

2021 Capital Investment Plan

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This format of the Capital Investment Plan provides a text-only alternative to the Story Map presentation available through <https://www.mass.gov/cip>. For the full version, please see the linked website.

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Letter from Secretary Pollack



On behalf of the Massachusetts Department of Transportation (*MassDOT*) and the Massachusetts Bay Transportation Authority (*MBTA*), I am pleased to present this one-year Capital Investment Plan (*CIP* or *Plan*) for 2021. Given the unprecedented economic challenges facing the Commonwealth and our cities and towns as we address the impacts of the COVID-19 pandemic, this CIP is a “maintenance of effort” plan

for 2021. The uncertainties facing the transportation system are significant. The new rules for construction come with concerns regarding costs, productivity and construction timelines. Tolls and other transportation revenues are down sharply and are difficult to project five years into the future. Federal surface transportation authorization expires September 30, 2020 and additional infrastructure funding that will be available in the next recovery program is unknown. The Administration and State Legislature must also address continued state funding for our state transportation system.

This Plan is the fifth update to the 2017–2021 CIP, which set out a new vision and process for the Commonwealth to plan investments in our transportation system. The 2021 CIP reflects the current realities while maintaining a continued focus on improving the reliability, safety, and resiliency of our transportation infrastructure. Our prior work establishing a system built on setting priorities for our system, developing

programs to implement those priorities, and then selecting projects that meet the goals of our programs will provide us a strong base for recovery once this crisis is over.

This Plan commits approximately \$3.7 billion in programmed transportation spending for our roads, rails, shared use paths, airports, buses, and bridges. Approximately 47% of the investments are focused on improving the reliability and resiliency of the core transportation system, with an additional 26% devoted to modernizing these systems. The Plan incorporates transportation funding from a number of different sources, including federal, state, system-generated revenues, and private contributions. This allocation of funding is consistent with MassDOT’s and the MBTA’s asset management plans and with our capital priorities.

This Plan continues the Commonwealth’s commitment to Phase 1 of the South Coast Rail program—which will bring passenger rail to the South Coast—and to the Green Line Extension to Somerville and Medford.

When the state and federal funding picture becomes clearer, we will begin the process of developing a full five-year plan that will be a reset of the capital plan for 2022–2026 and will provide a complete roadmap of proposed investments for five years.

Stephanie Pollack
Secretary of Transportation and Chief Executive Officer
Massachusetts Department of Transportation

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Non-Discrimination Protections

Federal Title VI Rights & Protections

The Massachusetts Department of Transportation (*MassDOT*) operates its programs, services, and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (*Title VI*), the Civil Rights Restoration Act of 1987, and related statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of race, color, or national origin (including limited English proficiency), be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, the Federal Transit Administration, or both prohibit discrimination on the basis of age, sex, and disability. These protected categories are contemplated within MassDOT's Title VI Programs consistent with federal interpretation and administration. Additionally, MassDOT provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with US Department of Transportation policy and guidance on federal Executive Order 13166.

State Nondiscrimination Protections

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

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To file a complaint alleging a violation of Title VI or related federal nondiscrimination law, contact the Title VI Specialist within 180 days of the alleged discriminatory conduct at:

MassDOT, Title VI Specialist
Office of Diversity and Civil Rights

10 Park Plaza
Boston, MA 02118
Phone: 857-368-8580 / TTY: 857-368-0603
Email: MASSDOT.CivilRights@state.ma.us

To file a complaint alleging a violation of the state's Public Accommodation Law, contact the Massachusetts Commission Against Discrimination within 300 days of the alleged discriminatory conduct at:

Massachusetts Commission Against Discrimination
(MCAD)

One Ashburton Place, 6th Floor
Boston, MA 02109
Phone: 617-994-6000 / TTY: 617-994-6196

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MassDOT does not discriminate on the basis of disability in admission to its programs, services, or activities; in access to them; in treatment of individuals with disabilities; or in any aspect of their operations. MassDOT also does not discriminate on the basis of disability in its hiring or employment practices.

This notice is provided as required by Title II of the Americans with Disabilities Act of 1990 (*ADA*) and Section 504 of the Rehabilitation Act of 1973. Questions, complaints, or requests for additional information regarding ADA and Section 504 may be forwarded to:

Office of Diversity and Civil Rights
Massachusetts Department of Transportation

10 Park Plaza, 3rd floor
Boston, MA 02116-3969
Phone: 857-368-8580 / TTY: 857-368-0603 / Fax:
857-368-0602
Email: MASSDOT.CivilRights@state.ma.us
Office hours: 9:00 am to 5:00 pm

This notice is available from the Office of Diversity and Civil Rights in large print, on audio tape, and in Braille upon request.

Translation Availability

If this information is needed in another language, please contact the MassDOT Title VI Specialist at 857-368-8580.

Caso esta informação seja necessária em outro idioma, favor contar o Especialista em Título VI do MassDOT pelo telefone 857-368-8580.

Si necesita esta información en otro idioma, por favor contacte al especialista de MassDOT del Título VI al 857-368-8580.

如果需要使用其它语言了解信息，请联系马萨诸塞州交通部（MassDOT）《民权法案》第六章专员，电话 857-368-8580。

如果需要使用其它语言了解信息，請聯繫馬薩諸塞州交通部（MassDOT）《民權法案》第六章專員，電話 857-368-8580。

Если Вам необходима данная информация на любом другом языке, пожалуйста, свяжитесь со специалистом по Титулу VI Департамента Транспорта штата Массачусетс (MassDOT) по тел: 857-368-8580.

Si yon moun vle genyen enfòmasyon sa yo nan yon lòt lang, tanpri kontakte Espesyalis MassDOT Title VI la nan nimewo 857-368-8580.

Nếu quý vị cần thông tin này bằng tiếng khác, vui lòng liên hệ Chuyên viên Luật VI của MassDOT theo số điện thoại 857-368-8580.

Si vous avez besoin d'obtenir une copie de la présente dans une autre langue, veuillez contacter le spécialiste du Titre VI de MassDOT en composant le 857-368-8580.

Se ha bisogno di ricevere queste informazioni in un'altra lingua si prega di contattare lo Specialista MassDOT del Titolo VI al numero 857-368-8580.

ប្រសិនបើលោក-អ្នកត្រូវការរបកប្រែព័ត៌មាននេះ សូមទាក់ទងអ្នកឯកទេសលើជំពូកទី របស់ តាមរយៈលេខទូរស័ព្ទ 857-368-8580

الفقرة بأخصائي الاتصال يُرجى، أخرى بلغة المعلومات هذه إلى بحاجة كنت إن الفقرة بأخصائي الاتصال يُرجى، أخرى بلغة المعلومات هذه إلى بحاجة كنت إن الهاتف 857-368-8580 على السادسة

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Glossary of Terms

Americans with Disabilities Act of 1990 (ADA)

The ADA is a federal civil rights law mandating equity of opportunity for individuals with disabilities. The ADA prohibits discrimination in access to jobs, public accommodations, government services, public transportation, and telecommunications.

Chapter 90

Chapter 90 is the Commonwealth's municipal grant program that provides funding to municipalities for roadway projects and other eligible work.

Environmental Justice (EJ)

Established under Federal Executive Order 12898 and reflected in state policy, EJ policies require federal funding recipients to identify and address disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low-income populations.

Executive Office for Administration and Finance (ANF)

ANF is the budget and planning office for the Commonwealth that administers state transportation capital funding in the form of bonds.

Federal Transportation Partners

MassDOT's federal transportation partners on the CIP include the Federal Highway Administration (*FHWA*), Federal Transit Administration (*FTA*), Federal Railroad Administration (*FRA*), and Federal Aviation Administration (*FAA*).

Focus40

Focus40 is the MBTA's 25-year strategic investment plan. Focus40 was released in March 2019 and provides the framework for the MBTA's long-term investment strategy.

Fiscal Year (FY)

FY refers to a specific budgetary year. The United States federal fiscal year (*FFY*) begins on October 1 of the previous calendar year and ends on September 30. For example, the 2021 FFY is October 1, 2020 to September 30, 2021. The Massachusetts state fiscal year (*SFY*) begins on July 1 of the previous calendar year and ends on June 30. The 2021 SFY is July 1, 2020 to June 30, 2021.

Fixing America's Surface Transportation Act (*FAST Act*)

The FAST Act (Pub. L. No. 114-94) was signed into federal law on December 4, 2015. The FAST Act authorized \$305 billion over fiscal years 2016 through 2020 for highway improvements, motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail improvements, and research, technology, and statistics programs. Authorization expires September 30, 2020.

Massachusetts Bay Transportation Authority (*MBTA*)

The MBTA provides public transit services to the Greater Boston region, Worcester and Fitchburg, including bus transit, commuter rail, and rapid transit. The agency is overseen by a five-member Fiscal and Management Control Board (*FMCB*).

Massachusetts Department of Transportation (*MassDOT*)

MassDOT is made up of four divisions: Highway, Rail & Transit, Registry of Motor Vehicles (*RMV*), and Aeronautics, as well as the Office of the Secretary and Transportation Planning and Enterprise Services that support all the divisions. As the umbrella transportation agency for the Commonwealth, MassDOT also oversees the MBTA. The agency has a Board of Directors, comprised of eleven

members who are all appointed by the Governor with the Secretary of Transportation as Chair.

Metropolitan Planning Organization (*MPO*)

An MPO is a regional transportation policy-making organization consisting of representatives from local government, regional planning agencies, regional transit operators, and state transportation agencies. Federal legislation passed in the early 1970s requires the formation of an MPO for any urbanized area with a population greater than 50,000. The Commonwealth of Massachusetts has 10 urbanized regions designated as MPOs and 3 rural regions that function like MPOs.

Planning for Performance Tool (*PfP*)

The PfP tool is a scenario-planning tool custom-built for MassDOT that forecasts asset conditions and allows capital planners within the Divisions to consider the trade-offs between investment strategies. The tool reports future conditions compared against the desired performance target.

Public-Private Partnership (*P3*)

P3s are contractual agreements formed between a public agency and a private sector entity that allow for greater private sector participation in the delivery and financing of transportation projects.

Regional Planning Agency (RPA)

An RPA serves as a forum for state and local officials to address issues of regional importance, including the development of comprehensive plans and recommendations in areas of population and employment, transportation, economic development, land use, regional growth, and the environment.

Regional Transit Authority (RTA)

RTAs provide fixed route and paratransit service in communities across Massachusetts. There are 15 RTAs in Massachusetts in addition to the MBTA.

Regional Transportation Plan (RTP)

The RTP is the policy and vision document of a regional MPO. This document results from regional and statewide collaboration to plan a region's transportation system. The document contains a financial plan or budget which guides and shapes the actions an MPO undertakes as they fulfill the region's visions and objectives. This document includes a 20-year vision for transportation in the region, and is updated every four years by each MPO. It serves as an important source of data for the statewide CIP.

State of Good Repair (SGR)

A state of good repair condition is achieved when an entity is managing an existing asset functionally, reliably, and safely within its expected life cycle to a predefined level of performance.

State Transportation Improvement Program (STIP)

The STIP is a compilation of the thirteen regional Transportation Improvement Programs (*TIPs*) prepared annually by the state's ten MPOs and three rural Transportation Planning Organizations (*TPOs*). It is a list of priority transportation projects (roadway and transit) organized by region and fiscal year.

Title VI

Title VI of the Civil Rights Act of 1964 is a federal civil rights law which prohibits discrimination against members of the public on the basis of race, color, and national origin in programs and activities receiving financial assistance. Additional federal nondiscrimination categories are contemplated under MassDOT's Title VI Program, including age, sex, disability, and limited English proficiency (*LEP*).

Transportation Improvement Program (*TIP*)

A TIP is a phased five-year program of capital investments that reflects the needs of the regional transportation system, prepared by each MPO in the Commonwealth on an annual basis. Under federal regulations, a TIP must be constrained to available funding, be consistent with the relevant long-range RTP, and include an annual element or list of projects to be advertised in the first year of the TIP. Like the STIP, the regional TIP has a roadway component and a transit component.

Table of Acronyms

Acronym	Defined Term
AAA	American Automobile Association
ABP	Accelerated Bridge Program
ADA	American with Disabilities Act of 1990
AFC 2.0	Automatic Fare Collection 2.0
ALARS	Automatic License and Renewal System
ANF	Executive Office of Administration and Finance
APMS	Airport Pavement Management System
ATC	Automatic Train Control
BAT	Brockton Regional Transit Authority
BRTA	Berkshire Regional Transit Authority
BUILD grant	Better Utilizing Investment to Leverage Development grant
CARM	Central Artery Project Repair and Maintenance Trust Fund
CATA	Cape Ann Regional Transit Authority
CCRTA	Cape Cod Regional Transit Authority
CIP (or Plan)	Capital Investment Plan
CMAQ	Congestion Mitigation Air Quality
EJ	Environmental Justice
EOEEA	Executive Office of Energy and Environmental Affairs
EOTSS	Executive Office of Technology Services and Security
e-STIP	electronic STIP
FAA	Federal Aviation Administration
FAST Act	Fixing America's Surface Transportation Act

FFGA	Full Funding Grant Agreement
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FMCB	Fiscal Management and Control Board
FRA	Federal Rail Administration
FRTA	Franklin Regional Transit Authority
FTA	Federal Transit Administration
FY	Fiscal Year
GANs	Grant Anticipation Notes
GATRA	Greater Attleboro Regional Transit Authority
GLT	Green Line Transformation
GLX	Green Line Expansion
GO	General Obligation
IRAP	Industrial Rail Access Program
LEP	Limited English Proficiency
LOS	Level of Service
LRTA	Lowell Regional Transit Authority
MAP	Mobility Assistance Program
MAP-21	Moving Ahead for Progress in the 21 st Century
MaPIT	Massachusetts Project Intake Tool
MART	Montachusett Regional Transit Authority
MassDOT	Massachusetts Department of Transportation
MBTA	Massachusetts Bay Transportation Authority
MEPA	Massachusetts Environmental Policy Act
MHS	Metropolitan Highway System

MPO	Metropolitan Planning Organization
MVRTA	Merrimack Valley Regional Transit Authority
MWRTA	Metro West Regional Transit Authority
NHS	National Highway System
NRTA	Nantucket Regional Transit Authority
ODCR	Office of Diversity and Civil Rights
OTP	Office of Transportation Planning
P3	Public-Private Partnership
PATI	Plan for Accessible Transit Infrastructure
PCI	Pavement Condition Index
PfP	Planning for Performance Tool
PSAC	Project Selection Advisory Council
PTC	Positive Train Control
PVTA	Pioneer Valley Regional Transit Authority
RMAT	Resilient MA Action Team
REP	Rail Enhancement Program
RIDOT	Rhode Island Department of Transportation
RL/OL	Red Line/Orange Line
ROW	Right of Way
RPA	Regional Planning Agency
RTA	Regional Transit Authority
RTP	Regional Transportation Plan
RTTM	Real Time Traffic Management
SCR	South Coast Rail
SFY	State Fiscal Year
SGR	State of Good Repair
SRTA	Southeastern Regional Transit Authority
STIP	State Transportation Improvement Program
TAM	Transit Asset Management Plan

TAMP	Transportation Asset Management Plan (Highway)
TERM	Transit Economic Requirements Model
TIP	Transportation Improvement Program
Tobin	Tobin Bridge
ULB	Useful Life Benchmark
VMT	Vehicle Miles Travelled
VTA	Martha's Vineyard Regional Transit Authority
WRTA	Worcester Regional Transit Authority
WT	Western Turnpike

Introduction

One of MassDOT's key roles is to develop and implement the Commonwealth's transportation investment strategy—the Capital Investment Plan (*CIP*)—in coordination with the federal government, the state legislature, municipalities, regional planning agencies (*RPAs*), regional transit authorities (*RTAs*), other state agencies, and the public. With the current situation presented by the COVID-19 pandemic, this year MassDOT is developing a CIP for only 2021. Its focus will be on maintaining our transportation system. As the financial picture evolves from the impacts of COVID-19, MassDOT will—in concert with guidance from the Executive Office for Administration and Finance (*ANF*)—revisit this one-year CIP. It is important to note that the Commonwealth has released a 2021–2025 State Transportation Improvement Program (*STIP*) as required under the federal 3C planning process. MassDOT remains committed to providing the state match for federal transportation projects.

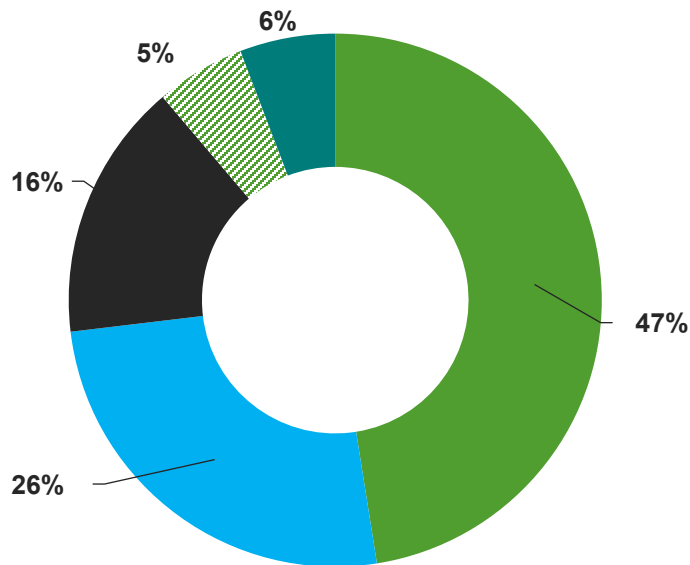
The following table details the funding programmed in the 2021 CIP.

Despite this pandemic, the work of MassDOT and the MBTA continues: both to assist in providing the essential trips needed by many and to support the gradual and safe reopening of businesses and services across the Commonwealth.

Program Investments by Division

	Aeronautics	Highway	IT	MBTA	Rail	RMV	Transit	Highway/OTP	SFY 21 Total
Reliability	\$29.6 <i>(millions)</i>	\$933.2	\$11.0	\$711.1	\$39.5	\$0.2	\$27.0	\$	\$1,751.7
Modernization	\$1.5 <i>(millions)</i>	\$295.6	\$10.0	\$588.9	\$23.1	\$6.5	\$18.8	\$ -	\$944.4
Expansion	\$ - <i>(millions)</i>	\$114.9	\$ -	\$450.0	\$6.4	\$ -	\$ -	\$7.0	\$578.3
Division/Total	\$31.1	\$1,343.7	\$21.0	\$1,750.0	\$69.0	\$6.7	\$45.8	\$7.0	\$3,274.3

Overall Program Spending Breakdown



(millions)	SFY 21 per SFY 2020-24	SFY 2021	Difference
Reliability	\$1,568.8	\$1,751.7	+\$182.9
Modernization	\$934.1	\$944.4	+\$10.3
Expansion	\$862.2	\$578.3	-\$283.9
Chapter 90 & Municipal Partnerships	\$200.0	\$200.0	\$ -
Planning & Enterprise Services	\$210.9	\$213.4	+\$2.5
One Year Total	\$3,776.1	\$3,687.7	-\$88.3

Totals may not add due to rounding.

Priorities → Programs → Projects

This CIP continues to be informed by a strategic vision influenced by public and stakeholder input collected throughout the development process. MassDOT/MBTA organizational priorities are built around funding programs within which projects are selected based on objective and comparative evaluation.

The majority of the current CIP was set in motion with the SFY 2017–2021 plan. This would have been the fifth update to the CIP. However as previously discussed this plan is focused on SFY 2021 only.

Investment Priorities

The three priorities for CIP investment are, in order of importance: Reliability, Modernization, and Expansion. These priorities express the broadest goals for MassDOT and MBTA investments.

Reliability

Maintain and improve the overall condition, safety and reliability of the transportation system. (47% of all investments)

- Necessary routine and capital maintenance and ensuring safety of the system
- State of good repair projects designed primarily to bring asset condition up to an acceptable level
- Asset management and system preservation projects

Modernization

Modernize the transportation system to make it safer, more accessible and accommodate growth. (26% of all investments)

- Compliance with federal mandates or other statutory requirements for safety and/or accessibility improvements
- Projects that go beyond state of good repair and substantially modernize existing assets
- Projects that provide expanded capacity to accommodate current or anticipated future demand on existing transportation systems

Expansion

Expand diverse transportation options for communities throughout the Commonwealth. (16% of all investments)

- Projects that expand highway, transit, and rail networks and/or services
- Projects that expand bicycle and pedestrian networks to provide more transportation options and to address health and sustainability objectives

The remaining investments support our municipal partners' transportation needs through programs including the Chapter 90 reimbursement program.

Investment Programs

Investment programs fall under each of the three priorities (reliability, modernization and expansion). These programs encompass the most important capital responsibilities and goals of the agency.

The sizing of programs is developed using asset management systems and tools to determine need. Through the finalization of the Transportation Asset Management Plan (*TAMP*) for the Highway Division and the Transit Asset Management Plans (*TAM*) for the MBTA and the RTAs, MassDOT and the MBTA have a better understanding about the condition of our assets over a ten-year timeframe, and this data was used as input into the 2021 CIP.

Another tool that is used by the Divisions is the Planning for Performance (*PfP*) tool, which provides a determination of performance based on the levels of funding allocated to asset programs. Additionally, there is an increasing focus in the development of each year's CIP on how proposed investments may mitigate the impacts of climate change and/or improve the resiliency of our transportation network to better withstand natural hazards.

Project Selection

Within these programs, individual investments are considered for funding. Projects are selected from a universe of projects and scored using MassDOT's set of scoring criteria. Reliability investments are not scored using these criteria, but are prioritized using performance- and asset management- based planning.

Funding

The CIP is funded from a mix of federal, state and local sources, each of which varies with respect to its flexibility. Some funding sources must be spent on specific policy goals or modes, while others may be applied across the transportation system.

The 2021 CIP reflects federal and state funding that was made available to Massachusetts and included in the 2020–2024 CIP. Additional federal funds include new federal formula funds, Federal Railroad Administration grants and Federal Transit Administration grants. New state sources include general obligation bonds, special obligation bonds (REP funds) and MBTA revenue bonds. Pay-go capital funds (net toll revenues) reflect a decrease (over previous estimates in the 2020–2024 CIP) related to impacts on traffic and revenues as a result of the COVID-19 pandemic.

State Funding

The primary source of state transportation capital funding is bonds issued by the Commonwealth. Debt is issued to investors and paid back with interest over the course of the bond's life, similar to a mortgage for the purchase of a house.

The two main types of bonds issued for infrastructure spending are General Obligation bonds (backed by the full taxing authority of the Commonwealth) and Special Obligation Bonds (backed primarily by gas taxes and Registry fees), both of which are administered by the Executive Office for Administration and Finance.

Federal Funding

Massachusetts receives federal funding to improve our transportation system from several U.S. Department of Transportation agencies, including the Federal Aviation Administration (*FAA*), the Federal Railroad Administration (*FRA*), the Federal Highway Administration (*FHWA*), and the Federal Transit Administration (*FTA*).

While different, the CIP and STIP are related because the STIP makes use of the priorities/programs/projects framework that the MassDOT Divisions used to build the 2021 CIP.

CIP and the STIP

MassDOT annually produces another multi-year capital planning document called the State Transportation Improvement Program (*STIP*). While similar, the STIP and CIP are not the same. The STIP is a federally-required planning document that lists all federally funded transportation projects, both highway and transit, by region of the Commonwealth and by federal fiscal year. The STIP reflects programmed obligations (committed funds) while the CIP incorporates the projected spending of those obligations over time. Further, the STIP is subject to approval by the U.S. Department of Transportation and the U.S. Environmental Protection Agency, as well as by the Massachusetts Department of Environmental Protection. The STIP is developed in part by compiling the individual Transportation Improvements Programs (*TIPs*) from the 13 federally-recognized transportation planning regions of the Commonwealth referred to as metropolitan planning organizations (*MPO*).

By comparison, the CIP includes all sources of funding available to MassDOT Divisions and the MBTA. The CIP is not subject to federal approval.

MassDOT Spending by Source

Projected Spending by Source	SFY 21
Federal Sources of Funds	
Federal Highway (<i>FHWA</i>) reimbursements	\$743.3
Federal Transit (<i>FTA</i>) reimbursements	\$6.0
Federal Aviation (<i>FAA</i>) reimbursements and grant draws	\$21.8
Federal Rail (<i>FRA</i>) reimbursements and grant draws	\$7.2
Subtotal of federal spending	\$778.4
Bond cap	\$884.5
Grant Anticipation Notes (<i>GANs</i>)	\$0.0
Accelerated Bridge bonds	\$10.0
Rail enhancement bonds	\$16.8
Central Artery Project Repair and Maintenance Trust Funds (<i>CARM</i>)	\$44.1
Metropolitan Highway system (<i>MHS</i>) pay-go	\$73.7
Tobin Bridge (<i>Tobin</i>) pay-go	\$18.2
Western Turnpike (<i>WT</i>) pay-go	\$103.5
Municipal and local funds	\$7.1
Reimbursable and 3rd parties	\$0.2
Other State Funds	\$5.7
Subtotal of non-federal spending	\$1,164.1
Total Spending	\$1,942.5

About MassDOT Funding Sources

Federal Highway (FHWA) reimbursements

MassDOT obligates available FHWA funds every federal fiscal year. This funding category involves MassDOT requesting FHWA to reimburse the Commonwealth for programmed (obligated) funds for actual federally eligible expenditures on Highway and Rail Division projects.

Federal Transit (FTA) funds

MassDOT obligates available FTA funds every federal fiscal year. This funding category involves MassDOT drawing down obligated amounts to reimburse the Commonwealth for Rail & Transit Division project spending. The spending by source tables do not include FTA funds available to Regional Transit Authority partners.

Federal Aviation (FAA) funds

MassDOT applies for FAA funds every federal fiscal year. This funding category involves MassDOT drawing down those approved grant amounts to pay for Aeronautics Division project spending.

Federal Railroad (FRA) funds

MassDOT from time to time applies for FRA funds. This funding category has MassDOT draw down approved grant amounts to pay for Rail & Transit Division, MBTA, and Office of Transportation Planning project spending.

State bond cap

Commonwealth General Obligation bond proceeds (state bond cap) allocated to specific projects; primarily for project design, management, operations, and other construction support provided to the Aeronautics, Highway, Registry, and Rail and Transit Divisions and the MBTA (see MBTA sources).

Accelerated Bridge bonds

Commonwealth Special Obligation bond proceeds allocated to specific bridge projects; primarily for project operations and construction.

Rail enhancement bonds

This is the Commonwealth Rail Enhancement Program (REP): a dedicated \$2.1 billion program for reliability, modernization, and expansion initiatives at the MBTA, including the State's share of the Green Line Extension (GLX) program and a portion of the South Coast Rail program.

Central Artery Project Repair and Maintenance Trust Fund (CARM)

This is used for certain eligible MHS projects and is subject to FHWA approval.

Metropolitan Highway System (MHS) pay-go

Projected annual revenues available for capital for the toll facility and tunnels east of I-95 plus any existing projected reserve balances.

Western Turnpike (WT) pay-go

Projected annual revenues available for capital for the toll facilities west of I-95 plus any existing projected reserve balances.

Tobin Bridge (Tobin) pay-go

Projected annual revenues available for capital for this toll facility plus any existing projected reserve balances.

Municipal and local funds

Funds provided by municipalities to match federal-aid sources or to pay for construction bid items.

Reimbursable and 3rd party funds

This funding source comprises funding from private sources that that MassDOT and the MBTA receive to mitigate transportation impacts of development projects or as part of a joint development agreement.

Other State funds

Additional funds for MassDOT to be used for clean transit vehicles (VW funds) and transportation improvements in Boston's Seaport District (funds provided by other state agencies).

MBTA Spending by Source

Projected Spending by Source	SFY21
Federal Sources of Funds	
Federal Highway (<i>FHWA</i>) reimbursements	\$41.3
Federal Transit (<i>FTA</i>) reimbursements and grant draws	\$404.3
FTA Full funding grant agreement (<i>GLX FFGA</i>)	\$48.0
Federal Railroad Administration (<i>FRA</i>) grant draws	\$11.0
Other federal funds	\$8.4
Subtotal of federal spending	\$513.0
Bond cap	\$177.7
Rail enhancement bonds	\$431.1
MBTA Revenue bonds	\$314.8
Positive/Automatic Train Control (<i>PTC/ATC</i>) financing	\$190.5
Pay-Go Lockbox (Bond Cap) (included with Bond cap above)	\$0.0
Municipal and local funds (<i>GLX</i>)	\$34.0
Reimbursable and 3rd parties	\$15.5
Pay-Go Lockbox (<i>MBTA</i>)	\$66.0
Capital maintenance fund	\$7.4
Subtotal of non-federal spending	\$1,237.0
Total Spending*	\$1,750.0

About MBTA Funding Sources

Federal Highway (FHWA) reimbursements

FHWA reimbursements reflect CMAQ Flex Funds available for the GLX program.

Federal Transit (FTA) reimbursements and grant draws

FTA reimbursements reflect Section 5307 Urbanized Area Formula funds, Section 5337 State of Good Repair/Fixed Guideway funds, and Section 5339 Bus and Bus Facilities funds. Assumes reauthorization beyond FAST Act, with a 1.7% annual growth. FTA grant draws are the estimated balance of funds available in existing non-GLX FTA grants as of July 1, 2019.

FTA Full Funding Grant Agreement (FFGA)

Funding includes on-hand FFGA funds less anticipated expenditures through July 1, 2019. Future amounts reflect the year in which additional FFGA funds will be appropriated per GLX FFGA.

Other federal funds

Funding comprised mostly of Transit Security Grant Program funds, which is a discretionary appropriation and not assumed in future years.

State bond cap

Commonwealth general obligation bond proceeds provided as \$60 million in annual assistance to MBTA and a portion of the funding for Phase 1 of South Coast Rail (SCR).

Rail enhancement bonds

The Commonwealth Rail Enhancement Program is a dedicated \$2.1 billion program for reliability, modernization, and expansion initiatives at the MBTA, including the State's share of the Green Line Extension program, Red Line/Orange Line Improvements program and SCR Phase 1.

Positive Train Control (PTC) bonds

Bonds on-hand reflect current balance of proceeds from revenue bonds raised for PTC project; does not necessarily reflect the planned amount of new issuances each year.

Municipal and local funds (GLX)

Funds reflect the contributions from the cities of Cambridge and Somerville for the GLX program.

Reimbursable and 3rd party funds

Funding reflects funds received via reimbursable agreements with Rhode Island Department of Transportation (RIDOT), Amtrak, and other parties.

Pay-Go Lockbox MBTA

Lockbox funding assumes \$66 million from additional operating assistance.

Capital maintenance fund

Funding reflects available surplus funds from project existing projects.

Investment Priorities

Reliability Investments

About 47% of the \$3.7 billion total in proposed capital spending for 2021 is targeted on "priority one" investments, meaning those that improve the reliability of the current transportation system. The goal of reliability investments is to maintain and improve the overall condition of the transportation system. Reliability investments include:

- Necessary routine and capital maintenance and improve safety of the system
- State of good repair projects designed primarily to bring asset conditions up to an acceptable level
- Asset management and system preservation projects

All Reliability, Modernization and Expansion Programs by Division showing the total projected spending by program in the 2021 CIP, descriptions of each program, and descriptions of any asset- and performance management-based data used for setting program sizes are outlined in Appendix B.

Reliability Spending by Division for 2021 (millions)	
Aeronautics	\$29.6
Highway	\$933.2
IT	\$11.0
MBTA	\$711.1
Rail	\$39.5
RMV	\$0.2
Transit	\$27.0
Total	\$1,751.7

Modernization Investments

About 26% of the \$3.7 billion total in proposed capital spending for 2021 is for "priority two" investments that help achieve the goal of modernizing the transportation system to make it safer and more accessible, and to accommodate growth. Modernization investments include:

- Compliance with federal mandates or other statutory requirements for safety and/or accessibility improvements
- Projects that go beyond routine maintenance and substantially modernize existing assets
- Projects that provide expanded capacity to accommodate current or anticipated demand on existing transportation systems

Modernization Spending by Division for 2021 (millions)	
Aeronautics	\$1.5
Highway	\$295.6
IT	\$10.0
MBTA	\$588.9
Rail	\$23.1
RMV	\$6.5
Transit	\$16.8
Total	\$944.4

Expansion Investments

About 16% of the \$3.7 billion total in proposed capital spending for 2021 is targeted on "priority three" investments that expand the diverse transportation options for communities throughout the Commonwealth. Expansion investments include:

- Projects that expand highway, transit and rail networks and/or services
- Projects that expand bicycle and pedestrian networks to provide more transportation options and address health and sustainability objectives

Expansion Spending by Division for 2021 (millions)	
Highway	\$114.9
MBTA	\$450.0
OTP/Highway	\$7.0
Rail	\$6.4
Total:	\$578.7

Selected Major Investments & Programs

Commuter Rail Safety and Resiliency

The Commuter Rail Safety and Resiliency program includes investments to improve the safety and resiliency of the Commuter Rail system, including the implementation of Positive Train Control (*PTC*).

Green Line Transformation (*GLT*)

The GLT is a portfolio of over 60 multi-disciplinary projects aimed at holistically transforming the MBTA's Green Line. It integrates all existing Green Line state of good repair projects with new initiatives to form a cohesive investment strategy and unified capital program. The program's goal, in order to meet the needs of today and also the future, is to improve the quality of service on the Green Line, including increasing the capacity and enhancing the accessibility through fleet modernization, infrastructure/facility upgrades, and state-of-the-art technology.

Red Line / Orange Line Improvements

This program comprises investments related to replacing and expanding the MBTA's Red Line and Orange Line fleets, including upgrade of the facilities and infrastructure needed to support new vehicles. When fully implemented, these investments are expected to allow three-minute headways on the Red Line and four-and-a-half-minute headways on the Orange Line.

Final completion for initial infrastructure improvements is scheduled for Spring 2022 and final delivery of vehicles for the fleet replacement is anticipated for September 2023. The rail renewal work is currently planned to be completed between 2023 and 2027.

Green Line Extension (*GLX*)

The GLX project is a 4.7-mile light rail line, which will extend the current Green Line service from a relocated Lechmere Station in East Cambridge to a terminus at College Avenue in Medford, and a spur to Union Square in Somerville. This project is moving forward with a cost estimate of \$2.28 billion, and is funded with federal funds (FFGA and FHWA) state bonds and contributions from the cities of Cambridge and Somerville.

South Coast Rail

The July 2, 2019 groundbreaking ceremony for South Coast Rail celebrated the Commonwealth's commitment to the expansion of Commuter Rail to the South Coast of Massachusetts. Construction is currently ongoing for the program and construction will be completed for revenue service in late 2023. South Coast Rail will serve existing and future demand for public transportation between Fall River/New Bedford and Boston, enhance regional mobility, and support smart growth planning and development strategies in Southeastern Massachusetts.

In SFY 2021 major construction will commence on the Fall River Secondary and the New Bedford Mainline/Middleborough Secondary.

The 2020–2024 CIP included the full funding for Phase 1 construction and service via the Middleborough route. A finance plan for Phase 1 of the program has been developed in concert with ANF and the Commonwealth's funding commitment to the program is reflected in the 2021 CIP.

I-90 Allston Multi-Modal Program

The I-90 Allston Viaduct has reached the end of its useful lifespan and is structurally deficient. This critical component of the Commonwealth's roadway infrastructure must be kept open for the movement of goods and freight particularly to Logan Airport and as such, MassDOT must continue to fund ongoing repairs to it. The adjoining Allston Interchange is functionally obsolete. Its general configuration is no longer needed and the manner in which it connects to local streets causes congestion which under some circumstances impedes the traffic on the I-90 mainline.

The deficiencies of the viaduct and interchange are the drivers behind the I-90 Allston Intermodal Program, which will replace the viaduct and reconfigure the interchange. Changes to the interchange will include flattening the curve of I-90 as it passes through Allston and connecting I-90 to Cambridge Street and Soldiers' Field Road via a new urban street grid. These changes provide MassDOT with the opportunity to enhance parkland along the Charles River, introduce bicycle and pedestrian connections around and through the former Beacon Park Yard site, and invest in improved commuter rail through the introduction of West Station.

The program will improve multi-modal connectivity in the neighborhood and preserve and enhance regional mobility. The 2021 CIP includes funding for design and permitting only.

Equity Analysis

Overview

This section discusses the results of the equity analysis conducted on the draft FY2021 CIP, which indicates an equitable plan. There is a narrative describing the results and methodology used along with illustrative maps.

The investments included in the CIP update are determined through a collaborative process among many stakeholders (cities and towns, private and public agencies, advocates, etc.), representing diverse constituencies with an array of perspectives and goals for the future of public transportation. As part of our commitment to civil rights and nondiscrimination, MassDOT evaluates proposed investments and projects to assure that they are equitable with respect to both geography and to the population groups that benefit.

The analysis evaluated investments per capita at the municipality and census tract levels. Equitable investment was evaluated using a number of different variables and indicators such as transportation mode (Highway, MBTA, Rail & Transit, and Aeronautics) and on several levels:

- In the aggregate and by investment categories to understand the total impact of the CIP;
- Individually for each mode and investment category to identify particular areas of concern that the

aggregate level would not have identified separately; and

- Variable buffering to analyze impacts of the proposed CIP investments in two ways: by mode (RTA/MBTA, Rail, and Aeronautics) and for the Highway Division by location (rural, suburban, urban).

Investments were measured per capita to account for population density. Overall, this analysis determined that the CIP equitably distributes investments among minority, low-income, and limited English proficient (LEP) populations. It also shows an equitable distribution of investments geographically across the Commonwealth.

MassDOT and the MBTA continue to develop and refine the analysis used to determine equity of capital investments. While geographic funding distribution and allocation of funding across diverse communities remains a core component of this analysis, MassDOT and the MBTA continue to work to innovate finer-grain analysis methodologies to identify and quantify the equity of the impacts of projects at the community level and statewide.

For additional information about MassDOT's Civil Rights work, web links are available in the Glossary of Terms.

More information about the current state of this practice and future goals is available by contacting the MassDOT Civil Rights team at MassDOT.civilrights@state.ma.us.

Geographic Analysis

As a state agency, MassDOT seeks to fund transportation infrastructure equitably across the state. However, because of the data that is available and the nature of transportation infrastructure, there is no clear consensus on what exactly is an equitable distribution of resources, given the variation between needs, demand, and contributed tax dollars. As a result, MassDOT assessed the data in a variety of ways for this equity analysis. The maps included in this section illustrate a few different ways that MassDOT assessed the data. While no single method is perfect, these approaches taken together provide useful information to better understand the regional distribution of resources. Only projects programmed within SFY 2021 in the CIP are considered.

Variables considered in analyzing the geographic equity of the plan are population, employment, and lane miles, captured by the Chapter 90 formula. Population and employment are considered to evaluate investment per capita and lane miles is considered as a proxy for the extent of the local transportation network.

The Chapter 90 Program is a formula program distributed to municipalities for roadway improvements based on population (20.83%), employment (20.83%), and lane miles (58.33%). This formula has been in use for distribution of transportation funds to municipalities since 1972. As the formula has a history of use as a proxy for geographic distribution of transportation investment throughout the Commonwealth, MassDOT opted to use the given

percentages as a measure for an equitable distribution of investments.

If the ratio of CIP funding allocated to a municipality is the same as the ratio of Chapter 90 funding it receives—meaning a ratio of one—this would indicate that the CIP distribution is equitable. Greater than one would indicate more CIP funding than would be expected if funding were distributed according to the Chapter 90 formula, less than one would mean that the CIP distribution provides less than would have been received if the Chapter 90 formula were in use.

The shading on the map indicates the variations in the percentage of CIP investments from the percentage of Chapter 90 funding. Generally, urban areas receive a disproportionately high share of investment based on lane miles, while rural areas receive a disproportionately high share on a per capita basis. Using the Chapter 90 formula as a benchmark for equity, which includes both lane miles and population, results in less stark contrasts, though urban areas still perform better. Because more roads are eligible for state and federal funding and projects are generally more expensive in urban areas, this finding does not mean there is clear bias.

Overall, there are no major geographic equity concerns within the SFY 2021 CIP. MassDOT and MBTA will continue to analyze the Capital Investment Plan year over year to assure that inequitable patterns do not emerge. For any analysis, MassDOT would not expect perfect equity for a one-year plan, as variations are bound to happen given that one-time large projects can skew outcomes.

Social Equity Analysis

The social equity analysis was conducted to establish compliance with federal and state nondiscrimination laws and regulations, including Title VI of the Civil Rights Act of 1964 (*Title VI*), the Civil Rights Restoration Act of 1987, and the 1994 Presidential Executive Order 12898 on Environmental Justice. The social equity analysis considered the distribution of investments across all census tracts, and across different demographic indicators, such as minority, low-income, limited English proficiency (*LEP*).

Minority census tracts are defined as those with populations that are at least 23.87 percent minority, as defined by the US Census, which is the statewide average. Consistent with state policy, low-income census tracts are defined as those with a median household income at or below 65 percent of the statewide median household income. The statewide median household income is currently \$67,846. Therefore, low-income census tracts are defined as those with median household incomes of \$44,100 or less, regardless of household size. Census tracts with at least 6.25% of their population considered LEP (individuals above the age of five who do not speak English as their primary language and who have a limited ability to read, write, speak, or understand English) were also considered for social equity implications.

Equity analyses in this context seek to identify discrepancies in the allocation of funding across the identified demographic groups. While there is no single threshold that serves as a dispositive indication of funding allocation differences that suggest clear equity concerns, the state of the practice

indicates that differences on the order of 20% can be observed without implicating equity. Furthermore, in instances where differences exceed 20%, there may be legitimate nondiscriminatory justifications that, again, do not indicate equity concerns.

Analyzing the entire CIP, investments are approximately 24% more in minority than non-minority communities.

Considering all modes, LEP census tracts receive 15.4% more funding per capita than non-LEP census tracts.

For the proposed SFY 2021 investments, low-income communities receive approximately 84% of per capita investments as compared to non-low income communities.

Overall, the equity analysis of the SFY 2021 CIP does not seem to indicate social equity concerns. MassDOT and MBTA will continue to analyze the Capital Investment Plan year over year to assure that inequitable patterns do not emerge. For any analysis, MassDOT would not expect perfect equity for a one-year plan, as variations are bound to happen given that one-time large projects can skew outcomes.

Public Comment and Engagement

Public feedback is important to the development and support of the Capital Investment Planning process. MassDOT has created [an interactive comment tool](#) to provide an opportunity for members of the public to directly comment on individual investments in the CIP. Follow the directions in the pop-up window to show support or to provide comment on individual investments.

If this tool is not your preferred method to submit comments, you may mail correspondence to the address below:

Capital Investment Plan
10 Park Plaza, Suite 4150
Boston, MA 02116
masscip@state.ma.us

Alternatively, you may attend one of our virtual public meetings across the state.

The Legislative Affairs group and Capital Planning team at MassDOT will review all comments provided on the CIP and will provide response in the form of a single document addressing all comment topics. To receive this document, be sure to include your email address on any public comment you submit, or come back to this page after the formal Public Comment period has ended.

Public Engagement for the 2021 CIP

As a result of the COVID-19 pandemic, MassDOT held six virtual regional public meetings, which were hosted by regional partners. Below is a list of all the virtual public meetings that were held for the 2021 CIP. Public comment was accepted as part of the virtual public meetings. While each meeting focused on a specific region, comments were accepted on any aspect of the CIP.

Virtual Public Meetings

Region	Meeting Host	Date	Time	Platform
Berkshire	Berkshire RPC	May 26 th	6:00pm	Zoom
Boston	Boston MPO	May 21 st	6:00pm	Zoom
Cape Cod	Cape Cod Commission	May 18 th	6:00pm	Zoom
Central Massachusetts	Central Massachusetts Regional Planning Commission	May 20 th	5:30pm	Zoom
Merrimack Valley	Merrimack Valley Planning Commission	May 27 th	6:00pm	GoToMeeting
Southeastern Massachusetts	Southeastern Massachusetts Regional Planning and Economic Development District	May 19 th	6:00pm	Zoom

The above table lists the virtual public meetings held for the CIP, along with the meeting hosts and platforms. All meetings were hosted in partnership with MassDOT's regional planning partners. Recordings of meetings are available online at www.mass.gov/CIP.

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