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Goals and Performance Measures



2020 Regional Transportation Plan

3 Transportation Planning Goals and Performance Measures

The federal transportation legislation, MAP-21, created the requirement that states and metropolitan planning organizations (MPOs) establish and regularly monitor a performance and outcome-based program. The FAST Act continues this requirement that there be performance goals in seven topic areas, and states and MPOs are required to then establish coordinated performance measures that track their progress in these goal areas with tangible targets. These goal areas can be viewed in Table 3-1.

To fulfill the FAST Act's requirement, MassDOT has been establishing statewide performance measures as the federal government releases the final rules for each performance measure. These statewide performance measures are applicable to the MPOs and Transportation Planning Organizations (TPOs) as well. The Franklin County Transportation Planning Organization (FCTPO) has adopted each of the MassDOT final performance measures as its own for the topic areas available to date. These include Safety (PM1), Bridge (PM2), and System Performance Measures (PM3).

Table 3-1: FAST Act Goal Areas
FAST Act Goal Area
Safety
Infrastructure condition
Congestion reduction
System reliability
Freight movement & economic vitality
Environmental sustainability
Reduced project delivery delays

In addition to these formal statewide performance measures, the FCTPO has also created additional regionally focused measures that take into consideration Franklin County's unique rural character. These regional measures have been identified and validated through extensive public outreach. Both of these types of performance measures are described in more detail further in this chapter.

Implementing Performance Measures and Goals

The recommendations found throughout this Regional Transportation Plan (RTP) all work toward the realization of the goals and performance measures outlined in this chapter. They will be implemented through coordinated regional planning and, in part, specifically through the FCTPO Transportation Improvement Program (TIP) and its Unified Planning Work Program (UPWP). These shorter-term planning documents reflect the priorities of the RTP, while guiding how and when projects should be implemented within the financial constraints of anticipated Federal and State Funding. While the FRCOG will continue to strive to meet the goals and performance

measures, it should be noted that the implementation of some of the goals are out of its control and depend on federal and state funding and policy decisions.

The Transportation Improvement Program (TIP) is a prioritized, four-year program for the implementation of transportation improvement projects in Franklin County that receive federal funds. It is updated annually and is adjusted to the changing fiscal environment, but always reflects the RTP's goals and priorities. Each potential project considered for inclusion in the TIP is scored using the Transportation Evaluation Criteria (TEC). The TEC rates projects in six criteria categories on a scale of -3 to +3, with a total possible score of -18 to +18. The categories include: Condition, Mobility, Safety, Community Effects, Land Use & Economic Development, and Environmental Effects. A project's total score relates to the impact it will have in each of the categories. The TEC score is determined through a cooperative process among FRCOG Transportation Planning staff, MassDOT Office of Transportation Planning, and MassDOT Highway Division District 1 and District 2 staff. The TEC score, along with project readiness, funding availability, and how well it meets the RTP's goals, are considered in the selection of projects for the TIP.

The Unified Planning Work Program (UPWP) is also an annual document that describes the work tasks to be conducted during the year by the transportation planning staff of the FRCOG on behalf of the FCTPO. Like the TIP, the UPWP is based upon the priorities that have been identified in the RTP and works toward implementing those goals.

MassDOT Tracker

As part of the FAST Act's focus on measuring and tracking performance, MassDOT has created an interactive, web-based report card called "Tracker."¹ The Tracker report is a review of MassDOT's progress, designed to track and clarify where goals are or are not being met. Performance is reported by the five MassDOT divisions: Highway, Aeronautics, Registry of Motor Vehicles, Rail and Transit, and the MBTA.

Adopted FAST Act Performance Measures

The following section describes the performance measures required by the FAST Act. These measures were developed by MassDOT and adopted by the FCTPO.

¹ <https://massdottracker.com/>

Safety Performance Measures (PM1)

The FCTPO has chosen to adopt the statewide safety performance measure targets set by MassDOT for Calendar Year (CY) 2019. In setting these targets, MassDOT has followed FHWA guidelines by using statewide crash data and Highway Performance Monitoring System (HPMS) data for vehicle miles traveled (VMT) in order to calculate 5 year, rolling average trend lines for all Federal Highway Administration (FHWA) defined safety measures. For CY 2019 targets, four of the five safety measures—total number of fatalities, rate of fatalities per 100 million vehicle miles traveled, total number of incapacitating injuries, and rate of incapacitating injuries per 100 million VMT—were established by extending their trend lines into the 2015-2019 period. All four of these measures reflect a modest decrease in statewide trends. The fifth safety measure, the total number of combined incapacitating injuries and fatalities for non-motorized modes, is the only safety measure for which the statewide trend line depicts an increase. MassDOT's effort to increase non-motorized mode share throughout the Commonwealth has posed a challenge to simultaneously reducing non-motorized injuries and fatalities. Rather than adopt a target that depicts an increase in the trend line, MassDOT has elected to establish a target of non-motorized fatalities and injuries for CY 2019 that remains constant from the rolling average for 2012–2016. In recent years, MassDOT and the FCTPO have invested in “complete streets,” bicycle and pedestrian infrastructure, intersection and safety improvements in both the Capital Investment Plan (CIP) and Statewide Transportation Improvement Program (STIP) to address increasing mode share and to incorporate safety mitigation elements into projects. Moving forward, FCTPO, alongside MassDOT, is actively seeking to improve data collection and methodology for bicycle and pedestrian VMT counts and to continue analyzing crash clusters and crash counts that include both motorized and non-motorized modes in order to address safety issues at these locations.

In all safety categories, MassDOT has established a long-term target of “Toward Zero Deaths” through MassDOT's Performance Measures Tracker² and will be establishing safety targets for the MPO/TPOs to consider for adoption each calendar year. While the MPO/TPOs is not required by FHWA to report on annual safety performance targets, FHWA guidelines require MPO/TPOs to adopt MassDOT's annual targets or to establish their own each year.

The safety measures MassDOT has established for CY 2019, and that Franklin TPO has adopted, are as follows:

- 1) Fatalities: The target number of fatalities for years CY 2019 is 353, down from an average of 364 fatalities for the years 2012–2016.

² <https://www.mass.gov/lists/tracker-annual-performance-management-reports>

2) Rate of Fatalities per 100 million VMT: The target fatality rate for years CY 2019 is 0.58, down from a 0.61 average for years 2012–2016.

3) Serious Injuries: The target number of incapacitating injuries for CY2019 is 2801, down from the average of 3146 for years 2012–2016.

4) Rate of Incapacitating Injuries per 100 million VMT: The incapacitating injury rate target for CY2019 is 4.37 per year, down from the 5.24 average rate for years 2012–2016.

5) Total Number of Combined Incapacitating Injuries and Fatalities for Non-Motorized Modes: The CY2019 target number of fatalities and incapacitating injuries for non-motorists is 541 per year, the same as the average for years 2012–2016.

Table 3-2. Safety Performance Measures, FCTPO vs. Statewide

Safety Performance Measure	CY2019 Target	Statewide Average, 2012-2016	Franklin County Average, 2012-2016
Number of Fatalities	353	364	6.6
Fatalities per 100 million VMT	0.58	0.61	0.53
Number of Serious Injuries	2,801	3,146	304
Serious Injuries per 100 million VMT	4.37	5.24	24.5
Number of Serious Injuries + Fatalities, Non-motorized Modes	541	541	24

Bridge & Pavement Performance Measures (PM2)

The FCTPO has chosen to adopt the 2-year (2020) and 4-year (2022) statewide bridge and pavement performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPO/TPOs either adopting the statewide target or establishing their own by November 2018. In setting these targets, MassDOT has followed FHWA guidelines by measuring bridges and pavement condition using the 9-point National Bridge Inventory Standards (NBIS); the International Roughness Index (IRI); the presence of pavement rutting; and the presence of pavement cracking. Two-year and 4-year targets were set for six individual performance measures: percent of bridges in good condition; percent of bridges in poor condition; percent of Interstate pavement in good condition; percent of Interstate pavement in poor condition; percent of non-Interstate pavement in good condition; and percent of non-Interstate pavement in poor condition. All of the above performance measures are tracked in greater detail in MassDOT's Transportation Asset Management Plan (TAMP), which is due to be finalized in July 2019.

Targets for bridge-related performance measures were determined by identifying which bridge projects are programmed and projecting at what rate bridge conditions deteriorate. The bridge-related performance measures measure the percentage of deck area, rather than the total number of bridges.

Targets for pavement-related performance measures were based on a single year of data collection, and thus were set to remain steady under the guidance of FHWA. These measures are to be revisited at the 2-year mark (2020), once three years of data are available, for more informed target setting.

MassDOT continues to measure pavement quality and to set statewide short-term and long-term targets in the MassDOT Performance Management Tracker using the Pavement Serviceability Index (PSI), which differs from IRI. These measures and targets are used in conjunction with federal measures to inform program sizing and project selection.

Table 3-2: Bridge and Pavement Performance Measure Data

Performance Measure	Current (2017)	2-year target (2020)	4-year target (2022)
Bridges in good condition	15.22%	15%	16%
Bridges in poor condition	12.37%	13%	12%
Interstate Pavement in good condition	74.2%	70%	70%
Interstate Pavement in poor condition	0.1%	4%	4%
Non-Interstate Pavement in good condition	32.9%	30%	30%
Non-Interstate Pavement in poor condition	31.4%	30%	30%

Reliability, Congestion, & Emissions Performance Measures (PM3)

FCTPO has chosen to adopt the 2-year (2020) and 4-year (2022) statewide reliability, congestion, and emissions performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPO/TPOs either adopting the statewide target or establishing their own by November 2018.

MassDOT followed FHWA regulation in measuring Level of Travel Time Reliability (LOTTR) on both the Interstate and non-Interstate National Highway System (NHS) as well as Truck Travel Time Reliability (TTTR) on the Interstate system using the National Performance Management Research Dataset (NPMRDS) provided by FHWA. These performance measures aim to identify the predictability of travel times on the roadway network by comparing the average travel time along a given segment against longer travel times. For

LOTTR, the performance of all segments of the Interstate and of the non-Interstate NHS are defined as either reliable or unreliable based on a comparison between the 50th percentile travel time and the 80th percentile travel time, and the proportion of reliable segments is reported. For TTTR, the ratio between the 50th percentile travel time and the 90th percentile travel time for trucks only along the Interstate system is reported as a statewide measure. As this data set has but one year of consistent data, FHWA guidance has been to set conservative targets and to adjust future targets once more data becomes available. To that end, MassDOT's reliability performance targets are set to remain the same.

Emissions reduction targets are measured as the sum total of all emissions reductions anticipated through Congestion Mitigation Air Quality (CMAQ) funded projects in non-attainment or air quality maintenance areas (currently the cities of Lowell, Springfield, Waltham, and Worcester, and the town of Oak Bluffs) identified in the Statewide Transportation Improvement Program (STIP). This anticipated emissions reduction is calculated using the existing CMAQ processes.

Table 3-3: Reliability, Congestion, & Emissions Performance Measure Data

Measure	Current (2017)	2-year (2020)	4-year (2022)
Non-Interstate LOTTR	80%	80%	80%
Interstate LOTTR	68%	68%	68%
TTTR	1.85	1.85	1.85
PHED (Boston UZA)	18.31	18.31	18.31
% non-SOV (Boston UZA)	33.6% (2016)	34.82%	35.46%
Emissions Reductions	Baseline (FFY 14–17)	1,622 CO 497.9 Ozone	TBD CO (Springfield) 1.1 Ozone

Transit Asset Management (TAM) Plan

The FAST Act requires that all public transit providers monitor and manage their public transportation assets to improve safety, increase reliability and performance, and to establish performance measures. To accomplish this, transit providers of a certain size must create a Transit Asset Management (TAM) Plan and update it every four years. The FRTA falls into the Tier II level of reporting, due to the size of its transit fleet. In Massachusetts, regional transit authorities have the option of accepting a MassDOT-created TAM plan as their own or creating their own. The FRTA adopted MassDOT's plan, which was created in December 2018 and provides an inventory of each participating public transportation provider's assets, details their condition, and outlines a project-based prioritization of investments with the goal of achieving and maintain a state of good repair of its assets. The following Table 3-4 describes the 2019 and 2020 targets for the FRTA regarding the maintenance of its assets.

Table 3-4: Transit Asset Management Plan Performance Measure

Asset Category – Performance Measure	FTA Asset Class	2019 Target	2020 Target
Revenue Vehicles			
Age - % of revenue vehicles within a particular class that have met or exceeded their Useful Life Benchmark (ULB)	BU – Bus	10%	10%
	Cu – Cutaway	35%	30%
	MB – Minibus	10%	10%
	VN - Van	10%	10%
Equipment			
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue / Service Automobiles	100%	67%
	Trucks & Other Rubber Tire Vehicles	50%	25%
Facilities			
Condition - % of facilities with a condition rating below 3.0 on the FTA Term Scale	Administrative / Passenger Facility	0%	0%
	Maintenance Facility	100%	100%

Regional Performance Measures

The following section describes the performance measures developed by the FCTPO to reflect the regional vision that was presented in Chapter 1. Each performance measure seeks to evaluate the progress the region is making towards achieving that vision and its associated goals and objectives. When applicable, a data source that will be used to assess progress for each objective is also listed.

❖ Goal 1: Maintain infrastructure to facilitate the mobility of people and goods traveling to, from, and through Franklin County.

Objective A) Maintain condition of on and off-system bridges.

Measure: See FAST Act Performance Measure 2.

Target: See FAST Act Performance Measure 2.

Objective B) Maintain the condition of the region's roadways.

Measure: See FAST Act Performance Measure 2.

Target: See FAST Act Performance Measure 2.

Objective C) Maintain the region's transit fleet.

Measure: See Transit Asset Management Plan Performance Measures.

Target: See Transit Asset Management Plan Performance Measures.

Discussion: There are many projects currently on the TIP or under design that will help achieve Goal 1. In fact, almost half of the spending for the next twenty years for the Franklin Region is projected to be spent on the repair and replacement of bridges. An additional 20% of the region's spending will be programmed for road reconstruction and resurfacing (see Chapter 16: Financial Constraint).

❖ **Goal 2: Improve safety and security of transportation network.**

Objective A) Reduce the number of fatal and injury crashes on roadways.

Measure: See FAST Act Performance Measure 1.

Target: See FAST Act Performance Measure 1.

Objective B) Expand emergency preparedness and training.

Measure: Identify transportation infrastructure vulnerabilities and plan for natural disasters and other emergencies.

Target: Continue involvement with the Regional Emergency Preparedness Committee and the Western Region Homeland Security Advisory Council.

Data Source: Regional Emergency Preparedness Committee and the Western Region Homeland Security Advisory Council.

Objective C) Identify dangerous locations for pedestrians and bicyclists and improve the safety for all users.

Measure: Identify potentially dangerous locations and conduct complete streets assessments with safety recommendations.

Target: Conduct 10 complete street site assessments with recommendations by 2030.

Data Source: FRCOG and municipal planning staff.

Discussion: The FRCOG just completed a Vision Zero/Distracted Driving Report, which recommended ways to improve safety by reducing distracted driving. The FRCOG is also currently working with the Western Region Homeland Security Advisory Council to map closed bridges to better understand evacuation routes. The FRCOG continues to work with local towns to become certified Complete Streets Communities, identify projects, and implement projects through the Complete Street grant program.

❖ **Goal 3: Increase transportation options and reduce vehicle emissions.**

Objective A) Expand the transit system.

Measure: Increase the frequency of fixed route service, expand the hours of service, and increase the number of fixed transit routes.

Target: (1) Increase the frequency of routes to at least average 30 minute headways on routes in Greenfield and Montague; 60 minute headways on routes connecting to Orange, Northampton, and Amherst/Sunderland; 120 minute headways on routes connecting to Charlemont.

(2) Add weekend and evening service.

(3) Add routes to currently unserved areas.

Data Source: FRTA staff

Objective B) Expand bicycling and walking network.

Measure: Increase the number and safety of bicycling and walking facilities.

Target: Increase share of walkers and bicyclists to 8% in 10 years.

Data Source: U.S. Census Bureau

Objective C) Provide transportation alternatives.

Measure: Increase the use of the park and rides throughout the region and promote the use of ridesharing.

Target: (1) Increase the utilization rates of the park and ride lots by 50% over 10 years.

(2) Increase the share of workers commuting by carpool to 10% in 10 years.

(3) Increase the number of Transportation Network Company (TNC) vehicles by 100% in 5 years.

Data Source: FRCOG Park and Ride Surveys and MassDOT DPU Rideshare Report

Objective D) Increase passenger rail options.

Measure: Establish an expanded passenger rail system between Greenfield and Springfield and advocate for east-west passenger rail service.

Target: (1) Establish a passenger rail system between Greenfield and Springfield that runs at least 3 round trips per day.

(2) Complete a feasibility study for east-west passenger rail service between Boston and Greenfield.

Discussion: There are several projects under design in the Franklin Region that will increase the safety of bicyclists and pedestrians. For example, the Schell Bridge will be replaced with a bicycle/pedestrian bridge in Northfield (TIP Year 2021). Bicycle shoulders will be installed in Buckland connecting Mohawk Trail Regional High School to Shelburne Falls (TIP Year 2022). In addition, the FRCOG is planning to install way-finding signs on the remaining portions of the Franklin County Bikeway.

❖ **Goal 4: Promote economic development of the region while maintaining its rural character.**

Objective A) Encourage regional tourism.

Measure: (1) Promote motorist and bicycling touring in the region.

(2) Preserve natural, scenic, cultural, and historic resources.

(3) Increase access to regional recreational resources.

Target: (1) Launch a bicycle promotional campaign for Franklin County in the next 5 years.

(2) Preserve natural, scenic, cultural, & historically significant land along the region's byways.

(3) Identify gaps in access to important regional recreational resources and recommend corrective measures.

Data Source: FRCOG staff

Objective B) Ensure that freight movement is efficient and effective.

Measure: Improve safety and decrease delay along freight routes.

Target: Will use forthcoming FAST Act Performance Measure 5.

Objective C) Improve transportation alternatives to advance workforce development in the region.

Measure: Increase the availability of rideshare in the region and create a micro-transit service for the region.

Target: (1) Increase the availability of rideshare vehicles by 100% in the region in 5 years;

(2) Creation of a micro-transit service for the region.

Data Source: FRCOG and MassDOT DPU Rideshare Report

Discussion: The FRCOG will be conducting planning in its FY2020 Unified Planning Work Program (UPWP) to increase regional tourism for economic development and recreation. The FRCOG is also planning to work with regional social service providers to create a subsidized rideshare program for their clients. In addition, the FRTA has just received a grant to begin a pilot micro-transit service.

❖ **Goal 5: Promote sustainable transportation, reduce greenhouse gas emissions, and prepare for climate change.**

Objective A) Ensure roadways accommodate all non-motorist users.

Measure: Promote adoption and implementation of Complete Streets policies.

Target: A minimum of 20% of Franklin County towns have adopted Complete Streets policies over next 5 years.

Data Source: FRCOG staff

Objective B) Improve transit system.

Measure: Increase the frequency of fixed route services, expand the hours of service, and increase the number of fixed transit routes.

Target: See Goal 3, Objective A

Objective C) Minimize potential negative impacts on transportation infrastructure from climate change.

Measure: Identify vulnerable roadways/culverts and other transportation infrastructure susceptible to climate change.

Target: Conduct a rolling assessment of vulnerability every five years in Franklin County towns.

Data Source: FRCOG staff

Discussion: The FRCOG will continue to advocate for additional transit funding and innovative ways to address the lack of transit services in the region. Using FY2020 UPWP funds, the FRCOG will continue assessing municipal culverts for vulnerability. Municipalities with identified vulnerable culverts can then apply for funding for replacement either through grant programs, Chapter 90, or the TIP.