Massachusetts Department of Transportation CPC Meeting

February 22, 2016



Objectives for today

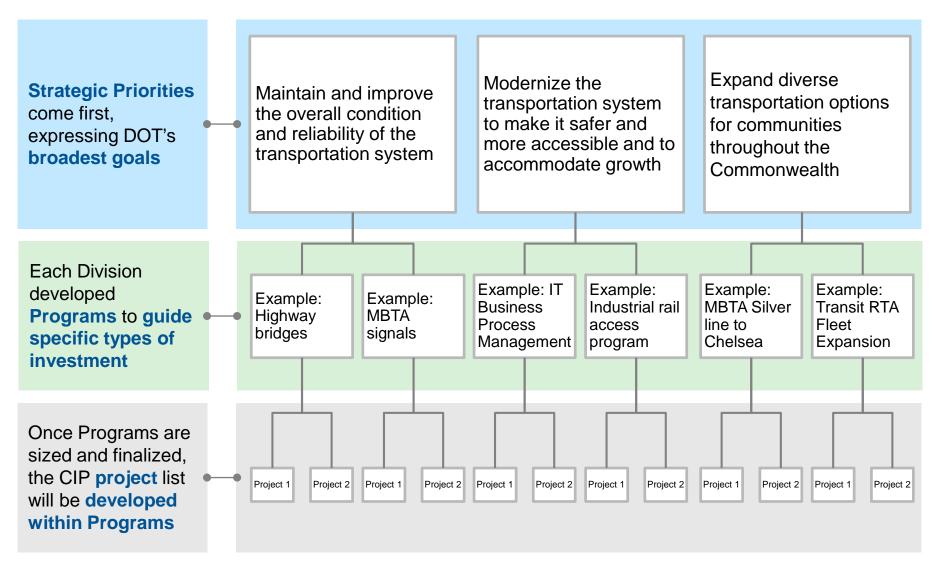
Today's meeting has two goals:

- Review priority and program descriptions with Board
- Obtain the Board's input on program size ranges within Priority 1 for the larger divisions (MBTA, Highway, and Rail)

Contents

- Review of priorities and programs
- Potential program size methods
- Potential program size ranges and key questions
- Appendix

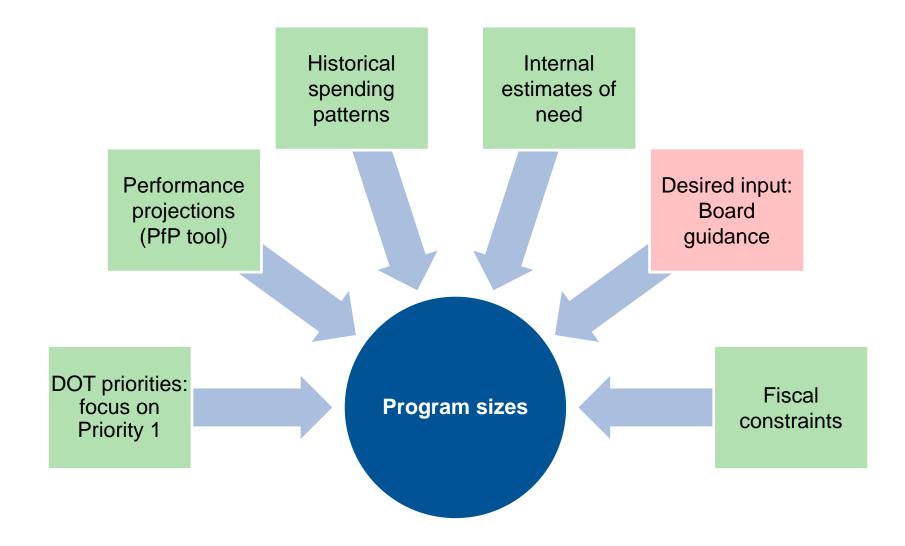
As you know, the CIP process is following a strategic capital planning framework



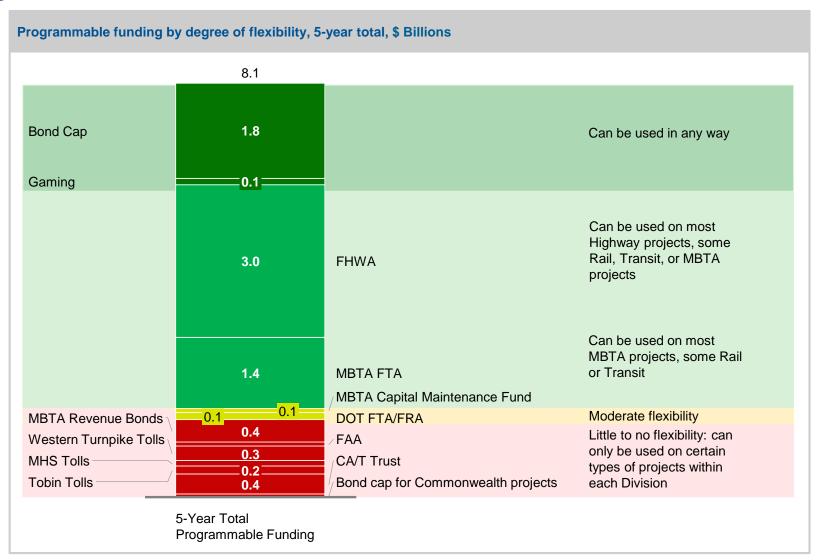
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Proposed sizes for each of these programs are based on several inputs, and we request the Board's input as we finalize them



Complex limitations on the usage of funding sources also guided program sizes





Potential program size ranges will continue to evolve with input from the Board, the Office of Administration and Finance, the public, and staff

- Divisions submitted initial program sizes based on the considerations described in the preceding slides
- These requests were, in total, less than available funding, in some cases due to deliberate fiscal restraint by Divisions, or Division estimates of ability to deliver, when composing requests
- The potential program size ranges shown here will evolve based on a variety of inputs, including Board comments, A&F, public comment, staff input, and refinements due to specific project constraints
- Potential program size ranges shown represent a five-year total; in FY17, only a very small amount of capacity is available
- Program sizes may vary considerably from year to year; as the amounts of funding used by projects already underway become smaller in later years, new projects can be programmed



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MassDOT priorities are listed in order of importance

Maintain and improve the overall condition and reliability of the transportation system

Modernize the

growth

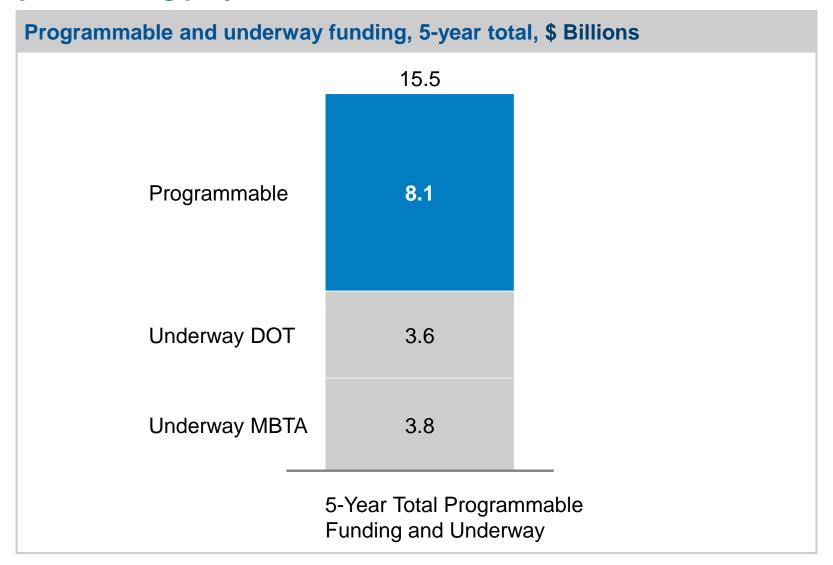
- Necessary routine and capital maintenance
- State of Good Repair (SGR) projects designed primarily to bring asset condition up to an acceptable level
- Asset management and system preservation
- transportation system
 to make it safer and
 more accessible and
 to accommodate
- Compliance with federal mandates or other statutory requirements for safety and/or accessibility improvements
- Projects that go beyond SGR and provide substantial upgrades and/or modernization
- Provide needed capacity to accommodate demand on existing transportation systems
- **Expand diverse** transportation options
- for communities throughout the Commonwealth
- Expansion projects (for any mode)
- Projects that further health and environmental objectives
- Complete Streets program for state and municipal streets

Within the priorities, each Division has defined a set of programs that will guide the formation of project lists

Priorities I	Highway	MBTA	Rail	Transit	Aeronautics	RMV	IT
1	Interstate pavement Non-interstate pavement Bridge Roadway maintenance Routine safety maintenance Facilities	 Revenue vehicles Track, signals, and power Bridges Facilities 	 Safety / capital maintenance Section 130 Program 	 Mobility assistance program RTA: Facility and vehicle maintenance RTA: Vehicle replacement MassDOT Transit and Technical Assistance 	 Airport pavement management Airport capital improvement program 	 RMV operations maintenance 	 State of goo repair – lifecycle managemer
2	Roadway reconstruction Intersection safety Intelligent transportation systems ADA retrofits	 Capacity improvements Federally mandated safety programs and accessibility Signal improvements 	 Modernize rail properties Industrial rail access program MAAB Compliance 	 RTA: Facility and system modernization RTA: New facilities Other major projects 	 Statewide airport administration and terminal building program 	 RMV tech. solution modernization RMV customer service modernization 	 Digital experience cust.
3	Multi-use paths Capacity Bicycle and pedestrian Complete Streets	Expansion projects	 Increase capacity 	 RTA Fleet expansion 		 Self-service kiosks 	

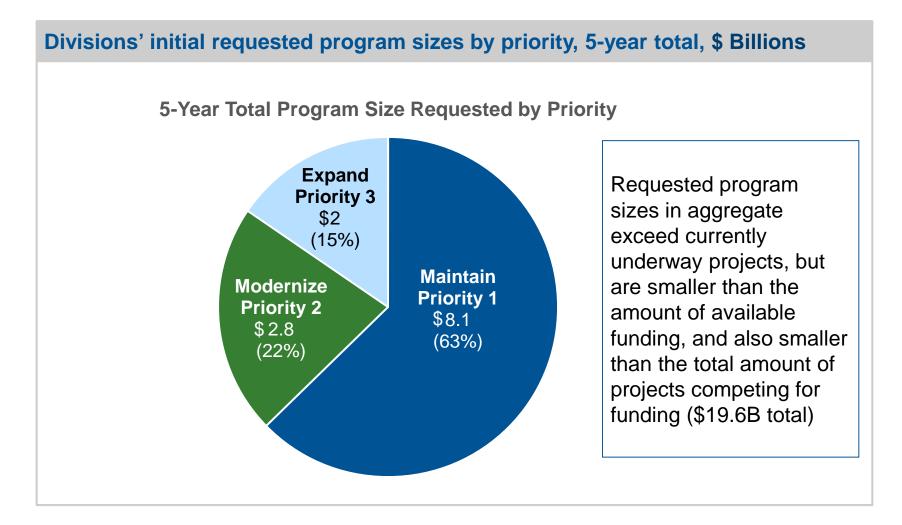
Note: Planning is not included in the programs listed above

There is \$8.1B of programmable funding and \$7.4B used to pay for existing projects

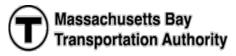




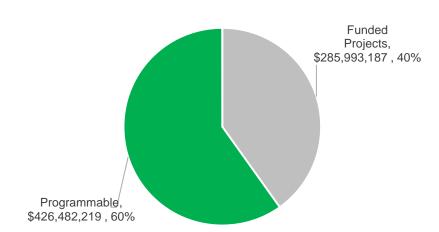
Division's initial requests focus on SGR, but are smaller than total funding available, and less than the total size of projects competing for funding



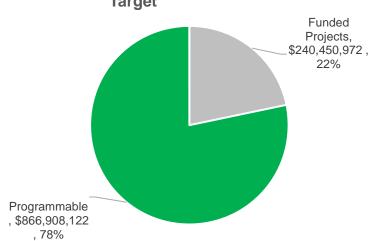
FY2017 – FY2021 Preliminary Program Sizes for State of Good Repair / Priority 1 Needs



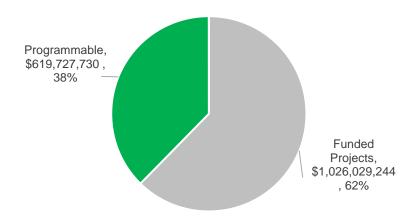




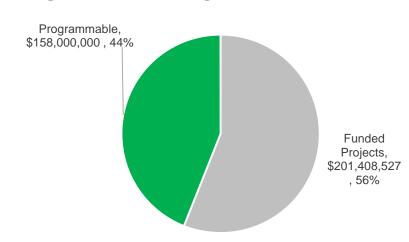
Track, Signals, and Power: \$1.107 Billion
Target

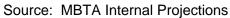


Revenue Vehicles: \$1.645 Billion Target

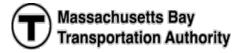


Bridges: \$359 Million Target





FY2017 – FY2021 Preliminary Program Sizes for State of Good Repair / Priority 1 Needs



Rollup Asset Category	Backlog	% of Backlog	Fu	inded P rojects	P	rogrammable	Fi	ve Year Target
Revenue Vehicles	\$ 3,321,196,510	45.2%	\$	1,026,029,244	\$	619,727,730	\$	1,645,756,974
Track, Signals and Power	\$ 2,510,686,807	34.2%	\$	240,450,972	\$	866,908,122	\$	1,107,359,093
Bridge	\$ 260,358,863	3.5%	\$	201,408,527	\$	158,000,000	\$	359,408,527
Facilities (all other assets)	\$ 1,250,895,667	17.0%	\$	285,993,187	\$	426,482,219	\$	712,475,406
Total	\$ 7,343,137,847		\$	1,753,881,929	\$	2,071,118,071	\$	3,825,000,000

SGR targets were developed by allocating the available funds based on each asset classes' percentage of the overall backlog (\$7.3B); the traditional 14 individual asset categories were rolled into four major programs

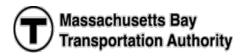
The Programmable values will be filled with individual or grouped projects (e.g. signal investments on the Red Line) based on scores, asset rankings and/or other criteria

Policy discussion: Based on available resources, there is a significant gap in available funding to meet the target outlined in the 2015 FMCB Annual Report

Source: MBTA Internal Projections



FY2017 – FY2021 SGR Target will require strategic and organization decisions on how to ramp up as compared to historical spending



Historical State of Good Repair Spending (\$\$ in mm)



SGR Phasing: Ramp up to \$765M by FY19 (\$\$ in mm)

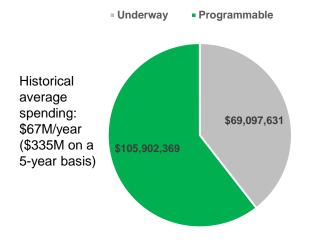


Source: MBTA Internal Projections; FY2016 based on spending projections as of January Pre-decisional – draft for discussion purposes only

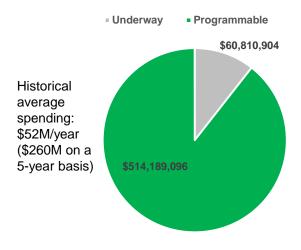


Highway Division Priority 1 program requests total \$2.7B over five years (page 1 of 3)

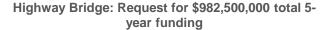
Highway Interstate Pavement: Request for \$175,000,000 total 5-year funding

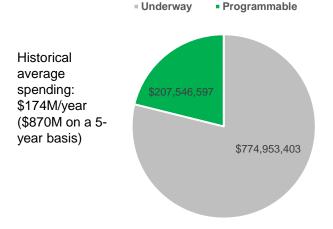


Highway Non-Interstate DOT Pavement: Request for \$575,000,000 total 5-year funding

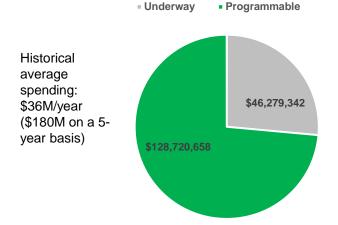


Highway Division Priority 1 program requests total \$2.7B over five years (page 2 of 3)

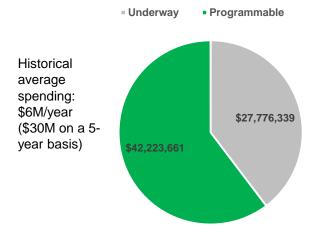




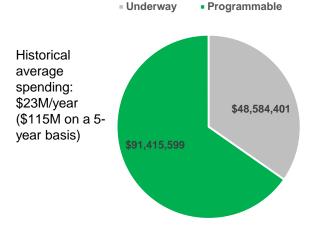
Highway Safety Maintenance: Request for \$175,000,000 total 5-year funding



Highway Facilities: Request for \$70,000,000 total 5year funding



Highway Roadway Maintenance: Request for \$140,000,000 total 5-year funding



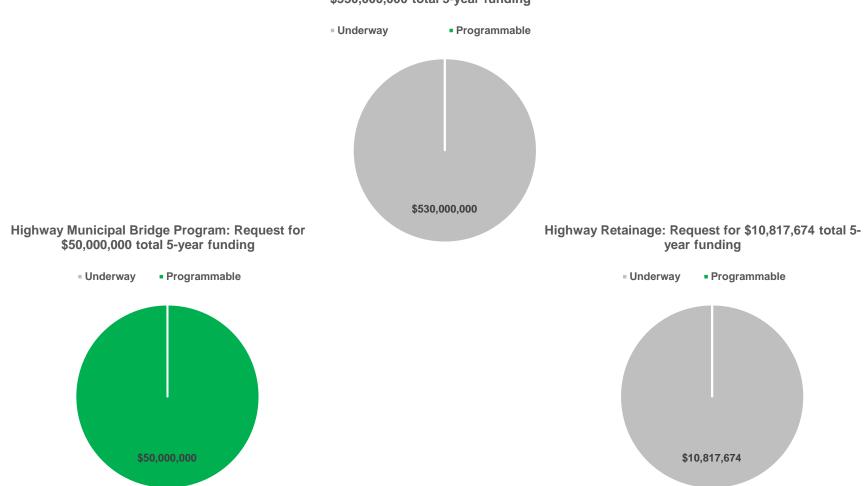
Exact amounts subject to change as cashflow estimates continue to be updated

SOURCE: DOT and MBTA proposals of future spending, generated from estimates of historical spending, available funding sources, and of future performance generated from Cambridge Systematics Planning for Performance tool.



Highway Division Priority 1 program requests total \$2.7B over five years (page 3 of 3)





Exact amounts subject to change as cashflow estimates continue to be updated

SOURCE: DOT and MBTA proposals of future spending, generated from estimates of historical spending, available funding sources, and of future performance generated from Cambridge Systematics Planning for Performance tool.



Highway Division Priority 1

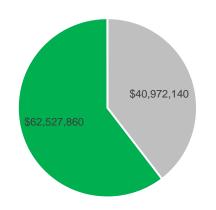
- Goal is to maintain and improve the overall condition of the highway division's asset
 - Program sizes were proposed based on needs and expected project delivery
- Interstate and Non-interstate Pavement
 - Division proposes to increase spending on non-interstate pavement to improve its overall condition relative to the impact of current spending without significant decrease in interstate condition in 10 years
- Bridges
 - The Highway Division is responsible for the inspection of all 5,000 structures in the Commonwealth that meet the federal definition of a bridge. Nearly 70% of these structures are owned by MassDOT, of which 476 are on the MHS or WT
 - Under current spending levels, number of structural deficient (SD) bridges would increase to 650 in 10 years
 - Proposed program was sized to reflect what could be delivered in the next 5 years and minimize further deterioration in condition
- Roadway and Safety Maintenance
 - Covers capital maintenance to cover drainage, sidewalks, guardrails, lighting, traffic signs, pavement markers etc.
- Facilities
 - Proposed program sized to address backlog of facility maintenance needs

Policy Discussion – Highway's proposed program sizes appear to be less than actual program needs and may not fully utilize available funding; programmable amounts can be added to meet needs.

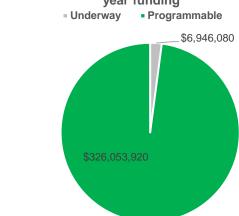
Rail program requests total \$439 million over 5 years (\$87.8M annually), with 90% currently unprogrammed in aggregate

Rail Priority 1 Program: Federal Obligations;
Railroad Contracted Services: Request for
\$103,500,000 total 5-year funding

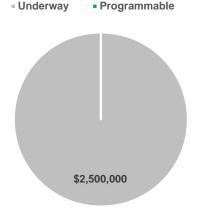
Underway Programmable**



Rail Priority 1 Program: Safety/Capital Maintenance: Request for \$333,000,000 total 5year funding



Rail Section 130 Program: Request for \$2,500,000 total 5-year funding



Rail Division Priority 1

- Rail portfolio has more than doubled in recent years; portfolio includes
 - 250 miles of active track
 - 160+ bridges and 400+ culverts
 - 195+ grade crossings
- Safety and Capital Maintenance for Track and Right of Way
 - \$45 million/year to achieve minimum safety standards ramping up to
 - \$60 million to \$72 million per year (on average) to bring/maintain rail assets to state of good repair
- New Rail Assets (Knowledge Corridor, Framingham Secondary)
 - \$20.7 million/year need to cover federal obligations (safety) and contractual obligations for capital maintenance projects
- Section 130 Program
 - Leverages federal funds (\$4 million/year) to repair grade crossings
 - \$500,000/year for 10% match and technical program support

Policy Discussion – Appropriate spending on expanded rail portfolio

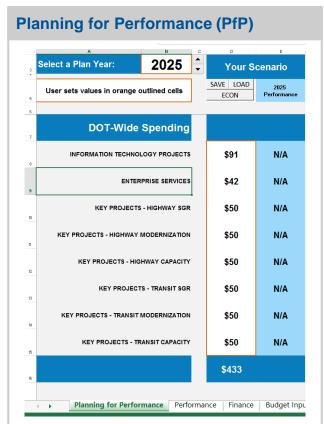
Summary of key discussion issues

- MBTA: Based on available resources, there is a significant gap in available funding to meet the target outlined in the 2015 FMCB Annual Report
- Highway: Proposed program sizes appear to be less than actual program needs and may not fully utilize available funding; programmable amounts can be added to meet needs
- Rail: Appropriate spending on an expanded rail portfolio

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The Planning for Performance tool (PfP), and other data-driven inputs including PSAC, are informing construction of the CIP portfolio



- PfP is a tool that MassDOT can use to discover where the next marginal dollar of capital spending will yield the highest return on performance
- The PfP tool has software features which can be used to help set optimal program sizes



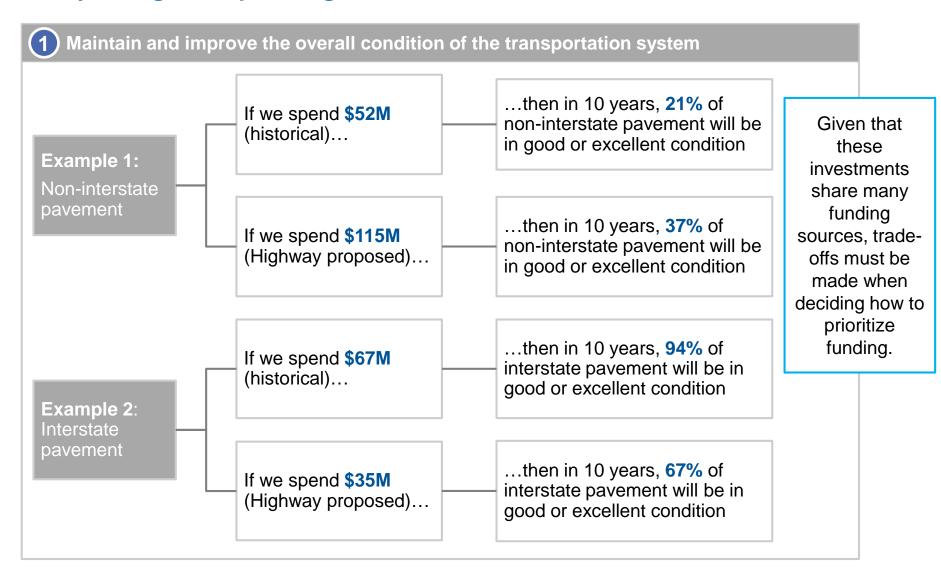


Goals/Criteria	Roads & Paths Modernization	MBTA/Regional Transit Modernization	Roads & Paths Capacity	MBTA/Regional Transit Capacity
Cost Effectiveness	15	20	20	25
Economic Impact	10		15	20
Environmental & Health Effects	10	5	10	10
Mobility	10	30	25	25
Policy Support	10	10	10	10
Safety	10	10	10	
Social Equity			10	10
System Preservation	35	25		
Total	100	100	100	100

 PSAC scores, where available, can help to rank and prioritize projects within programs



The Planning for Performance (PfP) tool projects outcomes in 10 years given spending



Federal Funding (\$ millions)¹ (FY 2017 – FY 2021)

Federal Program	Description	FY17-21 Total
National Highway Performance Program	Funding for condition & performance of the National Highway System (NHS) including construction on the NHS, Interstate, non-interstate routes and bridges	\$1,729.9
Surface Transportation Program	Flexible funding for projects to preserve and improve the conditions and performance on any federal-aid highway, bridge, or tunnel, projects located on any public road (except local roads and rural minor collectors) pedestrian and bicycle infrastructure, and transit capital projects (including intercity bus terminals. 50% distributed based on population and balance to be used anywhere.	\$864.6
Highway Safety Improvement Program	Funds safety improvement investments to reduce the number and severity of crashes at dangerous locations (any public road).	\$54.6
Railroad Highway Crossings	Funds rail grade crossings	\$13.1
Congestion Mitigation and Air Quality Improvement (CMAQ)	Provides flexible funding source for transportation investments and programs to help meet the requirements of the Clean Air Act.	\$334.1
Metropolitan Planning	Funds planning efforts with Municipal/Metropolitan Planning Organizations	\$47.5
National Highway Freight Program		\$101.6
Total MassDOT Federal Sources		\$3,267.3
MBTA Federal Programs		
Transit Section 5307/5340	Funds public transportation capital, operating assistance and transportation related planning including rolling stock, revenue vehicles, track, signals, power, engineering and design, construction and maintenance of passenger facilities, etc.	\$709.6
Transit Section 5337	Formula based funding for state of good repair to repair and upgrade the rail transit system and includes HOV lanes and bus rapid transit	\$711.8
Transit Section 5339	Funds replacement, rehabilitation and purchase of buses and related equipment and construction of bus-related facilities	\$28.3
Total MBTA Federal Sources		\$1,449.6

¹Totals may not add due to rounding.

Preliminary draft estimates for policy discussion only; subject to change.

Programs are described as follows: Highway (1 of 2)

Priorities	Program descrip	otions
	Interstate Pavement	This program uses federal funds to perform resurfacing and related work on the interstate system. The primary objective of these projects is to improve pavement condition.
	Non-Interstate DOT Pavement	This program uses federal funds to perform resurfacing and related work on non-interstate DOT owned roadways. In addition to the site specific federal aid projects, state funded maintenance contracts are also used to improve pavement condition.
	Bridge	This program includes the federal aid replacement and rehabilitation projects as well as the state funded routine structures maintenance contracts.
1	Roadway Maintenance	This program consists of state funded routine maintenance contracts that are used to repair drainage systems, sidewalks, fencing, guardrail and vegetation management. These investments maximize the potential of our assets and increase the useful life. This program also includes the federal aid stormwater retrofit contracts.
	Safety Maintenance	This program consists of state and federal funded maintenance contracts that are used to repair traffic signals, highway lighting systems, impact attenuators, traffic signs and pavement markers. These investments are essential to providing a safe roadway network for our customers.
	Facilities	This program is used to maintain, repair and replace buildings that are owned by the Highway Division. This investment provides the infrastructure to enable Highway Division staff to fulfill organizational goals.
	Municipal Bridge	This program will assist municipalities in repairing and replacing town owned bridges with a span length of less than 20 feet.

Programs are described as follows: Highway (2 of 2)

Priorities	Program descrip	tions
	Roadway Reconstruction	This program includes projects that are typically federal aid roadway reconstruction projects. Many are municipally proposed projects involving municipally owned facilities. Nearly all of these projects include improvements to bicycle and pedestrian accommodations.
2	Intersection Safety	This program includes traffic signal upgrades and intersection improvement projects. These projects provide valuable safety improvements. All new traffic signal installations include Accessible Pedestrian Signals (APS).
	ADA Retrofits	This program consists of projects that are specifically designed to improve the accessibility of state owned sidewalks. Locations will be identified utilizing information collected as part of MassDOT's ADA Transition Plan. A prioritization methodology that was developed in cooperation with the Massachusetts Office on Disabilities will be implemented for future projects.
	ITS	Projects in this program typically involve the installation of cameras, message signs, communication equipment, and software designed to enhance transportation and incident management capabilities, and provide real time traffic information to roadway users. These projects enhance roadway safety and provide drivers with better information regarding their travel options.
	Multi Use Path	Projects in this program typically involve the construction of multi-use paths on alignments that are independent from the roadway network.
	Capacity	This program includes projects that add new connections to or expand the existing transportation network.
3	Complete Streets Program	This program rewards communities that demonstrate a commitment to embedding Complete Streets in their policies and practices by providing technical assistance and funding.
	Bicycle And Pedestrian Plan Implementation	This program will fund future projects that are developed by municipalities in accordance with their approved bicycle and pedestrian implementation plans.

Programs are described as follows: MBTA (1 of 2)

Priorities	Program descript	tions
	Revenue vehicles	In the FY17-21 CIP, we wish to allocate the state of good repair target (\$3.825B five year target, \$765M annual target) based on each individual asset class' percentage of the total
	Track, signals, and power	backlog (\$7.3B). This will establish the program funding buckets by asset class for the next five years. Based on available funding, directorates will select projects within these categories to return assets to acceptable condition.
1	Bridges	dategories to return assets to acceptable condition.
	Facilities	Revenue vehicle program could include acquisition of new rolling stock as well as mid-life overhauls. Track, signals and power will include a variety of investments designed to improve the reliability of those assets. Bridges and Facilities will follow a similar approach, focusing funding on critical needs in all other SGR categories.
	Capacity improvements	Investments to track, infrastructure, and car houses designed to ensure that the vehicles scheduled for delivery in FY2019 will operate as intended. This program includes a mix of state of good repair investments and additional improvements designed to modernize the system. Examples include Red and Orange Line infrastructure.
2	Federally mandated safety programs and accessibility	To meet federally mandated safety requirements for the commuter rail system. Contracts to complete the work were approved by the Board of Directors; however, the FY17 – FY21 CIP will detail the finance plan necessary to pay for this mandated program. Examples include Positive Train Control, Green Line Automatic Train Protection, and other investments identified through PATI and BCIL.
	Signal improvements	Investment necessary to target critical signal infrastructure, allowing the MBTA to improve service along the branches. This could include a mix of projects that begin as SGR investments, but could ultimately transition into a modernization program of the signal system. Examples include Green Line signals.

Programs are described as follows: MBTA (2 of 2)

E	
Expansion projects	Targeted expansion investments designed to improve access to transit and statewide rail. Examples could include Green Line Extension, South Coast Rail, and Silver Line to Chelsea.
	projects

Programs are described as follows: Rail

riorities	Program descriptions					
1	Safety/Capital Maintenance	Covers cost to maintain MassDOT- owned track and right of way to a minimal classification (Class 1) condition exclusive of structures such as bridges, culverts and grade crossings. Includes FRA compliance inspections.				
	Section 130 Program	Repair of grade crossings owned by MassDOT and provide technical support. Cost primarily with federal funds (90% of the cost)				
	MAAB Compliance	Compliance with the requirements of MAAB (Massachusetts Architectural Access Board) when significant investments made to assets (e.g. Knowledge Corridor, Springfield Union Station)				
2	Modernize Rail Properties	Modernization of MassDOT lines to be used for projects such as a storage facility or MassDOT maintenance equipment.				
	Industrial Rail Access Program	Investment in private sector rail lines to leverage private investment and increase freight rail usage or to modernize an active line to increase the utility to customer.				
3	Increase Capacity	Supports contractual obligations associated with MassDOT's purchase of rail properties (e.g. payments to Amtrak and Pan Am Southern for the Knowledge Corridor), Falmouth's reuse of the Falmouth Depot, and rehabilitation of surplus MBTA equipment (pilot project)				

Programs are described as follows: Transit

Priorities	Program descriptions				
	MassDOT Mobility Programs: Vehicle Replacement	The Mobility Assistance Program funds the purchase of vans and related equipment used to provide transportation for the elderly and disabled by Councils on Aging, RTAs, and non-profits.			
1	RTA: Facility and Vehicle Maintenance	Maintenance of the 15 Regional Transit Authorities' Facilities and Vehicles in or close to a State of Good Repair (SGR).			
	Transit Support	Funds IT support for the Federal Grants program and technical assistance for the rural transit providers; Funds one year of BusPlus support for the intercity bus program			
	RTA: Fleet Expansion	Construction of new Regional Transit Authority Maintenance, Operations, or Intermodal Transit Facilities such as garages and bus stations.			
2	RTA: Facility and System Modernization	Modernization of Regional Transit Authority Facilities and Systems			
3	No Priority 3 prog	rams			

Programs are described as follows: Aeronautics

Pavement	Maintain a Pavement Condition Index (PCI) equal to 75 for all pavements "inside the fence" by both investing state matching funds to leverage and manage Federal flow-through funding		
Airport Capital mprovement Program	Capital investments from federal and state sources to accomplish a full range of airport state of good repair projects that focus on safe and efficient airport operations and services		
Statewide Airport Administration and Terminal Building Program	In 2010, the Statewide Airport System Plan identified 17 Airports that did not have, or needed renovation to their Administration Building due to insufficient admin spaces requiring upgrades		
No Priority 3 prog	rams		
	tatewide irport dministration nd Terminal uilding rogram		

Programs are described as follows: IT

Priorities	Program descrip	tions
1	SGR Lifecycle Management	Includes projects that keep critical IT Infrastructure operational and secure along with all backup and supporting components including disaster recovery and business continuity
	Business Process Management/Im provement	Projects that utilize software solutions to improve and automate business processes.
	Public Safety Modernization	Projects that have a direct impact on public safety and reduce fatalities/injuries or address security threats.
2	Digital Experience Customer Improvement	Projects that directly impact customers through interaction with our website and other public facing tools.
	RMV Customer Service Model Modernization	Projects that contribute to service delivery and data availability for RMV Branches and other Partners
	No Priority 3 prog	rams
3		