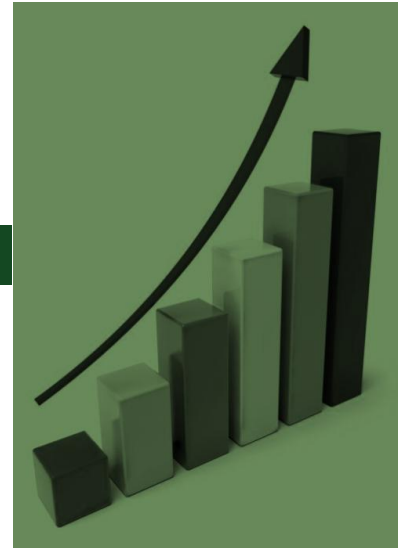


# Transportation Performance Management/Performance-Based Planning & Programming

2027-2030 TIP



## Introduction

Within the past decade, federal legislation established new requirements to promote the most efficient investment of Federal transportation funds by measuring performance of the system through an increasingly data-driven approach to programming projects. The Federal Highway Administration (FHWA)



uses the term Transportation Performance Management (TPM), which is “a strategic approach that uses data to make investment and policy decisions to achieve national performance goals.” TPM is (1.) systematically applied, a regular ongoing process; (2.) Provides key information to help decision makers to understand the consequences of investment decisions across transportation assets or modes (3.) Improves communications between decision makers, stakeholders and the traveling public; and (4.) Ensures that targets and measures are developed in cooperative partnerships and based on data and objective information. The TPM approach ensures that the

Pennsylvania Department of Transportation (PennDOT) and Metropolitan Planning Organizations (MPOs)—such as the Shenango Valley Area Transportation Study (SVATS)—collectively invest Federal transportation funds efficiently towards achieving national goals.

23 CFR 490 outlines the national performance goal areas for the Federal-aid program. The regulations require the Federal Highway Administration (FHWA) to establish specific performance measures for the system that address these national goal areas:

<b>Safety</b>	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
<b>Infrastructure Condition</b>	To maintain the highway infrastructure asset system in a state of good repair
<b>Congestion Reduction</b>	To achieve a significant reduction in congestion on the National Highway System
<b>System Reliability</b>	To improve the efficiency of the surface transportation system

<b>Freight Movement &amp; Economic Vitality</b>	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
<b>Environmental Sustainability</b>	To enhance the performance of the transportation system while protecting and enhancing the natural environment
<b>Reduced Project Delivery Delays</b>	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

## **What Performance Based Planning and Programming Means to the SVATS MPO**

The SVATS MPO follows a Performance Based Planning and Programming (PBPP) approach, with a focus on collaboration between the SVATS MPO, PennDOT District 1-0 and the Center for Program Development and Management (CPDM), FHWA, and our local transit partners in Mercer County. The collaborative development of documents and processes such as the MPO's/County's Long-Range Transportation Plan (LRTP), the Transportation Improvement Program (TIP), SVATS's Unified Planning Work Program (UPWP), the MPO's Congestion Management Process (CMP), District 1-0's Regional Operation Plan (ROP), and various other transportation planning studies covering Mercer County, all (increasingly) consider a PBPP approach.

The aforementioned planning partners are increasingly utilizing various data resources to guide the development of these plans and processes, as well as the resulting decision-making that informs the programming of projects. Resources include, but are not limited to, Pennsylvania's Transportation Asset Management Plan (TAMP) including bridge and pavement management systems, the Transit Asset Management (TAM) plan, PennDOT crash databases, and traffic count data (both through traditional traffic counts and larger snapshots collecting real-time data through on-board travel data collection).

Through this process, we continue our commitment to a cooperative, continuing, and comprehensive (3C) planning process, one that is increasingly performance-based.

## **Evaluating Performance on the 2027-2030 TIP**

The following sections provide an overview of the federal performance measures, established targets, and how the SVATS MPO's 2027-2030 TIP—and the Statewide TIP (STIP)—will support target achievement. Through these 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 the needs of PennDOT as well as the SVATS MPO. Dashboards and other reporting tools will be maintained to track and communicate performance to the public and decision-makers.

To meet the requirements of federal law and rulemaking regarding PBPP, PennDOT, the SVATS MPO, and the Mercer County Regional Council of Governments (MCRCOG), which oversees the county's transit services—Shenango Valley Shuttle Service (SVSS) and Mercer County Community Transit (MCCT)—approved performance measures and performance targets for several topic areas:

Performance Measure Addressing...	Also Known As...
Safety	PM-1
Pavement Condition*	PM-2
Bridge Condition*	PM-2
System Performance*	PM-3
Transit Asset Management	TAM
Public Transit Safety	Transit Safety



\* - Currently this PM only applies to National Highway System (NHS) Routes. Mercer County's NHS Routes include Interstates 79, 80 and 376; portions of US Routes 62/Business Route 62 and all of US Route 322; and portions of State Routes 18 and 58.

PennDOT, the SVATS MPO, and the MCRCOG are required to jointly agree on written provisions for how information will be cooperatively developed and shared related to the selection of performance targets and the collection and reporting of data to track progress in meeting critical outcomes. Two steps were taken to meet this requirement: (1.) In November 2018, the SVATS MPO entered into an agreement acknowledging cooperative development and sharing of public transportation performance data with MCRCOG, on behalf of the Mercer County transit agencies, SVSS and MCCT. (2.) In May 2019, the SVATS MPO approved written data collection and sharing provisions with PennDOT for the safety, pavement, bridge and transportation system performance topic areas (PM1, PM2, and PM3).

The sections on the following pages describe each of these performance measures and how the MPO is specifically contributing toward meeting them.

## Safety Performance Measures (PM1)

The Federal Highway Administration (FHWA) established the National Performance Management Measures for the Highway Safety Improvement Program (Safety PM/HSIP) through rules published in the Federal Register (81 FR 13881 and 81 FR 13722) on March 15, 2016, effective April 14, 2016. These rules define five safety performance measures, commonly referred to as PM1, and are codified at 23 CFR 490 Subpart B and 23 CFR 924. Safety performance targets are set on an annual basis and are designed to reduce fatalities and serious injuries on all public roads.

PennDOT develops the methodology for establishing statewide safety targets and provides MPOs, including the SVATS MPO, with baseline and regional (Mercer County) data. The targets reflect a 2% annual reduction in fatalities and maintenance of serious injury levels, consistent with the Strategic Highway Safety Plan (SHSP), crash data analysis, and the national initiative Toward Zero Deaths. The SVATS MPO received the most recent targets in fall 2025 and agreed, at its December 2025 Coordinating Committee meeting, to support statewide targets for the 2027–2030 TIP period.

To evaluate progress, a state is considered to have met or made significant progress toward PM1 targets if at least four of the five performance measures improve relative to baseline values. Pennsylvania did not meet the 2022 targets, triggering federal requirements for an HSIP implementation plan. This plan identifies gaps, outlines strategies and action steps, documents best practices, and includes a financial and performance review of all HSIP-funded projects.

The SVATS MPO contributes regionally toward achieving these statewide safety goals by programming TIP projects that address high-crash locations, improve roadway infrastructure, enhance pedestrian and bicycle safety, and support other HSIP initiatives. PennDOT continues to provide feedback on statewide

and regional progress, helping SVATS, municipalities, and PennDOT District 1-0 assess the effectiveness of past investments and guide future planning priorities.

Safety Performance Measure	Statewide Baseline (2020-2024)	Statewide Target (2022-2026)	SVATS MPO Baseline (2020-2024)	SVATS MPO Target (2022-2026)
Number of fatalities	1174.8	1140.4	14.0	15.0
Rate of fatalities per 100 million VMT	1.216	1.176	1.245	1.376
Number of serious injuries	4746.2	4,722.0	50.4	50.4
Rate of serious injuries per 100 million VMT	4.914	4.870	4.482	4.623
Number of non-motorized fatalities and serious injuries	864.6	944.0	5.4	5

Safety remains the primary consideration in project selection at the SVATS MPO. All projects programmed in the 2027–2030 TIP—whether or not they receive Highway Safety Improvement Program (HSIP) funding—are evaluated for safety impacts as part of the MPO’s performance-based planning and programming (PBPP) process. This review includes:

- Analysis of crash data and trends using PennDOT’s Network Screening Tool,
- Consideration of crash frequency and type,
- Cost-benefit analysis of anticipated safety improvements, and
- Alignment with PennDOT and federal safety performance measures (PM1).

Although no TIP projects in this cycle are directly funded through HSIP, the MPO works closely with PennDOT District 1-0 Traffic Safety staff to ensure that project prioritization reflects PM1 targets and maximizes the safety benefits of limited funding. MPO staff advocate for a strategic, targeted approach—prioritizing projects that address the most critical safety needs rather than simply programming projects because they qualify for HSIP.

Candidate projects are reviewed early in the planning process to identify potential safety benefits. Projects submitted for HSIP funding in the future would go through the HSIP Project Application Site, which provides a standardized workflow for eligibility, review, and approval involving the PennDOT Engineering District, Bureau of Operations and Office of Safety, and CPDM staff. This ensures consistency between TIP programming and federally-required performance measures.

The MPO also leverages the state-funded safety line item (MPMS #90401), programmed at \$250,000 annually, to supplement safety-focused improvements that may or may not qualify for HSIP. This funding allows the MPO to address high-priority safety needs across Mercer County while continuing to support PM1 targets.

Overall, the SVATS MPO’s performance-based project selection process demonstrates that all TIP projects contribute to improving safety outcomes, meeting federal PBPP requirements, and supporting Pennsylvania’s Toward Zero Deaths initiative, even in the absence of dedicated HSIP funding.

The chart below highlights projects on the TIP that have HSIP funds programmed, along with the HSIP Application IDs to signify these projects have the necessary approval as described above:

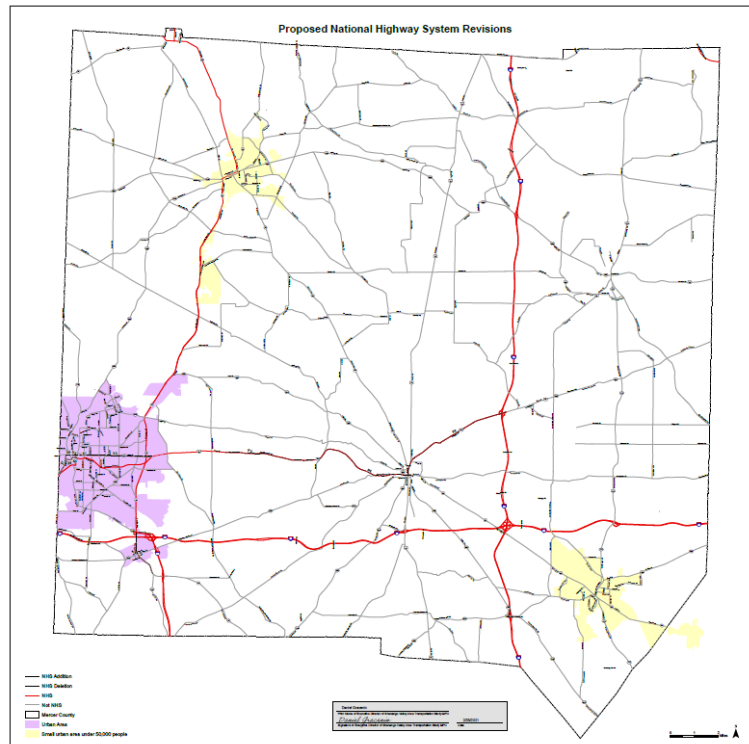
Project Title	HSIP Application ID
US 62 and SR 3037 Intersection Improvement (MPMS# 117671)	2021-01-11
SR 62 and Budd Street (MPMS# 97912)	2025-01-17
SR 19 – Springfield Township Safety Improvements (MPMS# 123887)	2025-01-15

Recent discussions have focused on setting a significant portion of the remaining line item funding as well as any future HSIP Set-Aside that we may receive toward a host of qualifying improvements along the US 62 corridor between Hermitage and Mercer, as well as the US 19 Corridor Study through Springfield Township that was completed in 2022. Safety-based corridor studies were recently completed along both of these corridors and several discussions with PennDOT District 1-0 have transpired over the past two-plus years regarding our collective top priorities.

As noted above, HSIP cannot possibly fund all safety issues that exist across the county. Although PennDOT District 1 has done an admirable job of eliminating or improving so many of the most dangerous locations over the years, there still are areas of concern. Therefore, the MPO will continue to advocate for a fair consideration of safety in overall project selection, and the prioritization of safety improvements beyond what HSIP will allow. There are actually several other, non-HSIP-funded projects on the TIP are likely to have measurable safety benefits. Admittedly this is often harder to quantify and can get a bit subjective in determining which components of a project are safety related. However, the projects listed below are some of the more notable examples of *non*-HSIP projects that still will likely yield safety improvements:

## Pavement/Bridge Performance Measures (PM2)

The PM2 measures apply to both pavement and bridge condition. Both, however, are only applicable to the National Highway System (NHS). In other words, the performance of all other state and local routes are not considered as part of this analysis. As shown in the graphic to the right, Mercer County's NHS Routes (red lines on the map) include Interstates 79, 80 and 376; portions of US Routes 62/Business Route 62 and all of US Route 322; and portions of State Routes 18 and 58. Mercer County's NHS Network was reviewed to better-reflect the current functions of the network. US 62's NHS mileage increased significantly while Business Route 62 (State Street) and a small portion of SR 18 (south of I-80) were removed from the NHS because they duplicated nearby parallel NHS routes, and therefore were considered functionally redundant.



### Pavement

Federal regulations require that no more than 5 percent of Pennsylvania's NHS Interstate lane miles be in Poor pavement condition. If that requirement is not met, restrictions are placed on how PennDOT can allocate federal NHPP and Surface Transportation Program (STP) funds. PennDOT's targets for NHS Interstate roadways reflect the federal regulation: no more than 5 percent of Pennsylvania's NHS Interstate pavements shall be rated in poor condition. Although FHWA has not established a minimum condition for NHS non-Interstate roadways, PennDOT has established performance targets for the non-Interstate NHS roadways.

Pavement performance measures require reporting on the following distress components:

<b>International Roughness Index (IRI)</b>	Quantifies how rough the pavement is by measuring the longitudinal profile of a traveled wheel track and generating a standardized roughness value in inches per mile
<b>Cracking</b>	Measures the percentage of pavement surface that is cracked
<b>Rutting</b>	Measures the depth of ruts (surface depression) in bituminous pavement in inches
<b>Faulting</b>	Quantifies the difference in elevation across transverse concrete pavement joints in inches

These distress measurements translate to a composite score of Good, Fair, or Poor. The tables below show the percentage of lane miles in both poor and good condition (baseline), as well as PennDOT's Statewide Pavement Performance Targets. These targets were formally supported by the SVATS MPO in December of 2025:

Interstate Routes			
Measure	2021—Baseline	2023—2-Year Target	2025—4-Year Target
% in Good Condition	68.8%	69%	65%
% in Poor Condition	0.4%	2.0%	2.0%

NHS Non-Interstate Routes			
Measure	2021—Baseline	2023—2-Year Target	2025—4-Year Target
% in Good Condition	37.2%	31.0%	29.0%
% in Poor Condition	1.5%	6.0%	6.5%

Federal regulations require that no more than 5 percent of Interstate NHS lane miles be in poor condition. While no minimum federal threshold is established for Non-Interstate NHS pavements, PennDOT has established statewide targets for both Interstate and Non-Interstate NHS facilities. Pavement condition is evaluated using a combination of distress measures, including International Roughness Index (IRI), cracking, rutting, and faulting, which are combined into an overall rating of good, fair, or poor.

Baseline conditions and performance targets reflect anticipated system deterioration offset by planned improvements, including projects programmed in the TIP as well as ongoing maintenance activities. SVATS MPO formally supported PennDOT’s statewide pavement performance targets, and the 2027–2030 TIP includes investments focused on pavement preservation and rehabilitation along NHS routes.

These investments are expected to contribute to achieving PM2 targets by reducing the percentage of NHS pavement in poor condition and preserving pavement in good condition, particularly on Non-Interstate NHS routes where condition trends require continued attention.

**Bridges**

Bridge performance measures apply to all NHS bridges, including Interstate and Non-Interstate facilities, and are evaluated based on deck area. Bridge condition ratings are derived from National Bridge Inventory (NBI) data, which assess deck, superstructure, substructure, and culvert components on a scale from 0 to 9. Structures are classified as good (7–9), fair (5–6), or poor (0–4), with the overall condition determined by the lowest-rated component.

Federal regulations require that no more than 10 percent of NHS bridge deck area be classified as poor. PennDOT establishes statewide targets for both good and poor condition bridge deck area, which SVATS MPO has formally supported.

The 2027–2030 TIP includes continued investment in NHS bridge preservation, rehabilitation, and replacement. These investments reflect a proactive asset management strategy focused on addressing structural deficiencies before assets decline into poor condition.

**Performance-Based Investment Strategy**

The SVATS MPO’s 2027–2030 TIP emphasizes a preservation-first approach, with a significant share of funding directed toward maintaining and improving existing NHS pavement and bridge assets. This strategy is intended to slow system deterioration, extend asset life, and maximize the effectiveness of available funding.

Collectively, the investments programmed in the TIP are anticipated to support progress toward PennDOT’s PM2 performance targets by maintaining infrastructure in a state of good repair and minimizing the share of assets in poor condition. SVATS MPO will continue to coordinate with PennDOT to monitor system performance and incorporate performance outcomes into future planning and programming decisions.

### **System Performance Measures—(PM3)**

As with the PM2 measures above, the system performance measures apply only to roadways on the NHS. PennDOT identified and evaluated data and tools used to produce the baseline PM 3 performance measures. The University of Maryland CATT Lab’s Regional Integrated Transportation Information System (RITIS) software platform is used to generate all the travel time-based measures. Because there is limited historic information, and there is a need for additional research understanding the variances and factors influencing each of the travel time performance measures, PennDOT established conservative travel time performance targets, or benchmarks. PennDOT has been tracking the measures since 2018. States are permitted to adjust their 4-year targets at the midterm of the performance period, representing data through 2019 in a report which was due to FHWA in 2020. Therefore, a revision to Mercer County’s targets was adopted by the SVATS MPO in early 2021. Specific PM3 performance measures for the SVATS MPO to meet include:

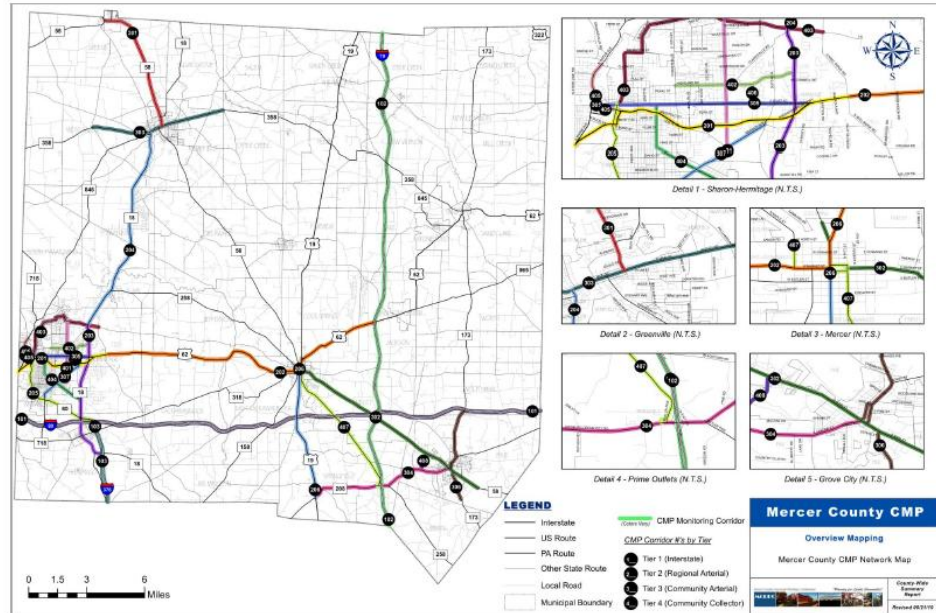
- Percent of Person-miles Traveled on the Interstate System that are Reliable
- Percent of Person-miles Traveled on the Non-Interstate NHS that are Reliable
- Truck Travel Time Reliability Index – Interstate System Only

PennDOT’s most recent targets, which were formally supported by the SVATS MPO in March 2023, are illustrated in the table below:

<b>Travel Time Targets</b>			
<b>Measure</b>	<b>2021—Baseline</b>	<b>2023—2-Yr. Target</b>	<b>2025—4-Yr. Target</b>
<b>Interstate Reliability</b>	92.8%	89.5%	89.5%
<b>Non-Interstate NHS Reliability</b>	92.6%	88.0%	88.0
<b>Truck Reliability Index</b>	1.30	1.40	1.40

Mercer County and the SVATS MPO are no longer part of a Transportation Management Area (TMA) due to loss of designation as an urbanized area. Therefore, the SVATS MPO is no longer required to monitor congestion through their Congestion Management Process (CMP). The most recent update occurred during the 2023-2026 TIP process.

Nearly all of the NHS routes in Mercer County—including all Interstate Routes and all other NHS routes except for US 322—were CMP corridors in Mercer County (see list below for list of NHS corridors on CMP; see map to the right for all CMP corridors).



NHS Route Corridors on the Mercer County CMP	
I-80 (#101)	PA 18-Urban (#203)
I-79 (#102)	PA 18-Rural (#204)
I-376 (#103)	PA 58 (#302)
US 62-Urban (#201)	SR 3008 (aka Business U.S Route 62) (#305)

Significant detail of each of these (and other) corridors’ delay and overall reliability can be found within the Mercer County CMP’s 2022 *Countywide Summary Report*. This report can be found on the MCRPC’s CMP website at <https://mcrpc.com/transportation/congestion-management/>.

### Public Transit Asset Management Performance Measures—(TAM)

In July 2016, FTA issued a final 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 based on size and mode:

<b>Tier I</b>	Operates Rail Fixed Guideway (Section 5337) <b>OR</b> Operates over 100 vehicles across all fixed route modes <b>OR</b> Operates over 100 vehicles in one non-fixed route mode
<b>Tier II</b>	Urban and Rural Public Transportation (Section 5307, 5310, and 5311 eligible) <b>OR</b> Operates up to and including 100 vehicles across all fixed route modes <b>OR</b> Operates up to and including 100 vehicles in one non-fixed route mode

The Mercer County Regional Council of Governments (MCRCOG) oversees Mercer County's transit agencies—The Shenango Valley Shuttle Service (SVSS) and Mercer County Community Transit (MCCT)—and these qualify into the Tier II category. 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 (Tier II), and additionally allows other Tier II providers to join a group plan at their discretion. All required agencies (Section 5311 and 5310) and nearly all remaining Tier II systems in Pennsylvania, (including MCRCOG) elected to participate in the PennDOT Group Plan.

The TAM process requires agencies to annually set performance measure targets and report performance against those targets. Required measures are:

- Rolling Stock – Percentage past the Useful Life Benchmark (ULB) (age only)
- Equipment – Percentage of service vehicles past the ULB (age only)
- Facilities – Percentage of passenger/parking and admin/maintenance facilities that are below a 3 on the Transit Economic Recovery Model (TERM) Scale
- Infrastructure – Percentage with performance restrictions (fixed-guideway only)

Performance targets, and how those targets translate into project prioritization, is the focus of TAM plans. The Pennsylvania Group Plan is available on PennDOT's website at <https://www.penndot.gov/Doing-Business/Transit/InformationandReports/>. The group plan is updated annually with new targets as well as the current performance of the group.

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.

Transit agencies update CPT data annually to provide a current picture of asset inventory and performance. From this data, PennDOT BPT updates performance targets for both the statewide inventory of Tier II agencies and for each individual agency in the plan based on two primary elements: the prior year's performance and anticipated/obligated funding levels. PennDOT BPT then reports this information to FTA and shares it with the MPOs/RPOs, along with investment information on priority capital projects anticipated for the following year. Current performance targets are listed in the table on the following page.

Consistent with available resources and in coordination with the PennDOT BPT, transit agencies are responsible for submitting projects consistent with the CPT for the development of the transit portion of the Program. This will ensure 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.

On the 2027-2030 TIP, several projects from the Public Transit portion of the TIP work toward meeting the performance targets listed above. In total, the four-year funding for asset management-related expenses totals just under \$7 million.

<b>MPMS #</b>	<b>Project</b>	<b>Description</b>	<b>4 year Cost</b>
83653	Asset Maintenance Expenses	Section 5307 funds to maintain transit assets	\$1,381,000
83656	Shop/Garage Equipment	Purchase of shop and garage equipment deemed necessary to the efficient operation of the maintenance system	\$609,000
83658	Office Equipment	Upgrade of the office equipment and computers at the SVSS facilities	\$615,000
95413	Office and Garage Improvements	Interior and exterior office and garage improvements: painting, paving, landscaping, doors, cement pad	\$1,121,000
102638	Vehicle Purchase	Purchasing of fixed route buses	\$2,424,000
118142	Replace Service Vehicle	Project to replace service vehicle for SVSS	\$337,000
77148	ADA Related Expenses	ADA complimentary Para-Transit trips.	\$436,000
95412	Safety and Security	Upgrade and continued maintenance of safety/security equipment for the SVSS system.	\$46,000

## **Public Transit Safety Performance Measures—(Transit Safety)**

In addition to Transit Asset Management (TAM) requirements, the Federal Transit Administration issued a final rule on Public Transportation Agency Safety Plans (PTASP), which became effective on July 19, 2019 (49 CFR Part 673). The PTASP rule is intended to enhance public transportation safety by establishing a comprehensive framework for transit agencies to manage safety risk within their organizations.

The rule requires recipients and subrecipients of FTA funding to develop and implement Public Transportation Agency Safety Plans that incorporate the principles of Safety Management Systems (SMS).

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

Mercer County's Transit Agencies (SVSS and MCCT), as with all public transit agencies in the Commonwealth, have written an Agency Safety Plan (ASP) compliant with Part 673 as of July 20, 2021. The ASP 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.

Current SVSS/MCCT Transit Safety performance targets are as follows:

Transit Service Type	Fatalities		Injuries		Safety Events		System Reliability
	Total Events	Rate*	Total Events	Rate*	Total Events	Rate*	Miles Between Major Mechanical Failures
Fixed-Route (SVSS)	0	0 per 100,000	1	1 per 100,000	1	1 per 100,000	9,800
Paratransit (MCCT)	0	0 per 100,000	1	1 per 100,000	1	1 per 100,000	60,000

\* per vehicle revenue mile

The 2027–2030 TIP includes several projects (as identified in the Transit Asset Management (TAM) section) that support the replacement and maintenance of revenue vehicles and associated equipment. These investments are intended to improve the overall condition and reliability of the transit fleet and support the achievement of established TAM performance targets related to asset condition and state of good repair.

In addition, the TIP includes investments in maintenance and support equipment, which are expected to enhance the efficiency and effectiveness of system operations and contribute to maintaining reliable service.

Transit safety performance is influenced by a variety of operational and external factors. The local transit providers, Shenango Valley Shuttle Service (SVSS) and Mercer County Community Transit (MCCT), in coordination with the Mercer County Regional Council of Governments (MRCOG), implement safety programs, operator training, and maintenance practices consistent with their Public Transportation Agency Safety Plans. These efforts are intended to support the achievement of adopted transit safety performance targets and promote the continued safe operation of the system.