Transit Asset Management Program
FY2020 Performance Targets

Boston Region MPO Board

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Transit Asset Management Performance Measures

- The Transit Asset Management (TAM) Final Rule (49 CFR part 625) established performance measures to approximate the state of good repair of four categories of capital assets

- Beginning in FY18 transit agencies receiving federal funds must set and report targets for each performance measure, based on the current asset inventory and condition and anticipated capital investments or other improvements

- 2019 Performance Measures report on the state of Asset Classes at the close of FY19, as reported to FTA's NTD

- 2020 Performance Targets report on the projected state of Asset Classes with anticipated FY20 capital projects

Transit Asset Management Performance Measures

Asset Category	Measure	Measure Type
Rolling Stock	Percentage of revenue vehicles (by type) that have met or exceeded their Useful Life Benchmark	Age-based
Equipment	Percentage of non-revenue service vehicles (by type) that have met or exceeded their Useful Life Benchmark	Age-based
Facilities	Percentage of facilities (by group) that are rated less than 3.0 on FTA TERM scale	Condition-based
Infrastructure [Fixed Guideway]	Percentage of track segments (by mode) that have performance restrictions	Performance-based

Note: There is no penalty for missing a target and there is no reward for attaining a target.

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FY20 Capital Programs Driving Asset Performance

Rolling Stock

- New Orange and Red Line Cars entering regular service
- Commuter Rail Coach and Locomotives rehab program on-going
- Procurement of 40-FT Hybrid Buses

Equipment

- Non-Revenue Vehicle program underway
- Transit Police Fleet Replacement program underway

Facilities

- Wayfinding and Station Brightening at State, Haymarket, DTX, North Station and Park Street
- Wellington Yard and Cabot Yard upgrades on-going
- Commuter Rail Station Transformation and Revitalization on-going

Infrastructure

- GL Track and Intersection Upgrades
- Red Line Floating Slabs (Harvard to Alewife)
- Capital Acceleration work continuing in FY 2020
- Commuter Rail Positive Train Control Upgrades on-going
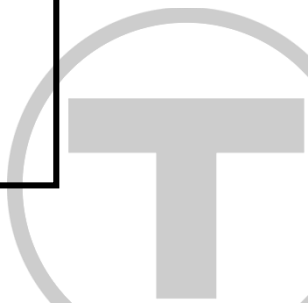
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Rolling Stock

Percentage of revenue vehicles (by type) that have met or exceeded their Useful Life Benchmark

Measure description:

- Rolling Stock are "transit vehicles such as buses, vans, cars, railcars, locomotives, trolley cars and buses, and ferry boats, as well as vehicles used for support services." - (49 CFR Part 661.3)

- The TAM rolling stock performance measure uses vehicle age as a proxy for state of good repair

- The "useful life benchmark" is an estimate of how many years a vehicle can remain in service before ongoing maintenance costs outweigh replacement costs

- The age of a vehicle does not necessarily reflects its condition or performance – there are older vehicles that perform well and newer vehicles that perform poorly

- Measures should trend down to reflect fewer vehicles operating beyond useful life (i.e. a newer fleet)

Measure calculation:

- # of vehicles ≥ ULB / total active vehicles = % of vehicles ≥ ULB

Influencing factors:

- **Time:** as the current fleet ages, some vehicles may reach or exceed ULB, driving the measure up

- **Growth/Expansion:** as new vehicles are added to the fleet (e.g. new Orange Line cars), the total active vehicle count will increase, driving the measure down

- **Replacement:** as new vehicles are added to the fleet and older vehicles are retired (e.g. hybrid bus procurement), the number of vehicles beyond ULB will decrease, driving the measure down

Rolling Stock

Mode	Asset type	ULB	2019 Performance Measure (as of 6/30/19)			2020 Performance Target			2019 to 2020 Trend
			# of Assets	# of Assets ≥ ULB	% of Assets ≥ ULB	# of Assets	# of Assets ≥ ULB	% of Assets ≥ ULB	% of Assets ≥ ULB
Bus	Bus	12-14	1,023	407	40%	1,053	312	30%	↓
Light Rail	Light Rail Vehicle	31	196	86	44%	220	86	39%	↓
	Vintage Trolley	58	6	6	100%	6	6	100%	→
Heavy Rail	Heavy Rail Vehicle	31	416	240	58%	458	240	52%	↓
Commuter Rail	Commuter Rail Locomotive	39	94	25	27%	94	25	27%	→
	Commuter Rail Coach	39	428	55	13%	428	55	13%	→
Ferry	Ferryboat	42	4	0	0%	4	0	0%	→
Paratransit	Automobile	6	301	153	51%	301	0	0%	↓
	Minivan	7	5	0	0%	5	0	0%	→
	Van	7	479	88	18%	479	15	3%	↓
Total			2,952	1,060	36%	3,048	739	24%	↓

- Overall measure of rolling stock state of good repair in FY 2019 increased six percentage points from 30% at or beyond useful life benchmark in FY 2018 to 36% at or beyond useful life benchmark in FY2019

- Performance is expected to improve in FY 2020 as new Orange Line cars, Red Line cars, buses, and paratransit vehicles are commissioned

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Equipment

Percentage of non-revenue service vehicles (by type) that have met or exceeded their Useful Life Benchmark

Measure description:

- The TAM equipment performance measure uses vehicle age as a proxy for state of good repair

- The "useful life benchmark" is an estimate of how many years a vehicle can remain in service before ongoing maintenance costs outweigh replacement costs

- The MBTA has a diverse fleet of over 1,000 non-revenue vehicles that range from police motorcycles and cruisers to specialized track equipment and snow plows

- Some equipment is stored indoors and used sporadically, and therefore can perform adequately even if well beyond its ULB

- Measures should trend down to reflect fewer vehicles operating beyond useful life (i.e. a newer fleet)

Measure calculation:

- # of vehicles ≥ ULB / total active vehicles = % of vehicles ≥ ULB

Influencing factors:

- **Time:** as the current fleet ages, some vehicles may reach or exceed ULB, driving the measure up

- **Replacement:** as new vehicles are added to the fleet and older vehicles are retired, the number of vehicles beyond ULB will decrease, driving the measure down

Equipment

Mode	Asset type	ULB	2019 Performance Measure (as of 6/30/19)			2020 Performance Target			2019 to 2020 Trend
			# of Assets	# of Assets ≥ ULB	% of Assets ≥ ULB	# of Assets	# of Assets ≥ ULB	% of Assets ≥ ULB	% of Assets ≥ ULB
Transit	Automobile	8	346	84	24%	346	90	26%	↑
	Other Rubber Tire Vehicle	14	594	172	29%	564	180	32%	↑
	Steel Wheel Vehicle	25	21	8	38%	21	8	38%	→
Commuter Rail	Automobile	8	7	1	14%	7	3	43%	↑
	Other Rubber Tire Vehicle	14	248	48	19%	248	50	20%	↑
	Steel Wheel Vehicle	25	48	10	21%	48	10	21%	→
MBTA-wide	Automobile	8	353	85	24%	353	93	26%	↑
	Other Rubber Tire Vehicle	14	842	220	26%	812	230	28%	↑
	Steel Wheel Vehicle	25	69	18	26%	69	18	26%	→
Total			1,264	323	26%	1,234	341	28%	↑

- Overall measure of equipment state of good repair increased from 20% at or beyond useful life benchmark in FY 2018 to 26% at or beyond useful life benchmark in FY 2019

- Non-Revenue Vehicle program is focused on replacing highest impact vehicles, including those used for winter response and track maintenance

Facilities

Percentage of facilities (by group) that are rated less than 3.0 on FTA TERM scale

Measure description:

- TAM facilities performance measure uses facility condition as a proxy for state of good repair

- Reported in two categories: passenger/parking facilities and administrative/maintenance facilities

- The TERM rating is an composite score generated from an on-site assessment of multiple components: substructure, shell, interiors, conveyance, plumbing, HVAC, fire protection, electrical, equipment, fare collection, and site

- The composite condition score is not a measure of the safety or operational performance of the asset

- Measures should trend down to reflect fewer facilities in "marginal" or "poor" condition

Measure calculation:

- # of facilities < 3 / total facilities = % of facilities < 3

Influencing factors:

- **Repairs/Upgrades:** as components/systems are repaired or upgraded (e.g. facility roof replacements), composite condition scores may increase to a 3 or higher, driving the measure down

- **Reconstruction:** as facilities undergo major rehabilitation or reconstruction (e.g. Wollaston Station, Government Center), condition scores for these facilities will increase to a 5, driving the measure down

- **Expansion:** as new stations/facilities are built (e.g. Blue Hill Ave), the total facility count will increase, driving the measure down

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Facilities

		2019 Performance Measure (as of 6/30/19)			2020 Performance Target			2019 to 2020 Trend
Mode	**Asset Type**	**# of Assets**	**# of Assets < 3**	**% of Assets < 3**	**# of Assets**	**# of Assets < 3**	**% of Assets < 3**	**% of Assets < 3**
Transit	Passenger/Parking	162	22	14%	162	18	11%	↓
	Admin/Maintenance	156	106	68%	156	105	67%	↓
Commuter Rail	Passenger/Parking	224	8	4%	224	6	3%	↓
	Admin/Maintenance	162	36	22%	162	35	22%	→
Total		**704**	**172**	**24%**	**704**	**164**	**23%**	↓

Percentage of facilities (by group) that are rated less than 3.0 on FTA TERM scale

- The MBTA has several major capital projects underway at passenger, parking, maintenance and administrative facilities. Performance is expected to continue to improve in FY20 due to these continued investments
- FTA required agencies submit condition assessments for at least 25% of facilities in the first year of reporting
  - For reporting year 2018 (due 10/31/18), MBTA submitted condition assessments for parking facilities and transit administrative/maintenance facilities
  - For reporting year 2019 (due 10/31/19), MBTA submitted condition assessments for the remaining facilities

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Infrastructure

Measure description:

- The TAM infrastructure performance measure uses track performance as a proxy for state of good repair

- Performance restrictions are track speed restrictions or "slow zones" where the maximum permissible speed of transit vehicles is set to a value below the guideway's full service speed

- Performance restrictions can be caused by track defects, signaling issues, construction zones, maintenance work, or other causes – permanent speed restrictions related to curves in the track, bridges, grade crossings, or other features are not counted in this measure

- Measures should trend down to reflect fewer speed restrictions and shorter travel times for customers

Measure calculation:

- # of directional route miles / average # of miles with speed restrictions = % of miles with speed restrictions

Influencing factors:

- **Extreme weather:** extreme cold and extreme heat can cause breaks, kinks, and other rail defects, leading to speed restrictions, driving the measure up

- **Maintenance:** track maintenance is intended to address issues causing performance restrictions and mitigate issues that might lead to new performance restrictions, driving the measure down

- **Replacement/Renewal:** as full replacement and renewal projects (e.g. Green Line D Branch) reconstruct major segments of rail, speed restrictions will be lifted, driving the measure down

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Infrastructure

		2019 Performance Measure (as of 6/30/19)			2020 Performance Target			2019 to 2020 Trend
Mode	**Asset type**	**# of Directional Route Miles**	**# of Miles with Speed Restrictions**	**% of Miles with Speed Restrictions**	**# of Directional Route Miles**	**# of Miles with Speed Restrictions**	**% of Miles with Speed Restrictions**	**% of Miles with Speed Restrictions**
Transit	Heavy Rail Fixed Guideway	79.47	5.03	12%	79.47	4.03	5%	↓
	Light Rail Fixed Guideway	50.76	5.20	9%	50.76	4.20	8%	↓
Commuter Rail	Commuter Rail Fixed Guideway	663.84	5.19	1%	663.84	5.00	1%	→
Total		**794.07**	**15.42**	**2%**	**794.07**	**13.23**	**2%**	**→**

Percentage of track segments (by mode) that have performance restrictions

- Heavy Rail Fixed Guideway and Light Rail Fixed Guideway infrastructure is the primary source of improvements in this category, with results translating to improved customer experience through shorter trips and more reliable service

- Several track renewal and repair projects underway, as well as routine maintenance performed by E&M and Keolis, will continue to bring this measure down in future years

FTA Guidance and Rating Scale

Table 1. FTA TERM Condition Assessment Scale

Rating	Condition	Description
5	Excellent	No visible defects, new or near new condition, may still be under warranty if applicable
4	Good	Good condition, but no longer new, may be slightly defective or deteriorated, but is overall functional
3	Adequate	Moderately deteriorated or defective; but has not exceeded useful life
2	Marginal	Defective or deteriorated in need of replacement; exceeded useful life
1	Poor	Critically damaged or in need of immediate repair; well past useful life

Links:

- TAM Facility Performance Measure Reporting Guidebook

- TAM Infrastructure Performance Measure Reporting Guidebook

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