

Example Practices for Performance-Based Planning and Programming

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13. ABSTRACT (Maximum 200 words)
This report shares how State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) are using their long-range statewide transportation plans, metropolitan transportation plans, statewide transportation improvement programs, and transportation improvement programs to: integrate performance-based plans and processes; evaluate past condition and performance; document performance measures and targets; report progress toward target achievement; link investment priorities to targets; and describe anticipated future target achievement. The Federal Highway Administration (FHWA) is sharing these example practices of State DOT and MPO implementation of performance-based planning and programming (PBPP) to help advance the state of the practice.

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Acronyms

Acronym	Term
ARC	Atlanta Regional Commission
BRTB	Baltimore Regional Transportation Board
CFR	Code of Federal Regulations
CMAP	Chicago Metropolitan Agency for Planning
CMAQ	Congestion Mitigation and Air Quality Improvement
COG	Council of Governments
CVSP	Commercial Vehicle Safety Plan
DOT	Department of Transportation
DRPT	Department of Rail and Public Transportation
EMPO	Evansville MPO
EWGCOG	East-West Gateway Council of Governments
FARS	Fatality Analysis Reporting System
FAST Act	Fixing America’s Surface Transportation Act
FDOT	Florida DOT
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FR	Federal Register
FY	Fiscal Year
HPMS	Highway Performance Monitoring System
HSIP	Highway Safety Improvement Program
IDOT	Illinois DOT
INDOT	Indiana DOT
LRSTP	Long-Range Statewide Transportation Plan
MAP-21	Moving Ahead for Progress in the 21st Century Act
MAPSS	Mobility, Accountability, Preservation, Safety, and Service Performance Improvement Program
MDOT	Maryland DOT
MODA	Multi-Objective Decision Analysis
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Commission
MTP	Metropolitan Transportation Plan
NCTCOG	North Central Texas Council of Governments
NHDOT	New Hampshire DOT
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
OIPI	Office of Intermodal Planning and Investment
PAG	Pima Association of Governments
PBPP	Performance-Based Planning and Programming (23 CFR part 450)
PennDOT	Pennsylvania DOT
PM1	Highway Safety Performance Measures (81 FR 13881)
PM2	Pavement and Bridge Performance Measures (82 FR 5886)
PM3	System Performance, Freight, and CMAQ Performance Measures (82 FR 5970)
RPC	Rockingham Planning Commission
RPO	Regional Planning Organization

SHSP	Strategic Highway Safety Plan
SPR	State Planning and Research
STIP	Statewide Transportation Improvement Program
TBD	To Be Determined
TDOT	Tennessee DOT
TIP	Transportation Improvement Program
TPM	Transportation Performance Management (23 CFR part 490)
TxDOT	Texas DOT
TZD	Toward Zero Deaths
UPWP	Unified Planning Work Program
U.S.C.	United States Code
USDOT	United States Department of Transportation
VDOT	Virginia DOT
VMT	Vehicle Miles Traveled
WILMAPCO	Wilmington Area Planning Council
WisDOT	Wisconsin DOT

Executive Summary

This report shares how State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) are using their long-range statewide transportation plans (LRSTPs), metropolitan transportation plans (MTPs), statewide transportation improvement programs (STIPs), and transportation improvement programs (TIPs) to:

- Integrate performance-based plans and processes,
- Evaluate past condition and performance,
- Document performance measures and targets,
- Report progress toward target achievement,
- Link investment priorities to targets, and
- Describe anticipated future target achievement.

The Federal Highway Administration (FHWA) is sharing these example practices of State DOT and MPO implementation of performance-based planning and programming (PBPP) to help advance the state of the practice. This report does not establish a standard, regulation, or agency guidance, and the inclusion of an example practice does not constitute a regulatory compliance determination. Except for the statutes and regulations cited, the contents of this report do not have the force and effect of law and are not meant to bind the public in any way. This report is intended only to provide information and clarity regarding existing requirements under the law or agency policies.

Focusing primarily on the FHWA performance measures in section 150 of title 23, United States Code (23 U.S.C. 150) for highway safety, pavement and bridge condition, travel time reliability, freight reliability, traffic congestion, and on-road mobile source emissions, the research team reviewed MTPs and TIPs from over 30 MPOs and LRSTPs and STIPs from 50 States, not including the District of Columbia or Puerto Rico. The research team focused on planning documents that were published between 2018 and 2020 to identify example practices in urban and rural states; large, medium, and small MPOs; and MPOs with planning boundaries in more than one state. Table ES-1 highlights the 12 State DOTs and 15 MPOs included in this report.

Table ES-1. State DOTs and MPOs with example practices highlighted in the report

LRSTPs	MTPs	STIPs	TIPs
Illinois DOT	Atlanta Regional Commission	Georgia DOT	Baltimore Regional Transportation Board
Maryland DOT	Broward MPO	Indiana DOT	Broward MPO
Nebraska DOT	Chicago Metropolitan Agency for Planning	New Hampshire DOT	Grand Forks-East Grand Forks MPO
Nevada DOT	East-West Gateway Council of Governments	Pennsylvania DOT	Memphis Urban Area MPO
	Evansville MPO	Tennessee DOT	Metropolitan Transportation Commission
	North Central Texas Council of Governments	Texas DOT	Pima Association of Governments
	North Front Range MPO	Virginia DOT	Rockingham Planning Commission
	Walla Walla Valley MPO	Wisconsin DOT	Wilmington Area Planning Council

The intended audience for this report includes planning and programming staff from FHWA Division Offices, State DOTs, and MPOs, and their planning partners. This report provides information that may help these agencies and individuals support national performance goals, achieve desired performance outcomes, and implement PBPP and transportation performance management (TPM). Although the example LRSTPs, MTPs, STIPs, and TIPs were published at different times and are at different phases of implementation, common practices are emerging across the State DOTs and MPOs, shown in Table ES-2.

Table ES-2. Common practices observed in the report and example State DOTs and MPOs

Common Practices	State DOT Examples	MPO Examples
Communication through visualizations – State DOTs and MPOs use charts, maps, and graphics to help the public, elected officials, and other stakeholders better understand performance-based planning processes and transportation decisions.	Illinois DOT Nebraska DOT	Chicago Metropolitan Agency for Planning North Central Texas Council of Governments Pima Association of Governments
Interagency coordination, collaboration, and consistency – Agencies work together to collect and share data, establish targets, monitor and report performance, and integrate plans and processes.	New Hampshire DOT Tennessee DOT	Grand Forks-East Grand Forks MPO Walla Walla Valley MPO
Multiple approaches to LRSTPs, MTPs, and system performance reports – State DOTs and MPOs use a variety of approaches to evaluate past condition and performance, document performance measures and targets, and track target achievement.	Maryland DOT Nevada DOT	Broward MPO East-West Gateway Council of Governments North Front Range MPO
Inclusion of non-Federal measures and scenario planning – Many State DOTs and MPOs use non-Federal performance measures to support their own goals and objectives and evaluate scenarios.	Nevada DOT	Atlanta Regional Commission Evansville MPO
Data-driven project prioritization and performance-based programming – Many State DOTs and MPOs use project prioritization processes to evaluate, rank, and fund projects based on their anticipated performance benefits.	Texas DOT Virginia DOT Wisconsin DOT	Memphis Urban Area MPO Wilmington Area Planning Council
Performance narratives in STIPs and TIPs – State DOTs and MPOs use written narratives and visualizations in their STIPs and TIPs to communicate their unique performance stories to a broad audience of interested parties and stakeholders.	Georgia DOT Indiana DOT Pennsylvania DOT	Baltimore Regional Transportation Board Broward MPO Metropolitan Transportation Commission Rockingham Planning Commission

1.0 Introduction

1.1 Purpose of Report

The purpose of this report is to share how State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) are using their long-range statewide transportation plans (LRSTPs), metropolitan transportation plans (MTPs), statewide transportation improvement programs (STIPs), and transportation improvement programs (TIPs) to:

- Integrate performance-based plans and processes,
- Evaluate past condition and performance,
- Document performance measures and targets,
- Report progress toward target achievement,
- Link investment priorities to targets, and
- Describe anticipated future target achievement.

The Federal Highway Administration (FHWA) is sharing these example practices of State DOT and MPO implementation of performance-based planning and programming (PBPP) to help advance the state of the practice. This report is intended to provide a collection of examples that might be useful for other agencies as they work to implement PBPP. This report does not establish a standard, regulation, or agency guidance. The inclusion of an example practice does not constitute a regulatory compliance determination of the associated LRSTP, MTP, STIP, or TIP. The example practices were published at different times, and are therefore at different phases of implementation.

1.2 Background on PBPP

The following content is excerpted from the [About PBPP and TPM](#) and [Plan the Route](#) sections of the [PBPP Implementation Roadmap for FHWA Divisions](#). The purpose of the PBPP Implementation Roadmap is to help the FHWA Division Offices partner with State DOTs, MPOs, public transportation providers, and the Federal Transit Administration's (FTA) Regional Offices to support national performance goals, achieve desired performance outcomes, and meet the Federal planning and programming requirements for transportation performance management (TPM). The PBPP Implementation Roadmap summarizes regulatory requirements, answers frequently asked questions, describes available resources, and recommends ways for FHWA Division Offices to enhance their planning oversight and stewardship activities, including document reviews, approvals, and planning certifications.

What are TPM and PBPP?

Transportation performance management (TPM) is a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. The application of a TPM approach helps ensure that investments are performance-driven and outcome-based. TPM helps determine what results are to be pursued using information on past performance levels and forecasted conditions to guide investments, measure progress toward strategic goals, and make informed policy decisions. TPM is grounded in sound data management, usability, and analysis, and is a systematic, ongoing process that improves communications among decision-makers, stakeholders, and the public.

PBPP is how planning agencies implement TPM. PBPP is the application of TPM within the planning and programming processes of transportation agencies to achieve desired performance outcomes for the multimodal transportation system. PBPP is a strategic, data-driven approach to decision-making that

enables transportation agencies to efficiently allocate resources, maximize the return on investments, and achieve desired performance goals while increasing accountability and transparency to the public.

PBPP is inherently data-driven and involves measuring progress toward meeting goals and using information on past and anticipated future performance trends to inform current investment and policy decisions. Implementation can vary based on a region's size, geography, development patterns, and political context.

What are the benefits of using a performance-based approach to planning and programming?

Transportation agencies use a performance-based approach to planning and programming for many reasons, including, but not limited to:

- **Improve investment decision-making:** PBPP allows for clear and open discussions about the public's desired outcomes and the strategic direction that an agency should take. PBPP provides key information for the decision-making process by heightening the role of data and focusing attention on performance outcomes. Furthermore, the focus on the multimodal transportation system helps officials move beyond "siloed" thinking and policymaking.
- **Improve system performance:** By helping to ensure that resources are spent to achieve the goals set forth in a PBPP process, societal needs such as safety, mobility, asset preservation, and the environment can be addressed in accordance with the priority placed on each by the public. Rather than focusing on the standalone benefits of a specific project, PBPP encourages planners to evaluate and recommend strategies, projects, and programs to policy-makers based on anticipated system-wide impacts and support for goals.
- **Improve link between investments and performance:** In a PBPP cycle, return on investments increases because information about past performance and expected future performance feeds into decisions about the best use of public funds. By using data to identify performance gaps and project needs, PBPP can also demonstrate the need for additional funding by presenting likely performance expectations to be achieved with a given funding level.
- **Increase accountability and transparency:** Providing clear documentation about why transportation dollars were spent in a certain manner gives the public a greater understanding and faith that transportation dollars are being spent wisely.

What statutory requirements are applicable to PBPP and TPM?

The Moving Ahead for Progress in the 21st Century Act (MAP-21) of July 2012 (Pub. L. 112-141) was an important milestone for PBPP and TPM because the law directed the United States Department of Transportation (USDOT) to establish performance measures based on national goals for safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. Furthermore, MAP-21 required State DOTs, MPOs, and public transportation providers to establish performance targets for those performance measures. The program objective is to guide investments in projects that collectively make progress toward the achievement of the national goals. The Fixing America's Surface Transportation (FAST) Act of December 2015 (Pub. L. 114-94) continued this performance management framework.

What regulatory requirements are applicable to PBPP and TPM?

The following regulatory requirements in the Code of Federal Regulations (CFR) are applicable to PBPP and TPM:

- 23 CFR part 450 – Planning assistance and standards
 - Subpart A – Transportation planning and programming definitions
 - Subpart B – Statewide and nonmetropolitan transportation planning and programming
 - Subpart C – Metropolitan transportation planning and programming
- 23 CFR part 490 – National performance management measures
 - Subpart A – General information
 - Subpart B – National performance management measures for the Highway Safety Improvement Program
 - Subpart C – National performance management measures for assessing pavement condition
 - Subpart D – National performance management measures for assessing bridge condition
 - Subpart E – National performance management measures to assess performance of the National Highway System
 - Subpart F – National performance management measures to assess freight movement on the Interstate System
 - Subpart G – National performance management measures for assessing the Congestion Mitigation and Air Quality Improvement Program – Traffic congestion
 - Subpart H – National performance management measures to assess the Congestion Mitigation and Air Quality Improvement Program – On-road mobile source emissions

Appendix A provides a table summarizing the FHWA national performance measures in more detail.

What are FHWA's "phase-in" dates for the planning and performance measure requirements?

In 23 CFR part 450, the term "phase-in" describes when State DOTs and MPOs are required to comply with parts of the planning rule adopted on May 27, 2016. There are two different categories of phase-in requirements:

- The first covers new requirements unrelated to performance management (e.g., new nonmetropolitan statewide planning requirements), and
- The second category is new requirements relating to performance management (e.g., integration of performance measures, targets, and other provisions of the planning and performance measures rules into State DOT and MPO planning processes and products).

Table 1 shows the phase-in dates for the planning and performance measure requirements. These phase-in dates are important because they help illustrate key distinctions in the planning documents published before 2018 and the planning documents published between 2018 and 2020.

Table 1. Planning rule phase-in dates

Federal Rulemaking	Publication Date of Final Rule	Effective Date of Final Rule	23 CFR Part 450 Phase-In Dates
Planning 81 FR 34049	May 27, 2016	June 27, 2016	May 27, 2018 (Planning requirements not related to performance management)
Highway Safety (PM1) 81 FR 13881	March 15, 2016	April 14, 2016	May 27, 2018 (Performance-based planning requirements related to highway safety)
Pavement and Bridge Condition (PM2) 82 FR 5886	January 18, 2017	May 20, 2017	May 20, 2019 (Performance-based planning requirements related to pavement and bridge condition)
System Performance, Freight, and CMAQ (PM3) 82 FR 5970	January 18, 2017	May 20, 2017	May 20, 2019 (Performance-based planning requirements related to system performance, freight, and CMAQ)

1.3 Federal Requirements for Implementing PBPP in LRSTPs, MTPs, STIPs, and TIPs

The following content is excerpted from the [Learn the Terrain](#) section of the [PBPP Implementation Roadmap for FHWA Divisions](#).

Integrating Performance-Based Plans and Processes

Per [23 CFR 450.206\(c\)\(4\)](#), State DOTs shall integrate into their statewide transportation planning processes, directly or by reference, the goals, objectives, performance measures, and targets described in [23 CFR 450.206](#), in other State transportation plans and transportation processes, as well as any plans developed pursuant to [Chapter 53 of Title 49](#) by public transportation providers in areas not represented by an MPO required as part of a performance-based program, including, but not limited to:

- Highway Safety Improvement Program (HSIP),
- Strategic Highway Safety Plan (SHSP),
- State asset management plan for the National Highway System (NHS),
- State freight plan,
- Transit asset management plan, and
- Public transportation agency safety plan.

Per [23 CFR 450.306\(d\)\(4\)](#), MPOs shall integrate into their metropolitan transportation planning processes, directly or by reference, the goals, objectives, performance measures, and targets described in other State transportation plans and transportation processes, as well as any plans developed under [Chapter 53 of Title 49](#) by public transportation providers, including, but not limited to applicable portions of the:

- HSIP,

- SHSP,
- State asset management plan for the NHS,
- State freight plan,
- Congestion Mitigation and Air Quality Improvement (CMAQ) Program performance plan (if required),
- Congestion management process (if the MPO serves a Transportation Management Area),
- Congestion management plan (if the MPO has one),
- Transit asset management plan, and
- Public transportation agency safety plan.

Evaluating Past Condition and Performance, Documenting Targets, and Reporting Progress

Per [23 CFR 450.216\(f\)\(1\)](#), the LRSTP shall include a description of the performance measures and performance targets used in assessing the performance of the transportation system in accordance with [23 CFR 450.206\(c\)](#). Per [23 CFR 450.216\(f\)\(2\)](#), the LRSTP shall include a system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the performance targets described in [23 CFR 450.206\(c\)](#), including progress achieved by the MPO(s) in meeting the performance targets in comparison with system performance recorded in previous reports.

Per [23 CFR 450.324\(f\)\(3\)](#), the MTP shall include a description of the performance measures and performance targets used in assessing the performance of the transportation system in accordance with [23 CFR 450.306\(d\)](#). Per [23 CFR 450.324\(f\)\(4\)](#), the MTP shall include a system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the performance targets described in [23 CFR 450.306\(d\)](#), including:

- Progress achieved by the MPO in meeting the performance targets in comparison with system performance recorded in previous reports, including baseline data, and
- For MPOs that voluntarily elect to develop multiple scenarios:
 - An analysis of how the preferred scenario has improved the conditions and performance of the transportation system, and
 - How changes in local policies and investments have impacted the costs necessary to achieve the identified performance targets.

Linking Investment Priorities to Targets and Describing Anticipated Future Target Achievement

Pursuant to [23 CFR 450.206\(c\)\(5\)](#), State DOTs shall consider the performance measures and targets established under [23 CFR 450.206\(c\)](#) when developing policies, programs, and investment priorities reflected in the LRSTP and the STIP. Per [23 CFR 450.218\(q\)](#), the STIP shall include, to the maximum extent practicable, a discussion of the anticipated effect of the STIP toward achieving the performance targets identified by the State DOT in the LRSTP or other State performance-based plan(s), linking investment priorities to those performance targets.

Pursuant to [23 CFR 450.326\(c\)](#), the TIP shall be designed such that once implemented, it makes progress toward achieving the performance targets established under [23 CFR 450.306\(d\)](#). Per [23 CFR 450.326\(d\)](#), the TIP shall include, to the maximum extent practicable, a description of the anticipated effect of the TIP toward achieving the performance targets identified in the MTP, linking investment priorities to those performance targets.

1.4 Guidance from the PBPP Implementation Roadmap for FHWA Divisions

The following content is excerpted from the [Learn the Terrain](#) section of the [PBPP Implementation Roadmap for FHWA Divisions](#).

Integrating Performance-Based Plans and Processes

State DOTs can reference the goals, objectives, performance measures, and targets from other performance-based plans and processes in numerous planning products, including, but not limited to:

- LRSTP,
- STIP,
- Documented public involvement process,
- State planning and research (SPR) work program,
- Corridor studies,
- Subarea plans, and
- Modal plans (e.g. bicycle, pedestrian, transit, freight rail).

MPOs can reference the goals, objectives, performance measures, and targets from other performance-based plans and processes in numerous planning products, including, but not limited to:

- MTP,
- TIP,
- Public participation plan,
- Unified planning work program (UPWP),
- Corridor studies,
- Subarea plans, and
- Modal plans (e.g. bicycle, pedestrian, transit, freight rail).

State DOTs and MPOs should consider integrating these other performance-based plans and processes into their goals, objectives, project prioritization criteria, and project selection criteria. State DOTs and MPOs should also consider integrating the investment strategies from these other performance-based plans and processes into their transportation planning processes to support performance-based decision-making.

Evaluating Past Condition and Performance, Documenting Targets, and Reporting Progress

For both State DOTs and MPOs, the first system performance report should include all of the targets established since the previous LRSTP or MTP and describe the basis for the performance targets. Subsequent reports will describe the progress made in achieving these performance targets. The progress description should include the information that is available at the time of the plan adoption.

The regulations provide a framework for State DOTs and MPOs to develop system performance reports; however, neither State DOTs nor MPOs are required to use a designated format for the system performance reports. The purpose of the system performance report is to help State DOTs and MPOs tell their performance story, and agencies are encouraged to use a variety of items to provide a complete and descriptive story. Some of these items include, but are not limited to:

- National, state, and/or regional performance goals,
- Agency contacts for performance targets,

- References to the performance-based plans that contain more information for the targets,
- Visualizations, such as maps, charts, tables, graphics, and diagrams, to communicate system performance in an easy to understand manner for a broad audience of interested parties and stakeholders, and
- Comparison of the current state of the transportation system versus the projected future state of the transportation system under a set of alternate future scenarios.

The inclusion of some or all of these items will provide a more comprehensive view of transportation system performance.

Linking Investment Priorities to Targets and Describing Anticipated Future Target Achievement

The assessment of anticipated performance target achievement should be a written narrative in the STIP or TIP. State DOTs and MPOs could describe anticipated future target achievement by discussing the anticipated performance levels of their STIPs or TIPs considering the timely implementation of all programmed investments and assessing whether the anticipated performance levels help the State DOT or MPO achieve, or make progress toward achieving, their performance targets. The narrative should specifically describe these linkages and answer the following questions:

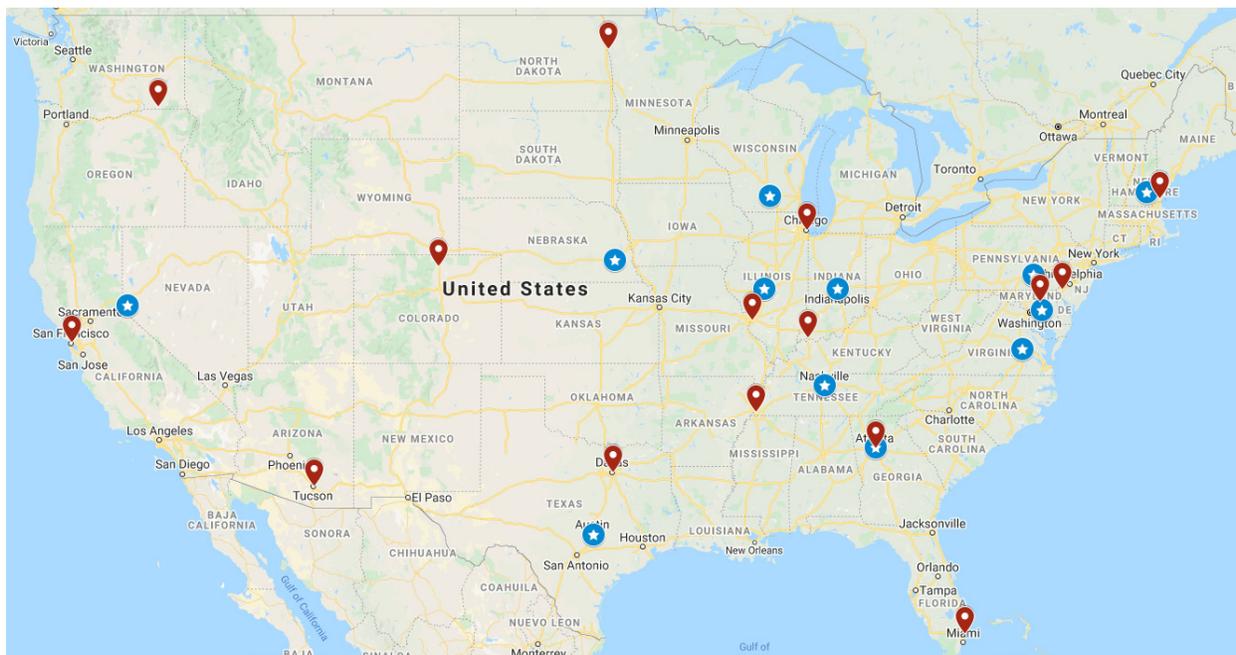
- How was the program of projects in the STIP/TIP determined?
- How does the STIP/TIP support the achievement of the performance targets?
- How are the projects in the STIP/TIP linked to the LRSTP or MTP?
- How are the projects in the STIP/TIP linked to other performance-based plans?
- How was this assessment of anticipated performance target achievement conducted?
- What does the assessment of anticipated performance target achievement show?

State DOTs and MPOs are not required to use a designated format or methodology for their discussions of anticipated future performance target achievement. State DOTs and MPOs have the flexibility to use any format or methodology they deem practicable taking into consideration the cost, existing technology, and logistics of accomplishing this requirement. The goal is to make the information accessible and understandable to a broad audience of interested parties and stakeholders.

1.5 Methodology for Report

The development of this report relied on a scan of existing performance-based plans and programs to identify example practices from State DOTs and MPOs. The research team reviewed MTPs and TIPs from over 30 MPOs and LRSTPs and STIPs from 50 States, focusing on those that were published between 2018 and 2020. This research scan identified example practices in urban and rural states; large, medium, and small MPOs; and MPOs with planning boundaries in more than one state. The synthesis of these findings informed the development of this report. Figure 1 shows a map of the State DOTs and MPOs highlighted in the report. The red pins on the map represent the MPOs and the blue stars represent the State DOTs. Section 2.0 examines these example practices in more detail, and Appendix B provides hyperlinks to all the associated LRSTPs, MTPs, STIPs, and TIPs.

Figure 1. Map showing the State DOTs and MPOs featured in the report



(Source: John A. Volpe National Transportation Systems Center)

1.6 Target Audience and How They Can Use This Report

The intended audience for this report includes planning and programming staff from FHWA Division Offices, State DOTs, and MPOs, and their planning partners. This report provides information to help these agencies and individuals support national performance goals, achieve desired performance outcomes, and implement PBPP and TPM. FHWA Division Offices can use the example practices to support their recurring planning oversight and stewardship activities with their State DOT and MPO partners. State DOTs and MPOs can use the examples to inform the development of their own performance-based LRSTPs, MTPs, STIPs, and TIPs.

2.0 Example Practices

2.1 Long-Range Statewide Transportation Plans (LRSTPs)

This section includes examples from Illinois, Maryland, Nebraska, and Nevada to highlight how State DOTs are using LRSTPs to:

- Document performance measures and targets,
- Evaluate past condition and performance,
- Report progress toward target achievement, and
- Integrate performance-based plans and processes.

[Illinois DOT Long Range Transportation Plan \(2019\)](#)

The Illinois DOT (IDOT) uses its [LRSTP](#) to document targets for the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, traffic congestion, and on-road mobile source emissions. Table 2 displays IDOT's targets for highway safety.

Table 2. Illinois DOT targets for the FHWA performance measures on highway safety

Performance Measure	Metric/ Methodology	Five Year Rolling Averages			Target Achieved	Better than baseline?
		Baseline 2013-2017	2018 Target*	Actual 2014-2018		
Number of Fatalities	Uses traffic fatality data collected through the national Fatality Analysis Reporting System (FARS). The information is not considered final until approximately June of each year as data is reported late or needs verification.	--	997.4	TBD	TBD	TBD
Number of Non-Motorized Fatalities and Serious Injuries	Non-motorized refers to pedestrians and pedalcyclists. Serious injuries considered "A-Injury" (incapacitating injury).	--	1,460.9	TBD	TBD	TBD
Number of Serious Injuries	Serious injuries considered "A-Injury" (incapacitating injury)	--	11,966.7	TBD	TBD	TBD
Rate of Fatalities per 100 Million Vehicle Miles Traveled (VMT)	Fatalities related to vehicle crashes are calculated against vehicle miles traveled each calendar year to generate the fatality rate per 100 million vehicle miles traveled.	--	0.94	TBD	TBD	TBD
Rate of Serious Injuries per 100 million VMT	Injuries related to vehicle crashes are calculated against vehicle miles traveled each calendar year to generate an injury rate per 100 million vehicle miles traveled.	--	11.27	TBD	TBD	TBD

* 2% Reduction Annually as Compared to 2013-2017 Baseline. Number of Fatalities, Rate of Fatalities, and Number of Serious Injuries targets must be identical to the targets established for the National Highway Traffic Safety Administration (NHTSA) Highway Safety Grants program.

(Source: Illinois DOT Long Range Transportation Plan (2019), <http://www.idot.illinois.gov/Assets/uploads/files/About-IDOT/Misc/Planning/LRTP%20Appendix%20F%20-%20TPM%20Report.pdf>)

The table includes placeholders for incorporating baseline data and observed data into subsequent LRSTP updates to indicate whether IDOT achieved the targets and/or surpassed the performance baselines. IDOT will use the visualization to identify performance trends over time as the agency continues to implement projects, collect data, and monitor performance.

[Maryland DOT 2040 Maryland Transportation Plan: Connecting You to Life’s Opportunities \(2019\)](#)

The Maryland DOT (MDOT) adheres to the [Toward Zero Death \(TZD\)](#) approach, which is a national strategy on highway safety that advocates for the elimination of serious injuries and deaths on all roadways. MDOT’s TZD approach guides the development of annual targets for the FHWA performance measures on highway safety and longer-term targets in its HSIP, SHSP, and [LRSTP](#) that seek to reduce overall fatalities and serious injuries in Maryland by at least 50 percent by 2030, starting with a baseline in 2008. To develop these short- and long-term targets, MDOT convenes many stakeholders, including MPOs across Maryland and Washington, DC, FHWA, and the National Highway Traffic Safety Administration (NHTSA). This coordination enables MDOT to work with Federal, State, regional, and local stakeholders and implement targets that advance national performance goals and locally desired outcomes.

[Nebraska DOT Vision 2032: Mapping Nebraska’s Future \(Amended 2019\)](#)

The Nebraska DOT published an amendment to its [LRSTP](#) in 2019 to incorporate the targets for the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, and freight reliability. The Nebraska DOT worked with MPOs and transit providers across the state to collect and share performance data, evaluate past condition and performance, and establish targets. The amended LRSTP includes a visualization, shown in Table 3, to document the baseline data and targets for highway safety. The table includes a placeholder for incorporating observed data into subsequent LRSTP updates to indicate whether the Nebraska DOT achieved the targets and/or surpassed the performance baselines.

Table 3. Nebraska DOT targets for the FHWA performance measures on highway safety

HSIP PERFORMANCE MEASURE	Projected 2014-2018 Actual Avg.	Projected 2014-2018 Rolling Avg.	2016 Yearend Actual Values	5-Year Rolling Average		
				Nebraska DOT Target 2014-2018	Actual 2014-2018	Baseline 2012-2016
Number of Fatalities	241.2	230	218	228.5*	TBD	222.4
Fatality Rate	1.16	1.13	1.05	1.117*	TBD	1.122
Number of Serious Injuries	1520.4	1467	1588	1520.4	TBD	1585
Serious Injury Rate	6.96	7.39	7.67	7.386	TBD	8.006
Number of Non-Motorized Fatalities and Serious Injuries	121.2	147	125	145.3*	TBD	140.4

* Nebraska HSIP Target set on a reduction of the current increasing trend by 1%

(Source: Nebraska DOT Vision 2032: Mapping Nebraska’s Future (2019), <https://dot.nebraska.gov/media/13422/2019-may-updated-lrtp-vision-2032.pdf>)

[Nevada DOT: One Nevada Transportation Plan \(2018\)](#)

The Nevada DOT uses its [LRSTP](#) to establish a framework and action plan for linking planning activities, transportation goals, and performance measures. The Nevada DOT aligns Federal, State, and regional goals to create a unifying framework for measuring progress toward goal achievement. The linkage between planning activities and performance measures across the agency helps ensure investment decisions are consistently aiming to address established goals and targets. The Nevada DOT includes a written narrative in the LRSTP to explain how the agency integrates performance-based plans and processes and links investments to goals and targets. The narrative describes how the agency uses performance measures and baseline data to establish short- and long-term targets, prioritize projects, and measure progress toward target achievement. Table 4 shows how the Nevada DOT uses the LRSTP to document baseline data, targets, and trends for the FHWA performance measures and additional non-Federal performance measures.

Table 4. Baseline data, targets, and trends for the Nevada DOT's performance measures

One Nevada Transportation Plan Goals and Select Measures	Current Performance	Target	Trends
GOAL: Enhance Safety			
Number of fatalities (and serious injuries) on all public roads (2016)*	278 (1,211)	333 (1,883)	↓
Rate of fatalities (and serious injuries) per 100 million VMT on all public roads (2016)	1.12 (5.08)	1.25 (4.89)	↑
Number of non-motorized fatalities and serious injuries on all public roads (2016)	261	300	↑
GOAL: Preserve Infrastructure			
Percent of pavements on the Interstate system in good (and poor) condition (2017)	78% (1%)	75% (1.4%)	↓
Percent of pavements on the National Highway System (NHS) (excluding Interstate system) in good (and poor) condition (2017)	79.4% (4.7%)	55.8% (6.5%)	↓
Percent of NHS bridges classified in good (and poor) condition (2017)	42.2% (0.5%)	35% (7%)	↓
Percent of non-NHS bridges classified in good (and poor) condition (2017)	>35% (<7%)	N/A	↓
GOAL: Enhance Mobility			
Percent of person-miles traveled on the interstate system (non-interstate NHS) that are reliable (2016)	86.8% (66%)	87% (65%)	↑
Annual hours of peak-hour excessive delay per capita on NHS (2016)	15	10	↓
Percent of non-single-occupancy vehicle travel in urbanized areas (2016)	21.3%**	21.6%	N/A
Percent interstate system mileage providing for reliable truck travel times (TTTR index, 2016)	1.28%	1.5%	↓
GOAL: Transform Economies			
Mean travel time to work, minutes	23.9	N/A	↑
Number of visitors to Nevada	56,320,196	N/A	↑
GOAL: Foster Sustainability			
Maintain highest bond rating among credit agencies	AAA	AAA	N/A
Percent of projects completed on schedule (and within budget)***	100% (90%)	80% (80%)	↑
Minimize environmental impact		To be developed during One Nevada Transportation Plan implementation	
GOAL: Connect Communities			
Percent of major improvements or plans consistent with regional and local goals	N/A	To be developed during One Nevada Transportation Plan implementation	

Notes: Nevada DOT is continuing to develop performance targets and track performance measures. The measures listed in the table above are an initial selection of key measures and a work in progress. Nevada DOT will continue to assess performance progress through implementation activities.

* Nevada DOT's Zero Fatalities program is a long-term goal; reported target in this table corresponds with FHWA's established 4-year goals.

**U.S. Census Bureau, 2016

***Nevada DOT Performance Management Report, 2017

(Source: Nevada DOT: One Nevada Transportation Plan (2018), <https://www.nevadadot.com/home/showdocument?id=16388>)

2.2 Metropolitan Transportation Plans (MTPs)

This section includes examples from the Atlanta Regional Commission, Broward MPO, Chicago Metropolitan Agency for Planning, East-West Gateway Council of Governments, Evansville MPO, North Central Texas Council of Governments, North Front Range MPO, and Walla Walla Valley MPO to highlight how MPOs are using MTPs to:

- Document performance measures and targets,
- Evaluate past condition and performance,
- Describe anticipated future target achievement,
- Report progress toward target achievement, and
- Integrate performance-based plans and processes.

[Atlanta Regional Commission: The Atlanta Region's Plan – 2040 RTP \(2019\)](#)

The Atlanta Regional Commission (ARC), the MPO for the Atlanta region in Georgia, developed its [MTP](#) to document performance measures and targets, evaluate current conditions, and forecast future performance. For the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, and on-road mobile source emissions, ARC agreed to adopt the Georgia DOT's targets and to plan and program projects so they contribute toward the accomplishment of those targets. For the FHWA performance measures on traffic congestion, ARC established urbanized area targets in coordination with the Georgia DOT. The MTP includes baseline data and targets for the FHWA performance measures and additional non-Federal performance measures, such as average commute travel time, access to job centers, and congestion cost per person. ARC developed an activity-based travel demand model to assess how well the MTP's projects met the non-Federal performance measures and regional performance goals.

[Broward MPO: Commitment 2045 Metropolitan Transportation Plan \(2019\)](#)

The Broward MPO, which serves the Fort Lauderdale region in Florida, integrates the Florida DOT's HSIP, SHSP, State asset management plan for the NHS, and LRSTP into its [MTP](#) to link the State's goals, objectives, performance measures, and targets with the MPO's investment priorities. For the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, and freight reliability, the Broward MPO agreed to adopt the Florida DOT's targets and to plan and program projects so they contribute toward the accomplishment of those targets. The MTP includes baseline data and targets for the FHWA performance measures and references the goals, objectives, and investment priorities from these other performance-based plans and programs. The MTP also includes project prioritization criteria to help the MPO rank, select, and fund projects based on their anticipated performance benefits.

[Chicago Metropolitan Agency for Planning: On To 2050 \(2018\)](#)

The Chicago Metropolitan Agency for Planning (CMAP), the MPO for the Chicago region in Illinois, uses a series of tables and graphics in the [MTP's](#) system performance report to illustrate the baseline data, targets, and methodologies for the FHWA performance measures. For the FHWA performance measures on highway safety, CMAP agreed to adopt IDOT's targets and to plan and program projects so they contribute toward the accomplishment of those targets. For the FHWA performance measures on pavement and bridge condition, travel time reliability, freight reliability, and on-road mobile source emissions, CMAP established its own targets. For the FHWA performance measures on traffic

congestion, CMAP established urbanized area targets in coordination with IDOT. The MTP includes written narratives explaining related planning activities and research projects for each of the performance measures and CMAP's strategies for incorporating the measures and targets into future programming decisions.

[East-West Gateway Council of Governments Connected 2045: Long Range Transportation Plan for the St. Louis Region \(2019\)](#)

The East-West Gateway Council of Governments (EWGCOG), the MPO for the bi-state St. Louis region in Missouri and Illinois, developed its [MTP](#) around ten guiding principles. These principles are informed by FHWA's national performance goals and measures and a comprehensive performance management framework unique to the St. Louis region. Within this framework, EWGCOG developed a series of non-Federal performance measures to supplement the FHWA performance measures and provide planners, policymakers, and the public with a comprehensive picture of the region's transportation system. EWGCOG developed these non-Federal performance measures in previous planning efforts and carried them forward into the MTP and [State of the System Report](#). Table 5 summarizes EWGCOG's guiding principles and performance measures, both Federal and non-Federal.

Table 5. EWGCOG’s guiding principles and performance measures, both Federal and non-Federal

Guiding Principles		Performance Measures
Preserve and Maintain the Existing System	Ensure the transportation system remains in a state of good repair	<ul style="list-style-type: none"> • % of Interstate pavements in Good condition • % of Interstate pavements in Poor condition • % of non-Interstate NHS pavements in Good condition • % of non-Interstate NHS pavements in Poor condition • % of NHS bridges classified as in Good condition • % of NHS bridges classified as in Poor condition
Support Public Transportation	Invest in public transportation to spur economic development, protect the environment, and improve quality of life	<ul style="list-style-type: none"> • Annual transit boardings systemwide • Percent of households within 1/4 mile of a transit stop
Support Neighborhoods and Communities	Connect communities to opportunities and resources across the region	<ul style="list-style-type: none"> • Percent of residents living within a reasonable travel time to work
Foster a Vibrant Downtown and Central Core	Improve access to and mobility within the central core by all modes to increase the attractiveness of St. Louis and strengthen the regional economy	<ul style="list-style-type: none"> • Employment in the central core • Population in the central core
Provide More Transportation Choices	Create viable alternatives to automobile travel by providing bicycle and pedestrian facilities	<ul style="list-style-type: none"> • Percent of non-single occupancy vehicle travel VMT per capita
Promote Safety and Security	Provide a safe and secure transportation system for all users	<p>Five-year rolling averages for:</p> <ul style="list-style-type: none"> • Number of Fatalities; • Rate of Fatalities for 100 million VMT; • Number of Serious Injuries; • Rate of Serious Injuries per 100 million VMT; • Number of non-motorized fatalities and non-motorized serious injuries
Support a Diverse Economy with a Reliable System	Reduce congestion and improve travel time reliability to support the diverse economic sectors of the region	<ul style="list-style-type: none"> • Percent of person-miles traveled on the Interstate that are reliable • Percent of person-miles traveled on the non-Interstate that are reliable • Annual Hours of Peak Hour Excessive Delay per capita
Support Quality Job Development	Support the growth of wealth producing jobs that allow residents to save and return money to the economy	<ul style="list-style-type: none"> • Percent of jobs with a median wage higher than self-sufficiency for a 1 adult, 1 child household
Strengthen Intermodal Connections	Support freight movement and connections that are critical to the efficient flow of both people and goods	<ul style="list-style-type: none"> • Truck Travel Time Reliability Index
Protect Air Quality and Environmental Assets	Encourage investments that recognize the linkages between the social, economic, and natural fabric of the region	<ul style="list-style-type: none"> • On-Road Mobile Source Emissions—Total Emissions reduction • Number of funded projects that impact areas of ecological significance

(Source: East-West Gateway Council of Governments Connected 2045: Long Range Transportation Plan for the St. Louis Region, <https://www.ewgateway.org/wp-content/uploads/2019/08/Connected2045-FinalDraft-082819.pdf>)

Evansville MPO Metropolitan Transportation Plan 2045 (2019)

In addition to documenting the FHWA performance measures in its [MTP](#), the Evansville MPO (EMPO), the MPO serving the bi-state Evansville region in Indiana and Kentucky, also shares non-Federal performance measures. These non-Federal performance measures allow the MPO to track progress toward attaining specific goals and objectives unique to the Evansville region. For example, EMPO developed goals, objectives, and performance measures related to increasing the availability of bicycle and pedestrian facilities and expanding transit service to help improve access to jobs and places of business. Table 6 highlights the Federal and non-Federal performance measures related to EMPO's quality of life and health goal. These regional performance measures help EMPO support economic vitality, productivity, efficiency, and competitiveness.

Table 6. EMPO's Federal and non-Federal performance measures within the MTP's quality of life and health goal

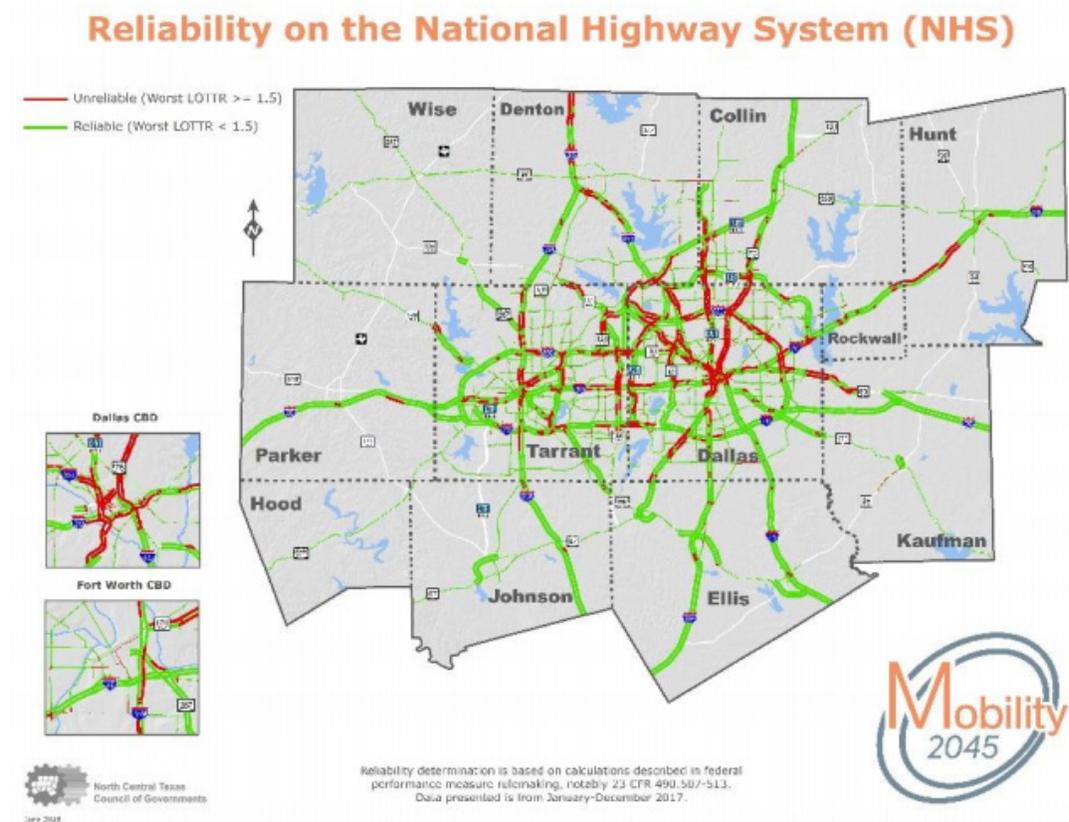
Goal: Provide a variety of transportation options for all residents to improve connectivity and enhance quality of life, community health, and transportation equity.		
Objective: Increase the availability of bicycle and pedestrian facilities to provide better connections between residential areas, workplaces, schools, shopping, parks/recreational facilities and other services.		
Approach	Performance Measure	Federal
During the planning and development of road projects, local bicycle and pedestrian plans should be reviewed to identify options for including bicycle and pedestrian facilities. Existing plans identify the best type of facility that helps complete the overall bicycle and pedestrian network. All types of facilities (sidewalks, bike lanes, cycle tracks, greenways, shared use paths, etc.) should be considered to provide the most effective connections between residences and shopping, recreational and entertainment destinations.	# of on-street bicycle miles (since MTP 2040)	
	# of greenway/shared use path miles (since MTP 2040)	
	# of sidewalk miles on arterials and collectors (since MTP 2040)	
Objective: Increase transit access to provide better connections between residential areas, workplaces, schools, shopping, parks/recreational facilities and other services.		
Approach	Performance Measure	Federal
Metropolitan Evansville Transit System, Henderson Area Rapid Transit, and Warrick Area Transit System should provide connections between neighborhoods and major shopping, entertainment, and recreational destinations. Routes may need to be reviewed to ensure the most effective connections. Service area, number of routes, number of bus shelters, technology used, etc. should also be reviewed periodically to provide the best possible service for the highest number of people.	# of people within 1/4 mile of a transit route	
Objective: Provide travel time reliability to ensure the most efficient use of time for commuters.		
Approach	Performance Measure	Federal
Reduce congestion to maintain travel times by encouraging the adoption of access management principles that maintain mobility on higher volume roadways; supporting the completion of Interstate 69 within the region and statewide to divert pass-through trips from more congested areas; modernizing, improving coordination, and/or removing traffic signals when possible; encouraging grade separation of rail crossings; and encouraging the implementation of Traffic Incident Management standards to quickly clear nonrecurring incidents.	% of person-miles traveled on interstate system that are reliable	✓
	% of person-miles traveled on non-interstate NHS system that are reliable	✓
	Travel Time Index	
	Volume-to-Capacity Ratio	

(Source: Evansville MPO 2045 Metropolitan Transportation Plan, http://www.evansvillempo.com/Docs/MTP/MTP_2045/FINAL_MTP2045.pdf)

[North Central Texas Council of Governments Mobility 2045 \(2018\)](#)

The North Central Texas Council of Governments (NCTCOG), the MPO for the Dallas region in Texas, uses mapping visualizations in its [MTP](#) to evaluate transportation system performance for the FHWA performance measures on travel time reliability. NCTCOG spatially analyzes travel time data to calculate the percent of person miles traveled on the NHS that are reliable using the National Performance Management Research Dataset (NPMRDS). The data from these calculations is illustrated in Figure 2, which shows the segment-level reliability along the NHS in the region. This spatial data allows NCTCOG to implement location-specific projects and strategies to reduce travel delays, improve congestion, and enhance the overall reliability of the regional network.

Figure 2. NCTCOG's mapping visualization to show travel time reliability on the NHS



(Source: North Central Texas COG Mobility 2045,

<https://www.nctcog.org/nctcg/media/Transportation/DocsMaps/Plan/MTP/G-Regional-Performance.pdf>)

[North Front Range MPO 2045 Regional Transportation Plan \(2019\)](#)

The North Front Range MPO, which covers the Fort Collins region in Colorado, uses a scorecard in its [MTP](#) to document baseline data and targets for the FHWA performance measures and the agency's progress toward achieving those targets. For the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, and on-road mobile source emissions, the MPO agreed to adopt the Colorado DOT's targets and to plan and program projects so they contribute toward the accomplishment of those targets. Table 7 displays the MTP's scorecard with baseline data (indicated by the "benchmark" column) and targets for the FHWA performance measures.

As new data becomes available, the MPO will continue to update the scorecard to identify trends and analyze how performance has changed over time.

Table 7. North Front Range MPO's scorecard for the FHWA performance measures

Category	Performance Measure	Benchmark	Target	Status	Page
Highway Safety	Number of fatalities	600	644	Achieved	8
	Rate of fatalities per 100 million VMT	1.09	1.20	Achieved	9
	Number of serious injuries	2,340	2,909	Achieved	10
	Rate of serious injuries per 100 million VMT	4.384	5.575	Achieved	11
	Number of non-motorized fatalities and serious injuries	512	514	Achieved	12
Bridge and Pavement Condition	Percent of Interstate pavement in Good condition	42.4%	47%	Negative	14
	Percent of Interstate pavement in Poor condition	0.98%	1%	Achieved	14
	Percent of Non-Interstate NHS pavement in Good condition	41.4%	51%	Negative	14
	Percent of Non-Interstate NHS pavement in Poor condition	2.21%	2%	In progress	14
	Percent of NHS bridges in Good condition	47.4%	44%	Achieved	14
	Percent of NHS bridges in Poor condition	3.8%	4%	Achieved	14
System Performance	Percent of person-miles traveled on Interstate system that are reliable	80.7%	81%	In progress	15
	Percent of person-miles traveled on non-Interstate system that are reliable	86.2%	64%	In progress	15
	Truck travel time reliability index	1.37	1.5	Achieved	15
	Volatile Organic Compound Reduction (kg/day)	672.780	105.000	In progress	15
	Carbon Monoxide Reduction (kg/day)	9,998.719	1,426.000	In progress	15
	Nitrogen Oxide Reduction (kg/day)	1,663.534	105.000	In progress	16

(Source: North Front Range MPO 2045 Regional Transportation Plan, <https://nfrmpo.org/wp-content/uploads/2045-rtp-final.pdf>)

Walla Walla Valley MPO Metropolitan and Regional Transportation – 2040 Plan (Revised in 2018)

The Walla Walla Valley MPO, which serves the bi-state Walla Walla region in Washington and Oregon, includes various charts and tables in its [MTP](#) to document targets for the FHWA performance measures. For the FHWA performance measures on highway safety, pavement and bridge condition, and travel time reliability, the MPO agreed to adopt the targets established by the Washington DOT and the Oregon DOT and to plan and program projects so they contribute toward the accomplishment of those targets. Table 8 shows the two-year and four-year targets for the FHWA performance measures on pavement condition.

Table 8. Targets established by the Washington and Oregon DOTs for the FHWA performance measures on pavement condition

Oregon Pavement Condition*		
Performance Measure	2-Year Target	4-Year Target
Percentage of pavements of the Interstate System in Good condition	--	35%
Percentage of pavements of the Interstate System in Poor condition	--	0.5%
Percentage of pavements of the non-Interstate NHS in Good condition	50%	50%
Percentage of pavements of the non-Interstate NHS in Poor condition	10%	10%
Washington State Pavement Condition*		
Performance Measure	2-Year Target	4-Year Target
Percentage of pavements of the Interstate System in Good condition	--	30%
Percentage of pavements of the Interstate System in Poor condition	--	4%
Percentage of pavements of the non-Interstate NHS in Good condition	45%	18%
Percentage of pavements of the non-Interstate NHS in Poor condition	21%	5%

* As defined in 23 CFR 490.307

Source: Walla Walla Valley MPO Metropolitan and Regional Transportation 2040 Plan, https://wwwmpo.org/uploads/3/5/3/8/35381422/wwwmposrtpo_2040_plan.pdf

2.3 Statewide Transportation Improvement Programs (STIPs)

This section includes examples from Georgia, Indiana, New Hampshire, Pennsylvania, Tennessee, Texas, Virginia, and Wisconsin to highlight how State DOTs are using STIPs to:

- Document performance measures and targets,
- Link investment priorities to targets,
- Describe anticipated future target achievement, and
- Integrate performance-based plans and processes.

Georgia DOT FY 2018-2021 STIP (Amended in 2018)

The Georgia DOT (GDOT) uses its [STIP](#) to integrate other performance-based plans and processes into the statewide transportation planning process, document performance measures and targets, and link investment priorities to targets through a [System Performance Report](#). This portion of the STIP references the goals, objectives, performance measures, targets, and investment priorities from the SHSP, HSIP, Georgia Transportation Asset Management Plan for NHS, Georgia Interstate Preservation Plan, Georgia Statewide Freight and Logistics Action Plan, and Georgia Statewide Transportation Plan. The STIP's System Performance Report also summarizes the total amount of funding GDOT has programmed to support progress toward achieving the targets for the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, traffic congestion, and on-road mobile source emissions.

Indiana DOT FY 2020-2024 STIP (2019)

The Indiana DOT (INDOT) uses its [STIP](#) to document baseline data and targets for the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, and on-road mobile source emissions. The STIP's written narrative outlines how INDOT links the goals, objectives, and investment priorities from the SHSP, State freight plan, State asset management plan for NHS, and LRSTP to the targets for the FHWA performance measures. The STIP also summarizes the total amount of funding INDOT has programmed to support progress toward achieving those targets.

New Hampshire DOT 2019-2022 STIP (2019)

The New Hampshire DOT (NHDOT) worked closely with its Federal, State, and regional partners to develop the [STIP](#). NHDOT, FHWA, and the four MPOs in New Hampshire collaborated to create the interagency working group, *Partnering for Performance in NH*. This working group met regularly during the development of the STIP and the establishment of the targets for the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, traffic congestion, and on-road mobile source emissions. The working group worked closely to link the STIP's investment priorities to the targets, and as a result, the STIP includes a table, shown in Table 9, referencing the programmed projects that support target achievement. Please note that Table 9 only shows a small sample of NHDOT's programmed projects.

Table 9. NHDOT's STIP projects that support target achievement for the FHWA performance measures

Project Name	Project Number	Safety	Pavement Condition	Bridge Condition	Congestion/Air Quality	Transit
Albany	29597	X	X			
Alton	40624			X		
Alton-Gilford	40634			X		
Amherst	41413			X		
Andover	20650			X		

(Source: New Hampshire DOT 2019-2022 STIP (2019), <https://www.nh.gov/dot/org/projectdevelopment/planning/stip/documents/amend-2-full-report-website.pdf>)

[Pennsylvania DOT FFY 2019-2022 STIP \(2018\)](#)

The Pennsylvania DOT (PennDOT) developed its [STIP](#) to link investment priorities with the targets for the FHWA performance measures on highway safety.¹ The STIP's written narrative details PennDOT's data-driven approach to ensuring that HSIP funds will advance projects that support progress toward the achievement of the safety targets. PennDOT evaluates, ranks, and selects safety projects using criteria involving cost-benefit analysis, [Highway Safety Manual analysis](#), fatality and injury crashes, application of systematic improvements, improvements on local roads, and deliverability. PennDOT will include the targets for the FHWA performance measures on pavement and bridge condition, travel time reliability, freight reliability, traffic congestion, and on-road mobile source emissions in future STIP updates.

[Tennessee DOT FY 2020-2023 STIP \(2020\)](#)

The Tennessee DOT (TDOT) uses its [STIP](#) to document baseline data and targets for the FHWA performance measures and integrate the HSIP, SHSP, and State asset management plan for the NHS into the statewide transportation planning process. For the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, traffic congestion, and on-road mobile source emissions, TDOT used a multidisciplinary group of subject matter experts from different divisions and bureaus across the state to develop its performance targets. TDOT developed internal working groups to lead the target setting process, including data reviews, trend analysis, considerations of key factors and assumptions, and consensus building.

[Texas DOT 2019-2022 STIP \(Amended 2019\)](#)

The Texas DOT (TxDOT) leverages performance goals, objectives, measures, and targets in its [STIP](#) to evaluate, prioritize, and fund projects based on their anticipated performance benefits. TxDOT uses a multi-objective decision analysis (MODA) tool to allocate funding across its programs for projects that support target achievement for the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, traffic congestion, and on-road mobile source emissions. The MODA tool analyzes data from TxDOT's pavement, bridge, crash, roadway inventory, and project development management systems to score and rank projects based on anticipated cost and performance. The MODA tool helps TxDOT link investment priorities to targets, assess anticipated future target achievement, and maximize the return on investment.

[Virginia DOT FFY 2018-2021 STIP \(Amended in 2019\)](#)

The Virginia DOT (VDOT), in cooperation with Virginia's Office of Intermodal Planning and Investment (OIPI) and the Virginia Department of Rail and Public Transportation (DRPT), uses an inclusive, multimodal, and data-driven prioritization process, known as [SMART SCALE](#), to identify and advance projects for funding in the [STIP](#). First, VDOT, OIPI, and DRPT engage MPOs, localities, and other eligible entities through a project application process, and then they screen proposals using the SMART SCALE process to evaluate and score projects for inclusion in the State's Six-Year Improvement Program (SYIP) based on factors for safety, accessibility, congestion mitigation, economic development, environment, land use, and consistency with the LRSTP. Next, VDOT, OIPI, and DRPT integrate the SYIP into the STIP in coordination with other performance-based plans and processes. The STIP references the goals, objectives, targets, and investment strategies from the SHSP, HSIP, Commercial Vehicle Safety Plan,

¹ PennDOT approved the FFY 2019-2022 STIP prior to establishing targets for the other FHWA performance measures on pavement and bridge condition, travel time reliability, freight reliability, traffic congestion, and on-road mobile source emissions.

State asset management plan for the NHS, and LRSTP. The STIP's performance-based programming process helps Virginia link investment priorities to targets, maximize the return on investments, and increase transparency, accountability, and consistency in the selection of projects.

[Wisconsin DOT 2020-2023 STIP \(2020\)](#)

The Wisconsin DOT (WisDOT) has established a data-driven, performance-based approach for the development of its [STIP](#). Since 2012, WisDOT has used the [Mobility, Accountability, Preservation, Safety, and Service \(MAPSS\) Performance Improvement Program](#) to evaluate the State's transportation system and measure progress over time. The MAPSS Performance Improvement Program includes the FHWA performance measures and additional non-Federal performance measures, and WisDOT continues to refine its use of the program to better monitor system performance, identify and prioritize projects for the STIP, track implementation, and forecast future conditions and needs.

2.4 Transportation Improvement Programs (TIPs)

This section includes examples from the Baltimore Regional Transportation Board, Broward MPO, Grand Forks-East Grand Forks MPO, Memphis Urban Area MPO, Metropolitan Transportation Commission, Pima Association of Governments, Rockingham Planning Commission, and Wilmington Area Planning Council to highlight how MPOs are using TIPs to:

- Document performance measures and targets,
- Link investment priorities to targets,
- Describe anticipated future target achievement, and
- Integrate performance-based plans and processes.

[Baltimore Regional Transportation Board 2020-2023 TIP \(2019\)](#)

The Baltimore Regional Transportation Board (BRTB), the MPO for the Baltimore region in Maryland, uses its [TIP](#) to document baseline data and targets for the FHWA performance measures and link investment priorities to those targets. For the FHWA performance measures on highway safety, non-Interstate NHS pavement in good condition, bridge condition, and on-road mobile source emissions, BRTB established its own targets. For the FHWA performance measures on Interstate pavement condition, non-Interstate NHS pavement in poor condition, travel time reliability, and freight reliability, BRTB agreed to adopt the Maryland DOT's targets and to plan and program projects so they contribute toward the accomplishment of those targets. For the FHWA performance measures on traffic congestion, BRTB established urbanized area targets in coordination with the Maryland DOT. The TIP includes baseline data and targets for the FHWA performance measures and summarizes the total amount of funding BRTB has programmed to support progress toward achieving those targets. Table 10 highlights BRTB's targets for the performance measures on traffic congestion and on-road mobile source emissions.

Table 10. BRTB's targets for the FHWA performance measures on traffic congestion and on-road mobile source emissions

Performance Measure	2017 Baseline	2-Year Targets (2018-2019)	4-Year Targets (2018-2021)
Annual per capita hours of peak-hour excessive delay	20.2 hours	<21.8 hours	<22.6 hours
Percentage of non-single occupancy vehicle travel	24.85%	24.85%	24.85%
Reduction of Volatile Organic Compounds (kg/day)	6.19	6.59	7.87
Reduction of Nitrogen Oxides (kg/day)	83.23	88.57	123.39

(Source: Baltimore Regional Transportation Board FY 2020-2023 TIP, https://www.baltometro.org/sites/default/files/bmc_documents/general/transportation/tip/20-23/20-23TIP.pdf)

[Broward MPO FY 2020-2024 TIP \(2019\)](#)

The Broward MPO leverages its [TIP](#) to document performance measures and targets, link investment priorities to targets, and describe anticipated future target achievement. For the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, and freight reliability, the Broward MPO agreed to adopt the Florida DOT's targets and to plan and program projects so they contribute toward the accomplishment of those targets. The TIP includes baseline data and targets for the FHWA performance measures and summarizes the total number of projects and total amount of funding the MPO has programmed to support progress toward achieving those targets. The TIP also identifies example project types that the MPO expects will contribute to future target achievement.

[Grand Forks-East Grand Forks MPO 2019-2022 TIP \(2018\)](#)

The Grand Forks-East Grand Forks MPO, which serves the bi-state Grand Forks region in North Dakota and Minnesota, developed its [TIP](#) to link investment priorities with the MPO's targets for the FHWA performance measures on highway safety.² In coordination with the North Dakota DOT and the Minnesota DOT, the MPO decided to establish its own safety targets to establish uniformity for the metropolitan planning area. The MPO determined that adopting two state level targets for the region would impede uniform planning efforts as Minnesota and North Dakota are different in their respective transportation systems, travel behaviors, and crash dynamics. The MPO's decision to establish its own targets helps ensure that investment decisions reflect the distinct needs of the Grand Forks region.

[Memphis Urban Area MPO FY 2017-2020 TIP \(Amended in 2018\)](#)

The Memphis Urban Area MPO, which serves the bi-state Memphis region in Tennessee and Mississippi, designed its [TIP](#) to document performance measures and targets and link investment priorities to targets. For the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, and on-road mobile source emissions, the MPO agreed to adopt the targets established by the Tennessee DOT and the Mississippi DOT and to plan and program projects so they contribute toward the accomplishment of those targets. For the FHWA performance measures on

² The Grand Forks-East Grand Forks MPO approved the FY 2019-2022 TIP prior to establishing targets for the other FHWA performance measures on pavement and bridge condition, travel time reliability, and freight reliability.

traffic congestion, the Memphis MPO established urbanized area targets in coordination with the Tennessee DOT and the Mississippi DOT. The TIP includes baseline data and targets for the FHWA performance measures and identifies example project types that the MPO expects will contribute to future target achievement. The TIP also includes a project prioritization and selection process, which the MPO uses to score, rank, and fund projects based on their anticipated performance benefits. The project evaluation process helps link investment decisions to Federal, State, and regional priorities and performance targets. Table 11 shows a sample of the project evaluation criteria the MPO uses to prioritize projects. The MPO carried this process forward into its [FY 2020-2023 TIP](#).

Table 11. TIP project evaluation criteria used by the Memphis Urban Area MPO

TIP Project Evaluation Criteria		Federal Performance Measures	Performance Targets for Federal Performance Measures	
Criteria	Points		Tennessee	Mississippi
Project Improves or Maintains an Existing Roadway or Transit Operation	6	Percentage (%) of pavements of the Interstate System in Good Condition	60.0%	55.0%
Project Upgrades Route (Design Improvements, Complete Streets, Etc.)	3	Percentage (%) of pavements of the Interstate System in Poor Condition	1.0%	5.0%
Project Integrates Intelligent Transportation System Service Packages included in the MPO's Regional Architecture	2	Percentage (%) of pavements of the Non- Interstate NHS in Good Condition	42.0%	25.0%
Existing Average Daily Traffic	5	Percentage (%) of pavements of the Non- Interstate NHS in Poor Condition	4.0%	10.0%
		Percentage (%) of NHS bridges classified as in Good Condition	36.0%	60.0%
		Percentage (%) of NHS bridges classified as in Poor Condition	6.0%	5.0%

(Source: Memphis Urban Area MPO TIP FY 2017-2020, <https://memphismpo.org/sites/default/files/public/TIP%20PM%20Addendum%20-%20Updated%2011.15.18.pdf>)

[Metropolitan Transportation Commission 2019 TIP \(2018\)](#)

The Metropolitan Transportation Commission (MTC), the MPO for the San Francisco region in California, uses its [TIP](#) to document performance measures and targets, link investment priorities to targets, and describe anticipated future target achievement. For the FHWA performance measures on highway safety, MTC agreed to adopt the California DOT's (CalTrans) targets and to plan and program projects so they contribute toward the accomplishment of those targets. For the FHWA performance measures on

traffic congestion, MTC established urbanized area targets in coordination with CalTrans.³ The TIP includes baseline data and targets for the FHWA performance measures and identifies example project types that MTC expects will contribute to future target achievement. The TIP also summarizes the total number of projects and the total amount of funding MTC has programmed to support progress toward achieving the targets and the anticipated performance benefits. For example, Table 12 shows the anticipated improvements in pavement condition on the NHS in the San Francisco region.

Table 12. The anticipated improvements in NHS pavement condition based on the 2019 TIP

Interstate Pavement Condition			
	Fair to Good	Poor to Good	Total Improved to Good
Lane-Miles Improved	387.6	75.6	463.2
% of Regional Total	17.3%	3.4%	20.7%
Non-Interstate NHS Pavement Condition			
	Fair to Good	Poor to Good	Total Improved to Good
Lane-Miles Improved	349.0	91.1	440.1
% of Regional Total	5.8%	1.5%	7.3%

Note: Pavement condition improvements data provided by project sponsors through the 2019 TIP

(Source: Metropolitan Transportation Commission 2019 TIP, https://mtc.ca.gov/sites/default/files/A-04_2019_TIP_PerformanceAnalysis.pdf)

Pima Association of Governments FY 2020-2024 TIP (2019)

The Pima Association of Governments (PAG), the MPO for the Tucson region in Arizona, developed its TIP to document performance measures and targets, link investment priorities to targets, and describe anticipated future target achievement. For the FHWA performance measures on highway safety, PAG adopted the State performance measures and developed additional safety targets to inform their planning process. For the FHWA performance measures on pavement and bridge condition, travel time reliability, freight reliability, PAG agreed to adopt the Arizona DOT's targets and to plan and program projects so they contribute toward the accomplishment of those targets. The TIP includes baseline data and targets for the FHWA performance measures and additional non-Federal performance measures on system maintenance, multimodal choices, freight and economic growth, land use and transportation, and environmental stewardship. The TIP also summarizes the total number of projects PAG has programmed to support progress toward achieving the targets and identifies example project types that PAG expects will contribute to future target achievement.

³ MTC approved the 2019 TIP prior to establishing targets for the other FHWA performance measures on pavement and bridge condition, travel time reliability, freight reliability, and on-road mobile source emissions.

Rockingham Planning Commission 2019-2022 TIP (2019)

The Rockingham Planning Commission (RPC), the MPO for the Portsmouth region in southeastern New Hampshire, uses its [TIP](#) to document performance measures and targets, link investment priorities to targets, and describe anticipated future target achievement. For the FHWA performance measures on highway safety, RPC agreed to adopt the New Hampshire DOT's (NHDOT) targets and to plan and program projects so they contribute toward the accomplishment of those targets. For the FHWA performance measures on pavement and bridge condition, travel time reliability, and freight reliability, RPC established its own targets that are consistent with NHDOT's targets. The TIP includes baseline data and targets for the FHWA performance measures and the status of target achievement. The TIP also summarizes the total number of projects and the total amount of funding programmed to support progress toward achieving the targets and identifies example project types that RPC expects will contribute to future target achievement. Table 13 shows RPC's baseline data, targets, and status for the FHWA performance measures on bridge condition.

Table 13. RPC's baseline data, targets, and status for the FHWA performance measures on NHS bridge condition

System and Performance Measure	New Hampshire DOT			RPC		
	Baseline Estimate*	2-Year Target	4-Year Target	Baseline Estimate*	4-Year Target	Current Status
NHS Bridges in Good Condition	57.0%	57.0%	57.0%	37.7%	57.0%	Not meeting target, 34% under target
NHS Bridges in Poor Condition	7.0%	7.0%	7.0%	8.1%	7.0%	Not meeting target, 15.7% under target

* NHDOT utilizes 2016 as the base year for pavement and bridge condition performance measures while RPC utilizes 2017 values for baseline estimates. Both RPC and NHDOT utilize 2017 values as the baseline for travel time reliability.

(Source: Rockingham Planning Commission 2019-2022 TIP, http://www.therpc.org/application/files/1115/5836/6630/RPC2019_22TIP_Adopted.pdf)

Wilmington Area Planning Council FY 2020-2023 TIP (2019)

The Wilmington Area Planning Council (WILMAPCO), the MPO for the bi-state Wilmington region in Delaware and Maryland, documents performance measures and targets, links investment priorities to targets, and describes anticipated future target achievement in its [TIP](#). For the FHWA performance measures on highway safety, pavement and bridge condition, travel time reliability, freight reliability, and on-road mobile source emissions, the MPO agreed to adopt the targets established by the Delaware DOT and the Maryland DOT and to plan and program projects so they contribute toward the accomplishment of those targets. For the FHWA performance measures on traffic congestion, WILMAPCO established urbanized area targets in coordination with the Delaware DOT and the Maryland DOT. The TIP includes charts to show baseline data, trends, and targets for the FHWA performance measures. The TIP also describes how WILMAPCO leverages available funding sources, real-time monitoring and data collection programs, and management systems for pavements, bridges, and congestion, to support progress toward achieving the targets. WILMAPCO uses a project prioritization and selection process to evaluate, rank, and fund projects based on their anticipated performance benefits.

3.0 Conclusion

Although the example LRSTPs, MTPs, STIPs, and TIPs were published at different times and are at different phases of implementation, common practices are emerging across the State DOTs and MPOs. The following section describes these observations and trends in more detail.

3.1 Communication through Visualizations

Visualizations play an important role in translating data into easily understood charts, maps, and graphics. State DOTs and MPOs use visualizations to help the public, elected officials, and other stakeholders better understand performance-based planning processes and transportation decisions by:

- Clearly displaying performance goals, objectives, measures, targets, and trends;
- Analyzing location-based data with digital mapping tools and geographic information systems;
- Illustrating the potential costs and benefits of transportation investments; and
- Explaining future scenarios and tradeoffs of proposed alternatives.

Please see the following agencies for example practices:

- State DOTs – Illinois DOT and Nebraska DOT
- MPOs – Chicago Metropolitan Agency for Planning, North Central Texas Council of Governments, and Pima Association of Governments

3.2 Interagency Coordination, Collaboration, and Consistency

State DOTs and MPOs have embraced interagency coordination and collaboration to support PBPP implementation. The examples in this report show how State DOTs and MPOs are working together with their Federal, State, regional, and local partners to collect and share data, establish targets, monitor performance, and report results. Many State DOTs and MPOs have developed interagency working groups and formal planning agreements to define their roles, responsibilities, and procedures for PBPP and TPM. To help ensure consistency in decision-making, many State DOTs and MPOs have also integrated the goals, objectives, measures, targets, and investment priorities from other performance-based plans and processes, such as the HSIP, SHSP, and State asset management plan for the NHS, into their LRSTPs, MTPs, STIPs, and TIPs. Please see the following agencies for example practices:

- State DOTs – New Hampshire DOT and Tennessee DOT
- MPOs – Grand Forks-East Grand Forks MPO and Walla Walla Valley MPO

3.3 Multiple Approaches to LRSTPs, MTPs, and System Performance Reports

State DOTs and MPOs are developing their LRSTPs, MTPs, and system performance reports in a variety of ways. To evaluate past condition and performance, agencies are mapping location-based data, reporting performance baselines and trends, and describing key findings from other performance-based plans and processes. Agencies are also using tables and charts to document performance measures and targets and written narratives to explain target methodologies, data sources, and motivations. Since many of the LRSTPs and MTPs were published prior to the completion of the first performance period, agencies are tracking progress toward target achievement by documenting interim data, describing the implementation status of important investment strategies and policy decisions, and designating

placeholders for reporting progress at the end of the performance period. Please see the following agencies for example practices:

- State DOTs – Maryland DOT and Nevada DOT
- MPOs – Broward MPO, East-West Gateway Council of Governments, and North Front Range MPO

3.4 Inclusion of Non-Federal Measures and Scenario Planning

Many State DOTs and MPOs incorporate non-Federal performance measures into their LRSTPs, MTPs, STIPs, and TIPs that reflect their own goals and objectives. These non-Federal measures enable State DOTs and MPOs to develop more comprehensive outlooks of transportation system performance by examining additional performance indicators, such as accessibility, community livability, and transportation equity, among others. Some State DOTs and MPOs also use their non-Federal measures to evaluate the performance of alternate future scenarios. With these scenarios, agencies can make more-informed investment and policy decisions that align with their performance goals and targets. Please see the following agencies for example practices:

- State DOTs – Nevada DOT
- MPOs – Atlanta Regional Commission and Evansville MPO

3.5 Data-Driven Project Prioritization and Performance-Based Programming

State DOTs and MPOs are designing their STIPs and TIPs to link investment priorities to performance targets and make progress toward target achievement. Many State DOTs and MPOs use data-driven project prioritization tools, criteria, and weightings to evaluate, rank, and fund projects based on their anticipated performance benefits. These performance-based approaches to transportation programming promote transparency in decision-making and help agencies prioritize investments that support target achievement and maximize the return on investment. Please see the following agencies for example practices:

- State DOTs – Texas DOT, Virginia DOT, and Wisconsin DOT
- MPOs – Memphis Urban Area MPO and Wilmington Area Planning Council

3.6 Performance Narratives in STIPs and TIPs

State DOTs and MPOs have flexibility in the format and methodology they use to develop their STIPs and TIPs. Many agencies use written narratives to discuss their approach to PBPP and TPM, the integration of other performance-based plans and processes into their planning process, and the anticipated effect of their STIP or TIP toward target achievement. Many State DOTs and MPOs use visualizations, such as charts, maps, and graphics, to supplement their written narratives, in addition to financial data, historical trends, and future performance forecasts. Altogether, these narratives help State DOTs and MPOs communicate their unique performance stories to a broad audience of interested parties and stakeholders. Please see the following agencies for example practices:

- State DOTs – Georgia DOT, Indiana DOT, and Pennsylvania DOT
- MPOs – Baltimore Regional Transportation Board, Broward MPO, Metropolitan Transportation Commission, and Rockingham Planning Commission

Appendix A: FHWA Performance Measures

Table A-1. FHWA performance measures as described in [23 U.S.C 150](#) and [23 CFR part 490](#)

Federal Rulemaking	Federal Regulation	Performance Measures	Measure Applicability
Highway Safety Improvement Program (HSIP) – 23 U.S.C. 150(c)(4)			
Highway Safety (PM1) 81 FR 13881	23 CFR 490.207(a)(1)	Number of fatalities <i>(referred to generally as a highway safety performance measure)</i>	All public roads covered by the HSIP carried out under 23 U.S.C. 130 and 23 U.S.C. 148
	23 CFR 490.207(a)(2)	Rate of fatalities <i>(referred to generally as a highway safety performance measure)</i>	All public roads covered by the HSIP carried out under 23 U.S.C. 130 and 23 U.S.C. 148
	23 CFR 490.207(a)(3)	Number of serious injuries <i>(referred to generally as a highway safety performance measure)</i>	All public roads covered by the HSIP carried out under 23 U.S.C. 130 and 23 U.S.C. 148
	23 CFR 490.207(a)(4)	Rate of serious injuries <i>(referred to generally as a highway safety performance measure)</i>	All public roads covered by the HSIP carried out under 23 U.S.C. 130 and 23 U.S.C. 148
	23 CFR 490.207(a)(5)	Number of non-motorized fatalities and non-motorized serious injuries <i>(referred to generally as a highway safety performance measure)</i>	All public roads covered by the HSIP carried out under 23 U.S.C. 130 and 23 U.S.C. 148
National Highway Performance Program (NHPP) – 23 U.S.C. 150(c)(3)			
Pavement and Bridge Condition (PM2) 82 FR 5886	23 CFR 490.307(a)(1)	Percentage of pavements of the Interstate System in good condition <i>(referred to generally as a pavement condition performance measure)</i>	Mainline highways on the Interstate System
	23 CFR 490.307(a)(2)	Percentage of pavements of the Interstate System in poor condition	Mainline highways on the Interstate System

Federal Rulemaking	Federal Regulation	Performance Measures	Measure Applicability
		<i>(referred to generally as a pavement condition performance measure)</i>	
	23 CFR 490.307(a)(3)	Percentage of pavements of the non-Interstate NHS in good condition <i>(referred to generally as a pavement condition performance measure)</i>	Mainline highways on the non-Interstate NHS
	23 CFR 490.307(a)(4)	Percentage of pavements of the non-Interstate NHS in poor condition <i>(referred to generally as a pavement condition performance measure)</i>	Mainline highways on the non-Interstate NHS
	23 CFR 490.407(c)(1)	Percentage of NHS bridges classified as in good condition <i>(referred to generally as a bridge condition performance measure)</i>	Bridges carrying the NHS, which includes on- and off-ramps connected to the NHS
	23 CFR 490.407(c)(2)	Percentage of NHS bridges classified as in poor condition <i>(referred to generally as a bridge condition performance measure)</i>	Bridges carrying the NHS, which includes on- and off-ramps connected to the NHS
System Performance, Freight, and CMAQ (PM3) 82 FR 5970	23 CFR 490.507(a)(1)	Percent of the person-miles traveled on the Interstate that are reliable <i>(referred to generally as a travel time reliability performance measure)</i>	All directional mainline highways on the Interstate System
	23 CFR 490.507(a)(2)	Percent of the person-miles traveled on the non-Interstate NHS that are reliable	All directional mainline highways on the non-Interstate NHS

Federal Rulemaking	Federal Regulation	Performance Measures	Measure Applicability
		<i>(referred to generally as a travel time reliability performance measure)</i>	
<u>National Freight Movement – 23 U.S.C. 150(c)(6)</u>			
System Performance, Freight, and CMAQ (PM3) 82 FR 5970	23 CFR 490.607	Truck Travel Time Reliability (TTTR) Index <i>(referred to generally as a freight reliability performance measure)</i>	The Interstate System
<u>Congestion Mitigation and Air Quality Improvement Program (CMAQ) – 23 U.S.C. 150(c)(5)</u>			
System Performance, Freight, and CMAQ (PM3) 82 FR 5970	23 CFR 490.707(a)	Annual hours of peak hour excessive delay (PHED) per capita <i>(referred to generally as a traffic congestion performance measure)</i>	All urbanized areas that include NHS mileage and with a population over 1 million for the first performance period and in urbanized areas with a population over 200,000 for the second and all other performance periods, that are, in all or part, designated as nonattainment or maintenance areas for ozone (O3), carbon monoxide (CO), or particulate matter (PM10 and PM2.5) National Ambient Air Quality Standards (NAAQS).

Federal Rulemaking	Federal Regulation	Performance Measures	Measure Applicability
	23 CFR 490.707(b)	Percent of non-single occupancy vehicle (SOV) travel <i>(referred to generally as a traffic congestion performance measure)</i>	All urbanized areas that include NHS mileage and with a population over 1 million for the first performance period and in urbanized areas with a population over 200,000 for the second and all other performance periods, that are, in all or part, designated as nonattainment or maintenance areas for ozone (O3), carbon monoxide (CO), or particulate matter (PM10 and PM2.5) National Ambient Air Quality Standards (NAAQS).
Congestion Mitigation and Air Quality Improvement Program (CMAQ) – 23 U.S.C. 150(c)(5)			
System Performance, Freight, and CMAQ (PM3) 82 FR 5970	23 CFR 490.807	Total emissions reduction <i>(referred to generally as an on-road mobile source emissions performance measure)</i>	All States and MPOs with projects financed with funds from the 23 U.S.C. 149 CMAQ program apportioned to States for areas designated as nonattainment or maintenance for ozone (O3), carbon monoxide (CO), or particulate matter (PM10 and PM2.5) National Ambient Air Quality Standards (NAAQS). This performance measure does not apply to States and MPOs that do not contain any portions of nonattainment or maintenance areas for the criteria pollutants identified in 23 CFR 490.803(a) .

Appendix B: Hyperlinks to Example Practices from State DOTs and MPOs

Table B-1. LRSTP Examples

Agency Name	Plan Name	States
Illinois DOT	Illinois DOT Long Range Transportation Plan	IL
Maryland DOT	2040 Maryland Transportation Plan: Connecting You to Life's Opportunities	MD
Nebraska DOT	Vision 2032: Mapping Nebraska's Future	NE
Nevada DOT	One Nevada Transportation Plan	NV

Table B-2. MTP Examples

Agency Name	Plan Name	States
Atlanta Regional Commission	The Atlanta Region's Plan: 2040 RTP	GA
Broward MPO	Commitment 2045 Metropolitan Transportation Plan	FL
Chicago Metropolitan Agency for Planning	On to 2050	IL
East-West Gateway COG	Connected 2045: Long-Range Transportation Plan for the St. Louis Region	MO, IL
Evansville MPO	Metropolitan Transportation Plan 2045	IN, KY
North Central Texas COG	Mobility 2045	TX
North Front Range MPO	2045 Regional Transportation Plan	CO
Walla Walla Valley MPO	Metropolitan and Regional Transportation – 2040 Plan	WA, OR

Table B-3. STIP Examples

Agency Name	Program Name	States
Georgia DOT	FY 2018-2021 STIP	GA
Indiana DOT	FY 2020-2024 STIP	IN
New Hampshire DOT	2019-2022 STIP	NH
Pennsylvania DOT	FFY 2019-2022 STIP	PA
Tennessee DOT	FY 2020-2023 STIP	TN
Texas DOT	2019-2022 STIP	TX
Virginia DOT	FFY 2018-2021 STIP	VA
Wisconsin DOT	2020-2023 STIP	WI

Table B-4. TIP Examples

Agency Name	Program Name	States
Baltimore Regional Transportation Board	2020-2023 TIP	MD
Broward MPO	FY 2020-2024 TIP	FL
Grand Forks-East Grand Forks MPO	2019-2022 TIP	ND, MN
Memphis Urban Area MPO	FY 2017-2020 TIP	TN, MS
Metropolitan Transportation Commission	2019 TIP	CA
Pima Association of Governments	FY 2020-2024 TIP	AZ
Rockingham Planning Commission	2019-2022 TIP	NH
Wilmington Area Planning Council	FY 2020-2023 TIP	DE, MD

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