Transportation Performance Management Webinar Series

Webinar 2

TPM and Target Setting Overview

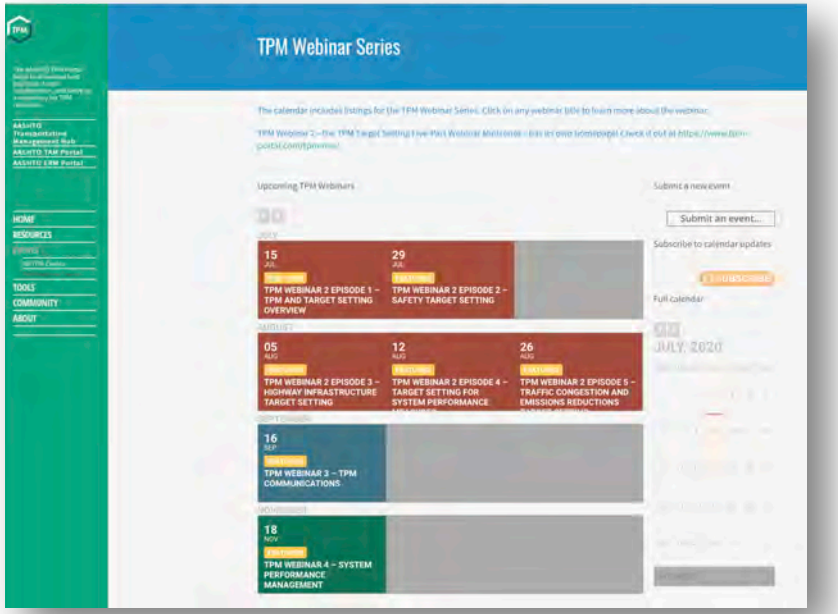
Sponsored by the TPM Pooled Fund
with Support from AASHTO CPBM Leadership and FHWA

TPM Webinar 2 – July 15, 2020

TPM Target Setting Miniseries Webinar 1

Transportation Performance Management Webinar Series

- This is the 2nd in the TPM webinar series
- Our regular webinar series is held every two months, on topics such as communications, system performance management, data sources, and many more to come!
- Today is Episode 1 of a special, five-part Target Setting Webinar Miniseries that will run through August
- We welcome ideas for future webinar topics and presentations
- Use the webinar Q&A panel during the webinar
  - Submit questions for today's presenters
  - Submit ideas for future webinar topics



Welcome

The TPM Pooled Fund, the AASHTO Committee on Performance Based Management, and FHWA are pleased to sponsor this webinar series!

- Sharing knowledge is a critical component of advancing performance management practice

Webinar Agenda

2:00 **Welcome and Introduction and TPM Pooled Fund Overview**
Christos Xenophontos (Rhode Island DOT), Matt Hardy (AASHTO), and Hyun-A Park (Spy Pond Partners, LLC)

2:10 **FHWA Target Setting Overview**
Nelson Hoffman (FHWA)

2:20 **Performance Based Planning: Looking Back for the Future of Capital Investment**
Bryan Pounds (Massachusetts DOT)

2:35 **Metropolitan Council Coordination and Collaboration with MnDOT on Target Setting: Best Practices and Lessons Learned**
David Burns (Metropolitan Council, St. Paul, Minnesota)

2:50 **Iowa's Risk-Based Target Setting Approach**
Matt Haubrich (Iowa DOT)

3:05 **What We Didn't Know Then: TPM and Target Setting Overview**
Tammy Haas (New Mexico DOT)

3:20 **Q&A and Wrap Up**

We've Completed the First Step in the TPM Journey:

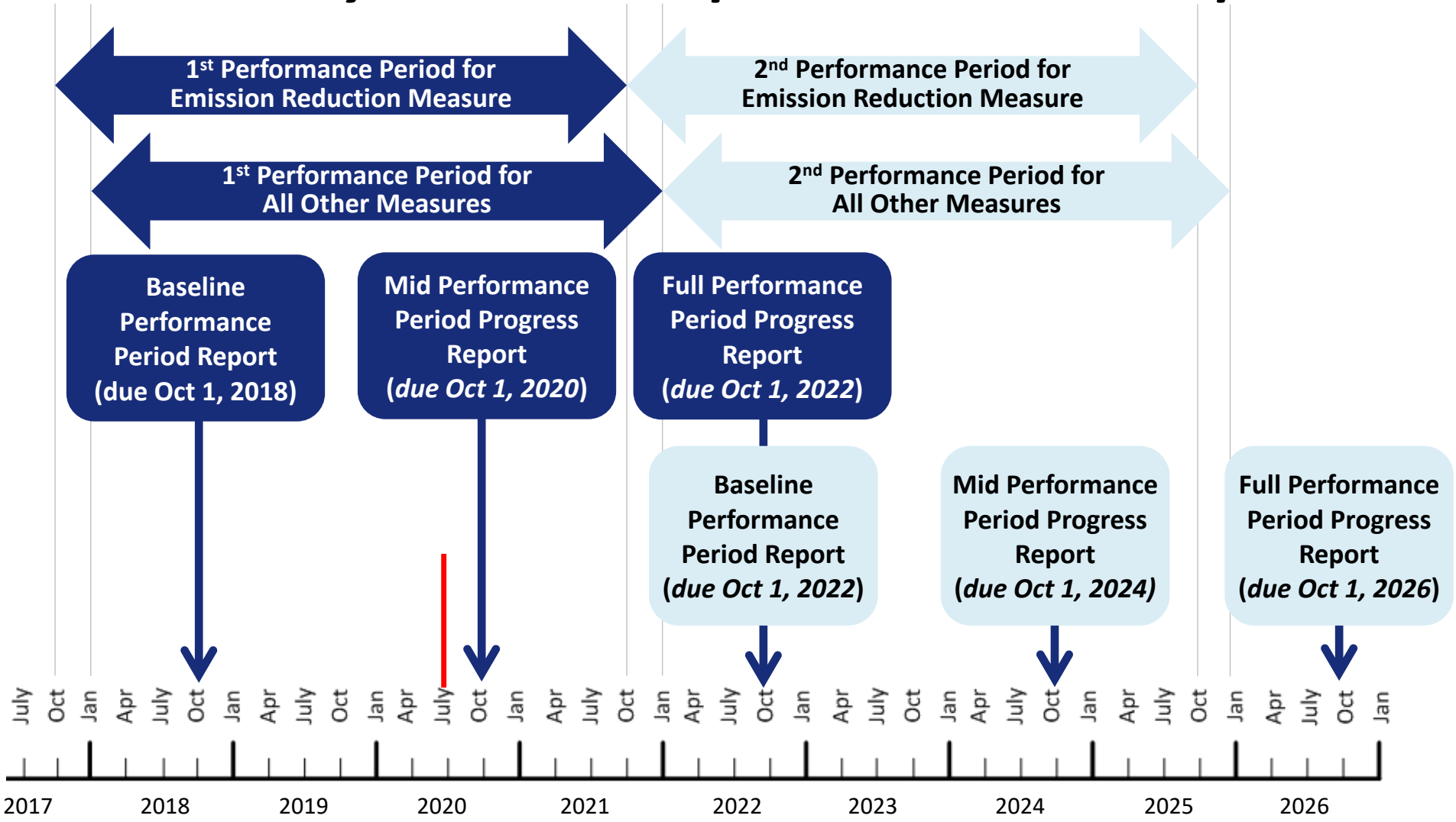
A Consistent, Data-informed Approach to Managing the Nation's Highways

FHWA/AASHTO Transportation Performance Management Target Setting Webinar Miniseries #1

July 15, 2020

U.S. Department of Transportation
Federal Highway Administration

On the TPM Journey: We've Completed the First Step!

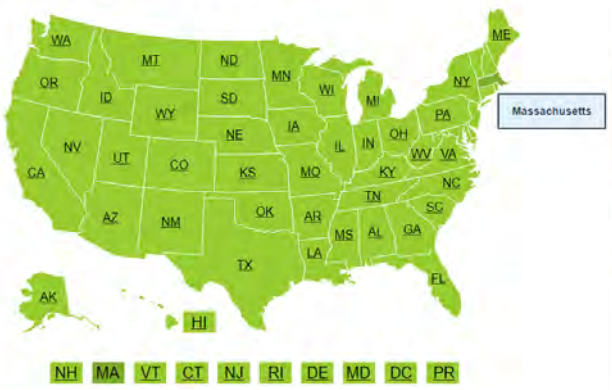


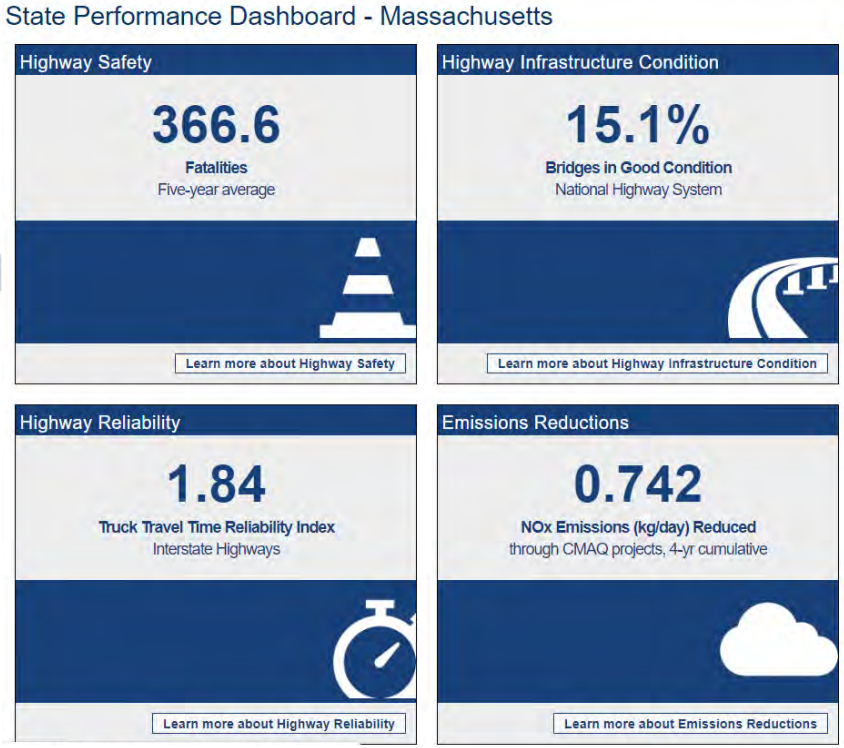
TPM: Complete, Accountable, Consistent

- **Complete.** All 52 State DOTs have reported performance data and targets for each of 17 performance measures.
  - FHWA has published the State Performance Dashboards and Reports, sharing all data and targets in one place.
- **Accountable.** State DOTs and MPOs work together to set data-informed targets. They are accountable for managing performance to make progress toward the targets they set.
  - FHWA facilitates the collaborative target-setting process, providing guidance, training, and technical assistance to State DOTs and MPOs.
- **Consistent.** Now, State DOTs can benchmark their performance among peer agencies because they have access to consistent data.
  - Now, FHWA can uniformly track performance data and tell a national story. This is a first step in a long-term effort to better manage the performance of the Nation's highways.

State Performance Reports: a Complete, Consistent Picture

All data submitted during the first reporting period now available:
https://www.fhwa.dot.gov/tpm/reporting/state/





Data: 2018 Massachusetts Biennial Performance Report

U.S. Department of Transportation
Federal Highway Administration

Accountability

- State DOTs and MPOs work together to set data-informed targets. They are accountable for managing performance to make progress toward the targets they set.
- Collaboration--among FHWA, State DOTs, MPOs, and other stakeholders--is a key to managing performance and making progress toward target achievement.

FHWA Supports Accountability Through Guidance and Training

- FHWA facilitates the collaborative target-setting process, providing guidance, training, and technical assistance to State DOTs and MPOs.
- FHWA provided critical guidance to ensure on-time submission of all required data and targets through the State Performance Reports
  - Implementation Workshops
  - Implementation Timeline
  - Implementation Resources
  - Training Courses
  - Presentations and Webinars

Next Steps --- This is Only the Beginning!

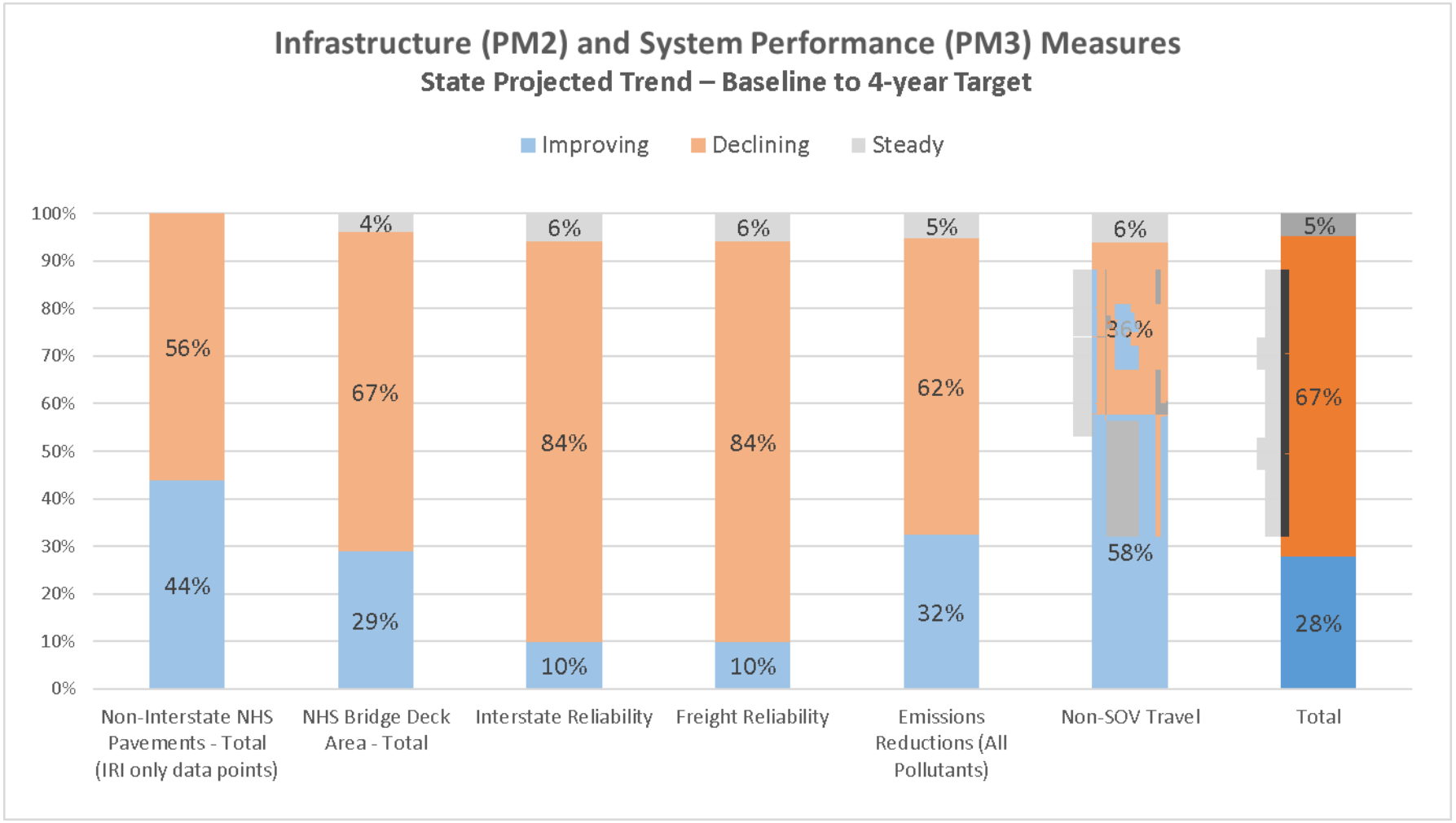
- FHWA is positioned to support States moving forward to track progress and improve upon this initial set of data
- Improvements to Performance Management Form (PMF) for submitting data (2019-2020)
- Guidance and Training (2020)
  - Emission Reduction Measure
  - Basis of Target Discussions
  - 2020 Significant Progress
- Tools to provide continuity to Division Office review (2020)
- Program Office and Division Office Coordination (ongoing)

Performance Management Data Analysis

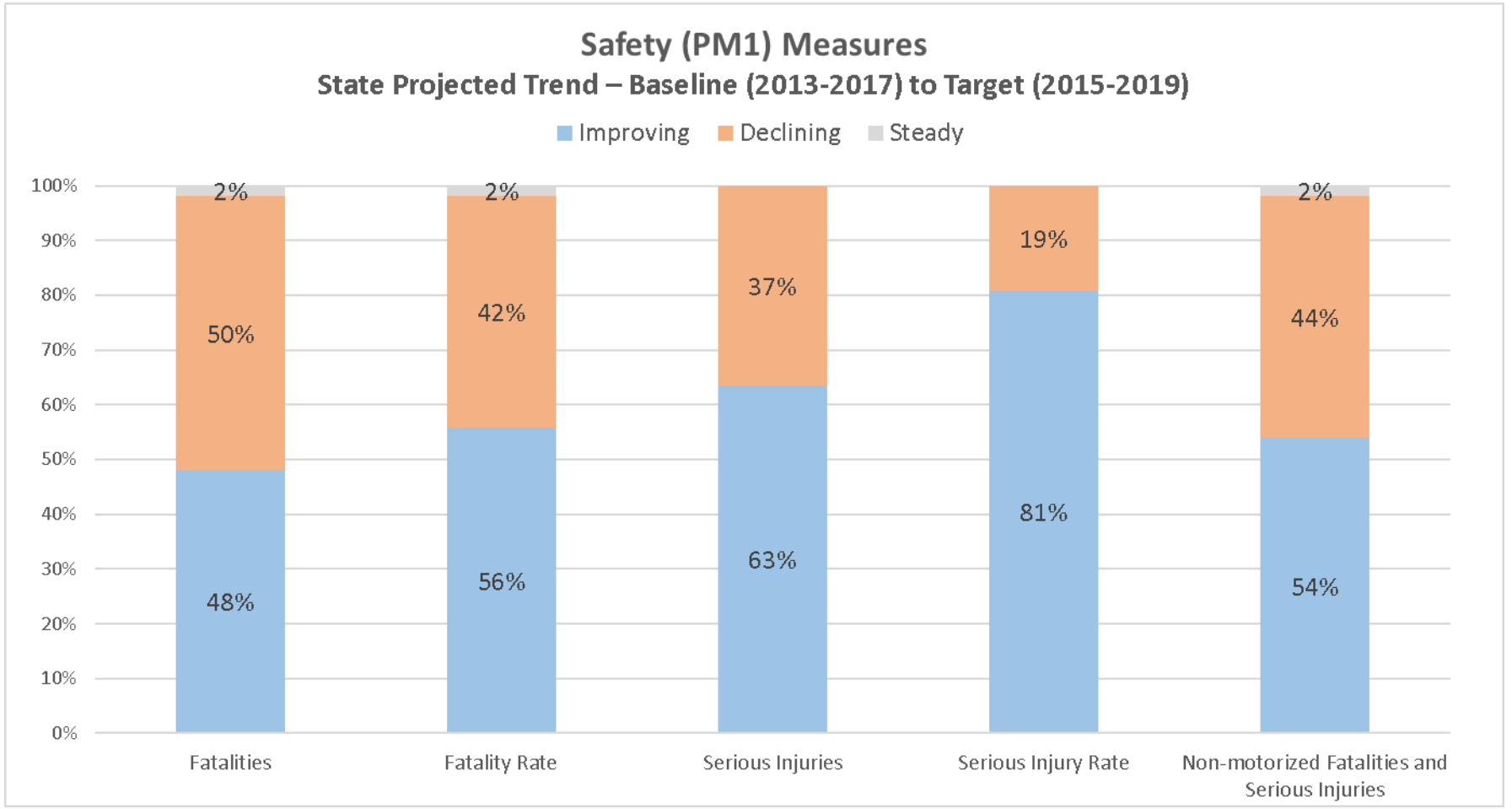
Some Examples

U.S. Department of Transportation
Federal Highway Administration

Trend Analysis: Variation Across Measures



Trend Analysis: Variation Across Measures



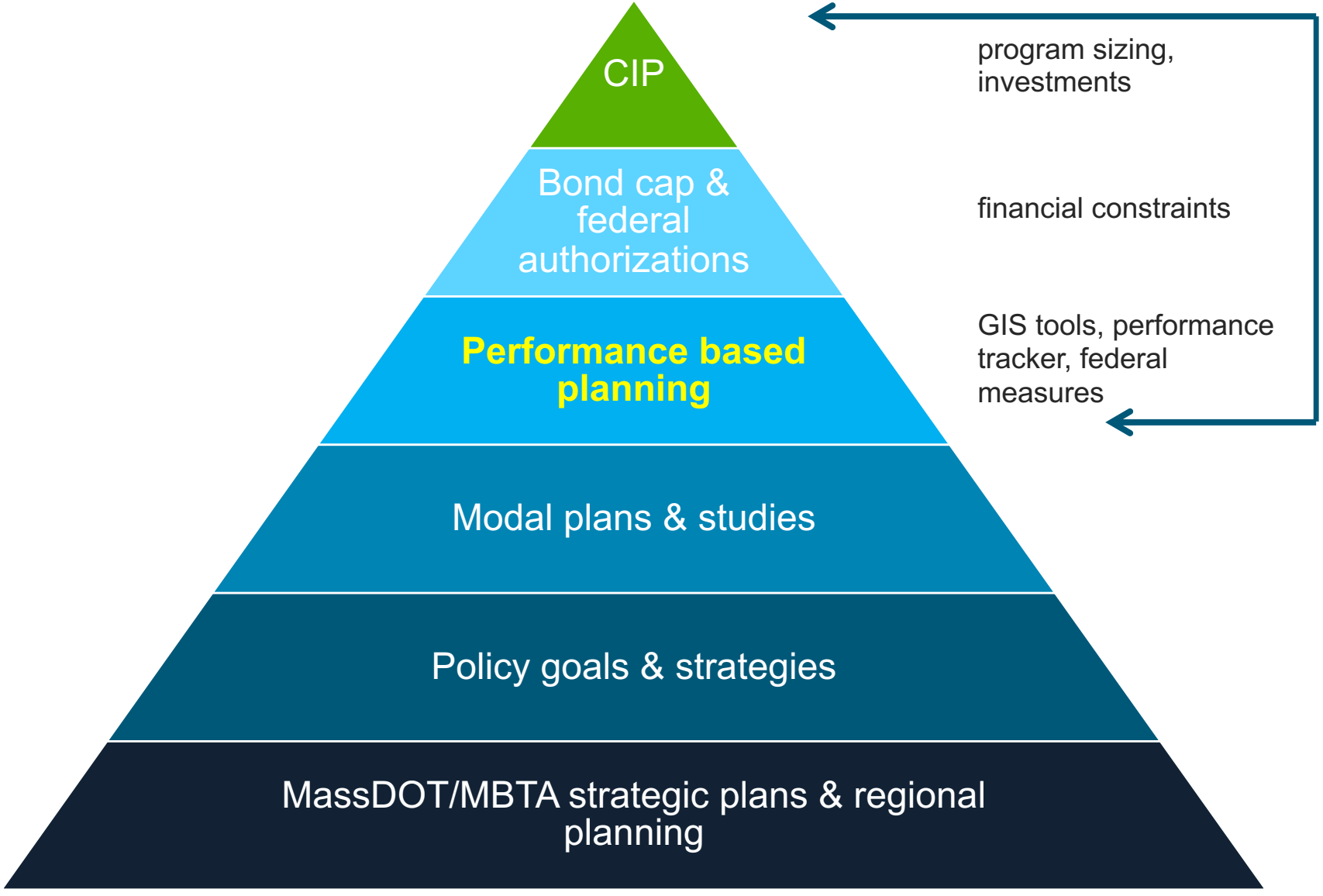
Questions?

Nelson Hoffman
Transportation Performance Management Program Manager
Federal Highway Administration
Phone (202) 578-2622
nelson.hoffman@dot.gov

massDOT's Performance based planning: Looking back for the future of capital investment

Bryan K. Pounds, Manager, MPO Activities
MassDOT Office of Transportation Planning

The *massDOT* planning pyramid



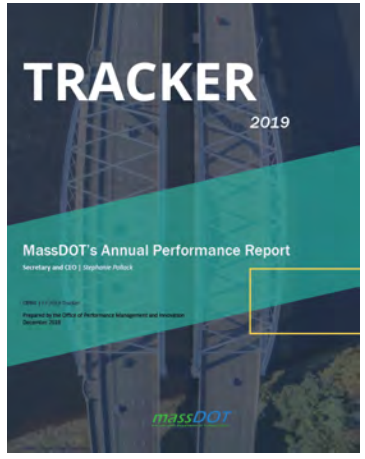
massDOT's Annual Performance Tracker

While it is legislatively required, Tracker improves accountability and transparency

Tracker illustrates progress in improving our roads, bridges, airports, railways, bikeways, and the performance of bus, subway, rail, and the Registry of Motor Vehicles

Tracker also shows us where performance is falling short, and when and where additional investments or changes in investment strategies is needed.

Tracker development is coordinated through MassDOT's Office of Performance Management and Innovation (OPMI) with CIP process to align investment and performance goals



2015:
Established baselines for performance measures

2016:
Developed 2-year, 4-year, and long-term targets

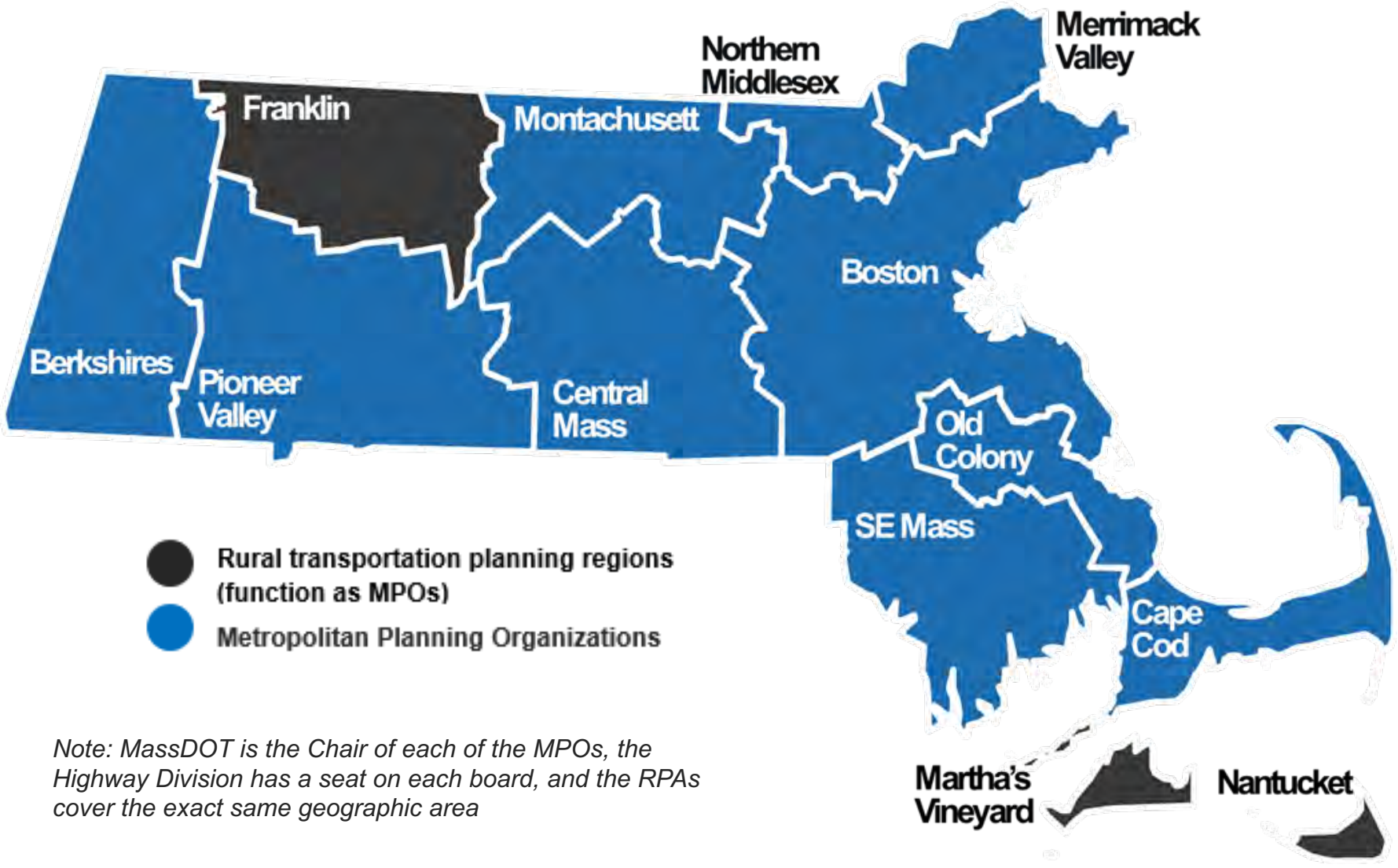
2018:
Tracker goes online;
Targets updated

2019:
Tracker online with improved website structure

2020:
Tracker revamped for 10th year of report;
Targets updated

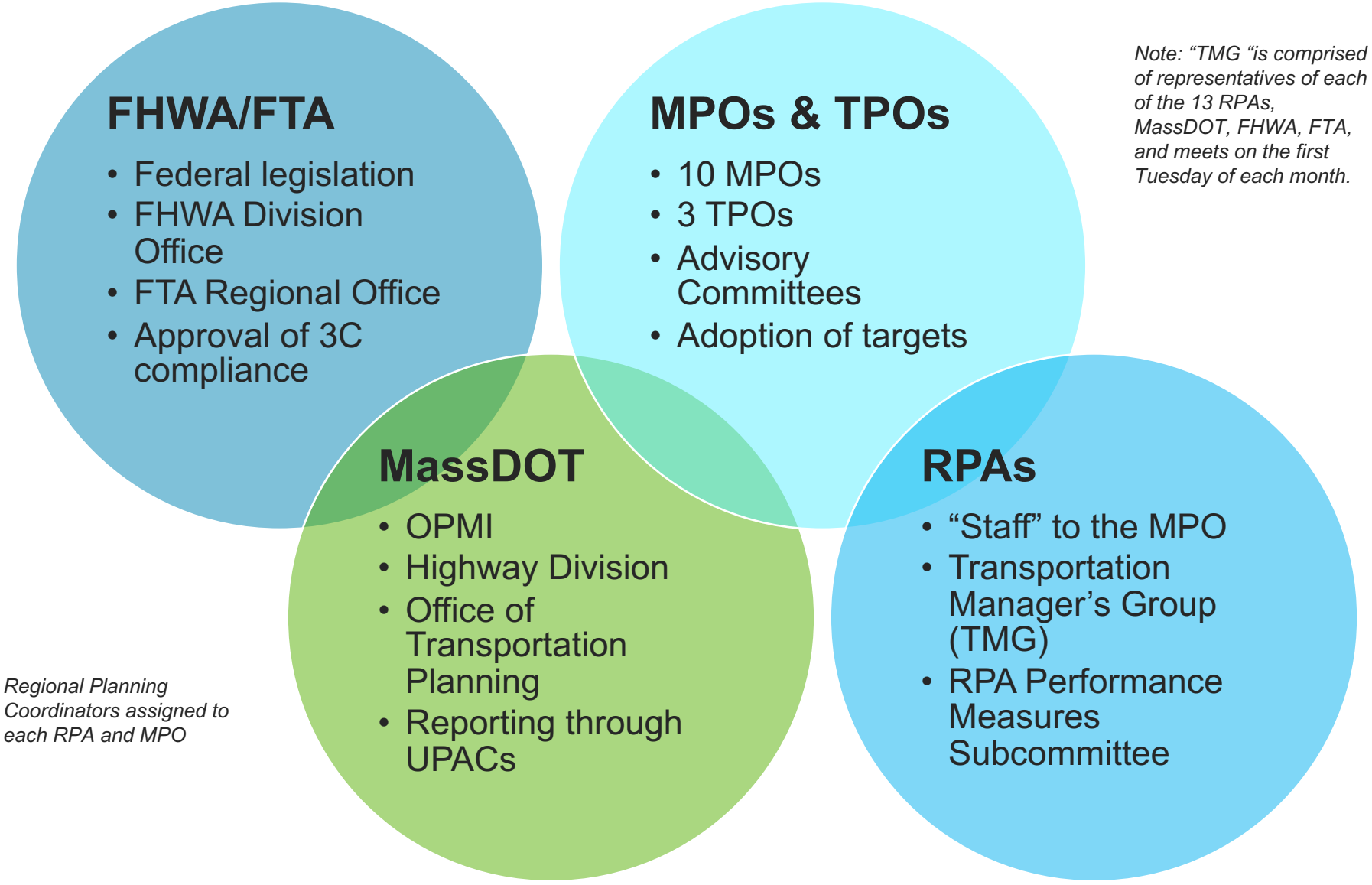
mass.gov/lists/tracker-annual-performance-management-reports

Governance in the Commonwealth



Note: MassDOT is the Chair of each of the MPOs, the Highway Division has a seat on each board, and the RPAs cover the exact same geographic area

Performance governance in the Commonwealth



Note: "TMG "is comprised of representatives of each of the 13 RPAs, MassDOT, FHWA, FTA, and meets on the first Tuesday of each month.

Regional Planning Coordinators assigned to each RPA and MPO

massDOT's FHWA Target Setting Process – PM1

March-July (CY 20)

August-December (CY 20)

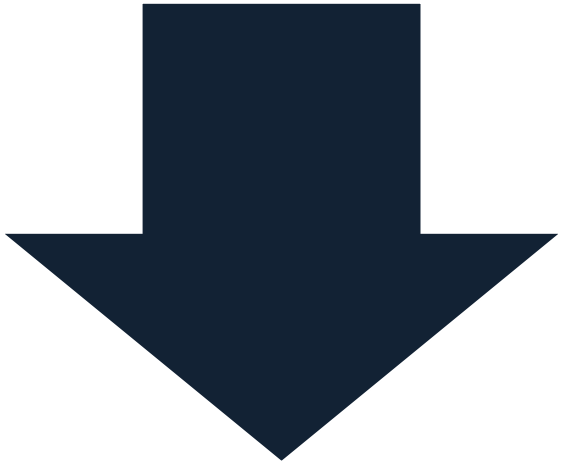
January-February (CY 21)

- MassDOT's Strategic Highway Safety Plan (SHSP)
- FARS Reporting
- Executive Office of Public Safety & Security (EOPSS)
- NHTSA

- TMG
- RPA Performance Subcommittee
- MPOs & TPOs presentation
- MassDOT Tracker

- MassDOT CIP & STIP
- MPOs & TPOs Certification Activities (Adoption)

Looking back: PM1 Target Setting



FARS data lag

Target period vs. capital investment

Governance

NHTSA partnership

The *"Conversation"*

massDOT's FHWA Target Setting Process – PM2

TAMP methodology established (2018)

- MassDOT asset management working groups establish methodology (Fall 2017-Spring 2018)
- TMG, RPA performance subcommittee consultation (Summer 2018)
- UPACs reporting/Baseline targets (October 2018)

TAMP adoption (2019)

- MPO adoption (November 2018)
- **MassDOT Tracker Update: 2, 4 year and long term targets (Fall 2018)**
- TAMP adopted; CIP, TIPs and STIP updates (Spring-Summer 2019)

Mid-Performance Report (2020)

- TMG, RPA performance subcommittee consultation (July/August 2020)
- MPO consultation (September 2020)
- UPACs reporting (October 2020)
- **MassDOT Tracker Update: 2, 4 and long term targets (Fall 2020)**
- MPO adoption; CIP, TIPs and STIP updates (Spring 2021)

Looking back: PM2 Target Setting

Translation (PSI v. IRI)

Financial uncertainties

MPO input later

“Only” the NHS

Governance

MassDOT asset mgmt./working groups

FHWA Division Office

massDOT's FHWA Target Setting Process – PM3

PM3 methodology established (2018)

- MassDOT hires a consultant for calculation of PM3 reliability (LOTTR, TTTR, PHED) targets (Fall 2017)
- PHED targets setting consultation meeting for Boston UZA (NH, MA, RI)
- TMG, RPA performance subcommittee consultation for PM3 (Summer 2018)
- UPACs reporting/Baseline targets set (October 2018)

PM3 target adoption (2019)

- MPO adoption (November 2018)
- **MassDOT Tracker Update: 2, 4 year and long term targets (Fall 2018)**
- CIP, TIPs and STIP updates (Spring-Summer 2019)

Mid-Performance Report (2020)

- TMG, RPA performance subcommittee consultation (July/August 2020)
- MPO consultation (September 2020)
- UPACs reporting (October 2020)
- **MassDOT Tracker Update: 2, 4 and long term targets (Fall 2020)**
- CIP, TIPs and STIP updates (Spring 2021)

Looking back: PM3 Target Setting

Lack of data

Defining "reliability"

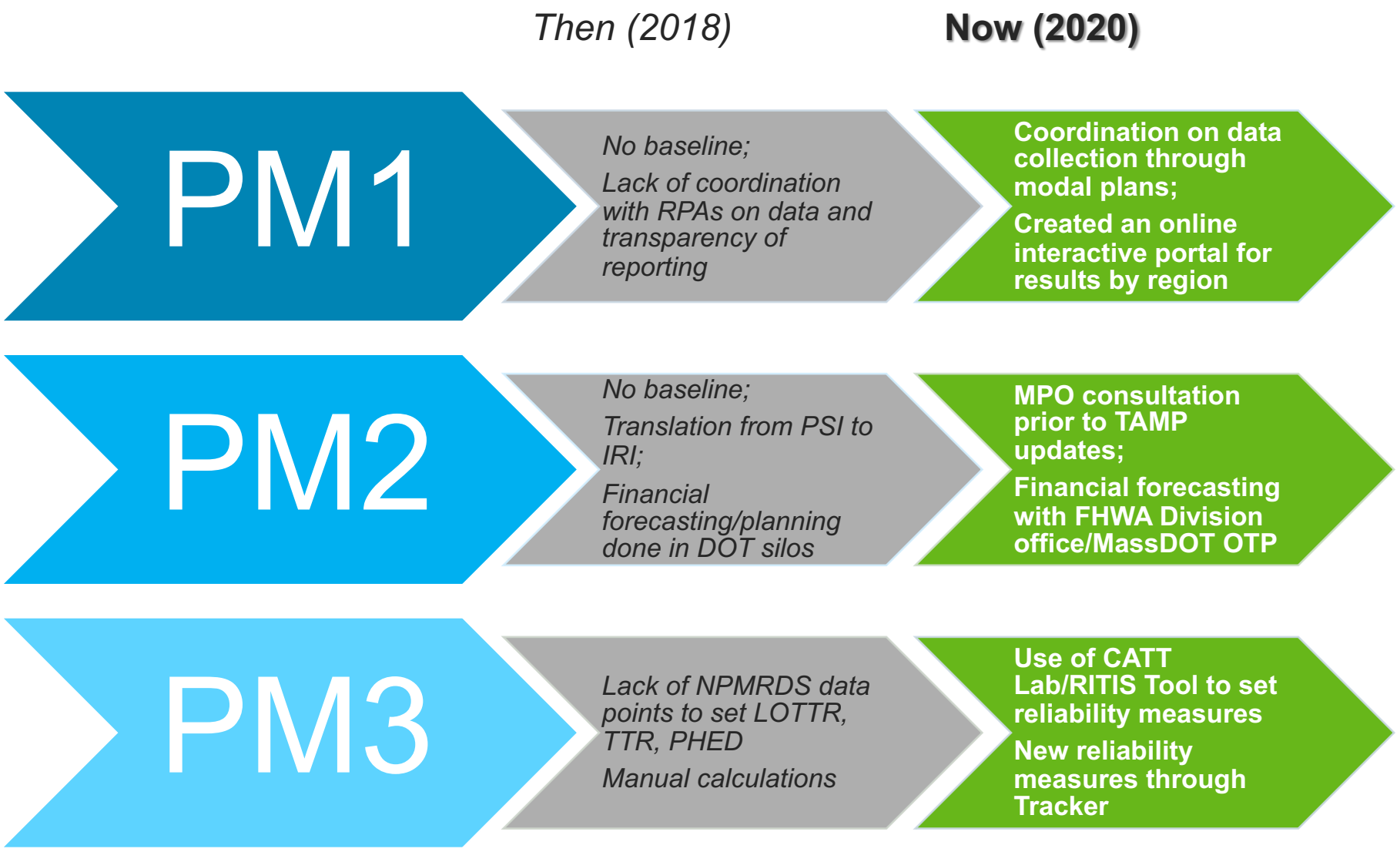
Emissions targets lack "teeth"

Governance

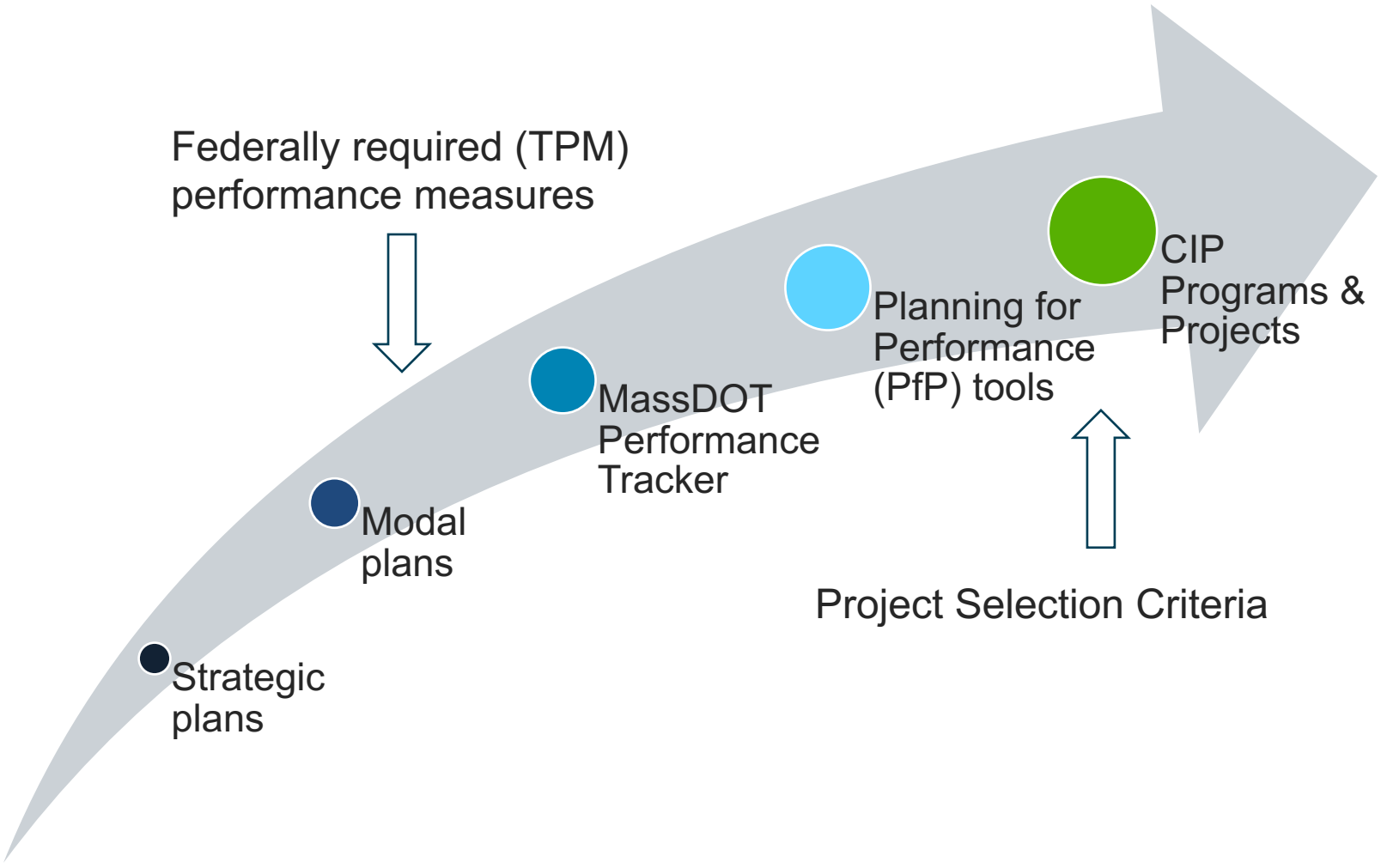
Consultant assistance

Targets broken down by MPO/TPO

Looking forward: *massDOT's* target setting



Transition to performance based planning



Thank you!

- MassDOT CIP: www.mass.gov/service-details/capital-investment-plan-cip
- MassDOT STIP: https://www.mass.gov/service-details/state-transportation-improvement-program-stip
- MassDOT Performance Tracker: mass.gov/lists/tracker-annual-performance-management-reports

bryan.pounds@state.ma.us

Metropolitan Council Coordination and Collaboration with MnDOT on Target Setting: Best Practices and Lessons Learned

FHWA TPM Target Setting Miniseries

July 15, 2020

METROPOLITAN COUNCIL

What we do

Putting Performance Measures in Context

Long-range planning for a strong region

2040 Transportation Policy Plan

- Updated in October of 2018 (will be updated again in October 2020)
- Goals:
  - Transportation System Stewardship
  - Safety and Security
  - Access to Destinations
  - Competitive Economy
  - Healthy and Equitable Communities
  - Leveraging Transportation Investments to Guide Land Use
- Includes both regional and federal performance measures and targets

METROPOLITAN COUNCIL

TPP: Performance Outcomes

- Performance measures report upon current system performance
- Where applicable, outcomes modeled based on three scenarios:
  - Current revenue scenario
  - Increased revenue scenario
  - "No build" scenario

Table 13-4: Access to Destinations Performance Measures

Performance Measure	Description		Existing Performance	2040 No Build	2040 Current Revenue Scenario	2040 Increased Revenue Scenario
Access to Jobs	Number of jobs accessible within 30 minutes and percent increase compared to "2040 No Build"	Driving	1,038,957	1,229,954	1,261,075	1,283,115
		Percent Increase	N/A	N/A	2.5%	4.2%
		Transit	24,574	29,121	31,950	32,733
		Percent Increase	N/A	N/A	9.7%	12.4%
MnPASS Usage	Average daily number of people in MnPASS lanes		93,000	99,000	288,000	614,000

Table 13-1 – Federal Performance Measures and Adopted Targets

PM1

Final rule	Measures	Adopted targets – 2020
Safety Performance Measures	1. Number of fatalities	Number of fatalities: 106
	2. Rate of fatalities (per 100 million VMT)	Fatality rate: 0.34 per 100 million VMT
	3. Number of serious injuries	Number of serious injuries: 738
	4. Rate of serious injuries (per 100 million VMT)	Serious injury rate: 2.36 per 100 million VMT
	5. Number of non-motorized fatalities and serious injuries	Non-motorized fatalities/serious injuries: 181 total

Annual reporting and target setting

PM2

Final rule	Measures	Adopted targets 2020	Adopted targets 2022
Bridge / Pavement Performance Measures	1. % NHS bridges by deck area in good condition	>50%	>50%
	2. % NHS bridges by deck area in poor condition	<4%	<4%
	3. % of interstate pavement in good condition	No target	>55%
	4. % of interstate pavement in poor condition	No target	<2%
	5. % of non-interstate NHS pavement in good condition	>50%	>50%
	6. % of non-interstate NHS pavement in poor condition	<4%	<4%

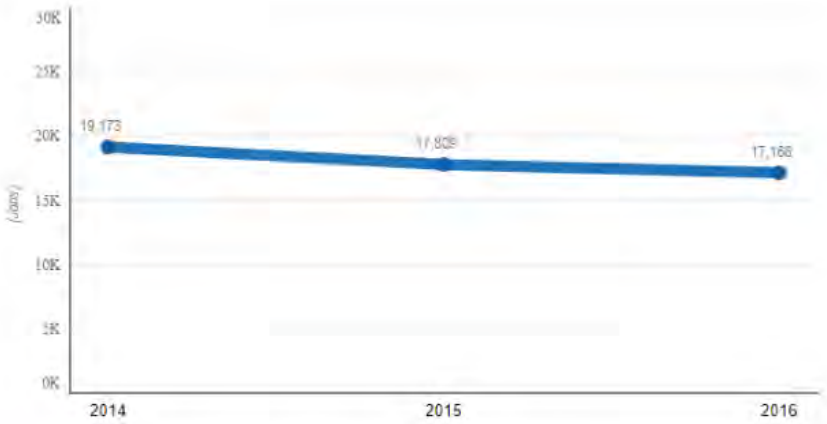
2- and 4- year targets

STEWARDSHIP

Select a Stewardship indicator

- (•) Average number of jobs reachable by 30-minutes transit
- ( ) Share of highway miles rated as "poor" (or worse) condition
- ( ) Share of lakes that are "impaired"
- ( ) Share of stream and river reaches that are "impaired"
- ( ) Vehicle Miles Traveled per capita (daily)
- ( ) Share of wastewater capital expenditures spent on infrastructure preservation and rehabilitation

Average number of jobs reachable by 30-minutes transit



STEWARDSHIP is responsible and strategic use of the region's resources.

Stewardship advances the Metropolitan Council's longstanding mission of orderly and economical development by:

+ responsibly managing our region's finite resources, including natural resources, financial resources, and our existing infrastructure investments

+ moving from expanding toward maintaining our region's wastewater and highway infrastructure

+ leveraging transit investments with higher expectations of land use

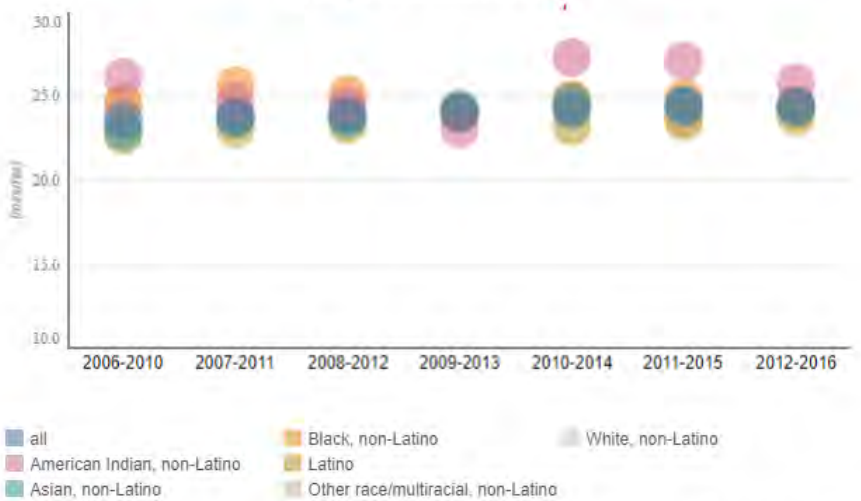
Learn more about Stewardship strategies in ***Thrive MSP 2040***, available at https://metrocouncil.org.

EQUITY

Select an Equity indicator

- ( ) Affordable housing as a share of new residential construction
- (•) Average travel time to work
- ( ) Share of households experiencing housing cost burden
- ( ) Share of new hires at the Metropolitan Council filled by people of color
- ( ) Share of new housing built in Areas of Concentrated Poverty
- ( ) Share of the population in poverty living in Areas of Concentrated Poverty
- ( ) Share of the region with housing options
- ( ) Share of transit stations with housing options
- ( ) Underutilized Businesses as a share of Metropolitan Council's total direct spend

Average travel time to work



Equity connects all residents to opportunity and creates viable housing, transportation, and recreation options for people of all races, ethnicities, incomes and abilities so that all communities share the opportunities and challenges of growth and change. Promoting equity means:

+ using our influence and investments to build a more equitable region
+ creating real choices in where we live, how we travel, and where we recreate for all residents
+ investing in a mix of housing affordability along the region's transit corridors

Learn more about equity strategies in ***Thrive MSP 2040***, available at https://metrocouncil.org.

METROPOLITAN COUNCIL

Federal Performance Measures

- Performance measures required under federal law:
  - Safety/HSIP Performance Measures
  - Pavement and Bridge Performance Measures
  - System Performance Measures
  - Congestion Mitigation and Air Quality Performance Measures
  - Transit Asset Management Performance Measures
  - Transit Safety Performance Measures

Coordination with MnDOT

- MnDOT worked with the Council and other MPOs on establishing state-wide performance measures
- Supports objectives of Statewide Multimodal Transportation Plan
- Transparent process
- Council and MnDOT jointly set CMAQ targets for Twin Cities metro area

METROPOLITAN COUNCIL

2018/2019 Safety Performance Targets

- The Council initially used the MnDOT methodology to set targets, but adjusted to the numbers within the metro area
  - Example: 2018 MnDOT fatal target based on 3% annualized reduction from 2015 base-year data; serious injury target based upon 5% annualized reduction from 2015 base year
- Problem: safety performance differs greatly in Twin Cities metro are than "Greater Minnesota"
  - Fatal/serious injury rates significantly lower than state-wide
  - Bike/ped safety measures higher in metro area
  - Applying the MnDOT methodology resulted in targets that were higher in 2019 than 2018 – **wrong message**

2020 and Future Safety Performance Targets

- Council and stakeholders agree that a different approach is needed to develop safety targets for the Twin Cities metro area
- 2020: re-use the 2019 targets
- Establish a Safety Advisory Committee, who will be tasked with helping set 2021 and future targets

Conclusion

- Federal performance measures build upon established PBPP approach and assist in ensuring we are on track to meet our established regional vision
- MnDOT has been an invaluable partner in the target-setting process, providing key data and facilitating coordination
- MnDOT understands that planning partners are essential in achieving the statewide vision
- Safety target setting process proved problematic, but will be corrected in future

METROPOLITAN COUNCIL

David Burns
Senior Highway Planner
651-602-1887/850-459-7474
David.Burns@metc.state.mn.us

TAM

TRANSPORTATION

ASSET MANAGEMENT

Acknowledging Uncertainty
Iowa DOT's TPM Target Setting Process

July 15, 2020

IOWA DOT

TPM Performance Measures & Targets

Not new – we've nominally had performance-based budgeting for years

- Q: What was missing?
- A: A transparent evaluation of likelihood and consequence

Setting the Stage

- Most of the TPM targets are relatively short-term (1, 2, or 4 years)
  - Many based on data that has already been collected or programming decisions that have already been made
- Our ability to impact these short term targets, particularly for large, complex systems, is VERY limited
- In the short term, sometimes the best predictor of performance is the past

Approach

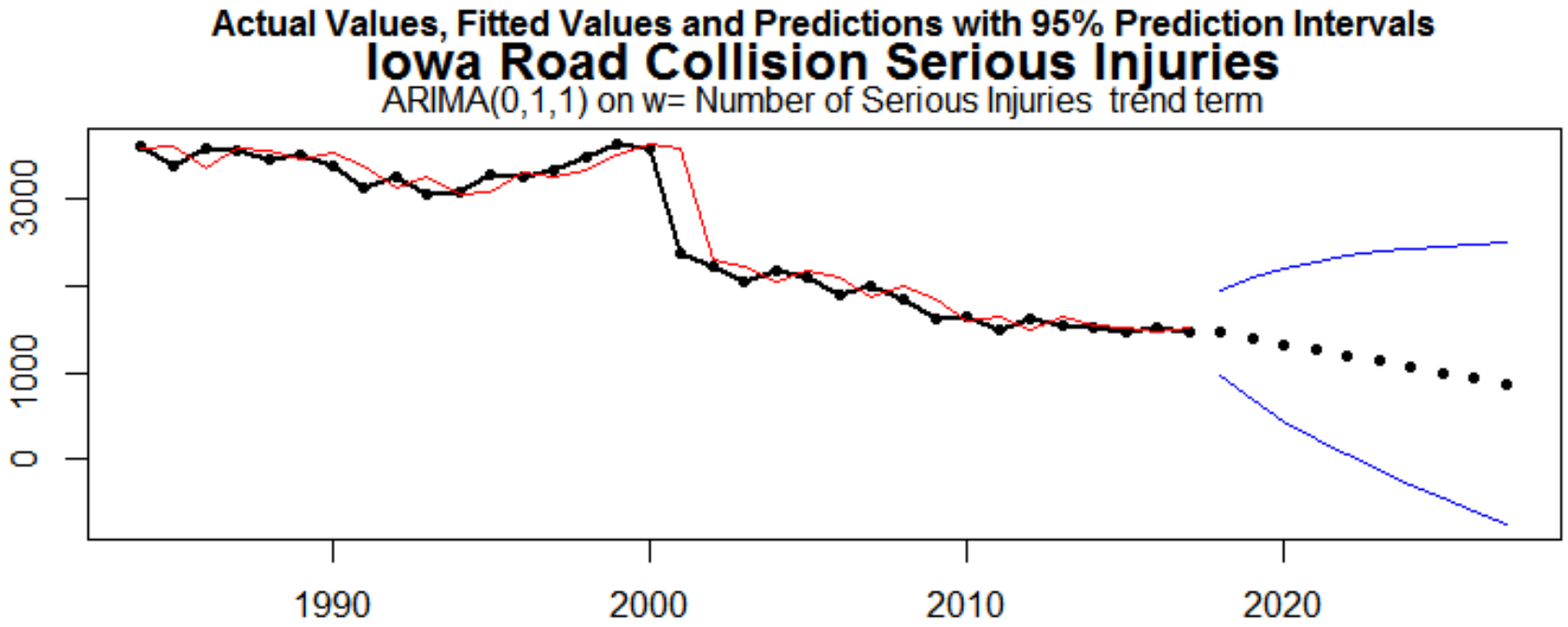
- Technical teams will generally use simple, straightforward time-series models (trend only)
  - Where applicable, confirmed by management systems analysis
- Statistical models will produce prediction intervals that account for the inherent uncertainty in the processes
  - “Cone of confidence”
- Technical teams are not set up to debate the numbers, but rather to focus on the consequences and our recommended level of confidence

Risk-Informed Target Setting Approach

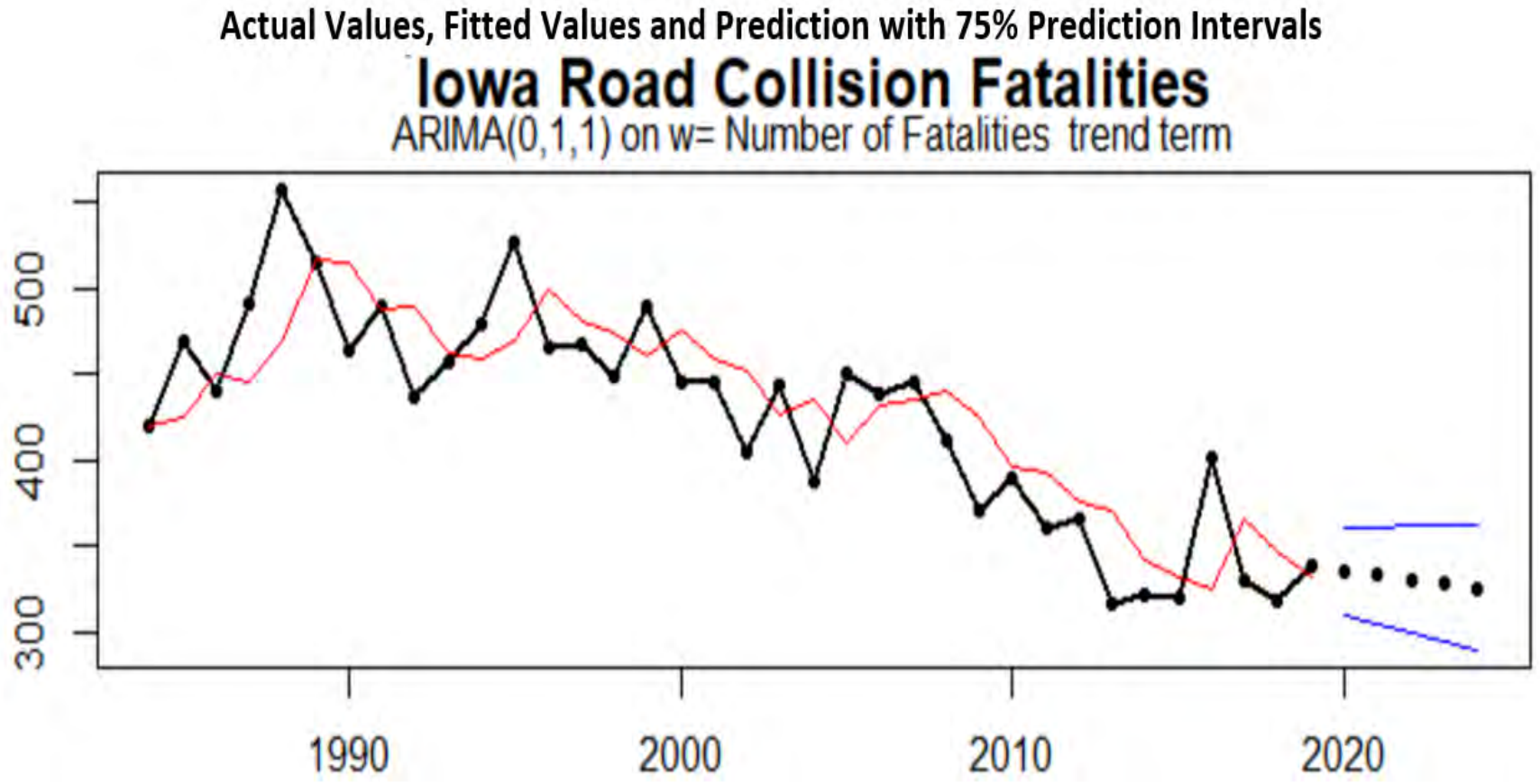
Develop prediction intervals, focus on probability of achieving targets

Method: Develop trend model based on available history				Method: Use available data to learn as much as we can about variability			
PM1 (Safety)		PM2 (Bridge)		PM2 (Pavement)		PM3 (System Performance & Freight)	
Data from 1987 - 2017	Recommend 75% Confidence	Data from 2004 – 2016	Recommend 75% Confidence	Data from 2014 – 2017	Recommend 75% Confidence	Data from 2017	Recommend 75% Confidence

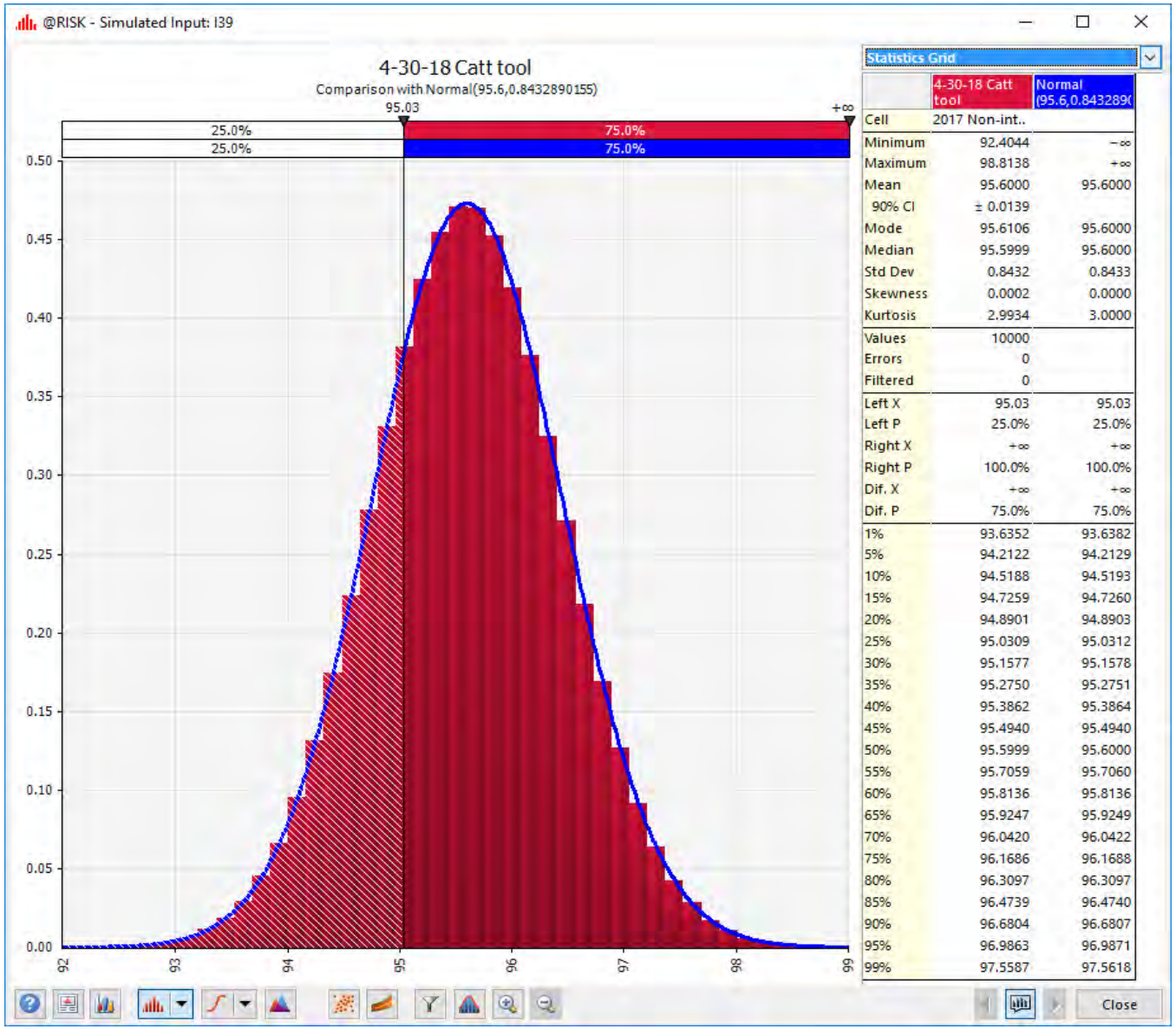
Example of trend model and prediction interval:



Example of trend model and prediction interval:



Example of variability model:



Consequences

- Level of confidence should consider the consequences
- What are the consequences if we should fail to achieve a target?

Rule and target-setting cycle	Frequency of review	Significant progress determination	Funding and reporting penalties for not making significant progress
PM 1 **Safety** • 5 performance measures • Set annually as 5-year rolling average targets	Annually beginning in December 2019	4 out of 5 measures meet targets or perform better than the baseline	• Use obligation authority equal to prior year's HSIP apportionment for only highway safety improvement projects • Submit HSIP Implementation Plan describing actions State DOT will take to achieve targets
PM 2 **Pavements and Bridges** • 6 performance measures • Set quadrennially as 2- and 4-year targets **PM 3** **System and freight reliability** • 3 performance measures • Set quadrennially as 2- and 4-year targets	Biennially beginning in October 2020	Each measure assessed individually; target is met or measure performs better than the baseline	• No funding penalties • Amend prior biennial report to include a description of the actions the State DOT will take to achieve the target • Includes additional reporting for freight measure

Implementation

- The first group working on safety targets gravitated toward a 75% confidence level
  - We have used that level as our “starting point” for all other measures
  - 75% confidence implies that in the long run we would expect to miss 1 out of 4 targets
- Our conversations are not about the specific number – they’re about the approach and whether or not we comfortable with the confidence level
- Not everyone likes the numbers, but I hear that they like the process

Issues

- Doesn’t rely on management systems, so isn’t as firmly linked to our TAMP and planning documents as might be preferred
  - This reflects the time intervals (short-term vs. long-term)
- Requires some modeling know-how
  - Don’t be afraid of this one!
- Assumes the past predicts the (near) future
  - we might see the limitations of this assumption this year depending on COVID-19 impacts

Questions?

Matt Haubrich

Transportation Asset Management Administrator

Iowa DOT

More info:
https://iowadot.gov/systems_planning/planning/federal-performance-management-and-asset-management

What we didn’t know then…

TPM and Target Setting Overview

July 15, 2020

Tamara P. Haas, P.E.

Capital Program and Investments Director

New Mexico Department of Transportation

NMDOT

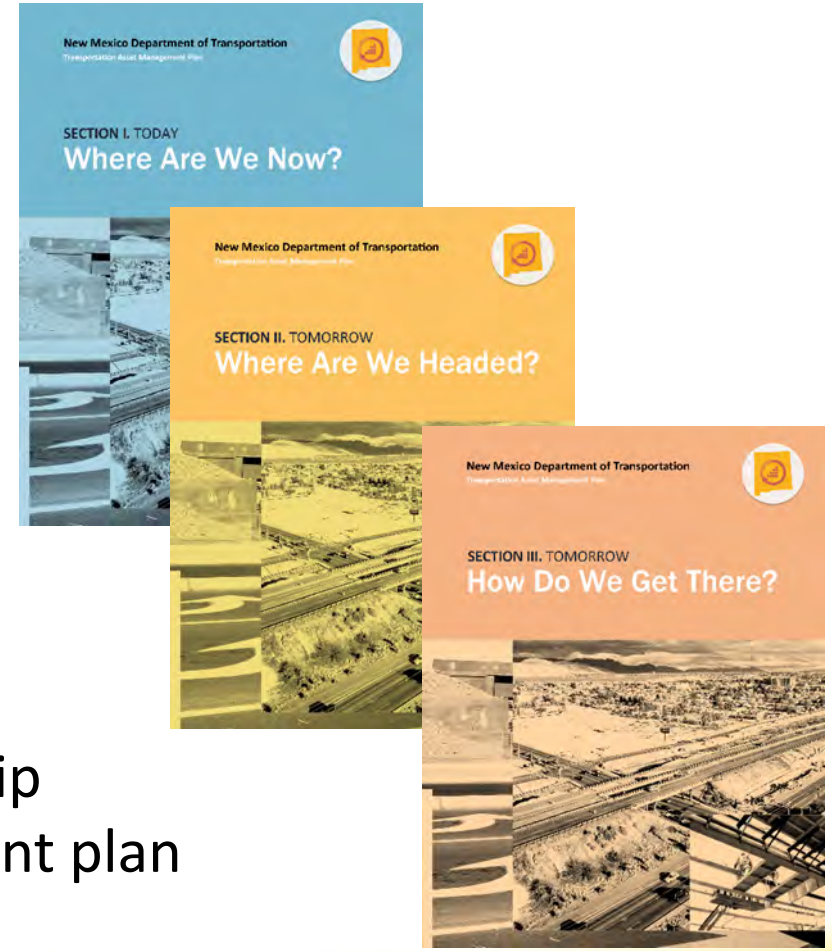
23 CFR 515.9: AMP Minimum Content

- Objectives
- **Measures and targets**
- Summary condition description
- Performance gap identification
- Life-cycle planning
- Risk management analysis
- Financial plan
- Investment strategies

NMDOT

Performance Measures Tell a Story

1. Where are we now?
   - Asset inventory & condition
   - Organization framework
   - Challenges
2. Where are we going?
   - Targets
   - Performance Scenarios
   - Investment Strategies
3. How do we get there?
   - TAM Framework & Leadership
   - Implementation/Improvement plan



NMDOT

System Summary and Condition

PAVEMENT AND BRIDGE ASSETS ON THE NHS

2019 CONDITION BY DISTRICT

NHS PAVEMENT

Condition and total NMDOT-owned lane miles by district.

- District 1: 1,886 Lane Miles
- District 4: 1,809 Lane Miles
- District 2: 3,040 Lane Miles
- District 5: 1,561 Lane Miles
- District 3: 1,024 Lane Miles
- District 6: 1,333 Lane Miles

NHS BRIDGES

Condition and total NMDOT-owned bridge deck area by district.

- District 1: 2,312 Deck Area (000s ft²)
- District 4: 1,584 Deck Area (000s ft²)
- District 2: 1,667 Deck Area (000s ft²)
- District 5: 1,592 Deck Area (000s ft²)
- District 3: 3,248 Deck Area (000s ft²)
- District 6: 1,292 Deck Area (000s ft²)

Pavement condition is measured on a scale from 1 (worst) to 100 (best). These ratings are used to establish whether a section of pavement is in good, fair or poor condition. Pavement in good condition is smooth and free from ruts and cracks.

TOTAL NHS LANE MILES

10,653

There are over 30,000 lane miles of pavement in New Mexico. Of this total, 10,653 are on the NHS.

Statewide percentage of good/fair/poor NHS pavement lane miles.

Bridge condition is measured on a scale from 0 (worst condition) to 9 (best condition). These ratings are used to establish whether a bridge is in good, fair or poor condition. A bridge in good condition is free from corrosion and rust.

TOTAL NHS BRIDGES

1,607

There are nearly 4,000 bridges in New Mexico. Of these, 1,607 are on the NHS.

Statewide percentage of good/fair/poor NHS bridges by deck area.

NMDOT

PM 2 – Where are we going?

Target Setting Challenges

- Understanding federal requirements
- Management Systems prediction capabilities
- Collaboration/training/buy-in from Districts and MPOs

NMDOT

PM 2 – Federal requirements

- Pavement Measures (IRI, % Cracking, Rutting, Faulting)
- Performance Measures is good, fair and poor based on established criteria
- More than 2 Performance Measures are Poor – Roadway Segment is Classified as poor

Good: All three ratings are Good
Poor: Two or more ratings are Poor
Fair: Does not meet Good or Poor Condition

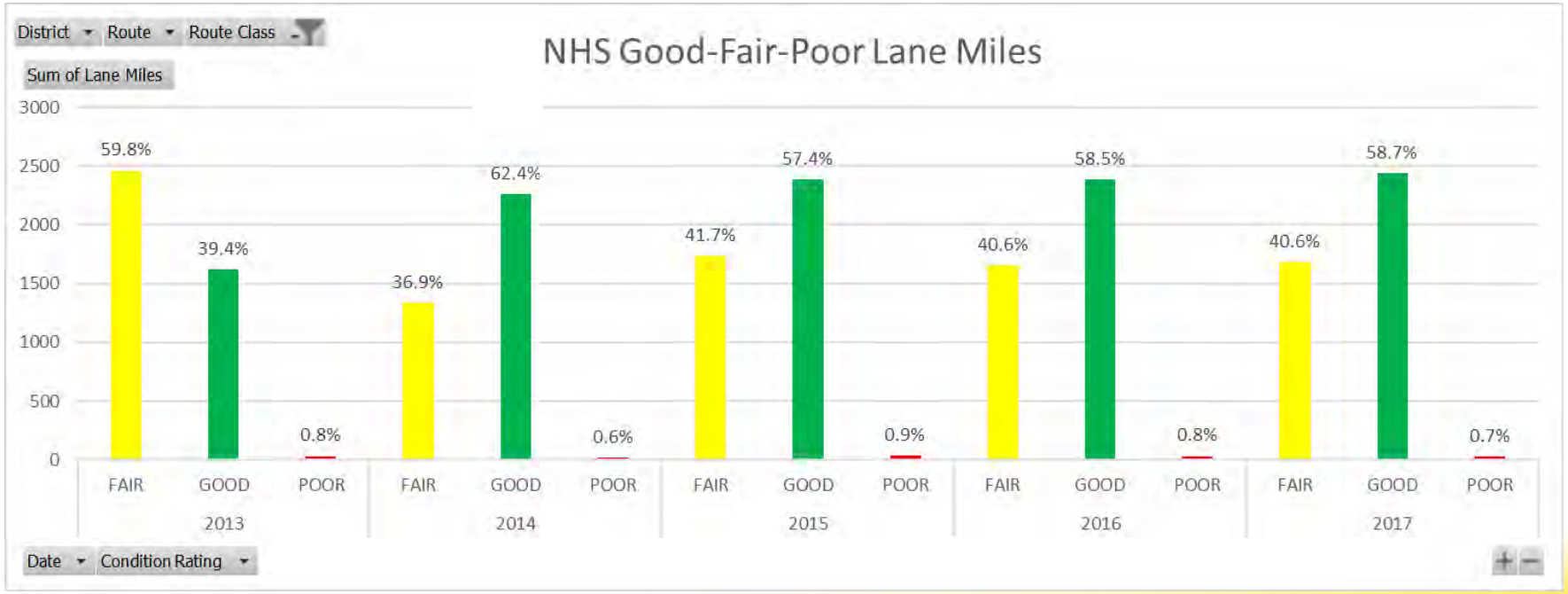
Rating	JCP			CRCP			Flexible			Flexible			Rigid			All Pavements			Rating
	Cracking (%)			Cracking (%)			Cracking (%)			Rutting (Inches)			Faulting (Inches)			IRI (in/mile)			
Good	0	<	5	0	<	5	0	<	5	0.00	<	0.20	0.00	<	0.10	0	-	95	Good
Fair	5	-	15	5	-	10	5	-	20	0.20	-	0.40	0.10	-	0.15	96	-	170	Fair
Poor	15	<		10	<		20	<		0.40	<		0.15	<		170	<		Poor

NMDOT

PM 2 – Interstate Condition (23CFR 490.315)

percentage of lane-miles of Interstate System in Poor condition…shall not exceed 5.0 %

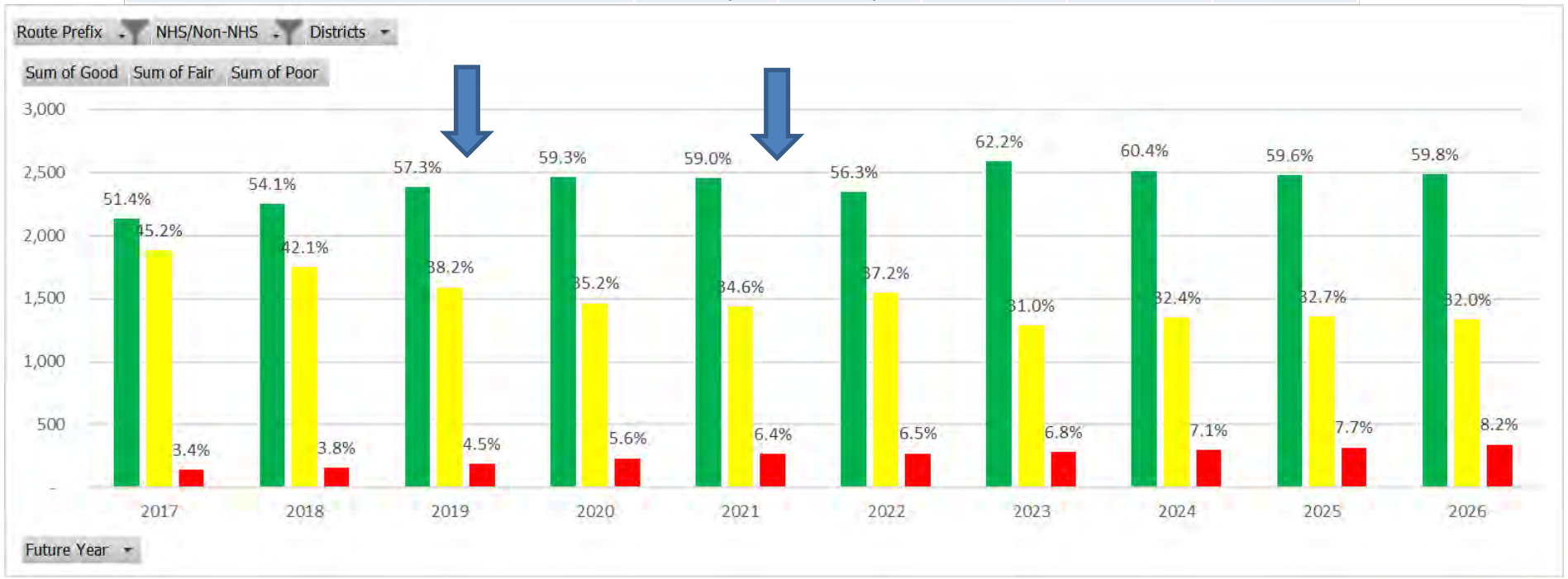
2017 Current Condition of Interstate is **<1% Poor**



NMDOT

PM 2 – Target Setting Interstate

Network	Centerline Miles	Lane Miles	Good (%)	Fair (%)	Poor (%)
Interstate	1,971	4,076	58.5%	40.6%	0.8%
Non-Interstate NHS	3,263	6,802	37.4%	59.3%	3.4%
NHS	5,233	10,877	45.3%	52.3%	2.4%

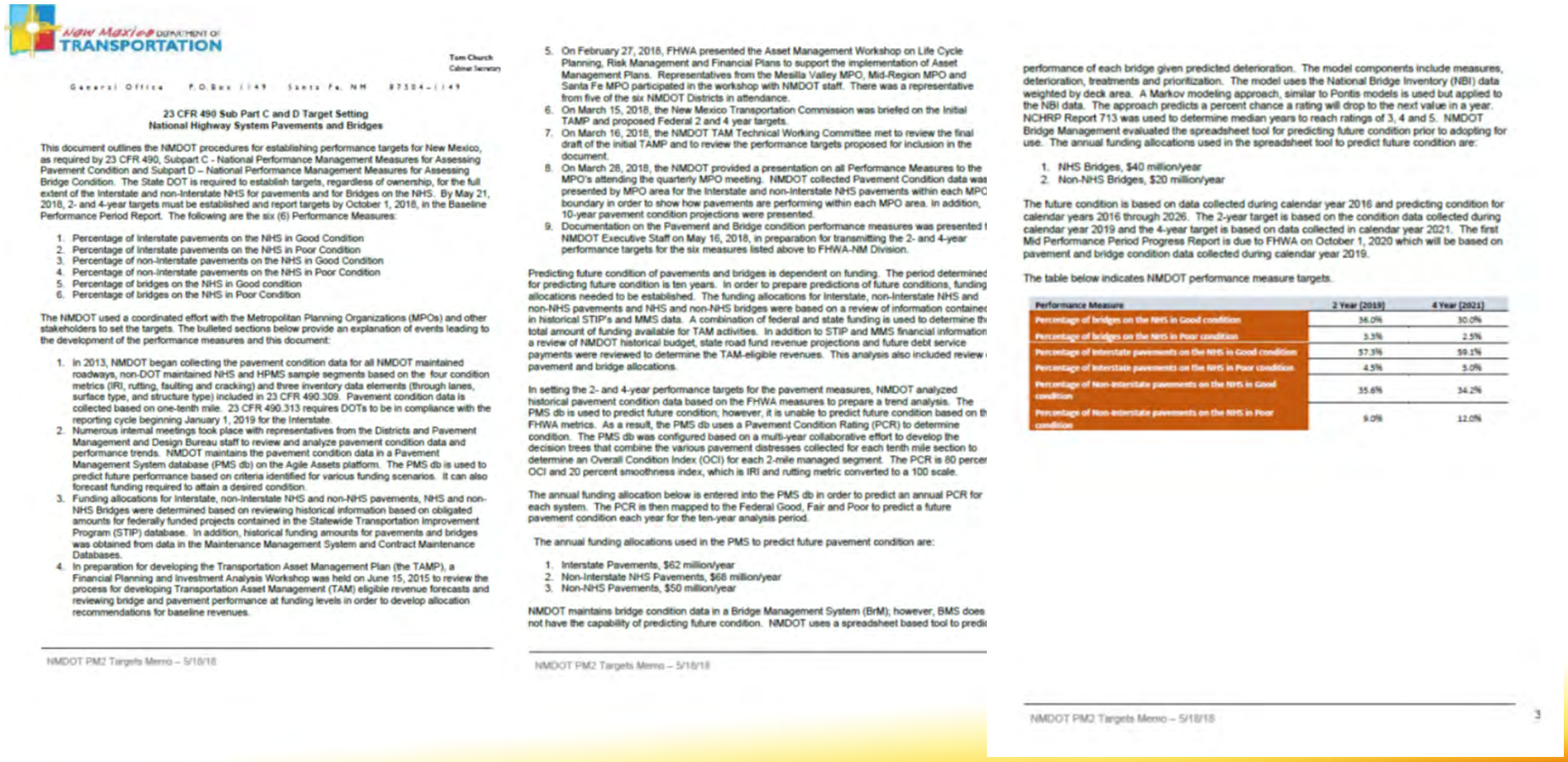


Collaboration/training/buy-in from Districts and MPOs

- Presentation for Districts
  - developed charts for Interstate and Non-Interstate NHS statewide basis
  - Developed charts for each MPO area
- Meetings with District on PM2 measures and target setting methodology (white paper)
- Meetings with each MPO on target setting for PM2

NMDOT

PM 2 White Paper



New Mexico DEPARTMENT OF TRANSPORTATION

Tom Church
Cabinet Secretary

General Office P.O. Box 1149 Santa Fe, NM 87504-1149

23 CFR 490 Sub Part C and D Target Setting
National Highway System Pavements and Bridges

This document outlines the NMDOT procedures for establishing performance targets for New Mexico, as required by 23 CFR 490, Subpart C - National Performance Management Measures for Assessing Pavement Condition and Subpart D – National Performance Management Measures for Assessing Bridge Condition. The State DOT is required to establish targets, regardless of ownership, for the full extent of the Interstate and non-Interstate NHS for pavements and for Bridges on the NHS. By May 21, 2018, 2- and 4-year targets must be established and report targets by October 1, 2018, in the Baseline Performance Period Report. The following are the six (6) Performance Measures:

1. Percentage of Interstate pavements on the NHS in Good Condition
2. Percentage of Interstate pavements on the NHS in Poor Condition
3. Percentage of non-Interstate pavements on the NHS in Good Condition
4. Percentage of non-Interstate pavements on the NHS in Poor Condition
5. Percentage of bridges on the NHS in Good condition
6. Percentage of bridges on the NHS in Poor Condition

The NMDOT used a coordinated effort with the Metropolitan Planning Organizations (MPOs) and other stakeholders to set the targets. The bulleted sections below provide an explanation of events leading to the development of the performance measures and this document:

1. In 2013, NMDOT began collecting the pavement condition data for all NMDOT maintained roadways, non-DOT maintained NHS and HPMS sample segments based on the four condition metrics (IRI, rutting, faulting and cracking) and three inventory data elements (through lanes, surface type, and structure type) included in 23 CFR 490.309. Pavement condition data is collected based on one-tenth mile. 23 CFR 490.313 requires DOTs to be in compliance with the reporting cycle beginning January 1, 2019 for the Interstate.
2. Numerous internal meetings took place with representatives from the Districts and Pavement Management and Design Bureau staff to review and analyze pavement condition data and performance trends. NMDOT maintains the pavement condition data in a Pavement Management System database (PMS db) on the Agile Assets platform. The PMS db is used to predict future performance based on criteria identified for various funding scenarios. It can also forecast funding required to attain a desired condition.
3. Funding allocations for Interstate, non-Interstate NHS and non-NHS pavements, NHS and non-NHS Bridges were determined based on reviewing historical information based on obligated amounts for federally funded projects contained in the Statewide Transportation Improvement Program (STIP) database. In addition, historical funding amounts for pavements and bridges was obtained from data in the Maintenance Management System and Contract Maintenance Databases.
4. In preparation for developing the Transportation Asset Management Plan (the TAMP), a Financial Planning and Investment Analysis Workshop was held on June 15, 2015 to review the process for developing Transportation Asset Management (TAM) eligible revenue forecasts and reviewing bridge and pavement performance at funding levels in order to develop allocation recommendations for baseline revenues.

NMDOT PM2 Targets Memo – 5/18/18

5. On February 27, 2018, FHWA presented the Asset Management Workshop on Life Cycle Planning, Risk Management and Financial Plans to support the implementation of Asset Management Plans. Representatives from the Mesilla Valley MPO, Mid-Region MPO and Santa Fe MPO participated in the workshop with NMDOT staff. There was a representative from five of the six NMDOT Districts in attendance.
6. On March 15, 2018, the New Mexico Transportation Commission was briefed on the Initial TAMP and proposed Federal 2 and 4 year targets.
7. On March 16, 2018, the NMDOT TAM Technical Working Committee met to review the final draft of the initial TAMP and to review the performance targets proposed for inclusion in the document.
8. On March 28, 2018, the NMDOT provided a presentation on all Performance Measures to the MPO's attending the quarterly MPO meeting. NMDOT collected Pavement Condition data was presented by MPO area for the Interstate and non-Interstate NHS pavements within each MPO boundary in order to show how pavements are performing within each MPO area. In addition, 10-year pavement condition projections were presented.
9. Documentation on the Pavement and Bridge condition performance measures was presented t NMDOT Executive Staff on May 16, 2018, in preparation for transmitting the 2- and 4-year performance targets for the six measures listed above to FHWA-NM Division.

Predicting future condition of pavements and bridges is dependent on funding. The period determined for predicting future condition is ten years. In order to prepare predictions of future conditions, funding allocations needed to be established. The funding allocations for Interstate, non-Interstate NHS and non-NHS pavements and NHS and non-NHS bridges were based on a review of information containe in historical STIP's and MMS data. A combination of federal and state funding is used to determine th total amount of funding available for TAM activities. In addition to STIP and MMS financial information a review of NMDOT historical budget, state road fund revenue projections and future debt service payments were reviewed to determine the TAM-eligible revenues. This analysis also included review pavement and bridge allocations.

In setting the 2- and 4-year performance targets for the pavement measures, NMDOT analyzed historical pavement condition data based on the FHWA measures to prepare a trend analysis. The PMS db is used to predict future condition; however, it is unable to predict future condition based on th FHWA metrics. As a result, the PMS db uses a Pavement Condition Rating (PCR) to determine condition. The PMS db was configured based on a multi-year collaborative effort to develop the decision trees that combine the various pavement distresses collected for each tenth mile section to determine an Overall Condition Index (OCI) for each 2-mile managed segment. The PCR is 80 percer OCI and 20 percent smoothness index, which is IRI and rutting metric converted to a 100 scale.

The annual funding allocation below is entered into the PMS db in order to predict an annual PCR for each system. The PCR is then mapped to the Federal Good, Fair and Poor to predict a future pavement condition each year for the ten-year analysis period.

The annual funding allocations used in the PMS to predict future pavement condition are:

1. Interstate Pavements, $62 million/year
2. Non-Interstate NHS Pavements, $68 million/year
3. Non-NHS Pavements, $50 million/year

NMDOT maintains bridge condition data in a Bridge Management System (BrM); however, BMS does not have the capability of predicting future condition. NMDOT uses a spreadsheet based tool to predi

NMDOT PM2 Targets Memo – 5/18/18

performance of each bridge given predicted deterioration. The model components include measures, deterioration, treatments and prioritization. The model uses the National Bridge Inventory (NBI) data weighted by deck area. A Markov modeling approach, similar to Pontis models is used but applied to the NBI data. The approach predicts a percent chance a rating will drop to the next value in a year. NCHRP Report 713 was used to determine median years to reach ratings of 3, 4 and 5. NMDOT Bridge Management evaluated the spreadsheet tool for predicting future condition prior to adopting for use. The annual funding allocations used in the spreadsheet tool to predict future condition are:

1. NHS Bridges, $40 million/year
2. Non-NHS Bridges, $20 million/year

The future condition is based on data collected during calendar year 2016 and predicting condition for calendar years 2016 through 2026. The 2-year target is based on the condition data collected during calendar year 2019 and the 4-year target is based on data collected in calendar year 2021. The first Mid Performance Period Progress Report is due to FHWA on October 1, 2020 which will be based on pavement and bridge condition data collected during calendar year 2019.

The table below indicates NMDOT performance measure targets.

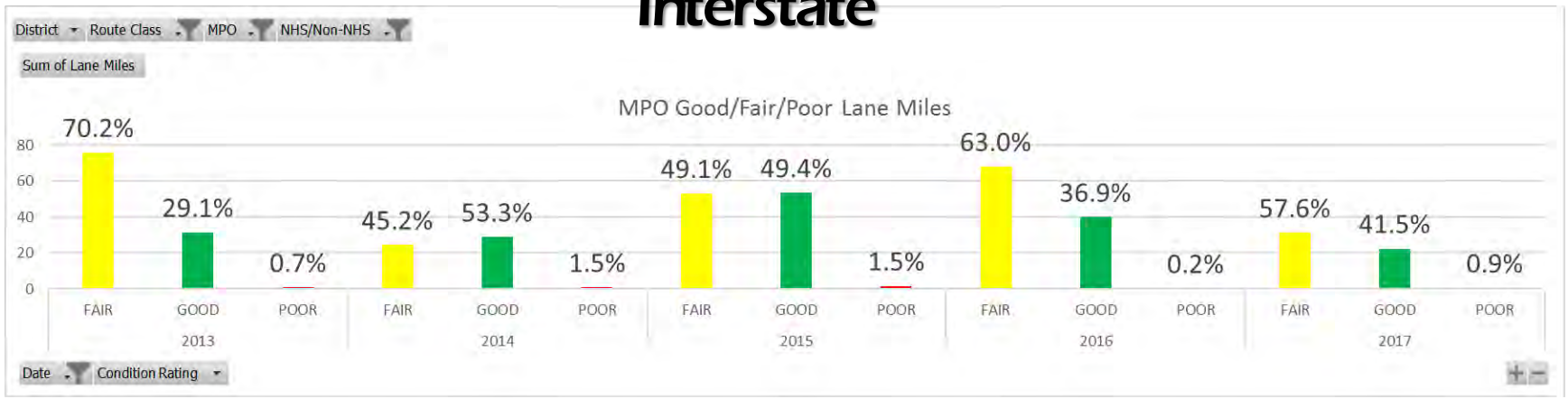
Performance Measure	2 Year (2019)	4 Year (2021)
Percentage of bridges on the NHS in Good condition	36.0%	30.0%
Percentage of bridges on the NHS in Poor condition	3.3%	2.5%
Percentage of Interstate pavements on the NHS in Good condition	57.3%	59.1%
Percentage of Interstate pavements on the NHS in Poor condition	4.5%	5.0%
Percentage of Non-Interstate pavements on the NHS in Good condition	35.6%	34.2%
Percentage of Non-Interstate pavements on the NHS in Poor condition	9.0%	12.0%

NMDOT PM2 Targets Memo – 5/18/18 3

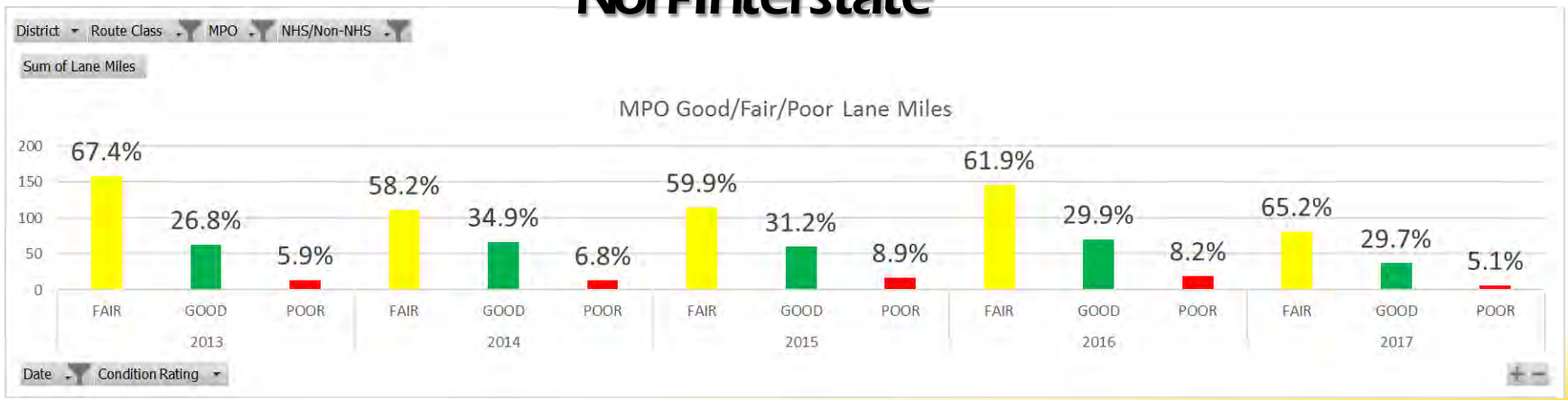
NMDOT

Santa Fe MPO NHS Historical Data

Interstate



Non-Interstate



NMDOT

Lessons Learned- How do we get there?

- The TAMP and TPM are inter-related.
- No matter how long you've been doing performance measures, it continues to be a challenge to get buy-in and get to the "what's in it for me"
- The education component will never go away
- Putting a report together is stupid unless you have a discussion about it and discuss "strategy and continuous improvement: how am I going to move the needle" and not focus on what has happened or has been done.

NMDOT

Questions?

"I wish I didn't know now what I didn't know then. I wish I could start this whole thing over again."

Toby Keith

Tamara P. Haas, P.E.
Division Director,
Capital Program & Investments
Tamarap.Haas@state.nm.us
505-795-2126

NMDOT

Questions?

Submit your questions using the Webinar's Q&A feature

Target Setting Miniseries Webinar 2: Safety Target Setting

- This webinar is a deep dive into state target setting approaches for federal requirements for safety performance measures.
- Topics will include a review of the safety report card results, and the impact of external factors and data lags on safety target setting
- When: July 29, 2020 2:00 EDT

TPM

TPM Target Setting Five-Part Webinar Miniseries

Announcing a special five-part webinar miniseries addressing topics in transportation performance management (TPM). Each session will include an FHWA-led introduction followed by expert presentations and audience Q&A. Register today or learn more on the AASHTO TPM Portal at: https://www.tpm-portal.com/tpmmini

15 July — 2PM EDT — Register

Episode 1
TPM & Target Setting Overview
This webinar reviews state target setting approaches and lessons learned leading up to the mid-performance period progress report. Topics covered will include target setting in the face of uncertainty and data gaps, coordinating and collaborating on target setting and improving forecasting approaches.
https://register.gotowebinar.com/register/7982207434423457803

29 July — 2PM EDT — Register

Episode 2
Safety Target Setting
This webinar is a deep dive into state target setting approaches for federal requirements for safety performance measures. Topics will include a review of the safety report card results, and the impact of external factors and data lags on safety target setting.
https://attendee.gotowebinar.com/register/4648260580274723088

5 August — 2PM EDT — Register

Episode 3
Highway Infrastructure Target Setting
This webinar focuses on state target setting for federal PM2 infrastructure condition measures. The webinar will cover specific target setting issues related to pavements and bridges, including data considerations, collaboration and coordination with partner agencies and aligning TPM projections and agency plan goals.
https://attendee.gotowebinar.com/register/5482954832500877328

12 August — 2PM EDT — Register

Episode 4
Target Setting for System Performance Measures
This webinar covers transportation agency target setting for federal PM3 system performance and reliability, including policy, planning and performance considerations related to target setting. Presentations will address data gaps, modeling and forecasting for system performance targets, and moving the needle on the national system.
https://attendee.gotowebinar.com/register/7708635747887794191

26 August — 2PM EDT — Register

Episode 5
Traffic Congestion & Emissions Reductions Target Setting
This webinar focus on transportation agency target setting for federal PM3 CMAQ measures. Presentations will address decision analysis methods for setting targets, making CMAQ targets meaningful to the public, and target setting and related planning and programming challenges.
https://attendee.gotowebinar.com/register/5074559930680718860

Federal Highway Administration
AASHTO

All TPM Webinars: https://www.tpm-portal.com/tpm-webinars/

Target Setting Webinar Miniseries: https://www.tpm-portal.com/tpmmini/

Save the Dates!

TPM Target Setting Webinar Miniseries

Wednesday, July 29, 2020 – 2:00 PM EST
Safety Target Setting

Wednesday, August 5, 2020 – 2:00 PM EST
Highway Infrastructure Target Setting

Wednesday, August 12, 2020 – 2:00 PM EST
Target Setting for System Performance Measures

Wednesday, August 26, 2020 – 2:00 PM EST
Traffic Congestion and Emissions Reductions Target Setting

Federal Highway Administration | AASHTO | TPM

For more information or to register:
https://www.tpm-portal.com/tpm-webinars/