TECHNICAL MEMORANDUM

DATE: **March 17, 2022**
TO: **Boston Region Metropolitan Planning Organization**
FROM: **Michelle Scott, MPO Staff**
RE: **Proposed SFY 2022 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 January 2021.

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 March 17, 2022, meeting. These proposed updated targets are based on state fiscal year (SFY) 2021 (July 2021 to June 2022) 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 2022. Upon MPO approval, MPO staff would incorporate these updated TAM targets into its federal fiscal years (FFYs) 2023–27 TIP.

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[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.[3] The FTA had required transit agencies to update their TAM Plans by October 1, 2022. In 2019, 2020, and 2021, the MBTA, CATA, and MWRTA also submitted transit asset inventory and condition data as of the end of the previous fiscal year to NTD, along with performance targets for the following fiscal year. These one-year TAM targets are essentially forecasts because they account for recent available data on the number and condition of relevant transit assets and the anticipated effect that capital investment and procurement will have on TAM performance.

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.[4] MPO TAM responsibilities include

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[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] Copies of the MBTA, CATA, and MWRTA TAM plans are available at www.bostonmpo.org/calendar/day/20190321.

[4] 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.

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

- 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 and stops, 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

* Stops that meet the threshold for a passenger facility are listed in the FTA's TAM Facility Performance Measure Reporting Guidebook, available at www.transit.dot.gov/regulations-and-guidance/asset-management/tam-facility-performance-measure-reporting-guidebook.
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."[5] For example, FTA's default ULB for a bus is 14 years.[6]

- **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.

Information about the Boston Region MPO's past TAM targets, which reflect targets provided by the MBTA, MWRTA, and CATA, can be accessed via the Performance-based Planning and Programming page on the MPO website (www.bostonmpo.org/performance).

3   SFY 2022 TAM PERFORMANCE TARGETS

3.1   Process

The MBTA, MWRTA, and CATA have developed a set of SFY 2022 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 2022. When setting targets, each agency has discretion to use FTA-identified default ULBs for vehicles or to adjust ULBs with approval from the FTA. The MBTA has used FTA default ULBs for all vehicle types except for paratransit autos and vans, some articulated buses, and some light rail vehicles, which are measured using MBTA-defined ULBs. The MWRTA uses FTA default ULBs for vans and equipment vehicles (excluding automobiles) and uses ULBs from the Massachusetts Department of Transportation's Fully Accessible Vehicle Guide for its cutaway vehicles and automobiles.[7] CATA uses useful life criteria as defined in FTA Circular 5010.1E (Award Management Requirements) for ULB values for its vehicles.[8]

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[5] FTA. Performance Management. June 23, 2021. Accessed February 28, 2022, atwww.transit.dot.gov/PerformanceManagement.

[6] FTA. Default Useful Life Benchmark Cheat Sheet. October 25, 2021. Accessed February 28, 2022, at https://www.transit.dot.gov/TAM/ULBcheatsheet.

[7] Massachusetts Department of Transportation. MassDOT Fully Accessible Vehicle Guide: An Overview of Accessible Vehicle Specifications. May 2020. Accessed February 28, 2022, at https://www.mass.gov/doc/massdot-fully-accessible-vehicle-guide/download.

[8] FTA. FTA C 5010.E "Award Management Requirements." July 16, 2018. Accessed February 28, 2022, at https://www.transit.dot.gov/regulations-and-guidance/fta-circulars/award-management-requirements-circular-50101e.

MPO staff used these SFY 2022 MBTA, CATA, and MWRTA 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 has aggregated or reorganized some target information provided by these transit agencies for particular asset subgroups. When compared to SFY 2021 performance, the SFY 2022 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. These performance values and targets may also reflect some recent updates to data or the reclassification of assets into different categories. MPO staff notes 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 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 2021 performance and SFY 2022 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.

Table 2
SFY 2021 Performance and SFY 2022 Targets
for Rolling Stock, by Agency

Agency	Asset Type	SFY 2021 Performance (as of 6/30/2021)			SFY 2022 Targets (as of 6/30/2022)		
		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[a]	1,198	300	25%	1,210	300	25%
MBTA	Light Rail Vehicles[a]	227	0	0%	223	0	0%
MBTA	Vintage Trolleys[b]	7	7	100%	7	7	100%
MBTA	Heavy Rail Vehicles	472	252	53%	494	252	51%*
MBTA	Commuter Rail Locomotives	102	24	24%	102	20	20%*
MBTA	Commuter Rail Coaches	401	33	8%	401	33	8%
MBTA	Ferry Boats[c]	3	0	0%	3	0	0%
MBTA	Paratransit Vehicles[d]	674	264	39%	728	138	19%
CATA	Buses	8	2	25%	8	2	25%
CATA	Cutaway Vehicles[e]	21	0	0%	21	0	0%
CATA	Trolleys (simulated)[f]	2	2	100%	2	2	100%
MWRTA	Automobiles[g]	8	8	100%	0	0	0%*
MWRTA	Vans[h]	3	0	0%	8	0	0%
MWRTA	Cutaway vehicles [e,g]	104	13	13%	104	26	25%

* The SFY 2022 target anticipates improved performance compared to SFY 2021 performance.
[a] The ULBs for the Neoplan AN460L articulated bus fleet and Type 7 light rail vehicle fleet have been updated since the previous report due to life-extending overhauls.
[b] MBTA vintage trolleys are used on the Ashmont-Mattapan High Speed Line.
[c] One of the MBTA's four ferryboats will be out of active service and in overhaul into SFY 2023.

[d] The MBTA THE RIDE paratransit vehicle data and targets reflect automobiles and vans.
[e] 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 these vehicles to provide fixed route and demand response service.
[f] 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.
[g] MWRTA uses cutaway vehicles to provide fixed route and demand response service. Automobiles have been removed from MWRTA's rolling stock inventory.
[h] MWRTA's vans are used 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.
Source: CATA, MBTA, MWRTA, and Boston Region MPO Staff.

Table 3 describes SFY 2021 performance and SFY 2022 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 2021 Performance and SFY 2022 Targets
for Equipment (Nonrevenue Vehicles), by Agency

Agency	Asset Type	SFY 2021 Performance (as of 6/30/2021)			SFY 2022 Targets (as of 6/30/2022)		
		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	All Equipment	1,561	289	19%	1,527	328	21%
CATA	All Equipment	3	3	100%	3	3	100%
MWRTA	All Equipment	10	5	50%	10	5	50%

CATA = Cape Ann Transportation Authority. MBTA = Massachusetts Bay Transportation Authority. MWRTA = MetroWest Regional Transit Authority. SFY = State Fiscal Year Revenue Year. ULB = Useful Life Benchmark.
Source: CATA, MBTA, MWRTA, and Boston Region MPO Staff.

Table 4 describes SFY 2021 performance and SFY 2022 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 operational performance.

Table 4
SFY 2021 Performance and SFY 2022 Targets for Facilities, by Agency

Agency	Asset Type	SFY 2021 Performance (as of 6/30/2021)			SFY 2022 Targets (as of 6/30/2022)		
		Number of Facilities	Number of Facilities < 3	Percent of Facilities < 3	Expected Number of Facilities	Expected Number of Facilities < 3	Target Percent of Facilities < 3
MBTA	Passenger/ Parking Facilities[a,b,c]	386	32	8%	390	30	8%
MBTA	Administrative/ Maintenance Facilities[a,c]	420	207	45%	420	184	44%*
CATA	Administrative/ Maintenance Facilities	1	0	0%	1	0	0%
MWRTA	Administrative/ Maintenance Facilities	1	0	0%	1	0	0%

* The SFY 2022 target anticipates improved performance compared to SFY 2021 performance.
[a] The MBTA reports performance targets for facilities with a baseline consistent assessment, and continues to undertake physical condition assessments for all facilities.
[b] The SFY 2022 targets for Passenger and Parking Facilities account for the consolidation of four existing Green Line passenger facilities into two new stations in late 2021, as well as the opening of six new stations associated with the Green Line Extension in spring 2022.
[c] In response to FTA guidance, the SFY 2021 measure and SFY 2022 target reflect an expanded accounting of facilities compared to previous years, now including pump rooms and other facility assets that are sections of a larger facility.
CATA = Cape Ann Transportation Authority. MBTA = Massachusetts Bay Transportation Authority. MWRTA = MetroWest Regional Transit Authority. SFY = State Fiscal Year.
Source: CATA, MBTA, MWRTA, and Boston Region MPO Staff.

Table 5 describes SFY 2021 performance and SFY 2022 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

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

Table 5
SFY 2021 Performance and SFY 2022
Targets for Infrastructure (Fixed Guideway), MBTA

Asset Type	SFY 2021 Performance (as of 6/30/2021)			SFY 2022 Targets (as of 6/30/2022)		
	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,b]	130.23	4.53	3%	134.53	2.90	2%*
MBTA Commuter Rail Fixed Guideway	663.84	24.75	4%	663.84	15.50	2%*

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.
* The SFY 2022 target anticipates improved performance compared to SFY 2021 performance.
[a] The MBTA's Transit Fixed Guideway information reflects light rail and heavy rail fixed guideway networks.
[b] The SFY 2022 target for transit fixed guideway includes the 4.3 new miles of light rail route miles associated with the Green Line Extension project.
MBTA = Massachusetts Bay Transportation Authority. SFY = State Fiscal Year.
Source: CATA, MBTA, MWRTA, and Boston Region MPO Staff.

4   REQUESTED ACTION AND NEXT STEPS

MPO staff recommends that the Boston Region MPO vote to adopt this set of SFY 2022 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 2023–27 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 to consider what effect the transit programs and projects proposed for the MPO's TIP will have on future 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.

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