
FY2019-2023 CIP update: Program Sizes and Spending

CPC presentation

April 18, 2018



Overview

- **Since last CPC meeting:**

- Conducted outreach to prioritized list of targeted stakeholders on our list
 - Initiated social media campaign
 - Identified locations and confirmed dates for CIP public meetings
- Reviewed and refined program size requests
 - CIP / STIP alignment will further influence program sizes with FHWA/FTA funded projects
 - TIPs due mid-April
- Reviewed and refined source assumptions
 - Bond Cap targets provided by ANF January 30 and further updated early April
 - MBTA carryover updated to reflect latest FY 18 spending assumptions (detail on slide 28)
 - Pay-go capital projections will be updated, as necessary to align with FY19 operating budget assumptions
- Geographic equity analysis
 - Cambridge Systematics analyzed 2018-2022 geocoded project list and results (geographic equity analysis) to identify issues and to adjust approach to be utilized for the 2019-2023 process
- Economic Impact
 - EDR working with MassDOT to develop methodology to score economic impact of our transportation investments
 - Initial results of work identified issues of importance to households and businesses
 - Results of EDR effort will be incorporated into the CIP update for 2020-2024

- **Today:**

- Need feedback on program size requests and proposed spending
- Discussion of significant changes to costs or ad schedule of proposed projects in 2019-2023 plan (as compared to 2018-2022 plan)
- FY 2018 Accomplishments



Public engagement strategy update

Phase 1: Focus on stakeholder education

- Focus on stakeholders – both established and newly identified, across all divisions and modes
- Direct outreach and meetings - in person and electronically – **effort has been ongoing and will continue with updates on public meeting locations and schedule**
- Outreach has focused on explaining the process and why participating in the CIP is relevant to the given group
- CIP engagement team has been in contact with stakeholder groups identified by the Divisions and other identified stakeholder groups

Phase 2: Focus on input from general public

- Outreach will comply with MassDOT and MBTA Public Participation Plans
- Online commenting tool, consistent with past years – **will be available during the public comment period anticipated to start May 15**
- 10 public meetings across the Commonwealth, consistent with past years
- Social media strategy focuses on highlighting previous projects constructed through the CIP to show successes and request future ideas – **Initial social media posts commenced the week of April 16 and will advertise public meeting locations and schedule**

Final Analysis: How we use what we hear

- Comments analyzed using qualitative data analysis software
- Relevant comments distributed to divisions and identified contact persons
- Major themes will be documented and published as part of final draft
- Letters and comments will be responded to directly, as appropriate



Approach to considering program size requests

Staff recommends accepting program size request

- Program size same or very similar to FY2018-2022 plan's program size
- Same strategy to addressing assets

Program size is driven by mandated projects

- Project costs drive program size due to mandates

Need discussion / guidance from CPC

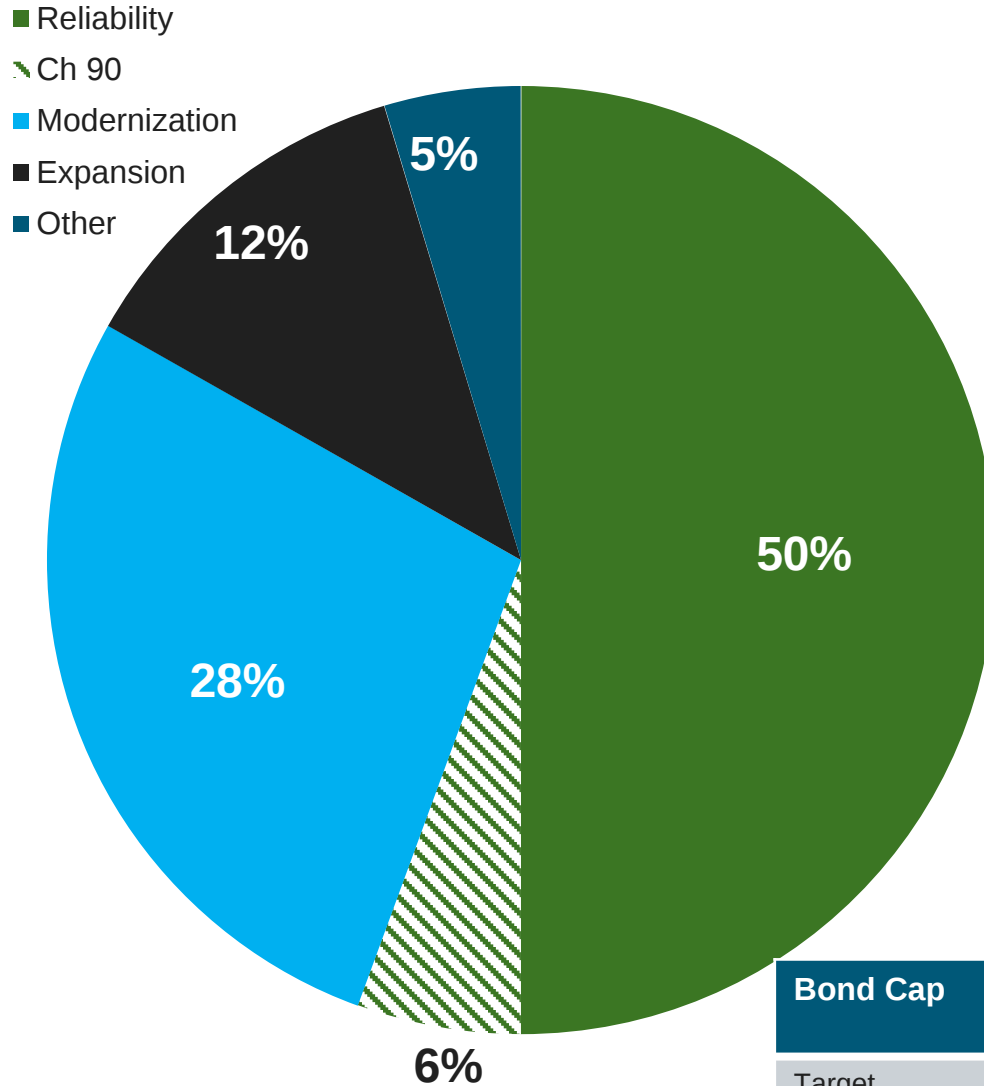
Brand new programs to be considered

- New programs to consider for inclusion in plan update
- Size of request associated with new program also under consideration

Program sizes for greater discussion

- Program size deviates from FY2018-2022 plan's program significantly

Summary of program size requests *(as requested)*



<i>millions</i>	FY18-22	FY19-23
Reliability	\$9,790.2	\$8,943.7
Modernization	\$3,280.5	\$4,941.4
Expansion	\$2,213.4	\$2,169.0
Chapter 90	\$1,000.0	\$1,000.0
Other	\$ 915.1	\$ 832.4
<i>Five-year total</i>	\$17,199.2	\$17,886.5

Bond Cap target* and estimated committed amounts

Bond Cap	2019 <i>millions</i>	2020	2021	2022	2023
Target	\$879.1	\$895.4	\$890.5	\$912.5	\$857.5
Committed	\$748.5	\$360.6	\$236.7	\$197.8	\$150.2

*2019 target does not include additional bond cap for South Coast Rail (see slide 16)

Projects as new major programs

The proposed FY2019-2023 CIP will include six new investment programs for both MassDOT and the MBTA that represent large (>\$500M), complex, cross-cutting projects tied to specific strategic goals or outcomes

Allston Multi-Modal

- **Goal:** reconstruction and realignment of the Allston interchange to improve safety for all transportation modes: walking, cycling, driving, transit
- **Investments:** Viaduct, Multi-modal Bus and Rail Station, Rail Layover & Yard, Connector Roadways, and Pedestrian / Open Space

South Coast Rail

- **Goal:** to meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, and to enhance regional mobility while supporting smart growth planning and development strategies in the affected communities
- **Investments:** Vehicles, Signals, Rail, Stations, Infrastructure

Green Line Extension

- **Goal:** Extend the Green Line from Lechmere to College Ave and Union Square
- **Investments:** Stations, Infrastructure, and Vehicles

Red Line/Orange Line Improvements

- **Goal:** Replace the Red and Orange Line fleets and build the infrastructure necessary to meet three minute headways goals
- **Investments:** Vehicles, Signals, Infrastructure

AFC 2.0

- **Goal:** Implement a new integrated, reliable, and convenient fare payment and collection system to replace CharlieCards/Tickets
- **Investments:** Systems Integrator, Technology, Infrastructure

Commuter Rail Resiliency and Safety (PTC)

- **Goal:** Meet and exceed federal requirements to install PTC and Automatic Train Control (ATC) systems while improving overall resiliency of the Commuter Rail network
- **Investments:** PTC Implementation, ATC Implementation, fiber installation, vegetation management



Program size requests recommended by staff to accept

Reliability	FY 2018-2022 program size (five-year total)	FY 2019-2023 program size (five-year request)	Notes
IT / Cyber/ Information Security	\$9.6 million	\$15.0 million	Compliance with Article 87 – EOTSS initiatives
Transit / RTA facility and vehicle maintenance	\$10 million	\$17.45 million	Increased costs to address asset condition; funds reprioritized from other CIP programs
Transit / RTA vehicle replacement	\$58 million	\$92.3 million	Increased costs to address asset condition; funds reprioritized from other CIP programs
Rail / Facility reliability	\$15 million	\$16.7 million	Increased need to address asset conditions
Rail / Vehicle reliability	\$5.3 million	\$4.7 million	Adjusted program size to shift funds to other programs since bond cap funds level with last plan
MBTA / Facilities	\$112.6 million	\$355.0 million	Additional investments for bus maintenance facilities and fleet/facilities plan
MBTA / Revenue vehicles	\$1,702.7 million	\$1,289.9 million	Investments for Red/Orange Line Vehicles transferred to own separate program
MBTA / System Upgrades	\$390.9	\$235.0	Updated program size to focus on core systems and equipment reliability
MBTA / Track, signals and power	\$1,285.6	\$950.0 million	Investments related to RL/OL transferred to own separate program

Program size requests recommended by staff to accept

Reliability	FY 2018-2022 program size (five-year total)	FY 2019-2023 program size (five-year request)	Notes
Highway / All-electronic tolling	\$66.6 million	\$0.0 million	Project complete; to be closed out
Highway / Bridge	\$2,028.2 million	\$2,281.7 million	Includes \$253.5 million design/PM costs
Highway / Design, ROW & environmental	\$660.0 million	\$0 million	Costs reallocated to appropriate CIP Programs
Highway / Facilities	\$161.5 million	\$181.7 million	Includes \$20.2M design/PM costs
Highway / Interstate pavement	\$281.7 million	\$316.9 million	Includes \$35.2M design/PM costs
Highway / Non-Interstate pavement	\$543.9 million	\$611.9 million	Includes \$68M design/PM costs
Highway / Pre-apprenticeship	\$4.6 million	\$0.0 million	Programmed transferred to ODCR* (under OTP & Shared Services)
Highway / Retainage and utility payments	\$50.0 million	\$0 million	Costs reallocated to appropriate CIP programs
Highway / Roadway improvements	\$150.0 million	\$168.8 million	Includes \$18.8M design/PM costs
Highway / Safety improvements	\$235.8 million	\$265.3 million	Includes \$29.5M design/PM costs
Highway / Tunnels	\$350.0. million	\$393.8 million	Includes \$43.8M design/PM costs

*Office of Diversity and Civil Rights

Program size requests recommended by staff to accept

Modernization	FY 2018-2022 program size <i>(five-year total)</i>	FY 2019-2023 program size <i>(five-year request)</i>	Notes
Rail / Facility Modernization	\$10.5 million	\$13.25 million	Delay in Platform "C" for Springfield Union Station
RMV / ATLAS	\$102.1 million	\$61.5 million	Reflects remaining spending on project; funded by MassIT bond cap
Transit / RTA facility and system modernization	\$36.8 million	\$ 26.3 million	RTAs reallocated / reprioritized funds to focus on asset conditions in facility and vehicle maintenance and vehicle replacements
Transit /RTA replacement facilities	\$55.8 million	\$16.4 million	Bond cap funds in program were dedicated in 2017-2021 plan for new PVTA maintenance facility; project will be complete in 2019
Highway / ADA retrofits	\$19.4 million	\$21.8 million	Includes \$2.4 million design/PM costs
Highway / Intelligent transportation systems	\$72.5 million	\$81.6 million	Includes \$9.1 million design/PM costs
Highway / Intersection improvements	\$160.7 million	\$180.8 million	Includes \$20.1 million design/PM costs
Highway / Roadway reconstruction	\$1,261 million	\$1,418.6 million	Includes \$157.6 million design/PM costs



Program size requests recommended by staff to accept

Expansion	FY 2018-2022 program size (five-year total)	FY 2019-2023 program size (five-year request)	Notes
MBTA / Expansion Projects – non-GLX	\$81.0 million	\$59 million	Reflects remaining spending on non-GLX programs
MBTA / Green Line Extension	\$1,506.0 million	\$1,364.5 million	Reflects current project cash flows; tied to approved finance plan for GLX ; was part of MBTA Expansion Projects program
Highway / Bicycle and Pedestrian	\$220.5 million	\$180.6 million	Includes allocation of \$20.1M in design/project management costs and reflects transfer of \$60M to new program under OTP
Rail / Track & ROW Expansion	\$100.0 million	\$0.0 million	Program reflects transfer of funding for SCR project to new program; no projects currently programmed for 2019-2023



Program size requests for mandated spending

Modernization	FY 2018-2022 program size <i>(five-year total)</i>	FY 2019-2023 program size <i>(five-year request)</i>	Notes
MBTA / Accessibility	\$224.2 million	\$265.0 million	20% additional investment for PATI
MBTA / Risk management and mitigation	\$538.8 million	\$177.1 million	Renamed program; includes investments in OSHA and security upgrades



Program size requests for new programs

Modernization	FY 2018-2022 program size (five-year total)	FY 2019-2023 program size (five-year request)	Notes
Highway / Allston Multi-Modal	\$0.0 million	\$16.0 million	Funding the continued design (no construction or other early action items) for reconstruction of the viaduct and other multi-modal investments
MBTA / Commuter Rail Safety and Resiliency	\$0.0 million	\$637.5 million	Includes investments to improve safety and resiliency of Commuter Rail network (including PTC)
MBTA / Capacity enhancements*	\$622.25 million	\$0.0 million	Program eliminated for 2019-2023 and investments included in other programs
MBTA / Process Improvements & innovation*		\$25.0 million	Includes investments in innovations to enhance productivity/quality of MBTA services including FMIS
MBTA / AFC 2.0*		\$160.0 million	Program to focus solely on AFC 2.0 and future technologies
MBTA / Customer Experience and Technology		\$104.0 million	Program to focus on modernization of the system and enhancing customers' experience
MBTA / Red Line/Orange Line Improvements	\$0.0 million	\$1,565.7 million	Includes vehicle and infrastructure investments to modernize the fleet and achieve 3 minute headways

* Combined as System Improvements for 2018-2022 plan



Program size requests for new programs

Expansion	FY 2018-2022 program size <i>(five-year total)</i>	FY 2019-2023 program size <i>(five-year request)</i>	Justification <i>(see appendix for detail)</i>
MBTA / Green Line Extension	\$1,506.0 million	\$1,364.5 million	Reflects current project cash flows; tied to approved finance plan for GLX; was originally included as part of MBTA Expansion Projects program
OTP / Bicycle and Pedestrian Modal Implementation	\$0 million	\$60 million	Transfer of program's funds and scope from Highway division to new program
Rail / South Coast Rail Program	\$0.0 million	\$165.8 million	Program reflects funding for SCR project; 2019 funding provided as separate ANF bond cap target for MassDOT; program size reflects additional funds for 2019 only and prior 2018-2022 funding levels; discussions ongoing with ANF regarding additional funding for 2020-2023; Program was originally included under Rail / Track and ROW Expansion program for 2018-2022



Comparison of program sizes 2018-2022 vs 2019-2023 (\$millions)

Division	2018-2022*	2019-2023*	Increase / (Decrease)*
Aeronautics	\$294.3M	\$294.3M	\$ -
Highway	\$6,710.7M	\$6,669.1M	(\$41.6M)
Information Technology	\$97.8M	\$103.2M	\$5.4M
Rail	\$439.7M	\$508.5M	\$68.8M
Registry of Motor Vehicles	\$110.5M	\$68.6M	(\$41.9M)
Transit	\$217.0M	\$212.6M	(\$4.4M)
MBTA*	\$7,409.6M	\$8,133.2M	\$723.6M
Chapter 90	\$1,000.0M	\$1,000.0M	\$ -
Planning & Shared Services	\$794.6	\$749.5M	(\$45.1M)
Commonwealth Projects	\$125.0	\$147.5M	(\$22.5M)
TOTAL	\$17,199.2M	\$17,886.5M	\$687.3M

*Totals may not add due to rounding

FY2019-2023 CIP update: Program spending and sources

April 18, 2018

Bond Cap Targets for MassDOT and MBTA

(\$ millions)	FY2017 Plan	FY2018 Plan	FY2018 Estimated	FY2019	FY2020	FY2021	FY2022	FY2023
MassDOT	\$581.8	\$525.1	\$526.7	\$584.1	\$568.0	\$591.0	\$615.3	\$597.5
Chapter 90	200.0	200.0	200.0	200.0	200.0	200.0	200.0	\$200.0
MBTA Capital	-	60.0	106.75	60.0	60.0	60.0	60.0	60.0
Atlas*	21.7	44.0	42.4	28.1	27.4	4.5		
Port Projects	-	55.0	55.5	35.0	40.0	35.0	37.5	0.0
Total	\$820.8	\$884.1	\$931.5	\$879.1	\$895.4	\$890.5	\$912.8	\$857.5
SCR (estimated)*	X	X	X	\$80.0	TBD	TBD	TBD	TBD

Highlights :

Roads/Bridges

- o **\$404 M** in FY19 (\$2,030M over 5-year) for highway *plus*
- o **\$200 M** per year for Ch. 90

Rail/Transit

- o **\$151 M** in FY19 (\$765 M over 5-year) for Rail/Transit:
 - o **\$60M** per year for MBTA capital support
 - o **\$34.3M** in FY19 (\$129 M over 5-year) for RTA cap support

Rail/Transit - SCR

- o **\$80 M** in FY19 for SCR *balance of funding under discussion with ANF*)

Aeronautics

- o **\$21 M** in FY19 (\$68 M over 5-year) for Aeronautics

Registry

- o **\$31 M in FY19** (\$68 M over 5-year) for RMV, including:
 - o \$60M for Atlas system
 - o \$8M for customer service improvements and alternate service channels

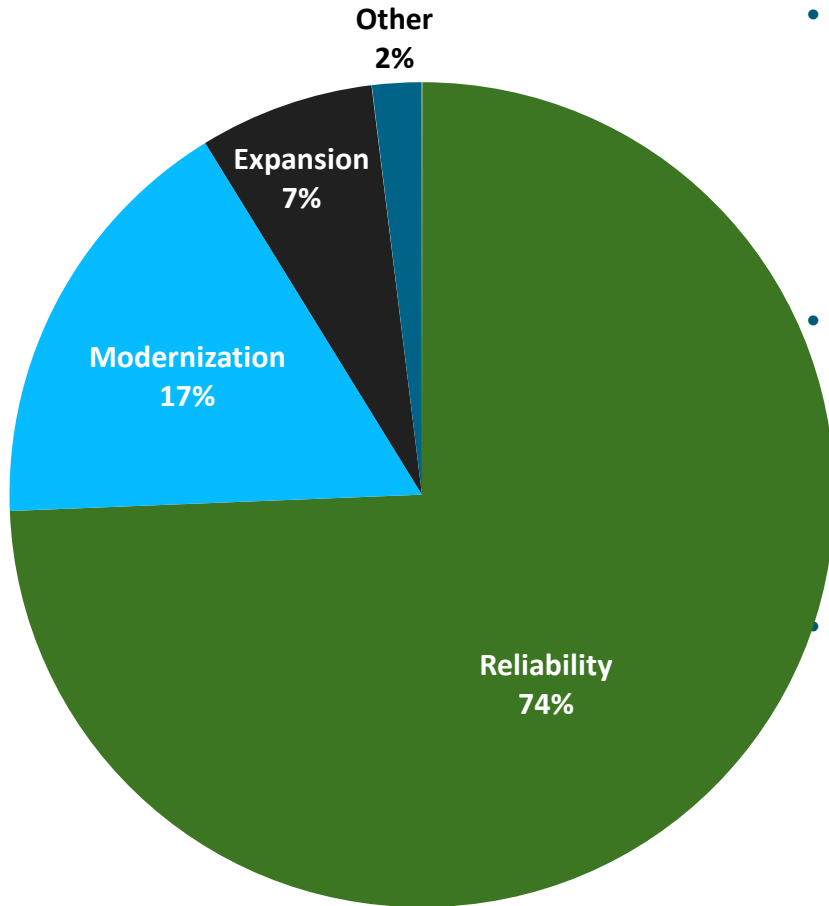
Port of Boston

- o **\$35 M** in FY19 (\$40 M over 5-year) for harbor dredging
- o **\$107.5 M** over 5-year (starting FY20) for landside improvements

*RMV Bond cap spending deducted from the MassDOT targets.

MassDOT and MBTA Investment Strategy (Bond Cap only)

FY2019-FY2023 Investment Strategy



- Recommendation continues to emphasize investments in state of good repair and a strong focus on improving the current system.

- **Reliability**

- **\$735 M in FY19** (\$3,270 M over 5-year)
- State of good repair projects
- Improving asset condition to an acceptable standard
- Chapter 90
- MBTA capital support

- **Modernization**

- **\$146 M in FY19** (\$747 M over 5-year)
- Improvements beyond state of good repair
- Compliance with federal mandates
- Safety and accessibility
- IT projects

- **Targeted Expansion**

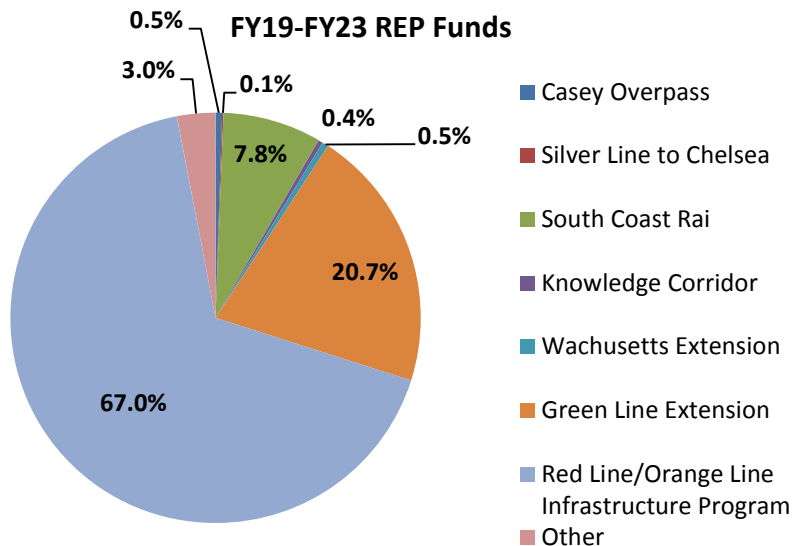
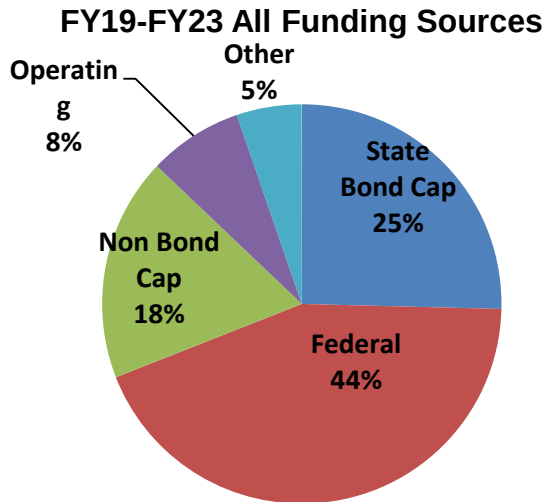
- **\$110 M in FY19** (\$304 M over 5-year)
- Expanding existing highway, transit, and rail system
- Bicycle and pedestrian improvements
- Includes \$80M in FY 19 for South Coast Rail (bond cap portion only)

- **Other**

- Planning studies
- Pre-apprenticeship Program
- Shared Services – Security, Facilities, etc.



Funding Sources for MassDOT and MBTA



- **Bond Cap:**
 - **\$959.1 M** in FY19; \$4,515M total, including:
 - **\$87.1 M** in FY19 (\$4,435M over 5-year)
 - **\$80 M** in FY 19 for SCR
- **Non Bond Cap: REP Bonds and ABP Funds**
 - **\$344 M** in FY19 (\$1,391M over 5-year), including:
 - **\$71 M** in FY19 (\$92M over 5-year) for Accelerated Bridge Program (ABP)
 - **\$273 M** in FY19 (\$1,244M over 5-year) for Rail Enhancement Program (REP)
- **Federal: \$1,360.3M** in FY 19; (\$7,758M over 5-year)
 - Highway/Planning (FHWA): \$3,775M total
 - Transit (FTA): \$24.1M total
 - Rail/Planning (FRA): \$4.5M total
 - Aviation (FAA): \$133.0M total
 - MBTA (FTA): \$3,819M total
- **Operating:**
 - Toll Revenues: **\$795.4M** over 5-year
 - Operating Assistance (MBTA): **\$560.0M** over 5-year
- **Other:**
 - Local & Private Funds, PTC Loans & CARM: **\$938.5M** over 5-year

Requested program sizes and sources vs. uses

- Initial cash flow runs forecast that program sizes are affordable
- Dependent upon bond cap request materializing and discretionary federal sources being awarded

MassDOT ▼

Source millions	Total
Federal available	\$3,939
spending estimate	\$3,939
Tolls available	\$795.4
spending estimate	\$581.2
ABP available	\$86.6
spending estimate	\$86.6
Bond requested	\$4,214*
spending estimate	\$4,214*
REP available	\$147.3
spending estimate	\$147.3
CARM available	\$385.8
spending estimate	\$169.0
Gaming available	\$30.0
spending estimate	\$0

MBTA ▼

Source millions	Total
Federal available	\$3,819
spending estimate	\$3,682
T Bond available	\$1,855
spending estimate	\$1,855
T Pay-Go available	\$560
spending estimate	\$560
State available	\$1,104
spending estimate	\$1,104
State available	\$301
spending estimate	\$301
Other available	\$494
spending estimate	\$494

Leveraging all federal sources
(subject to discretionary awards) ►

Tied to annual pay-go available ►

Final program spending ►

Subject to A&F approval of request ►

Tied to capacity of CTF ►

Uses subject to FHWA approval ►

Estimated downward from last plan
and timing uncertain ►

◀ Leveraging federal resources
(includes carryover; uses to be identified)

◀ Tied to capacity of bonding

◀ Tied to operations discipline

◀ Includes REP, ABP & Gaming

◀ Includes State bond cap

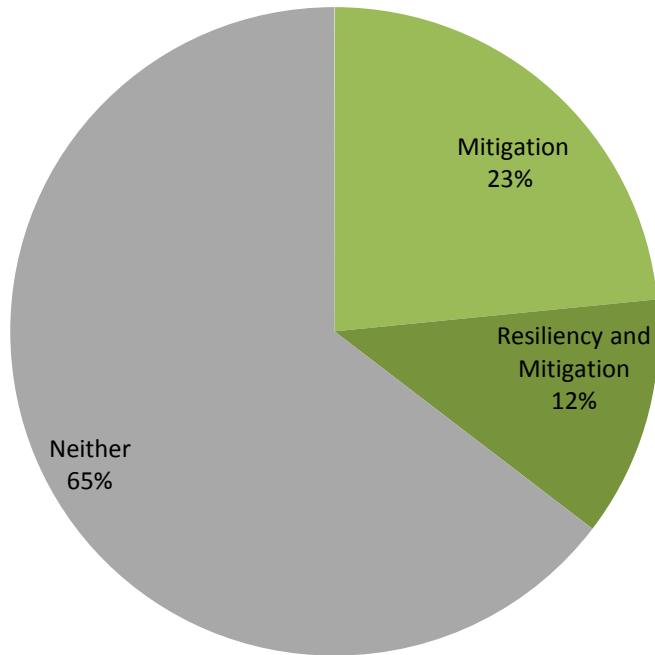
◀ Reimbursables, PTC financing,
and local contributions

*Available bond cap includes preliminary estimate for SCR (\$80M in FY19); spending estimate anticipated to tie to available cap (a work in progress)



Climate Change Mitigation and Resiliency

Climate Change Mitigation and Resiliency (Bond cap and REP funds)



- 48% of MassDOT capital plan (bond cap and REP funds) includes program investments to mitigate impacts of climate change
- MassDOT has been conducting several pilot and systematic state-wide climate change vulnerability assessments
 - Focus has been on climate stressors that are most likely to affect critical assets
 - Coastal flooding due to rising sea levels and storm surges (up to 2070)
 - Inland flooding due to extreme precipitation events (up to 2100)
 - Results of the studies will inform the extent to which our critical infrastructure and operations are likely to be affected by such future events
 - Climate impacts are being assessed for significant projects that require NEPA and MEPA reviews
 - Long-term modal transportation plans currently being updated consider potential climate risks and will include high-level adaptation recommendations
- As part of the current project selection process MassDOT and the MBTA use PSAC scoring criteria to evaluate new projects considered for investment
 - *System preservation*, which takes into account climate change mitigation and resiliency needs, is heavily weighted in the overall scoring process
- South Coast Rail program, for example: the work on the Middleboro Secondary will specifically address the future long term flooding concerns of the Taunton River

Discussion of Project Changes in 2019-2023 to 2018-2022

- Analysis underway of proposed projects for 2019-2023 to determine any significant changes to cost and/or schedule
- Analysis will be presented as part of discussion of proposed projects in May
- Consistent with the presentation by the Highway Division on Major Projects (January 2018) we will identify the following:
 - For any projects \$15 million or greater in total cost, costs that have increased by 10% or more
 - Any changes in ad date by more than one year

SFY 2018 Accomplishments (MassDOT and MBTA)

MBTA

- Major project milestones:
 - Green Line Extension \$1 billion Design-Build contract awarded in November 2017 with notice to proceed in December 2017; first Green Line pilot cars arrived March 2018
 - First new Orange Line pilot cars arrived for testing in December 2017; construction began on Orange Line and Red Line infrastructure improvements
 - Positive Train Control hardware and software installation continues in advance of December 2018 deadline
 - AFC 2.0 contract awarded November 2017 and reached financial close in March 2018
 - State of good repair construction contract awards projected to exceed \$450M in FY18; three times the amount awarded in FY16 and 37 percent higher than FY17

Highway

- All electronic tolling (AET) successfully implemented November 2016; as of February 2017:
 - 156.8 M transactions processed
 - 86% of transactions processed with an E-Z Pass
 - Average of 12 minutes saved on eastbound trips along I-90 from I-495 to South Boston
- 92% of construction contracts completed on or under budget in FY17
- 2.2% of interstate pavement in poor condition in FY17, meeting current target of less than 5%
- 97% of the construction program spending on statewide reliability/maintenance and modernization investments was delivered
- **Rail**
 - Purchased and distributed 33,000 tons of ballast stone
 - Installed 77,000 crossties and 1,100 switch timbers
 - Inspected 200 bridges and culverts; made major repairs to 17 bridges, replaced one bridge and three existing culverts
 - Reconstructed and upgraded 19 grade crossings and made signal upgrades to 8 crossings
 - Surfaced, lined, and tamped 210,000 feet of rail track (approximately 35 miles)
 - Reconstructed track, paving, and electric power for Cape Flyer trainset at Hyannis Yard



SFY 2018 Accomplishments continued

Information Technology

- ATLAS
 - MassDOT IT planned, developed and delivered a number of projects to support the go-live of ATLAS including:
 - Provision of credit/debit card payment options for all RMV services
 - Supporting expansion of RMV services to AAA locations (34)
 - Transitioning of RMV payment processing to new vendor resulting in lower processing fees
 - Worked with ATLAS team to ensure simultaneous use of legacy RMV (ALARS) system in parallel to ATLAS to deliver new driver licensing technology 18 months sooner
- Workforce Productivity
 - Developed an electronic field inspection report application for Highway field engineers to standardize processes and procedures of recording and approving daily inspection reports for all highway projects; eliminates the manual recording of a daily activities through hardcopy reporting in daily project ledgers.
 - Electronic application provides electronic document of record to support contract activities and for use in investigation of any vendor claims.



SFY 2018 Accomplishments continued

- **Chapter 90**

- \$872 M in expected reimbursements for municipal transportation improvements from FY15 through FY18
- Program provides funding to all 351 cities and towns in the Commonwealth based on the formula established by the Legislature (Road miles – 58.33%, Population – 20.83%, Employment – 20.83%)

- **Municipal Bridge Program**

- A total of \$21.2 M has been awarded for 48 municipal projects since inception (FY17)
 - 36 awards in March 2017 for \$16 M
 - 12 awards in January 2018 for \$5.2 M

- **Complete Streets Program – since inception (February 2016)**

- \$4.2 M technical assistance grants have been awarded to 112 municipalities
- \$27.4 M in construction grants have been awarded to 71 municipalities (\$23.2 M in executed construction grants)
- 152 municipalities have approved Complete Streets policies as of January 2018



SFY 2018 Accomplishments continued

- **RMV**
 - **ATLAS**
 - Release 1 went live on March 26, 2018
 - Registry began offering federally compliant REAL ID credentials
 - Opened 3 new Service Centers in Brockton, Plymouth, and Leominster to provide enhanced customer experience
 - Added 10 more AAA locations so that all 34 AAA locations in the state are offering Registry services
- **Transit**
 - Funded a total of 181 replacement vehicles for the RTAs
 - 45 >30 ft buses replaced
 - 135 <30 ft buses replaced
 - Funded the Lowell RTA's Gallaher Intermodal Center (Terminal Improvement) project which included addition of 1000 sq. feet of interior terminal space, new energy efficient LED lighting, improved customer amenities for seating, ticketing and technology, and new safety and surveillance features
 - Provided construction funding (\$39 million) for Year 2 of 3 for PVTA Cottage Street operations & maintenance facility
- **Aeronautics**
 - Reconstructed Runway 5-23 and Runway Safety Areas (RSAs) at Lawrence Municipal Airport, to extend the pavement useful life and to provide safe and unobstructed runway access for crash, fire, and emergency rescue equipment
 - Installed security cameras at (5) public use airports to halt aircraft break-ins, and provide clear runway & gate visibility
 - Began the build-out (second floor addition) of the snow removal equipment building at Norwood Airport for \$1.5M that will include additional office space for airport management and eliminate the need for a new airport administration building at a cost savings of \$2.5M.



FY2019-2023 CIP update: Appendix

Sources, program sizes and spending

April 18, 2018



MassDOT sources (Preliminary Draft)

Projected sources (in millions)	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>Total</u>
Federal sources of funds						
Federal Highway (FHWA) reimbursements**	\$661.1	\$803.5	\$770.8	\$746.0	\$794.4	\$3,775.8
Federal Transit (FTA) reimbursements***	\$4.6	\$4.7	\$4.8	\$4.9	\$5.1	\$24.1
Federal Aviation (FAA)** reimbursements and grant draws	\$27.1	\$26.5	\$27.1	\$25.1	\$27.5	\$133.3
Federal Rail (FRA) reimbursements and grant draws	\$4.6	\$1.0	\$0.0	\$0.0	\$0.0	\$5.6
Subtotal federal sources*	\$697.4	\$835.7	\$802.7	\$776.0	\$827.0	\$3,938.8
Bond cap	\$898.2	\$835.4	\$830.5	\$852.5	\$797.5	\$4,214.0
Accelerated Bridge bonds	\$69.5	\$17.2	\$0.0	\$0.0	\$0.0	\$86.6
Rail enhancement bonds	\$57.9	\$34.5	\$34.9	\$20.0	\$0.0	\$147.3
CARM****	\$385.8					\$385.8
Metropolitan Highway system (MHS) pay-go	\$56.3	\$54.5	\$45.5	\$44.0	\$41.7	\$242.0
Western Turnpike (WT) pay-go	\$83.5	\$81.8	\$80.5	\$78.4	\$76.7	\$401.0
Tobin Bridge (Tobin) pay-go	\$29.9	\$30.2	\$30.6	\$30.8	\$31.0	\$152.5
Gaming*****	\$0.0	\$30.0	TBD	TBD	TBD	\$30.0
Municipal and local funds	\$1.9	\$1.8	\$1.7	\$1.7	\$1.7	\$8.8
Reimbursable and 3 rd parties	\$2.3	\$1.9	\$1.8	\$10.4	\$12.1	\$28.6
Public private partnerships						
Subtotal of non-federal sources*	\$1,585.3	\$1,087.2	\$1,025.6	\$1,037.8	\$960.8	\$5,696.6
Total sources*	\$3,997.6	\$1,922.9	\$1,828.3	\$1,813.8	\$1,787.7	\$9,635.8

* Totals may not add due to rounding | **Recent omnibus spending bill passed included additional funding for FHWA and FAA, however, since no new apportionment amounts have been distributed to the regions any additional funding is not included. | ***FTA reimbursements for MassDOT projects only; RTA federal funds are not included | ****Requires FHWA approval to spend funds. | *****Awaiting further guidance.



MBTA funding sources (preliminary draft)

Projected sources (in millions)	<u>Funds on Hand</u> (as of 7/1/18)	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Total</u>
Federal sources of funds							
Federal Highway (FHWA) reimbursements	\$25.4	\$32.4	\$28.2	\$23.8	\$0.0	\$0.0	\$109.9
Federal Transit (FTA) reimbursements (prospective)	\$554.7	\$292.7	\$297.7	\$297.7	\$297.7	\$297.7	\$2,038.2
Existing FTA reimbursements and grant draws	\$700.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$700.2
FTA Full funding grant agreement (GLX FFGA)	\$518.8	\$150.0	\$150.0	\$100.0	\$46.1	\$0.0	\$965.0
Other federal funds	\$5.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$5.9
Subtotal federal sources	\$1,805.0	\$475.1	\$475.9	\$421.5	\$343.8	\$297.7	\$3,819.1
Bond cap	\$0.0	\$0.9	\$0.0	\$0.0	\$0.0	\$0.0	\$1.0
Accelerated Bridge bonds	\$0.0	\$2.0	\$1.1	\$0.6	\$0.3	\$1.0	\$5.0
Rail enhancement bonds	\$0.0	\$185.3	\$292.9	\$296.4	\$250.5	\$71.9	\$1,097.0
Revenue bonds	\$142.5	\$250.0	\$254.0	\$337.0	\$432.0	\$440.0	\$1,855.5
Positive Train Control (PTC) bonds	\$188.4	\$0.0	\$76.0	\$70.2	\$0.0	\$0.0	\$334.7
Metropolitan Highway system (MHS) pay-go	\$0.0	\$0.7	\$0.4	\$0.2	\$0.1	\$0.0	\$1.3
Municipal and local funds (GLX)	\$0.0	\$0.0	\$37.4	\$22.6	\$15.0	\$0.0	\$75.0
Reimbursable and 3 rd parties	\$8.3	\$9.4	\$8.9	\$16.0	\$25.7	\$15.6	\$84.0
Additional State Assistance*	\$99.9	\$150.0	\$150.0	\$150.0	\$150.0	\$150.0	\$849.9
Capital maintenance fund	\$10.6	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$10.6
Subtotal of non-federal sources	\$449.6	\$598.3	\$820.6	\$893.2	\$873.7	\$678.6	\$4,313.9
Total Sources	\$2,254.7	\$1,073.4	\$1,296.6	\$1,314.7	\$1,217.5	\$976.3	\$8,133.1

Note: The use of Revenue Bonds in each year of the CIP includes both cash on hand and new issuances. It does not represent the amount of new issuances anticipated each year. *Includes \$60M in State bond cap each year. | ** Totals may not sum due to rounding



Reliability programs



Reliability / Aeronautics / Airport Pavement Management System

Program purpose and need statement:

This program maintains the quality of pavement “inside the airport fence” at an adequate level. This program is necessary to continue safety and maintenance programs at public airports.

Status of asset management system:

Pavement Management System Inspections, PCI Index: The FAA requires that every 3 to 5 years, the PCI is updated. In the interim, MassDOT personnel will be able to track the PCI in the following ways: each year, the engineering staff will evaluate pavements at airports during their annual inspection; and when a pavement has been reconstructed, the PCI will be adjusted.

Program performance:

Tracker target*

2018 – 72% PCI
2020 – 85% PCI
Long Term – 85%
average PCI**

PfP tool forecast

87 average PCI for
airport pavement
by 2023*

FY2018-2022 size: \$114.3 million over five years

FY2019-2023 size request: \$123.3 million over five years

Justification for FY2019-2023 program size:

- Independent pavement analysis (2017) shows a decrease in the pavement condition index (PCI) at our public use airports (PCI 70 in FY13, PCI 68 FY17). Actual investment of \$17 million per year (\$23 million ask) not adequate to improve PCI and additional investment is warranted.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$5.0	\$4.9	\$3.4	\$2.9	\$4.2	\$20.4
FAA	\$18.7	\$21.2	\$12.2	\$24.9	\$19.2	\$96.2
Local	\$1.3	\$1.6	\$1.1	\$1.4	\$1.1	\$6.4
Total	\$25.0	\$27.8	\$16.7	\$29.3	\$24.3	\$123.0

Staff recommends CPC accept program size as requested;
Federal funding subject to FAA approval

Totals may not add due to rounding

* Tracker targets published in MassDOT's Annual Performance Report, November 2017

** This PfP forecast is based on new data collected from 2017

Reliability / Aeronautics / Airport Capital Improvement

Program purpose and need statement:

This program includes a full range of airport state of good repair projects. This program is necessary to continue safe and efficient airport operations and services.

Status of asset management system:

MassDOT does not own any airports but prioritizes projects using the FAA's National Priority Rating System criteria. FAA develops the state's priorities for airports with commercial service while the Aeronautics Division determines the priority ratings for general aviation airports. The Aeronautics Division meets with FAA to combine the two capital project lists which is sent to FAA HQ for final approval.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$155.0 million over five years

FY2019-2023 size request: \$146.0 million over five years

Justification for FY2019-2023 program size:

- Program dollars at 36 public-use airports is not adequate to maintain the existing airport system for the existing programs. Decreased preventative maintenance investment will result in the need for major future capital investment in the long run. Planned investments such as vegetation management (obstruction removal), and airport security cameras and fencing are necessary to ensure safe aircraft arrivals and departures.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$8.0	\$3.4	\$2.2	\$7.7	\$2.5	\$23.8
FAA	\$18.3	\$20.8	\$16.8	\$27.3	\$30.1	\$113.3
Local	\$1.6	\$1.0	\$0.9	\$1.5	\$1.8	\$6.7
Total	\$27.8	\$26.2	\$19.9	\$36.5	\$34.4	\$143.8

Staff recommends CPC accept program size as requested; Federal funding subject to approval of FAA

Totals may not add due to rounding



Reliability / Highway / All-electronic tolling

Program purpose and need statement:

This program converted the I-90 corridor from the New York border to Boston from a cash, toll booth system to a cashless system. Included in the program was the demolition of the former toll booths and realignment of exits and interchanges on the I-90 corridor.

Status of asset management system:

Not applicable

Program performance:

Tracker target

2018 – 90%
2020 – 92%
Long Term - 95% E-Z
Pass payment rate (vs.
pay-by-plate)

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$66.6 million over five years

FY2019-2023 size request: \$0 million; program complete

Justification for FY2019-2023 program size:

- Project spending is complete; no spending anticipated over the 2019-2023 plan; project will be closed out.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Tolls	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Reliability / Highway / Bridge

Program purpose and need statement:

This program maintains, reconstructs and replaces state and municipally owned bridges across the Commonwealth.

Status of asset management system:

Program is included in PONTIS and general Highway Asset Management Plan

Program performance

Tracker target

2018 - <14%
2020 - <13%
Long Term <10% NHS
deck area in structural
deficiency

PfP tool forecast

Under
development

FY2018-2022 size: \$1,998.6 million over five years

FY2019-2023 size request: \$2,281.2 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023) and assumptions of carryforward spending from FY2018
- New Tracker deck target is under development for FY2019
- Estimated program size is based on updated FFY 2019-2023 STIP targets and the new fifth year of the program. Estimated spending is based on advertisement program and includes allocation of \$253.5 million in design/project management costs.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$130.4	\$176.3	\$150.7	\$196.7	\$124.1	\$778.1
ABP	\$69.5	\$17.2				\$86.6
REP	\$6.4					\$6.4
FHWA	\$202.6	\$283.2	\$193.7	\$204.6	\$150.7	\$1,034.9
CARM	\$1.1					\$1.1
Tolls	\$49.4	\$48.2	\$42.8	\$28.6	\$27.6	\$196.4
Total	\$459.4	\$524.8	\$387.2	\$429.8	\$302.4	\$2,103.7

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Highway / Design, Environmental and Right of Way

Program purpose and need statement:

Costs associated with this program have been allocated to appropriate CIP programs supported by this effort and will no longer be included as a separate program. Costs associated with this effort include individual design, environmental permitting, and land taking contracts for approved projects.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$520.1 million over five years

FY2019-2023 size request: \$0.0 million over five years

Justification for FY2019-2023 program size:

- Costs have been incorporated into Highway's other CIP programs were appropriate.

Estimated spending over five-years: \$0.0

Funding source	2019 millions	2020	2021	2022	2023	2019- 2023
Bond						
Tolls						
Total						

Totals may not add due to rounding



Reliability / Highway / Equipment

Program purpose and need statement:

This program makes routine purchases of, and replaces, vehicles, equipment and other capital assets. This program is necessary for the daily operation of the department.

Status of asset management system:

Vehicle and other similar assets are included in the agency's fleet management programs.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$75.0 million over five years

FY2019-2023 size request: \$75.0 million over five years

Justification for FY2019-2023 program size:

- Recommend level funding budget for the next CIP cycle
- This program supports small equipment, vehicles and other capital assets

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$15.0	\$15.0	\$15.0	\$20.0	\$15.0	\$75.0
Tolls	\$5.0	\$5.0	\$5.0	\$5.0	\$5.0	\$25.0
Total	\$20.0	\$20.0	\$20.0	\$20.0	\$20.0	\$100.0

Program size for discussion

Totals may not add due to rounding

Reliability / Highway / Facilities

Program purpose and need statement:

This program maintains, repairs and replaces buildings, salt sheds, garages, vent buildings, and telecommunications and other systems owned by the Highway Division.

Status of asset management system:

System is under development

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$161.5 million over five years

FY2019-2023 size request: \$181.7 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023), assumptions of carryforward spending from FY2018 and allocation of \$20.2 million for design/project management costs.
- Program size should increase in the FY2020-2024 plan based on needs within districts, including District 6 relocation, Greenway facilities, ADA retrofits to district headquarters and depots or other projects in preliminary discussions

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$42.7	\$13.3	\$8.4	\$18.1	\$9.9	\$102.4
FHWA	\$0.5					\$0.5
Toll	\$8.7	\$4.6	\$2.6	\$18.6	\$22.2	\$56.7
Third Party				\$8.7	\$10.4	\$19.1
Total	\$51.9	\$17.9	\$11.0	\$45.4	\$52.6	\$178.7

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Highway / Interstate pavement

Program purpose and need statement:

This program resurfaces and performs related work on the interstate system. This program is necessary to improve pavement conditions.

Status of asset management system:

There is an extensive management system developed to reflect operational and asset condition of interstate and non-interstate network.

Program performance:

Tracker target

2018 – 85%
2020 – 88%
Long term - 90% of
pavement in good or
excellent condition

PfP tool forecast

**Under
development**

FY2018-2022 size: \$281.7 million over five years

FY2019-2023 size request: \$316.9 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023) and assumptions of carryforward spending from FY2018 and allocation of \$35.2 million for design/project management costs

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$29.4	\$17.9	\$5.2	\$5.1	\$11.1	\$68.8
FHWA	\$89.0	\$48.9	\$17.9	\$22.9	\$49.4	\$228.1
Toll	\$24.4	\$6.3	\$15.9	\$10.9	\$2.3	\$59.8
Total	\$142.7	\$73.1	\$39.1	\$38.9	\$62.8	\$356.6

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Highway / Municipal Bridge

Program purpose and need statement:

This program assists municipalities in repairing and replacing town owned bridges with a span length of less than 20 feet.

Status of asset management system:

These assets are not under the jurisdiction of MassDOT, but Highway works cooperatively to inspect and rate the condition of small bridges located across the Commonwealth. These inspections are recorded and maintained by the department.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$50.0 million over five years

FY2019-2023 size request: \$50.0 million over five years

Justification for FY2019-2023 program size:

- Current recommendation is to level fund this grant program.
- Spending is based on initial grant awards and future awards could result in spending post-CIP
- Highway is working with municipalities to effectively advance project awards.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$9.0	\$14.2	\$13.9	\$8.4	\$4.5	\$50.0
Total	\$9.0	\$14.2	\$13.9	\$8.4	\$4.5	\$50.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Highway / Non-Interstate pavement

Program purpose and need statement:

This program resurfaces and performs related work on non-interstate roads owned by MassDOT. This program is necessary to fund system-wide and site-specific projects to improve pavement condition.

Status of asset management system:

Program is included in existing pavement management system.

Program performance:

Tracker target

2018 – 62%
2020 – 62%
Long term - 62% of
pavement in good or
excellent condition

PfP tool forecast

Under
development

FY2018-2022 size: \$543.9 million over five years

FY2019-2023 size request: \$611.9 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023), assumptions of carryforward spending from FY2018 and allocation of \$68.0M for design/project management costs.
- Program is sized to address established PfP targets

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$38.1	\$40.8	\$29.7	\$30.1	\$27.1	\$165.8
FHWA	\$66.2	\$89.6	\$67.3	\$74.1	\$67.8	\$364.9
Tolls	\$0.9	\$0.7	\$0.6			\$2.2
Total	\$105.2	\$131.1	\$97.6	\$104.2	\$94.9	\$533.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Highway / Retainage and Utility Payments

Program purpose and need statement:

Costs associated with this program have been allocated to appropriate CIP programs supported by this effort. Costs associated with this program fund payments for utilities and close-out costs (at the end of a project).

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$50.0 million over five years

FY2019-2023 size request: \$0.0 million over five years

Justification for FY2019-2023 program size:

- Costs have been incorporated into Highway's other CIP programs were appropriate.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019- 2023
Bond						
Toll						
FHWA						
Total						

Totals may not add due to rounding

Reliability / Highway / Roadway Improvements

Program purpose and need statement:

This program performs pot hole, fencing, guardrail, and sidewalk maintenance, repairs and other related improvements on non-interstate state owned roadways. This program also includes federally funded storm water retrofit projects. This program is preventative in nature, and is necessary to maximize the useful life and condition of roadways.

Status of asset management system:

System is under development

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$150.0 million over five years

FY2019-2023 size request: \$168.8 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023), assumptions of carryforward spending from FY2018 and allocation of \$18.8M for design/project management costs.
- Program supports necessary and critical contracted services throughout the Commonwealth.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$34.7	\$43.7	\$10.9	\$6.3	\$5.7	\$101.3
FHWA	\$3.3	\$1.3	\$3.1	\$2.7	\$1.8	\$12.2
Toll	\$5.0	\$7.2	\$4.1	\$0.2		\$16.6
Total	\$43.1	\$52.2	\$18.0	\$9.2	\$7.5	\$130.1

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Highway / Safety Improvements

Program purpose and need statement:

This program, which is both state and federally funded, repairs traffic signals, highway lighting systems, impact attenuators, traffic signs and pavement markings. This program is necessary to provide a safe roadway network for Commonwealth residents and visitors.

Status of asset management system:

Not applicable

Program performance:

Tracker target

2018 – 0.63 fatalities; 6 injuries*
2020 - 0.62 fatalities; 6 injuries*
Long term – move to zero

PfP tool forecast

Not forecasted in
PfP

FY2018-2022size: \$235.8 million over five years

FY2019-2023 size request: \$265.3 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023), assumptions of carryforward spending from FY2018 and allocation of \$29.5M for design/project management costs.
- Program includes Work Zone Safety Program

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$15.5	\$14.5	\$8.8	\$7.7	\$3.0	\$49.5
FHWA	\$22.7	\$29.9	\$25.2	\$25.2	\$10.9	\$113.9
Toll	\$11.4	\$27.6	\$4.9			\$43.8
Total	\$49.8	\$71.9	\$38.9	\$32.9	\$13.9	\$207.2

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

*Tracker target per 100 million vehicle miles traveled (VMT)

Reliability / Highway / Tunnels

Program purpose and need statement: This program improves lighting, life safety systems and tunnel infrastructure.

Status of asset management system: Under development. The district uses several database and systems to track ongoing work within the network.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$350.0 million over five years

FY2019-2023 size request: \$393.8 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023), assumptions of carryforward spending from FY2018 and allocation of \$43.8M for design/project management costs.
- Updated needs assessment for the MHS Tunnel system is underway, including focus on critical safety improvements.
- Tunnel Lighting P3 and CARM projects will be included in this program once the procurements are finalized.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
CARM	\$20.5	\$58.4	\$57.8	\$9.3	\$5.1	\$151.0
Tolls	\$30.8	\$44.9	\$6.0	\$11.6	\$13.1	\$106.3
Total	\$51.3	\$103.3	\$63.8	\$20.8	\$18.1	\$257.3

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / IT / Asset Management

Program purpose and need statement:

This program delivers tools and processes to document, report on and manage MassDOT assets. These tools provide data on the asset life cycle. This program is necessary to maintain the reliability of Commonwealth assets by supporting a consistent approach to asset review and remediation.

Status of asset management system:

IT has completed implementation of MassDOT/MBTA enterprise self-service, project delivery, and associated tracking tools on the ServiceNow platform. The next step will build out the Change Management module of the platform. This will populate known IT asset information and identify additional assets to track as part of Configuration Management. The last step will be to link them to financial reporting systems to track cost of ownership and improve lifecycle management for these technical assets.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$15.5 million over five years

FY2019-2023 size request: \$15.5 million over five years

Justification for FY2019-2023 program size:

- All assets management investments including Highway, RMV and IT assets

Estimated spending over five-years:

Funding source	2018 millions	2019	2020	2021	2022	2018-2022
Bond	\$2.95	\$3.0	\$3.0	\$2.6	\$2.8	\$14.3
Total	\$2.95	\$3.0	\$3.0	\$2.6	\$2.8	\$14.3

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Reliability / IT / Desktop Experience

Program purpose and need statement:

This program delivers best in class, highly resilient technologies and services related to desktop and personal computing, conformance and mobile solutions/devices, and network and internet connectivity. This program is necessary to maintain best practices and state of good repair in desktop IT at MassDOT.

Status of asset management system:

IT has completed implementation of MassDOT/MBTA enterprise self-service, project delivery, and associated tracking tools on the ServiceNow platform. The next step will build out the Change Management module of the platform. This will populate known IT asset information and identify additional assets to track as part of Configuration Management. The last step will be to link them to financial reporting systems to track cost of ownership and improve lifecycle management for these technical assets.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$9.1 million over five years

FY2019-2023 size request: \$9.1 million over five years

Justification for FY2019-2023 program size:

- Program size will allow for the institution of best practice state of good repair policies for hardware and software replacement and integration. As well as software distribution for production, network access and security.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$1.8	\$1.9	\$1.95	\$1.9	\$2.0	\$9.6
Total	\$1.8	\$1.9	\$1.95	\$1.9	\$2.0	\$9.6

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / IT / Digital Infrastructure

Program purpose and need statement:

This program does a range of digital infrastructure work, including state of good repair hardware upgrades and support of operations in the Cloud. This program provides a modern, application-independent information architecture. This program is necessary to meet MBTA's and MassDOT's technology goals by sustaining the core computer, storage, telecommunications and network infrastructure.

Status of asset management system:

IT has completed implementation of MassDOT/MBTA enterprise self-service, project delivery, and associated tracking tools on the ServiceNow platform. The next step will build out the Change Management module of the platform. This will populate known IT asset information and identify additional assets to track as part of Configuration Management. The last step will be to link them to financial reporting systems to track cost of ownership and improve lifecycle management for these technical assets.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$19.9 million over five years

FY2019-2023 size request: \$19.9 million over five years

Justification for FY2019-2023 program size:

- Program size will allow for the institution of best practice state of good repair policies for hardware and software replacement and integration. Migration to cloud hosting with integration, testing and security certification (2 projects annually). Support for remaining hybrid environments.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$3.2	\$3.0	\$3.5	\$3.95	\$3.95	\$17.6
Total	\$3.2	\$3.0	\$3.5	\$3.95	\$3.95	\$17.6

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / IT / Cyber/Information security

Program purpose and need statement:

This program keeps IT infrastructure and software compliant with best practices and digital security standards to protect both agency and customer data. This program is necessary to maintain customer confidence when making secure transactions.

Status of asset management system:

IT has completed implementation of MassDOT/MBTA enterprise self-service, project delivery, and associated tracking tools on the ServiceNow platform. The next step will build out the Change Management module of the platform. This will populate known IT asset information and identify additional assets to track as part of Configuration Management. The last step will be to link them to financial reporting systems to track cost of ownership and improve lifecycle management for these technical assets.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$9.6 million over five years

FY2019-2023 size request: \$15.0 million over five years

Justification for FY2019-2023 program size:

- Security oriented foundational infrastructure, firewalls, web gateways and other cloud investments

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$3.5	\$3.0	\$3.0	\$3.0	\$3.8	\$16.1
Total	\$3.5	\$3.0	\$3.0	\$3.0	\$3.8	\$16.1

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / MBTA / Bridges and tunnels

Program purpose and need statement:

This program repairs, reconstructs and replaces MBTA commuter rail and transit bridges and tunnels system-wide.

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Prioritization of bridge projects based on condition ratings that use age, inspection and load ratings.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$544.7 million over five years

FY2019-2023 size request: \$ 544.7 million over five years

Justification for FY2019-2023 program size:

- Includes several significant bridge projects including North Station Draw, Gloucester, and Merrimack. Recommend maintaining 2018-2022 CIP program size

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$33.6	\$68.4	\$56.8	\$44.1	\$48.9	\$251.8
MBTA Bond	\$18.4	\$41.5	\$71.4	\$98.2	\$51.9	\$281.4
MBTA Pay-Go	\$4.0	\$8.3	\$0.0	\$0.0	\$0.0	\$12.3
State	\$1.0	\$0.4	\$0.2	\$0.1	\$0.0	\$1.7
Total	\$57.0	\$118.5	\$128.4	\$142.4	\$100.9	\$547.1

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Reliability / MBTA / Facilities

Program purpose and need statement:

This program rehabilitates and upgrades maintenance and administrative facilities that support MBTA operations.

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Review of vehicle maintenance facilities completed for Integrated Fleet and Facilities Plan. Enterprise Asset Management System for physical infrastructure in phased implementation, beginning with track assets.

Program performance:

Tracker target

% of facilities with condition rating
<3.0 in TERM* scale

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$112.6 million over five years

FY2019-2023 size request: \$355.0 million over five years

Justification for FY2019-2023 program size:

- Increased program size due to Integrated Fleet and Facilities Plan requirements and commitment to maintain, upgrade, and improve bus maintenance garages consistent with the L264 agreement

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$29.1	\$26.4	\$18.0	\$0.0	\$0.0	\$73.6
MBTA Bond	\$26.6	\$44.0	\$28.7	\$14.2	\$0.0	\$113.4
MBTA Pay-Go	\$18.7	\$25.8	\$14.7	\$0.6	\$0.0	\$59.8
State	\$15.0	\$20.0	\$20.0	\$45.0	\$0.0	\$100.0
Other	\$2.0	\$2.8	\$0.0	\$0.0	\$0.0	\$4.8
Total	\$91.4	\$119.0	\$81.4	\$59.8	\$0.0	\$351.6

*FTA's Transit Economic Requirements Model (TERM); scale of 1 to 5 with 5 being the highest rating

Staff recommends CPC accept program size as requested

Reliability / MBTA / Revenue vehicles

Program purpose and need statement:

This program rehabilitates and replaces the MBTA revenue fleet, which includes commuter rail, heavy rail, light rail, bus and ferry units.

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Full review of vehicle assets completed for Integrated Fleet and Facilities Plan. Planning full upgrade to Asset Management system for revenue and non-revenue transit vehicles.

Program performance:

Tracker target

% of units beyond Useful Life
Benchmark

PfP tool forecast

Not forecasted in PfP

FY2018-2022 size:

\$1,702.7 million over five years

FY2019-2023 size request:

\$1,289.9 million over five years

Estimated spending over five-years:

Justification for FY2019-2023 program size:

- RL/OL vehicle procurement moved to RL/OL Improvements program (-\$585M)
- Net increase to overall vehicles investment to align with estimated annual investment needed for fleet requirements identified in the Integrated Fleet and Facilities Plan

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$156.4	\$218.6	\$235.1	\$181.2	\$233.7	\$1,025.0
MBTA Bond	\$57.6	\$73.7	\$66.5	\$50.0	\$59.8	\$307.6
MBTA Pay-Go	\$13.9	\$6.2	\$12.5	\$0.0	\$0.0	\$32.7
State	\$0.0	\$0.0	\$0.00	\$0.0	\$0.00	\$0.0
Other	\$3.0	\$0.5	\$0.0	\$0.0	\$0.0	\$3.5
Total	\$231.0	\$299.0	\$314.13	\$231.2	\$293.6	\$1,368.9

Totals may not add due to rounding



Reliability / MBTA / Stations

Program purpose and need statement:

- This program rehabilitates and upgrades MBTA stations (e.g., commuter rail, commuter boat, subway and bus stations)

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Enterprise Asset Management System for physical infrastructure in phased implementation, beginning with track assets

Program performance:

Tracker target

% of units beyond Useful Life
Benchmark

PfP tool forecast

- Bus – 2.72 average TERM-lite SGR score by 2022
- Rapid transit – 3.61 average TERM-lite SGR score by 2022

FY2018-2022 size: \$400.8 million over five years

FY2019-2023 size request: \$400.8 million over five years

Justification for FY2019-2023 program size:

- Maintain 2018-2022 CIP program size
- Major projects underway include Wollaston Station, South Shore Garages, Ruggles Station upgrade, Harvard Busway repairs, and parking lot paving
- Projects primarily focused on SGR; accessibility-driven projects funded in Modernization/Accessibility program
- Updating station signage, wayfinding, and other customer improvements funded in Modernization/Customer Experience and Technology program

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$40.1	\$65.5	\$74.5	\$27.5	\$3.1	\$210.7
MBTA Bond	\$21.2	\$42.0	\$46.4	\$15.1	\$11.0	\$135.7
MBTA Pay-Go	\$17.7	\$16.9	\$17.3	\$7.3	\$5.8	\$65.0
State	\$0.7	\$4.0	\$13.2	\$8.4	\$0.0	\$26.3
Other	\$0.0	\$0.0	\$7.4	\$16.8	\$6.3	\$30.5
Total	\$79.7	\$128.4	\$158.8	\$75.0	\$26.22	\$468.2

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / MBTA / System upgrades

Program purpose and need statement:

This program upgrades a wide range of MBTA systems including communications, security, computer technology, fare collection, asset management and environmental remediation systems. It also rehabilitates non-revenue vehicles and equipment.

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements.

Program performance:

Tracker target

Non-revenue vehicles: % of vehicles beyond useful life benchmark

PfP tool forecast

Not forecasted in PfP tool

FY2018-2022 size: \$390.9 million over five years

FY2019-2023 size request: \$235.0 million over five years

Justification for FY2019-2023 program size:

- Updated program size to focus on core systems and equipment reliability

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$27.8	\$26.6	\$28.0	\$0.6	\$0.0	\$83.0
MBTA Bond	\$22.9	\$26.0	\$21.2	\$10.3	\$3.5	\$83.9
MBTA Pay-Go	\$37.4	\$12.8	\$7.8	\$7.6	\$4.4	\$70.1
Total	\$88.2	\$65.4	\$57.0	\$18.5	\$8.0	\$237.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Reliability / MBTA / Track, signals, and power

Program purpose and need statement:

This program rehabilitates, replaces and upgrades track, signal and power assets across the commuter rail and transit system.

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Enterprise Asset Management System for physical infrastructure in phased implementation, beginning with track assets

Program performance:

Tracker target

Not established - average commuter rail track SGR score and average rapid transit track SGR score

PfP tool forecast

Not forecasted in PfP tool

FY2018-2022 size: \$1,285.6 million over five years

FY2019-2023 size request: **\$950.0** million over five years

Justification for FY2019-2023 program size:

- Red/Orange Line Signal investments moved to RL/OL Improvements program (-\$332M)
- Major projects underway include Green Line Signal Program, North Station Signals, Orange Line Traction Power, Commuter Rail Tracks, Ties, and Switches, and various projects executed on the Northeast Corridor/Providence/Stoughton Line in partnership with Amtrak
- Major Green Line track renewal program in development

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$46.0	\$93.8	\$139.6	\$82.1	\$46.7	\$408.0
MBTA Bond	\$61.5	\$93.1	\$100.0	\$50.1	\$38.1	\$342.7
MBTA Pay-Go	\$16.4	\$16.3	\$14.3	\$14.2	\$5.0	\$66.1
State	\$20.0	\$27.8	\$23.5	\$0.0	\$0.0	\$71.3
Other	\$9.4	\$9.0	\$8.6	\$9.0	\$9.3	\$45.2
Total	\$153.2	\$239.9	\$285.9	\$155.3	\$99.1	\$933.3

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Rail / Bridges

Program purpose and need statement:

This program repairs or replaces bridges to avoid deterioration, keep or restore class of line, or maintain utility. Prioritization of projects within this program reflect most recent inspections, type of usage (ex: hazardous cargo), and any contractual or regulatory requirements for action.

Status of asset management system:

Consultant services engaged to prepare asset management plan.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

9 bridge projects
completed per
year

FY2018-2022 size: \$53.2 million over five years

FY2019-2023 size request: \$56.2 million over five years

Justification for FY2019-2023 program size:

- Program sized to address number of identified bridge projects that require significant repair and/or replacement

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$21.5	\$11.2	\$4.4	\$2.7	\$17.3	\$57.2
REP	\$1.5					\$1.5
Total	\$23.0	\$11.2	\$4.4	\$2.7	\$17.3	\$58.7

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Reliability / Rail / Facility reliability

Program purpose and need statement:

This program repairs or replaces rail facilities, specifically rail yards and stations, to avoid deterioration or maintain the facility's utility. Prioritization of program projects will reflect condition reports, type of risk/usage, and any contractual or regulatory requirements for action. This program is necessary to maintain a safe and reliable rail system.

Status of asset management system:

Consultant services engaged to prepare asset management plan.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$15.0 million over five years

FY2019-2023 size request: \$16.7 million over five years

Justification for FY2019-2023 program size:

- Program sized to address number of identified bridge projects that require significant repair and/or replacement.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$2.6	\$4.5	\$0.2	\$3.7	\$0.4	\$11.4
Total	\$2.6	\$4.5	\$0.2	\$3.7	\$0.4	\$11.4

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Reliability / Rail / Grade crossings

Program purpose and need statement:

This program repairs or replaces grade crossings to avoid deterioration, keep or restore class of line, or maintain the crossing's utility. Prioritization of projects in this program will reflect federal guidelines, most recent inspections, type of usage (ex: hazardous cargo), and any contractual or regulatory requirements for action. This program is necessary to maintain a safe and reliable rail system.

Status of asset management system:

Consultant services engaged to prepare asset management plan.

Program performance:

Tracker target

1.79 highway-rail incidents/1000 grade crossings

PfP tool forecast

54% of grade crossings in desired state

FY2018-2022 size: \$36.5 million over five years

FY2019-2023 size request: \$36.5 million over five years

Justification for FY2019-2023 program size:

- Program size accounts for new federal OA spending available (plus state match) and other projects funded with solely with state funds
- Program sized to address number of identified grade crossings.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$7.6	\$5.1	\$1.8	\$1.7	\$4.0	\$20.2
FHWA	\$3.8	\$2.0	\$2.0	\$2.0	\$2.0	\$11.8
Private	\$0.4	\$0.2	\$0.07	\$0.2	\$0.2	\$0.9
Total	\$11.7	\$7.3	\$3.9	\$3.8	\$6.2	\$32.9

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Rail / Vehicle reliability

Program purpose and need statement:

This program repairs, replaces, or acquires rail equipment (locomotives, coaches, ballast cars, light duty vehicles, etc.) to facilitate reliable service, avoid deterioration, or support activities to maintain or restore class of line. This program is necessary to maintain the rail system in good condition.

Status of asset management system:

Consultant services engaged to prepare asset management plan.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$5.3 million over five years

FY2019-2023 size request: \$5.3 million over five years

Justification for FY2019-2023 program size:

- 2019-2023 program maintains the similar funding level as last plan to address SGR issues to maintain or restore usage of the facilities

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$1.0	\$0.5	\$0	\$3.2	\$1.2	\$5.9
Total	\$1.0	\$0.5	\$0	\$3.2	\$1.2	\$5.9

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Rail / Track and right-of-way reliability

Program purpose and need statement:

This program repairs or replaces assets within the rail right of way (typically ties, rail, ballast, culverts, switches, etc.) to avoid deterioration, keep or restore class of line, or maintain the line's utility. Prioritization will reflect most recent inspections, type of usage (ex: hazardous cargo), and any contractual or regulatory requirements for action. This program is necessary to maintain a safe and reliable rail system.

Status of asset management system:

Consultant services engaged to prepare asset management plan

Program performance:

Tracker target

26,000 ties
repaired per year

PfP tool forecast

26,000 ties
repaired per year

FY2018-2022 size: \$138.3 million over five years

FY2019-2023 size request: \$138.3 million over five years

Justification for FY2019-2023 program size:

- Program sized to address number of right of way projects that require maintenance or significant investment to maintain class of service

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$36.5	\$25.6	\$19.3	\$20.8	\$35.7	\$137.9
REP	\$2.0					\$2.0
Total	\$38.6	\$25.6	\$19.3	\$20.8	\$35.7	\$139.9

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Reliability / RMV / Operations maintenance

Program purpose and need statement:

- This program maintains and improves existing operating systems that support service delivery, application platforms, and electronic records retention.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$0.9 million over five years

FY2019-2023 size request: \$1.1 million over five years

Justification for FY2019-2023 program size:

- Program adjusted for 2019-2023 to reflect activities programmed for 2019

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$0.3	\$0.2	\$0.2	\$0.2	\$0.2	\$1.1
Total	\$0.3	\$0.2	\$0.2	\$0.2	\$0.2	\$1.1

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Transit / Mobility Assistance Program

Program purpose and need statement:

This program purchases vans and related equipment used to provide transportation for elderly people and individuals with disabilities of all ages. This program uses funds from Councils on Aging, RTAs and non-profits.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$50.1 million over five years

FY2019-2023 size request: \$50.1 million over five years

Justification for FY2019-2023 program size:

- Updated federal dollar estimates in the out years have resulted in a small increase in the program size. Bond cap amount remains flat for all five years.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$4.0	\$4.0	\$4.0	\$4.0	\$4.0	\$20.0
FTA	\$4.6	\$4.7	\$4.8	\$4.9	\$5.1	\$24.1
Total	\$8.6	\$8.7	\$8.8	\$8.9	\$9.1	\$44.1

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Transit / RTA facility and vehicle maintenance

Program purpose and need statement:

The program addresses the maintenance, rehabilitation and upkeep of existing RTA facilities or vehicles.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established in Tracker - facility condition (range)

PfP tool forecast

Not forecasted in PfP tool

FY2018-2022 size: \$10.0 million over five years

FY2019-2023 size request: \$17.5 million over five years

Justification for FY2019-2023 program size:

- Updated project lists for all five years were submitted by the RTAs which may account for changes in the overall amount of funding forecasted.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$3.4	\$1.8	\$0.9	\$0.8	\$2.2	\$9.1
Total	\$3.4	\$1.8	\$0.9	\$0.8	\$2.2	\$9.1

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Reliability / Transit / Technical assistance

Program purpose and need statement: This program provides technical assistance to support the transit program (grants management systems, vehicle inspections, etc.).

Status of asset management system: Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$10.0 million over five years

FY2019-2023 size request: \$10.0 million over five years

Justification for FY2019-2023 program size:

- This program is funded at a flat level for five years.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$2.0	\$2.0	\$2.0	\$2.0	\$2.0	\$10.0
Total	\$2.0	\$2.0	\$2.0	\$2.0	\$2.0	\$10.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / Transit / RTA vehicle replacement

Program purpose and need statement:

This program replaces existing Regional Transit Authorities' (RTA) vehicles so that they meet state of good repair standards.

Status of asset management system:

The RTAs and MassDOT are working to implement the new FTA Transit Asset Management (TAM) plan. TAM is due in October 2018 to FTA.

Program performance:

Tracker target

Not established - demand response vehicle age
Not established - revenue vehicle condition

PfP tool forecast

7.4 average fleet age in years (up from 4.9)

FY2018-2022 size: \$58.0 million over five years

FY2019-2023 size request: \$92.3 million over five years

Justification for FY2019-2023 program size:

- The updated program size reflects the total need as identified by the RTAs. Bond funds leverage RTAs' federal funds.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$12.1	\$7.7	\$14.5	\$10.6	\$13.9	\$58.7
Total	\$12.1	\$7.7	\$14.5	\$10.6	\$13.9	\$58.7

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Reliability / ODCR*/OTP / Pre-apprenticeship

Program purpose and need statement:

This program, for which MassDOT is partnering with a number of stakeholders, facilitates the introduction of additional pre-apprentices to skilled trades within our construction program. This program is necessary to provide low-income and other disadvantaged communities with access to training and employment opportunities within the construction trades.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2023 size: \$4.6 million over five years

FY2019-2023 size request: \$4.6 million over five years

Justification for FY2019-2023 program size:

- Recommend level funding budget for the next CIP cycle.
- Program was launched in FY 2018.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$1.1	\$1.1	\$1.4	\$0	\$0	\$3.6
Total	\$1.1	\$1.1	\$1.4	\$0	\$0	\$3.6

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

*ODCR is under Planning (OTP) & Enterprise Services



Modernization programs



Modernization / Aeronautics / Airport Administration Buildings

Program purpose and need statement:

This program builds or renovates airport administration buildings as recommended by the 2010 Statewide Airport System Plan, which identified 17 airports that did not have existing, or adequate administration buildings. This program is necessary to provide adequate administrative spaces in airports, which is integral to improving the safety, efficiency, and business growth of the airport asset.

Status of asset management system:

Program called for the building or renovating of 17 buildings over a period of 5 to 8 years.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$25.0 million over five years

FY2019-2023 size request: \$25.0 million over five years

Justification for FY2019-2023 program size:

- The poor state of repair of legacy administration and terminal buildings are severely restricting the potential economic impact of successful airports, as well as impeding the positive momentum of marginal airports.
- Centralizing essential services provided by the administration buildings will position facilities as true nerve centers to improve safety, increase efficiency, promote business growth, attract and improve relations with the community, and overall optimization of the airport asset.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$8.0	\$4.9	\$4.5	\$2.9	\$3.7	\$24.0
Local	\$0.4	\$0.3	\$0.2	\$0.2	\$0.2	\$1.3
Total	\$8.4	\$5.2	\$4.7	\$3.1	\$3.9	\$25.3

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / Highway / ADA Retrofits

Program purpose and need statement:

This program improves the condition and accessibility of state owned sidewalks. This program is necessary to meet obligations identified under the MassDOT ADA Transition Plan.

Status of asset management system:

An extensive inventory of curb ramps exists. The inventory is updated by highway district staff as locations are reconstructed.

Program performance:

Tracker target

2018 – 40% reduction
from FY 12
2020 – 60% reduction
from FY 12
Long term - 0 failed or
missing

PfP tool forecast

In development

FY2018-2022 size: \$19.4 million over five years

FY2019-2023 size request: \$21.8 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023), assumptions of carryforward spending from FY2018 and allocation of \$2.4 million for design/project management costs.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$1.4	\$3.7	\$5.9	\$3.3	\$0.2	\$14.5
FHWA	\$3.4	\$2.7	\$1.2	\$1.1	\$0.6	\$8.9
Total	\$4.8	\$6.4	\$7.1	\$4.4	\$0.8	\$23.5

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / Highway / Allston multi-modal

Program purpose and need statement:

This program reconstructs and realigns the Allston interchange to improve safety for all transportation modes: walking, cycling, driving, transit and to create a vibrant Allston neighborhood reconnecting sections to each other and to the Charles River.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$0.0 million over five years

FY2019-2023 size request: \$16.0 million over five years

Justification for FY2019-2023 program size:

- Includes Allston viaduct, rail and layover facilities, new transit and bus station, pedestrian and open space, new connector roadways, among other components.
- Initial program size for design and permitting effort only; further details to be provided for construction as design progresses.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
MHS	\$8.0	\$8.0	TBD	TBD	TBD	\$16.0
Total	\$8,0	\$8.0				\$16.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Modernization / Highway / Complete Streets

Program purpose and need statement: This program rewards communities that demonstrate a commitment to embedding Complete Streets in their policies and practices by providing them with technical assistance and funding. This program improves the condition and accessibility of state owned sidewalks.

Status of asset management system: Not applicable

Program performance:	Tracker target	Number of municipalities with approved Complete Streets policies	PfP tool forecast	Not forecasted in PfP
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FY2018-2022 size: \$50.0 million over five years

FY2019-2023 size request: \$50.0 million over five years

Justification for FY2019-2023 program size:

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$12.4	\$12.5	\$3.1	\$01	\$0.1	\$28.3
Total	\$12.4	\$12.5	\$3.1	\$01	\$0.1	\$28.3

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Modernization / Highway / Intelligent Transportation Systems

Program purpose and need statement:

This program supports innovative and new communication equipment and information technology systems (signs, cameras, sensors, etc.) designed to provide real time traffic information to residents and visitors. This program is necessary to improve our network of communication tools, to allow drivers to make better informed decisions regarding travel options.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$72.5 million over five years

FY2019-2023 size request: \$81.6 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023), assumptions of carryforward spending from FY2018 and allocation of \$9.1 million for design/project management costs.
- Program staff are focusing on project development and implementation in the next CIP cycle.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$6.3	\$7.0	\$8.3	\$7.4	\$7.3	\$36.3
FHWA	\$6.3	\$9.7	\$14.9	\$15.6	\$10.0	\$56.6
Tolls	\$1.7	\$2.0	\$0.6	\$0.2	\$0.2	\$4.6
Total	\$14.3	\$18.7	\$23.9	\$23.2	\$17.4	\$97.5

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Modernization / Highway / Intersection Improvements

Program purpose and need statement:

This program upgrades and improves traffic signals and intersections. This program is necessary to meet safety improvement targets.

Status of asset management system:

Not applicable

Program performance:

Tracker target

2018 – 0.63 fatalities; 6 injuries*
2020 - 0.62 fatalities; 6 injuries*
Long term – move to zero

PfP tool forecast

Under development

FY2018-2022 size: \$160.7 million over five years

FY2019-2023 size request: \$180.8 million over five years

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023), assumptions of carryforward spending from FY2018 and allocation of \$20.1 million for design/project management costs.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$7.6	\$12.7	\$12.5	\$8.3	\$11.3	\$52.3
FHWA	\$17.4	\$36.8	\$40.3	\$29.6	\$40.8	\$164.9
Tolls	\$0.1					\$0.1
Total	\$25.1	\$49.5	\$52.8	\$37.8	\$52.2	\$217.4

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

*Tracker target per 100 million vehicle miles traveled (VMT)

Modernization / Highway / Roadway Reconstruction

Program purpose and need statement:

This program improves the overall condition of roads, by supporting both large and small state and municipal investments. Nearly all of the projects in this program include improvements to bicycle and pedestrian user spaces.

Status of asset management system:

Included within various pavement and other asset management systems maintained by the department.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$1,261.0 million over five years

FY2019-2023 size request: \$1,418.6 million over five years

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$40.0	\$57.6	\$91.6	\$79.7	\$107.8	\$376.7
FHWA	\$90.6	\$132.5	\$215.8	\$186.0	\$283.0	\$907.9
CARM	\$12.1	\$4.9				\$16.9
Tolls	\$4.1	\$2.3	\$2.2	\$2.2	\$67.7	\$78.7
Total	\$146.8	\$197.3	\$309.7	\$267.9	\$458.6	\$1,380.2

Justification for FY2019-2023 program size:

- Program size includes new fifth year (FY2023), assumptions of carryforward spending from FY2018 and allocation of \$157.6 million for design/project management costs.
- Recommend program size is due construction spending on Charlton/Oxford, Route 97 and I-495/I-90 interchange.
- Forecasted program size does not include construction spending on the I-90 Viaduct based on the current ad date of October 2022. Costs associated with I-90 Viaduct are included in new Allston Multi-Modal program for 2019-2023.

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / IT / Customer Digital Experience

Program purpose and need statement:

This program ensures that MassDOT and MBTA websites present clear, concise, and timely information to the public at all times. This program is necessary to ensure that transportation system users have successful interactions with MassDOT public facing websites.

Status of asset management system:

IT has completed implementation of MassDOT/MBTA enterprise self-service, project delivery, and associated tracking tools on the ServiceNow platform. The next step will build out the Change Management module of the platform. This will populate known IT asset information and identify additional assets to track as part of Configuration Management. The last step will be to link them to financial reporting systems to track cost of ownership and improve lifecycle management for these technical assets.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$10.0 million over five years

FY2019-2023 size request: \$10.0 million over five years

Justification for FY2019-2023 program size:

- Beacon Installation (\$1M) and State Highway Access Permitting system (\$1.4M) currently under way.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$1.9	\$0.9	\$1.6	\$1.6	\$1.5	\$7.5
Total	\$1.9	\$0.9	\$1.6	\$1.6	\$1.5	\$7.5

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / IT / Enterprise/BRP/Automation

Program purpose and need statement:

This program improves the ways that MassDOT manages and optimizes core functionality (such as document management, file shares, workflows, etc.) through business needs analysis and the implementation of enterprise solutions that are scalable, resilient and have an extensive ecosystem.

Status of asset management system:

IT has completed implementation of MassDOT/MBTA enterprise self-service, project delivery, and associated tracking tools on the ServiceNow platform. The next step will build out the Change Management module of the platform. This will populate known IT asset information and identify additional assets to track as part of Configuration Management. The last step will be to link them to financial reporting systems to track cost of ownership and improve lifecycle management for these technical assets.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$19.5 million over five years

FY2019-2023 size request: \$19.5 million over five years

Justification for FY2019-2023 program size:

- Funding MBTA Financial Systems upgrades is under consideration.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$2.4	\$3.8	\$4.0	\$4.0	\$4.0	\$18.1
Total	\$2.4	\$3.8	\$4.0	\$4.0	\$4.0	\$18.1

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / IT / Workforce Productivity

Program purpose and need statement:

This program improves business processes through automated workflows and other electronic means at the department level. This program also may include investments that improve process timelines, reduce paperwork, and contribute to efficiency.

Status of asset management system:

IT has completed implementation of MassDOT/MBTA enterprise self-service, project delivery, and associated tracking tools on the ServiceNow platform. The next step will build out the Change Management module of the platform. This will populate known IT asset information and identify additional assets to track as part of Configuration Management. The last step will be to link them to financial reporting systems to track cost of ownership and improve lifecycle management for these technical assets.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$14.2 million over five years

FY2019-2023 size request: \$14.2 million over five years

Justification for FY2019-2023 program size:

- CRASH, FAPRO and Highway Document Management underway. A number of other projects such as Aurigo's Capital Planning and Tracking System and Masterworks Module Implementations and HR Learning Management System under consideration.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$4.4	\$4.9	\$3.0	\$3.0	\$3.0	\$18.3
Total	\$4.4	\$4.9	\$3.0	\$3.0	\$3.0	\$18.3

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / MBTA / Accessibility

Program purpose and need statement:

This program improves accessibility at MBTA commuter rail, subway and bus stations. This program is necessary to meet the goals of the Authority's Plan for Accessible Transit Infrastructure ("PATI").

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Enterprise Asset Management System for physical infrastructure in phased implementation, beginning with track assets

Program performance:

Tracker target

Not established -
platform
accessibility

PfP tool forecast

87% of heavy rail
stations ADA
compliant by 2022

FY2018-2022 size: \$98.6 million over five years

FY2019-2023 size request: **\$265.0** million over five years

Justification for FY2019-2023 program size:

- Increase in program size to reflect additional PATI priority investments in station reconstruction (e.g. high-level platforms) and vertical transportation (e.g. elevators)
- Major projects underway include elevator program and Symphony Station
- Accessibility projects often involve SGR improvements to stations as well

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$35.4	\$63.8	\$46.0	\$36.7	\$10.4	\$192.3
MBTA Bond	\$13.4	\$22.0	\$25.1	\$9.5	\$2.6	\$72.5
MBTA Pay-Go	\$0.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.5
Total	\$49.3	\$85.7	\$71.1	\$46.1	\$13.0	\$265.3

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / MBTA / Risk management and mitigation

Program purpose and need statement:

This program implements risk management initiatives as well as proactive efforts to improve workplace safety and system security

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Enterprise Asset Management System for physical infrastructure in phased implementation, beginning with track assets

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$538.8 million over five years

FY2019-2023 size request: \$177.1 million over five years

Justification for FY2019-2023 program size:

- Renamed program to reflect proactive approach to safety, security, and risk management (program name was Federal Programs and Mandates in FY2018-2022 CIP.)
- PTC moved to Commuter Rail Safety and Resiliency Program (-\$339M)
- Major projects underway are Green Line Train Protection and system-wide security upgrades

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$19.6	\$29.3	\$29.1	\$17.8	\$2.6	\$98.5
MBTA Bond	\$14.6	\$19.9	\$15.	\$8.2	\$4.1	\$62.5
MBTA Pay-Go	\$3.8	\$4.4	\$3.5	\$2.5	\$2.7	\$16.9
Total	\$38.0	\$53.7	\$48.3	\$28.5	\$9.4	\$177.8

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / MBTA / Process improvements and innovation

Program purpose and need statement: This program includes investments in innovations that enhance productivity or quality of MBTA services and capital programs.

Status of asset management system: Not applicable

Program performance:

Tracker target	Not established in Tracker	PfP tool forecast	Not forecasted in PfP tool
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FY2018-2022 size: \$0.0 million over five years

FY2019-2023 size request: \$25.0 million over five years

Justification for FY2019-2023 program size:

- Renamed from “System Improvements” to reflect projects that introduce technology or other tools to improve or modernize MBTA business processes
- Major projects underway are Green Line LEAN study, Commuter Rail vision, PMIS eBuilder implementation

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
MBTA Bond	\$3.9	\$4.8	\$1.0	\$0.0	\$0.0	\$9.8
MBTA Pay-Go	\$10.7	\$4.1	\$0.1	\$0.0	\$0.0	\$14.9
Total	\$14.7	\$8.9	\$1.1	\$0.0	\$0.0	\$24.7

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Modernization / MBTA / Customer experience and technology

Program purpose and need statement:

This program includes improvement projects that modernize the system and enhance customers' experience.

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Enterprise Asset Management System for physical infrastructure in phased implementation, beginning with track assets

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$0.0 million over five years

FY2019-2023 size request: \$104.0 million over five years

Justification for FY2019-2023 program size:

- Included as part of "System Improvements" in 2018-2022 CIP; renamed to reflect projects that enhance customer experience through technology, signage, or other improvements
- Major projects underway are Park Street Wayfinding, T Digital Service, and Green Line Real Time Tracking.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$5.5	\$2.7	\$0.80=	\$0.0	\$0.0	\$9.0
MBTA Bond	\$11.4	\$13.7	\$20.2	\$8.0	\$0.0	\$53.3
MBTA Pay-Go	\$10.1	\$2.3	\$2.0	\$0.0	\$0.0	\$14.4
State	\$10.4	\$12.6	\$6.9	\$3.5	\$0.0	\$33.4
Total	\$37.5	\$31.2	\$29.9	\$11.5	\$0.0	\$110.1

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / MBTA / AFC 2.0

Program purpose and need statement:

The AFC 2.0 program will implement a new reliable and convenient fare payment and collection system, integrated across all modes, to replace CharlieCards/Tickets and their supporting hardware and software.

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Enterprise Asset Management System for physical infrastructure in phased implementation, beginning with track assets

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$0.0 million over five years

FY2019-2023 size request: **\$160.0** million over five years

Justification for FY2019-2023 program size:

- Included as part of “System Improvements” in 2018-2022 CIP.
- AFC 2.0 is a high-profile and complex program that should be managed and monitored separately from other customer technology investments
- Total investment in \$407 million over life of the project; program size reflects MBTA payments within the five-year CIP window

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
MBTA Bond	\$26.1	\$30.1	\$33.5	\$35.1	\$34.8	\$159.6
MBTA Pay-Go	\$0.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.5
Total	\$26.5	\$30.1	\$33.5	\$35.1	\$34.8	\$160.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / MBTA / Red Line / Orange Line improvements

Program purpose and need statement:

The Red Line and Orange Line Improvements program includes the set of vehicle and infrastructure investments needed to fully modernize the fleet and achieve the service goal of three minute headways on the Red Line and three and a half minute headways on the Orange Line.

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Enterprise Asset Management System for physical infrastructure in phased implementation, beginning with track assets

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size:

\$0.0 million over five years

FY2019-2023 size request: \$1,565.7 million over five years

Estimated spending over five-years:

Justification for FY2019-2023 program size:

- The Red Line/Orange Line vehicle procurements, signals work, and infrastructure investments are a complex and high profile project with interdependencies across asset classes.
- Includes Red Line/Orange Line vehicle procurements previously in Revenue Vehicles program, Red Line Signals previously in Track, Signals, and Power program, and Cabot and Wellington Yard rebuild, previously in the System Improvements program.

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$9.9	\$37.0	\$56.3	\$60.0	\$34.8	\$197.8
MBTA Bond	\$16.1	\$109.1	\$140.3	\$98.0	\$166.0	\$529.6
MBTA Pay-Go	\$1.2	\$1.5	\$0.00	\$0.0	\$0.0	\$2.7
State	\$126.6	\$222.4	\$219.9	\$223.5	\$43.2	\$835.6
Total	\$153.8	\$370.0	\$416.4	\$381.6	\$243.9	\$1,565.7

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / MBTA / Commuter rail safety and resiliency (PTC)

Program purpose and need statement:

This program includes projects that improve the safety and resiliency of the Commuter Rail network, including the implementation of Positive Train Control.

Status of asset management system:

MBTA Transit Asset Management Plan and Asset Inventory and Condition Assessments under development, consistent with FTA requirements. Enterprise Asset Management System for physical infrastructure in phased implementation, beginning with track assets

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$0.0 million over five years

FY2019-2023 size request: \$637.5 million over five years

Justification for FY2019-2023 program size:

- New program for 2019-2023 to reflect various safety and resiliency efforts underway on the Commuter Rail network, primarily PTC
- Includes PTC Implementation from former Federal Programs and Mandates program, ATC implementation (new for FY 2019-2023), vegetation management, and fiber installation (new for FY 2019-2023).

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$3.2	\$33.6	\$40.9	\$1.6	\$0.0	\$79.4
MBTA Bonds	\$0.8	\$8.4	\$10.2	\$0.4	\$0.0	\$19.8
PTC Bonds	\$98.0	\$94.8	\$92.1	\$51.8	\$0.0	\$336.7
MBTA Pay-Go	\$6.5	\$6.2	\$40.0	\$76.3	\$34.5	\$163.6
State	\$0.0	\$0.0	\$0.0	\$6.5	\$40.7	\$47.2
Total	\$108.5	\$143.1	\$183.1	\$136.7	\$75.2	\$646.6

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Modernization / Rail / Bridge modernization

Program purpose and need statement:

This program repairs or replaces bridges to upgrade capacity to current industry standards for the line or maintain their utility. Prioritization will reflect economic opportunities for the line, most recent inspections, type of usage (ex: hazardous cargo), any contractual or regulatory requirements for action and consistency with the Statewide Rail Plan. This program is necessary to maintain a safe, reliable, cost effective, and modern rail system (ex: 286,000 lbs).

Status of asset management system:

Consultant services engaged to prepare asset management plan.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size:

\$0 over five years

FY2019-2023 size request:

\$0 over five years

Justification for FY2019-2023 program size:

- Program size to be developed to address 286,000 lb. modernization initiative from the new Statewide Rail Plan

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019- 2023
Bond	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / Rail / Facility modernization

Program purpose and need statement:

This program repairs or replaces rail facilities, specifically rail yards and stations, to upgrade them to current industry standards or maintain the facility's utility. Prioritization of projects in this program will reflect economic opportunities for the line served, condition reports, type of risk/usage, and any contractual or regulatory requirements for action and consistency with the Statewide Rail Plan. This program is necessary to maintain a safe, reliable, cost effective, and modern rail system.

Status of asset management system:

Consultant services engaged to prepare asset management plan.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$10.5 million over five years

FY2019-2023 size request: \$13.25 million over five years

Justification for FY2019-2023 program size:

- FY 2019-2023 program sized to continue effort to modernize rail facilities to address regulatory and contractual requirements
- Includes completion of Springfield Union Station and Northampton and Greenfield Stations on the Knowledge Corridor
- \$6.5 million will be needed for Springfield Union Station's Platform "C" (\$10.5 million was included in FY2018)
- Delays with Amtrak approvals have extended the completion of the platform

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$7.5	\$0	\$0	\$0	\$1.0	\$8.5
REP	\$4.5					\$4.5
Total	\$12.0	\$0	\$0	\$0	\$1.0	\$13.0

Totals may not add due to rounding



Modernization / Rail / Industrial Rail Access Program

Program purpose and need statement:

This program makes investments in private sector rail lines to leverage private investment that will increase freight rail usage or will modernize an active line to increase the utility to customers.

Status of asset management system:

Consultant services engaged to prepare asset management plan.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$15.0 million over five years

FY2019-2023 size request: \$15.0 million over five years

Justification for FY2019-2023 program size:

- FY2019-2023 maintains existing program size

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$15.0
Total	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$15.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Modernization / Rail / Track and right-of-way modernization

Program purpose and need statement:

This program repairs or replaces assets within the rail right of way (typically ties, rail, ballast, switches, etc.) to upgrade their capacity to reflect current industry standards (ex: weight capacity to 286,000 lbs) for the line and maintain the line's utility. Prioritization of projects in this program will reflect economic opportunities for the line, most recent inspections, type of usage (ex: hazardous cargo), any contractual or regulatory requirements for action, and consistency with the Statewide Rail Plan. This program is necessary to maintain a safe, reliable, cost effective, and modern rail system.

Status of asset management system:

Consultant services engaged to prepare asset management plan.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$33.9 million over five years

FY2019-2023 size request: \$31.1 million over five years

Justification for FY2019-2023 program size:

- FY 2019-2023 program sized to continue effort to modernize rail track and ROW
- Program includes completion of work on the Knowledge Corridor and Patriot Double-Stack initiative
- May need to increase to address priorities outlined in the Statewide Rail Plan if certain lines need to accommodate 286,000 lb. capacity

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$4.0	\$4.8	\$0	\$7.8	\$9.0	\$25.6
FRA	\$0.5					\$0.5
Total	\$4.4	\$4.8	\$0	\$7.8	\$9.0	\$26.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / Registry / ATLAS

Program purpose and need statement:

This program improves RMV service delivery options by replacing the ALARS system. This program is necessary to increase business process efficiency through reduced wait times, increase the number of transactions done via alternative customer service channels, and increase the capacity of third parties dependent on RMV data.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$102.1 million over five years

FY2019-2023 size request: \$61.5 million over five years

Justification for FY2019-2023 program size:

- Program size reflects status of project and expected completion in 2021 and all costs associated with FAST Enterprises contract
- Includes Crash System implementation and International Registrations as part of ATLAS in FY2019-2023
- Separate funding for ATLAS implementation provided by MassIT
- Total program size for ATLAS including prior years was \$125 million

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$28.1	\$27.4	\$4.5			\$60.0
Total	\$28.1	\$27.4	\$4.5			\$60.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / Registry / Customer service modernization

Program purpose and need statement:

This program includes updating and upgrading leased branch locations to accommodate the new dual line queuing model, signage, furniture and fixtures.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Percent of Service
Center customers
served in 30
minutes or less.

FY2018-2022 size: \$4.975 million over five years

FY2019-2023 size request: \$3.775 million over five years

Justification for FY2019-2023 program size:

- Program size was adjusted to reflect expiring leases and necessary Service Center upgrades in FY 2019 and FY 2020

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$2.0	\$1.1	\$0.5	\$0.9	\$0.2	\$4.7
Total	\$2.0	\$1.1	\$0.5	\$0.9	\$0.2	\$4.7

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / Registry / Alternative service channels

Program purpose and need statement:

This program funds customer service improvements through installation of self-service kiosks and third party service channels including AAA locations. This program is necessary to improve customer experience.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Percent of system-wide transactions conducted outside of Service Centers

PfP tool forecast

Not forecasted in PfP tool

FY2018-2022 size: \$2.5 million over five years

FY2019-2023 size request: \$2.25 million over five years

Justification for FY2019-2023 program size:

- Kiosk initiative will not be launched until FY2019-2023 CIP
- Program size adjusted downward to reflect FY2019 adjustment
- Online transaction options, 3rd parties, and kiosks help to increase the number of customers serviced in Service Centers in 30 minutes or less by decreasing the customer volume of in-person visits

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$0.25	\$0.5	\$0.5	\$0.5	\$0.5	\$2.25
Total	\$0.25	\$0.5	\$0.5	\$0.5	\$0.5	\$2.25

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / Transit / RTA facility and system modernization

Program purpose and need statement: This program improves or modernizes existing RTA facilities, systems or equipment.

Status of asset management system: Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$36.8 million over five years

FY2019-2023 size request: \$26.3 million over five years

Justification for FY2019-2023 program size:

- Updated project lists for all five years were submitted by the RTAs which accounts for changes in the overall amount of funding forecasted.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$4.4	\$1.8	\$1.1	\$3.8	\$13.1	\$24.0
Total	\$4.4	\$1.8	\$1.1	\$3.8	\$13.1	\$24.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Modernization / Transit / RTA fleet upgrades

Program purpose and need statement:

This program allows for Regional Transit Authority fleet growth. This program is necessary to meet service needs or expansion.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$1.3 million over five years

FY2019-2023 size request: \$0.0 million over five years

Justification for FY2019-2023 program size:

- Updated project lists for all five years were submitted by the RTAs
- No projects have been identified for this program
- RTA priorities have been shifted to vehicle replacements

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Modernization / Transit / RTA replacement facilities

Program purpose and need statement:

This program constructs modernized RTA maintenance, administrative, operations or intermodal facilities.

Status of asset management system:

The RTAs and MassDOT are working to develop the new FTA Transit Asset Management plan. Target completion is October 2018.

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP tool

FY2018-2022 size: \$55.8 million over five years

FY2019-2023 size request: \$16.4 million over five years

Justification for FY2019-2023 program size:

- These funds are for PVTA and FRTA maintenance facilities (and other similar facilities)
- Significant additional bond cap was dedicated in FY2017-2021 plan towards the construction of the PVTA. PVTA facility will be completed in FY2019
- With completion of the PVTA facility, program sized to address more routine modernization efforts for RTA replacement facilities

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$14.4	\$12.2	\$10.1	\$0.05		\$36.8
Total	\$14.4	\$12.2	\$10.1	\$0.05		\$36.8

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Expansion programs

Expansion / Highway / Bicycle and Pedestrian

Program purpose and need statement:

This program constructs multi-use paths and other trails that are independent from a roadway. In addition, this program will meet future needs identified through the ongoing statewide bicycle and pedestrian planning effort.

Status of asset management system:

Not applicable

Program performance:

Tracker target

In development

PfP tool forecast

1,041 miles of off-road bicycle and pedestrian facilities

FY2018-2022 size: \$220.5 million over five years

FY2019-2023 size request: \$180.6 million over five years

Justification for FY2019-2023 program size:

- In FY2018-2022 program combined Bicycle and Multi-Use Path programs. A portion of the Bicycle and Pedestrian Program funded by bond cap only (\$60 million) has been shifted into a new Bicycle and Pedestrian Modal implementation Program under Planning and Shared Services
- Program size is based on forecasted federal aid pedestrian and multi-use path projects

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$5.2	\$15.0	\$15.6	\$12.4	\$13.8	\$62.0
FHWA	\$13.5	\$38.5	\$40.4	\$32.6	\$36.0	\$160.9
Total	\$18.7	\$53.5	\$55.9	\$45.0	\$49.7	\$222.9

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Expansion / Highway / Capacity

Program purpose and need statement:

This program adds new connections or expands the existing transportation network.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$273.9 million over five years

FY2019-2023 size request: \$308.1 million over five years

Justification for FY2019-2023 program size:

- Program size represents spend down on legacy projects that have ongoing commitments through FY2023; includes allocation of \$34.2 million for design/project management costs.
- Program also includes spending on South Coast Rail (Rail project) and Silver Line to Chelsea (MBTA projects) completed by Highway.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019- 2023
Bond	\$22.5	\$14.3	\$13.5	\$11.9	\$6.7	\$68.9
FHWA	\$44.2	\$17.0	\$33.8	\$29.9	\$17.5	\$142.4
REP	\$2.0					\$2.0
Total	\$68.6	\$31.2	\$47.4	\$41.8	\$24.2	\$213.3

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Expansion / MBTA / Green Line Extension

Program purpose and need statement:

The Green Line Extension program includes the vehicles, stations and infrastructure to extend the Green Line from a relocated Lechmere Station in East Cambridge to Union Square in Somerville and College Avenue in Medford.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$1,527.9 million over five years

FY2019-2023 size request: \$1,364.5 million over five years

Justification for FY2019-2023 program size:

- Green Line Extension is a complex and high-profile project with dedicated funding sources
- Overall program size decreased to reflect progress on Green Line Extension
- For FY2018-2022 CIP funding for GLX was combined with other expansion projects (e.g. Fairmount Line, Silver Line Gateway, etc.). Costs associated those other expansion projects are now in a separate program for FY2019-2023

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$141.6	\$318.8	\$359.0	\$100.6	\$17.77	\$937.6
State	\$37.7	\$53.2	\$72.4	\$24.8	\$26.6	\$214.6
Local		\$37.4	\$22.6	\$15.0		\$75.0
Total	\$246.4	\$409.4	\$454.0	\$140.4	\$44.3	\$1,227.2

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Expansion / MBTA / Expansion projects (non-GLX)

Program purpose and need statement:

- This program makes targeted expansions in order to improve access to transit, including the Silver Line to Chelsea, Blue Hill Avenue Station on the Fairmount Line and South Coast Rail.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$59.1 million over five years

FY2019-2023 size request: \$59.0 million over five years

Justification for FY2019-2023 program size:

- Program size represents spend down on legacy projects that have ongoing commitments through FY2021
- Program also includes spending on South Coast Rail and Silver Line to Chelsea (MBTA projects) completed by Highway.
- For FY2018-2022 CIP funding for these projects were combined with Green Line Extension under the Expansion Projects program. Costs associated with the Green Line Extension have been moved to a new separate program for FY2019-2023

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
FTA	\$3.2	\$9.6	\$11.2	\$0.0	\$0.0	\$24.0
MBTA Bond	\$0.8	\$2.4	\$2.8	\$0.0	\$0.0	\$6.0
State	\$12.6	\$12.5	\$2.2	\$2.2	\$2.2	\$31.7
Total	\$16.6	\$24.5	\$16.2	\$2.2	\$2.2	\$61.6

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Expansion / OTP / Bicycle and pedestrian modal implementation

Program purpose and need statement:

This program will meet needs identified through the statewide bicycle and statewide pedestrian planning updates. The plans address critical needs around safety, accessibility, network connectivity and maintenance.

Status of asset management system:

Not applicable

Program performance:

Tracker target

In development

PfP tool forecast

In development

FY2018-2022 size: \$220.5 million over five years

FY2019-2023 size request: \$180.6 million over five years

Justification for FY2019-2023 program size:

- Existing program; no change in program size; in FY2018-2022 plan was combined with Multi-Use Paths under Highway / Bicycle and Pedestrian Program
- Spending will begin in FY19 as the bicycle and pedestrian modal plans will be completed in FY18; projects and programs will be informed by the final bicycle and pedestrian modal plans
- Priority projects and programs will meet current needs of our customers and work to attract more people to walk and bike to access destinations and transit.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$1.0	\$5.0	\$10.0	\$20.0	\$24.0	\$60.0
Total	\$1.0	\$5.0	\$10.0	\$20.0	\$24.0	\$60.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding



Expansion / Rail / South Coast Rail

Program purpose and need statement:

This program funds the Commonwealth's commitment to move forward with the South Coast Rail (SCR) project to more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, and to enhance regional mobility while supporting smart growth planning and development strategies in the affected communities.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size:

\$100.0 over five years

FY2019-2023 size request:

\$165.8 million over five years

Justification for FY2019-2023 program size:

- FY2019-2023 program continues permitting, design and early action construction activities related to SCR and includes initial construction costs of the project in FY2019
- The project utilizes a phased approach to deliver the service while still proceeding with design and permitting of the Stoughton Electric Full Build alternative; phasing will shorten the time by at least 10 years to implement service
- Funding for FY2020-2023 costs still under discussion with ANF. The total project costs are not yet reflected in the program size pending discussions with ANF.

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
REP*	\$25.8	\$20.0	\$20.0	\$20.0	\$0.0	\$85.8
Bond	\$80.0					\$80.0
Total	\$105.8	\$20.0	\$20.0	\$20.0	\$0	\$165.8

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

**An additional \$2.2M per year (\$11M over 5 years) carried under MBTA non-GLX Expansion Program for MBTA related SCR costs*

Expansion / Rail / Track and right-of-way expansion

Program purpose and need statement:

This program repairs or replaces assets within the rail right of way (typically ties, rail, ballast, switches, etc.) to expand existing rail services, including the addition of passenger rail or freight rail. Prioritization of projects in the program will reflect economic opportunities for the new service, consistency with the statewide Rail Plan, and any contractual or regulatory requirements for action.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$100.0 over five years

FY2019-2023 size request: \$0.0 million over five years

Justification for FY2019-2023 program size:

- FY2018-2022 program was focused primarily on the South Coast Rail project; project is now in a separate program
- No additional projects programmed for 2019-2023

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019- 2023
REP	\$0	\$0	\$0	\$0	\$0	\$0
Bond						
Total	\$0	\$0	\$0	\$0	\$0	\$0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

Expansion / Rail / Vehicles expansion

Program purpose and need statement:

This program repairs, replaces, or acquires rail equipment (locomotives, coaches, ballast cars, light duty vehicles, etc.) to expand existing rail services, including the addition of passenger rail or freight rail. Prioritization will reflect economic opportunities for the new service, consistency with the statewide Rail Plan, and any contractual or regulatory requirements for action.

Status of asset management system:

Not applicable

Program performance:

Tracker target

Not established
in Tracker

PfP tool forecast

Not forecasted in
PfP

FY2018-2022 size: \$32.0 million over five years

FY2019-2023 size request: \$31.0 million over five years

Justification for FY2019-2023 program size:

- FY2019-2023 maintains existing program size as established in the FY2018-2022 plan

Estimated spending over five-years:

Funding source	2019 millions	2020	2021	2022	2023	2019-2023
Bond	\$0	\$7.7	\$14.8	\$2.7	\$3.8	\$29.0
Total	\$0	\$7.7	\$14.8	\$2.7	\$3.8	\$29.0

Staff recommends CPC accept program size as requested

Totals may not add due to rounding

