Chapter IX
Regional Performance

In recent years, performance-based planning and project programming have increasingly been employed by the North Central Texas Council of Governments (NCTCOG) in the development of its short- and long-range planning documents. The most recent federal transportation funding legislation and subsequent federal rulemakings mandate the incorporation of performance-based planning and programming into the development of Metropolitan Transportation Plans (MTP) and Transportation Improvement Programs (TIP). This chapter outlines the performance measures and targets required to be considered and tracked when conducting transportation planning and programming activities in the region. It will also highlight current and future efforts to consider these measures and work toward achieving the targets in the current and future TIPs.

National Performance Requirements

Federal legislation passed in 2012 introduced a new requirement to incorporate a performance-based approach into the transportation planning process. The legislation, the Moving Ahead for Progress in the 21st Century Act, known as MAP-21, requires state Departments of Transportation, Metropolitan Planning Organizations (MPO), and transit authorities to set coordinated targets, report on a required set of performance measures, and prioritize projects using a coordinated performance-based planning process. These performance requirements were continued and bolstered by the Fixing America's Surface Transportation (FAST) Act, which was signed into law in 2015.

Since then, four Transportation Performance Management final rules have been released by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) and are now effective. Each final rule lists the required measures, data sources, and calculation procedures. The final rules include:

- Highway Safety Improvement Program, known as PM1 (81 FR 13881, 23 CFR 490)
- Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program, known as PM2 (82 FR 5886, 23 CFR 490)
- Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program (CMAQ), known as PM3 (82 FR 5970, 82 FR 22879, 23 CFR 490)
- Transit Asset Management (81 FR 48889, 49 CFR 625, 49 CFR 630)

Addressing Performance in the 2019-2022 TIP

Federal performance measure final rules establish deadlines for target setting and reporting for each of the required performance measures. For the measures identified in each final rule, MPOs are required to include adopted targets, baseline performance measures, and progress toward the targets in TIPs adopted two years after the effective date of the final rule. The four performance measure final rules currently effective were established at different times; and therefore, have different target-setting and implementation deadlines, as seen in Exhibit IX-1.

Exhibit IX-1: Federally Required Performance Measure Implementation Schedule

Final Rule	Rule Effective Date	Target Setting Deadlines			Required to be Included in TIPs
		Provider	State DOT	MPO	
Safety (PM1)	4/14/2016	N/A	8/31/2017	2/27/2018	4/14/2018
Pavement and Bridge Condition (PM2)	5/20/2017	N/A	5/20/2018	11/16/2018	5/20/2019
System Performance/Freight/CMAQ (PM3)	5/20/2017	N/A	5/20/2018	11/16/2018	5/20/2019
Transit Asset Management	10/01/2016	01/01/2017	10/01/2017	12/27/2017	10/01/2018

As of the adoption date of the 2019-2022 TIP, May 10, 2018, the following apply:

- All four performance measure rules are effective.
- The adoption of official targets is required in the 2019-2022 TIP for the Safety (PM1) and Transit Asset Management rules.
- The Safety target must be included in the 2019-2022 TIP.

Preparatory steps, including target-setting coordination and data acquisition, are under way for measures in the Pavement and Bridge Condition (PM2) and System Performance/Freight/CMAQ (PM3) final rules. In the spirit of implementing a comprehensive performance-based planning process, preliminary discussion and certain draft measures from all the final rules are included alongside the currently required measures.

Performance measurement also played an integral role in project selection and prioritization for *Mobility 2045* and subsequently, the 2019-2022 TIP as federal regulations mandate that projects and programs in a MPO's TIP must also be in that MPO's long-range transportation plan. *Mobility 2045* includes performance measures that go above and beyond those that are or will soon be required by the final rules. These supplemental performance measures affirm the importance of tracking performance measures and performance-based planning processes across all aspects of the transportation system. While these measures are in various stages of development, all are measures that NCTCOG intends to track, report on, and eventually incorporate into planning processes. These additional measures are being utilized and will continue to be when conducting project selection and programming efforts for the TIP.

The performance measures presented in this chapter (both required and otherwise) are mentioned throughout *Mobility 2045* in relevant sections. This demonstrates how the measures apply to and are integrated into planning processes and project selection efforts. It also demonstrates NCTCOG's commitment to a performance-based transportation planning process.

Required Performance Measures

Safety (PM1)

The Safety performance measure final rule includes five measures related to the safety of the transportation system. The measures are all five-year rolling averages, including:

1. The number of fatalities
2. The rate of fatalities per 100 million vehicle miles traveled
3. The number of serious injuries
4. The rate of serious injuries per 100 million vehicle miles traveled
5. The number of non-motorized fatalities and non-motorized serious injuries

The Regional Transportation Council (RTC) established a regional policy that even one death on the transportation system is unacceptable. Subsequently, the RTC directed NCTCOG staff to work with regional and State partners to develop projects, programs, and policies that assist in eliminating serious injuries and fatalities across all modes of travel. That being said, the RTC recognized the need to set realistic targets needed to work toward the ultimate goal of zero fatalities.

To this end, NCTCOG worked closely with the Texas Department of Transportation (TxDOT) to establish annual targets for each of these measures. Coordination between stakeholders is key when setting targets for performance measures. As part of the TxDOT Strategic Highway Safety Plan (SHSP) development process, stakeholders from TxDOT, NCTCOG, local governments, law enforcement, emergency medical services, educators, and others worked collaboratively utilizing a data-driven, multi-year process to develop both statewide and regional safety performance measure targets. Due to increasing population in both the region and the state, volume on the roadway system, and congestion, it is unlikely that a decrease in the number of crashes could be achieved, so the consensus of the SHSP stakeholder and executive teams was to establish targets that by 2022 would reduce the rate at which each measure is increasing. Specifically, the targets call for a 2 percent reduction from the original projection for 2022. The proposed reduction of 2 percent by 2022, which only applies to trends where measures are increasing over time, would be achieved by reducing each intermediate year by the following reduction percentages:

Year	Reduction Target
2017	0.0%
2018	0.4%
2019	0.8%
2020	1.2%
2021	1.6%
2022	2.0%

Measure 1: Number of Fatalities

2018 Target: NCTCOG supports TxDOT's targets for this measure. These targets seek to reduce the expected increase in fatalities by 2018. This target would reduce the projected number of fatalities in 2018 from 3,907 to 3,891 for the state, and a reduction in the region from 727 to 724. The 2018 target expressed as a five-year rolling average is shown in Exhibit IX-2.

Exhibit IX-2: Five-Year Rolling Average for the Number of Fatalities

		Statewide Data			Regional Data		
Year	**Source**	**Projection or Actual Data**	**Percent Reduction**	**Target or Actual Data**	**Projection or Actual Data**	**Target or Actual Data**	**Fatalities Reduced**
2014	FARS	3,536	N/A	3,536	596	596	N/A
2015	ARF	3,516	N/A	3,516	619	619	N/A
2016	CRIS	3,775	N/A	3,775	690	690	N/A
2017	Target	3,801*	0.0%	3,801	697	697	0
2018	Target	3,907*	0.4%	3,891	727	724	3
2018 target expressed as 5-year average				**3,703.8**		**665.2**	

*Based on linear trend analysis from 2011-2015 FARS data.
FARS: National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System
ARF: FARS Annual Report File
CRIS: TxDOT Crash Records Information System

Measure 2: Rate of Fatalities per 100 Million Vehicle Miles Traveled

2018 Target: NCTCOG supports TxDOT's targets for this measure. These targets seek to reduce the expected increase in deaths per 100 million vehicles miles traveled in 2018. This target would reduce the projected deaths per 100 million vehicle miles traveled (MVMT) in 2018 to not more than 1.46 per 100 MVMT statewide. The regional target for 2018 is less than one death per 100 MVMT. The 2018 target expressed as a five-year rolling average is shown in Exhibit IX-3.

Exhibit IX-3: Five-Year Rolling Average for the Rate of Fatalities

		Statewide Data			Regional Data		
Year	**Source**	**Projection or Actual Data**	**Percent Reduction**	**Target or Actual Data**	**Projection or Actual Data**	**Target or Actual Data**	**Percent Reduction**
2014	FARS	1.45	N/A	1.45	0.92	0.92	N/A
2015	ARF	1.36	N/A	1.36	0.92	0.92	N/A
2016	CRIS	1.44	N/A	1.44	0.99	0.99	N/A
2017	Target	1.45*	0.0%	1.45	0.98	0.98	0.0%
2018	Target	1.46*	0.4%	1.46	0.99	0.99	0.4%
2018 target expressed as 5-year average				**1.432**		**0.96**	

*Based on linear trend analysis from 2011-2015 FARS data.

Measure 3: Number of Serious Injuries

2018 Target: NCTCOG supports TxDOT's targets for this measure. These targets seek to reduce the expected increase in serious injuries in 2018. This target would reduce the expected increase in serious injuries from 18,203 to not more than 18,130 in 2018 statewide. At the regional level, the target would be a reduction from 3,938 to 3,922. The 2018 target expressed as a five-year rolling average is shown in Exhibit IX-4.

Exhibit IX-4: Five-Year Rolling Average for the Number of Serious Injuries

		Statewide Data			Regional Data		
Year	**Source**	**Projection or Actual Data**	**Percent Reduction**	**Target or Actual Data**	**Projection or Actual Data**	**Target or Actual Data**	**Serious Injury Crashes Reduced**
2014	CRIS	17,133	N/A	17,133	3,420	3,420	N/A
2015	CRIS	17,096	N/A	17,096	3,453	3,453	N/A
2016	CRIS	17,578	N/A	17,578	3,641	3,641	N/A
2017	Target	17,890*	0.0%	17,890	3,787	3,787	0
2018	Target	18,203*	0.4%	18,130	3,938	3,922	16
2018 target expressed as 5-year average				**17,565.4**		**3,647.8**	

*Based on linear trend analysis from 2012-2016 CRIS data.

Measure 4: The Rate of Serious Injuries per 100 Million Vehicle Miles Traveled

2018 Target: NCTCOG supports TxDOT's targets for this measure. These targets seek to reduce the expected increase in the rate of serious injuries per 100 million vehicle miles traveled in 2018. This target would reduce the rate of serious injuries per 100 million vehicle miles traveled statewide to 6.64 in 2018. The regional target is a reduction to 5.09. The 2018 target expressed as a five-year rolling average is shown in Exhibit IX-5.

Exhibit IX-5: Five-Year Rolling Average for the Rate of Serious Injuries

		Statewide Data			Regional Data		
Year	**Source**	**Projection or Actual Data**	**Percent Reduction**	**Target or Actual Data**	**Projection or Actual Data**	**Target or Actual Data**	**Percent Reduction**
2014	CRIS	7.05	N/A	7.05	5.30	5.3	
2015	CRIS	6.62	N/A	6.62	5.14	5.14	
2016	CRIS	6.71	N/A	6.71	5.22	5.22	
2017	Target	6.68*	0.0%	6.68	5.15	5.15	
2018	Target	6.64*	0.4%	6.64	5.11	5.09	
2018 target expressed as 5-year average				**6.740**		**5.18**	

*Based on linear trend analysis from 2012-2016 CRIS data.

Measure 5: The Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries

2018 Target: NCTCOG supports TxDOT's targets for this measure. These targets seek to reduce the expected increase in non-motorized fatalities and serious injuries in 2018. This target would reduce the number of non-motorized fatalities and serious injuries from 2,318 to not more than 2,309 in 2018 statewide. At the regional level, the target is a reduction from 643 non-motorized fatalities and serious injuries to not more than 639 in 2018. The regional target is shown in Exhibit IX-7. The 2018 target expressed as a five-year rolling average is shown in Exhibits IX-6 and IX-7.

Exhibit IX-6: Five-Year Rolling Average for the Number of Non-Motorized Fatalities and Serious Injuries (Statewide)

Year	Source	Projection or Actual Data	Percent Reduction	Target or Actual Data
2014	FARS-CRIS	1,893	N/A	1,893
2015	FARS-CRIS	2,023	N/A	2,023
2016	CRIS	2,304	N/A	2,304
2017	Target	2,224*	0.0%	2,224
2018	Target	2,318*	0.4%	2,309
2018 target expressed as 5-year average				2,150.6

*Based on linear trend analysis from 2011-2015 FARS and CRIS data.

Exhibit IX-7: Five-Year Rolling Average for the Number of Non-Motorized Fatalities and Serious Injuries (Regional)

		Fatalities			Serious Injuries		
Year	Source	Projection/Actual Data Bike & Ped (Fatal)	Target/Actual Data	Fatalities Reduced	Projection/Actual Data Bike & Ped (Incap. Injury)	Target or Actual Data	Serious Injury Crashes Reduced
2014	FARS-CRIS	107	107	N/A	334	334	N/A
2015	FARS-CRIS	160	160	N/A	381	381	N/A
2016	CRIS	163	163	N/A	413	413	N/A
2017	Target	171	171	0	433	433	0
2018	Target	184	182	2	459	457	2
2018 target expressed as 5-year average			**156.6**			**403.6**	

Infrastructure Condition (PM2) and Asset Management Plans

The MAP-21/FAST Act requirements have placed a greater emphasis on transportation system preservation and asset management. Asset management can generally be defined as a strategic process to maintain and replace assets in a desired state of good repair over their lifecycles at a minimum practicable cost. Existing federal statutes and regulations now require that each state Department of Transportation (DOT) and each MPO establish performance targets to assess and monitor the condition of pavements and bridges on the National Highway System including the Interstate System (23 U.S.C. 150 and 23 CFR 490). As with other performance measures rules, the MPO has the option to either adopt the same performance targets set by the state DOT or establish its own regional targets.

Based on year 2016 data provided by TxDOT, the National Highway System (NHS) facilities within the 12-county North Central Texas region include an estimated 11,459 lane-miles of pavement with about 72% are state highways under the jurisdiction of TxDOT and about 28 percent are county roads, city streets, and non-TxDOT toll roads managed by other agencies. NHS facilities in the region also include an estimated 3,279 bridges with about 87 percent managed by TxDOT and about 13 percent managed by other agencies (23 U.S.C. 119 and 23 CFR 515).

The national performance measures for pavement established in the final rule are the percentage of pavements of the Interstate System and the Non-Interstate NHS in “good” or “poor” condition as defined in the regulations. Pavement conditions will be assessed based on the International Roughness Index, cracking, rutting, and faulting using established Highway Performance Management System methodologies. The regulations have also established a minimum level that stipulates that the percentage of lane miles on the Interstate System in “poor” condition cannot exceed 5 percent. If the Federal Highway Administration (FHWA) makes a determination that a state DOT has not made “significant progress” toward meeting the minimum level or its adopted targets for NHS pavement conditions, the state DOT may be subject to fiscal penalties that would require it to obligate and transfer portions of its federal-aid highway apportionments to meet these performance requirements.

The national performance measures for bridges (including ramps and culverts) established in the final rule are the percentage of NHS bridges classified in "good" or "poor" condition as defined in the regulations. Bridge conditions will be classified using established National Bridge Inventory ratings for the bridge deck (also referred to as the road bed, but may also include walkway and rail crossings) and the bridge support system (also referred to as the bridge superstructure and substructure). Federal regulations have also established a "minimum level" that stipulate that not more than 10 percent of the total deck area of the NHS bridges in a state can be classified as structurally deficient (i.e., poor or worse condition). If FHWA makes a determination that a state DOT has not made "significant progress" towards meeting the "minimum level" or its adopted targets for NHS bridge conditions, the state DOT may be subject to penalties that would require it to obligate and transfer portions of its federal-aid highway apportionments to meet these performance requirements.

In addition to setting performance targets for pavement and bridge conditions, existing federal statutes and regulations now require that each state DOT develop and implement a risk-based transportation asset management plan (TAMP) for the NHS facilities within each state (23 U.S.C. 119 and 23 CFR 515). In addition to NHS facilities owned by the state DOT, the TAMP requirement is also applicable to NHS facilities owned by other agencies. Although not required, the state DOT may include other types of infrastructure assets and other roadways not included on the NHS in the TAMP. At a minimum, the TAMP must include 1) a summary listing of NHS pavement and bridge assets and their condition; 2) identification of asset management objectives, measures and performance gaps; and 3) a lifecycle cost and risk management analysis, financial plan, and identification of investment strategies. In addition, it is recommended that state DOTs identify and quantify the risks that may affect the ongoing condition and performance of these NHS assets, including risks associated with current and future environmental conditions, such as extreme weather events. If FHWA makes a determination that a state DOT has not developed and implemented a fully compliant TAMP, the state DOT may be subject to fiscal penalties that would involve a reduction or suspension of a portion of its federal-aid highway apportionments.

FHWA encourages state DOTs to coordinate with MPOs on the development and implementation of the TAMP. It is anticipated that NCTCOG will provide input into the TAMP process through its participation with the FHWA Asset Management Expert Task Group, asset management committees associated with the Transportation Research Board and American Association of State Highway and Transportation Officials, the Texas Association of Metropolitan Planning Organizations, and NCTCOG's continued association with other state and federal regulatory agencies.

System Performance, Freight, and CMAQ (PM3)

Observed System Performance

Observing the current performance of the roadway system is an important component of assessing the system's needs and planning for its future. The North Central Texas Council of Governments has data collection programs in place to observe the current roadway system. Several of the new federal performance measures are designed to summarize the observed performance. With these new federal requirements have come data-sharing agreements that allow NCTCOG to access powerful new datasets of observed travel time. These datasets will allow for calculation of the required measures and additional analyses.

Despite efforts to reduce roadway congestion, the region's increasing population and inadequate transportation funding may make congestion worse despite the improvements being recommended in *Mobility 2045* and being implemented via the 2019-2022 TIP as well as future TIPs. While all congestion has social, economic, and environmental impacts, congestion that is inconsistent and difficult to predict has greater impacts than congestion that can be readily anticipated. With this in mind, federal performance final rules related to congestion have tended to focus on the reliability and predictability of travel as opposed to absolute measures of congestion. Reliability is addressed by the following required measures:

- Percent of person miles traveled on the Interstate System that are reliable
- Percent of person miles traveled on the Non-Interstate National Highway System that are reliable

Both measures are primarily calculated using the National Performance Management Research Dataset (NPMRDS). This travel time dataset is available in its second edition from January 2017 to the present. Calculations presented below are for the time period from January 2017 to

December 2017 and are calculated using formulas specified in the final rule:

- Reliable person miles of travel on the Interstate System: 77.4%
- Reliable person miles of travel on the Non-Interstate National Highway System: 71.2%

While a majority of person miles of travel on both the Interstate System and Non-Interstate NHS are reliable in the Metropolitan Planning Area, reliability can be increased by implementing programs and projects that reduce non-recurring congestion and boost the overall reliability of the system. Segment-level reliability calculations are depicted in Exhibit IX-8.

The North Central Texas Council of Governments will continue to monitor and track the current performance of the roadway network using the NPMRDS and other datasets. Preparations to fully incorporate federal performance measure final rules into existing planning and data monitoring processes for the roadway network will continue. Targets for PM3 performance measures are anticipated to be adopted in late-2018, and the TIP will be updated to include these measures at that time.

Exhibit IX-8: Reliability on the National Highway System

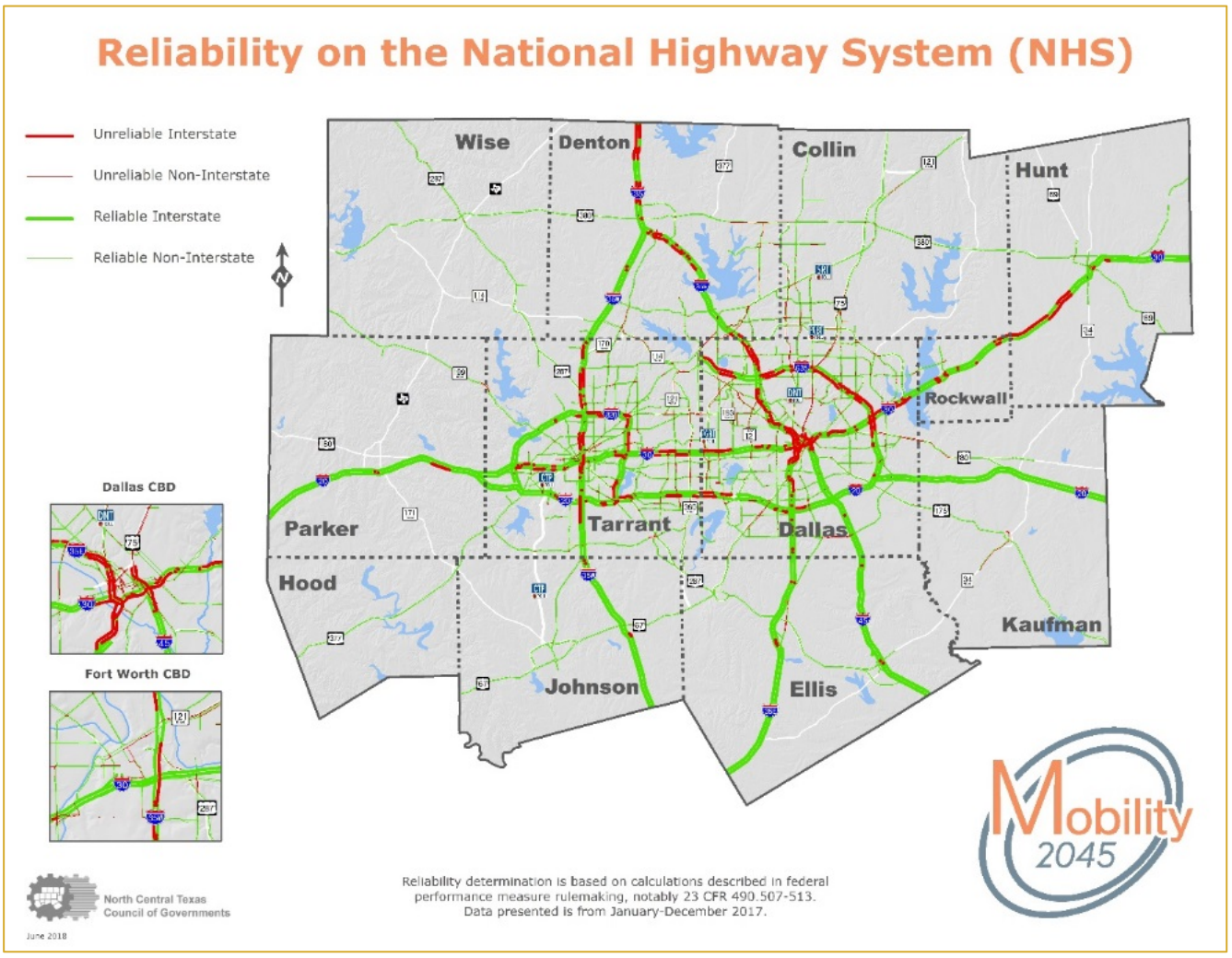
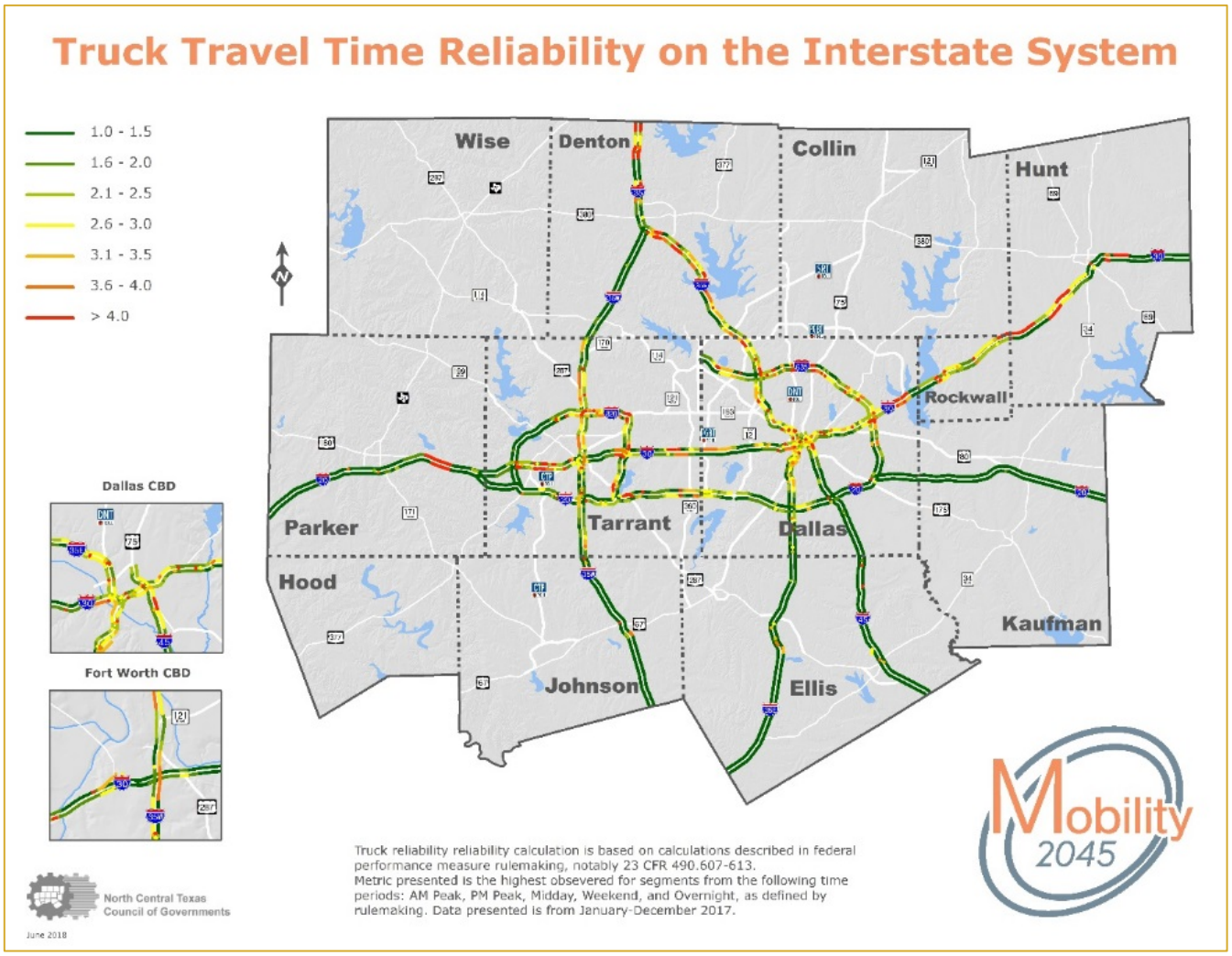


Exhibit IX-9: Truck Travel Time Reliability on the Interstate System



Freight Movement

The PM3 rulemaking also directly addresses freight movement with a required Truck Travel Time Reliability Index measure in the System Reliability/Freight/CMAQ (PM3) rulemaking. As with the Interstate/Non-Interstate Reliability measures, this measure is primarily calculated using the NPMRDS.

However, unlike other NPMRDS-derived measures, this measure does not need to be adjusted for auto occupancy and is reported as a simple regional index. A value of 1.0 indicates that any congestion on a facility that affects freight movement is consistent and predictable. Values above 1.0 indicate decreasing reliability. As depicted in Exhibit IX-9 and in the below preliminary calculation of the measure, there are areas on the region's Interstate facilities that have significant reliability issues.

Truck Travel Time Reliability Index: 1.74

This figure can be used as a multiplier for planned travel times to depict the magnitude of reliability issues. In this case, if a truck trip in the region takes 30 minutes on average, to ensure the truck arrives on time a majority of trips, logistics planners may need to plan for as much as 51.3 minutes (representing 30 minutes x 1.71) of travel time because of reliability issues. NCTCOG will set a target in late-2018, and the TIP will be updated to include these measures at that time.

Truck Travel Time Reliability will be monitored over time to assess trends. NCTCOG will track this measure and fully respond to the rulemaking in the next TIP.

CMAQ/Air Quality

Three of the performance measures required by the PM3 performance measure final rule evaluate the effectiveness of the Congestion Mitigation and Air Quality Improvement Program, including:

1. Annual Hours of Peak Hour Excessive Delay Per Capita
2. Percent of Non-Single Occupant Vehicle (SOV) Travel
3. Total Emissions Reductions

NCTCOG anticipates setting targets for these measures in late-2018.

Work is ongoing for all of these measures, but the Peak Hour Excessive Delay measure has been preliminarily calculated. This measure recognizes that excessive congestion can have a detrimental impact on air quality. As with the travel time reliability and freight measures, this measure is primarily calculated using travel time data from the NPMRDS; it has also been preliminarily calculated for January 2017 to December 2017. However, unlike the other measures, this and the other CMAQ measures initially only apply to the Dallas-Fort Worth and other non-attainment areas in the State. As defined in the final rule, excessive delay is extra time spent in congested conditions where speed thresholds are lower than a normally expected delay threshold. If the excessive delay threshold on a hypothetical one-mile segment of road is 30 mph and the observed travel speed on that segment was 25 mph during a specific time interval, the 5 mph difference between the two would result in 24 seconds of excessive delay for each traveler on that segment during that time interval. These segment-level values are summed into a regional total for the calendar year. For the purposes of calculating the measure, the excessive delay threshold is specifically defined as travel occurring where speed is below 20 mph or 60 percent of the posted speed limit, whichever is greater.

Annual Hours of Peak Hour Excessive Delay per Capita: 14.5

This means that on average, each resident of the urbanized area experiences 14.5 hours of delay on the region's road network greater than the defined threshold for excessive delay. Similar metrics from the Texas A&M Transportation Institute Urban Mobility Scorecard indicate that the number of hours of excessive delay may be increasing, but long-term monitoring of this measure will be needed to fully assess trends. NCTCOG will set a target in late-2018, and incorporate them into the TIP at that time.

Transit Asset Management

Public transportation provides thousands of people in North Central Texas with daily access to life-essential opportunities. It is critical to have well maintained, reliable transit assets to help ensure safe, dependable, and accessible transit services. The North Central Texas region has a variety of transit assets. The three major transit authorities, Dallas Area Rapid Transit, Trinity Metro (formerly the Fort Worth Transportation Authority), the Denton County Transportation Authority, and smaller transit providers have transit assets, including over 700 buses, 300 small buses, and 150 light rail vehicles; 150 miles of rail track; transit support vehicles like service trucks and police cars; and stations, park-and-ride locations, and maintenance facilities.

Transit asset management (TAM) is a business model that prioritizes funding based on the condition of transit assets to achieve or maintain transit networks in a state of good repair. TAM supports a series of practices to achieve a transit state of good repair including, but not limited to:

- Regular maintenance
- Inspections
- Tracking asset condition over time
- Planning for maintenance and replacement costs
- Replacing each asset at the appropriate time

Based on the federal performance measure final rule on TAM issued in July 2016, MPOs are required to coordinate with transit providers to set performance targets, and integrate individual transit providers' performance targets and TAM plans into planning documents. NCTCOG reached out to all transit providers in the region and requested transit asset data and agency-level metrics and targets. Based on the data received from transit providers, NCTCOG has set regional targets for transit asset categories.

Exhibit IX-10 lists the regional metrics and associated targets. The metrics consider the condition of transit assets against a federally defined default metric. The adopted regional targets are for none of the transit assets to be in worse condition than the federal default metric. Exhibit IX-11 shows a baseline for the region's transit asset management performance, showing the targets and current status in achieving those targets. Transit agencies may have agency-level targets that differ from the

proposed regional targets. These agency-level targets may better meet their needs in planning for state of good repair. NCTCOG will continue to coordinate with transit agencies to report, track and adjust the metrics and targets over time. Transit agencies are also in the process of completing their transit asset management plans. NCTCOG will incorporate those plans into required planning documents as they are finalized.

Exhibit IX-11 presents Fiscal Year 2017 performance for rolling stock compared to the Fiscal Year 2018 target. The Fiscal Year 2017 performance for rolling stock was developed from Fiscal Year 2017 National Transit Database forms prepared by transit agencies. The performance of infrastructure, equipment, and facilities will be available starting with Fiscal Year 2018 when reporting on the condition of those transit asset categories will be mandatory.

Exhibit IX-10: Proposed Transit Asset Management Targets for 2018

Asset Category	Target	Metric
Rolling Stock (transit vehicles)	0%	Vehicles that meet or exceed the industry standard*, defined as the Federal Transit Administration's Default Useful Life Benchmark
Infrastructure (rail track)	0%	Rail track segments with performance restrictions
Equipment (transit support vehicles)	0%	Vehicles that meet or exceed the industry standard*, defined as the Federal Transit Administration's Default Useful Life Benchmark
Facilities (buildings, stations, park-and-rides)	0%	Transit facilities rated below "Adequate" (3.0) on the industry standard Transit Economic Requirements Model scale.

*These vehicles are as old as or older than the industry standard.

Exhibit IX-11: Rolling Stock Performance Compared to Targets

(Percent of revenue vehicles that have met or exceeded their useful life benchmark)

Asset Type	Fiscal Year 2018 Target	Fiscal Year 2017 Performance
Bus *	0%	6%
Small Bus *	0%	3%
Light Rail Vehicle *	0%	0%
Commuter Rail Locomotive *	0%	0%
Commuter Rail Passenger Car *	0%	0%
Articulated Bus	0%	0%
Commuter Rail Passenger Coach **	0%	35%
Streetcar	0%	0%
Van	0%	13%

*RTC policy emphasis area

**This asset category includes a number of assets that were rebuilt near the end of their useful life. The analysis above assumes a minimum extension of 10 years of useful life, which may be too conservative (i.e., vehicles may be in better condition than expected based on completed rebuild activities).

Project Selection Efforts

When working to select and program projects, MPO staff factor in a variety of performance measures. Given that projects and programs in a MPO's TIP must be included in and consistent with its MTP, the MTP and the performance measures that support it are critical to the development of the TIP. The projects that are recommended in the MTP and eventually programmed in the TIP go through a rigorous review to determine whether they are warranted.

The RTC selects projects through one of two primary methods: calls for projects and funding initiatives. Funding initiatives can take one of two forms, funding programs that have one or two primary objectives and larger funding initiatives that do not focus on a single objective. Performance measures and targets are being addressed through both of these options.

One of the funding programs recently approved by the Regional Transportation Council (RTC) was dedicated to funding projects and programs that sought to address safety issues and/or system resilience, or include benefits for incident management and first responders. The program includes funding for two projects that address flooding issues in the region, improvements near a major airport that aim to reduce crashes, and funding for a region-wide program that will focus on mitigating safety issues (e.g., program wrong-way driving, dangerous intersections). This specifically addresses PM1. Two other recently approved funding programs (Sustainable Development Round 4: Turnbacks Program, Context Sensitive, & Transit Oriented Development and the Transit Program) invested in transit projects and projects that emphasize non-vehicular modes of transportation and context-sensitive design. Both of these programs address parts of PM3 and the Transit Asset Management performance measures.

Performance targets related to transit projects approved by the RTC are also addressed through the annual transit funding process. While many transit projects relate to maintaining existing operations of public transportation services, other transit projects relate directly to the maintenance, repair, and replacement of capital assets. These projects are evaluated against the TAM regional performance targets and individual transit provider's TAM plans to ensure consistency. As mentioned previously, regional performance targets for TAM were established and coordinated with each transit provider. Additionally, each transit provider is federally required to develop and implement a TAM plan, individually or through a group-sponsor such as the MPO or TxDOT. Each TAM plan addresses capital assets used in the provision of public transportation and requires prioritization of investments for repair, maintenance, and replacement. This requirement allows transit providers to strategically plan for funding of capital assets and allows the MPO to make effective funding decisions for projects included in the TIP.

Performance targets are also being addressed via larger funding initiatives that do not necessarily specify achieving progress toward a certain target as the reason for the initiative. One of the RTC's most recent project selection initiatives, the Regional 10-Year Plan required by Texas House Bill (HB) 20, includes many projects that address congestion reduction, connectivity, and safety issues, in addition to other criteria like pavement and bridge condition. A notable example is the proposed reconstruction of IH 635 East in Dallas County. In addition to being one of the most congested roadways in Texas, this roadway has an average annual crash rate that is 60 percent higher than similar urban interstates in Texas. Part of the proposed project involves bringing IH 635 up to current design standards that will help mitigate the contributing factors in crashes on the facility. As a major roadway reconstruction project, it will improve pavement and bridge conditions along the 11-mile corridor. And, it will reduce congestion by adding roadway capacity. Ultimately, the project will address multiple performance measures, which is what made it a regional priority.

This emphasis on projects that have multi-faceted benefits also applies to the other performance measures and targets that will be utilized in the coming years. Many projects that have been selected by the RTC fall into this category where the improvements do not strictly address one issue. An interchange project may be selected primarily for its expected congestion relief, but it can address a structurally deficient bridge at the same time. A project that increases capacity will often also address a pavement deficiency through the reconstruction of all existing lanes in addition to constructing the new ones.

In addition to the measures and targets described above, there are other focus areas that are being considered when determining whether a project is selected and programmed. These include environmental justice, improved air quality, added active transportation options, increased freight movement, geographic dispersion, and many more. The region has also made a concerted effort to provide funding for active transportation improvements as part of roadway projects. When vetting projects, NCTCOG and the RTC consider a variety of measures pertaining to each of these areas when applicable.

Summary

NCTCOG has a robust performance-based planning process in place, which has been bolstered in the 2019-2022 TIP and *Mobility 2045* by new federal performance requirements. These requirements are being incorporated into planning and programming processes. Current processes include performance measures based on both observed and forecasted data sources, both of which will continue to be strengthened in future TIPs and MTPs. The region faces a continuing challenge to implement transportation improvements that will have a lasting positive benefit for the region. These improvements must address continued population growth, yet they are constrained by financial resources that are insufficient to meet the needs created by that growth. By continuing to evaluate and monitor the region's transportation system using a performance-based planning process, policymakers can ensure that the most beneficial and effective projects and programs are implemented.