



## Implementation Resources for Transportation Performance Management (TPM) and Transportation Asset Management (TAM)

MAP-21 and the FAST Act created a streamlined and performance-based surface transportation program with specific requirements for State Departments of Transportation (DOTs), Metropolitan Planning Organizations (MPOs), and transit agencies. As State DOTs, MPOs, and other transportation stakeholders undertake implementation to meet these requirements, the Federal Highway Administration (FHWA) is committed to supporting partner needs through an array of professional capacity building resources. Included in this handout are currently available and forthcoming FHWA resources organized by specific TPM elements or TAM topics. **This document should be considered illustrative and may not capture every TPM or TAM resource available from FHWA.**

### Transportation Performance Management Element: Cross-Cutting Topics

Resource	Description	Availability	Applicability/Use
Final Performance Measures Rules and Guidance--FHWA	Section of FHWA TPM website with links to all FHWA final performance management rulemakings. See: <a href="https://www.fhwa.dot.gov/tpm/rule.cfm">https://www.fhwa.dot.gov/tpm/rule.cfm</a>	Now	Develop knowledge of the final performance management regulations and related guidance from FHWA
Final Performance Measures Rules and Guidance--FTA	Section of FTA TPM website with links to all FHWA final performance management rulemakings. See: <a href="https://www.transit.dot.gov/TAM/resources/targetsperformance">https://www.transit.dot.gov/TAM/resources/targetsperformance</a>	Now	Develop knowledge of the final performance management regulations and related guidance from FTA
Frequently Asked Questions: <i>Transportation Performance Management</i>	Set of TPM Related FAQs. FHWA updates on a regular basis. Also, links provided to other FAQs for safety and asset management. See: <a href="https://www.fhwa.dot.gov/tpm/faq.cfm">https://www.fhwa.dot.gov/tpm/faq.cfm</a>	Now	Enhance understanding of TPM by reviewing commonly asked questions and answers
NHI 138004 MAP-21 TPM Overview with FAST Act Updates Course	One day formal training course. Provides a basic overview of TPM provisions of MAP-21 and the FAST Act; describes the responsibilities that agencies—federal state, metropolitan planning organizations, regional transportation planning organizations and transit—have in delivering these requirements; highlights data's importance in meeting performance management provisions; and shares noteworthy practices. See: <a href="https://www.nhi.fhwa.dot.gov/course-search?course_no=138004&amp;sf=0">https://www.nhi.fhwa.dot.gov/course-search?course_no=138004&amp;sf=0</a>	Now	Develop awareness and knowledge of MAP-21 and FAST Act national TPM requirements

## Transportation Performance Management Element: Cross-Cutting Topics

Resource	Description	Availability	Applicability/Use
NHI 138003 <i>Introduction to Performance Measurement Web Based Training (WBT) Course</i>	NHI self-paced web course (WBT). Provides an overview of performance measures, their development, use and role of data. See: <a href="https://www.nhi.fhwa.dot.gov/course-search?tab=1&amp;typ=3&amp;course_no=138003&amp;sf=1">https://www.nhi.fhwa.dot.gov/course-search?tab=1&amp;typ=3&amp;course_no=138003&amp;sf=1</a>	Now	Develop basic awareness of the performance measures—definitions, use and data linkages
<i>TPM Corporate Maturity Model (CMM) Workshop (Organizational Assessment)</i>	Tailored workshop (1.5 days). Based on an organizational assessment or corporate maturity model (CMM), this workshop offers an action driven, priority setting forum for participants to review key aspects of TPM implementation, to identify areas of needed focus and to define specific strategies and actions for enhancing TPM organizational effectiveness. ( <i>TPM Implementation Guidebook</i> is a key resource for these workshops) See: <a href="https://www.fhwa.dot.gov/tpm/tpmrequest/workshops.pdf">https://www.fhwa.dot.gov/tpm/tpmrequest/workshops.pdf</a>	Now	Identify organizational gaps in effectively delivering a transportation performance management program. Determine strategies for addressing gaps
On Call Tailored Technical Assistance on TPM Cross-Cutting Topics	Tailored Technical Assistance from the FHWA Resource Center on cross-cutting topics related to TPM. See: <a href="https://www.fhwa.dot.gov/resourcecenter/">https://www.fhwa.dot.gov/resourcecenter/</a>	Now	Develop knowledge on cross-cutting TPM topics and issues and apply to specific state or regional needs
FHWA TPM Peer Exchange Program	TPM Peer Exchange. Peer exchanges are offered to foster exchange of transferable practices between state DOT and MPO peers. See: <a href="https://www.fhwa.dot.gov/tpm/tpmrequest/">https://www.fhwa.dot.gov/tpm/tpmrequest/</a>	Now	Develop knowledge of effective TPM practices and approaches in other states and regions that may be helpful and/or transferable
<i>Let's Talk Performance Webinar Series</i>	Live Webinar Series. Webinar sessions on a variety of transportation performance management related topics. Webinars feature transportation practitioners sharing lessons learned and providing demonstrations of the TPM approaches and activities nationally. See: <a href="https://www.fhwa.dot.gov/tpm/resources/ltp_webinars.cfm">https://www.fhwa.dot.gov/tpm/resources/ltp_webinars.cfm</a>	Now	Develop awareness on TPM experiences, approaches and lessons learned from other peer partners
FHWA TPM Website	TPM Website: Provides general FHWA TPM information and links to specific program areas, products and resources. See: <a href="https://www.fhwa.dot.gov/tpm/">https://www.fhwa.dot.gov/tpm/</a>	Now	Understand available cross-cutting and program specific TPM regulations, guidance, and implementation resources
<i>TPM Implementation Guidebook</i>	FHWA/AASHTO 2016 Guidebook: Provides information on how transportation agencies can move the theory of TPM into practice by providing “how-to” information for agencies interested in implementing or improving the application of TPM principles. Key TPM elements, concepts, interrelationships, and terminology are included along with a customizable action plan worksheet. Guidebook also links to an online TPM organizational assessment. See: <a href="https://www.tpmtools.org/guidebook/">https://www.tpmtools.org/guidebook/</a>	Now	Utilized to assess current organizational capabilities in the context of TPM and to determine concrete steps that can be taken to enhance existing programs
<i>How TPM and Asset Management Work Together (Web Page)</i>	See: <a href="https://www.fhwa.dot.gov/tpm/resources/working.cfm">https://www.fhwa.dot.gov/tpm/resources/working.cfm</a>	Now	Develop awareness of the connections and linkages between TPM and TAM

## Transportation Asset Management: Cross-Cutting Topics

Resource	Description	Availability	Applicability/Use
Final FHWA Rule: <i>Asset Management Plans</i>	National webinar (recorded) on the final rule related to Transportation Asset Management Plans (TAMPs). See: <a href="https://www.fhwa.dot.gov/tpm/rule/161109presentation.pdf">https://www.fhwa.dot.gov/tpm/rule/161109presentation.pdf</a>	Now	Develop knowledge of the highway asset management final rule
Final FTA Rule: <i>Transit Asset Management</i>	Website with resource links to the final rule on Transit Asset Management. See: <a href="https://www.transit.dot.gov/regulations-and-guidance/asset-management/tam-rulemaking">https://www.transit.dot.gov/regulations-and-guidance/asset-management/tam-rulemaking</a>	Now	Develop knowledge of the transit asset management final rule
Interim Guidance: <i>Developing TAMP Financial Plans</i>	June 2017 Interim Guidance. The TAMP is a central part of the larger Federal performance management process. At a minimum, the TAMP will include National Highway System (NHS) pavements and bridges, but may include other assets chosen by State departments of transportation (DOTs). The TAMP is one of a series of plans State DOTs must develop to achieve the Nation's transportation goals. See: <a href="https://www.fhwa.dot.gov/asset/pubs/developing_tamp_fp.pdf">https://www.fhwa.dot.gov/asset/pubs/developing_tamp_fp.pdf</a>	Now	Understand interim guidance and how State DOTs can develop financial planning processes to support development of their 10-year TAMPs
Interim Guidance: <i>Incorporating Risk Management in TAMPs</i>	June 2017 Interim Guidance. Provides guidance on the risk element of the TAMP. See: <a href="https://www.fhwa.dot.gov/asset/pubs/incorporating_rm.pdf">https://www.fhwa.dot.gov/asset/pubs/incorporating_rm.pdf</a>	Now	Understand interim guidance and how risk is defined and how it can be applied to meet the requirements of a risk-based TAMP
Interim Guidance: <i>Using a Life Cycle Planning (LCP) Process to Support Asset Management</i>	June 2017 Interim Guidance. Provides guidance on establishing a LCP approach to manage transportation assets and develop performance- and risk-based asset management plans. Defines LCP and explains how to use this approach in managing transportation assets over their whole life, covering the time each asset goes into service after construction to the time it is retired or disposed of. See: <a href="https://www.fhwa.dot.gov/asset/pubs/life_cycle_planning.pdf">https://www.fhwa.dot.gov/asset/pubs/life_cycle_planning.pdf</a>	Now	Understand interim guidance and how developing an initial LCP process can help identify effective investment strategies for managing transportation assets
Review Guidelines: <i>TAMP Consistency Determination</i>	Draft Guidelines for Comment in Federal Register. Provides a framework for undertaking and completing the annual consistency determination, required under 23 CFR 515.13(b), for whether a State DOT has developed and implemented a TAMP in accordance with 23 U.S.C. 119 and 23 CFR Part 515. The FHWA will review and respond to all comments received in a Federal Register Notice finalizing the Guidelines. See: <a href="https://www.fhwa.dot.gov/asset/guidance/consistency.cfm">https://www.fhwa.dot.gov/asset/guidance/consistency.cfm</a>	Now	Understand review guidelines for the TAMP consistency determination
Review Guidelines: <i>TAMP Development Processes Certification and Recertification</i>	Draft Guidelines for Comment in Federal Register. Provides a framework for undertaking and completing the process certification for a State DOT's TAMP development processes as outlined in 23 CFR 515.13. The FHWA will review and respond to all comments received in a Federal Register Notice finalizing the Guidelines. See: <a href="https://www.fhwa.dot.gov/asset/guidance/certification.cfm">https://www.fhwa.dot.gov/asset/guidance/certification.cfm</a>	Now	Understand review guidelines for the certification and recertification of the TAMP development processes

Resource	Description	Availability	Applicability/Use
NHI 136106 and 136106A <i>Introduction to Asset Management Course/Workshop</i>	In person course and ½ day tailored workshop (NHI136106A). Course provides an overview of asset management principles, performance measures, long-term financial planning, and risk assessment. Workshop provides hands-on discussions of applying asset management in practical situations. (Can be delivered without the ½ day workshop with FHWA approval as NHI 136106). See: <a href="https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136106A">https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136106A</a>	Now	Develop awareness of asset management requirements, principles and financial planning and risk management approaches. Determine specific state areas of focus and priorities for asset management (with
NHI 136106B <i>Developing an Asset Management Plan (TAMP) Course</i>	Blended Learning. (Online Requirements followed by In Person Workshop (1.5 days)). Provides overview on the three primary components to the TAMP, including strategic performance measurement, risk assessment, and financial management. Also, provides templates and guidelines for use in developing a TAMP. See: <a href="https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136106B">https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136106B</a>	Now	Develop awareness of TAMP requirements and key steps to develop and enhance them
NHI 136106C <i>Introduction to Transportation Asset Management Plan WBT Course</i>	One Hour Web Based Training. Through a self-paced learning approach, course provides an overview of TAMPs. (WBT is a pre-requisite for NHI 13606B). See: <a href="https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136106C">https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136106C</a>	Now	Develop high level awareness of TAMP requirements and key steps to develop and enhance them
NHI 136113 <i>Overview of Transportation Asset Management WBT Course</i>	Two Hour Web Based Training. Through a self-paced learning approach, course provides an overview of Asset Management. See: <a href="https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136113">https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136113</a>	Now	Develop high level awareness of common terms, background information, and the context of TAM
NHI 136002A <i>Financial Planning for Asset Management Web Based Training (WBT) Course</i>	One Hour Web Based Training. Through a self-paced learning approach, course provides a high-level overview of terms, background, context, and introductory information for asset management financial plans. It is available through the NHI website. See: <a href="https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136002A">https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=asset+management&amp;sf=0&amp;course_no=136002A</a>	Now	Develop high level awareness of common terms, background information, and the context of financial plans for TAM
FHWA/AASHTO <i>Transportation Asset Management Webinar Series</i>	Live Webinar Series. Provides a series of webinars with a variety of asset management related topics, including: financial planning; risk management; tradeoff analysis; data management and more. Webinars feature transportation practitioners sharing lessons learned and providing demonstrations of the TAM tools and methods that are helping to expand the impact of asset management at DOTs nationwide. See: <a href="http://www.tam-portal.com/tam-webinars/">http://www.tam-portal.com/tam-webinars/</a>	Now	Develop awareness on asset management experiences, approaches and lessons learned from other peer partners
On Call Tailored Technical Assistance on TAM Topics	Tailored Technical Assistance from the FHWA Resource Center on TAM related topics See: <a href="https://www.fhwa.dot.gov/resourcecenter/">https://www.fhwa.dot.gov/resourcecenter/</a>	Now	Develop knowledge cross-cutting TAM topics and issues and apply to specific state or regional needs

Resource	Description	Availability	Applicability/Use
Pavement Management Systems (Vision and Roadmap)	Vision and Roadmap. This FHWA website provides variety of resources on pavement management, a future vision, and roadmap for getting there. Website also documents role of pavement management systems in supporting asset and performance management. Pavement Management Systems are a set of defined procedures for collecting, analyzing, maintaining, and reporting pavement data to assist decision makers in finding optimum strategies for maintaining pavements in serviceable condition over a given period for the least cost. See: <a href="https://www.fhwa.dot.gov/pavement/management/roadmap/">https://www.fhwa.dot.gov/pavement/management/roadmap/</a> .	Now	Understand role of pavement management systems in supporting assets and performance management
Bridge Management Systems	Website. Bridge management systems assist bridge owners in selecting and performing work that is the right activity, to the right bridge, at the right time, and at the right cost. Bridge management systems help bridge owners achieve their bridge performance objectives and goals, and maximize returns on investment. See: <a href="https://www.fhwa.dot.gov/bridge/management/">https://www.fhwa.dot.gov/bridge/management/</a> .	Now	Understand role of bridge management systems in supporting assets and performance management
FHWA Asset Management Website	Asset Management Website. Provides general FHWA TAM information and links to specific program areas, products and resources. See: <a href="https://www.fhwa.dot.gov/asset/">https://www.fhwa.dot.gov/asset/</a> .	Now	Understand available FHWA TAM regulations, guidance, and implementation resources
Asset Management Plans and Processes Fact Sheet	Fact Sheet. Provides concise overview of (highway) required state-approved asset management plans and processes and associated timelines. See: <a href="https://www.fhwa.dot.gov/asset/pubs/hif17006.pdf">https://www.fhwa.dot.gov/asset/pubs/hif17006.pdf</a>	Now	Develop high level awareness of TAMP requirements and timelines
Video: Overview of Asset Management	Video. Five to eight-minute video from 2014 providing high level overview of asset management and why it's important. See: <a href="https://www.youtube.com/watch?v=ep3j7f_LuM&amp;feature=youtu.be">https://www.youtube.com/watch?v=ep3j7f_LuM&amp;feature=youtu.be</a>	Now	Understand basics of asset management and its benefits
Frequently Asked Questions: Asset Management Overall and Initial Transportation Asset Management Plans	Overall Asset Management FAQ. Provides brief answers to commonly asked questions about asset management—including: relationship of asset management to planning and TPM; relationship of asset management to management systems; asset management definitions and benefits; role of cost analysis; etc. See: <a href="https://www.fhwa.dot.gov/asset/faq.cfm">https://www.fhwa.dot.gov/asset/faq.cfm</a> Initial TAMP FAQ. See: <a href="https://www.fhwa.dot.gov/asset/guidance/faqs_initial_plans.cfm">https://www.fhwa.dot.gov/asset/guidance/faqs_initial_plans.cfm</a>	Now	Enhance understanding of asset management by reviewing commonly asked questions and answers
Integrating Financial Plans into the Planning, Programming and Budgeting Process Report	Report. 2015 FHWA report addresses the role of the asset management financial plan in the larger Federal planning, programming and State budgeting processes. See: <a href="https://www.fhwa.dot.gov/asset/plans/financial/hif16001.pdf">https://www.fhwa.dot.gov/asset/plans/financial/hif16001.pdf</a>	Now	Understand connections between asset management and transportation planning, programming and budgeting

Resource	Description	Availability	Applicability/Use
<i>Incorporating Asset Valuation in Transportation Asset Management Financial Plan Report</i>	Report. 2016 FHWA report defines asset valuation as the assignment of monetary value to infrastructure based upon its size, age, condition, replacement cost, or original cost to construct. It explores the potential for asset valuation to play a larger role in U.S. asset-management efforts. It also explores challenges to expanded use of asset valuation and depreciation. See: <a href="https://www.fhwa.dot.gov/asset/plans/financial/hif16009.pdf">https://www.fhwa.dot.gov/asset/plans/financial/hif16009.pdf</a>	Now	Develop understanding of asset valuation and its role in an asset management program
<i>Managing Risks and Using Metrics in Transportation Asset Management Financial Plans Report</i>	Report. Addresses two related components of financial plans. The first is how to identify, communicate, manage, and perhaps capitalize upon the risks inherent in long-term strategies for financing complex and aging infrastructure assets. The second is how to use financial performance measures to illustrate the adequacy of investment levels and the magnitude of accumulating backlogs. See: <a href="https://www.fhwa.dot.gov/asset/plans/financial/hif15020.pdf">https://www.fhwa.dot.gov/asset/plans/financial/hif15020.pdf</a>	Now	Enhance knowledge of risk management for asset management financial plans
<i>Financial Planning for Transportation Asset Management: Components of a Financial Plan Report</i>	Report. 2015 FHWA report discusses the main components of a financial plan and shows how they can support a sustainable asset management plan for a transportation agency. See: <a href="https://www.fhwa.dot.gov/asset/plans/financial/hif15017.pdf">https://www.fhwa.dot.gov/asset/plans/financial/hif15017.pdf</a>	Now	Develop general awareness of financial plans and their key components for asset management
<i>Financial Planning for Asset Management: An Overview Report</i>	Report. FHWA report describes what a financial plan is, why it's important to asset management and its benefits. See: <a href="https://www.fhwa.dot.gov/asset/plans/financial/hif15018.pdf">https://www.fhwa.dot.gov/asset/plans/financial/hif15018.pdf</a>	Now	Understand general benefits of financial plans for an asset management program

## TPM Element: Data Management and Analytical Tools

Resource	Description	Availability	Applicability/Use
NHI 138011 <i>Role of Data in Transportation Performance Management Course</i>	Two day in person course. Provides overview of TPM data analysis needs for system performance measure areas; lists data requirements related to the use of performance projections for target setting; identifies common data quality issues and existing gaps along with techniques for addressing them; and develops a data management and improvement plan. Also, covers issues related to data assessment and data improvement planning. See: <a href="https://www.nhi.fhwa.dot.gov/course-search?course_no=138011&amp;sf=1">https://www.nhi.fhwa.dot.gov/course-search?course_no=138011&amp;sf=1</a>	Now	Develop awareness of data management, key principles and critical components of an effective, integrated program to support TPM requirements
NHI 151056 <i>Highway Performance Monitoring System: Concepts, Data Collection and Reporting Requirements Course</i>	Two day in person course. Provides advanced, in-depth, hands-on understanding of data collection and reporting requirements for HPMS. See: <a href="https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=151056&amp;res=1&amp;course_no=151056&amp;sf=1">https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;key=151056&amp;res=1&amp;course_no=151056&amp;sf=1</a>	Now	Develop advanced, in-depth, hands-on understanding of data collection and reporting requirements for HPMS
NHI 139011 <i>Fundamentals of Freight Data Course</i>	In person course (1.5 days). Provides an overview of a broad array of freight data sources and their applications for transportation planning program/project development and policy analysis. See: <a href="https://www.nhi.fhwa.dot.gov/course-search?course_no=139011&amp;sf=1">https://www.nhi.fhwa.dot.gov/course-search?course_no=139011&amp;sf=1</a>	Now	Develop broad knowledge of freight data sources and the ability to utilize freight data for TPM, transportation planning program/project development and policy analysis

Resource	Description	Availability	Applicability/Use
On Call Tailored Technical Assistance on Data Management and Analytical Tools	Tailored Technical Assistance from the FHWA Resource Center on topics and issues related to data management and analytical tools in support of TPM. See: <a href="https://www.fhwa.dot.gov/resourcecenter/">https://www.fhwa.dot.gov/resourcecenter/</a>	Now	Develop knowledge on data management and analytical tools in support of TPM and apply to specific state or regional needs
National Performance Management Research Data Set (NPMRDS)	Website and Dataset. National Performance Management Research Data Set (NPMRDS) is an archived speed and travel time data set (including associated location referencing data) that covers the National Highway System (NHS) and additional roadways near 26 key border crossings with Canada (20 crossings) and Mexico (6 crossings). Provides monthly national data set of average travel times on the National Highway System for use in performance measures and management activities. Is available to State Departments of Transportation and Metropolitan Planning Organizations to use for their performance management activities. See: <a href="https://ops.fhwa.dot.gov/perf_measurement/">https://ops.fhwa.dot.gov/perf_measurement/</a>	Now	Develop knowledge of how NPMRDS can be used to support TPM
Highway Economic Requirements System--State Version (HERS-ST)	Engineering/economic computer model designed specifically for State Departments of Transportation, Metropolitan Planning Organizations, and local governments as a decision tool used to analyze highway "needs" for programming & planning. Useful in the analysis phase - to identify needs - and during the evaluation phase to identify the most effective improvements. Brings investment scenarios into these phases. See: <a href="https://www.fhwa.dot.gov/infrastructure/asstmgmt/hersfact.cfm">https://www.fhwa.dot.gov/infrastructure/asstmgmt/hersfact.cfm</a>	Now	Understand what HERS-ST is and how it can be used to support TPM
Life Cycle Cost Analysis (LCA)	Engineering economic analysis tool useful in comparing the relative merit of competing project implementation alternatives. By considering all the costs—agency and user—incurred during the service life of an asset, this analytical process helps transportation officials to select the lowest cost option. See LCAA Primer at: <a href="https://www.fhwa.dot.gov/asset/lcca/010621.pdf">https://www.fhwa.dot.gov/asset/lcca/010621.pdf</a>	Now	Understand how LCA can be used in cross-asset evaluation and prioritization in support of TAM and TPM
Travel Demand Models	Forecasts future vehicle travel & transit ridership on regional highway networks. Simulates trip generation, distribution, mode choice, and route assignment using aggregate socio-economic data by travel zone. Project and policy scenarios can be tested using travel demand models, combined with other postprocessing tools to include metrics such as benefit/cost to evaluate their relative contribution to progress towards targets. See: <a href="https://ops.fhwa.dot.gov/trafficanalysisitools/tat_vol2/sectapp_e.htm">https://ops.fhwa.dot.gov/trafficanalysisitools/tat_vol2/sectapp_e.htm</a>	Now	Understand what Travel Demand Models are and how they can be used to support TPM
Transportation Operations Benefit Cost Analysis (TOPS-BC)	Sketch-planning level decision support tool that estimates benefit to cost ratios for system management and operations strategies. Provides support and guidance to transportation practitioners in the application of benefit/cost analysis (BCA) for a wide range of Transportation System Management and Operations (TSM&O) strategies. See: <a href="https://ops.fhwa.dot.gov/plan4ops/topsbctool/index.htm">https://ops.fhwa.dot.gov/plan4ops/topsbctool/index.htm</a>	Now	Understand what TOPS-BC is and how it can be used to support TPM

Resource	Description	Availability	Applicability/Use
Pavement Management Systems (Vision and Roadmap)	Vision and Roadmap. FHWA website provides variety of resources on pavement management, a future vision and roadmap for getting there. Website also documents role of pavement management systems in supporting asset and performance management. Pavement Management Systems are a set of defined procedures for collecting, analyzing, maintaining, and reporting pavement data, to assist the decision makers in finding optimum strategies for maintaining pavements in serviceable condition over a given period for the least cost. See: <a href="https://www.fhwa.dot.gov/pavement/management/roadmap/">https://www.fhwa.dot.gov/pavement/management/roadmap/</a>	Now	Understand role of pavement management systems in supporting asset and performance management
Bridge Management Systems	Website: Bridge management systems assist bridge owners in selecting and performing work that is the right activity, to the right bridge, at the right time, and at the right cost. Bridge management systems help bridge owners achieve their bridge performance objectives and goals, and maximize returns on investment. See: <a href="https://www.fhwa.dot.gov/bridge/management/">https://www.fhwa.dot.gov/bridge/management/</a>	Now	Understand role of bridge management systems in supporting asset and performance management
Data Integration Primer	This 2010 FHWA report provides basic concepts for data integration, along with a framework for understanding and making the decisions necessary to select a data integration strategy that will work most effectively for your organization. See: <a href="https://www.fhwa.dot.gov/asset/dataintegration/if10019/dip00.cfm">https://www.fhwa.dot.gov/asset/dataintegration/if10019/dip00.cfm</a>	Now	Provides answers that will help stakeholders formulate their expectations, assess their existing resources, and choose appropriate levels of technical support for the data integration endeavor

## TPM Element: National Goals and Measures

Resource	Description	Availability	Applicability/Use
Final Performance Measures Rules and Guidance: Highway Safety Improvement Program (HSIP) and Safety Performance Management (PM1)	National webinar (recorded) on the final rule for HSIP and Safety Performance Management. See: <a href="https://safety.fhwa.dot.gov/hsip/rulemaking/">https://safety.fhwa.dot.gov/hsip/rulemaking/</a>	Now	Develop knowledge of the national HSIP and safety performance measures
Final Performance Measures Rules and Guidance: Pavement and Bridge Condition (PM2)	National webinar (recorded) on the final rule for Pavement and Bridge Condition. See: <a href="https://www.fhwa.dot.gov/tpm/rule.cfm">https://www.fhwa.dot.gov/tpm/rule.cfm</a>	Now	Develop knowledge of the national pavement and bridge condition performance measures
Final Performance Measures Rules and Guidance: System Performance/Freight/ CMAQ (PM3)	National webinar (recorded) on the final rule for HSIP and Safety Performance Management. See: <a href="https://www.fhwa.dot.gov/tpm/rule.cfm">https://www.fhwa.dot.gov/tpm/rule.cfm</a>	Now	Develop knowledge of the national system performance, freight and CMAQ performance measures

Resource	Description	Availability	Applicability/Use
NHI 138004 <i>MAP-21 TPM Overview with FAST Act Updates Course</i>	One day formal training course. Provides a basic overview of TPM provisions of MAP-21 and the FAST Act; describes the responsibilities that agencies—federal, state, MPOs, regional transportation planning organizations, and transit—have in delivering these requirements; highlights data's importance in meeting performance management provisions; and shares noteworthy practices.	Now	Develop awareness and knowledge of MAP-21 and FAST Act national TPM Requirements
Executive Summary of <i>TPM Overview with FAST Act Updates Course</i> (Self-Paced Webinar; NHI 138005)	Executive summary of 1 day NHI 138004 Course.	By Winter 2018	Develop high level awareness and knowledge of MAP-21 and FAST Act national TPM Requirements
Tailored Webinar Training (Instructor Led Web Conference Training (WCT)) on TPM National Goals and Measures	Tailored to customer needs; instructor led training delivered in a webinar setting covering topics related to TPM national goals and measures.	Deliver as Needed	Develop knowledge of TPM national goals and measures and assess application within individual agencies
NHI 138006 <i>TPM for Safety Course</i>	Two Day in Person Course. Provides overview of safety performance measures and noteworthy practices for States to comply with the Moving Ahead for Progress in the 21st Century Act (MAP-21) and Fixing America's Surface Transportation (FAST) Act requirements. The course recommends an evidence-based and data-driven methodology for setting safety targets and provides participants with an understanding of the safety data needed to meet the safety TPM	Now	Develop awareness and knowledge of final rule for Safety measures as part of national TPM Requirements
NHI 138009 <i>TPM for Pavement Course</i>	In Person Course. See: <a href="https://www.fhwa.dot.gov/tpm/resources/training.cfm">https://www.fhwa.dot.gov/tpm/resources/training.cfm</a>	By Winter 2018	Develop awareness and knowledge of final rule for Pavement measures as part of national TPM Requirements
NHI 138009 <i>TPM for Bridge Course</i>	In Person Course. See: <a href="https://www.fhwa.dot.gov/tpm/resources/training.cfm">https://www.fhwa.dot.gov/tpm/resources/training.cfm</a>	By Winter 2018	Develop awareness and knowledge of final rule for Bridge measures as part of national TPM Requirements
NHI 138009 <i>TPM for Congestion (Including Freight) Course</i>	Blended learning. See: <a href="https://www.fhwa.dot.gov/tpm/resources/training.cfm">https://www.fhwa.dot.gov/tpm/resources/training.cfm</a>	By Spring 2018	Develop awareness and knowledge of final rule for congestion, system performance and freight as part of national TPM Requirements

Resource	Description	Availability	Applicability/Use
TPM Implementation Workshops (PM2 and PM3)	Presentations and materials from Regional TPM Implementation workshops delivered in the summer of 2017 that provided an overview of the technical requirements of the Asset Management, PM2, and PM3 regulations. Materials can be found at: See: <a href="https://www.fhwa.dot.gov/tpm/workshop/">https://www.fhwa.dot.gov/tpm/workshop/</a>	Now	Understand requirements of the PM2/PM3 and asset management regulations and apply to their day-to-day decision-making to implement a performance-based transportation program.
On Call Tailored Technical Assistance on TPM National Measures and Goals	Tailored Technical Assistance from the FHWA Resource Center on topics related to TPM national goals and measures—including case studies, supporting tools and methods. Tailored to specific customer needs. See: <a href="https://www.fhwa.dot.gov/resourcecenter/">https://www.fhwa.dot.gov/resourcecenter/</a>	Now	Develop knowledge national goals and measures, assess transferrable practices and case studies and apply knowledge to specific state or regional needs
Rapid Policy Assessment Tool (RPAT)	Strategic Analysis SHRP2 tool that can be used to evaluate trends, identify investment priorities, establish targets and PMs; identify high level policy impacts and evaluate uncertainty through scenario planning. See: <a href="https://planningtools.transportation.org/551/rapid-policy-analysis-tool.html">https://planningtools.transportation.org/551/rapid-policy-analysis-tool.html</a>	Now	Apply strategic analysis tool to identify Goals, Objectives, Trends, and/or Targets. Conduct program level trade-off analysis to inform resource allocation
Frequently Asked Questions (FAQs): Highway Safety Improvement Program (HSIP) and Safety Performance Management (PM1)	FAQ on Safety Performance Management. See: <a href="https://safety.fhwa.dot.gov/hsip/spm/docs/LetsTalkPerfWebinarFAQs.pdf.pdf">https://safety.fhwa.dot.gov/hsip/spm/docs/LetsTalkPerfWebinarFAQs.pdf.pdf</a>	Now	Understand commonly asked questions and answers related to HSIP and the Safety Performance Management rule
Frequently Asked Questions (FAQs): Pavement and Bridge Condition (PM2)	FAQ on Pavement and Bridge Condition (PM2). See: <a href="https://www.fhwa.dot.gov/tpm/pubs/PM2FAQs.pdf">https://www.fhwa.dot.gov/tpm/pubs/PM2FAQs.pdf</a>	Now	Understand commonly asked questions and answers related to Pavement and Bridge Condition rule
Frequently Asked Questions (FAQs): System Performance/Freight/ CMAQ (PM3)	FAQ on System Performance/Freight/ CMAQ (PM3). See: <a href="https://www.fhwa.dot.gov/tpm/rule/pm3/faqs.pdf">https://www.fhwa.dot.gov/tpm/rule/pm3/faqs.pdf</a>	Now	Understand commonly asked questions and answers related to the System Performance/Freight/ CMAQ (PM3) rule
Fact Sheets and Related Materials: Highway Safety Improvement Program (HSIP) and Safety Performance Management (PM1)	Multiple safety performance management fact sheets available at: <a href="https://safety.fhwa.dot.gov/hsip/spm/fact_sheets_and_webinars.cfm">https://safety.fhwa.dot.gov/hsip/spm/fact_sheets_and_webinars.cfm</a>	Now	Utilize information on key aspects of HSIP and the Safety Performance Management rule.

Resource	Description	Availability	Applicability/Use
Fact Sheets and Related Materials: <i>Pavement and Bridge Condition</i> (PM2)	Pavement: <a href="https://www.fhwa.dot.gov/tpm/pubs/PM2PavementFactSheet.pdf">https://www.fhwa.dot.gov/tpm/pubs/PM2PavementFactSheet.pdf</a> Bridge: <a href="https://www.fhwa.dot.gov/tpm/pubs/PM2BridgeFactSheet.pdf">https://www.fhwa.dot.gov/tpm/pubs/PM2BridgeFactSheet.pdf</a>	Now	Understand commonly asked questions and answers related to the Infrastructure Condition (Pavement and Bridge) final rule
Fact Sheets and Related Materials: <i>System Performance/Freight/ CMAQ</i> (PM3)	Background Fact Sheets. See: <a href="https://www.fhwa.dot.gov/tpm/rule/pm3/background.pdf">https://www.fhwa.dot.gov/tpm/rule/pm3/background.pdf</a>	Now	Utilize information on key aspects of the System Performance/Freight/ CMAQ (PM3) rule
<i>Supporting Performance Based Planning and Programming Through Scenario Planning</i> Guidebook	Guidebook that addresses how scenario planning can be used to support TPM and performance-based planning and programming (PBPP). Scenario planning can use metrics, models, data sets, and tools to estimate and evaluate scenarios based on their ability to maximize system performance and support achievement of goals and performance targets. Includes a list of scenario planning and strategic analysis tools that can be used to support TPM. See: <a href="https://www.fhwa.dot.gov/planning/scenario_and_visualization/scenario">https://www.fhwa.dot.gov/planning/scenario_and_visualization/scenario</a>	Now	Utilize information, case studies and resources to support effective goal and objective setting
TPM Essentials Video: National Goals and Measures	Three to Five Minute Video Highlighting TPM National Goals and Measures.	Coming Soon	Develop high level awareness of TPM national goals and measure requirements through video format

## TPM Element: Targets and Target Setting

Resource	Description	Availability	Applicability/Use
NHI 138012 Steps to Effective Target Setting for TPM Training Course	Two-day course. Provides overview of the key elements and steps to effective target setting and how to establish, track, report and monitor reasonable, attainable, performance targets for any transportation program area. See <a href="https://www.nhi.fhwa.dot.gov/training/course_search.aspx?tab=0&amp;amp;key=target&amp;cat=23&amp;sf=0&amp;course_no=138012">https://www.nhi.fhwa.dot.gov/training/course_search.aspx?tab=0&amp;amp;key=target&amp;cat=23&amp;sf=0&amp;course_no=138012</a>	Now	Recommended for those interested in developing a more detailed understand of target setting as it applies to transportation programs
Executive Summary of NHI Target Setting for TPM Course (Self-Paced Webinar)	Executive summary of 2 day NHI 138012 Course.	By Spring 2018	Develop high level awareness of content of longer NHI course (138012).

Resource	Description	Availability	Applicability/Use
Target Setting Overview Web Based Training (WBT)	Self-Paced Webinar available through the NHI website focused on basic target setting steps, approaches and methods, effective practices and the importance of coordination between DOTs and MPOs.	Winter 2017/2018	Develop awareness of target setting requirements, approaches and methods and importance of coordination
Tailored Webinar Training (Instructor Led Web Conference Training (WCT) on TPM Targets and Target Setting	Tailored to customer needs; instructor led training delivered in a webinar setting covering topics related to general and program specific target setting for TPM, including steps, methods and approaches and coordination.	Deliver as Needed	Develop knowledge of target setting requirements, approaches methods and coordination; Determine how to apply within individual agencies
On Call Tailored Technical Assistance on TPM Targets and Target Setting	Tailored Technical Assistance from the FHWA Resource Center on topics related to TPM targets and target setting from a cross-program or program specific perspective. Case studies, tools and methods, role of coordination. Tailored to specific customer needs. See: <a href="https://www.fhwa.dot.gov/resourcecenter/">https://www.fhwa.dot.gov/resourcecenter/</a>	Now	Develop knowledge PM targets and target setting assess transferrable practices and case studies and apply knowledge to specific state or regional needs
Target Setting Coordination Guidebook	Guidebook. Will provide useful information on effective practices for enhancing the coordination process of establishing consistent targets among organizations. It provides a framework and key steps for State DOTs and MPOs to consider when coordinating target setting. When available-- See: <a href="https://www.fhwa.dot.gov/tpm/">https://www.fhwa.dot.gov/tpm/</a>	By Spring 2018	Develop knowledge of approaches and transferable practices for coordinating target setting between transportation agencies
Compendium of State and Regional Safety Target Setting Practices	Report. This 2013 report documents existing State DOT and MPO practices with setting safety targets. It identifies and documents the targets set, as well as the data, resources, and methods used by agencies to set safety targets. See: <a href="http://safety.fhwa.dot.gov/hsip/spm/docs/compendium.pdf">http://safety.fhwa.dot.gov/hsip/spm/docs/compendium.pdf</a>	Now	Understand past practices and approaches to safety target setting
Safety Target Setting Report	Report. This 2013 report reviews the role of transportation safety target setting in a performance management framework, summarizes the state of the practice in safety target setting, and presents a framework for developing or updating transportation safety targets. See: <a href="http://safety.fhwa.dot.gov/hsip/spm/docs/safetyfinalrpt.pdf">http://safety.fhwa.dot.gov/hsip/spm/docs/safetyfinalrpt.pdf</a>	Now	Understand basic concepts and approaches to safety target setting
Urbanized and Non-Urbanized Safety Target Setting Report	This 2015 report reviews the role of transportation safety target setting in a performance management framework, summarizes the state of the practice in safety target setting and presents a framework for developing urbanized and nonurbanized safety targets. See: <a href="http://safety.fhwa.dot.gov/hsip/spm/fhwasa15067/">http://safety.fhwa.dot.gov/hsip/spm/fhwasa15067/</a>	Now	Develop awareness of key considerations for safety target setting in both urbanized and non-urbanized settings
TPM Essentials Video: Various Target Setting Topics	Three to Five-minute video highlighting various aspects of target setting including key steps and the importance of DOT, MPO and transit agency coordination.	Coming Soon	Develop high level awareness of various aspects of target setting through video format

## TPM Element: Plans and Programs

Resource	Description	Availability	Applicability/Use
Final Rule: Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning	Presentation that provides an overview of the major provisions within the Statewide and Non-metropolitan Transportation Planning and Metropolitan transportation planning Rule. See: <a href="https://www.fhwa.dot.gov/tpm/rule/160614presentation.pdf">https://www.fhwa.dot.gov/tpm/rule/160614presentation.pdf</a>	Now	Understand Final Planning Rule and connections to TPM
NHI 138007 <i>Performance Based Planning and Programming Course</i>	Two Day Course. Provides an overview of the key elements of and requirements for a performance-based planning and programming framework; how PBPP supports Transportation Performance Management (TPM); and how both relate to the requirements for transportation planning and transportation system performance. See: <a href="https://www.nhi.fhwa.dot.gov/course-search?course_no=138007&amp;sf=0">https://www.nhi.fhwa.dot.gov/course-search?course_no=138007&amp;sf=0</a>	Now	Understand connections and interrelationships between TPM and planning and programming processes, including the alignment with program specific goals, objectives, measures and targets
Executive Summary of NHI PBPP Course (Self-Paced Webinar)	Executive summary of 2 day NHI 138007 Course.	By Winter 2017/2018	Develop high level awareness of content of longer NHI course (138007)
PBPP Overview Web Based Training (WBT)	Self-Paced Webinar available thru the NHI website focused on basic target setting steps, approaches and methods, effective practices and the importance of coordination between DOTs and MPOs.	Summer 2018	Develop awareness of target setting requirements, approaches and methods and importance of coordination
Tailored Webinar Training (Instructor Led Web Conference Training (WCT)) on performance based plans and programs.	Tailored to customer needs; instructor led training delivered in a webinar setting covering topics related to performance based plans and programs and connections to TPM.	Deliver as Needed	Develop knowledge of performance based plans and programs and their connections to various TPM elements and requirements. Determine how to apply within individual agencies.
<i>Performance Based Planning and Programming Guidebook</i>	Report. This 2013 guidebook was designed to help transportation agencies understand the key elements of a PBPP process, the relationship of these to existing planning and programming processes, and to highlight effective practices.	Now	Develop awareness of key components of PBPP and relationship to TPM
<i>Model Long Range Transportation Plans: A Guide for Incorporating Performance Based Planning</i>	Report. This 2014 Guidebook informs State DOTs, MPOs and other transportation agencies and partners about effective practices for incorporating performance-based planning into the development of a long-range transportation plan. See: <a href="https://www.fhwa.dot.gov/planning/performance_based_planning/">https://www.fhwa.dot.gov/planning/performance_based_planning/</a>	Now	Understand how to develop a performance based long range transportation plan and identify transferable approaches and practices nationally

Resource	Description	Availability	Applicability/Use
<i>Performance-Based Planning for Small Metropolitan Areas</i> Guidebook	Report. This 2014 report provides insights on effective practices in performance based planning by MPOs that plan for Urbanized Areas with populations less than 200,000. See: <a href="https://www.fhwa.dot.gov/planning/performance_based_planning/">https://www.fhwa.dot.gov/planning/performance_based_planning/</a>	Now	Understand unique considerations of applying performance management in small metro areas
<i>Supporting PBPP through Scenario Planning</i> Guidebook	Report. This 2016 Guidebook addresses how scenario planning can be used to support and advance the practice of performance-based planning and programming. Scenario planning can use metrics, models, data sets, and tools to estimate and evaluate scenarios based on their ability to maximize system performance and support achievement of goals and performance targets. See:	Now	Understand how scenario planning can support the strategic direction stage of TPM (goals, measures)
TPM Essentials Video: Various PBPP Topics	Three to Five-minute video highlighting various aspects of performance based planning and programming and alignment to TPM.	Coming Soon	Develop high level awareness of various aspects of PBPP and relationship to TPM through video format

### TPM Element: Reporting, Accountability and Transparency

Resource	Description	Availability	Applicability/Use
FHWA Guidance: <i>Initial State Performance Report</i>	Guidance. August 2016 FHWA guidance on the initial state performance reports State DOTs were required to submit to FHWA by October 1, 2016. See: <a href="https://www.fhwa.dot.gov/tpm/guidance/160831.cfm">https://www.fhwa.dot.gov/tpm/guidance/160831.cfm</a>	Now	Develop awareness of guidance for the first state performance reports that were due 10/1/16
<i>Performance Reporting (Part One of Two)</i> Final Report	Report. 2013 Report provides overview of how to effectively develop and deliver performance based reports including key considerations of how to reach different audiences and stakeholders and how to use data and visualization effectively to "tell performance stories". See: <a href="https://www.fhwa.dot.gov/tpm/resources/docs/hif13043.pdf">https://www.fhwa.dot.gov/tpm/resources/docs/hif13043.pdf</a>	Now	Understand key success factors for effective performance reports