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.
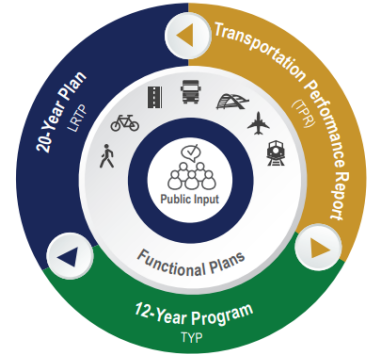
The following sections provide an overview of the federal performance measures and how the current project selection process for the FY2025-2028 STIP supports meeting future targets. Over the 4-year STIP, nearly 85% of the total funding is associated with highway and bridge reconstruction, preservation, 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.

The LEBCO MPO staff in coordination with PennDOT District 8-0 and Central Office staff to determine candidate projects that support established PM-1 Safety Targets set in accordance to Statewide and District 8-0 targets. The LEBCO MPO having limited TIP resources supports developed PM-1 Targets provided by PennDOT and in District 8-0, supported by utilizing PennDOT's HSIP evaluation process developed by District 8-0 to determine candidate projects. LEBCO MPO recently approved updated annual PM-1 Targets as outlined below is it annual 2024 target setting. The LEBCO MPO has also programmed several projects that support reaching these safety goals, which include **MPMS# 116163** PA 343 Seventh Street Improvements, **MPMS #117496** PA 501 Stiegel Pike and Reistville Road Intersection Improvements, and **MPMS # 114554** Hill Church Road and Thompson Ave Improvement Project. These projects along with prior and planned Road Safety Audit (RSA) has helped to further guide the identification of future candidate HSIP eligible Projects. The LEBCO MPO staff also frequently reviews PennDOT HSNS tool as changes in land use occur in Lebanon County as part of the land development process and as communications occur on local municipal safety concerns are shared with LEBCO MPO staff.

Table 1: Statewide Targets:

Performance Measure	5-year Rolling Averages		
	TARGET 2020-2024	ACTUAL 2020-2024	BASELINE 2018-2022
Number of Fatalities	1,165.1		1157.4
Fatality Rate	1.219		1.182
Number of Serious Injuries	4,721.0		4682.4
Serious Injury Rate	4.939		4.783
Number of Non-motorized Fatalities and Serious Injuries	817.6		804.6

* Future VMT estimated to hold level over next few years

Table 2: Lebanon MPO Supporting Values:

Performance Measure	5-year Rolling Averages		
	TARGET 2020-2024	ACTUAL 2020-2024	BASELINE 2018-2022
Number of Fatalities	16.1		18.6
Fatality Rate	1.423		1.578
Number of Serious Injuries	64.0		70.2
Serious Injury Rate	5.656		5.955
Number of Non-motorized Fatalities and Serious Injuries	8.4		9.4

* Future VMT estimated to hold level over next few years

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

---

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

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.

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 managate assetsto 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.

LEBCO MPO staff work closely with PennDOT District 8-0 and Central Office to support developed PM-2 & PM-3 targets for Lebanon County roadway network. The LEBCO MPO due to size and resources has from its establishment in 2003 and continues a maintenance first and system operation approach as a reality of size and scope of the LEBCO MPO's Transportation Improvement Program (TIP) funding. The development of Performance Based Planning and Program (PBPP) has only helped to strengthen the need to invest the limited TIP funding into projects that will have the greatest impact on maintaining

and extending the lifecycle costs of our existing transportation network. Additionally the LEBCO MPO works with District 8-0 staff to understand bridge and pavement needs and work to provide critical information on planned land use changes, related infrastructure improvements, etc. that might impact planned TIP projects.

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:
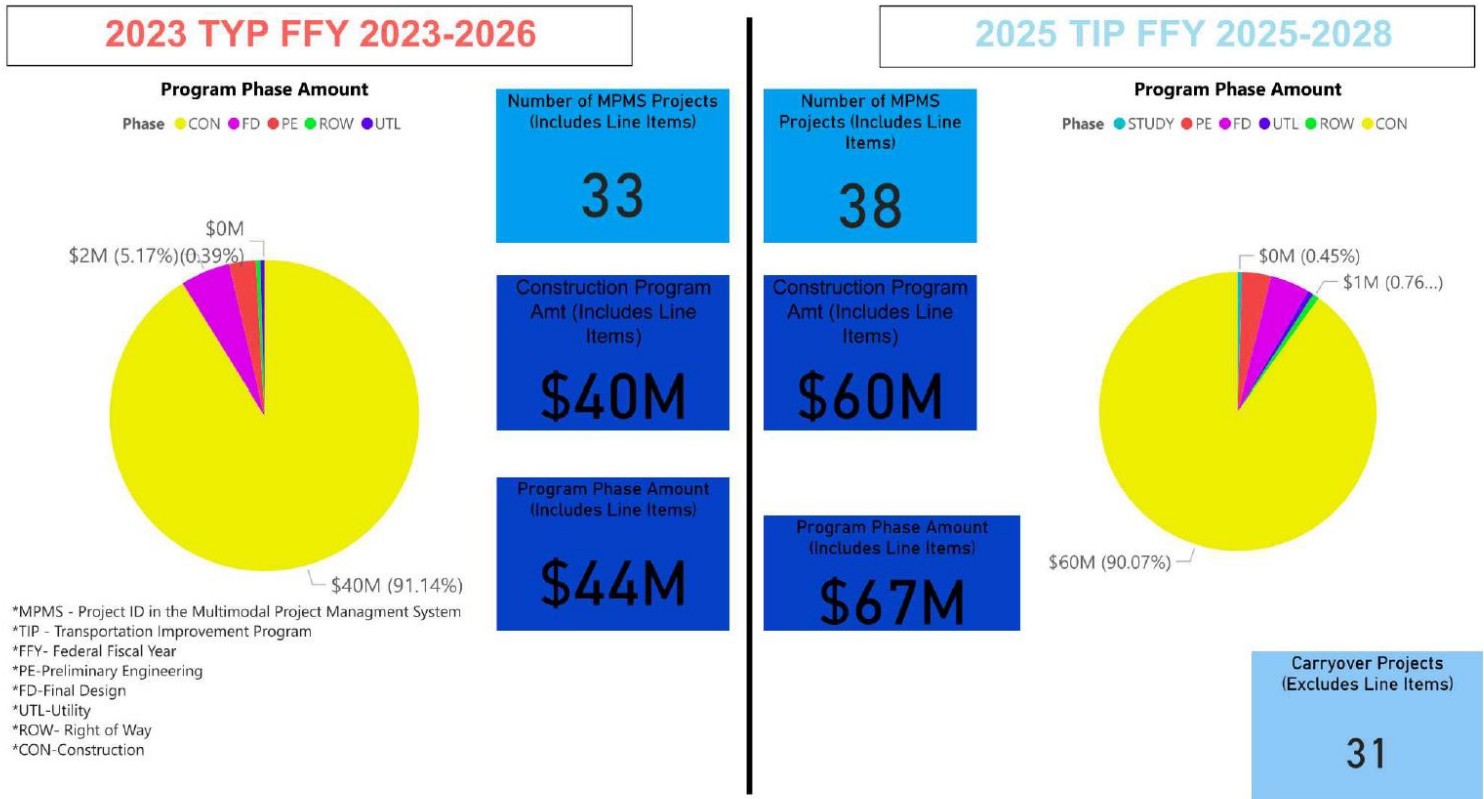
- Nearly 85% of PennDOT's STIP funding is directed to highway and bridge preservation, restoration, and reconstruction projects. Many of these projects are focused on our state's interstate and NHS roadways.
- Pennsylvania's investment strategy, reflected in the statewide 2025 Twelve Year Program (TYP) 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

---

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

used by PennDOT AMD to improve future asset management policy and procedures, sharing of information and tools, and system functionality.

The LEBCO MPO staff with every TIP update reviews current TPM goals and works with District 8-0 to evaluate the addition of any new programmed project to ensure that it will support the overall goals for our region. The LEBCO MPO does not have a specific local process or methodology for selection of bridge and pavement projects due to the relative small capacity the MPO has to add new projects. The LEBCO MPO staff rather relies on coordination and communication on a regular basis with the PennDOT District 8-0 and Central Office staff on the highest share system priorities. The LEBCO MPO works closely with PennDOT District 8-0 staff to compare TIP program updates from update to update on a very informative document provided which is helpful for our MPO members to understand how our TIP project mix and program changes from TIP update to TIP update.

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		88.0%	88.0%
Truck Reliability Index		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)		392.000	785.000
PM2.5 Emissions (kg/day)		46.000	93.000
CO and PM10 Emissions (kg/day)		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

The LEBCO MPO staff consistently works with PennDOT District 8-0 staff on system performance concerns. Lebanon MPO while not required has developed its own Congestion Management Processes document looking at 6 key corridors through Lebanon County that are deemed priority networks for our region. LEBCO MPO remains one of the fastest growing Counties in Pennsylvania has a significant focus on targeted system improvements such as intersection improvements and operations focused improvements like multi-jurisdictional interconnected signal systems and TSMO and TIMs activites. The LEBCO MPO working with PennDOT District 8-0 has a couple new project aimed at improving mobility and operations of our transportation network and include MPMS # 100299 22nd Street/Quittapahilla

Creek Bridge replacement and partial roadway realignment as part of a planned rail trail improvement, MPMS# 99081 Wilhelm and Cornwall Road intersection Improvement which will involve partial road realignment and signal installation currently underway and MPMS # 106537 Rt 72 and Isabel Drive Intersection Improvement which will involve a new traffic signal installation on Rt. 72. Additionally LEBCO MPO in working with MSF and DHL in S. Annville Township has secured $ 3 million dollars in MTF funding to allow for intersection improvement at Rt. 934 and Clear Spring Road in N. Annville Twp. allowing for better traffic operation with newly developed commercial properties. Also the LEBCO MPO staff have been and continue participating in Eastern Pennsylvania Freight Alliance to look a growing freight impacts in our area with neighboring partners in Berks, NEPA, Lehigh Valley, and Lackwanna/Luzerne which will begin in 2022.

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.

LEBCO MPO staff works closely with PennDOT District 8-0 on the identification of CMAQ eligible projects which include variety of intersection and corridor-wide operations improvements throughout Lebanon County. The LEBCO MPO does not have an established CMAQ Performance Plan due in large part to limited available funding for new TIP projects from year to year. The LEBCO continues to be very involved with the 9 County Commuter Services of PA, now CommutePA program, which the LEBCO MPO supports with the use of CMAQ funding, MPMS# 82375.

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**	**FY2021-22 Target**	**Current Performance**	**FY 2022-23 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	18%	29%	**29**%
	BR-Over-the-road Bus	18%	20%	**20**%
	BU – Bus	28%	31%	**31**%
	CU-Cutaway	52%	53%	**53**%
	VN-Van	63%	62%	**62**%
	SV-Sports Utility Vehicle	33%	36%	**36**%
Equipment (Non-Revenue Vehicles)				
Age % of non-revenue/service vehicles within a particular asset class that have met or exceeded their ESL	Automobiles	57%	45%	**45**%
	Trucks / Rubber Tire Vehicles	27%	21%	**21**%
Facilities				
Condition % of facilities with a condition rating below 3.0 on the FTA TERM scale	Administrative / Maintenance Facilities	14%	14%	**14**%
	Passenger / Parking Facilities	84%	66%	**66**%
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.

LEBCO MPO works closely with Lebanon Transit (LT) staff to understand their priorities and needs as it relates to their capital and rolling stock needs. The LEBCO MPO in the past has taken action to support the flexing of Highway and Bridge funding from the LEBCO MPO's TIP to support the purchase and replacement of existing fleet vehicles and supporting targeted facility improvements when needed. The LEBCO MPO makes and effort to involve LT staff in all planning discussions to ensure that planned transportation improvements and land development projects take into consideration the potential current and future impacts of Lebanon Transit's operation. The LEBCO MPO staff also participates in regular LT Advisory Board meeting and one staff member is a Board Member of Lebanon Transit

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.

The LEBCO MPO staff coordinates closely with Lebanon Transit (LT) staff to support efforts to improve safety of operations for LT. The LEBCO MPO has worked with LT staff on a pilot shelter and stop signage location to improve safety for passengers by providing safer stop locations for pickup and drop-offs and placed at locations that improve safety for LT riders. The LEBCO MPO staff also works with LT staff to prioritize the replacement of rolling stock and related ADA improvements at LT Transfer Stations and Shelter locations to ensure riders have most updated improvements to serve riders. LT staff have also provided LEBCO MPO staff copies of their Transit Safety Plan and related materials to address safety priorities for LT. Lebanon Transit Staff has also included LEBCO MPO staff in Homeland Security Training for Transit Providers, which have been held in the past at the Lebanon Expo Center and LT offices.