

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

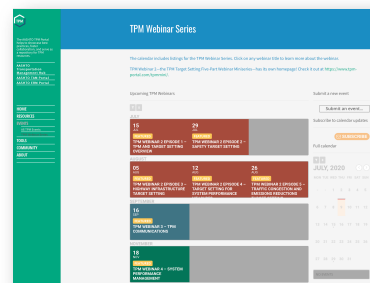


TPM Webinar 2 – July 15, 2020
TPM Target Setting Miniseries Webinar 1

0

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



1

1

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



2

2

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**

3

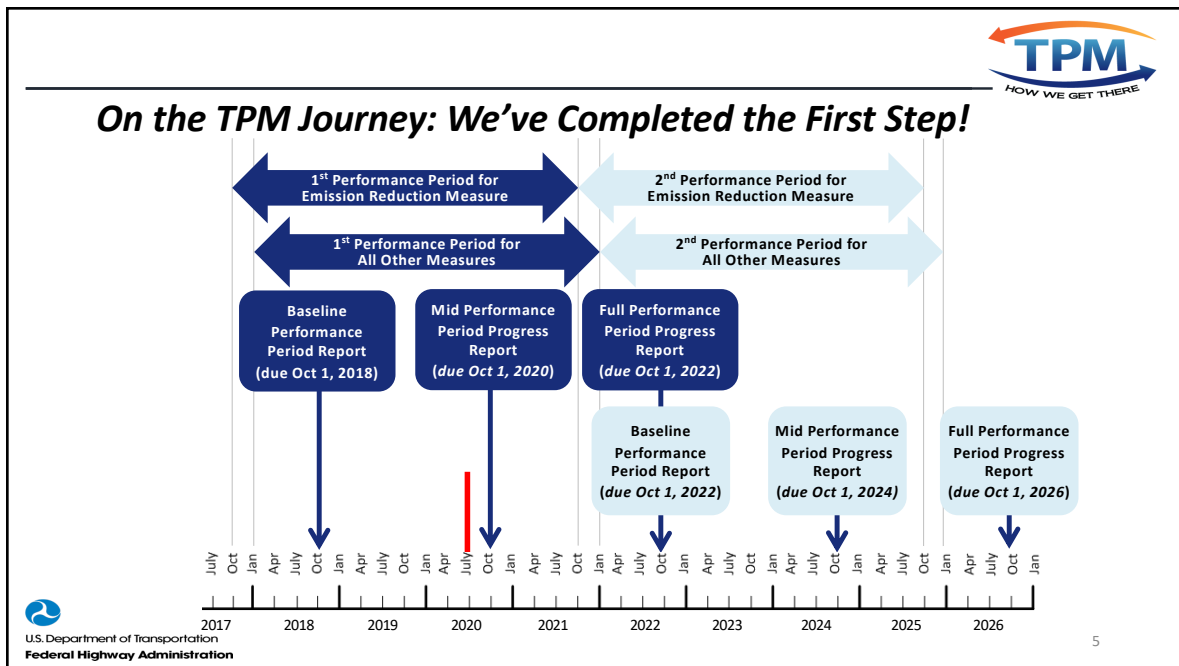
3

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



4



5



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.



U.S. Department of Transportation
Federal Highway Administration

6

6

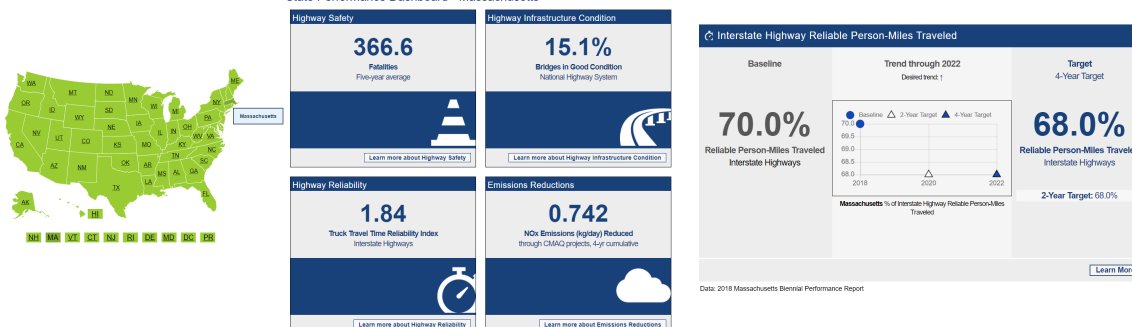


State Performance Reports: a Complete, Consistent Picture

All data submitted during the first reporting period now available:

<https://www.fhwa.dot.gov/tpm/reporting/state/>

State Performance Dashboard - Massachusetts



U.S. Department of Transportation
Federal Highway Administration

7

7



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)

10

Performance Management Data Analysis

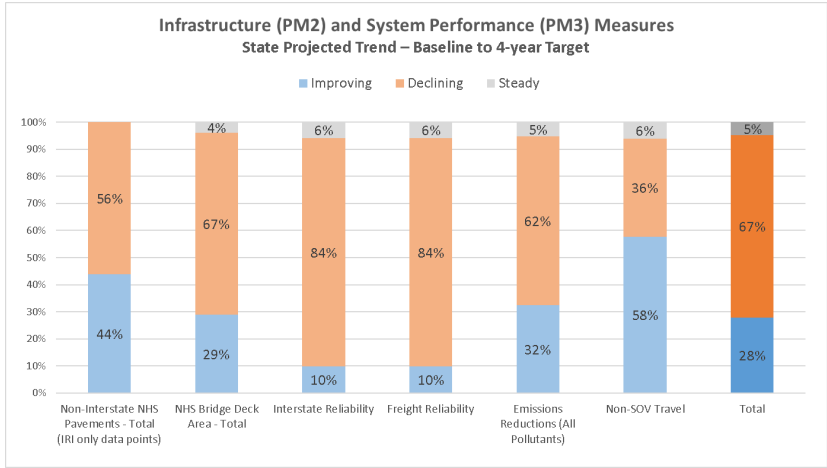
Some Examples



11



Trend Analysis: Variation Across Measures



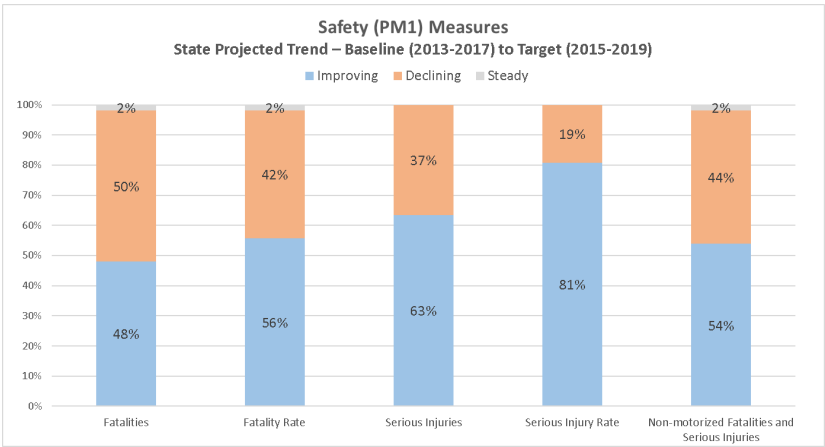
U.S. Department of Transportation
Federal Highway Administration

12

12



Trend Analysis: Variation Across Measures



U.S. Department of Transportation
Federal Highway Administration

13

13



Questions?

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



U.S. Department of Transportation
 Federal Highway Administration

14

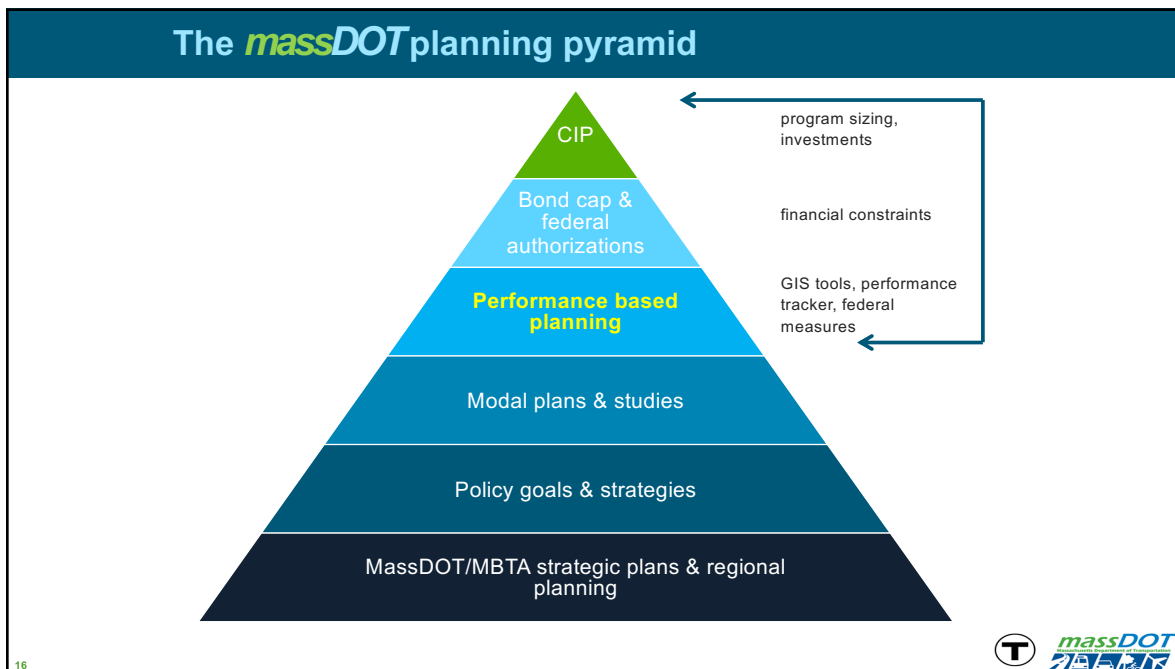
14



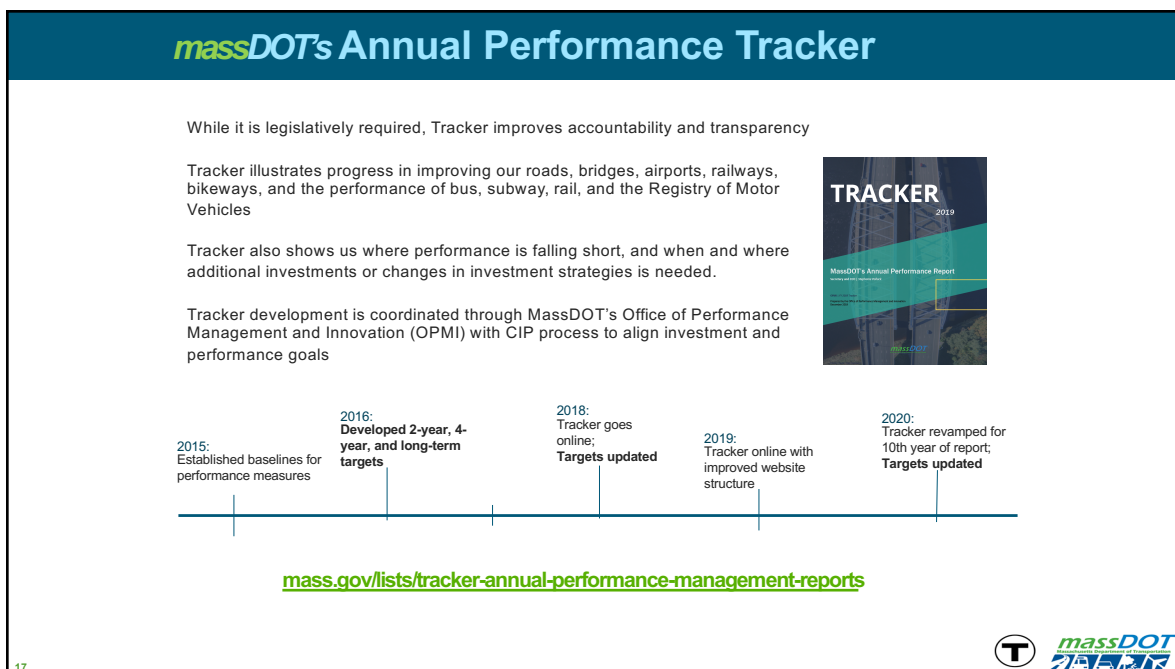
massDOT's Performance based planning: Looking back for the future of capital investment

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

15

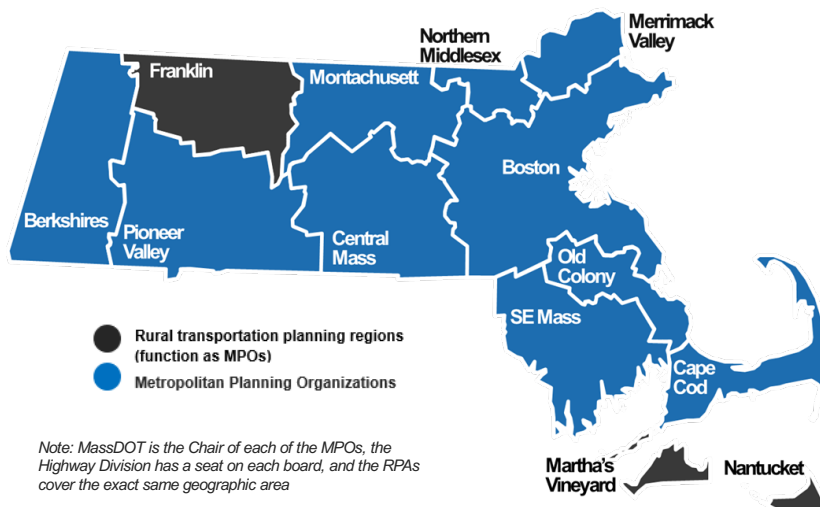


16



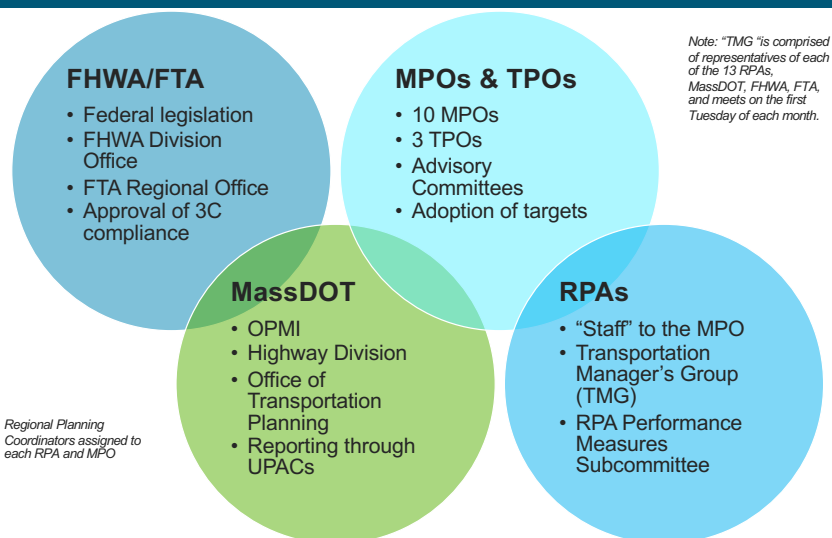
17

Governance in the Commonwealth



18

Performance governance in the Commonwealth



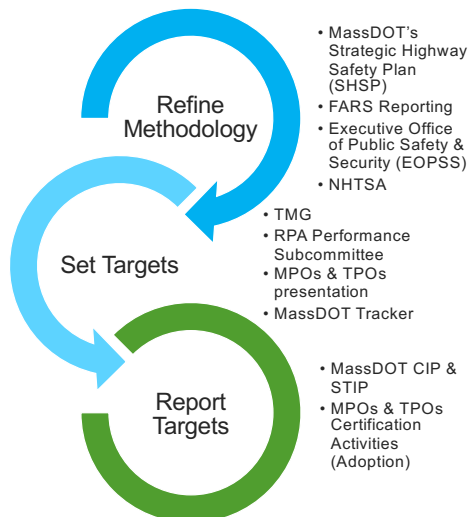
19

massDOT's FHWA Target Setting Process – PM1

March-July
(CY 20)

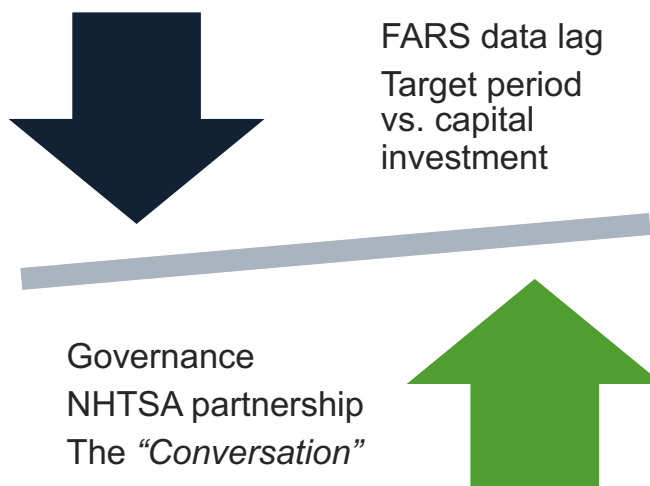
August-
December
(CY 20)

January-
February
(CY 21)

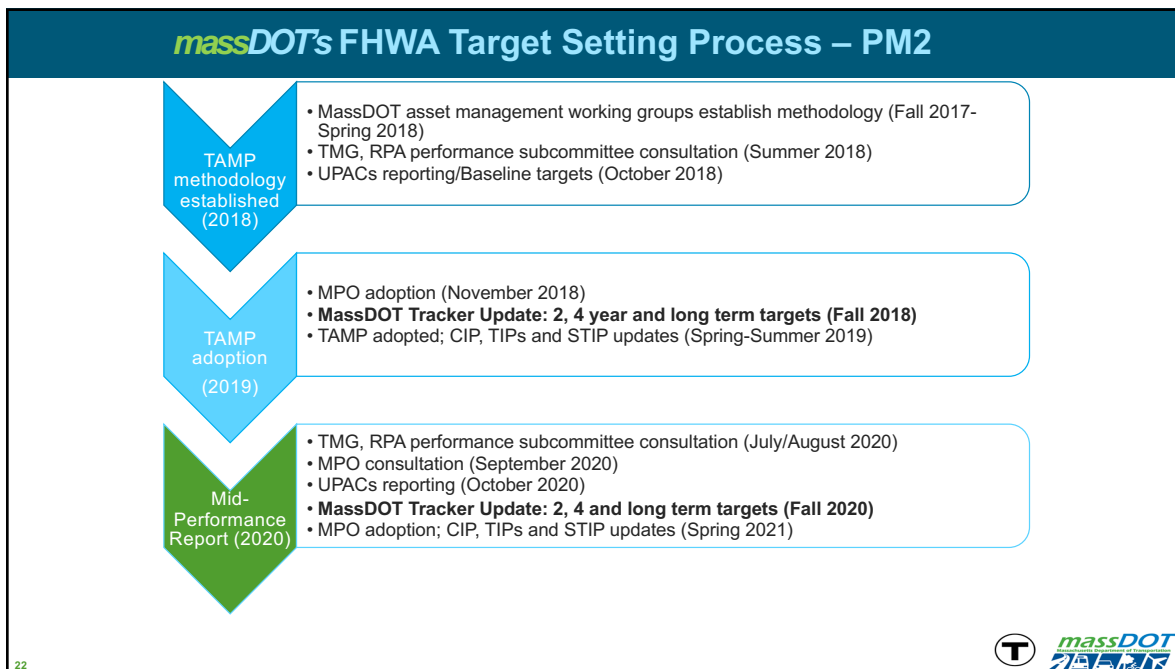


20

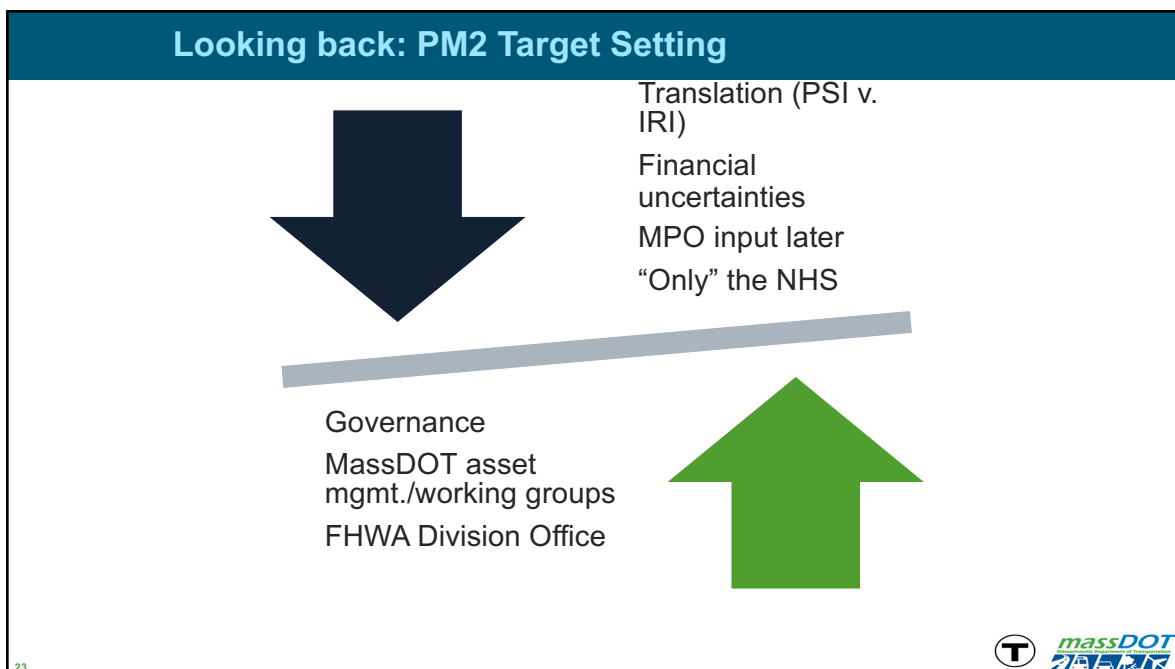
Looking back: PM1 Target Setting



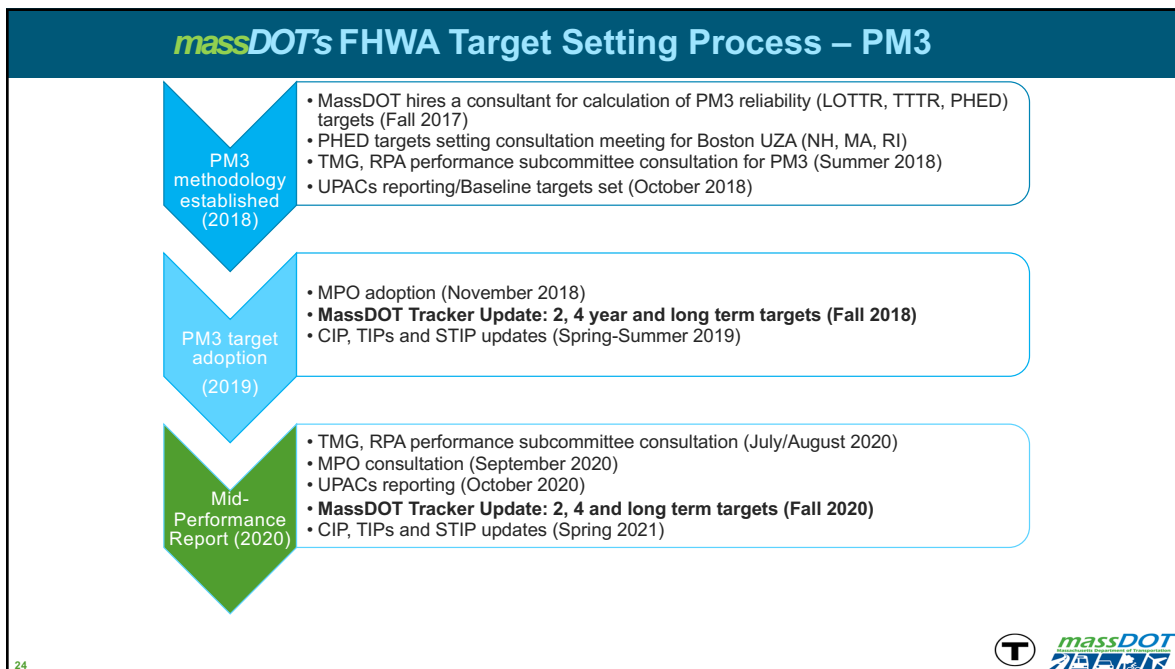
21



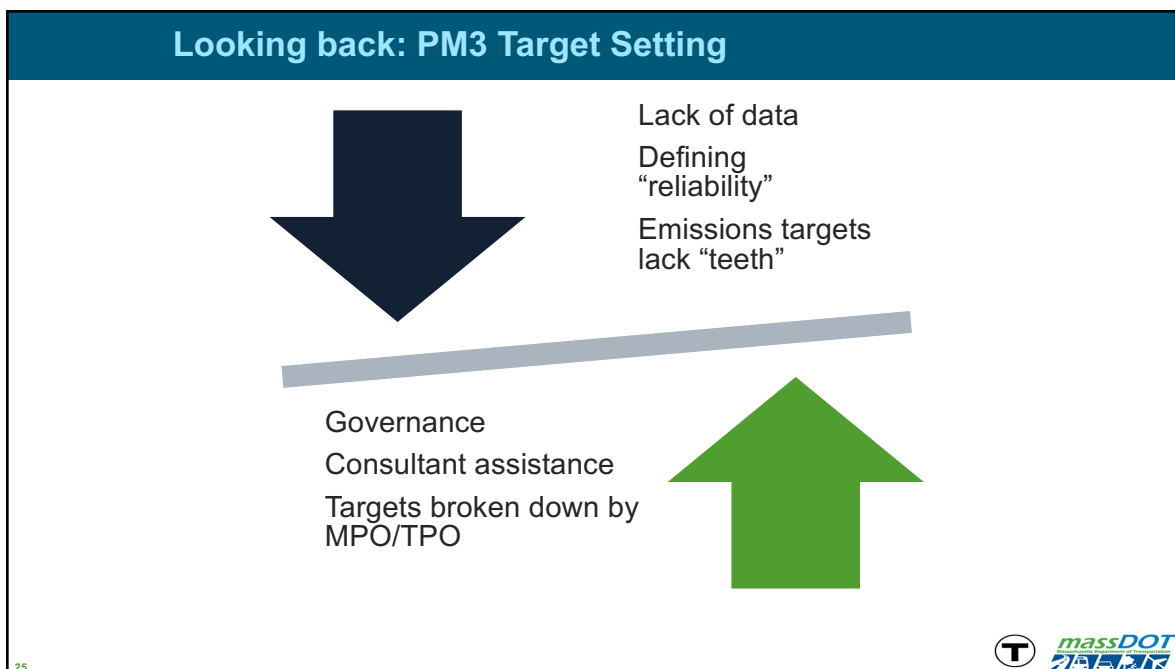
22



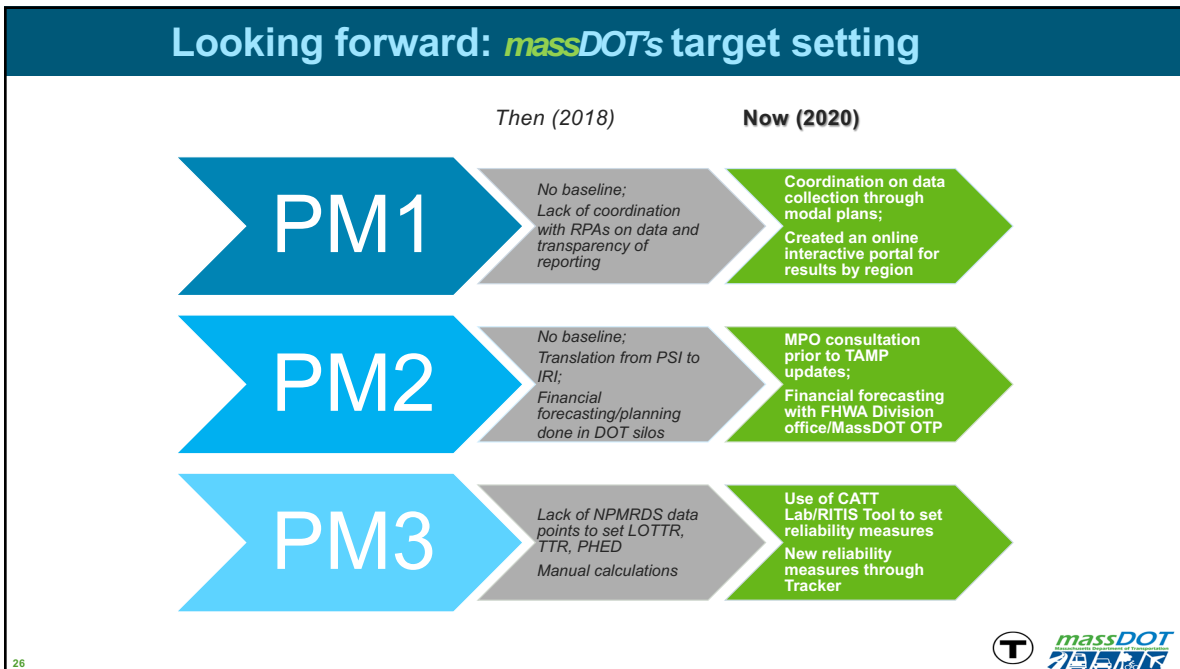
23



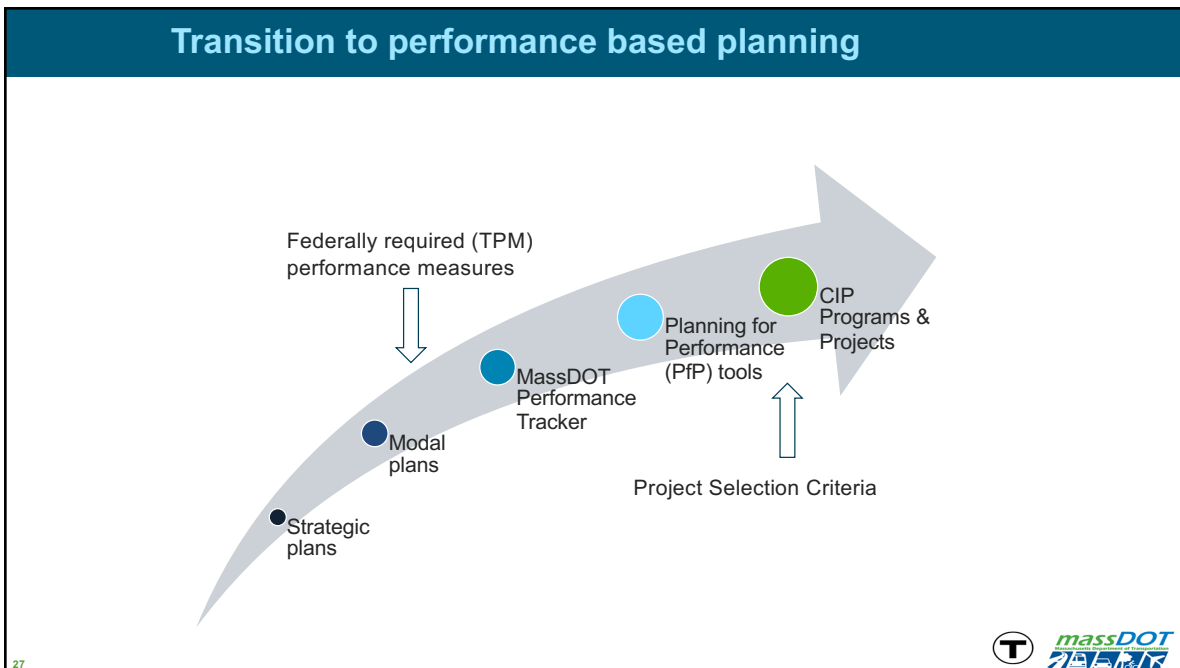
24



25



26



27

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

28



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

FHWA TPM Target Setting Miniseries
July 15, 2020



29



What we do

30



Putting Performance Measures in Context

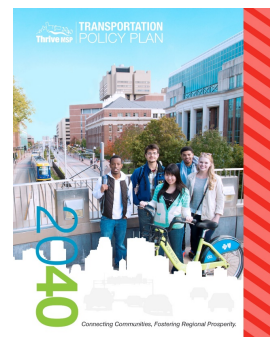
Long-range planning for a strong region

- Stewardship
- Prosperity
- Equity
- Livability
- Sustainability

31

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



32



32

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
MnPASS Usage	Average daily number of people in MnPASS lanes	Percent Increase	N/A	N/A	9.7%	12.4%
			93,000	99,000	288,000	614,000

33

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

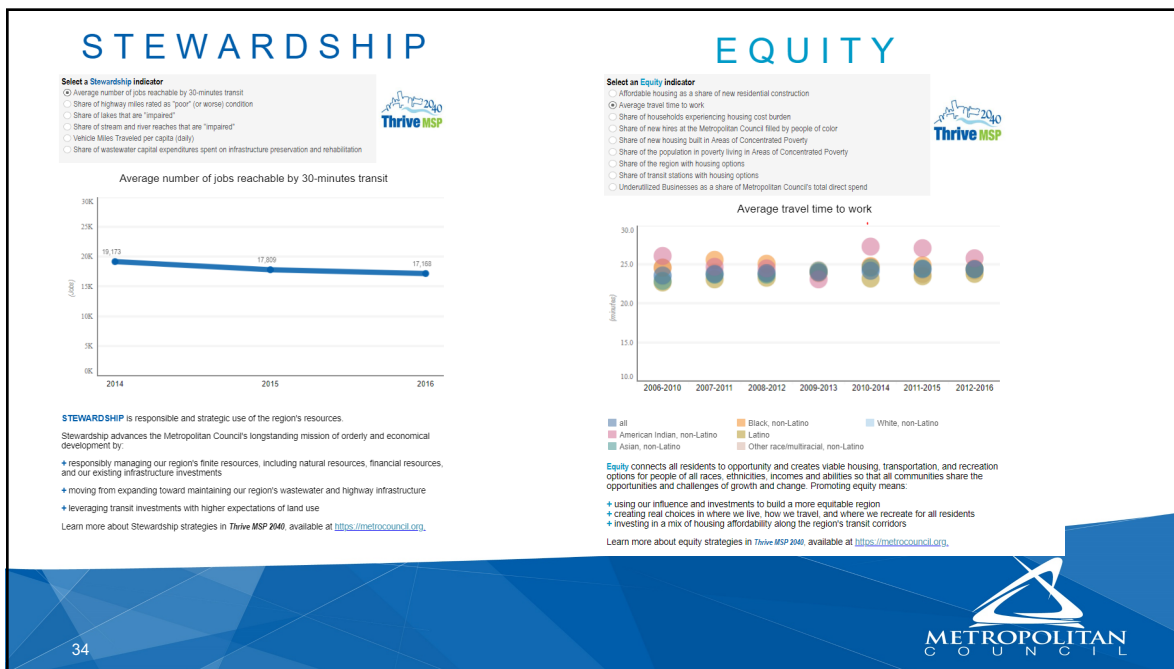
Annual reporting and target setting

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

33



34

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

35

35

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



36

36

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 area 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**

37

37



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

38



38

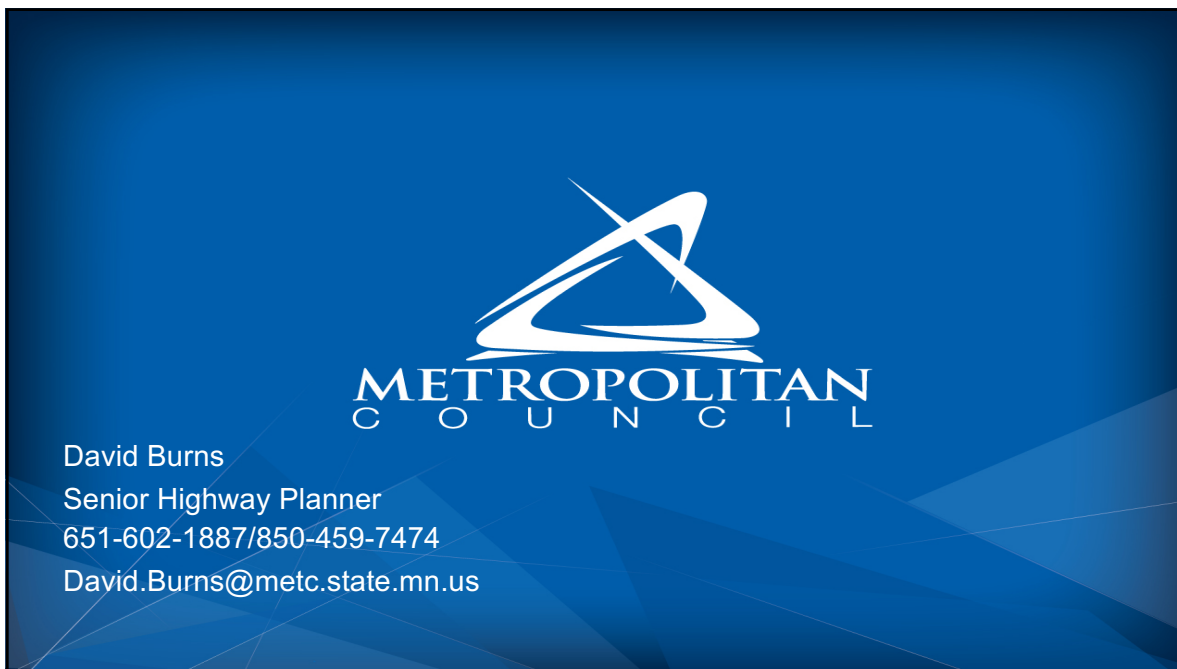
Conclusion

- 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

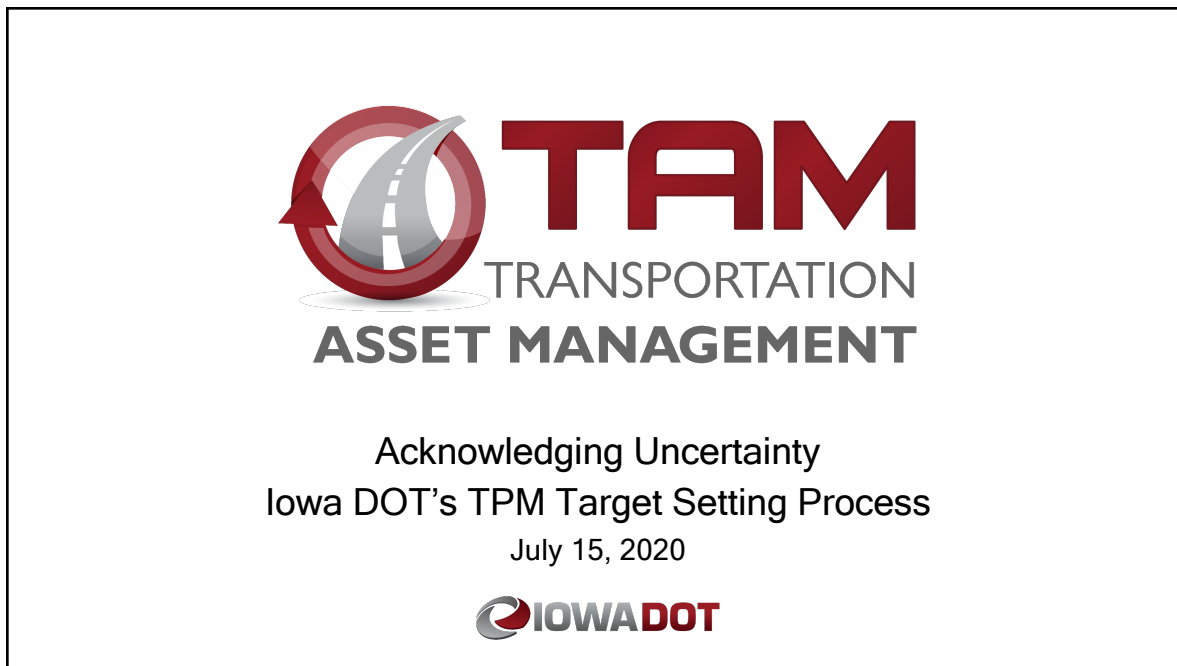
39




39



40



41



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

42

42

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

43

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



44

44

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

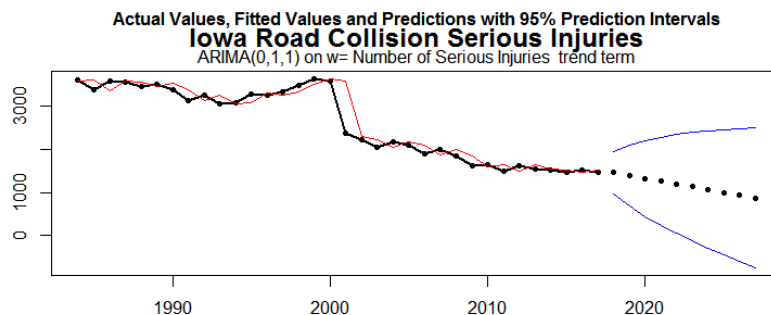
Recommend
75%
Confidence



45

45

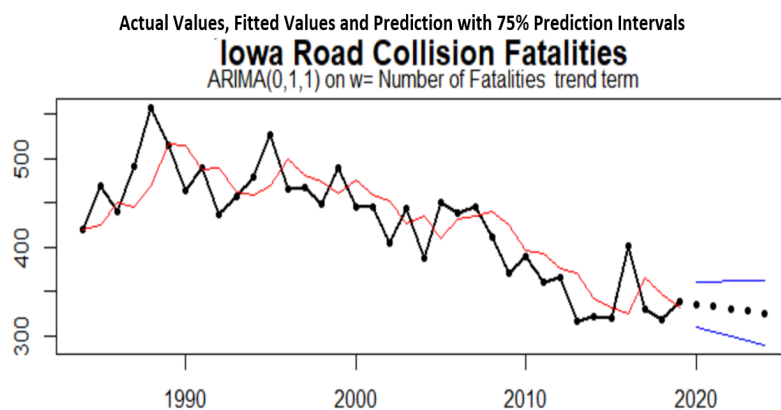
Example of trend model and prediction interval:



46

46

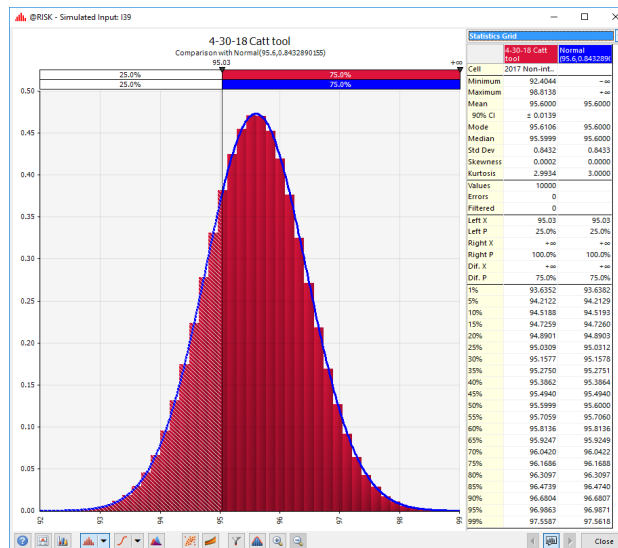
Example of trend model and prediction interval:



47

47

Example of variability model:



48

48

Consequences

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



49

49

Rule and target-setting cycle	Frequency of review	Significant progress determination	Funding and reporting penalties for not making significant progress
PM 1 <u>Safety</u> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 <u>Pavements and Bridges</u> <ul style="list-style-type: none"> 6 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	<ul style="list-style-type: none"> 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
PM 3 <u>System and freight reliability</u> <ul style="list-style-type: none"> 3 performance measures Set quadrennially as 2- and 4-year targets 			

50

50

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

52

52

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



53

53

Questions?



Matt Haubrich

Transportation Asset Management Administrator
Iowa DOT

More info:

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

54

54

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



55

23 CFR 515.9: AMP Minimum Content

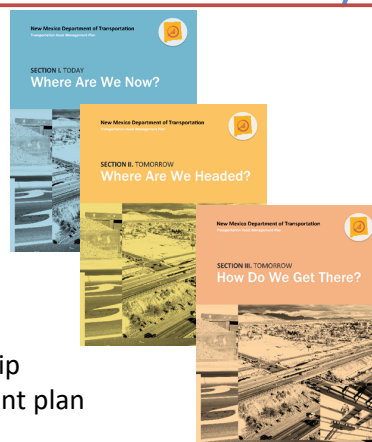
- Objectives
- **Measures and targets**
- Summary condition description
- Performance gap identification
- Life-cycle planning
- Risk management analysis
- Financial plan
- Investment strategies



56

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



57

System Summary and Condition

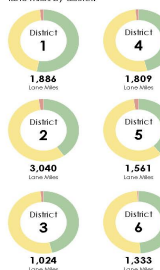
PAVEMENT AND BRIDGE ASSETS ON THE NHS

2019 CONDITION BY DISTRICT



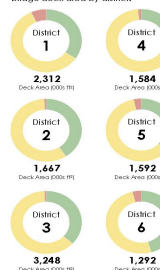
NHS PAVEMENT

Condition and total NMDOT-owned lane miles by district.



NHS BRIDGES

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



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.



58

PM 2 – Where are we going?

Target Setting Challenges

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



59

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

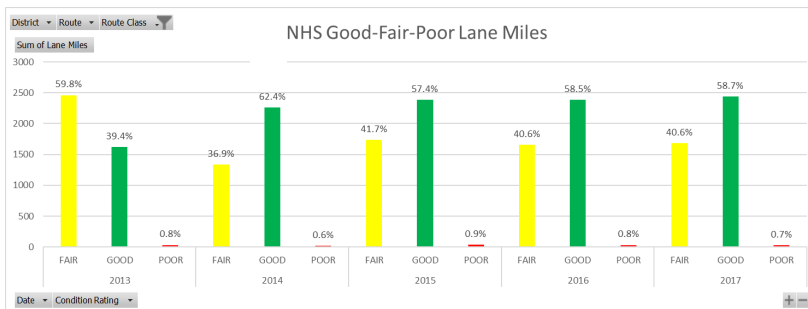


60

PM 2 – Interstate Condition (23CFR 490.315)

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

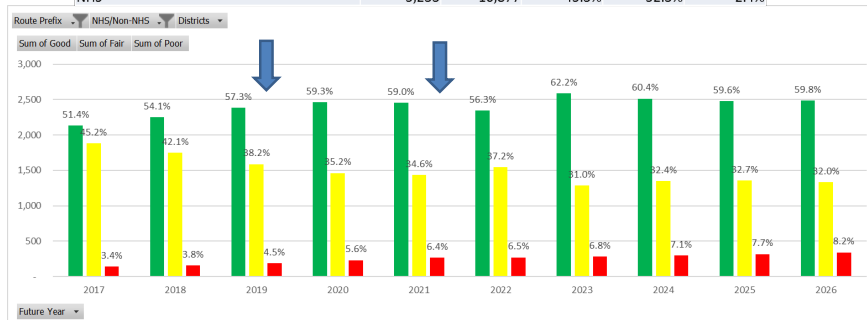
2017 Current Condition of Interstate is <1% Poor



61

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%



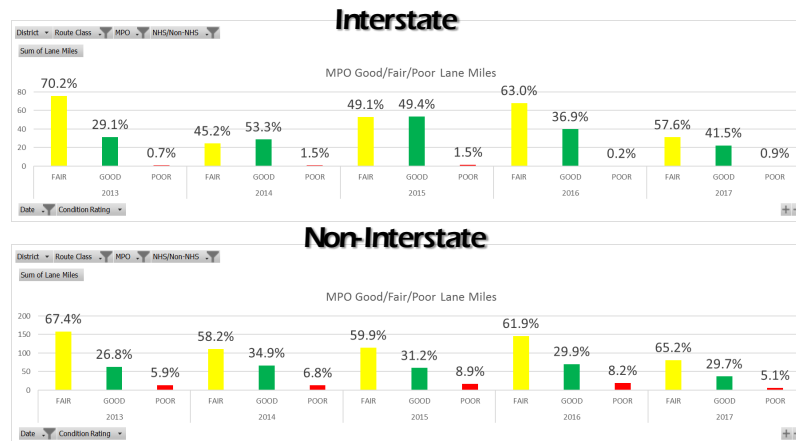
62

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

The logo for the Virginia Department of Transportation (VMDOT) is located in the bottom left corner. It features a stylized yellow and blue graphic above the text "VMDOT" in a red, blue, and yellow font.[illegible]

Santa Fe MPO NHS Historical Data



65

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.



66

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



67

Questions?

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

68

68

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



69

69

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



For more information or to register:

<https://www.tpm-portal.com/tpm-webinars/>



70

70