



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair

Tegin L. Teich, Executive Director, MPO Staff

TECHNICAL MEMORANDUM

DATE: February 6, 2020

TO: Boston Region Metropolitan Planning Organization

FROM: Michelle Scott, MPO Staff

RE: Proposed SFY 2020 Transit Asset Management Targets

Through its federal Transit Asset Management (TAM) rule,¹ the Federal Transit Administration (FTA) requires transit agencies, metropolitan planning organizations (MPO), and state agencies to collaborate to achieve and maintain a state of good repair for transit systems. FTA requires transit providers that receive federal funds and own, operate, or manage capital assets used to provide public transportation—and states coordinating groups of these transit providers—to establish targets each year for federally required TAM performance measures. These measures relate to the condition of transit rolling stock, nonrevenue service vehicles, facilities, and rail fixed guideway infrastructure. Meanwhile, FTA requires MPOs to set regional performance targets for these TAM measures in coordination with transit and state agencies. This memorandum proposes updates to the Boston Region MPO's existing set of TAM performance targets, which the MPO last updated in March 2019.

MPOs are federally required to review their TAM performance targets when updating their Long-Range Transportation Plan (LRTP) or Transportation Improvement Program (TIP). As part of its annual TIP update, MPO staff recommends that the MPO vote to adopt the proposed updates to its regional TAM targets presented in this memorandum at its February 6, 2020, meeting. These proposed updated targets are based on state fiscal year (SFY) 2020 (July 2019 to June 2020) targets set by the Massachusetts Bay Transportation Authority (MBTA), the MetroWest Regional Transit Authority (MWRTA), and the Cape Ann Transportation Authority (CATA). These targets account for recent asset inventory and condition data and these agencies' expectations for asset procurement and improvement during SFY 2020. MPO staff would then incorporate these updated TAM targets into its federal fiscal years (FFYs) 2021–25 TIP.

¹ 49 Code of Federal Regulations (CFR) Part 625.

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1 TAM REQUIREMENTS

The FTA's TAM rule requires applicable transit providers to carry out several activities to achieve and maintain a state of good repair for their assets:

- develop and implement a TAM plan, and update this plan at least once every four years
- conduct transit asset inventories and condition assessments, and report inventory and condition information to the National Transit Database (NTD) annually
- develop annual performance targets for TAM performance measures
- report targets and prior year performance to the NTD annually

For more details on transit provider roles and responsibilities, see the memo titled "SFY 2018 Transit Asset Management Targets for the Boston Region."²

In 2018, the MBTA, CATA, and MWRTA developed TAM plans in accordance with the TAM rule, which include asset portfolio and condition data, approaches these agencies will follow to achieve and maintain transit state of good repair, and information on investment priorities. In 2019, the MBTA, CATA, and MWRTA also submitted their most recent transit asset inventory and condition data and their SFY 2020 performance targets to the NTD. These one-year TAM targets are essentially forecasts because they account for the most recent available data on the number and condition of relevant transit assets and the anticipated effect that capital investment will have on asset procurement and improvement.

MPOs also have TAM responsibilities, which are defined by the FTA's TAM Rule and the Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning rule, which sets requirements for MPO planning processes.³ MPO TAM responsibilities include

- developing targets for TAM performance measures for metropolitan regions, in coordination with transit agencies and state departments of transportation;

² Boston Region MPO. "SFY 2018 Transit Asset Management Targets for the Boston Region." December 7, 2017 (revised June 5, 2018). Available at https://www.ctps.org/data/pdf/programs/performance/FY_2018_TAM_Targets_Update.pdf.

³ The Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning rule is documented in 23 CFR Parts 450 and 771 and 49 CFR Part 613.

- reporting these targets in the LRTP, along with progress made toward meeting these targets compared to past performance or baseline data; and
- describing in the TIP, to the maximum extent practicable, how projects programmed in the TIP will achieve performance targets identified in the LRTP.

2 TAM PERFORMANCE MEASURES

The TAM Rule specifies four performance measures, which apply to four TAM asset categories: rolling stock (vehicles that provide passenger service), equipment (nonrevenue service vehicles), facilities, and infrastructure (rail fixed guideway systems). Table 1 describes these measures.

**Table 1
TAM Performance Measures by Asset Category**

Asset Category	Relevant Assets	Measure	Measure Type	Desired Direction
Rolling Stock	Buses, vans, and sedans; light and heavy rail cars; commuter rail cars and locomotives; ferry boats	Percentage of revenue vehicles that have met or exceeded their ULB	Age-based	Minimize percentage
Equipment	Service support, maintenance, and other nonrevenue vehicles	Percentage of vehicles that have met or exceeded their ULB	Age-based	Minimize percentage
Facilities	Passenger stations, parking facilities, administration and maintenance facilities	Percentage of assets with condition rating lower than 3.0 on FTA TERM Scale	Condition-based	Minimize percentage
Infrastructure	Rail fixed guideway systems	Percentage of track segments with performance (speed) restrictions, by mode	Performance-based	Minimize percentage

FTA = Federal Transit Administration. TAM = Transit Asset Management. TERM = Transit Economic Requirements Model. ULB = Useful Life Benchmark.

Two definitions apply to these performance measures:

- **Useful Life Benchmark (ULB)**—“The expected life cycle of a capital asset for a particular transit provider’s operating environment, or the acceptable period of use in service for a particular transit provider’s

operating environment.”⁴ For example, FTA’s default ULB for a bus is 14 years.⁵

- **FTA Transit Economic Requirements Model (TERM) Scale**—A five category rating system used in FTA’s TERM to describe asset condition, with a rating of 5 reflecting the best conditions.

3 SFY 2020 TAM PERFORMANCE TARGETS

3.1 Process

The MBTA, MWRTA, and CATA have developed a set of SFY 2020 TAM targets that account for recent asset inventory and condition data and these agencies’ expectations of the effects that capital investment will have on asset procurement and improvement in SFY 2020. When setting targets, each agency has discretion to use FTA-identified default ULBs for vehicles or to adjust ULBs with approval from FTA. The MBTA has used FTA default ULBs for heavy and light rail vehicles, vintage trolleys, commuter rail coaches and locomotives, and ferry boats, while it uses MBTA-defined ULBs, which are based on agency-specific usage and experience, for its equipment vehicles, buses, and paratransit automobiles, minivans, and vans. CATA and MWRTA have selected ULBs from other sources.⁶

MPO staff used these SFY 2020 MBTA, CATA, and MWRTA transit agency targets to propose an updated set of TAM targets for the Boston region, which are shown in Tables 2 through 5. MPO staff recommends that the MPO reflect transit agency TAM target values and SFY time frames as when incorporating TAM elements into its planning and coordination processes. After consulting with the MBTA, CATA, and MWRTA, MPO staff have aggregated some target information for particular asset subgroups; staff has noted these cases in the tables. When compared to SFY 2019 baselines, the SFY 2020 TAM targets described in Tables 2 through 5 may reflect changes in the overall number of assets in each transit category, past or planned asset replacement or repair, other factors depending on the asset type, or a combination of these factors. MPO staff note that the required TAM performance measures for which targets are set focus on specific proxies for transit asset state of good repair, as noted in

⁴ FTA. Performance Management. January 8, 2020. Available at www.transit.dot.gov/PerformanceManagement.

⁵ FTA. Default Useful Life Benchmark Cheat Sheet. October 26, 2016. www.transit.dot.gov/TAM/ULBcheatsheet.

⁶ CATA used useful life criteria as defined in FTA Circular 5010.1E (Award Management Requirements) for ULB values. MWRTA used useful life criteria as defined in Massachusetts Department of Transportation’s Fully Accessible Vehicle Guide and in FTA Circular 5010.1E for ULB values.

the Measure Type column in Table 1—these proxies may not reflect asset condition or performance, or do so in a comprehensive way.

FTA will neither penalize transit agencies or MPOs for not achieving regional TAM targets nor reward these entities for attaining them. FTA will review how the MPO is incorporating performance-based planning and programming practices, including those related to TAM, into its planning process during quadrennial certification reviews.

3.2 Proposed Targets

Table 2 describes SFY 2019 baselines and SFY 2020 targets for transit rolling stock. The performance measure that applies to these assets is the percentage of vehicles that have met or exceeded their ULB. In tables 2 through 5, blue shading in the far right column indicates that the SFY 2020 target percentage is smaller than the SFY 2019 baseline percentage (a desirable change) while red shading indicates that the SFY 2020 target percentage is larger than the SFY 2019 baseline percentage (an undesirable change).

Table 2
SFY 2019 Measures and SFY 2020 Targets
for Rolling Stock, by Agency

Agency	Asset Type	SFY 2019 Baseline (as of 6/30/2019)			SFY 2020 Targets (as of 6/30/2020)		
		Number of Vehicles	Number of Vehicles ≥ ULB	Percent of Vehicles ≥ ULB	Expected Number of Vehicles	Expected Number of Vehicles ≥ ULB	Target Percent of Vehicles ≥ ULB
MBTA	Buses	1,023	407	40%	1,053	312	30%
MBTA	Light Rail Vehicles	196	86	44%	220	86	39%
MBTA	Vintage Trolleys ^a	6	6	100%	6	6	100%
MBTA	Heavy Rail Vehicles	416	240	58%	458	240	52%
MBTA	Commuter Rail Locomotives	94	25	27%	94	25	27%
MBTA	Commuter Rail Coaches	428	55	13%	428	55	13%

Agency	Asset Type	SFY 2019 Baseline (as of 6/30/2019)			SFY 2020 Targets (as of 6/30/2020)		
		Number of Vehicles	Number of Vehicles ≥ ULB	Percent of Vehicles ≥ ULB	Expected Number of Vehicles	Expected Number of Vehicles ≥ ULB	Expected Target Percent of Vehicles ≥ ULB
MBTA	Ferry Boats	4	0	0%	4	0	0%
MBTA	Paratransit Vehicles ^b	785	241	31%	785	15	2%
CATA	Buses	8	0	0%	8	2	25%
CATA	Cutaway Vehicles ^c	23	0	0%	23	0	0%
CATA	Trolleys (simulated) ^d	2	2	100%	2	2	100%
MWRTA	Automobiles ^e	8	8	100%	8	8	100%
MWRTA	Cutaway vehicles ^{c,e}	95	25	26%	95	24	25%

^a MBTA vintage trolleys are used on the Ashmont-Mattapan High Speed Line.
^b The MBTA THE RIDE paratransit vehicles data and targets reflect automobiles, vans, and minivans.
^c The NTD defines a cutaway vehicle as a vehicle in which a bus body is mounted on a van or light-duty truck chassis, which may be reinforced or extended. CATA uses nine of these vehicles to provide fixed route services, and 14 of these vehicles to provide demand response service.
^d Simulated trolleys, also known as trolley-replica buses, have rubber tires and internal combustion engines, as opposed to steel-wheeled trolley vehicles or rubber-tire trolley buses that draw power from overhead wires.
^e MWRTA uses cutaway vehicles to provide fixed route and demand response service, and uses autos to provide demand response service.
 CATA = Cape Ann Transportation Authority. MBTA = Massachusetts Bay Transportation Authority.
 MWRTA = MetroWest Regional Transit Authority. NTD = National Transit Database. SFY = State Fiscal Year. ULB = Useful Life Benchmark.

Table 3 describes SFY 2019 baselines and SFY 2020 targets for transit agency equipment, which refers to service support, maintenance, and other nonrevenue vehicles. MPO staff has aggregated targets for nonrevenue vehicle subtypes for each of the three transit agencies. The performance measure that applies to these assets is the percentage of vehicles that have met or exceeded their ULB.

Table 3
SFY 2019 Measures and SFY 2020 Targets
for Equipment, by Agency

		SFY 2019 Baseline (as of 6/30/2019)			SFY 2020 Targets (as of 6/30/2020)		
Agency	Asset Type	Number of Vehicles	Number		Expected Number of Vehicles	Expected	
			of Vehicles	of Vehicles		Number of Vehicles	Target of Vehicles
			≥ ULB	≥ ULB		≥ ULB	≥ ULB
MBTA	Transit Equipment	961	264	27%	931	278	30%
MBTA	Commuter Rail Equipment ^a	303	59	19%	303	63	21%
CATA	All Equipment	3	0	0%	3	0	0%
MWRTA	All Equipment ^b	12	8	67%	12	7	58%

^a MBTA Commuter Rail equipment only includes assets owned by the MBTA.

^b MWRTA nonrevenue, or equipment, vehicles include both trucks and autos.

CATA = Cape Ann Transportation Authority. MBTA = Massachusetts Bay Transportation Authority.

MWRTA = MetroWest Regional Transit Authority. SFY = State Fiscal Year. ULB = Useful Life Benchmark.

Table 4 describes SFY 2019 baselines and SFY 2020 targets for passenger facilities, such as stations and parking facilities, and administrative and maintenance facilities. The performance measure that applies to these assets is the percentage of facilities that have an FTA TERM scale score—which is a composite score based on assessments of facility components—of less than three. Facilities with scores below this threshold are considered to be in marginal or poor condition. A facility’s composite score is not a measure of the facility’s safety or performance.

Table 4
SFY 2019 Measures and SFY 2020 Targets for Facilities, by Agency

Agency	Asset Type	SFY 2019 Baseline (as of 6/30/2019)			SFY 2020 Targets (as of 6/30/2020)		
		Number of Facilities	Number of Facilities < 3	Percent of Facilities < 3	Expected Number of Facilities	Expected Number of Facilities < 3	Expected Target Percent of Facilities < 3
MBTA	Transit: Passenger/Parking Facilities	162	22	14%	162	18	11%
MBTA	Transit: Administrative/Maintenance Facilities	156	106	68%	156	105	67%
MBTA	Commuter Rail: Passenger/Parking Facilities	224	8	4%	224	6	3%
MBTA	Commuter Rail: Administrative/Maintenance Facilities	162	36	22%	162	35	22%
CATA	Administrative/Maintenance Facilities	1	0	0%	1	0	0%
MWRTA	Administrative/Maintenance Facilities	1	0	0%	1	0	0%

CATA = Cape Ann Transportation Authority. MBTA = Massachusetts Bay Transportation Authority. MWRTA = MetroWest Regional Transit Authority. SFY = State Fiscal Year.

Table 5 describes SFY 2019 baselines and SFY 2020 targets for infrastructure, specifically rail fixed guideway. The MBTA is the only transit agency in the Boston region with this asset type. The performance measure that applies to these assets is the percentage of track that is subject to performance, or speed,

restrictions. The MBTA samples the share of track segments with speed restrictions throughout the year.

**Table 5
SFY 2019 Measures and SFY 2020
Targets for Infrastructure (Fixed Guideway), MBTA**

Asset Type	SFY 2019 Baseline (as of 6/30/2019)			SFY 2020 Targets (as of 6/30/2020)		
	Number of Miles	Number of Miles with Performance Restrictions	Percent of Miles with Performance Restrictions	Expected Number of Miles	Expected Number of Miles with Performance Restrictions	Target Percent of Miles with Performance Restrictions
MBTA Transit Fixed Guideway ^a	130.23	10.23	8%	130.23	8.23	6%
MBTA Commuter Rail Fixed Guideway	663.84	5.19	1%	663.84	5.00	1%

Note: For this performance measure, the term “miles” refers to “directional route miles,” which represents the miles managed and maintained by the MBTA with respect to each direction of travel (for example, northbound and southbound), and excludes nonrevenue tracks such as yards, turnarounds, and storage tracks. The baseline and target percentages represent the annual average number of miles meeting this criterion over the 12-month reporting period.

^a The MBTA’s Transit Fixed Guideway information reflects light rail and heavy rail fixed guideway networks. MBTA = Massachusetts Bay Transportation Authority. SFY = State Fiscal Year.

4 REQUESTED ACTION AND NEXT STEPS

MPO staff recommends that the Boston Region MPO vote to adopt this set of SFY 2020 TAM performance targets for the Boston region. Should the MPO select this approach, staff will present and describe these targets in the performance chapters of the FFYs 2021–25 TIP document. Going forward, the MPO will work with transit agencies and the Massachusetts Department of Transportation to use TAM performance measures and targets to monitor the condition of transit assets in the region, and consider what effect the transit programs and projects proposed for its TIP will have on transit state of good repair.

The Boston Region Metropolitan Planning Organization (MPO) operates its programs, services, and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of race, color, or national origin (including limited English proficiency), be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination under any program or activity that receives federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, Federal Transit Administration, or both, prohibit discrimination on the basis of age, sex, and disability. The Boston Region MPO considers these protected populations in its Title VI Programs, consistent with federal interpretation and administration. In addition, the Boston Region MPO provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with U.S. Department of Transportation policy and guidance on federal Executive Order 13166.

The Boston Region MPO also complies with the Massachusetts Public Accommodation Law, M.G.L. c 272 sections 92a, 98, 98a, which prohibits making any distinction, discrimination, or restriction in admission to, or treatment in a place of public accommodation based on race, color, religious creed, national origin, sex, sexual orientation, disability, or ancestry. Likewise, the Boston Region MPO complies with the Governor's Executive Order 526, section 4, which requires that all programs, activities, and services provided, performed, licensed, chartered, funded, regulated, or contracted for by the state shall be conducted without unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status (including Vietnam-era veterans), or background.

A complaint form and additional information can be obtained by contacting the MPO or at http://www.bostonmpo.org/mpo_non_discrimination. To request this information in a different language or in an accessible format, please contact

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