Chapter 4:

Performance-Based Planning and Programming (PBPP)

Background

The IIJA/BIL continues the requirements established in MAP-21 and FAST Act for state DOTs and MPOs to establish and use a performance-based approach in transportation decision making. This includes tracking performance measures, setting data-driven targets for each measure, and selecting projects to help meet those targets. The IIJA/BIL also requires that the TIP include a description of its anticipated effect toward achieving the established performance targets and linking investment priorities to those performance targets.

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 USDOT to establish specific performance measures that address these national goal areas. The regulations for the national performance management measures are found in 23 CFR 490. The goal of PBPP is to ensure targeted investment of federal transportation funds by increasing accountability and transparency and providing for better investment decisions that focus on key outcomes related to seven national goal areas:

- Safety
- Infrastructure Preservation
- Congestion Reduction
- System Reliability
- Freight Movement and Economic Vitality
- Environmental Sustainability
- Reduced Project Delivery Delays

The FHWA has established three performance measure regulations that cover roadway safety (PM1), bridge and pavement condition (PM2), and system performance (PM3). PM 3 addresses system reliability, freight reliability, and air quality. The FTA has established performance measures for Transit Asset Management (TAM) and Transit Safety.

State DOTs and transit agencies are required to establish targets for each performance measure and report progress toward the target, except for the Urban Area (UA) measures (PM 3 air quality) for which DOTs and MPOs both contribute to establishing a unified target for the UA. MPOs may either choose to support the respective state DOT and transit operator targets and the agencies' efforts to achieve the targets, or develop their own regional targets. DVRPC has memoranda of agreements with various pertinent planning partners, including state DOTs, transit operators, and other MPOs, for each of the performance measure areas. The agreements outline how the planning partners will select and report performance targets and the reporting of performance.

As a bi-state MPO, DVRPC must plan and program projects to contribute toward separate sets of targets: one set for each state in which the Planning Area boundary extends. DVRPC has agreed to support the PM2 and PM3 targets set by PennDOT and NJDOT, respectively, as well as the respective transit agencies' Transit Asset and Transit Safety targets. For PM1, Roadway Safety, DVRPC has set its own target based on DVRPC's Regional Vision Zero 2050 goal. If an MPO adopts regional targets, they must adopt a single target that covers the entire MPO region.

There are multiple performance measures established within the three FHWA performance measure areas. Each performance measure grouping has different requirements for reporting and updating performance targets. Table 22 summarizes these measures, the geography for which they are being reported, the facilities included, and the update frequency.

Table 22: FHWA Performance Measures Summary

Goal Area	Performance Measure	Geography	Network	Reporting Frequency
Roadway Safety (PM1)	Number of Fatalities	Statewide or Regional	All Roads	Annual
	Fatality Rate (per 100 million VMT)			
	Number of Serious Injuries			
	Serious Injury Rate (per 100 million VMT)			
	Number of Non-Motorized Fatalities and Serious Injuries			
Bridge and Pavement Condition (PM2)	Good Pavement Lane Miles	Statewide or Regional	Interstates and National Highway System (NHS)	Two-Year Interim Target, Four-Year Target
	Poor Pavement Lane Miles			
	Good Bridge Deck Area		NHS	
	Poor Bridge Deck Area			
System Performance (PM3)	Person Miles Traveled with Reliable Travel Times (%)	Statewide or Regional	Interstates and NHS	Two-Year Interim Target, Four-Year Target
	Truck Travel Time Reliability Index		Interstates	
	Percentage Non-SOV Travel		All UAs (via ACS)	

	Annual Hours of Peak Hour Excessive Delay (PHED) per Capita	UA with a population over 200,000	All NHS roads within UAs, AM and PM Peak Periods	
	CMAQ Emissions Reductions	Statewide and Regional	CMAQ Projects	

Source: DVRPC, 2026

On the transit side, the FTA has established performance measures for Transit Asset Management and Transit Safety. Table 23 has a summary of these measures. FTA regulations establish a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their life cycle. The performance management requirements are a minimum standard for transit operators.

Table 23: FTA Performance Measures Summary

Goal Area	Performance Measure	Assets/ Geography	Reporting Frequency
Transit Assets	Percentage of Rolling Stock Meeting or Exceeding the Useful Life Benchmark	Revenue Vehicles	Annual
	Percentage of Support Equipment Meeting or Exceeding the Useful Life Benchmark	Non-Revenue Vehicles	
	Percent of Facilities Rated Below 3 on the TERM Scale	Passenger, Administrative, and Maintenance Facilities	
	Percent of Track Segments with Performance Restrictions	Rail Track	
Transit Safety	Fatalities (Total and Number per Vehicle Revenue Mile)	Entire Transit Agency Service Area	Annual
	Injuries (Total and Number per Vehicle Revenue Mile)		
	Safety Events (Total and Number per Vehicle Revenue Mile)		
	System Reliability (Mean Distance in Miles between Major Service Failures)		
	Assaults on Transit Workers (Total and Number per Vehicle Revenue Mile)		

Source: DVRPC, 2026

Historic data for the metrics tracked through TPM are included in DVRPC's Tracking Progress website: https://www.dvrpc.org/trackingprogress/. Tracking Progress is an interactive dashboard tracking several metrics to gauge progress towards achieving the vision established in DVRPC's long-range plan. Each metric includes a time series analysis to track data trends at different scales, including the regional level, county level, and by UA or transit agency, depending on the metric. The dashboard tracks actual performance for each of the performance measures via the following metrics:

- Roadway Safety
- Bridge and Pavement Conditions
- System Performance
- Transit Asset Conditions
- Transit Safety

The following sections of this chapter will provide more information on each performance measure and their associated targets, as they pertain to the region. For more information about the development and implementation of TPM policy and rulemaking, see www.fhwa.dot.gov/tpm. To view the latest TPM targets and performance for DVRPC, visit www.dvrpc.org/tpm.

Roadway Safety Performance Measures (PM1)

In March 2016, the FHWA Highway Safety Improvement Program and Safety Performance Management Measures Rule (Safety PM Rule) was finalized and published in the Federal Register. The rule requires state DOTs and MPOs to set annual targets for five safety-related performance measures with the understanding that reaching zero fatalities on all public roads will require time and significant effort. A target is defined in 23 CFR 490.101 as a quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by FHWA. The federal safety performance measures are consecutive five-year rolling averages for the following:

1. Number of Fatalities
2. Rate of Fatalities per 100 Million Vehicle Miles Traveled (VMT)
3. Number of Suspected Serious Injuries
4. Rate of Suspected Serious Injuries per 100 Million VMT
5. Number of Non-Motorized Fatalities and Non-Motorized Suspected Serious Injuries

The non-motorized performance measure focuses on pedestrians and bicyclists killed or seriously injured in a crash. State DOTs report baseline values, targets, and progress toward meeting the targets to FHWA in an annual safety report. FHWA requires DOTs and MPOs to establish safety targets on an annual basis, beginning with targets for calendar year (CY) 2018. MPOs may either establish quantitative targets for their metropolitan planning area or agree to adopt the statewide targets.

DVRPC Regional Safety Targets

DVRPC has adopted regional roadway safety targets in support of the Regional Vision Zero 2050 program. Regional Vision Zero provides the context for more meaningful and substantive strategies to improve safety systemwide. If an MPO adopts regional targets, they must adopt targets that cover the entire MPO

region. The adopted regional safety targets capture fatal and suspected serious injury data for the combined nine-county, bi-state DVRPC region as required by the FHWA.

These targets are informed by the Regional Vision Zero 2050 trend line, updated with new data and careful consideration of previous trends, recently constructed projects, and the current socioeconomic environment. The targets are the result of a collaborative process conducted with DVRPC planning partners. The targets satisfy federal requirements and are consistent with PennDOT's Strategic Highway Safety Plan (SHSP), which serves as a blueprint to reduce fatalities and serious injuries on Pennsylvania roadways. PennDOT's SHSP targets 18 Safety Focus Areas (SFAs) that have the most influence on improving highway safety throughout the state. Within the SHSP, PennDOT identifies three key emphasis areas to improve safety – impaired driving, lane departure crashes, and pedestrian safety. DVRPC agrees to plan and program projects that contribute toward meeting or exceeding the regional roadway safety targets.

Measures are for all public roads regardless of functional classification or ownership. Each target is based on a five-year rolling average, which is the average of five individual, consecutive points of data. Crash records are used to determine whether actual performance met or made significant progress towards a previously adopted target. If an MPO adopts regional targets, it must submit a progress report to the respective state DOT. State DOTs report baseline values, targets, and progress toward meeting the targets to FHWA in an annual safety report. FHWA will determine whether a state has met or made significant progress toward its safety performance targets. A state is considered to have met or made significant progress when at least four out of the five safety performance targets are met or the actual outcome for the safety performance target is better than baseline performance. The performance (actual) data is also the baseline, or the basis, for the new targets.

If a state has not met or made significant progress toward meeting its targets, the state must comply with the provisions set forth in 23 USC 148(i) for the subsequent fiscal year. The state is required to use obligation authority equal to the HSIP apportionment for the year prior to the target year, only for HSIP projects, and submit an HSIP Implementation Plan that describes actions the state will take to meet or make significant progress toward meeting its targets. The HSIP Implementation Plan should guide the state's project decisions so that the combined 148(i) provisions lead to the state meeting or making significant progress toward meeting its safety performance targets in subsequent years.

As part of the IIJA and the National Roadway Safety Strategy, the FHWA issued new guidance to help states better protect "vulnerable road users," that is pedestrians, cyclists, and people who use wheelchairs. Per the Vulnerable Road User Special Rule, if the total annual fatalities of vulnerable road users in a state represents at least 15 percent of the total annual crash fatalities in the state, that state is required to obligate at least 15 percent of HSIP funds for the following fiscal year for roadway safety improvement projects to address the safety of vulnerable road users. The guidance requires Vulnerable Road User Safety Assessments developed by states to identify areas of "high risk" informed by demographic and performance data developed in consultation with local governments. PennDOT is beholden to the rule and has begun its outreach to affected communities. DVRPC has been included in this process.

Coordination and Progress Toward Highway Safety Targets

Regional partners adopted Regional Vision Zero 2050 with a goal of no fatalities or serious injuries from traffic crashes by 2050 as part of the *Connections 2050* long-range plan. Since that time, the goal has been incorporated into the work of the Regional Safety Task Force and the RSTF format has been reframed to embrace FHWA's safe system approach. These holistic changes help to advance our safety culture and increase the priority of safety initiatives. In 2023 DVRPC launched the Regional Vision Zero 2050 Program effort using a Safe Streets and Roads for All grant. This effort includes close coordination with county-partner sub-awardees to collaboratively develop the plan which includes engagement with municipal partners.

DVRPC continues to include crash analyses in our work program projects to advance substantive infrastructure safety improvements. Close collaboration with county partners helps to raise the profile of regional safety needs and connect them to funding opportunities.

Table 24: Projects in the DVRPC TIP Utilizing Federal HSIP Funds

County	Project	Description	HSM Benefit/Cost	Funding Status
Bucks	Route 113 and Minsi Trail Road Roundabout (MPMS #115418)	Roundabout at Souderton Road and Minsi Trail Road	1.01	Ongoing Regional
	US 202/Route 263 (York Road) Roundabout (MPMS #115419)	Roundabout at US 202/Route 263 & York Road	1.31	
	SR 413 Veterans Highway and Wharton Road/Old Rodgers Rd Intersection (MPMS #82144)	Safety countermeasures to reduce crashes	6.97	New Statewide
Chester	Lincoln Highway Safety: Veterans Dr – Toth Ave (MPMS #82146)	Bicycle/pedestrian safety countermeasures	2.23	New Statewide
	High Street Safety: Market St to Chestnut St (MPMS #82148)	Bicycle/pedestrian safety improvements	7.97	
Delaware	Haverford Road Corridor Safety Improvements (#115426)	Partial road diet from Landover Road to Karakung Road/Winchester Road	4.4	Ongoing Regional
	Macdade Boulevard Corridor Safety Improvements (MPMS #110951)	Road diet from Woodcrest Road to Grays Avenue	18.6	Ongoing Statewide
	Chichester Ave Corridor Safety Improvements MPMS (#111022)	Intersection improvements at Bethel Rd/Thornton Rd and	1.5	

		Pleasant Ave/I-95 Ramp C and Johnson Ave/I-95 Ramp A/B		
	US 13 Safety: Calcon Hook Rd to Main St (MPMS #82149)	Various traffic safety countermeasures on US 13 between Calcon Hook Rd and Main St	22.05	New Statewide
	69th St/Church Ln Safety Improvements (MPMS #82151)	Various bicycle/pedestrian safety improvements on SR 2001 from Marshall Rd to Baltimore Ave	9.28	
	West Chester Pike Safety: State Rd to Chatham Rd (MPMS #82152)	Various bicycle/pedestrian safety improvements on SR 003 from State Rd on West Chester Pike to Chatham Rd	2.26	
	Industrial Hwy/Saville Ave Intersection Improvements (MPMS #82153)	Intersection improvements at the Industrial Hwy and Sayville Ave	1.65	
Montgomery	Belmont Avenue and St. Asaphs Road Intersection (MPMS #115429)	Intersection safety improvements and partial road diet of St. Asaphs Rd	2.1	Ongoing Regional
	Sumneytown Pike Intersection Safety Improvements (MPMS #115428)	Widening to add left turn lanes and installation of new traffic signals	1.27	
	Lancaster Ave and Remington Rd Intersection Improvements (MPMS #114948)	Pedestrian and traffic safety countermeasures at Lancaster Ave and Remington Rd	2.66	Ongoing Statewide
	Main St Safety Improvements: Egypt to Forrest/Airy (MPMS #110971)	4 lane partial road diet and reconfiguration	2.1	
	High St Safety: Hanover St to Washington St (MPMS #82156)	Pedestrian safety countermeasures along High St from Hanover St to Washington St	8.33	New Statewide
	Cheltenham Ave Safety: Broad St to North 15th St (MPMS #82157)	Bicycle/pedestrian safety countermeasures along Cheltenham Ave from Broad St to N 15th St	5.53	

Philadelphia	Castor Avenue Corridor Safety Improvements (MPMS #111194)	Implement a road diet, upgrade signals, and add left turn lanes to the project area	9.27	Ongoing Regional
	Frankford Ave. Corridor Safety Improvements (MPMS #115434)	Various safety improvements along Frankford Avenue	14.44	
	Washington Ln. Corridor Safety Improvements (MPMS #115440)	Various safety improvements along Washington Lane	2.77	
	63rd/Cobbs Creek Phase 3 (MPMS #82025)	Various safety improvements along 63rd St/Cobbs Creek Parkway	7.99	New Statewide
	Lincoln Dr/Emlen St Intersection Safety Improvements (MPMS #82163)	Traffic safety improvements at the intersection of Lincoln Dr and Emlen St	7.34	
	SR 13/2007 Frankford Ave Phase 3 (MPMS #82164)	Various bicycle/pedestrian safety improvements along Frankford Ave	7.99	
	Wissahickon Ave Safety: Hunting Park Ave – Clapier St (MPMS #82168)	Various safety improvements along Wissahickon Ave	5.51	
Various	Dynamic Ramp Signing and Safety Improvements (MPMS #82154)	Various ramp signage and safety improvements	39.66	New Statewide
	Systemic Vulnerable Road User Safety (MPMS #82155)	Safety improvements at stop-controlled signalized intersections	N/A	
	Systemic Lane Departure Improvements (MPMS #82158)	Lane departure safety improvements	N/A	
	Systemic Wrong Way Improvements (MPMS #82159)	Wrong way entrance safety improvements	N/A	
	Systemic Intersection Safety Improvements (MPMS #82161)	Intersection safety countermeasures.	N/A	

Source: DVRPC, 2026

Infrastructure (Pavement and Bridge) Performance Management Measures Rule (PM2)

The FHWA rule for the National Performance Management Measures; Assessing Pavement and Bridge Condition for the National Highway Performance Program (NHPP) was published in the Federal Register (82 FR 5886) on January 18, 2017, and became effective on February 17, 2017. It established performance measures for all state DOTs to use to carry out the NHPP and to assess the condition of pavement on the Interstate system; pavements on the NHS (excluding the Interstate system); and bridges carrying the NHS, which include on- and off-ramps connected to the NHS. This rule established six measures related to the condition of the infrastructure on the NHS, commonly known as PM2:

- Percentage of Interstate pavement in good condition
- Percentage of Interstate pavement in poor condition
- Percentage of Non-Interstate NHS pavement in good condition
- Percentage of Non-Interstate NHS pavement in poor condition
- Percentage of NHS bridges by deck area classified in good condition
- Percentage of NHS bridges by deck area classified in poor condition

The current regulations are found in 23 CFR 490 Subpart C and Subpart D. Targets are established for these measures as part of a four-year performance period; the first was 2018 to 2021. This TIP includes projects that will impact the third four-year performance period of 2026 to 2029.

PennDOT's pavement and bridge targets are established through extensive coordination with a Transportation Asset Management Plan (TAMP) steering committee and workshops with MPOs/RPOs and FHWA's Pennsylvania Division. PennDOT's pavement and bridge 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. Targets are calculated based on general system degradation (deterioration curves) offset by improvements expected from delivery of the projects in the TIP/STIP along with planned state funded maintenance projects.

Pavement Infrastructure Targets

The Infrastructure Performance Management Measures (PM2) Rule requires the state DOT to report and manage performance of the NHS, regardless of ownership or maintenance responsibility, for the full extent of the Interstate and non-Interstate NHS. In Pennsylvania, there are 75 entities (including PennDOT, as well as other authorities, counties, and municipalities) that own portions of the NHS. There are 23,552 NHS lane miles in the state. The Pennsylvania Turnpike Commission (PTC) owns ten percent of these lane miles, local entities own two percent, and the rest of the NHS system (88 percent of pavement lane miles) is owned by PennDOT (PennDOT, 2022).

Federal rulemaking 23 U.S.C. 119 requires that all distress component information be collected for one-tenth mile increments. Pavement condition is measured by four distress components (International Roughness Index, Cracking, Rutting, and Faulting), which are then translated to good, fair, or poor condition scores per FHWA criteria and then broken out into separate values for the Interstate and Non-Interstate NHS.

- **International Roughness Index** quantifies how rough the bituminous and concrete pavement is by measuring the longitudinal profile of a traveled wheel track and generating a standardized roughness value in inches per mile.
- **Cracking** measures the percentage of bituminous and concrete pavement surface that is cracked.
- **Rutting** measures the depth of ruts (surface depression) in bituminous pavement in inches.
- **Faulting** quantifies the misalignment between concrete slabs as the difference in elevation across transverse concrete pavement joints in inches.

To calculate the pavement condition performance, three of these four metrics are used, depending on pavement type. IRI, rutting, and cracking are used for asphalt pavement; IRI, faulting, and cracking are used for concrete pavement. A pavement segment must meet FHWA's good condition threshold for all three metrics to be rated Good. Two or more metrics must fall within the poor condition range to be rated Poor. All other combinations of good, fair, and poor condition are considered Fair. Data on pavement condition is maintained through PennDOT's Roadway Management System (RMS).

The federal Infrastructure PM Rule requires that less than five percent of Interstate miles be considered in poor condition to meet the federal threshold for pavement condition. If pavement conditions on the Interstate system fail to meet the federal minimum condition thresholds in the most recent year of the State biennial report, the state DOT must comply with the provisions set forth in 23 USC 119(f) for the subsequent fiscal year. The state must use obligation authority to transfer a portion of State Transportation Planning (STP) funds to the NHPP for maintenance projects to address interstate pavement conditions, and it must submit a Transportation Asset Management Plan (TAMP) that describes actions the state will take to meet or make significant progress toward meeting its targets. The TAMP should guide the state's project decisions to meet or make significant progress toward meeting its infrastructure performance targets in subsequent years.

Similarly, if a state has not met or made significant progress toward meeting its targets on the Non-Interstate NHS system, the state DOT must submit a TAMP that describes actions the state will take to meet or make significant progress toward meeting its targets. The TAMP should guide the state's project decisions to meet or make significant progress toward meeting its infrastructure performance targets in subsequent years.

Bridge Infrastructure Targets

Similar to the requirements around pavement condition, the PM2 rule requires the state DOT to report and manage performance of all bridges on the NHS, regardless of ownership or maintenance responsibility, including bridges on ramps connecting to the NHS and NHS bridges that span a state border. Statewide, 19 percent of Pennsylvania's 90.25 million square feet of NHS bridge deck area is owned by owners other than PennDOT, including the PTC (10 percent), and local authorities, counties, and municipalities (9 percent) (PennDOT, 2022).

FHWA's performance measures aim to assess bridge condition by deriving the percentage of NHS bridges rated in good and poor condition by deck area on the NHS. A structure's overall condition rating is determined by the lowest rating of its deck, superstructure, substructure, and/or culvert. If any of the components of a structure qualify as poor, the structure is deemed poor. 23 CFR 490.411(a) requires that

no more than 10 percent of a state's total NHS bridges by deck area be in poor condition. It is important to note that poor does not correlate to the safety rating of the bridge. The bridge condition performance measures are calculated by summing the deck area of bridges in "good" and "poor" condition and dividing by the total deck area of all NHS bridges. Data on bridge condition is maintained through PennDOT's Bridge Management System (BMS).

Coordination and Progress Toward Pavement and Bridge Infrastructure Targets

Improving Pennsylvania's pavement and bridges is a critical part of the strategic investment strategy for Pennsylvania's transportation network at the regional, State, and Federal level. Improving the condition and performance of transportation assets is a prominent goal of DVRPC's *Update: Connections 2050* Long-Range Plan and the statewide *2045 Long-Range Transportation Plan*. 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 Bureau of Operations 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 five 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 the department to achieve its asset condition and performance targets. Implementation of these improved asset management practices are applied to all state and local networks.

The following has helped to ensure that planned projects in the TIP/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 FFY 2027 Twelve-Year Program (TYP), FFY 2027–2030 STIP, and DVRPC FFY 2027–2030 TIP 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 TIP/STIP development, PennDOT and MPOs/RPOs jointly developed and approved *General and Procedural Guidance* and *Transportation Program Financial Guidance* documents.[1] 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 TIP/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 District 6-0 works with DVRPC to generate the lists of recommended treatments by work type (such as highway resurfacing and bridge rehabilitation), based on LLCC and condition

[1] Information on PennDOT's TIP process, including guidance documents, can be found at: https://talkpatransportation.com/how-it-works/tip

projections derived from PennDOT's PAMS and BAMS. PennDOT AMD provides any necessary support. For the FFY 2027 Program Update, AMD provides the PAMS and BAMS outputs for the District and MPO. 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 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 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.

The pavement and bridge projects provided in DVRPC's FFY 2027 TIP were selected through an evaluation of PennDOT's Asset Management Systems in accordance with the TAMP. The projects are consistent with PennDOT's asset management objectives of maintaining the system at the desired state-of-good repair, managing to LLCC, and achieving national and state transportation goals. PennDOT has provided feedback on statewide and MPO/RPO-specific progress toward performance measure target achievement. These progress reports help each region understand the impacts of their past bridge and pavement investments and can guide future planning goals and strategy assessments.

Table 25: Key Bridge and Pavement Projects in the Region

County	MPMS	Project	Primary Improvement Focus
Bucks	93446	Route 1 Improvements Frontage Corridor (Section RC3)	Highway & Bridge Reconstruction
Bucks	82079	Bucks County Bridge Preservation	Bridge Preservation & Maintenance
Chester	14698	US 422, Reconstruction (M2B) SR:0422	Highway Reconstruction
Chester	82080	Chester County Bridge Preservation	Bridge Preservation & Maintenance
Delaware	104343	US 322 over CSX	Bridge Replacement
Delaware	82081	Delaware County Bridge Preservation	Bridge Preservation & Maintenance
Montgomery	16738	US 422 Expressway Section M1B	Highway & Bridge Reconstruction
Montgomery	82082	Montgomery County Bridge Preservation	Bridge Preservation & Maintenance
Philadelphia	69828	Market Street Bridges (3) over Schuylkill River and CSX Railroad (MSB)	Bridge Rehabilitation/ Replacement
Philadelphia	82077	Philadelphia Bridge Preservation	Bridge Preservation & Maintenance

Source: DVRPC 2026

Table 26: Anticipated Pavement and Bridge Deck to Be Preserved or Improved

	FFY27–FFY38
Anticipated Bridge Deck Area to be Preserved or Improved (including IMP)	9,448,262 square feet
Anticipated Lane Miles of Pavement to be Preserved or Improved*	160.33 miles

Source: PennDOT, 2026

System Performance (NHS, Freight, CMAQ) Performance Management Measures (PM3)

The FHWA final rule for the National Performance Management Measures; Assessing Performance of the NHS, Freight Movement on the Interstate System, and CMAQ was published in the Federal Register (82 FR 5970) on January 18, 2017, and became effective on May 20, 2017. The measures in this third and final rule are used by state DOTs and MPOs to assess the performance of the Interstate and non-Interstate NHS for the purpose of carrying out the NHPP; to assess freight movement on the Interstate system; and to assess traffic congestion and on-road mobile source emissions for the purpose of carrying out the CMAQ Program. These system performance measures are collectively referred to as PM3 measures.

The following PM3 system performance measures are divided into three categories: Travel Time Reliability (TTR), CMAQ Congestion, and CMAQ Emissions Reduction. Each category has its own measures.

Travel Time Reliability (TTR):

- Percentage of Person-Miles Traveled (PMT) on the Interstate System that are Reliable
- Percentage of PMT on the Non-Interstate NHS that are Reliable
- Interstate System Truck TTR Index

CMAQ Congestion:

- Annual Hours of Peak-Hour Excessive Delay (PHED) per Capita
- Percentage of Non-SOV Travel

CMAQ Emissions Reduction:

- On-Road Mobile Source Emissions Reduction for CMAQ-Funded Projects

Data used to create targets and assess performance for the travel time-based PM3 measures (TTR and CMAQ PHED) comes from the Regional Integrated Transportation Information System (RITIS) software platform. Data from the American Community Survey (ACS) and FHWA's CMAQ annual reporting system are used for the non-SOV travel and emissions measures, respectively.

Travel Time Reliability (TTR) Targets

The first major performance area under system performance is TTR. Reliability refers to the variability of travel times on road segments experienced by travelers. The less variability there is for any given set of

roadway segments, the more reliable those segments are. TTR does not mean eliminating traffic congestion by reducing its extremes to maintain consistent traveler expectations. Reliability is used in reference to the level of consistency in the transportation service provided by a roadway. For example, a roadway can be heavily congested, but if the amount and time of day when the congestion occurs is consistent, then it is considered reliable. USDOT established performance measures pertaining to reliability because empirical evidence exists to suggest that the traveling public values reliability more than straight travel times. [2]

System Reliability Targets

State Departments of Transportation (DOTs) must establish statewide targets for the performance of the Interstate and non-Interstate National Highway System (NHS) during four peak travel time periods that include peak daytime periods and weekend periods. Each state sets its performance targets for the Level of Travel Time Reliability (LOTTR) Index, which indicates the reliability of travel on the Interstate and non-Interstate NHS. A road segment is considered reliable if the ratio of the 80th percentile peak hour travel time to the normal peak hour travel time (50th percentile) is less than 1.5. The measure also incorporates traffic volumes and vehicle occupancy to identify the person miles traveled on the system. LOTTR targets are established for the entire state and capture the person miles traveled on road segments that are considered reliable. Two- and four-year targets are set for (1) percentage of person miles traveled on the Interstate System that are considered reliable; and (2) the percentage of person miles traveled on the non-Interstate NHS that are considered reliable.

Freight Reliability Targets

The national system performance measure for freight is the Truck TTR Index and is required for Interstate highways on the NHS only. This measure is similar to the TTR measure and metric described above, but it is focused on truck traffic. This metric is averaged for all Interstate Road segments in the state and weighted by distance, resulting in the Truck TTR Index for the state. Unlike the TTR measures, there is no threshold that determines whether a segment is reliable or unreliable for trucks.

Agencies implement policies to support improvements to freight TTR. State DOTs must establish a single index for the Interstate system in the state for five peak-hour travel time periods that include peak daytime periods, an overnight period, and weekend periods. The Truck Travel Time Reliability (TTTR) Index is measured by the ratio of the congested peak period travel time (95th percentile) to the normal peak period travel time (50th percentile) on each road segment on the Interstate system for the time periods. The highest TTTR value is used to determine the reliability of the Interstate system for truck traffic or freight reliability. The DOT establishes two- and four-year targets for the ratio of the congested period travel time to the normal period travel time, weighted by the length of the Interstate segment, for the entire Interstate system in the state.

[2] *Traffic Congestion and Reliability: Linking Solutions to Problems*. Federal Highway Administration (FHWA). Available at: https://ops.fhwa.dot.gov/congestion_report_04/

CMAQ Congestion Targets

Federal Congestion Mitigation and Air Quality (CMAQ) funded projects reduce congestion and improve air quality. The CMAQ Congestion and Emissions Reduction Targets are specifically intended to reduce congestion directly related to attributes of federally funded projects, and unlike other federally required performance measures, they specifically apply to urban areas with a population over 200,000. Note that traffic congestion occurs when the amount of traffic far exceeds the physical capacity of the system, generally measured by the number of travel lanes on the roadway, the number of intersections, access points, and numerous other factors.

CMAQ Congestion has two measures for applicable urban areas:

- **Annual Hours of Peak-Hour Excessive Delay (PHED) per Capita on the NHS:** The threshold for excessive delay is based on the travel time at 20 mph or 60 percent of the posted speed limit travel time, whatever is greater, and is measured in 15-minute intervals. Travel times, hourly traffic volumes, posted speed limits, mode shares (passenger vehicles, transit, and trucks), and average vehicle occupancy factors are used to calculate excessive delay at the roadway segment level for peak periods 6:00-10:00 am and 3:00 -7:00 pm for all calendar days. The rule containing all the details is found in 23 CFR 490.707(a). The “excessive” part of the PHED name indicates that some level of congestion is recognized as not possible or desirable to eliminate and thus not counted. For example, some congestion can accompany economic activity in thriving places. The “per capita” implies that the total delay is shared by all residents, so some trips can be avoided or shifted to non-vehicular modes out of the peak period. This measure sums up the delay experienced by travelers throughout an entire year on NHS roads, specifically during peak periods.
- **Non-Single-Occupant Vehicle (SOV) travel:** Non-SOV travel may include travel via carpool, vanpool, public transportation, commuter rail, walking, or bicycling, as well as telecommuting. The actual rule containing all the details is found in 23 CFR 490.707(b).

Both two- and four-year targets are required from the base year for the Annual Hours of PHED per Capita and Percentage of Non-SOV measures.

CMAQ Emissions Reduction Targets

Federal Congestion Mitigation and Air Quality (CMAQ) funded projects reduce congestion and improve air quality. State DOTs whose geographic boundaries include any part of a nonattainment or maintenance area for ozone, carbon monoxide, or particulate matter are required to establish two- and four-year targets for the quantifiable pollutants that are reduced through transportation projects funded through the CMAQ program. State DOTs establish targets for the entire state and MPOs can support state targets or develop MPO targets. Targets for the performance period represent the cumulative pollutant reductions from CMAQ funded projects:

- On-road mobile source emissions reduced through the CMAQ program for the Ozone precursors Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOCs), Fine Particulate Matter ($PM_{2.5}$), and Carbon Monoxide (CO). CO is required in Pennsylvania, but not New Jersey.

Coordination and Progress Toward System Performance Targets

PennDOT and the MPOs/RPOs work to ensure that the STIP, regional TIPs, and long-range transportation plans (LRTP) are crafted and managed to support the improvement of system and freight reliability and Congestion Mitigation and Air Quality (CMAQ) performance measures. These efforts are further supported by auxiliary plans such as the Regional Operations Plan (ROP), Congestion Management Process (CMP), and CMAQ Performance Plan.

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 to meet the established targets more effectively. These initiatives are coordinated with the LRTP, ROP, and CMP 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.

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. DVRPC is committed to improving reliability on roadways within its region in Pennsylvania, as well as working with its county, city, and transit partners, and PennDOT staff to develop projects that will help meet system performance targets.

Coordination and Progress Toward TTR and Freight/Truck TTR Targets

DVRPC's *Update: Connections 2050* Long-Range Plan sets goals directly related to PM3 targets, including goals for safe and reliable transportation systems, as well as reducing congestion and VMT. The CMP is a key part of DVRPC's commitment to improving TTR. DVRPC facilitates a CMP Planning Advisory Committee that is part of an overall, systematic, and ongoing process to determine where traffic congestion exists, identify causes, prioritize congested locations according to congestion and other CMP objective measures, and to help develop strategies to reduce congestion and improve reliability. The goals of the Long-Range Plan provide guidelines for developing DVRPC CMP objectives. These objectives include:

- minimizing growth in recurring congestion and improving mobility;
- improving TTR;
- improving accessibility, including providing transit where it is most needed;
- maintaining the existing core transportation network;
- improving safety;
- maintaining goods movement;

- improving security and maintaining transportation preparedness for major events;
- integrating federal PM3 system performance, freight, and CMAQ performance measures;
- supporting DVRPC Long-Range Plan land use and other principles; and
- ensuring that all transportation investments support DVRPC Long-Range Plan principles.

Some of the key congestion relief projects funded in the TIP that add significant investments towards meeting the region's travel reliability performance measure targets include:

Table 27: Key System Reliability Projects in the DVRPC Pennsylvania Subregion

County	MPMS #	Project	Primary Improvement Focus
Bucks	110309	I-95/US 13/PA 132 Slip Ramp Operations Improvement	Reconfiguration of heavily trafficked intersection, adding direct, one-way access to I-95 southbound. Operational improvement goals: reduce congestion, improve operational efficiency and system reliability, and eliminate unsafe traffic movements.
Chester	118024	U.S. 202 and High Street Interchange	Capacity and safety improvement project involving the replacement of the existing US 202 structure over High St, a new US 202 structure over Matlack Street, new retaining walls, and upgrading pavement and drainage.
Chester	118025	PA 100 Northbound at Exton Station	Roadway expansion and reconfiguration along PA 100 along roadway segments and intersections at the US 30 Bypass ramps, Amtrak/SEPTA and Norfolk Southern railroad overpasses, and Mountain View Drive and Whiteland Woods Boulevard intersections to improve traffic flow and roadway access.
Delaware	104821	I-476 Travel Management	This project will provide for the active management of transportation demand by providing operational improvements on I-476 between the PA 3 and I-95 interchanges, and on I-95 between the I-476 and US 322 interchanges.
Delaware	69817	US 322, Featherbed Lane to Chelsea Parkway (Section 102)	This project section involves the widening and improving of US 322 to a four-lane roadway with a grass median from east of Mattson Road/Featherbed Lane near Clayton Park and the Concord Township/Bethel Township line through Bethel Township to just east of Chelsea Parkway in Upper Chichester Township. A fifth center lane will accommodate left turns into and out of adjacent commercial properties. Project CMP commitments include strategies such as improvements for transit

			users, bicyclists, pedestrians, and drivers on the existing road network.
Delaware	119435	PA 452/I-95 Improvements	This project will provide a more direct truck route between two industrial parks (Bridgewater Business Park and I-95 Industrial Park), I-95, and US 322.
Montgomery	106662	I-76 Integrated Corridor Management	This project involves roadway widening for Flex Lanes that provide increased capacity during peak periods and to allow for dynamic lane management during emergency operations, weather events, and maintenance activities.
Montgomery	64795	Belmont Rd/Rock Hill Rd Widening: I-76 Ramps to Rock Hill Road	Involves widening Belmont Avenue from two to four lanes along with intersection improvements and streetscape improvements between Jefferson Street and Rock Hill Road. This project will also include improvements at the nearby intersection of Conshohocken State Road and Rock Hill Road. CMP project commitments include signal upgrades, safety treatments, improvements for bicyclists and pedestrians, and turning movement enhancements.
Philadelphia	various MPMS's	I-95 Sector A Reconstruction	This project's purpose is to reconstruct, widen, and improve approximately eight miles of I-95 between Interstate 676 and Bridge Street north of Center City Philadelphia. (Reconstruction between Cottman Avenue and Bridge Street was completed in 2024.)

Source: DVRPC, 2026

The FFY 2027 TIP for Pennsylvania programs around $100 million in funds through SPIKE Discretionary Funding towards projects that support PM3 targets (Table 28).

Table 28: SPIKE Funding Projects That Help Support Achieving PM3 Targets in DVRPC Pennsylvania Subregion

County	MPMS #	Project	Spike Amount	Primary Improvement Focus
Chester	107551	US 30/PA 10 to Business 30 Int. Improvements	$40 million	Turning lanes
Chester	107553	US 30 & Airport Road Int. Improvements	$30 million	Intersection reconfiguration
Chester	107554	US 30 & PA 82 Int. Improvements	$30 Million	Intersection reconfiguration

Source: DVRPC, 2026

DVRPC proactively seeks to include freight as a primary planning factor through its Long-Range Plan, TIP development, and the conduct of technical studies. One of DVRPC's goals is to serve the region's freight stakeholders and maintain the Greater Philadelphia region as a premier freight transportation gateway. At the forefront of DVRPC's freight planning program is the Delaware Valley Goods Movement Task Force, a broad-based freight advisory committee that provides a forum for the private- and public-sector freight community to include its unique perspectives on regional plans and specific projects.

The FAST Act established, and the IIJA/BIL continues, the National Highway Freight Program (NFP) to improve the efficient movement of freight on the NHFN. NFP's eligibility criteria require that a project contribute to the efficient movement of freight and be identified in the state's freight investment plan. States may use up to 10 percent of NFP funding each year for public or private freight rail, water facilities (including ports), and/or intermodal facilities.

There are also several grant programs administered by the state and federal governments specifically targeting freight. PennDOT's Rail Freight Assistance Program (RFAP), and Rail Transportation Alternatives Program (RTAP) provide assistance with investment in rail freight infrastructure. USDOT's Better Utilizing Investments to Leverage Development (BUILD) discretionary grant program (formerly known as RAISE and TIGER), National Infrastructure Project Assistance program and INFRA grant program (formerly known as the Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies, or FASTLANE program) provides for major investments in roads, rail, transit, and port infrastructure.

Coordination and Progress Toward CMAQ Congestion and Emissions Reduction Targets

As part of DVRPC's CMP, DVRPC facilitates a CMP Planning Advisory Committee and generates a list of the top 10 bottleneck locations for state, county, and local roadways. Much of the congestion within the DVRPC region occurs on state-owned and maintained highways, which are part of the NHS. Appendix B of DVRPC's *FY 2025-2026 Congestion Management Process Supplemental Projects Status Memorandum* (Product #25171) identifies all active CMP commitments in the Pennsylvania portion of the DVRPC region.

DVRPC will continue to promote and develop projects and programs with air quality benefits to its counties and planning partners. CMAQ emission reduction targets correspond with DVRPC's Long-Range Plan goals to reduce vehicle miles traveled (VMT) and improve air quality. DVRPC has worked with stakeholders to select projects for DVRPC's Travel Options Program, which funds innovative transportation demand management projects to provide better access to more travel options across the region and welcomes capital projects, operating projects, and education and marketing campaigns.

Over $720 million of federal CMAQ funding is programmed in the FFY 2027 TIP, including setting aside over $341 million, from FFY 2027 to FFY 2037, for the flexing of CMAQ funds to SEPTA for Trolley Modernization, New Bus Network, and Rail Fleet Replacements projects. This program strengthens the region's access to transportation infrastructure that is in good repair and produces lower emissions.

Additional examples of CMAQ funded projects that help improve air quality and reduce congestion are listed in Table 29, below:

Table 29: Key CMAQ-Funded Congestion-Relief Projects in DVRPC Pennsylvania Subregion

County	MPMS #	Project	Primary Improvement Focus
Chester	114166	PA 401 & Valley Hill Road Improvement	This project involves adding turn lanes with designated left turn phases for PA 401 in Charlestown Township.
Delaware	114102	West Chester Pike & I-476	Addition of a separated westbound lane on West Chester Pike to divert traffic directly onto the I-476 Northbound On-Ramp and bypass the signalized intersection.
Delaware	114112	Media Bypass Intelligent Transportation Systems (ITS) Installations	The purpose of this project is to help reduce congestion, improve traffic flow, and reduce emissions along the Route 1 corridor by adding ITS elements to the corridor.
Montgomery	102273	Ridge Pike/Germantown Pike Intersection Realignment - Phase 1, Perkiomen	Intersection realignment project will replace the intersection of Germantown Pike, Ridge Pike, and River Road—which currently sits near the Ridge Pike Bridge over Perkiomen Creek.
Philadelphia	98207	I-95 Congestion Management	Provide for Congestion Management Activities related to the reconstruction of I-95 through Bucks, Delaware, and Philadelphia counties. This is to further the ongoing congestion mitigation as the construction activity increases on the corridor.
Philadelphia	96223	Philadelphia Signal Retiming	This project will continue the corridor timing program launched by the Philadelphia Streets Department in 2011.

Source: DVRPC, 2026

Transit Asset Management (TAM) Rule

TAM is the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their

lifecycles to provide safe, cost-effective, and reliable public transportation. TAM uses transit asset condition to guide how to manage capital assets and prioritize funding to improve or maintain a State of Good Repair (SGR). TAM places value and understanding on the negative impacts of deferring maintenance and the positive outcomes of optimizing investment decisions that improve SGR. In short, TAM uses asset condition to guide the optimal prioritization of funding at transit properties.

Based on the mandate in MAP-21 (and continued in the FAST Act and IIJA/BIL), FTA developed a rule establishing a strategic and systematic process of operating, maintaining, and improving public transit capital assets effectively through their entire lifecycles. The TAM Final Rule, 49 USC 625, became effective Oct. 1, 2016. The TAM rule develops a framework for transit agencies to monitor and manage public transportation assets, increase reliability and performance, and establish performance measures.

Under the provisions of the Transit Asset Transportation Performance Management rulemaking, transit operators are required to set performance targets for their transit asset portfolio. Transit agencies are required to upload their performance targets and a supporting narrative in their annual National Transit Database (NTD) submission, and report progress towards these targets. They are also required to develop a TAM Plan to identify local funding prioritization. The regulations required by the FTA have established a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their life cycles. The performance management requirements are a minimum standard for transit operators and involve measuring and monitoring the following:

- **Rolling stock:** The percentage of revenue vehicles (by type) that meet or exceed the useful life benchmark (ULB). ULB is the measure agencies will use to track the performance of revenue vehicles (rolling stock) and service vehicles (equipment) to set their performance measure targets. ULB means either the expected lifecycle of a capital asset or the acceptable period of use in service determined by FTA. Each vehicle type's ULB estimates how many years that vehicle can be in service and still be in an SGR. The ULB considers how long it is cost effective to operate an asset before ongoing maintenance costs outweigh replacement costs.
- **Equipment:** The percentage of non-revenue service vehicles (by type) that meet or exceed the ULB.
- **Facilities:** The percentage of facilities (by group) that are rated less than 3.0 on the Transit Economic Requirements Model (TERM) scale. Under the TERM scale, an asset in need of immediate repair or replacement is scored as one (1), whereas a new asset with no visible defects is scored as five (5).
- **Infrastructure:** The percentage of track segments (by mode) that have performance restrictions.

SEPTA is the only Tier 1 agency providing public transit service subject to this FTA TAM performance management rule in the DVRPC Pennsylvania region. The bi-state Delaware River Port Authority/Port Authority Transit Corporation (DRPA/PATCO) is also a Tier 1 agency and is also subject to the TAM PM rule but it is accounted for in the New Jersey TIP.

The TAM rule also 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.

DVRPC agrees to be consistent with the respective SEPTA annual transit asset management targets and will support the transit operator's efforts at achieving those targets. DVRPC also supports the PennDOT Group Plan targets and works with transit operators to program projects to support achievement of the targets.

Coordination and Progress Toward TAM Targets

DVRPC's Long-Range Plan prioritizes the preservation and maintenance of existing transportation infrastructure. This includes maintaining the transit system in an SGR and operating it in a safe and secure manner by replacing buses, railcars, and locomotives as they age, and by attending to rail bridges, track, signal systems, stations, and other infrastructure. An asset is in an SGR if (1) it can perform its designed function; (2) it does not pose a known unacceptable safety risk; and (3) its lifecycle investments have been met or recovered.

Transit providers are required to develop a TAM Plan to identify local funding prioritization. The plan presents a summary inventory of assets, describes the current condition of the assets, sets near-term targets for the required performance measures, and explains how transit agency managers develop and present requests for operating/maintenance budgets and capital asset replacements. TAM places value and understanding on the negative impacts of deferring maintenance and the positive outcomes of optimizing investment decisions that improve SGR.

TAM Plans must adhere to the following nine elements to ensure assets are in an SGR:

- Inventory of Capital Assets
- Condition Assessment
- Decision Support Tools
- Investment Prioritization
- TAM and SGR Policy
- Implementation Strategy
- List of Key Annual Activities
- Identification of Resources
- Evaluation Plan

SEPTA

The Transit Asset TPM rule requires MPOs to describe how the region's TIP will help to achieve the TAM targets. The TIP was developed to ensure progress toward target achievement. Transit operators have taken steps to ensure that projects selected for TIP funding help to achieve the TAM targets.

A few of SEPTA's projects and programs that have been allocated in the TIP to help achieve TAM Targets include the following:

Table 30: Key SEPTA Transit Asset Management Projects

MPMS #	Project	Primary Improvement Focus
60582	Vehicle Overhaul Program	Provides for the systematic replacement or upgrade of systems on SEPTA's rolling stock and VOH support equipment, thus ensuring continued safe and reliable service, particularly for its increasingly aging rail vehicle fleet.
77183	Transit and Regional Rail Station Program	Provides for the construction, reconstruction or rehabilitation of transit and regional rail stations and terminals, bus/trolley loop facilities, transportation centers, and parking improvements. All improvements fully comply with requirements of the Americans with Disabilities Act (ADA).
102569	Maintenance & Transportation Facilities	Provides for improvements to SEPTA's bus and rail maintenance shops, administrative facilities, and office buildings, including new facility construction, existing facility rehabilitation, roof rehabilitation and replacement, and facility cleanup/remediation.
123961	Trolley Modernization Program	This program will support the projects necessary to modernize the SEPTA subway-surface trolley network to make it fully accessible and bring a system that is more than a century old up to the standards of modern light rail.
123964	Market Frankford Line [L] Vehicle & Infrastructure	These programs will replace the current transit vehicle fleets, which have exceeded their useful lives and make improvements to signal and yard infrastructure (along the L and B lines) necessary to operate and maintain the new fleets.
123965	Broad Street Line [B] Vehicle & Infrastructure	
123966	Regional Rail Silverliner IV Vehicle Replacement & Infrastructure	
123969	Mainline Schuylkill Bridges & Interlockings	This project will bring the bridges, interlockings track and other infrastructure of the most critical segment on the SEPTA regional rail network into a state of good repair.

Source: DVRPC, 2026

PennDOT

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, including DVRPC, 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.

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.

Transit Safety Rule

The Public Transportation Agency Safety Plan (PTASP) regulation, at 49 C.F.R. Part 673, requires covered public transportation providers and state DOTs to establish safety performance targets (SPTs) to address the safety performance measures identified in the National Public Transportation Safety Plan (49 C.F.R. § 673.11(a)(3)). Transit agencies were required to set their initial safety performance targets by December 31, 2020. In April 2024, updates were made to the PTASP regulation, creating new safety performance target requirements. The updates focused on transit worker safety, requiring target setting for transit worker injuries, fatalities, and assaults on transit workers. Additionally, new targets were added to track pedestrian, vehicular, and total collisions by transit mode. DVRPC agrees to be consistent with the respective SEPTA annual transit safety targets and will support the transit operator's efforts at achieving those targets displayed below:

- **Fatalities:** The transit safety performance measure requires that transit providers set annual targets for the number of fatalities that occur on each mode of transit that the agency operates, excluding deaths that result from trespassing, suicide, or natural causes. The NTPSP defines the modes as rail, fixed guideway bus service, and non-fixed route bus service. Fatalities are required to be calculated for both the total number of fatalities and the fatality rate per vehicle revenue mile. Transit worker fatalities are also reported, using the same metrics as total fatalities.
- **Injuries:** The PTASP requires that transit agencies set annual targets for the number of injuries that occur on each mode of transit that the agency operates. Injuries are defined as “harm to persons that requires immediate medical attention away from the scene.” Injuries are required to be calculated for both the total number of injuries and the injury rate per vehicle revenue mile for each of the modes that the agency operates. Transit worker injuries are also reported, using the same metrics as total injuries.
- **Safety Events:** Transit providers are required to set annual targets for the number and rate of safety events, by mode, that occur across the transit agency’s system. A safety event is defined by FTA as a “collision, derailment, fire, hazardous material spill, or evacuation.” Safety events are required to be calculated for both the total number of events and the event rate per vehicle revenue mile for each of the modes that the agency operates. Pedestrian, vehicular, and total collisions are also reported, using the same metrics as total safety events.
- **System Reliability:** Transit providers are required to set annual targets for the agency’s system reliability for each mode of transit that the agency operates. The system reliability performance measure accounts for major mechanical failings of a vehicle that prevent the vehicle from starting or completing a scheduled trip. Mechanical failings and interrupted trips can create hazardous conditions for the transit operators and passengers depending on the location of the service interruption and if passengers are required to de-board in unsafe locations.

- **Assaults on Transit Workers:** Transit providers are required to set annual targets for the total number of assaults on transit workers and the assault rate per vehicle revenue mile. Reporting requirements account for physical and non-physical assaults on any transit worker, including operators, police, or station agents, in any work setting.

Transit agencies are required to report their targets and performance to the state DOT and the agency's MPO(s) in order to prioritize funding to improve transit safety performance.

Coordination and Progress Toward Transit Safety Targets

State and transit agencies must coordinate with states and MPOs in the selection of state and MPO safety performance targets; and states and transit agencies must make their safety performance targets available to states and MPOs to aid in the planning process. MPOs are required to set performance targets for each performance measure, and these must be established 180 days after the transit agency establishes their performance targets. FTA will not impose penalties for failing to meet safety performance targets set by transit providers. DVRPC agrees to be consistent with regional transit agency targets for transit safety and will support the transit operator's efforts at achieving those targets.

The Transit Safety TPM rule requires MPOs to describe how the region's TIP will help to achieve the safety targets. The TIP was developed to ensure progress toward target achievement. Transit operators have taken steps to ensure that projects selected for TIP funding help to achieve the safety targets. SEPTA has developed and implemented various safety programs, rules, and standard operating procedures. In addition to these administrative controls, SEPTA develops engineering controls or eliminates these risks by investing capital funds in various projects. The projects will maintain SEPTA's state of good repair and reduce risks, improve safety, and help achieve safety performance target goals. Under SEPTA's FY 2027-2038 Capital Program, the Authority is committing $1.6 billion toward Communication, Signal System, and Technology Improvements, $842.5 million toward its Infrastructure Safety Renewal Program (ISRP), $338.0 million toward its Safe, Clean, and Secure Program, $148.3 million toward its Resiliency and Sustainability Program, $2.1 billion toward vehicle acquisition and overhauls, and $ 5.0 billion toward projects of significance for the New Bus Network Implementation, Trolley Modernization program, and rail transit vehicle acquisition projects. The following highlights several projects that will be implemented to help address each of the targets. For specific details on each of the referenced programs/projects, refer to SEPTA's FY27 Capital Program Report.

SEPTA's Safe, Clean, and Secure Program

To reduce the number of fatalities, injuries, and safety events, all projects advanced in SEPTA's Capital Program have a safety-first focus. It is SEPTA's goal to promote safety and public health by making the overall system safer, cleaner, and more secure for riders. Maintaining the cleanliness of SEPTA facilities through the provision of various cleaning equipment is critical for good passenger health, their SEPTA experience, and supports overall system safety.

SEPTA's Safe, Clean, and Secure program also includes facility and vehicle safety and security measures. The Authority is part of the Philadelphia Area Regional Transit Security Working Group (PARTSWG), which works to advance safety and security improvements for all transit operations into and out of Philadelphia

and the surrounding area. Additionally, SEPTA regularly applies to the competitive Transit Security Grant Program (TSGP) that is funded by the U. S. Department of Homeland Security.

SEPTA is implementing projects that will help reduce rail vehicle collisions, grade crossing events, trespassing, and pedestrian safety in and around their operating environments. To ensure safe, efficient, and reliable service to riders, it is paramount that system infrastructure and revenue fleet equipment remain reliable and minimize failures that can cause SEPTA to suspend or significantly delay service.

System Wide Security

Through the U.S. Department of Homeland Security, the Transit Security Grant Program provides funds to operators of public transportation systems to protect critical surface transportation assets and the traveling public from acts of terrorism, and to increase the resilience of transit infrastructure. From this grant program, SEPTA has funded CCTV cameras on vehicles; multijurisdictional counter-terrorism emergency simulation drills on various transit modes; directing of SEPTA Transit Police Patrols in strategically designated areas during periods of elevated alert using specially trained anti-terrorism teams; hazardous material identification kits for Special Operations and Response Teams (SORT); purchase of explosive detection devices, intrusion detection and surveillance equipment, and bulletproof vests; SORT and K-9 patrol teams; upgraded mobile communications and Control Center monitoring equipment; installation of video surveillance cameras at transit facilities; implementation of a radio interoperability system; maintenance of a computer-aided dispatch and records management system for the Philadelphia region; and perimeter fencing and security cameras at SEPTA’s Fern Rock facility.

Additional TIP-Funded Projects

The DVRPC FFY 2027 PA TIP advances several projects and programs in support of SEPTA's safety targets. Table 31 identifies projects that improve system assets to maintain a State of Good Repair (SGR) — many of which also qualify as safety projects, as they directly address system reliability and safety concerns. Beyond these, the following TIP-funded projects and programs are aimed at meeting safety performance measure targets:

Table 31: Key SEPTA Transit Safety Projects

MPMS #	Project	Primary Improvement Focus
60317	Federal Preventive Maintenance	SEPTA's Federal Preventive Maintenance Program provides operating assistance and preventive maintenance expenses pertaining to activities performed on vehicles and facilities. SEPTA will use these funds to support labor costs (salaries and fringe benefits) in the undertaking of vehicle and non-vehicle maintenance activities.
90497	Infrastructure Safety Renewal Program	The annual Infrastructure Safety Renewal Program (ISRP) provides for the restoration by SEPTA forces of SEPTA's City and Suburban transit and railroad infrastructure to a state of good repair.
95402	Bridge Program	This program will replace or rehabilitate SEPTA's bridges on rail lines and SEPTA right-of-ways, including culverts, pedestrian bridges, and associated bridge support structures.
102565	Track & Right-of-Way Improvement Program	This program will provide improvements to SEPTA's track and right-of-way.
102571	Communications, Signals, & Technology Improvements	Provides improvements to SEPTA's communications systems, signal systems, and information technology infrastructure, including vehicle and facility video systems. The annual Information Technology program provides replacement and upgrades of the Authority's computer hardware, software, and network equipment, such as servers, digital signage, and Enterprise applications.

Source: DVRPC, 2026