performance report
  - Risk summaries
- **Evaluate progress and report performance to the public and senior leaders**

Enterprise Risk Summaries
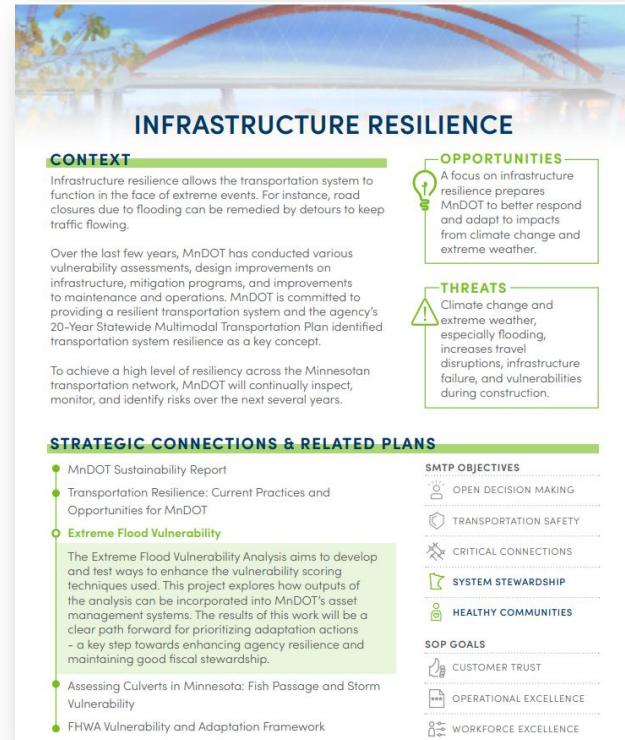
- For the enterprise risk register categories:
  - Summarizes risk context, opportunities, and threats
  - Strategic connections, (e.g., SMTP objectives) and related modal and investment plans.
  - Performance measures for tracking progress
  - Established performance outcomes
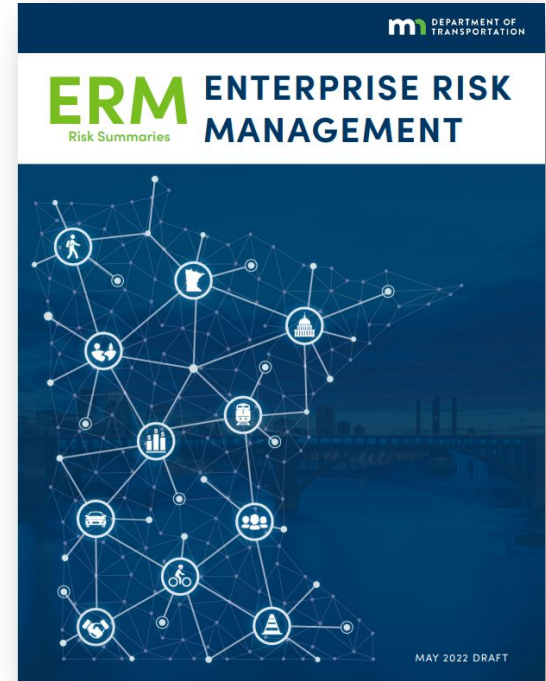
Integration Example: Infrastructure Resilience

Risk context

- Opportunities: A focus on building and maintaining resilient infrastructure could prepare MnDOT to better respond and adapt to impacts from climate change and extreme weather.

- Threats: Climate change and extreme weather could increase the likelihood for infrastructure failures and intensify vulnerabilities during construction and maintenance phases contributing to travel disruptions.

53

Integration Example: Infrastructure Resilience (cont.)

**Assessing risks, identifying response and management strategies**

- Leadership and management groups involved

    - Enterprise level: Senior Leadership Team, Transportation Program and Investment Committee

    - Programs and services level: District engineers, Asset Management Project Office, management groups focused on capital planning

- Relevant source materials

    - Statewide Multimodal Transportation Plan

    - MnDOT Sustainability Report

    - Transportation Asset Management Plan

    - Transportation Asset Management System (TAMS)

    - Minnesota State Highway Investment Plan (MnSHIP) – 20-year plan

Integration Example: Infrastructure Resilience (cont.)

Monitoring performance and risk response strategies

- Examples of performance measures tracked

  - Bridge and culvert condition and inspection

  - Pavement condition (percent good and poor)

  - Percent of light fixtures using LEDs

  - Percent of projects using sustainable pavements and native seedings and plantings

- Updates on performance and progress towards established targets circles back through TAMS, performance dashboard, annual reporting, and other internal reporting structures
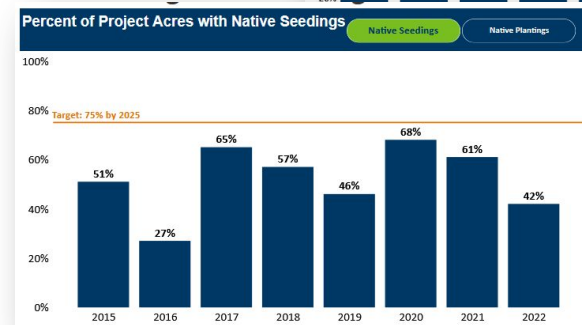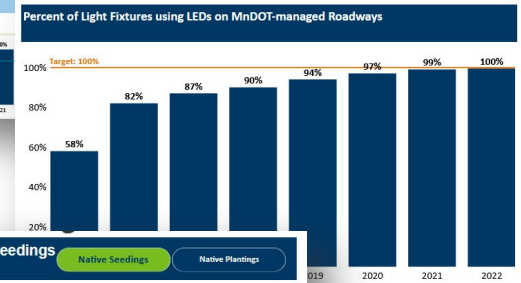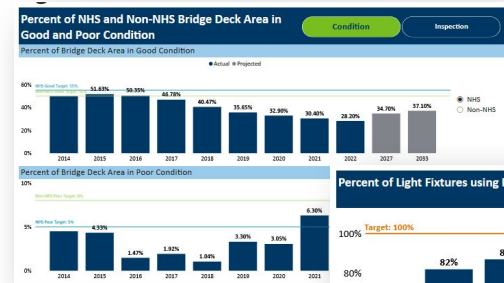
Integration Example: Workforce Stability

Establishing risk context

- Opportunities: Efficiently filling open positions and preparing for employee turnover with effective knowledge transfer to maintain needed skills could ensure continuity of services and high-quality service delivery.

- Threats: Positions remaining unfilled could result in service degradation and reduce the opportunities for knowledge transfer.

Workforce Stability

CONTEXT

With every retirement, MnDOT is in danger of losing critical knowledge.

However, each retirement also presents an opportunity to thoughtfully reassess the needs of the organization now and into the future. The number of employees eligible for retirement is steadily increasing from 17% in 2020 to 30% by 2025.

Understanding which positions are most likely to have turnover from retirement or departures and assessing positions skill requirements with a forward thinking lens will allow MnDOT to grow more effectively.

OPPORTUNITIES

Preparation for employee turnover with effective knowledge transfer and reassessment of needed skills allows MnDOT continuity and improvements in quality service delivery.

THREATS

Staff skills do not reflect present and future needs and useful institutional knowledge goes uncaptured resulting in service degradation.

STRATEGIC CONNECTIONS & RELATED PLANS

- Strategic Operating Plan (SOP) – Workforce Excellence
- Human Capital Report

The Office of Human Rights annually publishes the Human Capital Report which provides information on MnDOT's workforce. The report answers important questions regarding MnDOT's workforce:

SMTP OBJECTIVES

- OPEN DECISION MAKING
- TRANSPORTATION SAFETY
- CRITICAL CONNECTIONS

Integration Example: Workforce Stability (cont.)

Assessing risks, identifying response and management strategies

- Leadership and management groups involved

    - Enterprise level: Senior Leadership Team, Resource Investment Council, Workforce Planning Council

    - Programs and services level: Office directors, district engineers, management groups

- Relevant source materials

    - Strategic Operating Plan

    - Human Capital Report (from MN's Office of Human Rights)

    - MnDOT office business plans

    - Internal data reporting systems

Integration Example: Workforce Stability (cont.)

Monitoring performance and risk response strategies

- Examples of performance measures tracked

  - Annual staff turnover

  - New hire breakdowns

  - Percent of MnDOT employees who are eligible for retirement

- Updates on performance and progress towards established targets circles back through internal reporting structures to program and senior leadership.


PERFORMANCE INDICATORS

Annual Turnover
Percent of all and full time unlimited employees who departed MnDOT in FY 2021 based on FY 2020 headcount

■ All Employees ■ Full Time, Unlimited
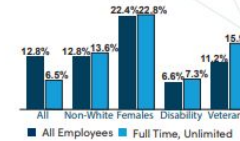
12.8% of MnDOT's employees departed in FY 2021, of full time unlimited employees 6.5% departed. Most departures are slightly above MnDOT average for the four described groups.
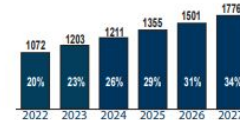
New Hire Breakdown
Percent of MnDOT employees who were hired in a FY broken down by group
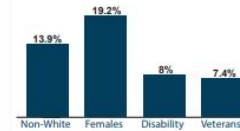
Nearly 20% of new hires in FY 2021 were female, while 13.9% were non-white. 8% and 7.4% of new hires had a declared disability or are a veteran, respectively.

Current Employee Retirement Risk
Number and percentage of MnDOT employees who are eligible for retirement in a given year.

The number of retirement eligible employees is growing steadily year over year.

58

Maturing ERM and Performance Management

Next steps in progress

- Revising and updating the enterprise risk register categories

- Updating MnDOT's risk summaries

- Updating the ERM Steering Committee's scope to better reflect current needs

- Expanding MnDOT's newly relaunched performance dashboard website

Thank You!

Jake Granholm

jacob.granholm@state.mn.us

Panel Q&A

Jean Wallace

Minnesota DOT

Save the Dates!

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TPM Webinar #22 - May 15, 2024
TPM Webinar #23 - July 17, 2024
TPM Webinar #24 - September 25, 2024
TPM Webinar #25 - November 20, 2024

Let us know topics of interest!

Webinars Typically Begin at 2:00 PM Eastern Time

For more information or to register:
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