

Performance Measures in the Transportation Improvement Program (TIP)

Shown below is the Performance Measures section in the 2022-2025 TIP, along with changes reflective of the attached memo provided by Daniel Peña.

3. FEDERAL PERFORMANCE MEASURES AND TARGETS

Pursuant to Title 23, Section 450.326(d) of the Code of Federal Regulations (CFR), the Metropolitan Council is required to incorporate a performance-based planning approach when developing the TIP. This includes an analysis of the anticipated effect the TIP may have towards achieving the performance targets adopted for the Council's MPO planning area. Specifically, the regulation states: *The TIP shall include, to the maximum extent practicable, a description of the anticipated effect of the TIP toward achieving the performance targets identified in the metropolitan transportation plan, linking investment priorities to those performance targets.*

This approach was first established in 2012 with the federal Moving Ahead for Progress in the 21st Century Act (MAP-21), which established performance-based planning and identified the federal performance measures for safety, pavement and bridge condition, reliability, freight, congestion mitigation and air quality improvement (CMAQ), and transit asset management. Regional transit safety performance targets will be adopted by the MPO in 2021 and included in the TIP following that action. The requirements continue through the federal Fixing America's Surface Transportation (FAST) Act, signed into law in 2015. The following are the four broad performance measure categories that must be included in the 2022-2025 TIP:

- Highway Safety Performance Measure (PM1)
- Pavement and Bridge Performance Measure (PM2)
- System Performance Measures and CMAQ (PM3)
- Transit Asset Management (TAM)
- Transit Safety Performance

Highway Safety Performance Measure (PM1)

Council Activities and Progress

The Transportation Policy Plan (TPP), which serves as the MTP for the Council, includes an overarching goal related to safety—the Safety and Security Goal, as well as objectives and strategies (actions) the Council will employ to ensure that the desired safety outcomes are met. In addition, the five federally required safety performance measures and targets are included in the TPP in the Performance Outcomes chapter.

The region has implemented a number of proactive and reactive strategies to improve the safety for users of all modes within the metro area. These include a commitment to aggressively reduce the number of crashes involving fatalities and serious injuries annually, with the ultimate aspirational goal of achieving zero fatalities and serious injuries. Pursuant to federal requirements, the Council must annually adopt safety performance targets for the region. 2021 targets were adopted in coordination with the Council's Safety Advisory Work Group. This group, which is comprised of city and county representatives along with MnDOT staff, was formed in 2020 to help guide the region in setting short-term safety targets.

Table 2 shows the adopted targets for 2021.

Table 1: Adopted Safety Targets for 2021

Measure	2021 Target
Number of Traffic Fatalities	106
Fatality Rate (per 100 million VMT)	0.36
Number of Serious Injuries	738
Serious Injury Rate (per 100 million VMT)	2.49
Number of non-motorized fatalities and serious injuries	181

In addition to the TPP, the Council and its regional partners have completed several studies that directly address safety issues and propose strategies to improve safety in the metro area. These studies and plans include the [Minnesota Strategic Highway Safety Plan](#); the [Congestion Management and Safety Plan IV](#); the [Principal Arterial Intersection Conversion Study](#); and applicable modal and county-produced safety plans. In early 2022, the Council will complete a regional Pedestrian Safety Action Plan.

Efforts like [Towards Zero Deaths](#) and [Vision Zero](#) strive to achieve the long-term goal of eliminating fatalities and serious injuries on the transportation network. The Council supports these goals and will consistently work towards reducing fatalities and serious injuries.

Anticipated Effect of the Safety Performance Measures

The 2022-2025 TIP is anticipated to have a positive effect towards meeting the region’s established safety performance targets. The TIP reflects \$78.8 million in FHWA Highway Safety Improvement Program (HSIP) funds, in addition to state and local match funding of \$3.4 million and \$16.1 million, respectively. These projects address both existing high-incident locations (reactive projects) and the design of newer projects (proactive projects) that pre-emptively address safety in their design. Further, safety is a key scoring criterion for the strategic capacity, spot mobility/safety, roadway reconstruction/modernization, traffic management technology, multiuse trails and bicycle facilities, pedestrian facilities, and Safe Routes to School funding categories in the biennial Regional Solicitation for Transportation Projects. In addition to federal funding sources, the region has used a number of other revenue sources to improve transportation safety in the metro area. Examples include a number of county- and city-funded safety projects as well as MnDOT’s CMSP funding set aside each year.

MPO Investment Priorities

The Council has adopted objectives and strategies intended to improve transportation safety. As outlined in the Transportation Policy Plan, a key objective is to reduce fatal and serious injury crashes and improve safety and security for all modes of passenger travel and freight transport.

Specific strategies the Council and its partners will use and implement to meet the safety objective include:

- Regional transportation partners will incorporate safety and security considerations for all modes and users throughout the processes of planning, funding, construction, and operation.
- Regional transportation partners should monitor and routinely analyze safety and security data by mode, severity, and location to identify priorities and progress.
- Regional transportation partners will support the state’s vision of moving toward zero traffic fatalities and serious injuries, which includes supporting educational and enforcement programs to increase awareness of regional safety issues, shared responsibility, and safe behavior.

- The Metropolitan Council and regional transit providers will provide transit police services and coordinate with public safety agencies to provide a collaborative approach to safety and security.
- Regional transportation partners will use best practices to provide and improve facilities for safe walking and bicycling, since pedestrians and bicyclists are the most vulnerable users of the transportation system.
- The Council and its regional transportation partners will work to ensure that police and public safety agency enforcement programs and actions on the region’s transportation system do not create or perpetuate racial inequities.

Pavement/Bridge Performance Measures (PM2)

Council Activities and Progress

The Council reviewed and adopted PM2 targets for the first time in early 2021. As an MPO, the Council has the option to either plan and program to support the adopted MnDOT statewide targets or chose to adopt targets specific to the region. Due to the difference in urban and rural areas, the Council chose to adopt metro-specific targets for non-interstate NHS pavement in good and poor condition. Table 3 depicts the existing metro area performance as well as the adopted statewide and regional targets.

Table 2: Existing Conditions and Adopted Condition Targets

Measure	Existing Performance	MnDOT Target	Council Target
Bridges			
1. % of bridges by deck area in good condition	32.7	35%	35%
2. % of bridges by deck area in poor condition	4.8%	4%	4%
Pavement			
1. % of interstate pavement in good condition	58.5%	55%	55%
2. % of interstate pavement in poor condition	1.6%	2%	2%
3. % of non-interstate NHS pavement in good condition	56%	50%	53%
4. % of non-interstate NHS pavement in poor condition	1%	4%	3%

Anticipated Effect of the Pavement/Bridge Performance Measures

The 2022-2025 TIP is anticipated to have a positive effect on the pavement and bridge performance measures, as there are projects programmed specifically for the purpose of improving bridge and pavement conditions. While both interstate and non-interstate NHS pavement conditions within the metro area is performing at a level greater than the targets, resources must be provided to ensure they continue to meet the needs of the region.

Currently, the metro area is not meeting the adopted target for the percent of bridges by deck area in good condition. Moving forward, the Council will continue to monitor bridge deck condition and explore mechanisms to ensure the future targets are met. Projects in the TIP that will help address bridge needs include:

- MN 65 over Mississippi River in Minneapolis (2710-42)
- Kellogg Avenue Bridge in St. Paul (164-158-025)
- Kellogg Avenue / 3rd Street Bridge in St. Paul (164-158-028)
- US 10 in Anoka (0215-76)
- CSAH 158 over CP Railroad in Edina (027-758-006)

- CSAH 9 Bridge replacement in Plymouth (027-609-042)
- Rehabilitation of ten bridges on I-94 and I-35E in St. Paul (6283-247 and 6283-255)
- MN 41 in Chaska (1008-87 and 1008-47A)
- MN 55 and MN 62 in Minneapolis and Inver Grove Heights (1909-99)
- MN 55 in Minneapolis (2724-124)
- US 952A near Downtown Minneapolis (2770-05)
- I-494 Bridge replacement (six bridges) in Bloomington, Richfield, and Edina (2785-424)
- I-494 in Bloomington (2785-433)
- I-94 on Plymouth Avenue in Minneapolis (2781-485)
- MN 55 over Minnesota River (1909-106)
- MN 65 at CSAH 10 in Spring Lake Park (0207-120)
- Shepard Road in St. Paul (164-194-033)
- US 169 in Plymouth (2772-115)
- US 212 in Cologne (1013-101)
- I-494 at Mississippi River in Newport and South St. Paul (8285-109)
- I-94 over St. Croix river (8281-06)
- MN 65 in Ham and East Bethel (0208-165)
- US 169 at 36th Avenue in New Hope and Plymouth (2772-125)
- I-35W in Burnsville (1981-140)
- I-94 in St. Paul (6280-391)
- MN 13 in Burnsville (1901-175)
- MN 13 in Savage (070-596-015, 070-596-015F, 7001-128, 7001-128A, 7001-128R)
- Randolph Ave in St. Paul (164-597-001)
- Pillsbury Avenue South in Minneapolis (141-597-001)
- MN 3 in Farmington (1921-110 and 1921-90)
- US 169 in Brooklyn Park and Maple Grove (2772-124)
- US 169 in Elk River (7106-87)

System Performance Measures and Congestion CMAQ (PM3)

Council Activities and Progress

The Council adopted both the initial system reliability (shown on Table 4) and congestion mitigation and air quality (CMAQ) (Table 5) targets for the region during in early 2021. All of the targets associated with these measures are specific to the metro area.

Because almost all congestion within the State of Minnesota occurs within the Metro Area, the Council adopted targets specific to the region that differed from the state-wide targets. The existing metro area performance for the percent of reliable person-miles traveled on the interstate system is approximately 69.5%. MnDOT established a state-wide target of greater than 80%, which would likely be unattainable within the metro area. Instead, the Council has adopted a target of greater than 70%. This target is appropriate in that it still aspires to be better than current conditions, but better fits the urban context than does the statewide target of 80%.

The Council has also elected to adopt targets that are different than MnDOT's for the truck travel time reliability index measure. This is because truck travel reliability is less in the metro area than in Greater Minnesota as a whole. The adopted MnDOT target truck travel time reliability of less than 1.5 would be very difficult to attain given the increased traffic in the metro area compared to greater Minnesota.

All of the adopted reliability targets aim for improvement over the existing conditions, and as such may be considered aspirational given recent trends. There is, however, no consequence to the Council for

not meeting these targets, and the State of Minnesota as a whole is likely to meet their adopted targets. The Council has chosen these targets as a mechanism to aim for improvement in reliability in the immediate future and prioritize highway projects integrated within the TIP thusly.

Table 3: Existing Conditions and Adopted System Reliability Targets

Measure	Existing Performance	MnDOT Target	2022 Target
% of reliable person-miles traveled on the Interstate	69.5%	>80%	>70%
% of reliable person-miles traveled on the non-Interstate NHS	79.6%	>90%	>80%
Truck travel time reliability index	2.32	<1.5	<2.20

Table 4: Existing Conditions and Adopted CMAQ Targets

Measure	Existing Performance	Adopted Target
On-road mobile source emissions – sum of emissions reductions of pollutants, in kilograms per day, for all projects funded with CMAQ funds	2,648	2,647
% of non-single occupancy vehicles	23.9%	25%
Peak hour excessive delay – annual hours of delay per capita (delay is travel at less than 20 MPH or 60% of the posted speed)	8.5	8.5

Anticipated Effect of the System Reliability and Congestion Reduction Performance Measures

In total, there is over \$130 million in CMAQ funding programmed for projects in the 2022-2025 TIP. The net benefit these projects are meant to help achieve, as shown in Table 5, is a reduction of approximately 2,647 kg/day of mobile source pollution. The CMAQ projects include the purchase of a number of transit vehicles; activities to market and incentive the use of carpools, vanpools, and ride matching programs; and projects aimed at retiming and optimizing traffic signal coordination.

The 2022-2025 TIP also includes projects that are anticipated to have a positive effect on mobility and system reliability. This includes a number of spot mobility enhancements as well as large set-asides for future mobility projects. Two examples include construction of a reduced conflict intersection in at US 212 and CSAH 51 in Carver County (010-596-013) and construction of a roundabout at CSAH 11 and Burnsville Parkway in Burnsville (019-611-013).

Transit Asset Management (TAM) Performance Targets

Transit asset management (TAM), a best practice and a requirement under federal law, is a business model that prioritizes funding decisions based on the condition of transit assets. Transit providers are required to assess, track, and report on their assets to FTA, and develop annual targets for asset management to ensure a state of good repair. Transit providers also develop transit asset management plans that document the implementation actions for asset management within their transit systems. TAM plans must be coordinated with the Council, which is the region’s MPO. The four FTA-required performance measures for transit asset management are:

- Rolling stock (buses and train used for serving customers): The percentage of revenue vehicles (by type) that exceed the useful life benchmark.
- Equipment (vehicles used in a support role): The percentage of non-revenue service vehicles (by type) that exceed the useful life benchmark.
- Facilities: The percentage of facilities (by group) that are rated less than 3.0 on the [Transit Economic Requirements Model \(TERM\) Scale](#).
- Infrastructure: The percentage of rail track segments (by mode) that have performance restrictions. Track segments are measured to the nearest one-hundredth of a mile.

The region’s transit operators established regional performance targets in 2018 and will use them through 2022. Table 6 summarizes the adopted targets:

Table 5: Adopted Transit Asset Management Targets

Measure	Target
Rolling Stock: % exceeding useful life	
Articulated Bus	8%
Over-the-Road Bus	0%
Bus	2.4%
Cutaway	14%
Light Rail Vehicle	0%
Commuter Rail Locomotive	0%
Commuter Rail Passenger Coach	0%
Equipment: % exceeding useful life	
Automobiles	42%
Trucks/other Rubber Tire Vehicles	38%
Facility: % rated below 3 on condition scale	
Passenger/Parking Facilities	0%
Administrative/Maintenance Facilities	0%
Infrastructure: % of track with performance restrictions	
Light Rail	1%

Transit Investment Priorities

The Council’s Transportation Policy Plan (TPP) outlines the goals, objectives, and strategies that are used to set transit investment priorities for the region. These factors, in turn, directly guide the investment plan and transit projects programmed within the TIP. The TPP guides transit investments through the following objectives and strategies:

- Efficiently preserve and maintain the regional transit system in a state of good repair;

- Manage the regional transit network and respond to demand as deemed appropriate based on the Transit Market Area;
- Provide transit police services and coordinate with other public safety agencies to ensure the safety and security of the transit system;
- Promote alternatives to single occupant vehicles and ensure transit services reach major job and commercial activity centers;
- Expand and modernize transit service, facilities, systems, and technology to meet demand, improve customer experience, and increase transit access to destinations.

In 2019, over \$33 million in federal funds was spent on the purchase of replacement vehicles. The Region's commitment to vehicle replacement supports efforts to achieve the rolling stock target goals.

The Council's [Fleet Management Procedures](#) provide guidance for minimum vehicle life and inform the TAM performance targets established by the region's transit providers. This document outlines the conditions used to determine if the replacement of assets is necessary or can be deferred, including the point at which fleet vehicles are eligible for mid-life rehab procedures. The Fleet Management Procedures also set the principles used for determining the end vehicle's useful life, a preventative maintenance schedule, and the process for the purchase of new vehicles.

A key pool of funds used to replace aging assets is FTA Sections 5337 and 5339, which are prioritized via the Regional Transit Capital Improvement Program (CIP), developed by Metro Transit and the suburban transit providers.

Transit Safety Performance Measures Targets

Measures Overview

In order to reflect the broad and varied nature of public transportation, the FTA has identified standard Safety Performance Measures that can be applied to all modes of public transportation and are based on data currently submitted to the National Transit Database.

As part of transit provider ASPs, the FTA requires transit providers to establish, by mode, safety performance targets in four Safety Performance Measure categories, shown in Table 7.

Table 7: Safety Performance Categories and Measures

Safety Performance Measure Category	Safety Performance Measure
Fatalities	Total number of reportable fatalities
Fatalities	Fatality rate per total vehicle revenue miles
Injuries	Total number of reportable injuries
Injuries	Injury rate per total vehicle revenue miles
Safety Events	Total number of reportable safety events
Safety Events	Rate of safety events per total vehicle revenue miles
System Reliability	Mean distance between major mechanical failures

The FTA provides the following definitions for safety performance measures in the National Transit Database:

- **Reportable fatalities:** These are fatalities reported to the NTD (deaths confirmed within 30 days) excluding deaths in or on transit property that are a result of illness or other natural causes. These include deaths due to collision, derailment, fire, hazardous material spill, acts of God, system or personal security event, or other safety event.
- **Reportable injuries:** These include instances of damage or harm to persons that require immediate medical attention away from the scene because of a reportable transit safety event. Serious, injuries which are defined based on severity, are always reportable, even if a person was not immediately transported from the scene for medical attention. This excludes injuries from assaults and other crimes.
- **Reportable safety events:** These include incidents (including accidents and derailments) meeting NTD major reporting thresholds for transit rail, bus and paratransit. These events may occur on transit right-of-way or infrastructure, or at a transit revenue facility, maintenance facility, or rail yard. They may take place during a transit-related maintenance activity or otherwise involve a transit revenue vehicle. Examples of these events include:
 - Collisions
 - Fires
 - Derailments (mainline and yard), including non-revenue vehicles
 - Hazardous materials spills
 - Acts of God¹
- **Major mechanical failures:** The NTD defines major mechanical failures as “a failure of some mechanical element of the revenue vehicle that prevents the vehicle from completing a scheduled revenue trip or from starting the next scheduled revenue trip because actual

¹ FTA. *National Transit Database Safety and Security Policy Manual*. January 2020. Accessed March 29, 2021 at <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/ntd/146986/2020-ntd-safety-and-security-policy-manual.pdf>, pg. 18.

movement is limited or because of safety concerns. Examples of major mechanical failures include breakdowns of brakes, doors, engine cooling systems, steering, axles and suspension.

Targets Overview

The Federal Transit Administration has requirements and provides some guidance for transit providers in setting their Safety Performance Targets (SPTs). Transit agencies are required to set SPTs by mode. Agencies are allowed to set targets for mode categories as broad as “fixed-route bus,” “non-fixed-route bus,” and “rail” when setting SPTs. Each of these mode categories corresponds to the variety of modes reported to the NTD.

Transit agencies are required to set targets for total number of incidents and rates of incidents. When establishing SPTs for total numbers of incidents, transit providers may consider the total number of incidents they expect to experience per year as they define it. They may choose calendar, fiscal or NTD reporting year. When defining rates for SPTs, agencies may base rates on per vehicle revenue mile, or any multiple thereof, such as per 100,000 or million vehicle revenue miles.

When establishing SPTs, transit providers may choose to set aspirational SPTs or targets that represent improvement over current safety performance levels, among other options. To the extent possible, the FTA recommends that transit providers set realistic SPTs that consider relevant safety goals and objectives. While transit providers may select SPTs that reflect an improvement in safety performance, they do not necessarily have to do so and could focus on maintaining current safety performance.

Transit providers are not required to report their SPTs to the FTA at this time, however, the FTA will ensure that transit agencies comply with the PTASP regulation by reviewing safety plans through the existing Triennial Reviews and State Management Reviews. The FTA has not established and does not impose penalties for transit providers that do not meet the SPTs they set.

MPO Responsibilities

The PTASP rule requires that transit provider make their SPTs available to states and MPOs. These providers must also coordinate with states and MPOs as the MPO sets the regional transit safety performance targets. MPOs must incorporate regional transit SPTs into their planning process and documents, as is required for targets for all federal performance areas. In general, the Metropolitan Council can consider how the projects and programs it selects to receive federal funding improve transit safety outcomes. The Metropolitan Council would also have to incorporate regional transit safety performance targets into the Transportation Policy Plan. The Metropolitan Council would also have to incorporate the regional TSPs into the Transportation Improvement Program and “to the maximum extent practicable, provide a description of the anticipated effect of the TIP toward achieving the performance targets identified in the metropolitan transportation plan”, with the intent of linking investment priorities to regional transit safety performance targets.

Regional Transit Agency Safety Targets

Metro Transit

Metro Transit monitor performance and sets federally required targets for rail and fixed-route bus service. The Strategic Initiatives department of Metro Transit works with data collected from many sources to identify significant risk factors and trends in accidents and injuries, leading to informed recommendations for accident reduction programs and more efficient use of limited resources.

Table 8 - Metro Transit Bus and Light Rail Safety Performance Targets

Performance Target	Bus	Light Rail
Collisions	3.8 per 100k Vehicle Miles	0.6 per 100k Vehicle Miles
Annual Fatalities from Vehicle Operations	0 per 100k Vehicle Miles	0 per 100k Vehicle Miles
Annual Injuries from Vehicle Operations	175 per Calendar Year	145 per Calendar Year
System Reliability – Vehicle mean distance between failures (MDBF)	7,731 miles MDBF	25,000 miles MDBF

Metropolitan Transportation Services Contracted Services

The Metropolitan Council’s Metropolitan Transportation Services Contracted Services arrived at their transit safety performance targets in the development of their Agency Safety Plan. Safety performance targets are based on past performance of each mode that MTS Contracted Service operates.

Table9 - Metropolitan Transportation Services Fixed-Route, Demand Response, and Vanpool Safety Performance Targets

Performance Target	Fixed-Route	Demand Response	Vanpool
Estimated Annual Vehicle Revenue Miles (VRM) (2021)	3,400,000	26,000,000	895,000
Annual Fatalities	0	0	0
Fatalities per 100k VRM	0	0	0
Annual Injuries	3	50	0
Injuries per 100k VRM	0.097	0.19	0
Annual Safety Events	50	45	0
Safety Events per 100k VRM	1.47	0.17	0
Annual Major Mechanical Failures	130	450	0
System Reliability – Miles Between Major Mechanical Failures	26,154	57,777	0

Minnesota Valley Transit Authority

MVTA’s transit safety performance targets are based on the five-year average of performance metrics submitted to the National Transit Database. Performance metrics that formed the base line for the agency’s performance metrics were gathered from annual reports submitted between 2015 and 2019.

Table 10 - Minnesota Valley Transit Authority Transit Safety Performance Targets

Performance Target	Fixed-Route Bus
Fatalities (Total)	0
Fatalities (per 100 thousand VRM)	0
Injuries (total)	8.4
Injuries (per 100 thousand VRM)	0.236
Safety Events (total)	11.6
Safety Events (per 100 thousand VRM)	0.326
System Reliability (VRM/failures)	9.000

Southwest Transit

Southwest Transit’s transit safety performance targets are based on the five-year average of performance metrics submitted to the National Transit Database. Performance metrics that formed the base line for the agency’s performance metrics were gathered from annual reports submitted between 2015 and 2019.

Table 11 - Southwest Transit Fixed-Route and Demand Response Safety Performance Targets

Performance Target	Fixed-Route	Demand Response
Annual Fatalities	0	0
Fatalities per 100k VRM	0	0
Annual Injuries	1	1
Injuries per 100k VRM	1	1
Annual Safety Events	2	1
Safety Events per 100k VRM	1	1
System Reliability (VRM / Failures)	25,000	53,000

The Council supports the efforts to move towards a performance-based planning approach, and will continue to work closely with regional, state, and federal partners to proactively establish and monitor both the required federal and the regionally adopted performance measures over time. Moving forward, the Council will continue to devote substantial resources to this effort and work closely with stakeholders to assess the federal targets and the regional performance measures and adjust to changes in the performance of the system by shifting regional investment priorities.