Transportation Performance Management

The Bipartisan Infrastructure Law (BIL) continues the requirements established in Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation (FAST) Act for performance management. These requirements aim to promote the most efficient investment of Federal transportation funds. Performance-based planning ensures that the Pennsylvania Department of Transportation (PennDOT) and the Metropolitan Planning Organizations (MPOs) collectively invest Federal transportation funds efficiently towards achieving national goals. In Pennsylvania, the Rural Planning Organizations (RPOs) follow the same requirements as MPOs.

Transportation Performance Management (TPM) is a strategic approach that uses data to make investment and policy decisions to achieve national performance goals. 23 USC 150(b) outlines the national performance goal areas for the Federal-aid program. This statute requires the Federal Highway Administration (FHWA) to establish specific performance measures for the system that address these national goal areas. The regulations for the national performance management measures are found in 23 CFR 490.

National Goal Areas	
Safety	▪ To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
Infrastructure Condition	▪ To maintain the highway infrastructure asset system in a state of good repair
Congestion Reduction	▪ To achieve a significant reduction in congestion on the National Highway System
System Reliability	▪ To improve the efficiency of the surface transportation system
Freight Movement and Economic Vitality	▪ To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
Environmental Sustainability	▪ To enhance the performance of the transportation system while protecting and enhancing the natural environment
Reduced Project Delivery Delays	▪ To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

Performance Based Planning and Programming

Pennsylvania continues to follow a Performance Based Planning and Programming (PBPP) process, with a focus on collaboration between PennDOT, FHWA, and MPOs/RPOs at the county and regional levels. These activities are carried out as part of a cooperative, continuing, and comprehensive (3C) planning process which guides the development of many PBPP documents, including:

- ▪ Statewide and Regional Long Range Transportation Plans (LRTPs)
- ▪ Twelve-Year Transportation Program (TYP)
- ▪ State Transportation Improvement Program (STIP)
- ▪ Regional Transportation Improvement Programs (TIPs)
- ▪ Transportation Asset Management Plan (TAMP)
- ▪ Transit Asset Management (TAM) Plans

- Public Transportation Agency Safety Plans (PTASP)
- Pennsylvania Strategic Highway Safety Plan (SHSP)
- Comprehensive Freight Movement Plan (CFMP)
- Congestion Mitigation and Air Quality (CMAQ) Performance Plan(s)
- Congestion Management Process (CMP)
- Regional Operations Plans (ROPs)

The above documents in combination with data resources including PennDOT's bridge and pavement management systems, crash databases, historical travel time archives, and the CMAQ public access system provide the resources to monitor federal performance measures and evaluate needs across the state. Based on these resources, PennDOT and MPOs/RPOs have worked together to (1) create data driven procedures that are based on principles of asset management, safety improvement, congestion reduction, and improved air quality, (2) make investment decisions based on these processes, and (3) work to set targets that are predicted to be achieved from the programmed projects. Aligning goals and performance objectives across national (FHWA), state (PennDOT) and regions (MPOs/RPOs) provide a common framework for decision-making.

National Goals and Performance Measures	Long Range Transportation and Twelve Year Program Plan Goals	Project Prioritization • MPO/RPO CMP and LRTP • Safety Plans • TAMP	Performance Targets	Statewide Transportation Improvement Program (STIP)

PennDOT, in cooperation with the MPOs/RPOs, has developed written provisions for how they will cooperatively develop, and share information related to the key elements of the PBPP process including the selection and reporting of performance targets. In addition, PennDOT has updated their Financial Guidance to be consistent with the PBPP provisions. The Financial Guidance provides the near term revenues that support the STIP.

Evaluating 2025-2028 STIP Performance

The Federal Fiscal Year (FFY) 2025-2028 State Transportation Improvement Program (STIP) supports the goal areas established in PennDOT's current long range transportation plan (Pennsylvania 2045). These include safety, mobility, equity, resilience, performance, and resources. The goals are aligned with the national goal areas and federal performance measures and guide PennDOT in addressing transportation priorities.
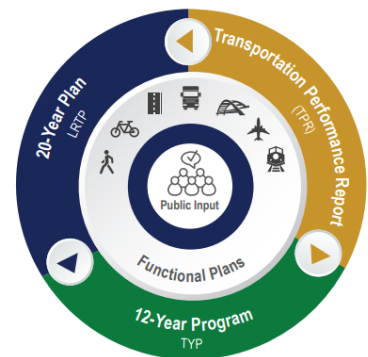
The following sections provide an overview of the federal performance measures and how the current project selection process for the FY2025-2028 STIP supports meeting future targets. Over the 4-year STIP, nearly 85% of the total funding is associated with highway and bridge reconstruction, preservation, and restoration projects. However, these projects are also anticipated to provide significant improvements to highway safety and traffic reliability for both passenger and freight travel. Through the federal performance measures, PennDOT will continue to track performance outcomes and program impacts on meeting the transportation goals and targets. Decision support tools including transportation data and project-level prioritization methods will be continually developed and enhanced

to meet PennDOT and MPO/RPO needs. Dashboards and other reporting tools will be maintained to track and communicate performance to the public and decision-makers.

Safety Performance Measures (PM1)

Background
The FHWA rules for the *National Performance Management Measures: Highway Safety Improvement Program* (Safety PM) and *Highway Safety Improvement Program* (HSIP) (81 FR 13881 and 81 FR 13722) became effective on April 14, 2016. These rules established five safety performance measures (commonly known as PM1). The current regulations are found at 23 CFR 490 Subpart B and 23 CFR 924. Targets for the safety measures are established on an annual basis.

Data Source
Data for the fatality-related measures are taken from the Fatality Analysis Reporting System (FARS) and data for the serious injury-related measures are taken from the State motor vehicle crash database. The Vehicle Miles of Travel (VMT) are derived from the Highway Performance Monitoring System (HPMS).

2024 Safety Measures and Targets (Statewide)

Measure	Baseline (2018-2022)	Target (2020-2024)
Number of fatalities	1,157.4	**1,164.1**
Rate of fatalities per 100 million VMT	1.182	**1.219**
Number of serious injuries	4682.4	**4,721.0**
Rate of serious injuries per 100 million VMT	4.783	**4.939**
Number of non-motorized fatalities & serious injuries	804.6	**817.6**

Methods for Developing Targets
An analysis of Pennsylvania's historic safety trends was utilized as the basis for PennDOT and MPO/RPO coordination on the State's safety targets. The targets listed above are based on the five-year average value for each measure from 2020-2024. The 2023 and 2024 values are projected from the actual 2022 values. A determination of having met or made significant progress toward meeting the 2022 safety targets will be issued by the FHWA in April 2024.

Progress Towards Target Achievement and Reporting:

PennDOT and the MPOs/RPOs continue efforts to ensure the STIP, regional TIPs, and LRTPs are developed and managed to support progress toward the achievement of the statewide safety targets. At this time, only the Delaware Valley Regional Planning Commission (DVRPC) has elected to establish their own regional safety targets. All other MPOs/RPOs have adopted the statewide targets.

PennDOT's Strategic Highway Safety Plan (SHSP) serves as a blueprint to reduce fatalities and serious injuries on Pennsylvania roadways and targets 18 Safety Focus Areas (SFAs) that have the most influence on improving highway safety throughout the state. Within the SHSP, PennDOT identifies 3 key emphasis areas to improve safety – impaired driving, lane departure crashes, and pedestrian safety.

2022 SHSP Safety Focus Areas			
Lane Departure Crashes	Speed & Aggressive Driving	Seat Belt Usage	Impaired Driving
Intersection Safety	Mature Driver Safety	Local Road Safety	Motorcycle Safety
Pedestrian Safety	Bicycle Safety	Commercial Vehicle Safety	Young & Inexperienced Drivers
Distracted Driving	Traffic Records Data	Work Zone Safety	Transportation Systems Management & Operations
Emergency Medical Services	Vehicle-Train Crashes		

Pursuant to 23 CFR 490.211(c)(2), a State Department of Transportation (DOT) has met or made significant progress toward meeting its safety performance targets when at least 4 of the 5 safety performance targets established under 23 CFR 490.209(a) have been met or the actual outcome is better than the baseline performance for the year prior to the establishment of the target.

For Pennsylvania's 2021 targets, the FHWA determined in April 2023 that Pennsylvania did not meet the statewide targets and is subject to the provisions of 23 U.S.C. 148(i). This requires the Department to submit an implementation plan that identifies gaps, develops strategies, action steps and best practices, and includes a financial and performance review of all HSIP funded projects. In addition, the Department is required to obligate in Federal Fiscal Year (FFY) 2024 an amount equal to the FFY 2020 HSIP apportionment.

The FHWA has established certain special rules for HSIP under 23 U.S.C. 148(g). Among them is the Vulnerable Road User Safety special rule created by IIJA-BIL 23 U.S.C. 148(g)(3). This new special rule provides that the total annual fatalities of vulnerable road users in a state represents not less than 15% of the total annual crash fatalities in the state. Additional guidance on the Vulnerable Road Users Safety special rule was released by FHWA on February 2, 2022.

PennDOT was notified by FHWA in April 2023 that Pennsylvania triggered the Vulnerable Road Users Safety special rule. For calendar year 2021, the number of Vulnerable Road Users fatalities exceeded 15% of the total annual crash fatalities. PennDOT is therefore required to obligate in FFY 2024 not less than 15% of the amount apportioned under 23 U.S.C. 104(b)(3) for highway safety improvement projects to address the safety of vulnerable road users.

As part of the Highway Safety Improvement Program Implementation Plan, the Department identified gaps and best practices to support further reducing serious injuries and fatalities. The following opportunities were identified as ways to assist with meeting future targets: (1) appropriate project selection, (2) expanding local road safety in HSIP, (3) assessing programs that support non-motorized safety, (4) expanding use of systemic safety projects, (5) improved project tracking for evaluation purposes and (6) project prioritization for greater effectiveness.

PennDOT continues to provide feedback on statewide and MPO/RPO-specific progress towards target achievement. The progress helps regional MPOs/RPOs understand the impacts of their past safety investments and can guide future planning goals and strategy assessments.

Evaluation of STIP for Target Achievement:

The following will ensure that planned projects in the STIP will help to achieve a significant reduction of traffic fatalities and serious injuries on all public roads:

- PennDOT receives federal funding for its Highway Safety Improvement Program (HSIP). The 2025-2028 STIP includes $534 million of HSIP funding. The Department distributes over 60% of this funding to its regions based on fatalities, serious injuries, and reportable crashes. In addition, a portion of the HSIP funding is reserved for various statewide safety initiatives.
- All projects utilizing HSIP funds are evaluated based on a Benefit/Cost (B/C) analysis, Highway Safety Manual (HSM) analysis, fatal and injury crashes, application of systemic improvements, improvements on high-risk rural roads, and deliverability. A data-driven safety analysis in the generated through an HSM analysis is required as part of PennDOT's HSIP application process. Performing this analysis early in the planning process for all projects will help ensure projects selected for inclusion in the STIP will support the fatality and serious injury reductions goals established under PM1.
- The process for selecting safety projects for inclusion in the STIP begins with the Network Screening Evaluation that the Department has performed on a statewide basis. Selecting locations with an excess crash frequency greater than zero from this network screening is key to identifying locations with a high potential to improve safety. This evaluation has been mapped and is included in PennDOT's OneMap to ease use by PennDOT's partners. At the current time, this is not all inclusive for every road in Pennsylvania. Locations not currently evaluated may be considered by performing the same type of excess crash frequency evaluation the Department utilizes. Once this analysis has been performed, the data is used by the Engineering Districts and planning partners to assist MPO/RPO's in evaluating different factors to address the safety concern
- PennDOT continues to improve on the methods to perceive, define and analyze safety. This includes integration of Regionalized Safety Performance Functions (SPFs) that have been used to support network screening of over 20,000 locations.[1]
- PennDOT continues to identify new strategies to improve safety performance. PennDOT is actively participating in FHWA's Every Day Counts round 5 (EDC-5) to identify opportunities to improve pedestrian safety as well as reduce rural roadway departures. These new strategies are to be incorporated into future updates to the SHSP.
- Safety continues to be a project prioritization criterion used for selecting other STIP highway and bridge restoration or reconstruction projects. Many restoration or reconstruction projects also provide important safety benefits.
- PennDOT continues to evaluate procedures to help in assessing how the STIP supports the achievement of the safety targets. As HSIP projects progress to the engineering and design phases, Highway Safety Manual (HSM) predictive analyses are completed for the project in accordance with PennDOT Publication 638. The HSM methods are the best available state of practice in safety analysis and provides quantitative ways to measure and make safety decisions related to safety performance. PennDOT will continue to identify ways to expand the application of HSM analyses to support more detailed assessments of how the STIP is supporting achievement of the safety targets.

---

[1] For more information on SPFs: https://www.penndot.gov/ProjectAndPrograms/Planning/Research-And-Implementation/Pages/activeProjects/Safety-Performance-Functions.aspx

The following are the LLTS MPO 2023-2026 TIP projects that help to achieve a significant reduction of traffic fatalities and serious injuries on all public roads:

MPMS	Roadway	Project Type	Project Name	Description
115573	SR 307 and SR 4024	Safety Improvement	Intersection Improvements	Safety Improvements on State Route SR307 & SR4024
101969	Statewide Highways	Safety Improvement	HSIP Set Aside Reserve	Statewide Reserve for Highway Safety Improvement Program (HSIP) funds.
121174	Statewide	Safety Improvement	PennDOT Highway Safety Network Screening 2025	Update to PennDOT's statewide Highway Safety Network Screening. The screening will cover all 67 counties, rural and urban roads, and conventional highways and freeways.
115571	State Route 309 State Route 2045	Safety Improvement	SR 309 and SR 2045 Safety Improvement	Safety improvements on State Route 309 (Hunter Highway) and Intersection State Route 2045 (South Main Road), Butler Township, Luzerne County.
92444	SR 118 and SR 1049	Safety Improvement	Cooks Store Intersection	Safety improvement at intersection of State Route 118, State Route 1049
121176	Statewide	Planning/ Safety Improvement	MIRE Traffic Volume Count Data Collection	Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements
121177	Statewide	Planning/ Safety Improvement	HSIP DDSA Support for Districts and Plan Partners	Support for Districts and Planning Partners to conduct data-driven safety analysis for HSIP project selection process.
117918	Statewide	Planning/ Safety Improvement	Local Road Traffic Counts for MIRE Sept 2026	Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDE) collection and integration to inventory all public roads in Pennsylvania by Sept. 30
117918	Statewide	Planning/ Safety Improvement	Local Road Traffic Counts for MIRE Sept 2026	Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDE) collection and integration to inventory all public roads in Pennsylvania by Sept. 30
117944	Statewide	Safety Improvement	New HSIP Application Website	Develop a new HSIP website to process applications and track HSIP projects.

Pavement/Bridge Performance Measures (PM2)

Background
The FHWA rule for the National Performance Management Measures; Assessing Pavement and Bridge Condition for the National Highway Performance Program (82 FR 5886) became effective on February 17, 2017. This rule established six measures related to the condition of the infrastructure on the National Highway System (NHS). The measures are commonly known as PM2. The current regulations are found at 23 CFR 490 Subpart C and Subpart D. Targets are established for these measures as part of a four-year performance period. This STIP includes projects that will impact future performance periods based on when projects are constructed or completed.

Data Source
Data for the pavement and bridge measures are based on information maintained in PennDOT's Roadway Management System (RMS) and Bridge Management System (BMS). The VMT are derived from the Highway Performance Monitoring System (HPMS).

2022-2025 Pavement Performance Measure Targets (Statewide)

Measure	Baseline 2021	2-year Target 2023	4-year Target 2025
% of Interstate pavements in Good condition	68.8%	69.0%	65.0%
% of Interstate pavements in Poor condition	0.4%	2.0%	2.0%
% of non-Interstate NHS pavements in Good condition	37.2%	31.0%	29.0%
% of non-Interstate NHS pavements in Poor condition	1.5%	6.0%	6.5%

Bridge Performance Measure Targets (Statewide)

Measure	Baseline 2021	2-year Target 2023	4-year Target 2025
% of NHS bridges by deck area in Good condition	27.5%	28.0%	28.0%
% of NHS bridges by deck area in Poor condition	4.4%	7.5%	7.5%

Methods for Developing Targets

Pennsylvania's pavement and bridge targets were established in late 2022 through extensive coordination with a Transportation Asset Management Plan (TAMP) steering committee and workshops with MPOs/RPOs and FHWA's Pennsylvania Division. The targets are consistent with PennDOT's asset management objectives of maintaining the system at the desired state of good repair, managing to lowest life cycle costs (LLCC), and achieving national and state transportation goals.[2] Targets were calculated based on general system degradation (deterioration curves) offset by improvements expected from delivery of the projects in the STIP along with planned state funded maintenance projects.

Progress Towards Target Achievement and Reporting:

Improving Pennsylvania's pavement and bridges is a critical part of the strategic investment strategy for Pennsylvania's transportation network at the State and Federal level. Improving the condition and performance of transportation assets is another goal area of the 2045 Statewide LRTP. With limitations on available resources, the preservation of pavement and bridge assets using sound asset management practices is critical. Asset management is a key piece of FHWA's TPM program and is a vital force behind infrastructure performance.

---

[2] For more information on LLCC: https://www.penndot.gov/ProjectAndPrograms/Asset-Management/Documents/Lowest-Life-Cycle-Cost-Infographic.pdf

Within its asset management framework, it was necessary for PennDOT to transition away from a "worst-first" programming methodology to a true overall risk-based prioritization and selection of projects for its system assets based on LLCC. "Worst-first" prioritization focuses work on the poorest condition assets at the expense of rehabilitation and preventative maintenance on other assets in better condition. PennDOT's revised strategy reflects its asset management motto and guiding principle: "The right treatment at the right time." This is reflective of Federal TAMP requirements that are centered on investing limited funding resources in the right place at the right time to produce the most cost-effective life cycle performance for a given investment.

PennDOT's TAMP formally defines its framework for asset management, which is a data-driven approach coupled with a risk-based methodology. It outlines the investment strategies for infrastructure condition targets and documents asset management objectives for addressing risk, maintaining the system at the desired state of good repair, managing to LLCC, and achieving national and state transportation goals. The TAMP is developed by the PennDOT Asset Management Division (AMD) in consultation with PennDOT Executive leadership, Center for Program Development and Management (CPDM), Bureau of Planning and Research (BPR), PennDOT Districts, the Pennsylvania Turnpike Commission (PTC), the MPOs/RPOs and FHWA.

With each program update, PennDOT has made substantial advances in its asset management tools and practices. A risk-based, data-driven approach to project selection helps ensure that the right projects are prioritized, and the transportation system is managed optimally to the lowest practical life-cycle cost. PennDOT's Pavement Asset Management System (PAMS) and Bridge Asset Management System (BAMS) are the foundations for this asset management approach. These systems forecast condition and investment needs by asset class using deterioration models and treatment matrices developed for PennDOT infrastructure and based on historical data. PennDOT has developed both predictive and deterministic models that support multi-objective decision-making based on current average work costs and estimated treatment lifespans. These models allow PennDOT to predict infrastructure investment needs and future conditions under a range of scenarios.

As part of its asset management strategy, PennDOT strives to maintain as many highway and bridge assets as possible in a state of good repair. PennDOT defines its desired state of good repair as meeting the FHWA minimum condition thresholds for pavements and bridges: no more than 5 percent of NHS Interstate lane-miles shall be rated in poor condition and no more than 10 percent of total NHS bridge deck area shall be rated as poor. However, the ability to achieve these condition thresholds is funding dependent.

PennDOT uses its PAMS and BAMS systems to assist with prioritizing preservation activities to extend asset life. This methodology allows PennDOT to manage assets to the lowest practical life-cycle cost and help it to make progress toward achieving its targets for asset condition and performance. Implementation of these improved asset management practices should be applied on all state and local networks.

Evaluation of STIP for Target Achievement:

The following has helped to ensure that planned projects in the STIP will help to maintain a desired state of good repair in bridge and pavement conditions for the interstate and NHS roadways:

- Nearly 85% of PennDOT's STIP funding is directed to highway and bridge preservation, restoration, and reconstruction projects. Many of these projects are focused on our state's interstate and NHS roadways.
- Pennsylvania's investment strategy, reflected in the statewide 2025 Twelve Year Program (TYP) and 2025-2028 STIP, is the result of numerous strategic decisions on which projects to advance at what time. PennDOT continues to address the challenges of addressing local needs and priorities, while ensuring a decision framework is applied consistently across the state.
- In support of the STIP development, PennDOT and MPOs/RPOs jointly developed and approved General and Procedural Guidance and Transportation Program Financial Guidance documents.[3] The guidance, which is consistent with the TAMP, formalizes the process for Districts, MPOs/RPOs and other interested parties as they identify projects, perform a project technical evaluation, and reach consensus on their portion of the program.
- The Procedural Guidance also helps standardize the project prioritization process. The guidance is key to resolving issues between programming to lowest life-cycle cost, managing current infrastructure issues and risk mitigation. The resulting methodology allows data-driven, asset management-based decisions to be made with human input and insight based on field evaluations to achieve maximum performance of the available funds. The guidance document is revised for each STIP cycle as PennDOT's asset management tools and methods evolve and enhance its ability to program to lowest life cycle cost.
- PAMS and BAMS outputs are the basis for determining project programming to achieve LLCC. PennDOT Districts work with MPO/RPOs to generate the lists of recommended treatments by work type (such as highway resurfacing and bridge rehabilitation), based on LLCC and condition projections derived from PennDOT's PAMS and BAMS. PennDOT AMD provides any necessary support. For the 2025 Program Update, as PennDOT integrates PAMS and BAMS into the STIP and TYP development, AMD provides the PAMS and BAMS outputs for any District or MPO/RPO that requests them. Those areas that have the capability may produce their own outputs. PAMS and BAMS outputs define recommended treatments and forecasted conditions, but not necessarily complete project scopes and limits. These outputs serve as a guide to assist in the prioritization and selection of new projects to be considered for the program. Performance can be compared if projects are considered that do not align with PAMS and BAMS outputs.
- As part of the regional TIP development process mentioned above, the MPOs/RPOs and PennDOT Districts must document the differences between the PennDOT asset management system treatment and funding level recommendations and their selected projects as part of their TIP submissions. They must also document the coordination with the PennDOT District(s) and Central Office that occurred as part of this decision-making process. This information is used by PennDOT AMD to improve future asset management policy and procedures, sharing of information and tools, and system functionality.

---

[3] The 2025 Financial Guidance can be found at: https://talkpatransportation.com/how-it-works/tip

The following are the LLTS MPO 2023-2026 TIP projects that address bridge and pavement conditions on the National Highway System.

MPMS	Roadway	Project Type	Project Name	Description
9128	SR 115	Bridge Replacement	SR 115 over I-81	replacement of three bridges carrying State Route 115 (Bear Creek Boulevard)
56623	State Route 309	Bridge Replacement	SR 309 over Toby Creek	Bridge replacement on State Route 309 (Memorial Highway) over Toby Creek in Kingston Township, Luzerne County.
67410	State Route 6309	Replace/Rehab	SR 6309 over Luzerne County Rail Authority	Bridge replacement/rehabilitation on State Route 6309 (Mountain Boulevard) over Luzerne County Rail Authority in Ashley Borough/ Hanover twp, Luzerne County.
67456	State Route 924	Bridge Replacement	SR 924 Over Conrail, Hazle	Bridge replacement on State Route 924 (Hazelton Shepton Highway) over Conrail in Hazle Township, Luzerne County.
68943	State Route 309	Replace/Rehab	SR 309 over Toby Creek #2	Bridge rehabilitation/replacement on State Route 309 (South Memorial Highway) over Toby Creek, Luzerne County
68947	State Route 309	Replace/Rehab	SR 309 over Toby Creek #3	Bridge replacement/rehabilitation on State Route 309 (North Memorial Highway) over Toby Creek in Kingston Township, Luzerne County
68977	State Route 1014	Replace/Rehab	SR 1014 Overbrook over SR 309	Bridge rehabilitation/replacement on State Route 1014 (Overbrook Avenue) over State Route 309 in Dallas Township, Luzerne County.
69228	State Route 29	Bridge Preservation	SR 29 over New Commerce Boulevard	Bridge preservation on State Route 29 (South Cross Valley Expressway) over New Commerce Boulevard in Sugar Notch Borough/Hanover Township, Luzerne County.
84301	State Route 11	Replace/Rehab	SR 11 over Abraham's Ck	Bridge rehabilitation on State Route 11 (Wyoming Avenue) over Abrahams Creek in Forty Fort Borough, Luzerne County.
93931	State Route 11	Replace/Rehab	SR 11 over SR 2037, Susquehanna River and Railroad	Bridge rehabilitation/replacement on State Route 11 (Exeter Avenue) over State Route 2037, Susquehanna River and Railroad in West Pittston Borough, Luzerne County.

97943	State Route 309	Replace/Rehab	SR 309 over Toby Creek 2	Bridge rehabilitation on State Route 309 (Memorial Highway) over Toby Creek in Courtdale Borough, Luzerne County.
97942	State Route 309	Bridge replacement	SR 309 over Toby Creek 1	Bridge replacement on State Route 309 (Memorial Highway) over Toby Creek in Kingston Township, Luzerne County.
102030	State Route 2002	Pavement Resoration	SR 2002 (San Souci Parkway) Reconstruction	Reconstruction on State Route 2002 (San Souci Parkway) from Township Road (Loomis Street) to State Route 2005 (Carey Avenue) in Hanover Township, Luzerne County.
102116	State Route 2005	Pavement Resoration	SR 2005 Reconstruction	Reconstruction on State Route 2005 (Blackman Street) from State Route 6309 (Mountain Boulevard) to State Route 2002 and Wilkes Barre and Hanover Townships, Luzerne County.
114271	State Route 309	Bridge Rehab	SR 309 over Susquehanna River	Bridge rehabilitation on State Route 309 over State Route 2004 Lehigh and Susquehanna Railroad, and Susquehanna River, Luzerne County.
115819	State Route 1009	Bridge Preservation	SR 1009 Market Street over Susquehanna River	Bridge preservation on State Route 1009 (Market Street) over the Susquehanna River in Wilkes Barre City and Kingston Borough, Luzerne County
116423	State Route 2005	Replace/Rehab	SR 2005 over Luzerne County Rail Authority Pres	Bridge Replacement on State Route 2005 (Blackman Street) over Luzerne County Rail Authority, Luzerne County.
116835	State Route 309	Replace/Rehab	SR 309 over Toby Creek #1	Bridge rehabilitation/replacement on State Route 309 (South Memorial Highway) over Toby Creek in Kingston Township, Luzerne County
7911	North Main Avenue Bridge	Replace/Rehab	North Main Avenue Bridge over Leggetts Creek	Bridge replacement on North Main Avenue Bridge over Leggetts Creek in the City of Scranton, Lackawanna County.
8238	State Route 307	Replace/Rehab	SR 307 over Interstate 380	Bridge preservation on State Route 307 (Scranton Pocono Highway) over Interstate 380 in Covington Township, Lackawanna County.
8256	State Route 8001	Replace/Rehab	SR 8001 ramp over Route 11	Bridge rehabilitation/replacement on State Route 8001 (Ramp B Road) over State Route 11 in Moosic Borough, Lackawanna County.

67199	State Route 3023	Replace/Rehab	SR 3023 over Roaring Brook	Bridge rehabilitation on State Route 3023 (Cedar Avenue) over Roaring Brook in the City of Scranton, Lackawanna County.
68836	State Route 1015	Replace/Rehab	SR 1015 over I-81	Bridge replacement on State Route 1015 (Creamery Road) over Interstate 81 in Greenfield Township, Lackawanna County.
69172	State Route 8041	Bridge Preservation	SR 8041 over SR 11	Bridge preservation on State Route 8041 (Ramp F) over US Route 11 in South Abington Township, Lackawanna County.
90260	State Route 6006	Replace/Rehab	SR 6006 over Lackawanna River	Bridge preservation on State Route 6006 (Scranton Carbondale Highway) over Lackawanna River, in the City of Carbondale, Lackawanna County.
95454	State Route 11	Bridge Preservation	US 11 over Railroad	Bridge preservation on State Route 11 (Pittston Avenue) over Luzerne County Rail Authority in Moosic Borough, Lackawanna County.
106664	State Route 8025	Bridge Rehab	SR 8025 over Roaring Brook and Service Road	Bridge rehabilitation on State Route 8025 (Ramp B) over Roaring Brook, in City of Scranton, Lackawanna County.
113869	State Route 8015	Replace/Rehab	SR 8015 over I-81 Ramp	Bridge replacement on State Route 8015 (Ramp E Road) over Interstate 81 Ramp in South Abington Township, Lackawanna County.
116759	State Route 11	Replace/Rehab	SR 11 over SR 6307 Keyser Ave	Bridge rehabilitation/replacement on State Route 11 (Scranton Expressway) over State Route 6307 (Keyser Ave) in Scranton City, Lackawanna County
116767	State Route 2018	Replace/Rehab	SR 2018 over SR 380	Bridge rehabilitation/replacement on State Route 2018 (Dorantown Road) over State Route 380 in Covington Township, Lackawanna County
116797	State Route 8041	Replace/Rehab	SR 8041 Ramps E & F over Branch of Leggetts Creek	Bridge rehabilitation/replacement on State Route 8041 (Ramp F Road) over Branch of Leggetts Creek in South Abington Township, Lackawanna County
117890	State Route 11	Bridge Preservation	SR 11 over North Main Avenue	Bridge Preservation Activities on State Route 11 (Scranton Expressway) over State Route 2013 (North Main Avenue) in the City of Scranton, Lackawanna County.

117891	State Route 11	Bridge Preservation	SR 11 over Court Street	Bridge Preservation Activities on State Route 11 (Scranton Expressway) over Court Street in City of Scranton, Lackawanna County.
117892	State Route 11	Bridge Preservation	SR 11 over Theodore Street	Bridge Preservation Activities on State Route 11 (Scranton Expressway) over Theodore Street in the City of Scranton, Lackawanna County.
117893	State Route 11	Bridge Preservation	SR 11 over Leach Creek	Bridge Preservation Activities on State Route 11 (Scranton Expressway) over Leach Creek in the City of Scranton, Lackawanna County.
117894	State Route 11	Bridge Preservation	SR 11 over SR 6307	Bridge Preservation Activities on State Route 11 (Scranton Expressway) over State Route 6307 (Keyser Avenue) in the City of Scranton, Lackawanna County.
117895	State Route 8029	Bridge Preservation	SR 8029 On Ramp SB SR 11	Bridge Preservation Activities on State Route 8029 (On Ramp Southbound west of State Route 11) in City of Scranton, Lackawanna County.
117896	State Route 8029	Bridge Preservation	SR 8029 Ramp from Main Ave.	Bridge Preservation Activities on State Route 8029 (Main Avenue Ramp) in the City of Scranton, Lackawanna County
119601	State Route 6	Bridge Preservation	SR 6 over Norfolk Southern RR	Bridge preservation on State Route 6 (North State Street) over Norfolk Southern Rail Road in Clarks Summit Borough, Lackawanna County.
8999	State Route 2005	Bridge Preservation	SR 2005 over Bowman Spring Run	Bridge preservation on State Route 2005 (Blackman Street) over Bowman Spring Run in the City of Wilkes Barre, Luzerne County.
9084	State Route 924	Bridge Preservation	SR 924 over SR 81	Bridge preservation on State Route 924 (Can Do Expressway) over Interstate 81 in Hazle Township, Luzerne County.
116177	PA 424	Replace/Rehab	SR 424 over I-81	Bridge Rehabilitation on State Route 424 (Arthur Gardner Highway) over Interstate 81
117979	SR 115	Resurface	SR 115 Resurfacing	Resurfacing on State Route 115 (Bear Creek Blvd) from Recreation Road to East Mountain Blvd in Bear Creek Township and Plains Township, Luzerne County.

System Performance Measures (PM3)

Background
The FHWA final rule for the *National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program* ([82 FR 5970](#)) became effective on May 20, 2017. This rule established six measures related to transportation performance (commonly known as PM3). The current regulations are found at [23 CFR 490 Subparts E, F, G & H](#). Targets are established for these measures as part of a four-year performance period. This TIP includes projects that will impact future performance periods based on when projects are constructed or completed.

Data Source
The Regional Integrated Transportation Information System (RITIS) software platform is used to generate the travel time-based measures. Data from the American Community Survey (ACS) and FHWA's CMAQ annual reporting system are used for the non-SOV travel and emissions measures.

Travel Time and Annual Peak Hour Excessive Delay Targets

Measure	Area	2-year Target 2023	4-year Target 2025
Interstate Reliability	Statewide	89.5%	89.5%
Non-Interstate Reliability	Statewide	88.0%	88.0%
Truck Reliability Index	Statewide	1.40	1.40
Annual Peak Hour Excessive Delay Hours Per Capita (Urbanized Area)	Philadelphia	15.2	15.1
	Pittsburgh	10.5	10.5
	Reading	6.5	6.5
	Allentown	8.4	8.4
	Harrisburg	9.1	9.1
	York	6.4	6.4
	Lancaster	3.7	3.7

Non-SOV Travel Measure Targets

Measure	Area	2-year Target 2023	4-year Target 2025
Percent Non-Single Occupant Vehicle Travel (Urbanized Area)	Philadelphia	30.0%	30.0%
	Pittsburgh	27.0%	27.0%
	Reading	20.2%	20.2%
	Allentown	18.6%	18.6%
	Harrisburg	20.2%	20.2%
	York	15.8%	15.8%
	Lancaster	21.9%	21.9%

CMAQ Emission Targets

Measure	Area	2-year Target 2023	4-year Target 2025
VOC Emissions (kg/day)	Statewide	18.000	36.000
NOx Emissions (kg/day)	Statewide	392.000	785.000
PM2.5 Emissions (kg/day)	Statewide	46.000	93.000
CO and PM10 Emissions (kg/day)	Statewide	0.000	0.000

Methods for Developing Targets
The System Performance measure targets were established in early 2023 in coordination with MPOs/RPOs within the state. PennDOT continues to evaluate historic variances in performance measures in relation to project completion to assist with the target setting process.

Progress Towards Target Achievement and Reporting:

PennDOT and the MPOs/RPOs work to ensure that the STIP, regional TIPs, and LRTP are crafted and managed to support the improvement of the reliability and Congestion Mitigation and Air Quality (CMAQ) performance measures. These efforts are further supported by auxiliary plans such as the Regional Operations Plans (ROPs), Congestion Management Processes (CMPs), and CMAQ Performance Plans.

For each biennial report, the Bureau of Operations (BOO) within PennDOT scrutinizes statewide reliability and delay data, examining it for overarching trends. Working in synergy, BOO and CPDM pool their efforts to construct statewide and regional performance summaries (in the form of tables or maps) to be shared with the MPOs/RPOs. These summaries may be enriched by supplemental data, such as insights on the root causes of congestion. Such detailed information helps MPOs/RPOs, in collaboration with each PennDOT District, to assess progress and pinpoint areas for capacity or traffic flow improvements in order to meet the established targets more effectively. These initiatives are coordinated with the LRTP, ROP, and CMP (where applicable) in each respective region.

Tracking performance trends also supports assessing the influence of completed investments on performance measures, provided that data is accessible pre and post-project construction. These project impacts offer invaluable insights into the efficacy of historical funding, as well as potential benefits of future investments on traffic congestion and reliability.

Despite a significant portion of funding being allocated towards infrastructure repair and maintenance, PennDOT remains steadfast in its commitment to improve system mobility and enhance modal connections. PennDOT's LRTP lays out objectives aimed at fostering mobility across the transportation system, thereby steering investment decisions. Federal systems performance measures will be harnessed to evaluate future advancements in meeting these objectives and the associated targets.

PennDOT LRTP Mobility Goal and Objectives

MOBILITY — Strengthen transportation mobility to meet the increasingly dynamic needs of Pennsylvania residents, businesses, and visitors.

- Continue to improve system efficiency and reliability.
- Continue to improve public transportation awareness, access, and services throughout Pennsylvania.
- Provide and prioritize multimodal transportation choices to meet user needs, expand mobility options, and increase multimodal system capacity and connectivity.
- Implement regional transportation, land use standards, and tools that result in improved multimodal coordination and complementary development.
- Adapt to changing travel demands, including those associated with e-commerce and post-COVID-19 pandemic changes.
- Work with private sector partners to establish data standards for mobility services and their applications (e.g., Uber and Lyft, carsharing services, bikeshares, etc.)

Evaluation of STIP for Target Achievement:

The following has helped to ensure that planned projects in the STIP will help to achieve an improvement in the system performance measures for the statewide interstate and NHS road system:

- PennDOT continues to emphasize their Transportation Systems Management and Operations (TSMO) initiatives to program low-cost technology solutions to optimize infrastructure performance. This has included the development of ROPs that integrate with the MPO CMP to identify STIP projects. A TSMO funding initiative was established in 2018 to further support these efforts. The 2025-2028 LLTS MPO portion of the STIP includes over $7 million of funding dedicated to congestion relief projects.
- PennDOT has funded interstate projects to address regional bottlenecks. Mainline capacity increasing projects are limited to locations where they are needed most. These investments will provide significant improvements to mobility that support meeting the interstate and freight reliability targets.
- The statewide CMAQ program and Carbon Reduction Program (CRP) provides over $10 million of funding in the LLTS MPO portion of the STIP for projects that benefit regional air quality or greenhouse gases. PennDOT has worked with Districts and MPO/RPOs to develop more robust CMAQ/CRP project selection procedures to maximize the air quality and carbon reduction benefits from these projects.
- Over $9 million is provided in the LLTS MPO portion of the STIP for multi-modal alternatives. This includes funding for transit operating costs, transit and rail infrastructure, support for regional carpooling and other bike and pedestrian infrastructure within the state. These projects provide opportunities to reduce vehicle miles of travel (VMT) and increase the percentage of non-single occupant vehicles.
- At this time, the potential impact of past and planned STIP investments on PM3 performance measures are still being evaluated. The timeline for project implementation often prevents an assessment of measurable results until a number of years after project completion. PennDOT continues to monitor the impact of recently completed projects on the reliability and delay measures. As more data is obtained, these insights will help PennDOT in evaluating potential project impacts in relation to other factors including incidents and weather on system reliability and delay.

The following are the LLTS MPO 2023-2026 TIP projects that address Congestion Mitigation and Air Quality (CMAQ):

MPMS	Roadway	Project Type	Project Name	Description
116551	SR 3013 Main Street	The reduction of Emissions	SR 3013 Main Street Signal Corridor Phase 2	Replacing out dated signals with energy efficient alternatives
115580	SR 247 and SR 106	Safety Improvement	Intersection Improvements	SR 247 and SR 106 Safety Improvement

Transit Asset Management Performance Measures

Background

In July 2016, FTA issued a final rule (TAM Rule) requiring transit agencies to maintain and document minimum Transit Asset Management (TAM) standards, policies, procedures, and performance targets. The TAM rule applies to all recipients of Chapter 53 funds that either own, operate, or manage federally funded capital assets used in providing public transportation services. The TAM rule divides transit agencies into two categories (tier I and II) based on size and mode. The TAM process requires agencies to annually set performance measure targets and report performance against those targets. For more information see: Transit Asset Management | FTA (dot.gov)

Data Source

The TAM rule requires states to participate and/or lead the development of a group plan for recipients of Section 5311 and Section 5310 funding, and additionally allows other tier II providers to join a group plan at their discretion. All required agencies (Section 5311 and 5310) and remaining tier II systems except for Centre Area Transportation Authority (CATA), have elected to participate in the PennDOT Group Plan. The Group Plan is available on PennDOT's website at PennDOT Group Plan. The group plan is updated annually with new targets as well as the current performance of the group.

Transit Asset Management Targets (for all agencies in PennDOT Group Plan)

Performance Measure	Asset Class	FY2022-23 Target	Current Performance	FY 2023-24 Target
Rolling Stock (Revenue Vehicles)				
Age % of revenue vehicles within a particular asset class that have met or exceeded their Estimated Service Life (ESL)	AO-Automobile	29%	15%	**15%**
	BR-Over-the-road Bus	20%	38%	**38%**
	BU – Bus	31%	28%	**28%**
	CU-Cutaway	53%	60%	**60%**
	VN-Van	62%	62%	**62%**
	SV-Sports Utility Vehicle	36%	70%	**70%**
Equipment (Non-Revenue Vehicles)				
Age % of non-revenue/service vehicles within a particular asset class that have met or exceeded their ESL	Automobiles	45%	46%	**46**%
	Trucks / Rubber Tire Vehicles	21%	24%	**24**%
Facilities				
Condition % of facilities with a condition rating below 3.0 on the FTA TERM scale	Administrative / Maintenance Facilities	14%	11%	**11**%
	Passenger / Parking Facilities	66%	31%	**31%**

Methods for Developing Targets

PennDOT annually updates performance targets based on two primary elements: the prior year's performance and anticipated/obligated funding levels. PennDOT requires rolling stock and non-revenue vehicles (equipment) to meet both age and mileage ESL standards prior to being replaced. While the identified annual targets represent only age and condition in line with FTA guidelines, PennDOT will continue to apply age and mileage when making investment decisions.

Progress Towards Target Achievement and Reporting:

The Pennsylvania TAM Group Plan fulfills the PBPP requirement and encourages communication between transit agencies and their respective MPOs and RPOs. In accordance with the plan, the following actions take place that fulfill the PBPP requirement:

- PennDOT provides asset performance reports to transit agencies by August 31 of each year that measure performance against established targets for the previous fiscal year.
- Transit agencies review the content for accuracy and confirm with PennDOT that information related to transportation asset performance has been received and is accurate.
- Transit agencies share performance data with their respective planning partner by the end of each calendar year, or earlier as decided between the partners.
- New performance goals for the upcoming fiscal year are established no later than September 15 of each year and communicated to transit agencies covered under the group plan.
- Transit agencies continue regular coordination regarding the local Transportation Improvement Plan (TIP) and other planning initiatives of the local planning partner.

All transit agencies are required to utilize Pennsylvania's transit Capital Planning Tool (CPT) as part of their capital planning process and integrate it into their TAM process. The CPT is an asset management and capital planning application that works as the central repository for all Pennsylvania transit asset and performance management activities.

Consistent with available resources and in coordination with the PennDOT Bureau of Public Transit (BPT), transit agencies are responsible for submitting projects consistent with the CPT for the development of the transit portion of the Program. This ensures that projects identified on the TIP are consistent with the TAM approach and respective TAM plans. PennDOT CPDM will update this project information in MPMS and share it with the MPOs/RPOs, PennDOT BPT, and the transit agencies.

In addition to the decision support tools identified above, PennDOT is in the process of implementing a statewide Fixed Route Intelligent Transportation Systems (FRITS) program. FRITS focuses on modernizing transit technology and creating a standard platform throughout the Commonwealth. One key piece of FRITS is real-time vehicle health monitoring, which will allow agencies to identify problems before they occur on vehicles and prolong vehicle life, while also allowing agencies to better prioritize capital needs.

Evaluation of STIP for Target Achievement:

The STIP includes an investment prioritization process using established decision support tools. The investment prioritization process occurs annually as part of the capital budgeting process. To prioritize investments at an agency level and at a statewide level, the following basic actions take place:

- Update inventory in the CPT to include age, mileage, condition, and operational status
- Identify assets that are not in a state-of-good-repair, using the following priority process:
    - Vehicles that surpass age and mileage ESL
    - Vehicles that surpass age or mileage ESL and are rated in poor condition or represent a safety hazard
    - Facilities that have a condition rating of less than 3 on the TERM Scale, with priority given to facilities that are the lowest in the scale and represent a critical need to maintain operational capacity
- Determine available funding based on federal and state funding sources
- Develop projects within the CPT Planner based upon funds availability
    - Annually agencies are responsible for supplying estimates of directly awarded federal and local funding for capital projects
    - PennDOT works with agencies to facilitate the efficient use of dollars towards maintaining a state of good repair, filling project shortfalls with available state funding
- Import CPT Planner into DotGrants for the execution of capital grants

Throughout the process, PennDOT reviews projects and works with agencies to approve and move projects forward through the grant process.

The following are the LLTS MPO 2023-2026 TIP projects that address Asset Management Projects

MPMS	Roadway	Project Type	Project Name	Description
89297	Lackawanna County	Operating Assistance	Operating assistance to transit agencies	Act 44 Section 1513 - Mass Transit Operating Line Item for COLTS to draw down from.
70508	Luzerne County	Purchase Signage	Purchase Signage	Directional and informational signs
83642	Luzerne County	Preventive Maint.	Rehabilitation of transit vehicles	Rehabilitation of transit vehicles
115281	Luzerne County	Fare box equipment	Fare box equipment	Purch op. eq. for vehcls (eg. radio, frbx, lifts)
118231	Lackawanna County	Shared Ride Hard/Software	Shared Ride Hard/Software	Const. or renov. of power, signal, & comm systems
92949	State Route 8002	Park N Ride	Tigue Street Park N Ride	Construction of a Park and Ride on State Route 8002 (Tigue Street) in Dunmore Borough, Lackawanna County.
106681	State Route 247	Park and Ride Lot	SR 247 Expand Jessup Borough Park and Ride	Park and Ride Expansion on State Route 247 in Jessup Borough, Lackawanna County.
64481	State Route 309	Park and Ride Lot	Butler Twp. Park & Ride	Construction of a Park and Ride Lot on State Route 309 (North Hunter Highway) at the Interstate 80 Interchange in Butler Township, Luzerne County.

Public Transit Safety Performance Measures

In addition to the Transit Asset Management Performance, FTA issued a final rule on Public Transportation Agency Safety Plans (PTASP), effective July 19, 2019. The PTASP final rule (49 CFR 673) is meant to enhance safety by creating a framework for transit agencies to manage safety risks in their organization. It requires recipients of FTA Section 5307 funding to develop and implement safety plans that support the implementation of Safety Management Systems (SMS). At this time, recipients which receive only Section 5311 (Formula Grants for Rural Areas) or Section 5310 (Enhanced Mobility of Seniors and Individuals with Disabilities Program) are exempt from the PTASP requirement.

As part of the plan development process, performance targets must be established for the following areas:

1. Fatalities,
2. Injuries,
3. Safety Events
4. System Reliability

All applicable public transit agencies in the Commonwealth have written safety plans compliant with 49 CFR 673. These safety plans must be updated annually based on agency specific execution dates and shared with PennDOT BPT. It is also the transit agency's responsibility to share the updated plan with their respective MPO/RPO, so the new targets and measures can be incorporated into regional planning practices.