

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	<ul style="list-style-type: none"> To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
Infrastructure Condition	<ul style="list-style-type: none"> To maintain the highway infrastructure asset system in a state of good repair
Congestion Reduction	<ul style="list-style-type: none"> To achieve a significant reduction in congestion on the National Highway System
System Reliability	<ul style="list-style-type: none"> To improve the efficiency of the surface transportation system
Freight Movement and Economic Vitality	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> To enhance the performance of the transportation system while protecting and enhancing the natural environment
Reduced Project Delivery Delays	<ul style="list-style-type: none"> 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 (L RTPs)
- 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)

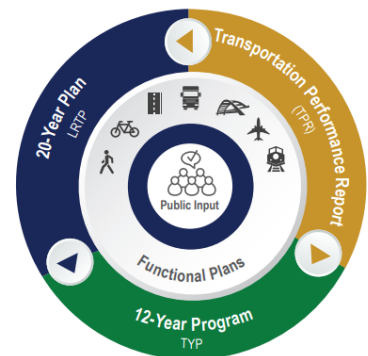
The above documents in combination with data resources including PennDOT’s bridge and pavement management systems, crash databases, historical travel time archives, and the CMAQ public access system provide the resources to monitor federal performance measures and evaluate needs across the state. Based 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.



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.

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		
<p>The FHWA rules for the <i>National Performance Management Measures: Highway Safety Improvement Program</i> (Safety PM) and <i>Highway Safety Improvement Program</i> (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.</p>		
Data Source		
<p>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).</p>		
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		
<p>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.</p>		

Progress Towards Target Achievement and Reporting:

PennDOT and the MPOs/RPOs continue efforts to ensure the STIP, regional TIPs, and L RTPs 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 IJA-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.

Lancaster County MPO

- As part of the annual target coordination with the MPOs, the Department has provided the planning partners with their comparable data so they can evaluate their target setting with regards to the methodology that is being used from a statewide perspective.
- The MPOs can access data about their region through the Pennsylvania Crash Information Tool (PCIT).
- The Lancaster MPO reviews the 5-year Rolling Averages every year as part of the adoption of a safety target. Lancaster County MPO has always adopted and supported the statewide targets.
- The Lancaster MPO utilizes the Highway Safety Network Screening Tool to develop candidate projects. The Planning Department staff presents the highest rated locations that have not been physically altered with improvements within the last 6 years. The PennDOT or Planning staff utilize engineering contracts to conduct safety profiles on the top-rated locations. The MPO is presented with the list of safety projects and the cost benefits prior to programming on the TIP.
- PennDOT Staff identifies systemic improvements throughout the County and provides the candidates to the Lancaster MPO for consideration.

PM-1 Targets		
Performance Measure	Lancaster County (2020-2024)	Pennsylvania (2020-2024)
Number of Fatalities	57.5	1,165
Fatality Rate	1.382	1.219
Number of Serious Injuries	236.2	4,721
Serious Injury Rate	5.679	4.939
Number of Non-motorized Fatalities and Serious Injuries	44.5	817.6

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 that is 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 concerns.
- 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 provide 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.

Lancaster County MPO

- Network screening is a part of the PennDOT District 8-0's Highway Safety Improvement Program (HSIP) process for candidate project selection and application for HSIP funding. Lancaster County Planning Department reviewed freeway segments, ramp terminal segments, urban segments, rural segments, urban intersections, and rural intersections throughout the County. The locations with the greatest excess value overall were identified to advise the MPO) on how to prioritize the locations.
- The PA 72 and Lititz Rd Intersection Improvements (MPMS 118260) uses \$2,785,454 of HSIP funding.
- The Columbia Ave Safety Improvements (MPMS 118670) uses \$1,047,016 of HSIP funding.
- The King Street Safety Improvements (MPMS 119671) uses \$1,053,062 of HSIP funding.
- The Lititz Pike Safety Improvements (MPMS 119672) uses \$810,739 of HSIP funding.
- The McGovernville Road Improvements (MPMS 114206) uses \$4,604,686 of HSIP funding and \$1,115,788 of Non-HSIP funding.
- The Strasburg Pike Improvements (MPMS 114205) uses \$3,325,237 of HSIP funding.
- The Prospect Rd and Fairview Rd Int Safety Imp (MPMS 119673) uses \$991,806 of HSIP funding.

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

- A methodology to project the reduction of Performance Measures based on the investment for Safety has been adopted by the Lancaster County MPO.

Safety Projects on the Lancaster 2025-2028 TIP

MPMS	Project	Location	Description
118260	PA 72 and Lititz Road Intersection Improvements	East Hempfield Township, Penn Township	Safety improvements at the intersection of PA 72 (Lancaster Road) and Lititz Road
119670	Columbia Ave Safety Improvements	East Hempfield Township, Lancaster City, Lancaster Township, Manor Township	Safety improvements on SR 0462 (Columbia Avenue) from Malibou Drive to West End Boulevard
119671	King Street Safety Improvements	Lancaster City	Safety improvements on SR 0462 (King Street) at intersections with Ann Street, Franklin Street, and Marshall Street
119672	Lititz Pike Safety Improvements	Manheim Township	Safety Improvements on SR 0501 (Lititz Pike) from Belmont Avenue to Golf Drive
114206	McGovernville Rd Improvements	Manheim Township	Safety improvements at the intersection of McGovernville Rd (PA 741) and the on/off ramp of PA 283
114205	Strasburg Pike Improvements	East Lampeter Township, West Lampeter Township	Safety improvements at the intersection of Strasburg Pike (SR 2029) and Rockvale Road
119673	Prospect Rd and Fairview Rd Int Safety Imp	West Hempfield Township	Safety improvements on SR 4001 (Prospect Road) at the intersection of Fairview Road

Pavement/Bridge Performance Measures (PM2)

Background				
<p>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.</p>				
Data Source				
<p>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).</p>				
2024-2027 Pavement Performance Measure Targets (Statewide)				
Measure	Baseline 2021	Actual 2022	2-year Target 2023	4-year Target 2025
% of Interstate pavements in Good condition	68.8%	N/A	69.0%	65.0%
% of Interstate pavements in Poor condition	0.4%	N/A	2.0%	2.0%
% of non-Interstate NHS pavements in Good condition	37.2%	45.41%	31.0%	29.0%
% of non-Interstate NHS pavements in Poor condition	1.5%	0.78%	6.0%	6.5%
Bridge Performance Measure Targets (Statewide)				
Measure	Baseline 2021	Actual 2022	2-year Target 2023	4-year Target 2025
% of NHS bridges by deck area in Good condition	27.5%	19.04%	28.0%	28.0%
% of NHS bridges by deck area in Poor condition	4.4%	0.4%	7.5%	7.5%
Methods for Developing Targets				
<p>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.</p>				

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

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.

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.

Lancaster MPO

- The Lancaster MPO’s Metropolitan Transportation Plan, connects2050, is anticipated to be adopted in June 2024, provides- an overview of roadway condition and state bridge conditions in Lancaster County.
- Poor pavement condition non-Interstate NHS dropped from 7.5% in 2012 to 0.78% in 2022.
- Excellent and Good pavement condition non-interstate NHS increased from 74.8% in 2012 to 53.81% in 2022.
- Poor bridge deck area on non-interstate NHS bridges dropped from 1.54% in 2017 to 0.43% in 2022.

2024-2027 Pavement Performance Measure Targets (Lancaster)						
Measure	Baseline 2021 Percent	Baseline 2021 Lane Miles	Actual 2022 Percent	Actual 2022 Lane Miles	2-year Target 2023	4-year Target 2025
% of non-Interstate NHS pavements in Good condition	62.00%	273.0	53.81%	244.3	54.00%	44.00%
% of non-Interstate NHS pavements in Poor condition	0.96%	4.2	0.78%	3.5	2.00%	2.00%
Bridge Performance Measure Targets (Lancaster)						
Measure	Baseline 2021 Percent	Baseline 2021 Count	Actual 2022 Percent	Actual 2022 Count	2-year Target 2023	4-year Target 2025
% of non-Interstate NHS bridges by %deck area in Good condition	24.27%	25	19.76%	24	28.00%	28.00%
% of non-Interstate NHS bridges by %deck area in Poor condition	0.97%	1	0.43%	1	4.00%	4.00%

Evaluation of STIP for Target Achievement:

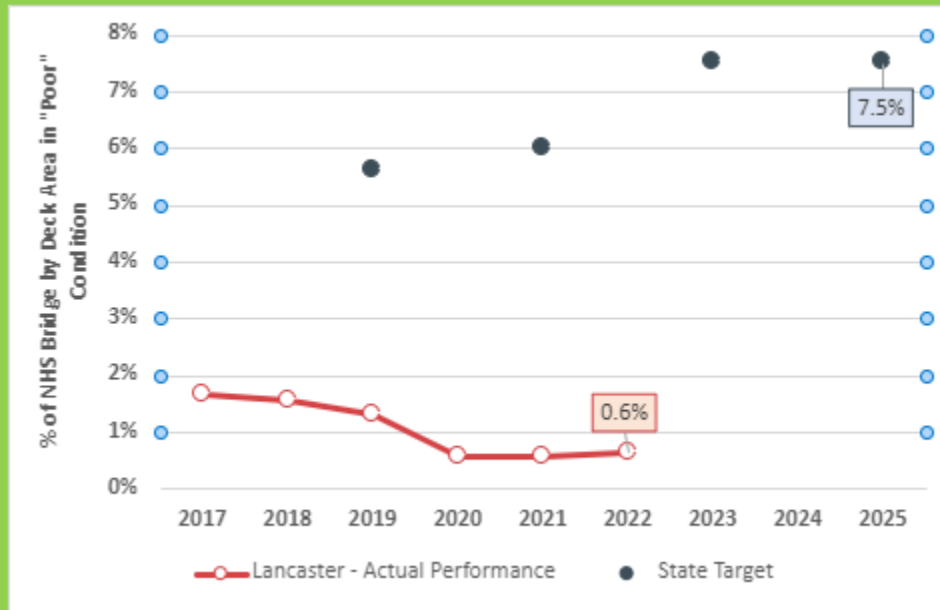
The following has helped to ensure that planned projects in the STIP will help to maintain a desired state of good repair in bridge and pavement conditions for the interstate and NHS roadways:

- 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 do 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 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>

Lancaster MPO

- The Lancaster MPO is improving 0.93 miles of Poor NHS pavement on the 2025-2028 TIP. In 2020, Lancaster only had 1.8 miles of Poor NHS pavement. 2022 data indicates an increase to 3.5 miles of poor pavement.
- The Lancaster MPO is improving 7,853 Sq Ft of Poor NHS Deck Area (0.007853 msf) on the 2025-2028 TIP. In 2022, Lancaster only had 0.4% Poor NHS Deck Area. The improvements on the 2025-2028 TIP will eliminate all poor deck area from the NHS system. 0.006657 msf is one bridge.



- Lancaster MPO was awarded \$20 million in NHPP spike funding for MPMS 109618

NHS Bridges on 2025-2028 TIP

MPMS	Project	Location	Description	Poor Deck Area Sq. Ft.
94924	Fruitville Pike Bridge PM	Manheim Township	Bridge Preservation on US 30 over Fruitville Pike	Fair
101300	PA 72 over Chiques Creek	Penn Township	Bridge Preservation of Lancaster Road over Chiques Creek	6,477
109618	US 222 Reconstruction	Manheim Township	Roadway Reconstruction and Conversion to 6-lanes on US 222 from one-mile north of US 30 to north of Jake Landis Interchange (SR 8030) in Manheim Township, Lancaster County. 2.9 miles on US 222.	Fair
Total				6,477 Sq. Ft.

NHS Pavements on 2025-2028 TIP

MPMS	Project	Location	Description	Poor IRI Miles
110502	30/462 Interchange Improvements	East Lampeter Township	Improvements at the US-30/PA-462 interchange	Good-Excellent
97013	US-222/US-30 Interchange Improvements	Manheim Township	Improvements at the US-222/US-30 Interchange	Good-Excellent
109618	US – 222 Reconstruction	Manheim Township	Roadway Reconstruction and Conversion to 6-lanes on US 222 from one-mile north of US 30 to north of Jake Landis Interchange (SR 8030) in Manheim Township, Lancaster County. 2.9 miles on US 222.	Good-Excellent
116658	Church Street Resurface	City of Lancaster	Resurface of US – 222 from Queen Stret to Vine Street	0.328
121042	PA – 272 NB Resurfacing	Pequea Township, Providence Township, West Lampeter Township	Resurfacing PA 272 NB from Herrville Road to US 222	Good
121047	PA – 272 SB Resurfacing	Pequea Township, Providence Township, West Lampeter Township	Resurfacing on PA 272 SB from Herrville Road to US 222	Good
Total				0.328 Miles

Non-NHS (Large Bridge Investments)

MPMS	Project	Location	Description	Poor Deck Area
79020	Veteran's Memorial Bridge Rehab	West Hempfield Township, Columbia Borough, Wrightsville Borough	Bridge rehabilitation (Veterans Memorial Bridge) on PA 462 over Susquehanna River. Also includes the SR 462/2nd Street intersection improvement, bike/pedestrian connection from bridge to the river park and trails, and bridge lighting enhancement.	Good
115004	Norman Wood Bridge Study	Lower Chanceford Township, Martic Township	A study of Norman Wood Bridge to determine needs and potential alternatives for SR 372 over the Susquehanna River.	1.3402
Total				1.3402

System Performance Measures (PM3)

Background				
The FHWA final rule for the <i>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</i> (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	Actual 2021	2-year Target 2023	4-year Target 2025
Interstate Reliability	Statewide	92.8%	89.5%	89.5%
Non-Interstate Reliability		92.6%	88.0%	88.0%
Truck Reliability Index		1.30%	1.40	1.40
Annual Peak Hour Excessive Delay Hours Per Capita (Urbanized Area)	Philadelphia	13.1	15.2	15.1
	Pittsburgh	9.3	10.5	10.5
	Reading	6.3%	6.5	6.5
	Allentown	7.1%	8.4	8.4
	Harrisburg	7.2%	9.1	9.1
	York	5.0%	6.4	6.4
	Lancaster	3.3%	3.7	3.7
Non-SOV Travel Measure Targets				
Measure	Area	Actual 2017-2021	2-year Target 2023	4-year Target 2025
Percent Non-Single Occupant Vehicle Travel (Urbanized Area)	Philadelphia	30.6%	30.0%	30.0%
	Pittsburgh	27.6%	27.0%	27.0%
	Reading	22.8%	20.2%	20.2%
	Allentown	20.4%	18.6%	18.6%
	Harrisburg	21.3%	20.2%	20.2%
	York	18.4%	15.8%	15.8%
	Lancaster	24.9%	21.9%	21.9%
CMAQ Emission Targets				
Measure	Area	Actual 2018-2021	2-year Target 2023	4-year Target 2025
VOC Emissions (kg/day)	Statewide	360.220	18.000	36.000
NOx Emissions (kg/day)		1644.620	392.000	785.000
PM2.5 Emissions (kg/day)		269.080	46.000	93.000
CO and PM10 Emissions (kg/day)		3791.360	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.

PM-3 Targets		
Performance Measure	Lancaster County (2022 / 2024)	Pennsylvania (2022 / 2024)
PHED	3.7%	3.7%
Non-SOV	21.90%	21.90%
VOC Emissions Reduction (kg/day)	0.260 / 0.530	46 / 93
NOx Emissions Reduction (kg/day)	0.680 / 1.360	392 / 785
PM _{2.5} Emissions Reduction (kg/day)	0.190 / 0.370	18 / 36
CO Emissions	233.37 / 466.74	0

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.

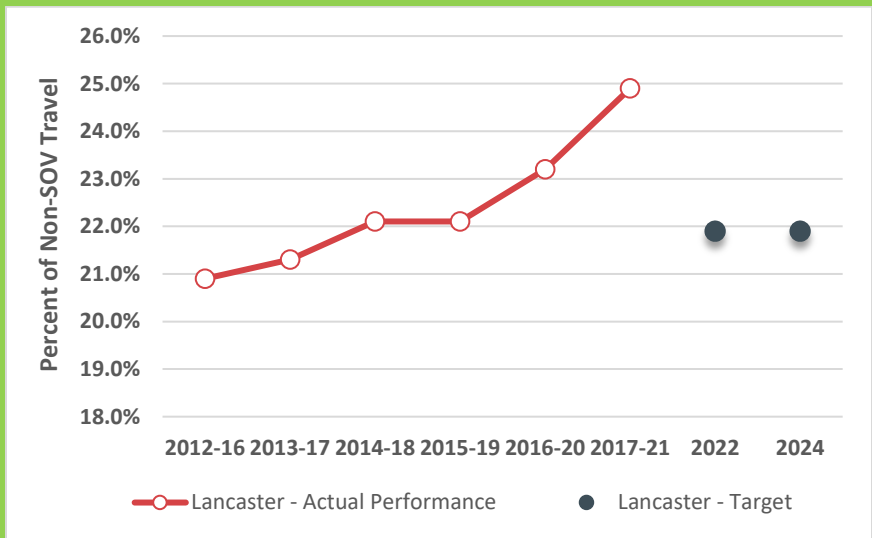
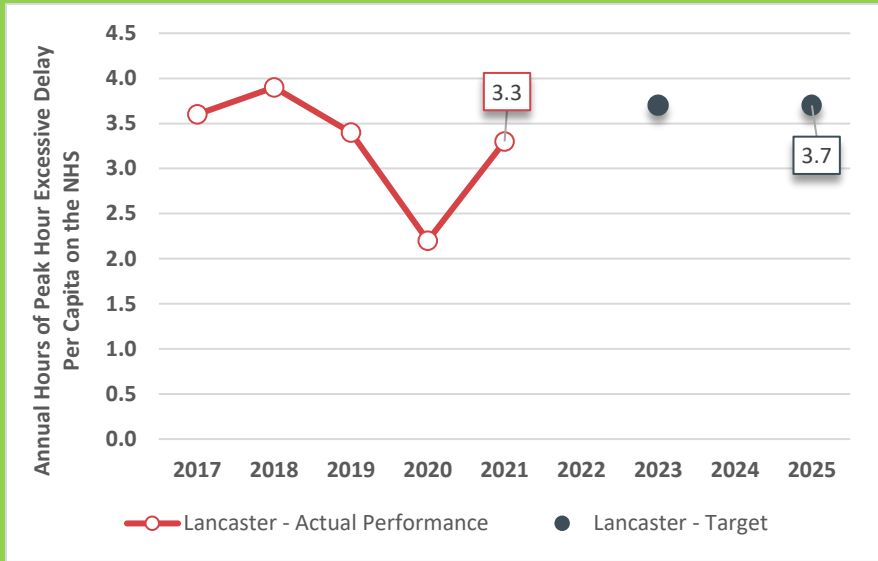
Despite a significant portion of funding being allocated towards infrastructure repair and maintenance, PennDOT remains steadfast in its commitment to improve system mobility and enhance modal connections. PennDOT's LRTP lays out objectives aimed at fostering mobility across the transportation system,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

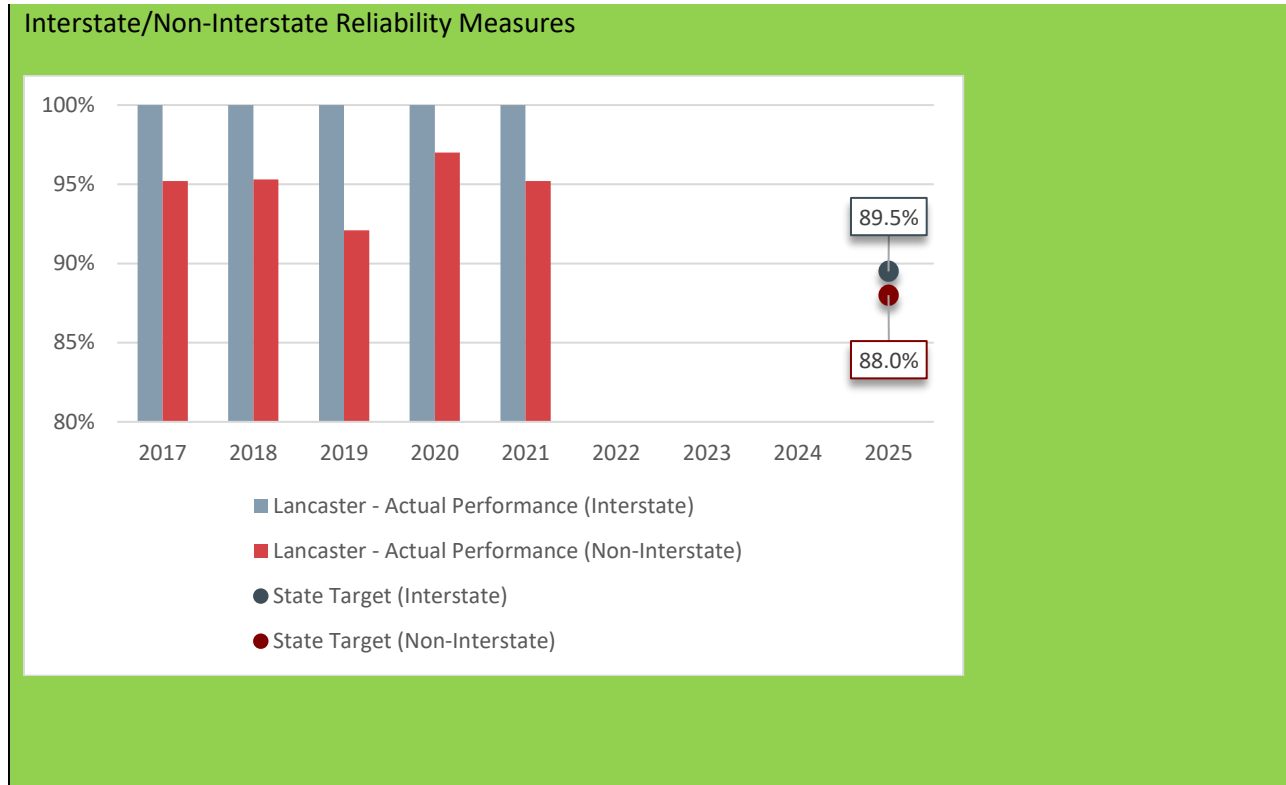
PennDOT LRTP Mobility Goal and Objectives

MOBILITY	<p>Strengthen transportation mobility to meet the increasingly dynamic needs of Pennsylvania residents, businesses, and visitors.</p>	<ul style="list-style-type: none"> • 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.)
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Lancaster MPO

- Lancaster County has one interstate within the County, I-76, which operates at 100% reliability based on the Federal Performance measure.
- The Non-Interstate NHS reliability measure increased (improved reliability) from 2018-2021 based on the 2023 Congestion Management Process Report.
- Truck Travel Time reliability Index increased (reduced reliability) from 2018-2021 based on the 2023 Congestion Management Process Report.





The federal performance measures only apply to the County’s National Highway System (NHS) roadways. The Lancaster NHS roads include:

- Interstate: I-76 (Turnpike)
- Non-Interstate: US-30, US-222, US-322, PA-283, PA, 72, and PA-41, PA-462, Harrisburg Pike, Orange Street, Chestnut Street, Lime Street, and parts of King Street, Walnut Street, and Church Street.

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 STIP includes over \$289 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 \$700 million of funding on 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 \$210 million is provided in 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.

Lancaster MPO

- Lancaster County MPO has been including the CMP results into TIP selection for several TIP update cycles. Congestion management accounts for 30% of a projects score in the 25TIP Selection Process.
- Lancaster’s CMAQ Performance Plan was reviewed as the mid performance period progress report in 2022.
- Carbon Reduction funds have been assigned to projects that were identified in the Regional Operations Plan

Projects funded with Congestion Mitigation Air Quality (CMAQ)

MPMS	Project	Location	Description
94572	L RTP Rideshare Program	Countywide	Ridesharing, Vanpooling Programs, and Transit Coordination - Commuter Services of PA
110502	US30/PA 462 Improvements	East Lampeter Township	Interchange improvements at US 30 and PA 462 (E. Lincoln Hwy)
114324	Main St. Traffic Signal Updates	East Petersburg Borough	Traffic signal updates, update controllers, detectors, signal supports and hardware, ADA updates, and install turning lanes on SR 72 at the intersection of Main Street (SR 72) and Graystone Road (SR 4013)
121048	Pitney Rd and PA 340 Intersections with PA 462	East Lampeter Township, Lancaster Township	intersection improvements on PA 462 (King Street) intersections with PA 340 (Old Philadelphia Pike) and SR 3028 (Pitney Road)

Projects funded with Carbon Reduction Funds CRP/CRPU

MPMS	Name	Description
121060	ITS-Lancaster TSMO 2025-2026	Install Closed-Circuit Television (CCTV) cameras and Dynamic Message Signs (DMS) at strategic locations along the US 30 corridor east of Lancaster. Add East Lampeter signals to command/control system. Upgrade three signal systems to connect to PennDOT's UCC system. Add six ITS signal CCTV and one DMS with a CCTV to help manage traffic within the US 30 system.
121063	New Holland Pk Signals-Lancaster TSMO 2025-2027	To connect to PennDOT's Universal Command and Control software that will be used to monitor the signals the existing controllers and the existing fiber communications will need to be replaced with new equipment.
121061	Lititz Pk and Oregon Pk-Lancaster TSMO 2025-2026	US 222 and PA 501 from Pleasure Road to US 30: Upgrade signal controllers to allow for command/control functionality. Upgrade signal timers. This would include approximately 6 signalized intersections.
121062	PA 741 Signals-Lancaster TSMO 2025-2026	Upgrade ten signalized intersections from PA 462 to Harrisburg Pike: connect to PennDOT's UCC system. These equipment updates will allow for better traffic flow of the corridor, and for better monitoring of the corridor.
121064	UPS for Existing Sites - Lancaster TSMO 2025-2026	Installation of Uninterruptible Power Supply (UPS) for 22 existing Dynamic Messaging Signs and Closed Circuit TV sites along PA 283, US 30, and US 222
121049	Transit Development Plan Implementation	establishing microtransit service in an area/s underserved by transit. Includes the purchase of 1-2 vehicles, dispatch system/software to provide a platform to create itineraries and dispatch vehicles in real-time, a facility to house and repair the vehicle/s, and marketing

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. As a Tier II provider as defined under the Transit Asset Management (TAM) final rule, the South Central Transit Authority (SCTA) decided to develop and maintain its own Transit Asset Management Plan (TAMP).

Methods for Developing Targets

SCTA annually updates performance targets based on two primary elements: the prior year's performance and anticipated/obligated funding levels. SCTA 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, SCTA will continue to apply age and mileage when making investment decisions.

Progress Towards Target Achievement and Reporting:

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.

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.

Lancaster MPO TIP

- SCTA has voting membership on both the Lancaster MPO and TTAC boards. SCTA and the MPO collaborated in the development and implementation of the Metropolitan Transportation Plan and SCTA Transit Development Plan. The projects listed below illustrate the coordination between SCTA and the MPO for rolling stock replacements and plan implementation:
- MPMS 121050 SCTA Bus Replacement
- MPMS 121049 Transit Development Plan Implementation

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.

Lancaster MPO TIP

- Projects funded on the TIPs have become physical elements – on-the-ground features that maintain and improve the safety and security of the transit community, enhancing the community-at-large where we operate. These projects are generated directly in pursuit of reaching performance measure targets.