



CAPE COD
COMMISSION

Cape Cod Transportation Improvement Program Federal Fiscal Year 2024 – 2028

Endorsed – May 22, 2023

Amended/Adjusted – February 26, 2024

Amended – April 22, 2024

Amended – May 20, 2024

Amended – July 15, 2024



Prepared by Cape Cod Commission staff on behalf of the Cape Cod Metropolitan Planning Organization and the Cape Cod Joint Transportation Committee



This report was funded in part through grants from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), United States Department of Transportation (USDOT). The views and opinions of the Cape Cod Metropolitan Planning Organization (MPO) expressed herein do not necessarily state or reflect those of the USDOT.

Title VI Notice of Nondiscrimination

The Cape Cod MPO complies with Title VI of the Civil Rights Act of 1964 and related federal and state statutes and regulations. It is the policy of the Cape Cod MPO to ensure that no person or group of persons shall on the grounds of Title VI protected categories, including race, color, national origin, or under additional federal and state protected categories including sex, age, disability, sexual orientation, gender identity or expression, religion, creed, ancestry, veteran's status (including Vietnam-era veterans), or background, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity administered by the Cape Cod MPO. To request additional information about this commitment, or to file a complaint under Title VI or a related nondiscrimination provision, please contact the MPO's Title VI Coordinator by phone at (508) 362-3828, TTY at 508-362-5885, fax (508) 362-3136 or by e-mail at mhevenor@capecodcommission.org.

If this information is needed in another language, please contact the MPO's Title VI Coordinator by phone at (508) 362-3828.

Caso estas informações sejam necessárias em outro idioma, por favor, contate o Coordenador de Título VI da MPO pelo telefone 508-744-1299.

The public discussion of the Transportation Improvement Plan (TIP) at CCJTC, MPO, and transportation meetings satisfies the Program of Projects (POP) public hearing requirements of the Federal Transit Administration (FTA).

Cape Cod Transportation Improvement Program for FFY 2024-2028

Cape Cod Transportation Improvement Program (TIP) prepared by the

Cape Cod Metropolitan Planning Organization (MPO) Members:

- Gina Fiandaca, Secretary and Chief Executive Officer, Massachusetts Department of Transportation (MassDOT)
- Jonathan Gulliver, Administrator, MassDOT Highway Division
- Robert Lawton, Chair, Cape Cod Regional Transit Authority
- Harold Mitchell, Chair, Cape Cod Commission
- Matthew Levesque, President, Barnstable Town Council
- Mark Forest, Barnstable County Commissioner
- Judith MacLeod-Froman, Bourne Selectmen, Sub Region A Representative (Bourne, Falmouth, Mashpee, and Sandwich)
- Sheryl McMahon, Dennis Select Board, Sub Region B Representative (Dennis and Yarmouth)
- Kevin Galligan, Orleans Select Board, Sub Region C Representative (Brewster, Chatham, Harwich, and Orleans)
- Robert Weinstein, Truro Select Board, Sub Region D Representative (Eastham, Provincetown, Truro, and Wellfleet)
- Brian Weeden, Chairman, Mashpee Wampanoag Tribal Council

MPO Ex-Officio Members:

- Jay Norton, Chair, Cape Cod Joint Transportation Committee
- Brian Carlstrom, National Park Service/Cape Cod National Seashore
- Lawrence T. Davis, US Army Corps of Engineers/Cape Cod Canal
- Robert B. Davis, Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority
- Joi Singh, Federal Highway Administration
- Peter Butler, Federal Transit Administration

and the

Cape Cod Joint Transportation Committee

- Jay Norton, Chairman, Wellfleet
- Griffin Ryder, Vice-Chairman, Brewster

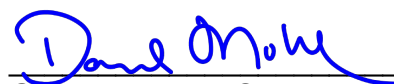
Cape Cod Commission TIP Staff Contact:

- Colleen Medeiros, Transportation Program Manager, Cape Cod Commission

Cape Cod Metropolitan Planning Organization

Endorsement of the Federal Fiscal Years 2024-2028 Cape Cod Transportation Improvement Program (TIP)

The signature below certifies that the Cape Cod Metropolitan Planning Organization (MPO), at their meeting on May 22, 2023, hereby endorses the Cape Cod Transportation Improvement Program (TIP) for Federal Fiscal Years 2024 -2028 in its entirety for the Cape Cod Region, in accordance with the certified 3C Transportation Planning Process.



for

Gina Fiandaca, Secretary/Chief Executive Officer – Massachusetts Department of Transportation (MassDOT)

MPO Members:

- Gina Fiandaca, Secretary and Chief Executive Officer, Massachusetts Department of Transportation (MassDOT)
- Jonathan Gulliver, Administrator, MassDOT Highway Division
- Robert Lawton, Chair, Cape Cod Regional Transit Authority
- Harold Mitchell, Chair, Cape Cod Commission
- Matthew Levesque, President, Barnstable Town Council
- Mark Forest, Barnstable County Commissioner
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- Kevin Galligan, Sub Region C Representative (Brewster, Chatham, Harwich, and Orleans)
- Robert Weinstein, Sub Region D Representative (Eastham, Provincetown, Truro, and Wellfleet)
- Brian Weeden, Chairman, Mashpee Wampanoag Tribal Council

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- Lawrence T. Davis, US Army Corps of Engineers/Cape Cod Canal
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- Joi Singh, Federal Highway Administration
- Peter Butler, Federal Transit Administration

Cape Cod Metropolitan Planning Organization

23 CFR § 450.220 and 23 CFR § 450.336 Self-Certification Compliance Statement

The Cape Cod Metropolitan Planning Organization certifies that its conduct of the metropolitan transportation planning process complies with all applicable requirements, which are listed below, and that this process includes activities to support the development and implementation of the Regional Long-Range Transportation Plan and Air Quality Conformity Determination, the Transportation Improvement Program and Air Quality Conformity Determination, and the Unified Planning Work Program.

1. 23 USC 134, 49 USC 5303, and this subpart.
2. Sections 174 and 176 (c) and (d) of the Clean Air Act, as amended (42 USC 7504, 7506 (c) and (d) and 40 CFR part 93 and for applicable State Implementation Plan projects.
3. Title VI of the Civil Rights Act of 1964, as amended (42 USC 2000d-1) and 49 CFR Part 21.
4. 49 USC 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity.
5. Section 1101 (b) of the Fast Act (Pub. L. 114-357) and 49 CFR Part 26 regarding the involvement of disadvantaged business enterprises in U.S. DOT-funded projects.
6. 23 CFR part 230, regarding implementation of an equal employment opportunity program on Federal and Federal-aid highway construction contracts.
7. The provisions of the US DOT and of the Americans with Disabilities Act of 1990 (42 USC 12101 et seq.) and 49 CFR Parts 27, 37, and 38.
8. The Older Americans Act, as amended (42 USC 6101), prohibiting discrimination on the basis of age in programs or activities receiving federal financial assistance.
9. Section 324 of Title 23 USC regarding the prohibition of discrimination based on gender.
10. Section 504 of the Rehabilitation Act of 1973 (29 USC 794) and 49 CFR Part 27 regarding discrimination against individuals with disabilities.
11. Anti-lobbying restrictions found in 49 USC Part 20. No appropriated funds may be expended by a recipient to influence or attempt to influence an officer or employee of any agency, or a member of Congress, in connection with the awarding of any federal contract.

The signature of the of the chair of the Cape Cod Metropolitan Planning Organization on the following page signifies that the Cape Cod Metropolitan Planning Organization took this action at their public meeting on May 22, 2023.

Cape Cod Metropolitan Planning Organization

*23 CFR § 450.220 and 23 CFR § 450.336 Self-Certification Compliance Statement
Signature Page*



for

Gina Fiandaca, Secretary/Chief Executive Officer – Massachusetts Department of Transportation (MassDOT)

MPO Members:

- Gina Fiandaca, Secretary and Chief Executive Officer, Massachusetts Department of Transportation (MassDOT)
- Jonathan Gulliver, Administrator, MassDOT Highway Division
- Robert Lawton, Chair, Cape Cod Regional Transit Authority
- Harold Mitchell, Chair, Cape Cod Commission
- Matthew Levesque, President, Barnstable Town Council
- Mark Forest, Barnstable County Commissioner
- Judith MacLeod-Froman, Bourne Selectmen Chair, Sub Region A Representative (Bourne, Falmouth, Mashpee, and Sandwich)
- Sheryl McMahon, Dennis Select Board member, Sub Region B Representative (Dennis and Yarmouth)
- Kevin Galligan, Orleans Select Board Chair, Sub Region C Representative (Brewster, Chatham, Harwich, and Orleans)
- Robert Weinstein, Truro Select Board Chair, Sub Region D Representative (Eastham, Provincetown, Truro, and Wellfleet)
- Brian Weeden, Chairman, Mashpee Wampanoag Tribal Council

MPO Ex-Officio Non-Voting Members:

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- Joi Singh, Federal Highway Administration
- Peter Butler, Federal Transit Administration

Cape Cod Metropolitan Planning Organization

310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation

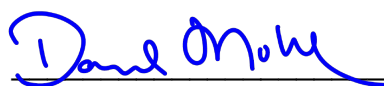
This will certify that the Transportation Improvement Program and Air Quality Conformity Determination for the Cape Cod Regional Transportation Plan is in compliance with all applicable requirements in the State Regulation 310 CMR 60.05: Global Warming Solutions Act Requirements for Transportation. The regulation requires the MPO to:

1. 310 CMR 60.05(5)(a)1.: Evaluate and report the aggregate transportation GHG emissions impacts of RTPs and TIPs;
2. 310 CMR 60.05(5)(a)2.: In consultation with MassDOT, develop and utilize procedures to prioritize and select projects in RTPs and TIPs based on factors that include aggregate transportation GHG emissions impacts;
3. 310 CMR 60.05(5)(a)3.: Quantify net transportation GHG emissions impacts resulting from the projects in RTPs and TIPs and certify in a statement included with RTPs and TIPs pursuant to 23 CFR Part 450 that the MPO has made efforts to minimize aggregate transportation GHG emissions impacts;
4. 310 CMR 60.05(5)(a)4.: Determine in consultation with the RPA that the appropriate planning assumptions used for transportation GHG emissions modeling are consistent with local land use policies, or that local authorities have made documented and credible commitments to establishing such consistency;
5. 310 CMR 60.05(8)(a)2.a.: Develop RTPs and TIPs;
6. 310 CMR 60.05(8)(a)2.b.: Ensure that RPAs are using appropriate planning assumptions;
7. 310 CMR 60.05(8)(a)2.c.: Perform regional aggregate transportation GHG emissions impact analysis of RTPs and TIPs;
8. 310 CMR 60.05(8)(a)2.d.: Calculate aggregate transportation GHG emissions impacts for RTPs and TIPs;
9. 310 CMR 60.05(8)(a)2.e.: Develop public consultation procedures for aggregate transportation GHG emissions impact reporting and related GWSA requirements consistent with current and approved regional public participation plans;
10. 310 CMR 60.05(8)(c): Prior to making final endorsements on the RTPs, TIPs, STIPs, and projects included in these plans, MassDOT and the MPOs shall include the aggregate transportation GHG emission impact assessment in RTPs, TIPs, and STIPs and provide an opportunity for public review and comment on the RTPs, TIPs, and STIPs; and
11. 310 CMR 60.05(8)(a)1.c.: After a final GHG assessment has been made by MassDOT and the MPOs, MassDOT and the MPOs shall submit MPO-endorsed RTPs, TIPs, STIPs or projects within 30 days of endorsement to the Department for review of the GHG assessment.

The signature of the of the chair of the Cape Cod Metropolitan Planning Organization on the following page signifies that the Cape Cod Metropolitan Planning Organization took this action at their public meeting on May 22, 2023.

Cape Cod Metropolitan Planning Organization

*310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation
Sector and the Massachusetts Department of Transportation
Signature Page*



for

Gina Fiandaca, Secretary/Chief Executive Officer – Massachusetts Department of
Transportation (MassDOT)

MPO Members:

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- Kevin Galligan, Orleans Select Board Chair, Sub Region C Representative (Brewster, Chatham, Harwich, and Orleans)
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- Robert B. Davis, Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority
- Joi Singh, Federal Highway Administration
- Peter Butler, Federal Transit Administration

Executive Summary

The Cape Cod Metropolitan Planning Organization's (MPO) transportation capital plan, the Transportation Improvement Program (TIP), lists major transportation projects planned in the next five years.

The MPO is made up of eleven voting members with representatives of state agencies, regional organizations, and Cape Cod towns. Discussions at MPO meetings help to establish a preference for which projects are funded through the TIP. Members of the public are welcome and encouraged to attend these meetings and voice opinions.

Contents of the Plan

The TIP includes a discussion of the transportation planning process, a discussion of the TIP development process, a table of available TIP funding, descriptions of TIP projects selected for funding, and a series of tables detailing TIP project funding allocations. The TIP also includes appendices that detail project evaluation including equity analyses, air quality conformity, projects in need of funding, the status of previous TIP projects, and public comments. Project selected for funding are presented on the following page.

How to Get Involved

The Cape Cod MPO voted to release the draft TIP for the public review/ comment period at their 1:00 PM virtual meeting on April 24, 2023, officially beginning the 21-calendar-day public comment period.

Public comment opportunities were held in-person at the Hyannis Transportation Center and at a virtual public meeting both on Wednesday, April 26, 2023. These meetings featured a short presentation on the document followed by an opportunity for public comments. Additional opportunities for public comments were gathered at outreach tables located along the region's bike path network. A virtual public meeting of the Cape Cod MPO is scheduled for Monday, May 22, 2023 at 1:00 PM to hear additional public comments and consider endorsement of this document. Details on the online public comment opportunities and the virtual public meeting available at www.capecodcommission.org/mpo.

Comments on this plan were accepted through May 15, 2023 via mail, by facsimile, or via e-mail, as follows:

Cape Cod Commission Transportation Program
Colleen Medeiros, Transportation Program Manager
3225 Main Street (Route 6A)
PO Box 226
Barnstable MA 02630-0226

Sent by facsimile to the attention of Colleen Medeiros (FAX): 508-362-3136

Email—please put "TIP" in the subject line and sent to:

colleen.medeiros@capecodcommission.org

2024-2028 Projects

The following projects are included in the draft Cape Cod Transportation Improvement Program for Federal Fiscal Year 2024-2028:

- Harwich, Sidewalk Installation on Route 28 to Saquatucket Harbor (2024)
- Mashpee, Route 151 Corridor Improvements (Phase 2) (2024-2026)
- Dennis/Yarmouth, Bass River Bridge Replacement and Route 28 at North Main St Intersection Improvements (2024)
- Barnstable, Park and Ride Improvements on Route 132 (2024)
- Yarmouth-Barnstable, Cape Cod Rail Trail Extension (2024)
- Sandwich, Quaker Meetinghouse Road Bridge Over Route 6 Preservation (2024)
- Dennis/Harwich, Route 28 Reconstruction (Upper County Rd to Herring River Bridge) (2025)
- Provincetown, Shank Painter Road Improvements (2025-2027)
- Bourne, Rail Trail – Phase 1 (2025)
- Bourne, Route 6 Scenic Highway Median Installation (2025)
- Harwich, Harwich Elementary School Safe Routes to School (2025)
- Barnstable, Route 6 Resurfacing and Related Work (2026-2028)
- Provincetown/Truro, Resurfacing and Related Work on Route 6 (2026)
- Chatham, Route 28 at Main St, Depot Rd, Queen Anne Rd and Crowell Rd (2027)
- Dennis, Route 28 Streetscape Improvements (Phase 2) (2027-2028)
- Yarmouth, Route 28 Corridor Improvements (Year 1) (2028)
- Bourne, Resurfacing and Related Work on Route 28 (2028)
- Falmouth, Resurfacing and Related Work on Route 28 (2028)
- Various transit projects to allow the Cape Cod Regional Transit Authority (CCRTA) to operate their year-round and seasonal fixed-route services, operate their demand response services, and maintain the vehicles and other infrastructure. (2024-2028)

In total, the FFY2024-2028 TIP includes over \$430 million in funded projects.

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Chapter 1: Transportation Planning Process

Decisions about how to spend transportation funds in a metropolitan area are guided by information and ideas from a broad group of people, including elected officials, municipal planners and engineers, transportation advocates, other advocates, and other interested persons. Metropolitan Planning Organizations (MPOs) are the bodies responsible for providing a forum for this decision-making process.

Each metropolitan area in the United States with a population of 50,000 or more has an MPO, which decides how to spend federal transportation funds for capital projects and planning studies. In order to be eligible for federal funds, metropolitan areas are required to maintain a continuing, cooperative, and comprehensive (3C) transportation planning process that results in plans and programs consistent with the planning objectives of the metropolitan area. The 3C transportation-planning process on Cape Cod is the responsibility of the Cape Cod MPO.

Cape Cod Metropolitan Planning Organization (MPO)

The Cape Cod Metropolitan Planning Organization (MPO) is the regional governing body established by federal law to oversee regional transportation planning and recommend the distribution of transportation funds on Cape Cod (Barnstable County). The MPO is made up of eleven voting members as presented in Table 1. Town representation on the body is depicted in Figure 1.

Table 1. Cape Cod MPO Membership

AGENCY	MPO SIGNATORY
Massachusetts Department of Transportation (MassDOT)	Secretary of Transportation
MassDOT Highway Division	Administrator
Cape Cod Regional Transit Authority (CCRTA)	Chair
Cape Cod Commission (CCC)	Chair
Barnstable County Commissioners	Commissioner
Mashpee Wampanoag Tribe	Tribal Chairman
Town of Barnstable	Town Council President
Sub-region A (Bourne, Falmouth, Mashpee, Sandwich)	Selectman/Select Board
Sub-region B (Dennis, Yarmouth)	Selectman/Select Board
Sub-region C (Brewster, Chatham, Harwich, Orleans)	Selectman/Select Board
Sub-region D (Eastham, Provincetown, Truro, Wellfleet)	Select Board

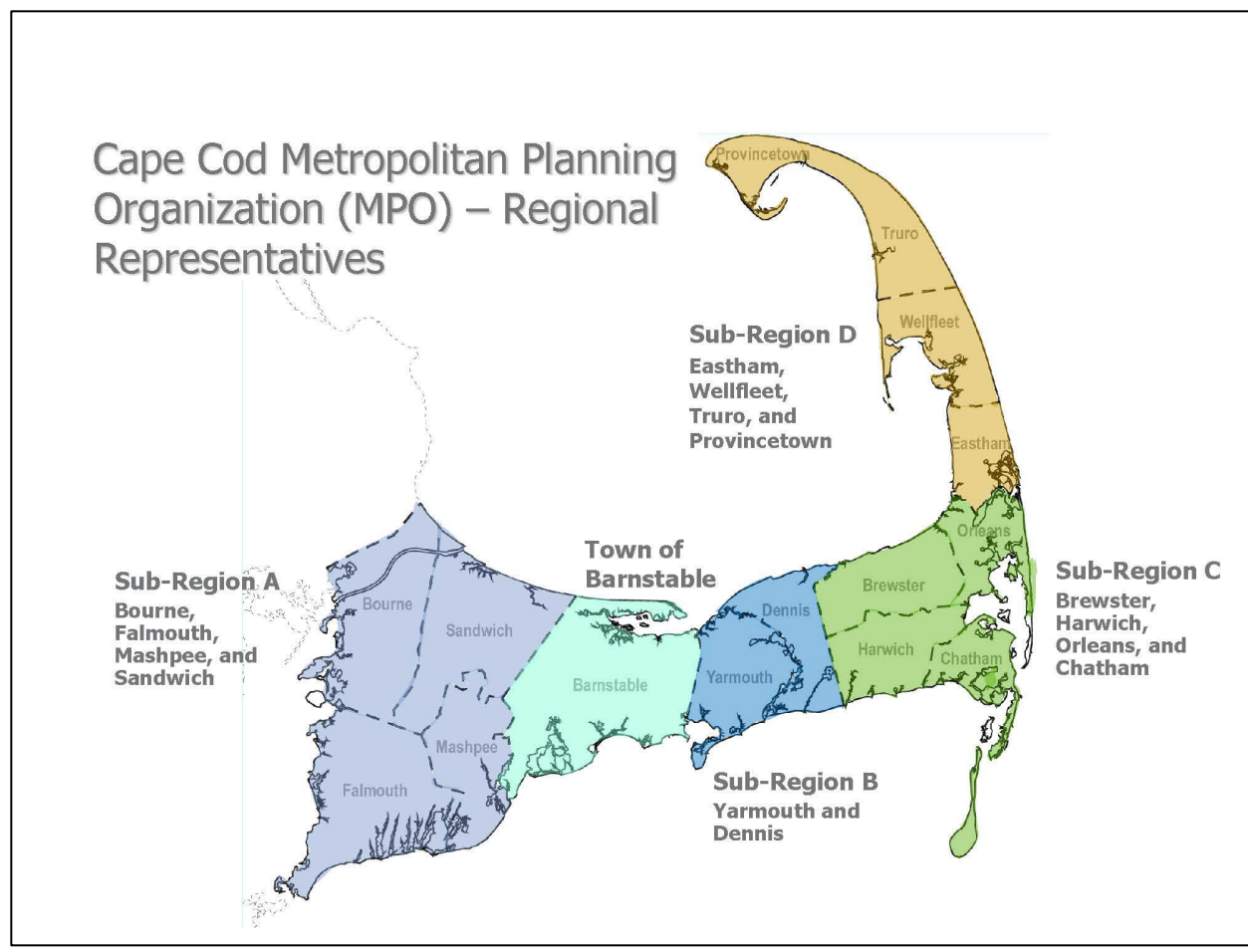


Figure 1. Map of Cape Cod Metropolitan Planning Organization Sub-regions

The Federal Highway Administration, Federal Transit Administration, Army Corps of Engineers, Cape Cod National Seashore, the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority, and the Chair of the Cape Cod Joint Transportation Committee serve as non-voting, Ex-Officio members of the MPO.

Cape Cod Joint Transportation Committee (CCJTC)

The Cape Cod Joint Transportation Committee (CCJTC) is the advisory group to the Cape Cod MPO. The CCJTC was formed more than 40 years ago with the first meeting being held in 1973. Membership on the CCJTC consists of one appointee from each town, selected by the town's highest elected officials, as well as a Bicycle Representative designated by the CCJTC. Town appointees are generally department of public work directors, town engineers, or town planners; individuals familiar with their town's transportation needs. Individuals representing MassDOT, the CCRTA, and the CCC also generally attend and participate in CCJTC meetings.

Federal Certification Documents

The MPO is required to endorse other federal certification documents including the Regional Transportation Plan (RTP), the Transportation Improvement Program (TIP), the Unified Planning Work Program (UPWP), and the Public Participation Plan (PPP).

The RTP establishes a regional vision for the transportation system; the UPWP studies investigate deficiencies in that system and identify potential solutions, and the TIP details specific transportation projects that are implemented to improve the transportation system. The PPP provides a framework to ensure public involvement and cooperative decision making throughout the transportation planning process. A summary of the primary function, time horizon, and update timeline is presented in Table 2. The table also includes links to the Cape Cod MPO webpages that contain more detailed information on each of the documents.

Table 2. Federal Certification Documents

DOCUMENT	PRIMARY FUNCTION	TIME HORIZON	UPDATE TIMELINE
Regional Transportation Plan (RTP) ¹	Establishes long-range vision and goals, identifies major projects, studies, and programs	20+ years	Every 4 years
Transportation Improvement Program (TIP) ²	Identifies specific transportation investments (projects)	5 years	Annually
Unified Planning Work Program (UPWP) ³	Details planning studies and tasks	1 year	Annually
Public Participation Plan (PPP) ⁴	Establishes plan for public participation for transportation decision-making	Ongoing	Every 5 years or more frequently as needed

¹ The Regional Transportation Plan (RTP) is available at www.capecodcommission.org/our-work/rtp

² The Transportation Improvement Program (TIP) is available at www.capecodcommission.org/our-work/tip

³ The Unified Planning Work Program (UPWP) is available at www.capecodcommission.org/our-work/upwp

⁴ The Public Participation Plan (PPP) is available at www.capecodcommission.org/our-work/ppp

Transportation Legislation

Federal legislation that contains requirements for transportation plans, programs and projects includes the current legislation: Bipartisan Infrastructure Law (BIL). The previous Fixing America's Surface Transportation (FAST) Act and the Clean Air Act Amendments of 1990 (CAAA) expired on September 30, 2021.

Bipartisan Infrastructure Law (BIL)

On November 15, 2021, President Biden signed the Infrastructure Investment and Jobs Act (IIJA) also known as the Bipartisan Infrastructure Law (Pub. L. No. 117-58). The BIL is the largest long-term investment in our country's infrastructure and economy. The BIL authorizes \$550 billion over fiscal years 2022 through 2026 for investments in infrastructure related to roads, bridges, public transit, water infrastructure, resilience and broadband.

The new Bipartisan Infrastructure Law includes Planning Emphasis Areas (PEAs), around which states and MPOs should orient their planning efforts. These emphasis areas are listed below. For all goals, the document notes that FHWA Division and FTA regional offices should work with State DOTs, MPOs, and other relevant parties.

- **Tackling the Climate Crisis – Transitioning to a Clean Energy, Resilient Future:** Ensure that our transportation plans and infrastructure investments help achieve the national greenhouse gas reduction goals of 50-52% below 2005 levels by 2030, and net-zero emissions by 2050.
- **Equity and Justice⁴⁰ in Transportation Planning:** Advance racial equity and support for underserves and disadvantaged communities.”
- **Complete Streets:** Review current policies, rules, and procedures to determine their impact on safety for all users. This effort should work to include provisions for safety in future transportation infrastructure, particularly those outside automobiles.
- **Public Involvement:** Increase meaningful public involvement in transportation planning by integrating Virtual Public Involvement (VPU) tools into the overall public involvement approach while ensuring continued public participation by individuals without access to computers and mobile devices.
- **Strategic Highway Network (STRAHNET)/U.S. Department of Defense (DOD) Coordination:** Coordinate with representatives from DOD in the transportation planning and project programming process on infrastructure and connectivity needs for STRAHNET routes and other public roads that connect to DOD facilities.
- **Federal Land Management (FLMA) Coordination:** Coordinate with FLMAs in the transportation planning and project programming process on infrastructure

and connectivity needs related to access routes and other public roads and transportation services that connect to Federal lands.

- **Planning and Environment Linkages (PEL):** Implement PEL as part of the transportation planning and environmental review process. The use of PEL is a collaborative and integrated approach to transportation decision-making that considers environmental community, and economic goals early in the transportation planning process, and uses the information, analysis, and products developed during planning to inform the environmental review process.
- **Data in Transportation Planning:** Incorporate data sharing and consideration into the transportation planning process.

Title VI/Nondiscrimination

The Cape Cod MPO follows federal and state non-discrimination laws and seeks to ensure that all interested parties in Barnstable County have access to the MPO's activities and services and that public involvement in the MPO's decision making comes from a diverse socioeconomic group that is representative of the county's population. The MPO has developed a nondiscrimination program, in accordance with federal and state requirements, to encourage broad public participation, representation, and equity in the region's transportation planning.

Title VI of the Civil Rights Act of 1964 prohibits discrimination based on race, color, or national origin. Organizations that receive Federal funds are obligated to assure nondiscrimination in their programs and activities and are required to have a comprehensive Title VI enforcement program to prevent and eliminate discrimination in their federally funded programs. Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) set forth Title VI compliance requirements for "primary" funding recipients such as MassDOT and sub-recipients such as the MPOs to follow. Effective transportation decision making depends upon understanding and properly addressing the needs of different socioeconomic groups. The MPO's Title VI program includes identifying the demographic distribution of minority and limited English proficiency populations within the region and implementing a comprehensive strategy to ensure that the MPO conducts effective outreach to encourage their involvement in and access to the transportation planning and decision-making process.

The Massachusetts Department of Transportation (MassDOT) is responsible for ensuring that the state's MPOs comply with federal program requirements. The Title VI plan provides information about beneficiaries' rights, how to file a complaint, regional demographic data, maps, a public participation plan, a language access plan, and analyses of transportation spending in the region, project locations and potential impacts from projects to ensure equity in the planning and implementation process for the region.

Although Title VI is the focal point of non-discrimination law in the United States, FHWA incorporates a broader spectrum of statutes, executive orders, and regulations into its requirements for states and MPOs. For example, Section 324 of the Federal-Aid Highway Act of 1973 prohibits discrimination based on sex; Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of disability status, as does the Americans with Disabilities Act of 1990; and the Age Discrimination Act of 1975 prohibits age discrimination. In addition, the Civil Rights Restoration Act of 1987 (FHWA Notice 4720.6) clarified the original intent of Congress with respect to Title VI by restoring the broad, institution-wide scope and coverage of the nondiscrimination statutes to include all programs and activities of federal-aid recipients and enforcing the application of the laws that include nondiscrimination on the basis of race, color, national origin, age, gender, or disability.

Other Federal and State Legislative Requirements and Policies

In addition to federal transportation legislation, the transportation planning process must comply with the Americans with Disabilities Act (ADA); the Clean Air Act; Title VI of the Civil Rights Act of 1964; Executive Order 12898; Executive Order 13330; the Global Warming Solutions Act; and MassDOT Policies.

Performance Measures

Performance-based planning as an integral part of the metropolitan planning process: states are to develop performance goals, guided by the national goals, and then MPOs will work with state departments of transportation to develop MPO performance targets. The TIP integrates the MPOs' performance measures and link transportation-investment decisions to progress toward achieving performance goals. The performance measures are evaluated as part of the project selection process for inclusion in the Cape Cod TIP as detailed in Appendix A.

National Goals

The following FAST Act planning factors are still current in U.S. DOT:

- **Safety:** To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
- **Infrastructure condition:** To maintain the highway infrastructure asset system in a state of good repair
- **Congestion reduction:** To achieve a significant reduction in congestion on the National Highway System
- **System reliability:** To improve the efficiency of the surface transportation system

- **Freight movement and economic vitality:** To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
- **Environmental sustainability:** To enhance the performance of the transportation system while protecting and enhancing the natural environment, including mitigation strategies for stormwater management and nutrient loading.
- **Reduced project delivery delays:** To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Additionally, the following are Planning Emphasis Areas (PEAs) included the BIL are listed below.

- Tackling the Climate Crisis – Transitioning to a Clean Energy, Resilient Future
- Equity and Justice⁴⁰ in Transportation Planning
- Complete Streets
- Public Involvement
- Strategic Highway Network (STRAHNET)/U.S. Department of Defense (DOD) Coordination
- Federal Land Management (FLMA) Coordination
- Planning and Environment Linkages (PEL)
- Data in Transportation Planning

Cape Cod Regional Transportation Plan Goals

The 2020 Cape Cod Regional Transportation Plan is built on a performance-based planning approach with a vision statement, goals, objectives, performance measures and targets, strategies, and policies. The 2024 RTP is currently under development.

The 2020 RTP vision statement established the overarching vision of the document and is as follows:

The Cape Cod Metropolitan Planning Organization envisions a transportation system that supports the environmental and economic vitality of the region through infrastructure investment that focuses on livability, sustainability, equity, and preservation of the character that makes our special place special.

The 2020 Regional Transportation Plan (RTP) is a community-driven, performance-based plan that considers the unique challenges and opportunities of the region and establishes spending priorities to allocate available surface transportation funding towards transportation infrastructure projects for Cape Cod through 2040.

The goals of the RTP expand on the vision statement in seven areas of emphasis. The goals are:

- **Safety:** Provide safe travel options for all users
- **Environmental and Economic Vitality:** Maintain, protect, and enhance the natural environment while strengthening the economy
- **Livability and Sustainability:** Support livable communities and village centers that strengthen the long-term sustainability of the region
- **Multimodal Options/Healthy Transportation:** Provides a variety of healthy transportation options to all users
- **Congestion Reduction:** Reduce congestion and improve travel time reliability
- **System Preservation:** Preserve, maintain, and modernize the existing transportation system
- **Freight Mobility:** Improve efficiency and reliability of freight movement

Federally Required Performance Measure Summary

The US Department of Transportation (USDOT), in consultation with states, MPOs, and other stakeholders, established measures in performance areas relevant to the national goals. Table 3 lists federally required performance measures for the highway system and Table 4 lists federally required performance measures for the transit system.

Table 3. Federally Required Highway Performance Measures

NATIONAL GOAL	HIGHWAY PERFORMANCE AREA	PERFORMANCE MEASURE
Safety	Injuries and Fatalities	<ul style="list-style-type: none"> • Number of fatalities • Fatality rate per 100 million vehicle-miles traveled • Number of serious injuries • Serious injury rate per 100 million vehicle-miles traveled • Number of non-motorized fatalities and non-motorized serious injuries
Infrastructure Condition	Pavement Condition	<ul style="list-style-type: none"> • Percent of pavements on the Interstate System in good condition • Percent of pavements on the Interstate System in poor condition • Percent of pavements on the non-Interstate NHS in good condition • Percent of pavements on the non-Interstate NHS in poor condition
Infrastructure Condition	Bridge Condition	<ul style="list-style-type: none"> • Percent of NHS bridges by deck area classified as in good condition • Percent of NHS bridges by deck area classified as in poor condition
System Reliability	Performance of the National Highway System	<ul style="list-style-type: none"> • Percent of person-miles traveled on the Interstate System that are reliable • Percent of person-miles traveled on the non-Interstate NHS that are reliable
System Reliability, Freight Movement, and Economic Vitality	Freight Movement on the Interstate System	<ul style="list-style-type: none"> • Truck Travel Time Reliability Index
Congestion Reduction	Traffic Congestion	<ul style="list-style-type: none"> • Annual hours of peak hour excessive delay per capita (for travel on NHS roadways) • Percent of non-single-occupant vehicle travel
Environmental Sustainability	On-Road Mobile Source Emissions	<ul style="list-style-type: none"> • Total emissions reductions

Table 4. Federally Required Transit Performance Measures

NATIONAL GOAL	TRANSIT PERFORMANCE AREA OR ASSET CATEGORY	PERFORMANCE MEASURE
Safety	Fatalities	Total number of reportable fatalities and rate per total vehicle revenue-miles by mode
Safety	Injuries	Total number of reportable injuries and rate per total vehicle revenue-miles by mode
Safety	Safety Events	Total number of reportable events and rate per total vehicle revenue-miles by mode
Safety	System Reliability	Mean distance between major mechanical failures by mode
Infrastructure Condition	Equipment	Percent of vehicles that have met or exceeded their Useful Life Benchmark (ULB)
Infrastructure Condition	Rolling Stock	Percent of revenue vehicles within a particular asset class that have met or exceeded their ULB
Infrastructure Condition	Infrastructure	Percent of track segments with performance restrictions
Infrastructure Condition	Facilities	Percent of facilities within an asset class rated below 3.0 on the Federal Transit Administration's Transit Economic Requirements Model scale

Targets for federally required performance measures must be set according to timelines established in the current federal transportation legislation.

MassDOT Annual Performance Management

MassDOT prepares an annual report called Tracker⁵ which tracks performance measures across all MassDOT Divisions. Tracker includes two-year and four-year targets and is updated annually to reflect performance measurements. The six performance goals include: Safety, Budget & Capital Performance, Customer Experience, Healthy & Sustainable Transportation, and System Condition.

Safety Performance Measures (PM1)

The Cape Cod MPO has chosen to adopt the statewide safety performance measure targets set by MassDOT for Calendar Year (CY) 2023. In setting these targets, MassDOT has followed FHWA guidelines by using statewide crash data and Highway

⁵ <https://www.mass.gov/lists/tracker-annual-performance-management-reports>

Performance Monitoring System (HPMS) data for vehicle miles traveled (VMT) in order to calculate 5 year, rolling average trend lines for all FHWA-defined safety measures.

Due to higher rates of speeding caused by decreased vehicle miles traveled (VMT) amid pandemic shutdowns in 2020 and the lingering impacts in 2021, 2020 and 2021 fatalities and serious injuries increased relative to previous years. This increase means MassDOT was unable to use a pure trendline approach to set CY2023 targets that “demonstrate constant or improved performance” as required by the Infrastructure Investment and Jobs Act (IIJA). Rather than adopt a target that depicts an increase in the trend line, MassDOT developed targets by projecting 2022 and 2023 fatalities and serious injuries numbers based on a rate of change consistent with recent trends. This methodology was developed to project a future downward trend without the it being significantly influenced by the lingering impacts of the pandemic.

In recent years, MassDOT and the Cape Cod MPO have invested in “complete streets,” bicycle and pedestrian infrastructure, and safety improvements in both the Capital Investment Plan (CIP) and Statewide Transportation Improvement Program (STIP) to address increasing mode share and to incorporate safety mitigation elements into projects. Moving forward, the Cape Cod MPO, alongside MassDOT, is actively seeking to improve data collection and methodology for bicycle and pedestrian VMT counts and to continue analyzing crash clusters and crash counts that include both motorized and non-motorized modes in order to address safety issues at these locations. In all safety categories, MassDOT has established a long-term target of “Toward Zero Deaths” through MassDOT’s Performance Measures Tracker and will be establishing safety targets for the MPO to consider for adoption each calendar year. While the MPO is not required by FHWA to report on annual safety performance targets, FHWA guidelines require MPOs to adopt MassDOT’s annual targets or to establish their own each year.

The safety measures MassDOT has established for CY23, and that the Cape Cod MPO has adopted, are as follows:

- 1) Fatalities: The target number of fatalities for years CY 2023 is 355, down from an average of 360 fatalities for the years 2017-2021. [See Figure 2 and Figure 3 for the Cape Cod trend and statewide trend for this performance measure]
- 2) Rate of Fatalities per 100 million VMT: The target fatality rate for years CY 2023 is 0.59, equivalent to the 0.59 average for years 2017-2021. [See Figure 2 and Figure 3 for the Cape Cod trend and statewide trend for this performance measure]
- 3) Serious Injuries: The target number of incapacitating injuries for CY 2023 is 2,569, down from the average of 2,626 for years 2017-2021. [See Figure 4 and Figure 5 for the Cape Cod trend and the statewide trend for this performance measure]
- 4) Rate of Incapacitating Injuries per 100 million VMT: The incapacitating injury rate target for CY 2023 is 4.25 per year, down from the 4.30 average rate for years

2017-2021. [See Figure 4 and Figure 5 for the Cape Cod trend and the statewide trend for this performance measure]

- 5) Total Number of Combined Incapacitating Injuries and Fatalities for Non-Motorized Modes: The CY 2023 target number of fatalities and incapacitating injuries for non-motorists is 437 per year, down from an average of 467 for years 2017-2021. [See Figure 6 and Figure 7 for the Cape Cod trend and the statewide trend for this performance measure]

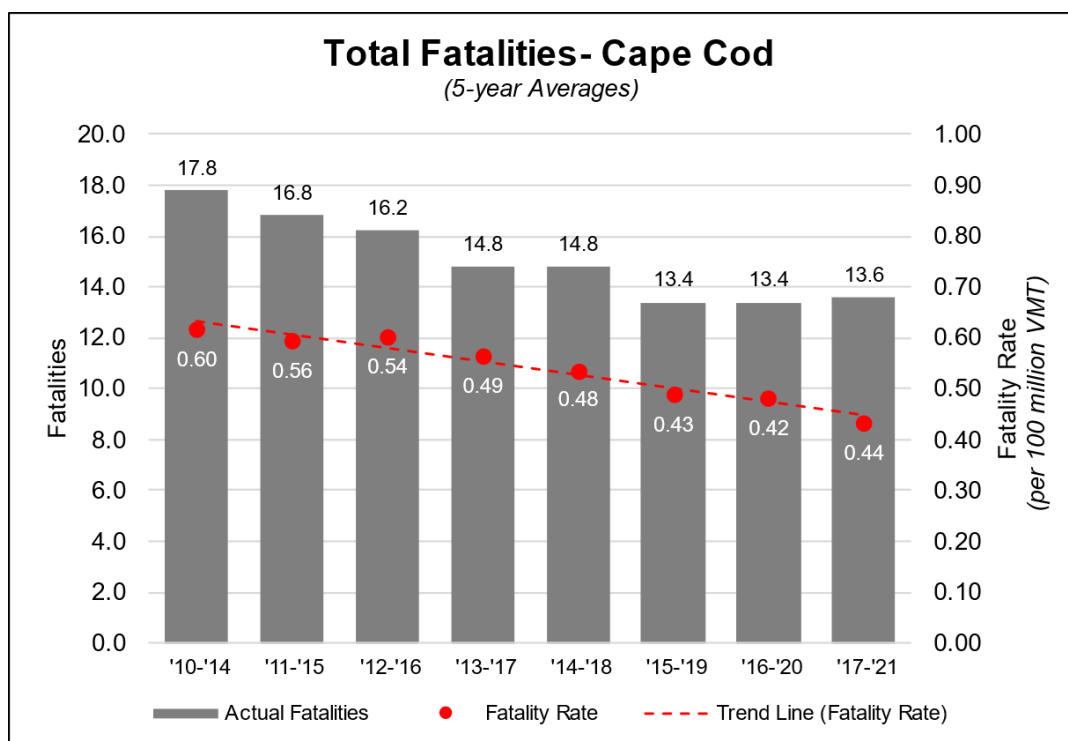


Figure 2. Cape Cod Fatalities Trend

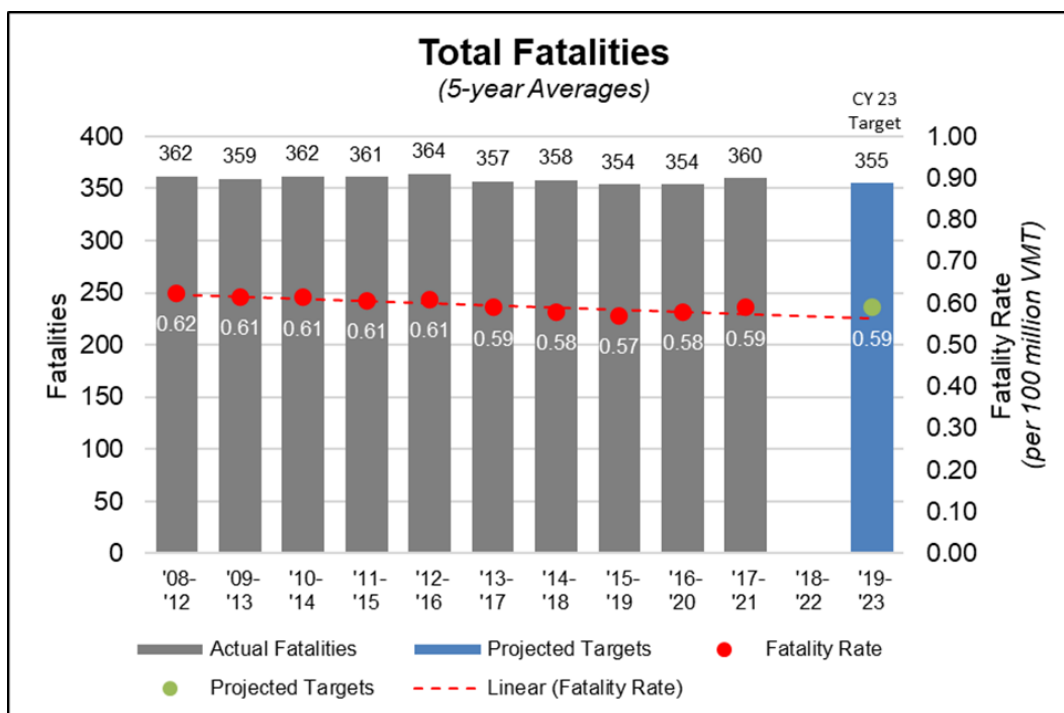


Figure 3. Statewide Fatalities Trend

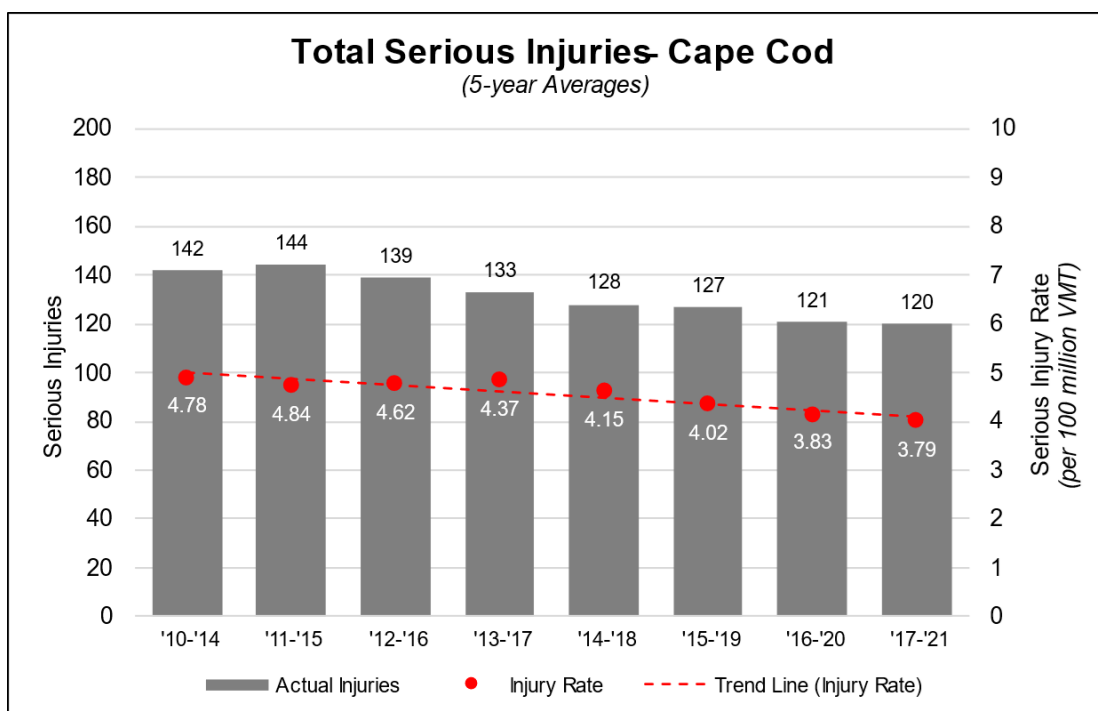


Figure 4. Cape Cod Serious Injury Trend

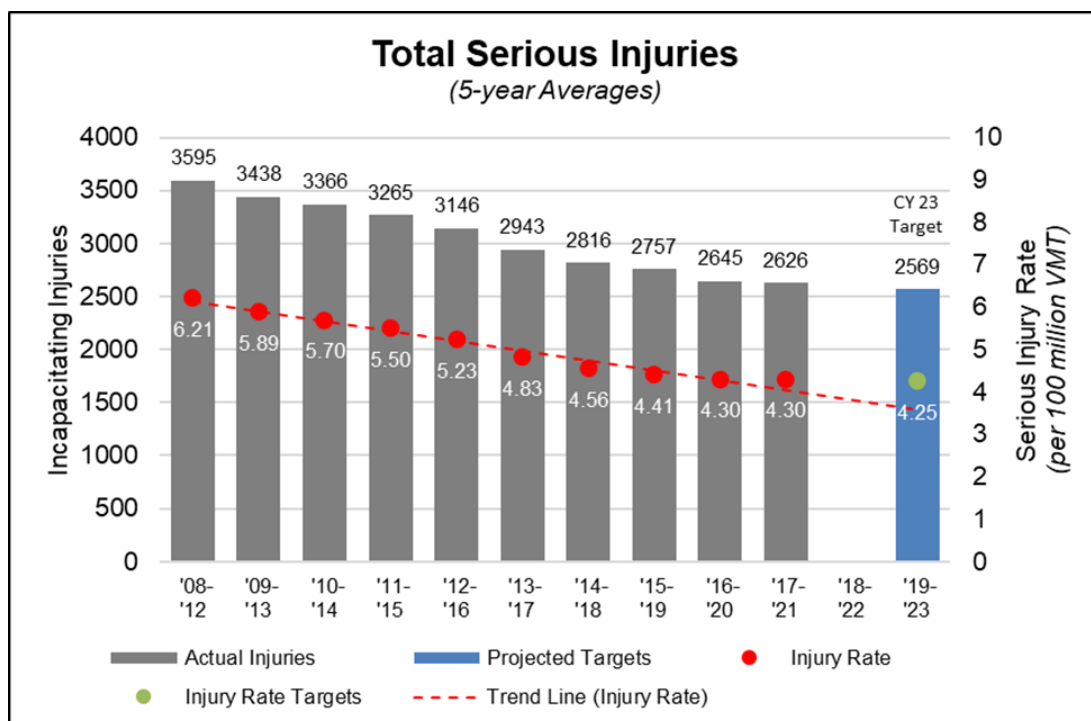


Figure 5. Statewide Serious Injury Trend

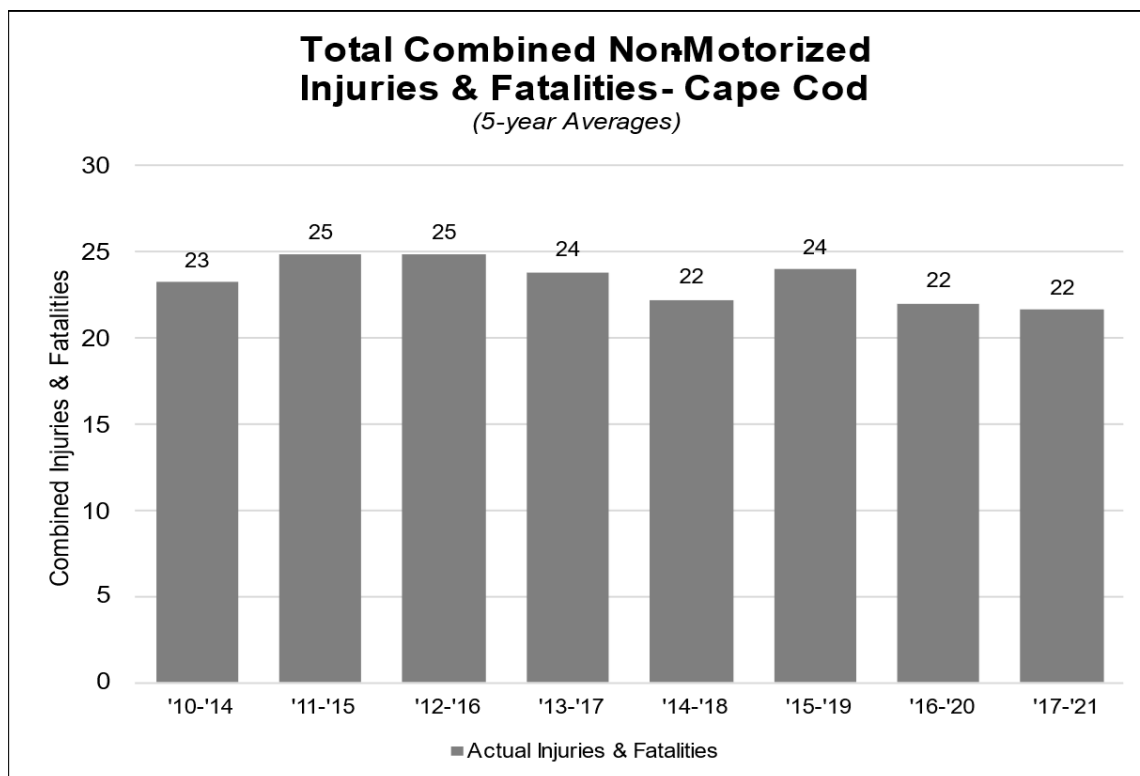


Figure 6. Cape Cod Non-Motorized Injury and Fatality Trend

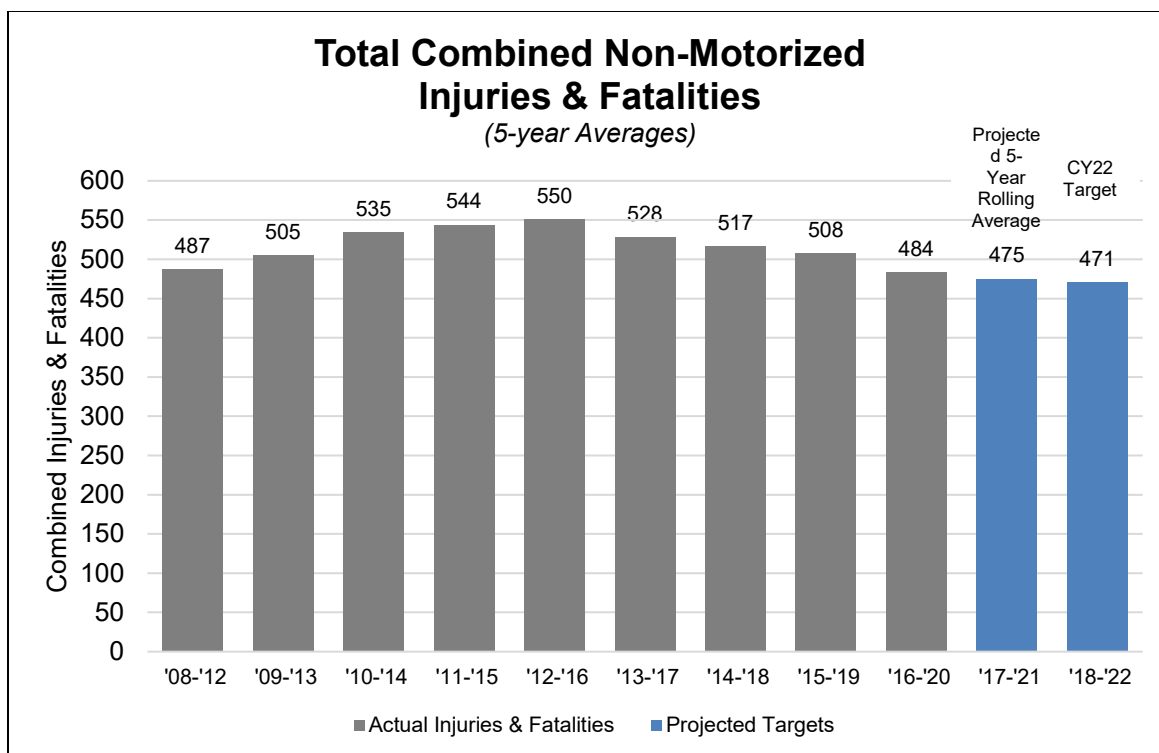


Figure 7. Statewide Non-Motorized Injury and Fatality Trend

Projects funded through the Cape Cod Transportation Improvement Program are one way for the region to make strides towards achieving the region's safety targets. Anticipated motorist and non-motorist safety impacts are important criteria in the evaluation of projects considered for inclusion in the Cape Cod Transportation Improvement Program as detailed in Appendix A. The Cape Cod Transportation Improvement Program includes projects that are anticipated to improve safety in a number of locations with demonstrated crash problems.

Bridge & Pavement Performance Measures (PM2)

The Cape Cod MPO has chosen to adopt the 2-year (2024) and 4-year (2026) statewide bridge and pavement performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by December 16th, 2022. In setting these targets, MassDOT has followed FHWA guidelines by measuring bridges and pavement condition using the 9-point National Bridge Inventory Standards (NBIS); the International Roughness Index (IRI); the presence of pavement rutting; and the presence of pavement cracking. 2-year and 4-year targets were set for six individual performance measures: percent of bridges in good condition; percent of bridges in poor condition; percent of Interstate pavement in good condition; percent of Interstate pavement in poor condition; percent of non-Interstate pavement in good condition; and percent of non-Interstate pavement in poor condition. All of the above performance

measures are tracked in greater detail in MassDOT's 2022 Transportation Asset Management Plan (TAMP).

Targets for bridge-related performance measures were determined by identifying which bridge projects are programmed and projecting at what rate bridge conditions deteriorate. The bridge-related performance measures measure the percentage of deck area, rather than the total number of bridges.

Performance targets for pavement-related performance measures were based on a single year of data collection, and thus were set to remain steady under the guidance of FHWA. These measures are to be revisited at the 2-year mark (2024), once three years of data are available, for more informed target setting.

MassDOT continues to measure pavement quality and to set statewide short-term and long-term targets in the MassDOT Performance Management Tracker using the Pavement Serviceability Index (PSI), which differs from IRI. These measures and targets are used in conjunction with federal measures to inform program sizing and project selection.

Table 5. Bridge & Pavement Performance Measures (PM2) Target Summary

PERFORMANCE MEASURE	CURRENT (2021)	2-YEAR TARGET (2024)	4-YEAR TARGET (2026)
Bridges in good condition	16%	16%	16%
Bridges in poor condition	12.2%	12%	12%
Non-Interstate Pavement in good and excellent condition	n/a	30%	30%
Non-Interstate Pavement in poor condition	n/a	5%	5%

Note: Performance targets related to the Interstate System are not included in this table since there are no interstates in the Cape Cod region.

Projects funded through the Cape Cod Transportation Improvement Program are one way for the region to make strides towards achieving the region's bridge and pavement performance targets. Asset condition is an important criterion in the evaluation of projects considered for inclusion in the Cape Cod Transportation Improvement Program as detailed in Appendix A. The Cape Cod Transportation Improvement Program includes projects that are anticipated to improve roadway and pavement condition.

Reliability, Congestion, & Emissions Performance Measures (PM3)

The Cape Cod MPO has chosen to adopt the 2-year (2024) and 4-year (2026) statewide reliability, congestion, and emissions performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by December 16, 2022, with MPOs either adopting the statewide target or establishing their own by June 2023.

MassDOT followed FHWA regulation in measuring Level of Travel Time Reliability (LOTTR) on both the Interstate and non-Interstate NHS as well as Truck Travel Time Reliability (TTTR) on the Interstate system using the National Performance Management Research Dataset (NPMRDS) provided by FHWA. These performance measures aim to identify the predictability of travel times on the roadway network by comparing the average travel time along a given segment against longer travel times. For LOTTR, the performance of all segments of the Interstate and of the non-Interstate NHS are defined as either reliable or unreliable based on a comparison between the 50th percentile travel time and the 80th percentile travel time, and the proportion of reliable segments is reported. For TTTR, the ratio between the 50th percentile travel time and the 90th percentile travel time for trucks only along the Interstate system is reported as a statewide measure.

Emissions reduction targets are measured as the sum total of all emissions reductions anticipated through CMAQ-funded projects in non-attainment or air quality maintenance areas (currently the cities of Lowell, Springfield, Waltham, and Worcester, and the town of Oak Bluffs) identified in the Statewide Transportation Improvement Program (STIP). This anticipated emissions reduction is calculated using the existing CMAQ processes.

Table 6. Travel Time Reliability Performance Measures (PM3) Target Summary

PERFORMANCE MEASURE	CURRENT (2021)	2-YEAR TARGET (2023)	4-YEAR TARGET (2025)
Interstate LOTTR	84.2%	74.0%	76.0%
Non-Interstate LOTTR	87.2%	85.0%	87.0%
TTTR	1.61	1.80	1.75

Note: Performance targets not applicable to Cape Cod have been excluded from this table.

Transit Asset Management Measures and Targets

Transit Asset Management (TAM) is a business model that uses the condition of assets to guide optimal prioritization of funding at transit properties in order to keep our transit networks in a state of Good Repair (SGR). Bus replacement projects are programmed every year to keep vehicle stock in good condition.

Federal legislation requires all recipients of FTA funding to develop a TAM Plan and update the plan every four years. The Cape Cod Regional Transit Authority (CCRTA) latest TAM plan was prepared in November 2018 and identified agency-specific TAM targets. The CCRTA's latest FY 2022 TAM targets for the Cape Cod region are presented in Table 7. The Cape Cod MPO adopted the FY 2020 TAM targets for the Cape Cod region in May 2019.

Table 7. Cape Cod Transit Asset Management Performance Measures and Targets

CATEGORY	CLASS	NUMBER	MEASURE	FY2022 PERFORMANCE	FY2023 TARGET
Rolling Stock	Bus	28	% at or past ULB	0%	0%
Rolling Stock	Cutaway Bus	100	% at or past ULB	0%	10%
Rolling Stock	Vans	7	% at or past ULB	9.52%	0%
Equipment	Service Vehicle/Trucks	10	% at or past ULB	0%	10%
Facilities	Maintenance	1	% under 3.0 on TERM scale	0%	0%
Facilities	Passenger Facilities	1	% under 3.0 on TERM scale	0%	0%

Note: Useful Life Bench Mark (ULB) is defined by FTA as “the expected lifecycle of a capital asset for a particular transit provider’s operating environment, or the acceptable period of use in service for a particular transit provider’s operating environment.” For example, FTA’s default ULB value for a bus is 14 years. FTA’s Transit Economic Requirements Model (TERM) scale, which pertains to the facilities measure, is a rating system that describes asset condition. The scale values are 1 (poor), 2 (marginal), 3 (adequate), 4 (good), and 5 (excellent).

Transit Safety Performance Targets

The CCRTA prepared its Public Transportation Agency Safety Plan (PTASP) in December 2022 which outlines its safety training program, establishes safety performance targets, a safety management policy and safety performance monitoring. CCRTA has established the safety targets below by reviewing historic safety data, with the goal of operating to maximum safety, proactively addressing hazards as they are identified. The Cape Cod MPO adopted the transit safety performance targets for the Cape Cod region in March 2023.

Table 8. Cape Cod Transit Safety Performance Targets

Mode of Transit Service	Fatalities (Total)	Fatalities (per 100K VRM ¹)	Injuries (Total)	Injuries (per 100K VRM)	Safety Events (Total)	Safety Events (per 100K VRM)	System Reliability (MMBF ²)
Fixed Route Bus	0	0.00	8	0.6	16	1.2	20,000 miles
Paratransit	0	0.00	4	0.1	8	0.2	150,000 miles
Human Service Transportation/ Demand Taxi	0	0.00	6	0.5	12	1.0	100,000 miles

¹ Vehicle Revenue Miles

² Mean Miles Between Failures

Chapter 2: TIP Development Process

The Cape Cod Transportation Improvement Program (TIP) is a listing of federal aid eligible transportation projects for Cape Cod prepared under the direction of the Cape Cod Metropolitan Planning Organization (MPO). The plan is prepared by the Cape Cod Commission (CCC) transportation staff, the Cape Cod Regional Transit Authority (CCRTA) staff, Massachusetts Department of Transportation (MassDOT) staff, and the Cape Cod Joint Transportation Committee (CCJTC) with input from the public and in cooperation with multiple state and federal agencies.

The TIP is developed based on a vision defined in the Cape Cod Regional Transportation Plan (RTP) and includes the transportation projects proposed for implementation in the next five years. Each year of the TIP must be financially constrained; anticipated project costs cannot exceed available funding. The TIP must conform with a host of federal and state requirements and policies including air quality and equity programs.

The inclusion of a project in the TIP is one step on the path towards construction. Inclusion on this list does not guarantee funding; the project proponent is responsible for completing the steps toward implementation within the program. For a highway project, the obligation of the federal and state funds occurs when the project is advertised for construction by MassDOT. For a transit project, the obligation of the funding is through an electronic approval system by FTA.

Additionally, when there is available funding, the Cape Cod TIP periodically programs a non-traditional bicycle rack TIP project to utilize a minimal amount of remaining funds. The Cape Cod Bicycle Rack Program allows municipalities to obtain bicycle racks and related equipment through a grant application process through the Cape Cod Commission. The most recent year where this non-traditional program was made available was in FFY 2020 with funds expended through CY2022.

Development Schedule

The Cape Cod MPO process follows an annual schedule for development of the Transportation Improvement Program (TIP) to be compatible with the development schedule of the State Transportation Improvement Program (STIP), as is required under 23 CFR 450.324. The STIP includes projects lists in the Cape Cod TIP, projects listed in the TIP from other planning regions, and projects that span multiple planning regions. The Cape Cod TIP is generally endorsed by the Cape Cod MPO each May with the STIP being submitted for federal approvals prior to the beginning of the Federal Fiscal Year on October 1.

Cape Cod TIP Readiness Guidelines

In the Fall of 2020, the CCJTC suggested establishing a set of readiness guidelines that could be reviewed as part of the TIP project selection process. Discussions regarding TIP project readiness has been a regular topic over the last few years at CCJTC monthly meetings to ensure regional target funds are appropriately allocated to projects that are completing design milestones and progressing at an appropriate pace to meet advertisement dates. The TIP guidelines would also assist the municipalities with understanding what the schedule should look like when designing a TIP project. In cooperation and consultation with the CCJTC, Cape Cod MPO Staff developed the following set of readiness guidelines to clearly understand what design milestones should be met in order for a TIP project to be programmed on the Cape Cod TIP. The CCJTC approved the Cape Cod TIP Readiness Guidelines on November 13, 2020 as shown in Table 9.

These readiness guidelines are intended to complement readiness guidance developed by MassDOT with the goal of ensuring that TIP projects proceed through TIP development without design-related delay.

Table 9. Cape Cod TIP Readiness Guidelines

In order to move into (TIP Year):	The Project Should:
Year 5	<ul style="list-style-type: none">Have completed MassDOT Pre-25% Design Submission (conceptual design level)
Year 4	<ul style="list-style-type: none">25% Design has been submittedDesigner should be under contract through PS&E*
Year 3	<ul style="list-style-type: none">Be at 75% design level
Year 2	<ul style="list-style-type: none">Be at 100% design level
Year 1	<ul style="list-style-type: none">Be at PS&E design level with accepted right-of-way plans

*Per MassDOT requirements, towns must commit to have a designer under contract within two years of Project Review Committee (PRC) approval

Adjustment, Amendment and Administrative Modification Procedures

As TIP projects advance in design or other changes occur over the course of the year, the TIP may need to be modified from their original MPO endorsed form. There are different actions that may be taken in order to modify the endorsed TIP.

The process and criteria for an Amendment, Adjustment, and Administrative Modification are described in the following sections:

Amendment

A revision to the TIP that requires public review and demonstration of financial constraint. The public process for a TIP amendment requires a publicly advertised 21-day public comment period and for MassDOT to address any public commentary prior

to sending to the FHWA and/ FTA for review and approval. Tables 8 and 9 summarizes the procedures related to when an amendment is triggered for highway and transit projects, respectively. Examples of when an amendment would be required include:

- Major project cost change
- Major project scope change
- Project inclusion or removal
- Change in funding year

Adjustment

A revision to the TIP that is does not require a public process, but that is required to be included in a MassDOT STIP action with a demonstration of financial constraint for FHWA/FTA approval. Examples of when an adjustment would be required include:

- Minor project cost change
- Minor project scope change
- Change in funding source

Administrative Modification

A revision to the TIP that is minor enough in nature to require neither a public process nor FHWA/FTA approval, but that does involve a notification to federal partners.

Examples of when an administrative modification would be required include:

- Project description change
- Change in additional information

Table 10. Highway Project TIP Revision Definitions and Procedures Type

TYPE OF REVISION	DEFINITION	PROCEDURE	NOTES
Major Project Cost Change	Increase or decrease of \$500,000 or greater for projects programmed under \$5,000,000 and greater than 10% of the total cost for projects programmed over \$5,000,000.	Amendment	The “increase” or “decrease” in cost is relative to the Total Federal Participating Cost (TFPC) of a project.
Minor Project Cost Change	Increase or decrease of \$499,999 or less for projects programmed under \$5,000,000 and less than 10% of the total cost for projects programmed over \$5,000,000.	Adjustment	See above.
Project Description Change	Change in the description of the project as it is listed in the STIP.	Adjustment or Administrative Modification	Project description changes are treated as administrative modifications for minor changes (e.g. spelling errors, more detailed descriptions, adding mile-markers, etc.).
Major Project Scope Change	A revision to the project scope large enough to necessitate an additional review by MassDOT’s Project Review Committee (PRC) – typically accompanied by major project cost change.	Amendment	In some cases, a major scope change will require the initiation of a new project through MassDOT’s Project Initiation Form (PIF), and review/approval by PRC. This would require deactivation and removal of the currently programmed project.
Minor Project Scope Change	A minor revision to the project scope that does not significantly alter the original PRC-approved scope of work.	Adjustment	In many cases, changes in this category will also include a minor cost change.
Project Addition	The programming of a new project in any federal fiscal year of the active TIP.	Amendment or Adjustment	Project additions are treated as amendments if the project was not part of any previously approved TIP that has been vetted through the public process.
Project Removal	The removal of a project in any federal fiscal year of the active TIP.	Amendment	Exception: if a project is removed from an active TIP or the STIP due to it being previously advanced/advertised, or is moved to the statewide list from a regional TIP, the action would be considered an adjustment.
Change in Funding Source	A change in the project’s funding source, including federal and non-federal sources which fall within the project cost change revisions listed above.	Adjustment	Changes in funding sources for projects are permissible for advertisement purposes if the FHWA Division Office has been consulted.
Change in Additional Information	A change in any item listed in the “Additional Information” column of the TIP not covered in any other item listed here (e.g. earmark details, project proponent, etc.)	Administrative Modification	N/A
Change in Year of Programming	Moving a currently programmed project earlier or later than an originally programmed year.	Amendment	Changes to a project delivery schedule (advancement or delay) requires an amendment for the change in programmed FFY.

Table 11. Transit Project TIP Revision Definitions and Procedures Type of Revision

TYPE OF REVISION	DEFINITION	PROCEDURE	NOTES
Major Project Cost Change	Increase or decrease of \$500,000 or greater for projects under \$5,000,000 and greater than 10% of the total cost for projects exceeding \$5,000,000.	Amendment	The “increase” or “decrease” in cost is relative to the combined federal and non-federal aid participating cost of the project.
Minor Project Cost Change	Increase or decrease of \$499,999 or less for projects under \$5,000,000 and less than 10% of the total cost for projects exceeding \$5,000,000.	Adjustment	See above.
Project Description Change	Change in the description of the project as it is listed in the TIP.	Adjustment or Administrative Modification	Project description changes are treated as administrative modifications for minor changes (e.g. spelling errors, more detailed descriptions, etc.).
Major Project Scope Change	A revision to the project scope deemed large enough to require public review and comment (e.g. changing the number of stations)	Amendment	In many cases, changes in this category will also include a major cost change.
Minor Project Scope Change	A minor revision to the project scope that does not significantly alter the original scope of work (e.g. changes to the bus model for vehicle replacement projects).	Adjustment	In many cases, changes in this category will also include a minor cost change.
Project Addition	The programming of a new project in any federal fiscal year of the current TIP.	Amendment or Adjustment	Project additions are treated as amendments if the project was not part of any previously approved TIP that has been vetted through the public process.
Project Removal	The removal of a project in any federal fiscal year of the current TIP.	Amendment	Exception: if a project is removed from a TIP or the STIP due to it being previously advanced/advertised, or is moved to the statewide list from a regional TIP, the action would be considered an adjustment.
Change in Funding Source	Change in the funding source, including federal and non-federal sources that fall within project cost change revisions listed in the first two rows.	Adjustment	Changes in funding sources for projects are permissible for obligation purposes with written notice from the FTA region office.
Change in Year of Programming	Moving a currently programmed project earlier or later than the originally programmed year.	Amendment or Adjustment	Note: Federal funds shall be programmed in the federal fiscal year in which the award will occur. Changes in year of programming are only treated as adjustments if they involve advancing federal funds to align with the year of the grant award.

Exceptions

Although the MPO typically holds a 21-day public comment period for amendments, in the event of extenuating circumstances beyond the agency's control, the comment period may be shortened or waived in consultation with MassDOT and, as applicable, the FHWA Massachusetts Division Office and/or the FTA Regional Office. Additionally, MassDOT may make exceptions to the procedures outlined above and treat amendments as adjustments and/or adjustments as administrative modifications, but these exceptions will also require coordination with and concurrence by MassDOT and MassDOT's federal partners and the affected MPO.

Public Participation Process

Pursuant to Federal Highway Administration 23 CFR Part 450 and Federal Transit Administration 49 CFR, the Cape Cod Transportation Improvement Program (TIP) was developed locally, and is based on the latest Regional Transportation Plan (RTP).

The development of the TIP occurs in public meetings of the CCJTC and the Cape Cod MPO. Presentations on potential new projects typically occur in the fall. Discussions of the scoring of potential projects and development of a potential program of projects occurs in the winter and spring. Meetings related to the development of the TIP for discussion and/or endorsement in Table 12.

Table 12. Transportation Improvement Program Development Meetings

DATE	MEETING TYPE	LOCATION
December 9, 2022	CCJTC	Virtual Meeting
January 13, 2026	CCJTC	Virtual Meeting
January 23, 2023	Cape Cod MPO	Virtual Meeting
February 10, 2023	CCJTC	Virtual Meeting
February 27, 2023	Cape Cod MPO	Virtual Meeting
March 10, 2023	CCJTC	Virtual Meeting
March 27, 2023	Cape Cod MPO	Virtual Meeting
April 14, 2023	CCJTC	Virtual Meeting
April 24, 2023	Cape Cod MPO	Virtual Meeting
May 12, 2023	CCJTC	Virtual Meeting
May 22, 2023	Cape Cod MPO	Virtual Meeting

In addition to discussion at CCJTC and Cape MPO public meetings, CCC staff makes efforts to reach out directly to members of the public interested in development of the TIP. Continued this year, virtual public engagement was used in various formats, such as virtual meetings, pre-recorded videos, media interviews, and web materials, to engage the public. In-person public engagement was also conducted to focus on areas where the public is using alternate forms of transportation, such as at the Hyannis Transportation Center and the region's bicycle paths. Yard signs were installed through

the region along the region's bike paths, the Hyannis Transportation Center and Town Halls to spread the word of the public comment opportunities.

Website content was provided for members of the public to engage in the process. An executive summary of the plan were made available in English and Portuguese. Public comment opportunities were held in-person at the Hyannis Transportation Center and at a virtual public meeting both on Wednesday, April 26, 2023. These meetings featured a short presentation on the document followed by an opportunity for public comments. Additional opportunities for public comments were gathered at outreach tables located along the region's bike path network. Information on these meetings is available at www.capecodcommission.org/mpo.

The TIP is to be presented to the MPO as draft and released by vote for a 21-calendar-day public comment period. At that time, Cape Cod MPO Staff distributes the draft document and announces the beginning of the public comment period. Comments received by staff are documented, presented to the MPO and may result in changes to the document. After the 21-calendar-day public comment period the MPO can endorse, reject or rerelease the draft for an additional comment period by vote. The comment period for these documents may be abbreviated as determined by the MPO.

CCC staff maintains an electronic mailing list of persons interested in transportation issues in the region. Notice of the public meetings where discussion of draft TIP documents is to occur is emailed at least seven days in advance. Public comments may be made or via email, telephone, fax, or regular mail.

Chapter 3: TIP Funding

This TIP was developed under the Bipartisan Infrastructure Law (BIL). Most funding categories in this TIP are through federal sources: Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) as provided by federal legislation.

The CCRTA has multiple sources of income which include Federal, State and Local Assistance. Federal funding includes Urbanized Area Formula Grant Program (FTA §5307), Bus and Bus Facilities (FTA §5339), Elderly Persons and Person with Disabilities (FTA §5310), Coronavirus Aid, Relief, and Economic Security Act (CARES) Coronavirus Response and Relief Supplemental Appropriations Act (CRRSA) and American Rescue Plan Act (ARPA). State funding is inclusive of State Contract Assistance (SCA) and Regional Transit Authority Capital Assistance (RTA Capital) through the Massachusetts Department of Transportation (MassDOT). Other sources of income are made up of fare revenue which is collected through our Fixed Route, Demand Response and CapeFlyer Routes. The CCRTA also receive fees for the use of their parking lots at the Hyannis Transportation Center.

Table 13 and Table 14 provide brief descriptions of the funding programs that may be used for transportation improvement projects on Cape Cod.

Table 13. Federal Highway Funding Administration Programs

PROGRAM	ELIGIBLE USES
Congestion Mitigation and Air Quality Improvement (CMAQ)	A wide range of projects in air quality nonattainment and maintenance areas for ozone, carbon monoxide, and small particulate matter, which reduce transportation-related emissions.
Highway Safety Improvement Program (HSIP)	Implementation of infrastructure-related highway safety improvements
National Highway Performance Program (NHPP)	Improvements to interstate routes, major urban and rural arterials, connectors to major intermodal facilities, and the national defense network. Also includes replacing or rehabilitating any public bridge, and resurfacing, restoring, and rehabilitating routes on the Interstate Highway System.
Surface Transportation Block Grant (STBG)	A broad range of surface transportation capital needs, including roads; transit, sea, and airport access; and vanpool, bicycle, and pedestrian facilities.
Transportation Alternatives Program (TAP)	Construction of infrastructure-related projects (for example, sidewalk, crossing, and on-road bicycle facility improvements).
Bridge Replacement and Rehabilitation Program (BR)	Replacement or repair of bridges on or off the federal aid system.
Ferry Boat Program (FBP)	Project to construct ferry boats and ferry terminal facilities.
National Highway Freight Program (NHFP)	Projects that improve the efficient movement of freight on the National Highway Freight Network
Non Federal Aid (NFA)	These projects are not funded with federal dollars. Typically, projects in this category are funded through state bonding, and are generally state maintenance projects.
Coronavirus Response and Relief Supplemental Appropriations Act (CRRSAA)	Earmark discretionary funds under the Coronavirus Response and Relief Supplemental Appropriations Act.
Federal Lands Access Program (FLAP)	Improvements to transportation facilities that provide access to, are adjacent to, or located within Federal lands.

Note: In addition to FHWA and FTA funding programs, MassDOT has funds appropriated under the Coronavirus Response and Relief Supplemental Appropriations Act (CRRSAA) and are listed under "Earmark Discretionary" in the TIP tables.

Additionally, the following competitive discretionary grant programs are authorized under the BIL. Several grant applications were submitted for FFY2022 round of funding for projects located within the CCMPO region as noted below.

Safe Streets and Roads for All

Competitive grant program provides funding to local governments, MPOs and federally recognized tribes, to support efforts to advance comprehensive safety plans or "Vision Zero" plans to reduce crashes and fatalities. Barnstable County (Cape Cod Commission) was awarded a Safe Streets and Roads for All planning grant on January

31, 2023 to prepare a Safety Action Plan for the region. These funds will be reflected in the 2024 UPWP under their respective task.

Strengthening Mobility and Revolutionizing Transportation (SMART)

Program provides grants to eligible public sector agencies to conduct demonstration projects focused on advanced smart community technologies and systems in order to improve transportation efficiency and safety. MassDOT was awarded a \$1,950,000 FY2022 SMART grant to plan, permit, and design a smart microgrid system at the Cape Cod Gateway Airport in Barnstable, MA, which is a disadvantaged community. MassDOT was also awarded a \$1,979,615 FY2022 SMART grant to use drone technology for environmental sensing along existing railroad infrastructure to improve rail safety on Cape Cod.

National Infrastructure Project Assistance (MEGA)

Competitive grant program supports multi-modal, multi-jurisdictional projects of regional or national significance. MassDOT and the Army Corp of Engineers submitted a joint application under this program as part of the Cape Cod Canal Bridges Program. Although the grant application was not successful for round 1 of funding, the two agencies are planning to re-submit an application for the Canal Bridges under this discretionary grant program.

Bridge Formula Program

Program authorizes funds related to bridge investments, such as replacement, rehabilitation, preservation, protection and construction. MassDOT and the Army Corp of Engineers submitted a joint application under the this program as part of the Cape Cod Canal Bridges Program. Although the grant application was not successful for round 1 of funding, the two agencies are planning to re-submit an application for the Canal Bridges under this discretionary grant program.

Nationally Significant Multimodal Freight & Highway Projects (INFRA)

Competitive grant program for multimodal freight and highway projects of national or regional significance to improve safety, efficiency, and reliability of the movement of freight and people in and across rural and urban areas. MassDOT and the Army Corp of Engineers submitted a joint application under the this program as part of the Cape Cod Canal Bridges Program. Although the grant application was not successful for round 1 of funding, the two agencies are planning to re-submit an application for the Canal Bridges under this discretionary grant program.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

A discretionary grant program aimed to assist communities with projects with significant local or regional impact.

Promoting Resilient Operations for Transformative, Efficient and Cost-Saving Transportation (PROTECT)

Competitive grant program to increase the resiliency of the transportation system, including coastal resilience and evacuation routes.

Charging and Fueling Infrastructure Grants

Discretionary grant program will fund strategic deployment of publicly accessible electric vehicle charging infrastructure, as well as hydrogen, propane and natural gas fueling infrastructure, along designated alternative fuel corridors and in communities.

Rural Surface Transportation Grant

Competitive grant program to improve and expand surface transportation infrastructure in rural areas, increasing connectivity, improving safety and reliability of the movement of people and freight and generate regional economic growth.

Reconnecting Communities Pilot Program (RCP)

Competitive grant program to reconnect communities divided by transportation infrastructure. The program's funds can support planning, capital construction, and technical assistance to equitably and safely restore community connectivity through the removal, retrofit, mitigation, or replacement of eligible transportation infrastructure facilities that create barriers to mobility, access, or economic development

Table 14. Federal Transit Funding Administration Programs

PROGRAM	ELIGIBLE USES
Bus and Bus Facilities (FTA 5339)	This category is discretionary funds for capital expenditures such as buses and terminal facilities; projects need federally earmarked 5339 funds to proceed.
Urbanized Area Formula Grant Program (FTA 5307)	These funds are primarily for capital expenditures. In urbanized areas (UZA) with a population over 200,000, the use for operating assistance is limited. This funding is distributed to UZAs over 200,000 population via formula.
Elderly Persons and Persons with Disabilities Formula Program (FTA 5310)	This program funds public transit projects to enhance mobility for seniors and persons with disabilities.
Rural Area Formula Program (FTA 5311)	This program funds public transit projects in rural areas. MassDOT and FTA grant 5311 funds on a discretionary basis. Funds are for both capital and operating expenses. Federal share currently funds approximately 13% of total cost.
State Contract Assistance (SCA)	These funds are provided through the Commonwealth Transportation Fund (CTF) and the Massachusetts Transportation Trust Fund (MTTF) and are used as matching funds to make federal programs.

Cape Cod Transportation Improvement Program for FFY 2024-2028

For federal fiscal years 2024-2028 the anticipated available funding from the Federal Highway Administration with the state match is presented in Table 15.

Table 15. Summary of Available Federal Highway Administration Funding with State Match

YEAR	TOTAL
2024	\$13,941,597
2025	\$13,704,760
2025	\$13,369,471
2027	\$16,554,442
2028	\$16,866,045
Total	\$74,436,315

For federal fiscal years 2024-2028 the anticipated available funding from the Federal Transit Administration with the state match is presented in Table 16.

Table 16. Summary of Available Federal Transit Administration Funding with State Match

YEAR	TOTAL
2024	\$61,050,520
2025	\$30,802,905
2026	\$24,635,950
2027	\$28,413,495
2028	\$33,989,045
Total	\$178,891,915

Chapter 4: TIP Project Map and Descriptions

Map of Funded Highway Projects

Figure 8 shows the location and extent of highway projects funded in this Transportation Improvement Program (TIP). A more detailed map of these projects is available on the Appendix A.

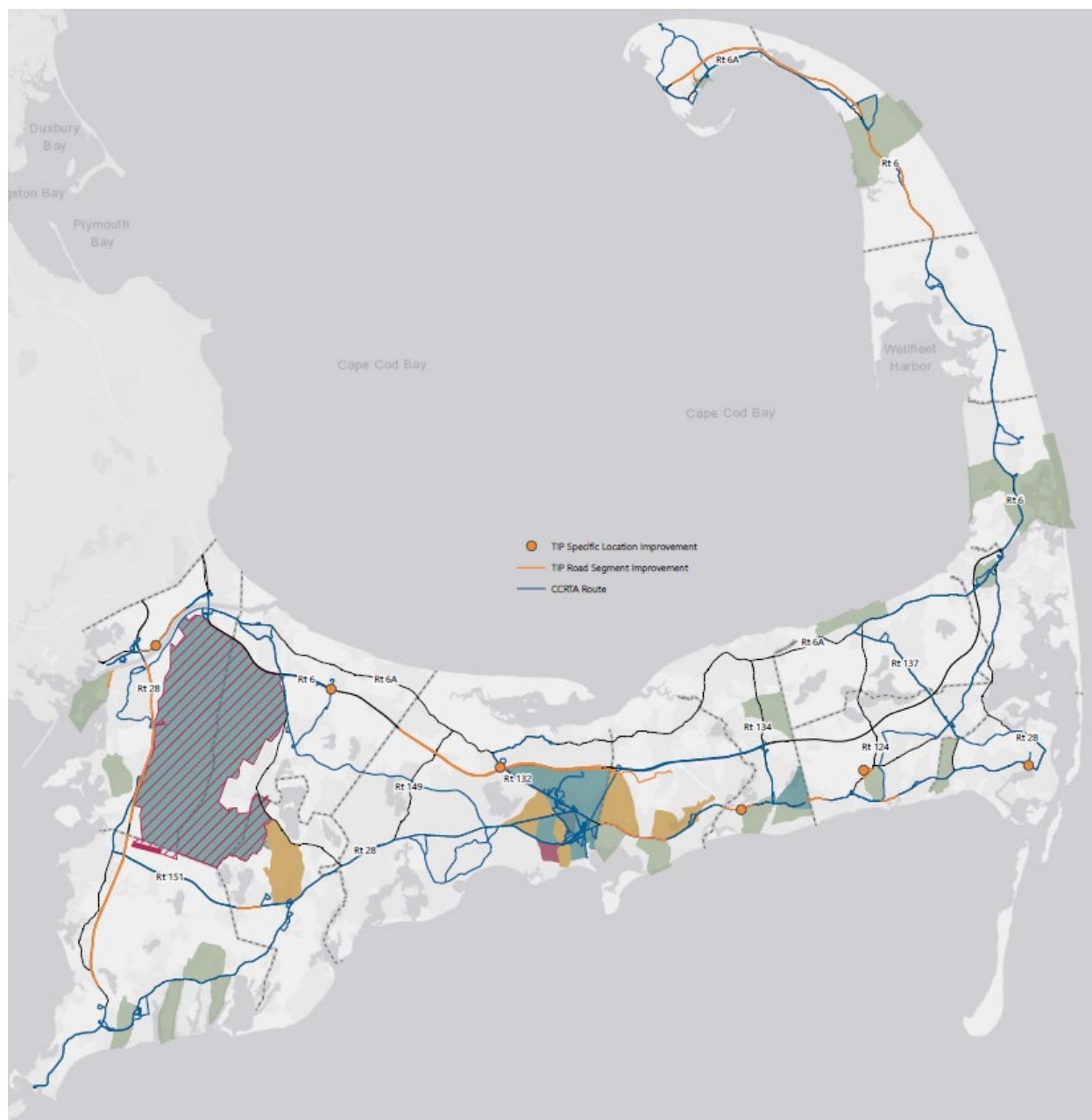


Figure 8. Map of Funded Highway Projects

Description of Funded Highway Projects

The following descriptions for highway projects were prepared by MassDOT and are subject to change as the projects are further developed. The majority of projects are specifically referenced in the Cape Cod Regional Transportation Plan as many of the projects are located along the region's Congestion Management Plan network (i.e. Route 6 and Route 28).

Mashpee, Route 151 Corridor Improvements (Phase 2) (#611986)

Work on this project will consist of corridor improvements on Route 151 from the Falmouth town line to the Phase 1 limits just west of Old Barnstable Road. Work will include new pavement surface, installation of new turns lanes, a small portion of a raised median, new drainage, pavement markings and signage. In addition, a shared use path will be constructed on the northerly side of the roadway and sidewalk installed on the southerly side of the roadway.

Harwich, Sidewalk Installation on Route 28 to Saquatucket Harbor (#611985)

This project will include the construction of a six-foot sidewalk with associated curb ramps and crosswalks along the south side of Route 28 from Bank Street to Saquatucket Harbor. A 140-foot timber pedestrian bridge is also proposed to span an existing culvert.

Yarmouth-Barnstable, Cape Cod Rail Trail Extension (#607398)

This project is intended to provide an extension of the Cape Cod Rail Trail (CCRT) multi-use path connecting the communities of Barnstable and Yarmouth. The project includes the construction of a new bridge carrying the CCRT over Willow Street and three new parking lots.

Barnstable, Park and Ride Expansion and Improvements at Route 132 (#610800)

This project is in the preliminary design phase and includes the expansion of parking capacity at the existing Park and Ride facility on Route 132. The project may also include electric vehicle parking spaces and upgrades to bus shelters.

Dennis/Yarmouth, Bass River Bridge Replacement Project and Route 28 at North Main St and Old Main St Intersection Improvements (#612574)

The Bass River Bridge will be entirely replaced to address existing structural and functional deficiencies. The proposed project will widen the bridge deck from 49 to 60 feet to include two travel lanes in each direction, shoulders, a sidewalk on the northern side of the bridge, a shared-use path on the southern side of the bridge, and new ornamental light fixtures and railings on each side of the bridge. The new bridge will

have higher vertical clearance and fewer piers than the current bridge. A pedestrian hybrid beacon will be installed at the eastern end of the bridge to facilitate safe multi-modal crossings.

The project will also address the high crash intersection of Route 28 at North Main St/Old Main St. Work on the intersection consists of traffic signal upgrades, roadway rehabilitation and improvements for pedestrian/bicycle accommodation. Dedicated bus pull offs and a new municipal parking lot is also included as part of the project.

Sandwich, Quaker Meetinghouse Road Over Route 6 Bridge Preservation (#613195)

The purpose of this project is to perform a bridge deck replacement of the Quaker Meetinghouse Road over Route 6 (Mid-Cape Highway) bridge structure as part of an overall bridge preservation strategy.

Dennis/Harwich, Route 28 Reconstruction (Upper County Rd to Herring River Bridge) (#608742)

Work on this project consists of roadway rehabilitation, box cut widening, mill and overlay, sidewalk construction and reconstruction, installation of new ADA compliant curb ramps, drainage upgrades, pavement markings and signs on Route 28 for a length of 0.7 miles. The roadway and sidewalk work will improve both bicycle and pedestrian accommodation for this length of roadway. This project is the second phase of improvements proposed for Route 28 in Dennis and Harwich. In addition, traffic signals at the Route 28/Upper County Road intersection will be reconstructed to current standards with associated geometric improvements.

Provincetown, Shank Painter Road Improvements (#608744)

This project involves roadway reconstruction, sidewalk construction and reconstruction, bicycle accommodations, drainage upgrades, pavement markings and signs along Shank Painter Road, from Route 6 to Bradford Street. Geometric improvements are proposed at the Route 6/Shank Painter Road intersection. Also included in the project is a road diet on Route 6 from Shank Painter Road to the National Seashore, which will allow for improved bicycle and pedestrian accommodation in the form of a shared use path.

Harwich, Harwich Elementary School Safe Routes to School (#610670)

This project involves sidewalk infrastructure improvements/upgrades for the area immediately adjacent and contiguous to the Harwich Elementary School to facilitate a safe and accessible pedestrian connection to the school and Harwich Center.

Bourne, Median Installation on Route 6 (#606082)

Work on this project includes resurfacing as well as safety improvements including a raised center median and expanded shoulders to separate the eastbound and westbound travel lanes on this existing four-lane, high-speed roadway. The project also includes drainage improvements and a proposed shared use path.

Bourne, Rail Trail Construction – Phase 1 (#609262)

This project is the first of four planned construction phases of the Bourne Rail Trail connection to the Shining Sea Bikeway to the south in Falmouth and the Cape Cod Canal Path to the north in Bourne. Phase 1 is approximately one half-mile long within the existing railroad ROW from Monument Neck Road to the Cape Cod Canal.

Barnstable, Route 6 Repaving and Related Work (#608819)

This project is in the preliminary design phase. This resurfacing project will improve the pavement serviceability, condition, drainage and roadway safety. The addition of a 10-foot wide shoulder for the length of the project is being evaluated. The project length is 8.5 miles long.

Provincetown/Truro, Route 6 Resurfacing and Related Work (#612032)

This project is in the preliminary design phase. This resurfacing project will improve the pavement serviceability, condition and roadway safety. The project may also include the construction of a sidewalk on the west side of the roadway. Further bicycle and pedestrian accommodations will be considered as the design progresses.

Chatham, Route 28 at Main St, Depot Rd, Queen Anne Rd and Crowell Rd (#607405)

This project is intended to address the need for geometric, safety and multimodal improvements at the intersection. Proposed improvements include realignment of approach travel lanes and traffic islands at the intersection. The existing traffic signals also need upgrading to include pedestrian activation. There is also a lack of sidewalks on the south side of the intersection in addition to bike accommodating shoulders. Existing signage and pavement markings need upgrading. New sidewalk extensions and provision of upgraded pavement markings including ADA compliant crosswalks and ramps will serve to improve multimodal accommodation.

Dennis, Route 28 Streetscape Improvements (#608196)

This project is the third phase of improvements on Route 28 in Dennis to address a lack of adequate bicycle and pedestrian accommodation. The 1.2 mile corridor project spans from Uncle Barney's Road to Old Main Street in West Dennis. Work on this project includes the installation of sidewalks and bike lanes along Route 28. The project also includes drainage improvements, bus stop improvements, landscaping and street lighting.

Yarmouth, Route 28 Corridor Improvements (#608196)

The project consists of corridor improvements on Route 28 in Yarmouth, as well as upgrading the sidewalks, wheelchair ramps and driveway aprons to current AAB/ADA regulations and providing bicycle accommodations throughout the corridor. The project limits run from the Barnstable Town line to the Parkers River for a distance of approximately 2.5 miles. Two key intersection improvement projects are included at the intersections of Route 28 at East Main Street and Route 28 at Town Brook Road.

Bourne, Resurfacing and Related Work on Route 28 (#612063)

This project is in the preliminary design phase. This resurfacing project will improve the pavement serviceability, condition and roadway safety on MacArthur Boulevard (Route 28) from the Bourne Rotary to the Otis Rotary.

Falmouth, Resurfacing and Related Work on Route 28 (#612111)

This project is in the preliminary design phase. This resurfacing project will improve the pavement serviceability, condition and roadway safety on Route 28 from the Bourne town line to Braeside Road.

Description of Funded Transit Projects

Transit projects funded in the TIP allow the Cape Cod Regional Transit Authority (CCRTA) to operate and maintain the fleet of vehicles and other infrastructure needed to meet the transportation needs of the Cape Cod region. The agency has set a goal in their 10-Year Strategic Plan and 5-Year Capital Spending Plan to transition its fleet of fossil fuel vehicles to electric vehicles, along with supporting EV infrastructure and technician training. Many of the transit projects in the TIP support the CCRTA's transition to battery-electric bus fleet.

The CCRTA offers many types of services that cater to many different customer types including provides year-round and seasonal fixed-route services and a variety of demand response services. There is emphasis on providing transportation to the transit dependent demographics on Cape Cod, the elderly and individuals with disabilities. The CCRTA has adapted and implemented incentives post the COVID-19 pandemic to boost ridership to near pre-pandemic levels, such as Fare Free Fridays.

Year-round fixed route service is offered on major roads. Stops are positioned to provide mobility and convenience for customers. Passengers may also flag down the bus between scheduled stops along the route. The FLEX route is a hybrid, which allows passengers to request a pick-up or drop off location up to $\frac{3}{4}$ of a mile from the designated route. The routes with the highest ridership are the H2O and Sealine, which travel on Route 28. Some of the fixed routes show ridership that changes seasonally, such as the FLEX route, but others show more steady year round use, including the Sandwich Line, Hyannis Crosstown and Barnstable Villager. The Sandwich Line and the Bourne Run have been meeting the fixed-route needs of previously unserved areas. The newest service is the Buzzards Bay Connector, which is a high frequency service area within Buzzards Bay/ Sagamore that was created from an overlap of existing services (Sandwich Line and Bourne Run). The high frequency service area exists between the Buzzards Bay Train Station and the Bourne Market Basket via Main St. and the Scenic Highway. Figure 9 shows the agencies year-round, fixed-route services.

Seasonal fixed-route services are provided in the downtown portions of Falmouth, Hyannis and Provincetown. These services have high ridership and measure well in performance during the summer months. The Provincetown shuttle has the highest ridership in the months of July and August of all the services offered. The CapeFLYER, a train from Boston targeted for vacationers traveling to Cape Cod, and the Outer Cape Bike shuttle, a vehicle with a trailer to carry bicycles, are provided in partnership with other agencies and are not included in this evaluation.

Demand response services make up a large portion of total ridership including; Dial-A-Ride Transportation (DART), Americans with Disabilities Act (ADA) paratransit services

and the Boston Hospital Transportation. As a result of an evolving transportation landscape, caused by the emergence of new technology and on-demand ride-hailing services such as Uber and Lyft, the Cape Cod Regional Transit Authority (CCRTA) began developing a new and innovative modern mobility option of their own called SmartDART. SmartDART is an on-demand, app-based service, that allows customers to request a trip in real-time using their smartphones and is currently serving the communities of Barnstable and Yarmouth. CCRTA hopes to expand this service into nearby towns such as Dennis and Falmouth in the future.

Regional service is also supplemented by Peter Pan Bus Lines and Plymouth and Brockton Bus Lines who offer inter-city route connections to Boston, MA and Providence, RI.



Figure 9. Map of Cape Cod Regional Transit Authority Year-round, Fixed-route Services

Chapter 5: TIP Project Listing/Financial Plan

The following pages include the projects for the Cape Cod region that are in this program for Federal Aid or Non-Federal Aid funding.

While it is recognized that this TIP is a planning program of projects and implementation must follow from the responsible implementing agency or agencies, the Cape Cod region expects cooperation, communication and an expeditious review process by agencies with the responsibility of overseeing steps toward implementation in order to ensure the maximum compliance with the programmed plan of projects. This effort by overseeing agencies will promote implementation of projects within the planned program and allow the financial plan to remain in balance.

Summary of Funding for Cape Cod Highway and Transit Projects

The Cape Cod federal aid target amounts, from Federal Highway Administration sources through the Commonwealth of Massachusetts, Massachusetts Department of Transportation, based on approximately 4.6% of the statewide amounts, are presented in Table 17, along with the current amount programmed and unprogrammed amounts. Projects programmed in years 2024-2028 reflect 2024 cost estimates. An inflation rate of 4% per year is added to project cost estimates in years 2025-2028, and therefore, the project cost estimates are by Year of Expenditure (YOE) for the target projects.

Table 17. Cape Cod Federal Aid Target Highway and Bridge Programmed Amounts and Fiscal Constraint Analysis

YEAR	TOTAL FEDERAL AID	AMOUNT PROGRAMMED	AMOUNT UNPROGRAMMED
2024	\$13,941,597	\$13,941,597	\$0
2025	\$13,704,760	\$13,704,760	\$0
2026	\$13,369,471	\$13,369,471	\$0
2027	\$16,554,442	\$16,554,442	\$0
2028	\$16,866,045	\$16,866,045	\$0
Total	\$74,436,315	\$74,436,315	\$0

The TIP is financially constrained according to the definition in the 23 CFR Part 450.324. The projects programmed do not exceed the funding estimates of federal and state funds available in each of these fiscal years.

Additionally, the Cape Cod Joint Transportation Committee (CCJTC) has thoughtfully considered the potential impacts of fully programming each year of the regional TIP. Realizing increasing project costs related to inflation and as the engineering design progresses from concept to final design, the CCJTC has recommended leaving

unprogrammed funds each year, if possible, to accommodate future cost increases. This careful consideration ensures that currently programmed highway projects that towns are designing remain funded in their desired TIP year and are not unnecessarily delayed.

In addition to funding highway projects, a significant amount of TIP funding is allocated for public transportation. Table 18 presents the Cape Cod federal aid target amounts, from Federal Transit Administration (FTA) sources, and the current programmed amounts. Transit revenues are forecast based on known allocations. If additional funding becomes available, then the TIP is updated accordingly. As shown below, transit projects programmed in the TIP are financially constrained to available resources and they have been reviewed and approved for programming by MassDOT Rail & Transit, and the MassDOT Office of Transportation Planning.

Table 18. Cape Cod Federal Aid Target Transit Programmed Amounts and Fiscal Constraint Analysis

YEAR	TOTAL FEDERAL AID	AMOUNT PROGRAMMED	AMOUNT UNPROGRAMMED
2024	\$61,050,520	\$61,050,520	\$0
2025	\$30,802,905	\$30,802,905	\$0
2026	\$24,635,950	\$24,635,950	\$0
2027	\$28,413,495	\$28,413,495	\$0
2028	\$33,989,045	\$33,989,045	\$0
Total	\$178,891,915	\$178,891,915	\$0

The financial plans shown in Table 17 and 18 demonstrate fiscal constraint, and reflect the emphasis on the maintenance and operation, and state of good repair for the highway, bridge and transit system. In addition, a fiscal constraint analysis is included on each of the highway programming tables beginning on page 38.

Table 19 shows the programming amounts for both highway and transit projects provided from the TIP. The highway totals include projects outside of the Cape Cod TIP Target such as Cape Cod specific bridge and maintenance projects.

Table 19. Cape Cod TIP Funding Programmed for Highway and Transit Projects

YEAR	HIGHWAY	TRANSIT	TOTAL
2024	\$83,671,276	\$61,050,520	\$144,721,796
2025	\$46,338,206	\$30,802,905	\$77,141,111
2026	\$44,692,641	\$24,635,950	\$69,328,591
2027	\$38,458,783	\$28,413,495	\$66,872,278
2028	\$42,588,229	\$33,989,045	\$76,577,274
Total	\$255,749,135	\$178,891,915	\$434,641,050

Table 20. Summary of Cape Cod FFY 2024-2028 TIP Funding Categories

Funding Category	2024	2025	2026	2027	2028
NHPP		\$25,938,101	\$31,323,170	\$21,904,341	\$25,722,184
CMAQ	\$14,259,819	\$7,627,631	\$3,000,000	\$1,000,000	
HSIP	\$9,571,059	\$1,000,000	\$1,000,000		\$5,000,000
STBG	\$9,141,597	\$8,977,368	\$8,069,471	\$14,154,442	\$11,049,604
TAP	\$800,000	\$2,795,105	\$1,300,000	\$1,400,000	\$816,441
HIP-BR	\$45,898,801				
CRRSAA	\$4,000,000				
Subtotal FHWA/State	\$83,671,276	\$46,338,206	\$44,692,641	\$38,458,783	\$42,588,229
5307	\$28,522,560	\$23,919,963	\$17,693,560	\$22,313,779	\$26,198,079
5339	\$656,726	\$628,777	\$1,234,800	\$0	\$625,000
State	\$3,412,500	\$3,412,500	\$3,412,500	\$3,412,500	\$3,087,500
FTA Discretionary	\$750,000				
ARPA	\$25,000,000				
RTA Capital	\$849,950	\$965,200	\$1,000,000	\$1,648,000	\$3,039,250
Local Funding	\$1,858,784	1,876,465	\$1,295,090	\$1,039,216	\$1,039,216
Subtotal FTA/State	\$61,050,520	\$30,802,905	\$24,635,950	\$28,413,495	\$33,989,045
Grant Total	\$144,721,796	\$77,141,111	\$69,328,591	\$66,872,278	\$76,577,274

The list of specific Cape Cod projects is presented on the following pages. Additionally, the BIL apportionment for Ferry Boat Program funds were not available during TIP development. CCMPO Staff and the Steamship Authority are working together and will initiate an amendment once FBP and FTA apportionment amounts are known.

Other regionally significant future projects that are outside of the TIP funding include the Cape Cod Canal Bridge Program. MassDOT and the Army Corps of Engineers are actively pursuing federal discretionary grant programs for funding of this project. Additional information on this project will be added as more information becomes available from MassDOT and the Army Corps of Engineers.

From the system level, anticipated revenues continue to fall short of anticipated needs as evidenced by the projects in need of funding listed in the Appendix D.



Cape Cod Region Program

Federal Fiscal Year 2024											STIP: 2024 - 2028 (D)
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2024											
Section 1A / Regionally Prioritized Projects								\$13,941,597	\$11,353,278	\$2,588,319	
ADA Retrofits	611985	Cape Cod	Harwich	HARWICH- SIDEWALK INSTALLATION ON ROUTE 28 FROM BANK STREET TO SAQUATUCKET HARBOR	5	STBG	\$2,561,843	\$2,561,843	\$2,049,474	\$512,369	CMAQ approved; TFPC - \$2,561,843
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	CMAQ	\$20,821,400	\$2,000,000	\$1,600,000	\$400,000	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	HSIP	\$20,821,400	\$2,000,000	\$1,800,000	\$200,000	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	STBG	\$20,821,400	\$6,579,754	\$5,263,803	\$1,315,951	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	TAP	\$20,821,400	\$800,000	\$640,000	\$160,000	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
								CMAQ Programmed	\$2,000,000	\$1,600,000	\$400,000
								HSIP Programmed	\$2,000,000	\$1,800,000	\$200,000
								STBG Programmed	\$9,141,597	\$7,313,278	\$1,828,319
								TAP Programmed	\$800,000	\$640,000	\$160,000
Total Programmed for Cape Cod Region Projects*								\$13,941,597	\$11,353,278	\$2,588,319	
Program Target for Cape Cod Region Projects								\$13,941,598	\$11,153,278	\$2,788,320	
Target Funds Available for Cape Cod Region Projects								\$1	\$200,000	\$200,001	
Section 1B / Earmark or Discretionary Grant Funded Projects								\$49,898,801	\$40,719,041	\$9,179,760	
Bridge On-System NHS NB	612574	Cape Cod	Multiple	DENNIS- YARMOUTH- BRIDGE REPLACEMENT, D-07-004=Y-01-003, ROUTE 28 OVER BASS RIVER INCLUDING INTERSECTION IMPROVEMENTS AT MAIN STREET(ROUTE 28)/NORTH MAIN STREET/OLD MAIN STREET	5	HIP-BR	\$51,916,289	\$44,345,230	\$35,476,184	\$8,869,046	RSA completed; TFPC - \$51,916,289
Earmark Discretionary	610800	Cape Cod	Barnstable	BARNSTABLE- PARK AND RIDE EXPANSION AND IMPROVEMENTS AT THE ROUTE 132 PARK AND RIDE	5	CRRSAA	\$2,037,700	\$4,000,000	\$4,000,000	\$0	TFPC - \$2,037,700
Bridge Systematic Maintenance NB	613195	Cape Cod	Sandwich	SANDWICH- BRIDGE PRESERVATION, S-04-007 (4BB) AND S-04-010 (4BC), QUAKER MEETING HOUSE ROAD OVER ROUTE 6/MID-CAPE HIGHWAY	5	HIP-BR	\$1,553,571	\$1,553,571	\$1,242,857	\$310,714	TFPC - \$1,553,571
Section 2B / State Prioritized Modernization Projects								\$7,571,059	\$6,813,953	\$757,106	



Cape Cod Region Program

Federal Fiscal Year 2024											STIP: 2024 - 2028 (D)
Intersection Improvements	612574	Cape Cod	Multiple	DENNIS- YARMOUTH- BRIDGE REPLACEMENT, D-07-004=Y-01-003, ROUTE 28 OVER BASS RIVER INCLUDING INTERSECTION IMPROVEMENTS AT MAIN STREET(ROUTE 28)/NORTH MAIN STREET/OLD MAIN STREET	5	HSIP	\$51,916,289	\$7,571,059	\$6,813,953	\$757,106	RSA completed; TFPC - \$51,916,289
Section 2C / State Prioritized Expansion Projects								\$12,259,819	\$9,807,855	\$2,451,964	
Bicycle and Pedestrian	607398	Cape Cod	Multiple	YARMOUTH- BARNSTABLE- CAPE COD RAIL TRAIL EXTENSION, INCLUDES NEW BRIDGE OVER WILLOW STREET & RAILROAD (PHASE III)	5	CMAQ	\$12,259,819	\$12,259,819	\$9,807,855	\$2,451,964	TFPC - \$12,259,819; CMAQ approved



Cape Cod Region Program

Federal Fiscal Year 2025											STIP: 2024 - 2028 (D)
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2025											
Section 1A / Regionally Prioritized Projects								\$13,704,760	\$11,063,808	\$2,640,952	
Roadway Reconstruction	608742	Cape Cod	Multiple	DENNIS- HARWICH- RECONSTRUCTION & RELATED WORK ON MAIN STREET (ROUTE 28), FROM UPPER COUNTY ROAD TO THE HERRING RIVER BRIDGE	5	CMAQ	\$7,849,976	\$700,000	\$560,000	\$140,000	Municipality is TAP proponent; CMAQ approved; TFPC \$7,548,054; CMAQ - \$700,000; STBG - \$6,849,976; TAP - \$300,000
Roadway Reconstruction	608742	Cape Cod	Multiple	DENNIS- HARWICH- RECONSTRUCTION & RELATED WORK ON MAIN STREET (ROUTE 28), FROM UPPER COUNTY ROAD TO THE HERRING RIVER BRIDGE	5	STBG	\$7,849,976	\$6,849,976	\$5,479,981	\$1,369,995	Municipality is TAP proponent; CMAQ approved; TFPC \$7,548,054; CMAQ - \$700,000; STBG - \$6,849,976; TAP - \$300,000
Roadway Reconstruction	608742	Cape Cod	Multiple	DENNIS- HARWICH- RECONSTRUCTION & RELATED WORK ON MAIN STREET (ROUTE 28), FROM UPPER COUNTY ROAD TO THE HERRING RIVER BRIDGE	5	TAP	\$7,849,976	\$300,000	\$240,000	\$60,000	Municipality is TAP proponent; CMAQ approved; TFPC \$7,548,054; CMAQ - \$700,000; STBG - \$6,849,976; TAP - \$300,000
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	CMAQ	\$13,391,878	\$800,000	\$640,000	\$160,000	Municipality is TAP Proponent; AC 2025-2027; CMAQ approved; TFPC \$13,391,878; Funding CMAQ - \$3,332,290; STBG - \$7,989,588; TAP - \$1,600,000; FLAP - \$470k (Statewide, 100% FA)
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	STBG	\$13,391,878	\$1,657,392	\$1,325,914	\$331,478	Municipality is TAP Proponent; AC 2025-2027; CMAQ approved; TFPC \$13,391,878; Funding CMAQ - \$3,332,290; STBG - \$7,989,588; TAP - \$1,600,000; FLAP - \$470k (Statewide, 100% FA)
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	CMAQ	\$20,821,400	\$2,397,392	\$1,917,914	\$479,478	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	HSIP	\$20,821,400	\$1,000,000	\$900,000	\$100,000	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
CMAQ Programmed								\$3,897,392	\$3,117,914	\$779,478	
HSIP Programmed								\$1,000,000	\$900,000	\$100,000	
STBG Programmed								\$8,507,368	\$6,805,894	\$1,701,474	
TAP Programmed								\$300,000	\$240,000	\$60,000	
Total Programmed for Cape Cod Region Projects*								\$13,704,760	\$11,063,808	\$2,640,952	
Program Target for Cape Cod Region Projects								\$13,704,760	\$10,963,808	\$2,740,952	
Target Funds Available for Cape Cod Region Projects								\$0	\$100,000	\$100,000	
Section 1B / Earmark or Discretionary Grant Funded Projects								\$470,000	\$470,000	\$0	



Cape Cod Region Program

Federal Fiscal Year 2025											STIP: 2024 - 2028 (D)
Bicycle and Pedestrian	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	FLAP	\$13,391,878	\$470,000	\$470,000	\$0	Municipality is TAP Proponent; AC 2025-2027; CMAQ approved; TFPC \$13,391,878; Funding CMAQ - \$3,332,290; STBG - \$7,989,588; TAP - \$1,600,000; FLAP - \$470k (Statewide, 100% FA)
Section 2A / State Prioritized Reliability Projects								\$25,938,101	\$20,750,481	\$5,187,620	
Non-Interstate Pavement	606082	Cape Cod	Bourne	BOURNE- MEDIAN INSTALLATION ON ROUTE 6 (SCENIC HIGHWAY)	5	NHPP	\$25,938,101	\$25,938,101	\$20,750,481	\$5,187,620	TFPC - \$25,938,101; GHG analysis to be completed when all required inputs are available
Section 2B / State Prioritized Modernization Projects								\$2,495,105	\$1,996,084	\$499,021	
Safe Routes to School	610670	Cape Cod	Harwich	HARWICH- HARWICH ELEMENTARY SCHOOL (SRTS)	5	TAP	\$2,495,106	\$2,495,105	\$1,996,084	\$499,021	TFPC - \$2,495,106; TAP; GHG analysis to be completed when all required inputs are available
Section 2C / State Prioritized Expansion Projects								\$4,200,239	\$3,360,191	\$840,048	
Bicycle and Pedestrian	609262	Cape Cod	Bourne	BOURNE- RAIL TRAIL CONSTRUCTION (PHASE 1)	5	CMAQ	\$4,200,239	\$4,200,239	\$3,360,191	\$840,048	TFPC - \$4,200,239; CMAQ approved



Cape Cod Region Program

Federal Fiscal Year 2026										STIP: 2024 - 2028 (D)	
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2026											
Section 1A / Regionally Prioritized Projects								\$13,369,471	\$10,795,577	\$2,573,894	
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	CMAQ	\$13,391,878	\$1,000,000	\$800,000	\$200,000	Municipality is TAP Proponent; AC 2025-2027; CMAQ approved; TFPC \$13,391,878; Funding CMAQ - \$3,332,290; STBG - \$7,989,588; TAP - \$1,600,000; FLAP - \$470k (Statewide, 100% FA)
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	STBG	\$13,391,878	\$5,525,217	\$4,420,174	\$1,105,043	Municipality is TAP Proponent; AC 2025-2027; CMAQ approved; TFPC \$13,391,878; Funding CMAQ - \$3,332,290; STBG - \$7,989,588; TAP - \$1,600,000; FLAP - \$470k (Statewide, 100% FA)
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	TAP	\$13,391,878	\$800,000	\$640,000	\$160,000	Municipality is TAP Proponent; AC 2025-2027; CMAQ approved; TFPC \$13,391,878; Funding CMAQ - \$3,332,290; STBG - \$7,989,588; TAP - \$1,600,000; FLAP - \$470k (Statewide, 100% FA)
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	CMAQ	\$20,821,400	\$2,000,000	\$1,600,000	\$400,000	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	HSIP	\$20,821,400	\$1,000,000	\$900,000	\$100,000	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	STBG	\$20,821,400	\$2,544,254	\$2,035,403	\$508,851	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
Roadway Reconstruction	611986	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	TAP	\$20,821,400	\$500,000	\$400,000	\$100,000	AC over 2024-2026; Municipality is TAP Proponent; RSA conducted; CMAQ approved; TFPC \$20,821,400; CMAQ - \$6,397,392; STBG - \$9,124,008; TAP - \$1,300,000; HSIP - \$4,000,000
CMAQ Programmed								\$3,000,000	\$2,400,000	\$600,000	
HSIP Programmed								\$1,000,000	\$900,000	\$100,000	



Cape Cod Region Program

Federal Fiscal Year 2026				STIP: 2024 - 2028 (D)		
STBG Programmed				\$8,069,471	\$6,455,577	\$1,613,894
TAP Programmed				\$1,300,000	\$1,040,000	\$260,000
Total Programmed for Cape Cod Region Projects*				\$13,369,471	\$10,795,577	\$2,573,894
Program Target for Cape Cod Region Projects				\$13,369,471	\$10,695,577	\$2,673,894
Target Funds Available for Cape Cod Region Projects				\$0	\$100,000	\$100,000

Section 2A / State Prioritized Reliability Projects										\$31,323,170	\$25,058,536	\$6,264,634
Non-Interstate Pavement	612032	Cape Cod	Multiple	PROVINCETOWN- TRURO- RESURFACING AND RELATED WORK ON ROUTE 6	5	NHPP	\$14,665,155	\$14,665,155	\$11,732,124	\$2,933,031	TFPC - \$14,665,155; GHG analysis to be completed when all required inputs are available	
Non-Interstate Pavement	608819	Cape Cod	Barnstable	BARNSTABLE- RESURFACING AND RELATED WORK ON ROUTE 6	5	NHPP	\$47,196,000	\$16,658,015	\$13,326,412	\$3,331,603		



Cape Cod Region Program

Federal Fiscal Year 2027											STIP: 2024 - 2028 (D)
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2027											
Section 1A / Regionally Prioritized Projects								\$16,554,442	\$13,243,554	\$3,310,888	
Roadway Reconstruction	607405	Cape Cod	Chatham	CHATHAM- INTERSECTION IMPROVEMENTS & RELATED WORK AT MAIN STREET (ROUTE 28), DEPOT ROAD, QUEEN ANNE ROAD AND CROWELL ROAD	5	STBG	\$3,048,976	\$3,048,976	\$2,439,181	\$609,795	TFPC \$3,048,976; CMAQ analysis to be completed when all required inputs are available
Roadway Reconstruction	608196	Cape Cod	Dennis	DENNIS- CORRIDOR AND STREETScape IMPROVEMENTS ON MAIN STREET (ROUTE 28), FROM UNCLE BARNEYS ROAD TO OLD MAIN STREET (PHASE 2)	5	STBG	\$11,760,000	\$9,766,198	\$7,812,958	\$1,953,240	AC 2027-2028; Municipality is TAP proponent; CMAQ analysis to be completed when all required inputs are available; TFPC \$11,760,000; STBG - \$9,766,198; TAP - \$1,993,803
Roadway Reconstruction	608196	Cape Cod	Dennis	DENNIS- CORRIDOR AND STREETScape IMPROVEMENTS ON MAIN STREET (ROUTE 28), FROM UNCLE BARNEYS ROAD TO OLD MAIN STREET (PHASE 2)	5	TAP	\$11,760,000	\$600,000	\$480,000	\$120,000	AC 2027-2028; Municipality is TAP proponent; CMAQ analysis to be completed when all required inputs are available; TFPC \$11,760,000; STBG - \$9,766,198; TAP - \$1,993,803
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	CMAQ	\$13,391,878	\$1,532,290	\$1,225,832	\$306,458	Municipality is TAP Proponent; AC 2025-2027; CMAQ approved; TFPC \$13,391,878; Funding CMAQ - \$3,332,290; STBG - \$7,989,588; TAP - \$1,600,000; FLAP - \$470k (Statewide, 100% FA)
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	STBG	\$13,391,878	\$806,979	\$645,583	\$161,396	Municipality is TAP Proponent; AC 2025-2027; CMAQ approved; TFPC \$13,391,878; Funding CMAQ - \$3,332,290; STBG - \$7,989,588; TAP - \$1,600,000; FLAP - \$470k (Statewide, 100% FA)
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	TAP	\$13,391,878	\$800,000	\$640,000	\$160,000	Municipality is TAP Proponent; AC 2025-2027; CMAQ approved; TFPC \$13,391,878; Funding CMAQ - \$3,332,290; STBG - \$7,989,588; TAP - \$1,600,000; FLAP - \$470k (Statewide, 100% FA)
								CMAQ Programmed	\$1,532,290	\$1,225,832	\$306,458
								STBG Programmed	\$13,622,153	\$10,897,722	\$2,724,431
								TAP Programmed	\$1,400,000	\$1,120,000	\$280,000
								Total Programmed for Cape Cod Region Projects*	\$16,554,442	\$13,243,554	\$3,310,888
								Program Target for Cape Cod Region Projects	\$16,554,443	\$13,243,554	\$3,310,889
								Target Funds Available for Cape Cod Region Projects	\$1	\$0	\$1
Section 2A / State Prioritized Reliability Projects								\$21,904,341	\$17,523,473	\$4,380,868	
Non-Interstate Pavement	608819	Cape Cod	Barnstable	BARNSTABLE- RESURFACING AND RELATED WORK ON ROUTE 6	5	NHPP	\$47,196,000	\$21,904,341	\$17,523,473	\$4,380,868	TFPC - \$47,196,000; AC 2026-2028



Cape Cod Region Program

Federal Fiscal Year 2028										STIP: 2024 - 2028 (D)	
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2028											
Section 1A / Regionally Prioritized Projects								\$16,866,045	\$13,992,836	\$2,873,209	
Roadway Reconstruction	608196	Cape Cod	Dennis	DENNIS- CORRIDOR AND STREETScape IMPROVEMENTS ON MAIN STREET (ROUTE 28), FROM UNCLE BARNEYS ROAD TO OLD MAIN STREET (PHASE 2)	5	TAP	\$11,760,000	\$1,393,803	\$1,115,042	\$278,761	AC 2027-2028; Municipality is TAP proponent; CMAQ analysis to be completed when all required inputs are available; TFPC \$11,760,000; STBG - \$9,766,198; TAP - \$1,993,803
Non-Interstate Pavement	608264	Cape Cod	Yarmouth	YARMOUTH- CORRIDOR IMPROVEMENTS ON ROUTE 28	5	HSIP	\$25,060,039	\$5,000,000	\$4,500,000	\$500,000	RSA completed; CMAQ analysis to be completed; Project to be AC 2028-2029; TFPC \$25,060,039; HSIP - \$5,000,000 and STBG - \$10,472,242
Non-Interstate Pavement	608264	Cape Cod	Yarmouth	YARMOUTH- CORRIDOR IMPROVEMENTS ON ROUTE 28	5	STBG	\$25,060,039	\$10,472,242	\$8,377,794	\$2,094,448	RSA completed; CMAQ analysis to be completed; Project to be AC 2028-2029; TFPC \$25,060,039; HSIP - \$5,000,000 and STBG - \$10,472,242
								HSIP Programmed	\$5,000,000	\$4,500,000	\$500,000
								STBG Programmed	\$10,472,242	\$8,377,794	\$2,094,448
								TAP Programmed	\$1,393,803	\$1,115,042	\$278,761
Total Programmed for Cape Cod Region Projects*								\$16,866,045	\$13,992,836	\$2,873,209	
Program Target for Cape Cod Region Projects								\$16,866,045	\$13,492,836	\$3,373,209	
Target Funds Available for Cape Cod Region Projects								\$0	\$500,000	\$500,000	
Section 2A / State Prioritized Reliability Projects								\$25,722,184	\$20,577,747	\$5,144,437	
Non-Interstate Pavement	608819	Cape Cod	Barnstable	BARNSTABLE- RESURFACING AND RELATED WORK ON ROUTE 6	5	NHPP	\$47,196,000	\$8,633,644	\$6,906,915	\$1,726,729	TFPC - \$47,196,000; AC 2026-2028
Non-Interstate Pavement	612063	Cape Cod	Bourne	BOURNE- RESURFACING AND RELATED WORK ON ROUTE 28	5	NHPP	\$8,964,480	\$8,964,480	\$7,171,584	\$1,792,896	TFPC - \$8,964,480
Non-Interstate Pavement	612111	Cape Cod	Falmouth	FALMOUTH- RESURFACING AND RELATED WORK ON ROUTE 28	5	NHPP	\$8,124,060	\$8,124,060	\$6,499,248	\$1,624,812	TFPC - \$8,124,060
Cape Cod Region Total Program Summary								\$255,749,134	\$207,056,413	\$48,692,721	

Cape Cod Regional Transit Authority

Program Activity: Transit



STIP: 2024 - 2028 (D)

Program	MassDOT Project ID	RTA	Municipality	MassDOT Project Description	Funding Source	Total Project Cost	Total Programmed Funds	Federal Funds	State Funds	Other Funds
Federal Fiscal Year 2024										
RTA Facility & Vehicle Maintenance	RTD0010604	CCRTA		CCRTA - Hyannis Transportation Center/REHAB/RENOVATE BUS STATIONS	5307	\$1,143,300	\$914,640	\$914,640		
RTA Facility & Vehicle Maintenance	RTD0010604	CCRTA		CCRTA - Hyannis Transportation Center/REHAB/RENOVATE BUS STATIONS	RTACAP	\$1,143,300	\$228,660		\$228,660	
Operating	RTD0010605	CCRTA		CCRTA - PREVENTIVE MAINTENANCE	5307	\$9,412,500	\$7,530,000	\$7,530,000		
Operating	RTD0010605	CCRTA		CCRTA - PREVENTIVE MAINTENANCE	SCA	\$9,412,500	\$1,882,500		\$1,882,500	
Operating	RTD0010606	CCRTA		CCRTA - OPERATING ASSISTANCE-Fixed Route/Demand Response	5307	\$1,960,000	\$980,000	\$980,000		
Operating	RTD0010606	CCRTA		CCRTA - OPERATING ASSISTANCE-Fixed Route/Demand Response	SCA	\$1,960,000	\$980,000		\$980,000	
Operating	RTD0010607	CCRTA		CCRTA - MOBILITY MANAGEMENT	5307	\$1,625,000	\$1,300,000	\$1,300,000		
Operating	RTD0010607	CCRTA		CCRTA - MOBILITY MANAGEMENT	SCA	\$1,625,000	\$325,000		\$325,000	
Operating	RTD0010608	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	5307	\$1,125,000	\$900,000	\$900,000		
Operating	RTD0010608	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	SCA	\$1,125,000	\$225,000		\$225,000	
RTA Vehicle Replacement	RTD0010621	CCRTA		CCRTA - BUY REPLACEMENT <30-FT BUS - DISCRETIONARY	DOF	\$1,050,000	\$750,000	\$750,000		
RTA Vehicle Replacement	RTD0010621	CCRTA		CCRTA - BUY REPLACEMENT <30-FT BUS - DISCRETIONARY	DRTACAP	\$1,050,000	\$300,000		\$300,000	
RTA Vehicle Replacement	T00133	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS	5307	\$5,619,092	\$5,461,984	\$5,461,984		
RTA Vehicle Replacement	T00133	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS	RTACAP	\$5,619,092	\$157,108		\$157,108	
RTA Facility & Vehicle Maintenance	T00134	CCRTA		CCRTA - Construction- Power Distribution Substation	5307	\$750,000	\$750,000	\$750,000		
RTA Facility & Vehicle Maintenance	T00135	CCRTA		CCRTA- Acquire- ADP Hardware	5307	\$25,800	\$25,800	\$25,800		
RTA Facility & System Modernization	T00136	CCRTA		CCRTA- ACQUIRE MISC EQUIPMENT	5307	\$100,000	\$100,000	\$100,000		
RTA Replacement Facilities	T00138	CCRTA		CCRTA - Construction- Maintenance Facility	OF	\$25,000,000	\$25,000,000	\$25,000,000		
RTA Facility & System Modernization	T00139	CCRTA		CCRTA - Construction - Bus Shelters	5307	\$12,000	\$12,000	\$12,000		
RTA Replacement Facilities	T00140	CCRTA		CCRTA - REAL ESTATE ACQUISITION OPERATIONS FACILITY	5307	\$3,000,000	\$3,000,000	\$3,000,000		
Technical Assistance	T00141	CCRTA		CCRTA - Training Electric Bus	5307	\$28,000	\$28,000	\$28,000		
Operating	T00142	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE - Steamship Authority	5307	\$7,435,136	\$7,435,136	\$7,435,136		
Operating	T00142	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE - Steamship Authority	LF	\$7,435,136	\$1,858,784			\$1,858,784
RTA Facility & Vehicle Maintenance	T00143	CCRTA		CCRTA - Acquisition ADP Software	5307	\$15,000	\$15,000	\$15,000		
RTA Vehicle Replacement	T00144	CCRTA		CCRTA - Buy Replacement <30-FT BUS	5339	\$820,908	\$656,726	\$656,726		
RTA Vehicle Replacement	T00144	CCRTA		CCRTA - Buy Replacement <30-FT BUS	RTACAP	\$820,908	\$164,182		\$164,182	
RTA Facility & Vehicle Maintenance	T00145	CCRTA		CCRTA - Acquisition Support Vehicles	5307	\$70,000	\$70,000	\$70,000		
5307 Programmed							\$28,522,560	\$28,522,560		
5339 Programmed							\$656,726	\$656,726		
DOF Programmed							\$750,000	\$750,000		
DRTACAP Programmed							\$300,000		\$300,000	
LF Programmed							\$1,858,784			\$1,858,784
OF Programmed							\$25,000,000	\$25,000,000		
RTACAP Programmed							\$549,950		\$549,950	
SCA Programmed							\$3,412,500		\$3,412,500	
Total Programmed for Cape Cod Regional Transit Authority Projects							\$61,050,520	\$54,929,286	\$4,262,450	\$1,858,784

Cape Cod Regional Transit Authority

Program Activity: Transit



STIP: 2024 - 2028 (D)

Program	MassDOT Project ID	RTA	Municipality	MassDOT Project Description	Funding Source	Total Project Cost	Total Programmed Funds	Federal Funds	State Funds	Other Funds
Federal Fiscal Year 2025										
Operating	RTD0010610	CCRTA		CCRTA - OPERATING ASSISTANCE-Fixed Route/Demand Response	5307	\$1,960,000	\$980,000	\$980,000		
Operating	RTD0010610	CCRTA		CCRTA - OPERATING ASSISTANCE-Fixed Route/Demand Response	SCA	\$1,960,000	\$980,000		\$980,000	
Operating	RTD0010611	CCRTA		CCRTA - MOBILITY MANAGEMENT	5307	\$1,625,000	\$1,300,000	\$1,300,000		
Operating	RTD0010611	CCRTA		CCRTA - MOBILITY MANAGEMENT	SCA	\$1,625,000	\$325,000		\$325,000	
Operating	RTD0010612	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	5307	\$1,125,000	\$900,000	\$900,000		
Operating	RTD0010612	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	SCA	\$1,125,000	\$225,000		\$225,000	
Operating	RTD0010613	CCRTA		CCRTA - PREVENTIVE MAINTENANCE	5307	\$9,412,500	\$7,530,000	\$7,530,000		
Operating	RTD0010613	CCRTA		CCRTA - PREVENTIVE MAINTENANCE	SCA	\$9,412,500	\$1,882,500		\$1,882,500	
RTA Facility & System Modernization	RTD0010617	CCRTA		CCRTA - Hyannis Transportation Center/REHAB/RENOVATE - BUS TERMINAL	5307	\$100,000	\$80,000	\$80,000		
RTA Facility & System Modernization	RTD0010617	CCRTA		CCRTA - Hyannis Transportation Center/REHAB/RENOVATE - BUS TERMINAL	RTACAP	\$100,000	\$20,000		\$20,000	
RTA Facility & System Modernization	RTD0010618	CCRTA	Multiple	CCRTA - Yarmouth and Chatham/CONSTRUCTION - BUS SHELTERS	5307	\$15,000	\$12,000	\$12,000		
RTA Facility & System Modernization	RTD0010618	CCRTA	Multiple	CCRTA - Yarmouth and Chatham/CONSTRUCTION - BUS SHELTERS	RTACAP	\$15,000	\$3,000		\$3,000	
RTA Vehicle Replacement	RTD0010619	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS	5339	\$785,971	\$628,777	\$628,777		
RTA Vehicle Replacement	RTD0010619	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS	RTACAP	\$785,971	\$157,194		\$157,194	
RTA Vehicle Replacement	T00146	CCRTA		CCRTA - BUY REPLACEMENT < 30-FT BUS	5307	\$5,189,029	\$4,597,123	\$4,597,123		
RTA Vehicle Replacement	T00146	CCRTA		CCRTA - BUY REPLACEMENT < 30-FT BUS	RTACAP	\$5,189,029	\$591,906		\$591,906	
RTA Facility & System Modernization	T00147	CCRTA		CCRTA- CONSTRUCTION POWER DISTRIBUTION SYSTEM	5307	\$878,000	\$702,400	\$702,400		
RTA Facility & System Modernization	T00147	CCRTA		CCRTA- CONSTRUCTION POWER DISTRIBUTION SYSTEM	RTACAP	\$878,000	\$175,600		\$175,600	
RTA Facility & Vehicle Maintenance	T00148	CCRTA		CCRTA - ACQUIRE ADP HARDWARE	5307	\$28,580	\$28,580	\$28,580		
RTA Facility & Vehicle Maintenance	T00161	CCRTA		CCRTA- ACQUIRE SUPPORT VEHICLE	5307	\$87,500	\$70,000	\$70,000		
RTA Facility & Vehicle Maintenance	T00161	CCRTA		CCRTA- ACQUIRE SUPPORT VEHICLE	RTACAP	\$87,500	\$17,500		\$17,500	
Mobility Assistance Program	T00162	CCRTA		CCRTA - Training Electric Bus	5307	\$14,000	\$14,000	\$14,000		
Mobility Assistance Program	T00163	CCRTA		CCRTA - Bus Support Equipment - MISC EQUIPMENT	5307	\$200,000	\$200,000	\$200,000		
Operating	T00164	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE - STEAMSHIP AUTHORITY	LF	\$7,505,860	\$1,876,465			\$1,876,465
RTA Facility & Vehicle Maintenance	T00164	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE - STEAMSHIP AUTHORITY	5307	\$7,505,860	\$7,505,860	\$7,505,860		
5307 Programmed							\$23,919,963	\$23,919,963		
5339 Programmed							\$628,777	\$628,777		
LF Programmed							\$1,876,465			\$1,876,465
RTACAP Programmed							\$965,200		\$965,200	
SCA Programmed							\$3,412,500		\$3,412,500	
Total Programmed for Cape Cod Regional Transit Authority Projects							\$30,802,905	\$24,548,740	\$4,377,700	\$1,876,465

Cape Cod Regional Transit Authority

Program Activity: Transit



STIP: 2024 - 2028 (D)

Program	MassDOT Project ID	RTA	Municipality	MassDOT Project Description	Funding Source	Total Project Cost	Total Programmed Funds	Federal Funds	State Funds	Other Funds
Federal Fiscal Year 2026										
Operating	RTD0010622	CCRTA		CCRTA - MOBILITY MANAGEMENT	5307	\$1,625,000	\$1,300,000	\$1,300,000		
Operating	RTD0010622	CCRTA		CCRTA - MOBILITY MANAGEMENT	SCA	\$1,625,000	\$325,000		\$325,000	
Operating	RTD0010623	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	5307	\$1,125,000	\$900,000	\$900,000		
Operating	RTD0010623	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	SCA	\$1,125,000	\$225,000		\$225,000	
Operating	RTD0010624	CCRTA		CCRTA - PREVENTIVE MAINTENANCE	5307	\$9,412,500	\$7,530,000	\$7,530,000		
Operating	RTD0010624	CCRTA		CCRTA - PREVENTIVE MAINTENANCE	SCA	\$9,412,500	\$1,882,500		\$1,882,500	
Operating	RTD0010625	CCRTA		CCRTA - OPERATING ASSISTANCE-Fixed Route/Demand Response	5307	\$1,960,000	\$980,000	\$980,000		
Operating	RTD0010625	CCRTA		CCRTA - OPERATING ASSISTANCE-Fixed Route/Demand Response	SCA	\$1,960,000	\$980,000		\$980,000	
RTA Facility & System Modernization	RTD0010627	CCRTA	Multiple	CCRTA - Mashpee and Dennis/CONSTRUCTION - BUS SHELTERS	5339	\$100,000	\$80,000	\$80,000		
RTA Facility & System Modernization	RTD0010627	CCRTA	Multiple	CCRTA - Mashpee and Dennis/CONSTRUCTION - BUS SHELTERS	RTACAP	\$100,000	\$20,000		\$20,000	
RTA Fleet Upgrades	RTD0010628	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BATTERY ELECTRIC BUS	5339	\$781,250	\$625,000	\$625,000		
RTA Fleet Upgrades	RTD0010628	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BATTERY ELECTRIC BUS	RTACAP	\$781,250	\$156,250		\$156,250	
RTA Facility & Vehicle Maintenance	RTD0010631	CCRTA	Dennis	CCRTA - South Dennis Bus Operations Center/ACQUIRE - MISC SUPPORT EQUIPMENT	5339	\$652,750	\$529,800	\$529,800		
RTA Facility & Vehicle Maintenance	RTD0010631	CCRTA	Dennis	CCRTA - South Dennis Bus Operations Center/ACQUIRE - MISC SUPPORT EQUIPMENT	RTACAP	\$652,750	\$122,950		\$122,950	
RTA Vehicle Replacement	T00149	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS	5307	\$1,383,750	\$907,000	\$907,000		
RTA Vehicle Replacement	T00149	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS	RTACAP	\$1,383,750	\$476,750		\$476,750	
RTA Facility & System Modernization	T00150	CCRTA		CCRTA - POWER DISTRIBUTION SUBSTATION	5307	\$579,000	\$463,200	\$463,200		
RTA Facility & System Modernization	T00150	CCRTA		CCRTA - POWER DISTRIBUTION SUBSTATION	RTACAP	\$579,000	\$115,800		\$115,800	
RTA Facility & Vehicle Maintenance	T00165	CCRTA		CCRTA - HTC/ REHAB RENOVATE - BUS TERMINAL	5307	\$250,000	\$200,000	\$200,000		
RTA Facility & Vehicle Maintenance	T00165	CCRTA		CCRTA - HTC/ REHAB RENOVATE - BUS TERMINAL	RTACAP	\$250,000	\$50,000		\$50,000	
RTA Vehicle Replacement	T00166	CCRTA		CCRTA - REPLACEMENT VEHICLES/ VANS	5307	\$260,000	\$208,000	\$208,000		
RTA Vehicle Replacement	T00166	CCRTA		CCRTA - REPLACEMENT VEHICLES/ VANS	RTACAP	\$260,000	\$52,000		\$52,000	
RTA Facility & Vehicle Maintenance	T00167	CCRTA		CCRTA - ACQUIRE ADP HARDWARE	5307	\$31,250	\$25,000	\$25,000		
RTA Facility & Vehicle Maintenance	T00167	CCRTA		CCRTA - ACQUIRE ADP HARDWARE	RTACAP	\$31,250	\$6,250		\$6,250	
RTA Facility & System Modernization	T00168	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE STEAMSHIP AUTHORITY	5307	\$6,475,450	\$5,180,360	\$5,180,360		
RTA Facility & System Modernization	T00168	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE STEAMSHIP AUTHORITY	LF	\$6,475,450	\$1,295,090			\$1,295,090
5307 Programmed							\$17,693,560	\$17,693,560		
5339 Programmed							\$1,234,800	\$1,234,800		
LF Programmed							\$1,295,090			\$1,295,090
RTACAP Programmed							\$1,000,000		\$1,000,000	
SCA Programmed							\$3,412,500		\$3,412,500	
Total Programmed for Cape Cod Regional Transit Authority Projects							\$24,635,950	\$18,928,360	\$4,412,500	\$1,295,090

Cape Cod Regional Transit Authority

Program Activity: Transit



STIP: 2024 - 2028 (D)

Program	MassDOT Project ID	RTA	Municipality	MassDOT Project Description	Funding Source	Total Project Cost	Total Programmed Funds	Federal Funds	State Funds	Other Funds
Federal Fiscal Year 2027										
Operating	RTD0011172	CCRTA		CCRTA - PREVENTIVE MAINTENANCE	5307	\$9,412,500	\$7,530,000	\$7,530,000		
Operating	RTD0011172	CCRTA		CCRTA - PREVENTIVE MAINTENANCE	SCA	\$9,412,500	\$1,882,500		\$1,882,500	
Operating	RTD0011173	CCRTA		CCRTA - OPERATING ASSISTANCE	5307	\$1,960,000	\$980,000	\$980,000		
Operating	RTD0011173	CCRTA		CCRTA - OPERATING ASSISTANCE	SCA	\$1,960,000	\$980,000		\$980,000	
RTA Fleet Upgrades	RTD0011175	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS BATTERY ELECTRIC BUS	5307	\$698,750	\$359,000	\$359,000		
RTA Fleet Upgrades	RTD0011175	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS BATTERY ELECTRIC BUS	RTACAP	\$698,750	\$339,750		\$339,750	
RTA Facility & System Modernization	RTD0011176	CCRTA		CCRTA -REHAB/RENOVATE - BUS TERMINAL	5307	\$300,000	\$240,000	\$240,000		
RTA Facility & System Modernization	RTD0011176	CCRTA		CCRTA -REHAB/RENOVATE - BUS TERMINAL	RTACAP	\$300,000	\$60,000		\$60,000	
RTA Facility & Vehicle Maintenance	RTD0011178	CCRTA		CCRTA-South Dennis Bus Operations Center-Acquire Misc. Support Equipment	5307	\$250,000	\$200,000	\$200,000		
RTA Facility & Vehicle Maintenance	RTD0011178	CCRTA		CCRTA-South Dennis Bus Operations Center-Acquire Misc. Support Equipment	RTACAP	\$250,000	\$50,000		\$50,000	
Operating	RTD0011263	CCRTA		CCRTA - MOBILITY MANAGEMENT	5307	\$1,625,000	\$1,300,000	\$1,300,000		
Operating	RTD0011263	CCRTA		CCRTA - MOBILITY MANAGEMENT	SCA	\$1,625,000	\$325,000		\$325,000	
Operating	RTD0011266	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	5307	\$1,125,000	\$900,000	\$900,000		
Operating	RTD0011266	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	SCA	\$1,125,000	\$225,000		\$225,000	
RTA Vehicle Replacement	T00151	CCRTA		CCRTA - BUY REPLACEMENT < 30 FT BUS	5307	\$781,250	\$625,000	\$625,000		
RTA Vehicle Replacement	T00151	CCRTA		CCRTA - BUY REPLACEMENT < 30 FT BUS	RTACAP	\$781,250	\$156,250		\$156,250	
Mobility Assistance Program	T00152	CCRTA		CCRTA - BUY REPLACEMENT 30 FT BUS	5307	\$4,800,000	\$4,000,000	\$4,000,000		
RTA Vehicle Replacement	T00152	CCRTA		CCRTA - BUY REPLACEMENT 30 FT BUS	RTACAP	\$4,800,000	\$800,000		\$800,000	
RTA Facility & System Modernization	T00169	CCRTA		CCRTA - Construction Power Distribution Substation	5307	\$555,500	\$444,400	\$444,400		
RTA Facility & System Modernization	T00169	CCRTA		CCRTA - Construction Power Distribution Substation	RTACAP	\$555,500	\$111,100		\$111,100	
RTA Vehicle Replacement	T00170	CCRTA		CCRTA - Replacement Vehicles / VANS	5307	\$576,000	\$460,800	\$460,800		
RTA Vehicle Replacement	T00170	CCRTA		CCRTA - Replacement Vehicles / VANS	RTACAP	\$576,000	\$115,200		\$115,200	
RTA Facility & Vehicle Maintenance	T00171	CCRTA		CCRTA - ACQUISITION SUPPORT VEHICLES	5307	\$94,200	\$78,500	\$78,500		
RTA Facility & Vehicle Maintenance	T00171	CCRTA		CCRTA - ACQUISITION SUPPORT VEHICLES	RTACAP	\$94,200	\$15,700		\$15,700	
RTA Facility & Vehicle Maintenance	T00172	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE / STEAMSHIP AUTHORITY	5307	\$6,235,295	\$5,196,079	\$5,196,079		
RTA Facility & Vehicle Maintenance	T00172	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE / STEAMSHIP AUTHORITY	LF	\$6,235,295	\$1,039,216			\$1,039,216
						5307 Programmed	\$22,313,779	\$22,313,779		
						5339 Programmed	\$0	\$0		
						LF Programmed	\$1,039,216			\$1,039,216
						RTACAP Programmed	\$1,648,000		\$1,648,000	
						SCA Programmed	\$3,412,500		\$3,412,500	
						Total Programmed for Cape Cod Regional Transit Authority Projects	\$28,413,495	\$22,313,779	\$5,060,500	\$1,039,216

Cape Cod Regional Transit Authority

Program Activity: Transit



STIP: 2024 - 2028 (D)

Program	MassDOT Project ID	RTA	Municipality	MassDOT Project Description	Funding Source	Total Project Cost	Total Programmed Funds	Federal Funds	State Funds	Other Funds
Federal Fiscal Year 2028										
Operating	T00153	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE	5307	\$9,412,500	\$7,530,000	\$7,530,000		
Operating	T00153	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE	SCA	\$9,412,500	\$1,882,500		\$1,882,500	
Operating	T00154	CCRTA		CCRTA - Operating Assistance	5307	\$1,960,000	\$980,000	\$980,000		
Operating	T00154	CCRTA		CCRTA - Operating Assistance	SCA	\$1,960,000	\$980,000		\$980,000	
RTA Vehicle Replacement	T00155	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS BATTERY ELECTRIC BUS	5307	\$2,000,000	\$1,600,000	\$1,600,000		
RTA Vehicle Replacement	T00155	CCRTA		CCRTA - BUY REPLACEMENT <30 FT BUS BATTERY ELECTRIC BUS	RTACAP	\$2,000,000	\$400,000		\$400,000	
Operating	T00159	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	5307	\$360,000	\$900,000	\$900,000		
Operating	T00159	CCRTA		CCRTA - NON FIXED ROUTE ADA PARA SERV	SCA	\$360,000	\$225,000		\$225,000	
RTA Facility & Vehicle Maintenance	T00156	CCRTA		CCRTA -REHAB/RENOVATE - BUS TERMINAL	5307	\$1,625,000	\$300,000	\$300,000		
RTA Facility & Vehicle Maintenance	T00156	CCRTA		CCRTA -REHAB/RENOVATE - BUS TERMINAL	RTACAP	\$1,625,000	\$60,000		\$60,000	
RTA Facility & System Modernization	T00157	CCRTA		CCRTA - MOBILITY MANAGEMENT	5307	\$100,000	\$1,300,000	\$1,300,000		
RTA Facility & System Modernization	T00157	CCRTA		CCRTA - MOBILITY MANAGEMENT	RTACAP	\$100,000	\$325,000		\$325,000	
RTA Facility & System Modernization	T00158	CCRTA		CCRTA - CONSTRUCTION - BUS SHELTERS	5307	\$1,125,000	\$80,000	\$80,000		
RTA Facility & System Modernization	T00158	CCRTA		CCRTA - CONSTRUCTION - BUS SHELTERS	RTACAP	\$1,125,000	\$20,000		\$20,000	
RTA Vehicle Replacement	T00160	CCRTA		CCRTA - BUY REPLACEMENT < 30 FT BUS	5339	\$781,250	\$625,000	\$625,000		
RTA Vehicle Replacement	T00160	CCRTA		CCRTA - BUY REPLACEMENT < 30 FT BUS	RTACAP	\$781,250	\$156,250		\$156,250	
RTA Vehicle Replacement	T00173	CCRTA		CCRTA - BUY REPLACEMENT 30-FT BUS - GILLIG REPLACEMENT	5307	\$10,390,000	\$8,312,000	\$8,312,000		
RTA Vehicle Replacement	T00173	CCRTA		CCRTA - BUY REPLACEMENT 30-FT BUS - GILLIG REPLACEMENT	RTACAP	\$10,390,000	\$2,078,000		\$2,078,000	
RTA Facility & Vehicle Maintenance	T00174	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE / STEAMSHIP AUTHORITY	5307	\$6,235,295	\$5,196,079	\$5,196,079		
RTA Facility & Vehicle Maintenance	T00174	CCRTA		CCRTA - PREVENTATIVE MAINTENANCE / STEAMSHIP AUTHORITY	LF	\$6,235,295	\$1,039,216			\$1,039,216
5307 Programmed							\$26,198,079	\$26,198,079		
5339 Programmed							\$625,000	\$625,000		
LF Programmed							\$1,039,216			\$1,039,216
RTACAP Programmed							\$3,039,250		\$3,039,250	
SCA Programmed							\$3,087,500		\$3,087,500	
Total Programmed for Cape Cod Regional Transit Authority Projects							\$33,989,045	\$26,823,079	\$6,126,750	\$1,039,216

Glossary

Table 20. Definitions Used in Highway Project Listings

LABEL	DESCRIPTION
Amendment/Adjustment Type	Identifies the reason for the amendment or adjustment (if applicable)
STIP Program	Identifies the STIP funding program the project is programmed within.
MassDOT Project ID	Identification number assigned by MassDOT staff or, for regional pass-through projects, by MPO staff.
Metropolitan Planning Organization	Identifies the Metropolitan Planning Organization within which the project is proposed.
Municipality Name	Identifies the municipality within which the project is proposed. Multiple is indicated for projects that span multiple projects.
MassDOT Project Description	Project description as provided by MassDOT staff.
MassDOT District	Identifies the MassDOT District within which the project is proposed.
Funding Source	Identifies the project funding source. One project may have multiple funding sources. See Table 9 for a description of the funding sources.
Total Programmed Funds	Identified the total funding programed for the given project through the given funding source.
Federal Funds	Identified the federal funding programed for the given project through the given funding source.
Non-Federal Funds	Identified the non-federal funding programed for the given project through the given funding source.
Additional Information	Identifies (as applicable) a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction status; d) MPO project score; e) name of entity receiving a transfer; f) name of entity paying the non-state non-federal match; g) earmark details; h) TAP project proponent; i) other information

Table 21. Acronyms

ACRONYM	MEANING
CAAA	Clean Air Act Amendments of 1990
CCC	Cape Cod Commission
CCJTC	Cape Cod Joint Transportation Committee
CCNS	Cape Cod National Seashore
CCRTA	Cape Cod Regional Transit Authority
CRRSAA	Coronavirus Response and Relief Supplemental Appropriations Act
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CMR	Code of Massachusetts Regulations
CO	Carbon Monoxide
DEP	Department of Environmental Protection
DOT	United States Department of Transportation
EPA	Environmental Protection Agency
FAST	Fixing America's Surface Transportation (FAST) Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FFY	Federal Fiscal Year
FY	Fiscal Year
HIP-BR	Highway Infrastructure Program - Bridge
HSIP	Highway Safety Improvement Program
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation System(s)
LOS	Level of Service
LRTP	Long Range Transportation Plan, for the Cape Cod Regional generally referred to as the Regional Transportation Plan
MAP	Mobility Assistance Program
MassDOT	Massachusetts Department of Transportation
MEPA	Massachusetts Environmental Protection Act
MPO	Metropolitan Planning Organization or Cape Cod Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NFA	Non Federal Aid
NHPP	National Highway Performance Program
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NOx	Nitrogen Oxides
PPP	Public Participation Process, or Public Participation Plan
PRC	Project Review Committee
PS&E	Plans, Specifications and Estimate
RPA	Regional Planning Agency
RPP	Regional Policy Plan
RTA	Regional Transit Authority
RTP	Regional Transportation Plan

Table 21. Acronyms (continued)

ACRONYM	MEANING
SIP	State Implementation Plan
SOV	Single Occupancy Vehicle
SSA	Steamship Authority
STBG	Surface Transportation Block Grant
STIP	Statewide Transportation Improvement Program
TAP	Transportation Alternatives Program
TDM	Transportation Demand Management
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TSM	Transportation Systems Management
USGS	United States Geological Survey
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled
VPD	Vehicles Per Day
VPH	Vehicles Per Hour

Appendices

Appendix A: Project Evaluation

Regional Transportation Plan Consistency

All projects included in the Transportation Improvement Program (TIP) are either specifically identified in the Regional Transportation Plan (RTP) or are consistent with programs in the RTP. Looking at the first RTP time band (2020-24) in the RTP, Mashpee Route 151 Improvements appears and is programmed in this TIP cycle in FFY2024-2026. Also, in the first RTP time band is "Route 28 Multimodal Improvements." This appears as a series of projects in the 2024-2028 TIP. Other projects in the 2024-2028 TIP are consistent with programs in the RTP such as "Roadway Rehabilitation & Reconstruction" and "Bicycle/Pedestrian Projects."

Furthermore, the goals, objectives, performance measures, and recommendations of the 2020 RTP were used in the development of the TIP Transportation Evaluation Criteria.

Consistency with Statewide Bicycle and Pedestrian Plans

The Statewide Bicycle and Statewide Pedestrian plans, both developed in 2019, seek to increase everyday walking and biking through project development while also increasing for safety vulnerable users. The TIP has long prioritized the expansion and development of the regional path network. The 2024-2028 TIP includes several regional path projects including the first phase of the Bourne Rail Trail and expansion projects of the Cape Cod Rail Trail plus additional path projects in Provincetown and Mashpee. Two sidewalk projects are included in Harwich, including a Safe Routes to School (SRTS) project for Harwich Elementary School. Additionally, the roadway and intersection reconstruction projects all support healthy transportation alternatives and promote everyday walking and biking on regional roadways that are also served by transit.

Consistency with Regional Performance Targets

The TIP integrates the MPOs' performance measures and link transportation-investment decisions to progress toward achieving performance goals. The performance measures are evaluated as part of the project selection process for inclusion in the Cape Cod TIP. The regional performance targets of reduced crashes, healthy transportation, reduced congestion and system preservation are factors all considered as part of the TIP project evaluation process. Consistent with the 2020 RTP, specific evaluation criteria were developed to meet the regional performance targets on

safety, mobility and system preservation. Projects that provide a substantial improvement in these categories are weighed heavily and prioritized by the MPO.

In addition, the 2020 Congestion Management Plan (CMP) prioritizes operational, safety and multi-modal improvements on the region's two main corridors, Route 6 and Route 28. Both corridors carry the region's highest traffic volumes and are often congested, especially during peak summer season. Additionally, safety issues exist on both corridors as there are numerous clusters of high crash locations. Transit service is generally provided along Route 28 and Route 6 in the Outer Cape, however, multi-modal accommodations on these roadways do not exist or are not consistent in most places.

The FFY 2024-2028 Highway TIP projects will reduce crashes at high crash locations, improve non-motorist mobility with the construction of shared use paths, provide a healthier transportation system and preserve the roadway system on the region's two key corridors of Route 28 and Route 6.

Project Evaluation Process

All highway projects under consideration for funding through the TIP are scored using the Cape Cod Metropolitan Planning Organization (MPO)'s TIP Transportation Evaluation Criteria. These criteria were approved by the Cape Cod MPO in 2016 following the review and recommendation of the Cape Cod Joint Transportation Committee. To align with the recently updated 2020 RTP, the following new evaluation criterion was developed under the Economic Impact category; *"Effect on the ability of the region's freight network to handle current and future freight needs"*. In March 2020, the Cape Cod MPO voted to approve this revision to the Transportation Evaluation Criteria. Projects are scored each spring based on the latest information available. Representatives from CCJTC, which includes each town's Department of Public Works (DPW) are invited to review project scores. The resulting project scores are one of the considerations in selecting projects for funding in the TIP. Other considerations include, but are not limited to:

- Project impact on performance targets,
- Project evaluation score,
- Project readiness,
- Project cost (in relation to available funding),
- Project qualification for different funding programs,
- Greenhouse gas (GHG) impacts,
- Title VI/Equity, and
- Community support.

Cape Cod Transportation Improvement Program for FFY 2024-2028

The analysis of congestion data in the RITIS platform is being considered for future project evaluation efforts.

The following pages presents the scores for each project and the criteria used to arrive at these scores. The projects where evaluated by Cape Cod MPO staff and were reviewed by the CCJTC and the Cape Cod MPO.

Transit projects are evaluated and recommended for inclusion in the TIP by the Cape Cod Regional Transit Authority Advisory Board.

Cape Cod TIP Project Evaluation
Scoring Summary
(For FFY2024-2028 TIP)

Cape Cod TIP Project Evaluation Scoring Summary (For FFY2024-2028 TIP)									Safety		Economic Impact				Environmental and Health Effects																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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Cape Cod TIP Project Evaluation - Detailed Scoring Template

Category	Criteria	Points (out of 100)
System Preservation and Modernization	<ul style="list-style-type: none"> Pavement and signal equipment improvement Sidewalks and other infrastructure enhancement Use of modern technology 	35
Mobility	<ul style="list-style-type: none"> Motorist congestion Non-motorist congestion Connectivity / access Mobility / accommodation of non-motorists 	10
Safety	<ul style="list-style-type: none"> Motorist crash history and anticipated safety impact Non-motorist crash history and anticipated safety impact 	10
Economic Impact	<ul style="list-style-type: none"> Access to or within a regionally-designated economic development area Access to or within a locally-designated business district Connections between housing, job, cultural centers, and essential services Effect on the ability of the region's freight network to handle current and future freight needs 	10
Environmental and Health Effects	<ul style="list-style-type: none"> Wetlands, wildlife, or other resource protection Water quality through stormwater management and treatment Air quality / GHG emission Coastal Resiliency / Sea Level Rise Vulnerability Cultural resources or open space Healthy Transportation Options 	10
Cost Effectiveness	<ul style="list-style-type: none"> Project cost per user 	15
Policy Support	<ul style="list-style-type: none"> Regional plans/policies Local plans/policies State or MassDOT Policies and goals 	10
Notes on Project Scoring		
Points within each criterion should be seen as guides. Points should be given based on the best match and may be awarded in between increments as appropriate. Project receiving a negative score on any question should be further analyzed.		

A - System Preservation and Modernization Scoring			
	Criterion	Factor	Points
1	Primary asset condition / effect on condition	Poor or failing / substantial improvement	15
		Fair / moderate improvement	8
		Good / minor improvement	4
		Excellent / no improvement	0
2	Enhancements to other assets (Projects elements included in the project, but not part of the primary project focus ie. Sidewalks with repaving project)	Poor or falling / substantial improvement	10
		Fair / moderate improvement	7
		Good / minor improvement	4
		Excellent / no improvement	0
3	Use of modern technology to improve efficiency and support ITS regional efforts (ie. continuous traffic counting equipment, adaptive signal control, emergency preemption systems)	Use of innovative technology and/or incorporation of traffic counting technology	10
		Improvement in technology to current best practices	7
		Maintain/repair existing technology	4
		Not applicable	0
Total Score = up to 35			
B - Mobility Scoring			
	Criterion	Factor	Points
1	Existing motorist congestion / effect on motorist congestion (Projects identified in Congestion Management Plan network are able to receive maximum points)	Location identified in the CMP network/ substantial improvement	4
		Significant existing / substantial improvement	3
		Significant existing / moderate or minor improvement	2
		Minimal existing / minor improvement	1
		No change	0
		Negative effect	-1
2	Effect on mobility / accommodation of non-motorists	Substantial improvement	3
		Moderate improvement	2
		Minimal improvement	1
		No effect for non-motorists	0
		Negative effect on mobility / accommodation	-1
3	Effect on connectivity / access (emphasis placed on key emergency and evacuation routes)	Substantial improvement to connectivity through the corridor	3
		Moderate improvement to connectivity	2
		Minimal effect on connectivity	1
		No effect on connectivity	0
		Negative effect on connectivity	-1
Total Score = up to 10			
C - Safety			
	Criterion	Factor	Points
1	Motorist crash history and anticipated safety impact (Note: Highway Safety Improvement Program (HSIP) eligible locations are determined by MassDOT and includes the 5% percent of locations in the region based on a severity weighted crash rate)	Location is HSIP eligible and project is anticipated to improve motorist safety	5
		Location has a demonstrated crash problem and project is anticipated to improve motorist safety	3
		No demonstrated crash problem, but project is anticipated to improve motorist safety	2
		No safety improvement anticipated	0
		The project many adversely affect motorist safety	-1
2	Non-motorist crash history and anticipated safety impact	Location identified as a HSIP Bicycle or Pedestrian Cluster and project is anticipated to improve non-motorist safety	5
		Location has a demonstrated safety deficiencies for non-motorists and project is anticipated to improve non-motorist safety	3
		No demonstrated crash problem, but project is anticipated to improve non-motorist safety	2
		No safety improvement anticipated	0
		The project many adversely affect non-motorist safety	-1
Total Score = up to 10			

D - Economic Impact Scoring			
	Criterion	Factor	Points
1	Effect on access to or within a regionally-designated economic development area (ie. Economic Center, GIZ, etc.)	Substantial improvement	3
		Moderate improvement	2
		Minor improvement	1
		No effect	0
		Negative effect	-1
2	Effect on access to or within a locally-designated business district	Substantial or moderate improvement	2
		Minor improvement	1
		No effect	0
		Negative effect	-1
3	Effect on connections between housing, job, cultural centers, and essential services within and beyond the region	Substantial improvement	3
		Moderate improvement	2
		Minor improvement	1
		No effect	0
		Negative effect	-1
4	Effect on the ability of the region's freight network to handle current and future freight needs	Substantial or moderate improvement	2
		Minor improvement	1
		No effect	0
		Negative effect	-1
Total Score = up to 10			
E - Environmental and Health Effects Scoring			
	Criterion	Factor	Points
1	Effect on wetlands, wildlife, or other resource protection	Anticipated improvement	2
		Minor contribution to preservation	1
		No anticipated impact or negative impacts adequately mitigated	0
		Negative impact	-1
2	Effect on water quality through stormwater management and treatment with an emphasis on for nitrogen (points for anticipated improvements may also be given for projects involving culvert widening)	Anticipated improvement in stormwater management and treatment	2
		Anticipated improvement in stormwater management	1
		No anticipated impact or negative impacts adequately mitigated	0
		Negative impact	-1
3	Effect on air quality / GHG emission	Significant, quantifiable decrease in GHG anticipated	2
		Minor, quantifiable or qualitative decrease in GHG anticipated	1
		No effect on GHG anticipated	0
		Anticipated increase in GHG	-1
4	Coastal Resiliency / Sea Level Rise Vulnerability (Vulnerable areas include those identified as a Special Flood Hazard Area (SFHA), areas identified by the Sea, Land, and Overland Surges from Hurricanes (SLOSH) model, or areas susceptible to sea level rise	Project vulnerable area with resilient design	2
		Project in not in a vulnerable area but includes with resilient design elements	1
		Project not in vulnerable area and not special consideration given to resilient design	0
		Project in a vulnerable area and is not a resilient design	-1
5	Effect on cultural resources or open space	Anticipated improvement	1
		No anticipated impact or negative impacts adequately mitigated	0
		Negative impact	-1
6	Healthy Transportation Options	Increase in healthy transportation options	1
		No anticipated impact or negative impacts adequately mitigated	0
		Negative impact	-1
Total Score = up to 10			

F - Cost Effectiveness Scoring			
	Criterion	Factor	Points
1	Project cost per user (Use cost/ADT/lane mile calculation as a general indicator, but flexibility is appropriate when considering unique project circumstances particularly for projects involving bicyclists and pedestrians. Low cost safety measures can be given full points.)	See reference table below, but consider unique circumstances	up to 15
		High cost project serving a small number of users	-1
Total Score = up to 15			
		Notes	Value
	Cost Estimate		
	ADT	For intersections, enter combined ADT of intersecting roads. For projects where ADT is unknown, use regional data to approximate.	
	Length (in miles)	For intersections, enter total length of all approaches within project limits.	
	Number of Lanes	Travel lanes only	
	Project Service Life	7, 14, or 21 years	
Reference			
	Cost/ADT/Lane Mile*	Points	
	is less than \$50	15	
	is less than \$100	12	
	is less than \$200	8	
	is less than \$500	4	
	is less than \$1000	0	
	is more than \$1000	-1	
*Multiply by 2/3, 1, or 1.5 for service life of 7, 14, or 21 years, respectively			
G - Policy Support Scoring			
	Criterion	Factor	Points
1	Community support (as indicated through collective statements or actions of the highest elected officials in the effected communities)	Stated support of the project by the highest elected officials	3
		Actions by highest elected officials indicate general support of the project	2
		Neutral	0
		Collective opposition voiced by the highest elected officials	-1
2	Regional plans/policies (ie. RTP, Regional Policy Plan, CEDS)	Project specifically identified in Regional Plan	3
		Strongly supports Regional Plans/Policies	2
		Moderately supports Regional Plans/Policies	1
		Neutral	0
		Inconsistent with Regional Plans/Policies	-1
3	Local plans/policies(ie. LCP, local ordinances, bylaws, etc.)	Project specifically identified in Local Plan	2
		Consistent with Local Plans/Policies	1
		Neutral	0
		Inconsistent with Local Plans/Policies	-1
4	Project supports Federal or State (including MassDOT) policies and goals not accounted for in other criteria (GreenDOT, Healthy Transportation, Complete Streets, TZD etc.)	Project specifically identified in a existing Federal or State Plan	2
		Consistent with Federal or State Policies or Principles	1
		Neutral	0
		Inconsistent with Federal or State Policies or Principles	-1
Total Score = up to 10			

Equity Analysis by Community

An equity analysis of projects included in the TIP as well as recently completed TIP projects was conducted. The maps at the end of this Appendix show the locations of these projects in relation to the 15 Cape Cod communities. The distribution of these funds are summarized in the following tables.

Table 22. Distribution of TIP Funds by Community

Community	2024-2028 Total	2024-2028 Community Share	2014-2023 Total	2014-2023 Community Share
Barnstable	\$60,390,864	23.6%	\$31,227,502	16.9%
Bourne	\$39,102,820	15.3%	\$23,717,809	12.8%
Brewster	\$0	0.0%	\$10,614,378	5.7%
Chatham	\$3,048,976	1.2%	\$18,794,540	10.1%
Dennis	\$37,084,824	14.5%	\$18,450,341	10.0%
Eastham	\$0	0.0%	\$0	0.0%
Falmouth	\$8,124,060	3.2%	\$3,755,069	2.0%
Harwich	\$9,897,069	3.9%	\$9,266,054	5.0%
Mashpee	\$20,821,400	8.1%	\$10,344,569	5.6%
Orleans	\$0	0.0%	\$13,182,313	7.1%
Provincetown	\$17,058,167	6.7%	\$0	0.0%
Sandwich	\$1,553,571	0.6%	\$13,288,798	7.2%
Truro	\$10,998,866	4.3%	\$969,376	0.5%
Wellfleet	\$0	0.0%	\$27,845,331	15.0%
Yarmouth	\$47,668,518	18.6%	\$3,781,972	2.0%
Regional	\$0	-	\$380,000	-
CCRTA (including pass-throughs)	\$178,891,915	-	\$127,995,720	-
CCNS	\$0	-	\$1,197,600	-
SSA	\$0	-	\$7,476,309	-
Total	\$434,641,050	100.0%	\$322,287,680	100.0%

Notes: Where projects spanned multiple communities, project costs were distributed based on the approximate project length within each community.

Geographic equity is important to the region. The JTC, which included of representation from all 15 towns on Cape Cod, frequently discussed geographic equity and strives to balance the equity to all towns. As seen in Table 22, TIP projects were accounted for in all 15 towns, except in Eastham. Cape Cod Commission Transportation staff have been working with the Town of Eastham and MassDOT on a number of potential TIP projects to prioritize for TIP funding over the next five years, however, many of these projects are still in the conceptual design phase as the town has limited funding to support the engineering design costs associated with a large roadway improvement project on a state highway. Specifically, MassDOT recently initiated a project at the Eastham/Orleans Rotary, however, funding was not allocated in this TIP development cycle as the project is still in the early conceptual design phase. Additionally, the Cape Cod Commission assisted the Town of Eastham in March 2019 to complete a Complete Streets Prioritization Plan and the Town was recently awarded a \$500,000 construction grant for a project within their Prioritization Plan.

It should be noted that within the UPWP, smaller towns such as Eastham and other Outer Cape towns, are given additional assistance by Cape Cod Commission Transportation staff to assist with efforts to plan and pursue TIP projects as they have smaller staffs. Cape Cod Commission Transportation staff have also been actively involved with municipalities in submitting other transportation-related grant applications, as appropriate, such as Safe Routes to School (SRTS), Shared Streets and Spaces and Complete Streets. Technical assistance is provided by Cape Cod Commission staff to towns that may not have the technical expertise on staff familiar with grant writing. For example, Cape Cod Transportation staff assisted the Town of Harwich on their application for a SRTS grant, which they were awarded for the Harwich Elementary School, which is currently programmed on the TIP. The towns of Barnstable, Falmouth, Sandwich and Eastham have also been recently successful in being awarded Shared Streets and Spaces grants in the past year.

It is also important to note that the distribution of projects summarized in Table 22, tends to be skewed by our larger towns which have large infrastructure projects (i.e. Route 6 in Bourne and Barnstable) or larger bridge projects, such as in the case with a recent large bridge project in Chatham (approximately \$19 million Mitchell's River bridge replacement). Additionally, the Bass River Bridge project in Dennis and Yarmouth has significantly increased TIP funds allocated for those two towns for 2024-2028.

Equity Analysis by Impacted Population

An equity analysis of projects included in the TIP was conducted with respect to anticipated impacts on minority, low income, and limited English proficiency populations. An equity analysis of the previous ten years of TIP projects was also conducted. The

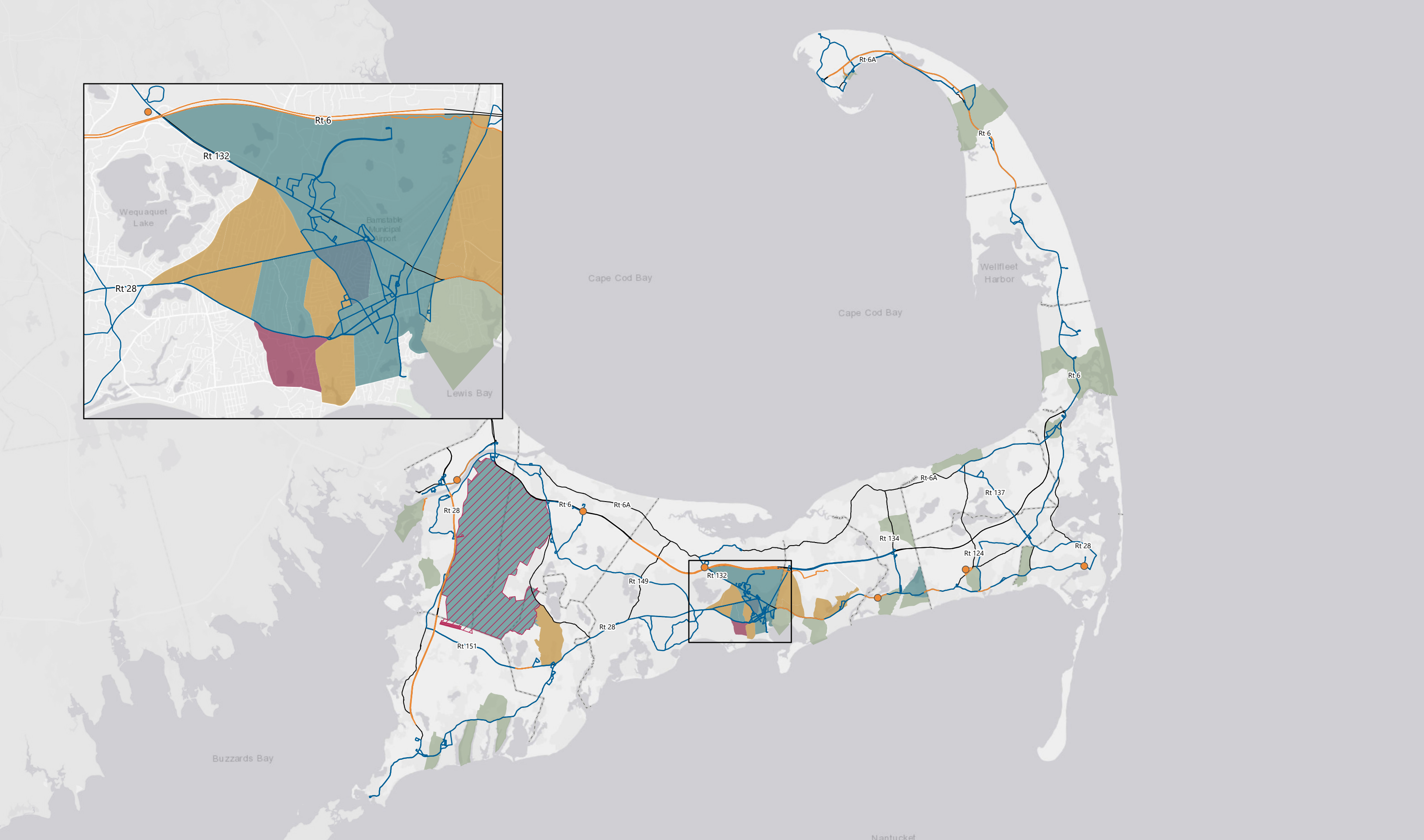
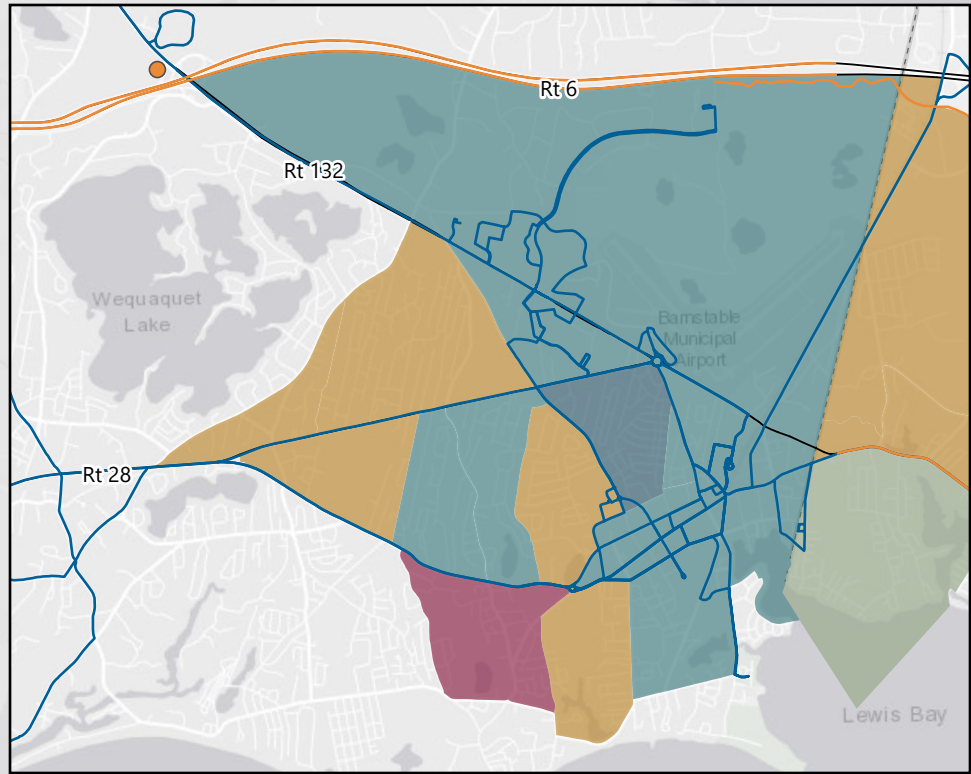
maps at the end of this Appendix show the locations of projects in relation to identified concentrations of these populations both for the current TIP and the ten-year look back.

Overall, 83% of the FFY 2024-2028 regional TIP highway funding is allocated to projects that will positively impact minority populations, 79% to projects that will positively impact low income populations, and 26% to projects that will positively impact limited English proficiency populations. These estimates exclude transit-funded projects. No projects are anticipated to negatively impact these identified populations. Specific projects and their anticipated impacts are presented in Table 23.

Table 23. Anticipated Impacts of TIP Projects on Minority (M), Low Income (I), and Limited English Proficiency (LEP) Populations

Project (#)	Year	Impacted Population	Anticipated Impact
Barnstable, Route 132 Park and Ride Improvements (#610800)	2024	I, M, LEP	Improved access, traffic flow
Dennis/Yarmouth, Bass River Bridge Replacement & Rt 28 at N. Main St (#612574)	2024	I, M	Improved bridge structure, bicycle/pedestrian access, safety
Yarmouth-Barnstable, Cape Cod Rail Trail Extension (#607398)	2024	I, M, LEP	Improved bicycle/ pedestrian access, safety
Mashpee, Rte 151 Corridor Improvements (Phase 2) (#611986)	2024-2026	M	Improved bicycle/ pedestrian access, safety, traffic flow
Harwich, Sidewalk Installation on Route 28 to Saquatucket Harbor	2024	I	Improved bicycle/ pedestrian access, safety
Dennis/Harwich, Route 28 Reconstruction (Upper County Rd to Herring River Bridge) (#608742)	2025	I, M	Improved bicycle/ pedestrian access, safety
Harwich, Harwich Elementary School (SRTS) (#610670)	2025	I	Improved bicycle/ pedestrian access, safety
Provincetown, Shank Painter Road Improvements (#608744)	2025-2027	I	Improved bicycle/ pedestrian access, safety
Bourne, Rte 6 Scenic Highway Median Installation (#606082)	2025	M	Improved safety, traffic flow, bicycle/pedestrian access
Bourne, Bourne Rail Trail (Phase 1) (#609262)	2025	I	Improved bicycle/ pedestrian access, safety
Provincetown/Truro, Route 6 Resurfacing and Related Work (#612032)	2026	I	Improved pavement condition, and multi-modal access, safety
Barnstable, Route 6 Repaving and Related Work (#608819)	2026-2028	I, M, LEP	Improved pavement condition, safety
Dennis, Route 28 Streetscape (#608196)	2027-2028	I, M	Improved bicycle/ pedestrian access, safety, traffic flow
Yarmouth, Route 28 Corridor Improvements (#608264)	2028	I, M	Improved bicycle/ pedestrian access, safety, traffic flow
Bourne, Route 28 Resurfacing and Related Work (#612063)	2028	I, M	Improved pavement condition
Falmouth, Route 28 Resurfacing and Related Work (#612111)	2028	I	Improved pavement condition

Note: Based on projects within 3 miles of the populations identified on the maps on the following page.



Proposed 2024-2028
Transportation Improvement Program (TIP)
Minority, Low Income, and
English Isolation Populations

- TIP Specific Location Improvement
- TIP Road Segment Improvement
- CCRTA Route
- Major Road
- Town Line
- ▨ Joint Base Cape Cod

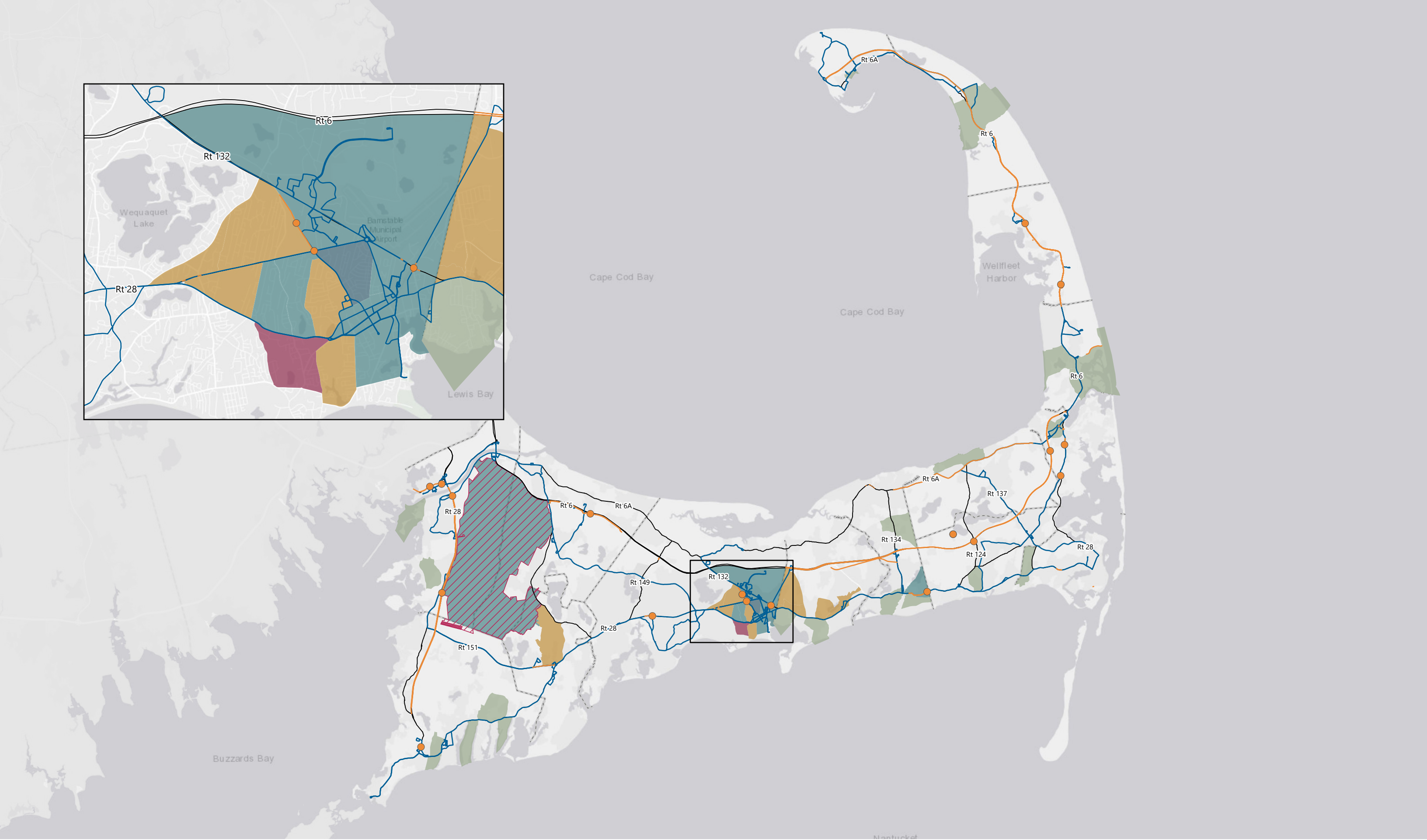
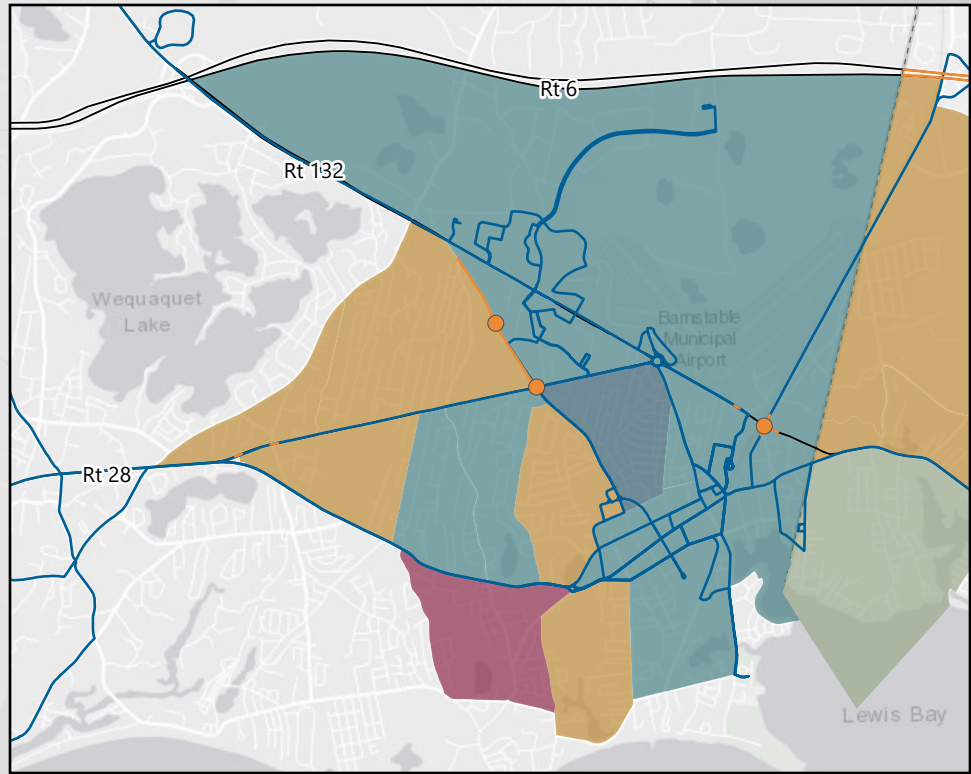
- 2020 Environmental Justice Criteria
- Minority
 - Income
 - Minority and Income
 - Minority and English isolation
 - Minority, Income and English isolation

Minority: Minorities comprise 40% or more of the population, or minorities comprise 25% or more of the population and the median household income (MHHI) of the municipality the block group is in is less than 150% of the statewide MHHI

Income: MHHI is less than or equal to 65% of the statewide annual MHHI

English isolation: At least 25% of households do not include anyone older than 14 who speaks English very well





Ten Year Review (2014-2023)
 Transportation Improvement Program (TIP)
 Minority, Low Income, and
 English Isolation Populations

- TIP Specific Location Improvement
- TIP Road Segment Improvement
- CCRTA Route
- Major Road
- Town Line
- ▨ Joint Base Cape Cod

- 2020 Environmental Justice Criteria
- Minority
 - Income
 - Minority and Income
 - Minority and English isolation
 - Minority, Income and English isolation

Minority: Minorities comprise 40% or more of the population, or minorities comprise 25% or more of the population and the median household income (MHHI) of the municipality the block group is in is less than 150% of the statewide MHHI

Income: MHHI is less than or equal to 65% of the statewide annual MHHI

English isolation: At least 25% of households do not include anyone older than 14 who speaks English very well



Appendix B: Air Quality Conformity Determination

Air Quality Conformity Determination

Air Quality Conformity Determination

Cape Cod Metropolitan Planning Organization

FFY 2024-2028 Transportation Improvement Program

This section documents the latest air quality conformity determination for the 1997 ozone National Ambient Air Quality Standards (NAAQS) in the MPO Region. It covers the applicable conformity requirements according to the latest regulations, regional designation status, legal considerations, and federal guidance. Further details and background information are provided below:

Introduction

The 1990 Clean Air Act Amendments (CAAA) require metropolitan planning organizations within nonattainment and maintenance areas to perform air quality conformity determinations prior to the approval of Long-Range Transportation Plans (LRTPs) and Transportation Improvement Programs (TIPs), and at such other times as required by regulation. Clean Air Act (CAA) section 176(c) (42 U.S.C. 7506(c)) requires that federally funded or approved highway and transit activities are consistent with (“conform to”) the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that means Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding and approvals are given to highway and transit activities that will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS or any interim milestones (42 U.S.C. 7506(c)(1)). EPA’s transportation conformity rules establish the criteria and procedures for determining whether metropolitan transportation plans, transportation improvement programs (TIPs), and federally supported highway and transit projects conform to the SIP (40 CFR Parts 51.390 and 93).

A nonattainment area is one that the U.S. Environmental Protection Agency (EPA) has designated as not meeting certain air quality standards. A maintenance area is a nonattainment area that now meets the standards and has been re-designated as maintaining the standard. A conformity determination is a demonstration that plans, programs, and projects are consistent with the State Implementation Plan (SIP) for attaining the air quality standards. The CAAA requirement to perform a conformity determination ensures that federal approval and funding go to transportation activities that are consistent with air quality goals.

Legislative and Regulatory Background

The entire Commonwealth of Massachusetts was previously classified as nonattainment for ozone, and was divided into two nonattainment areas. The Eastern Massachusetts ozone nonattainment area included Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester counties. Berkshire, Franklin, Hampden, and Hampshire counties comprised the Western Massachusetts ozone nonattainment area. With these classifications, the 1990 Clean Air Act Amendments (CAAA) required the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation to achieve attainment of the ozone standard.

The 1970 Clean Air Act defined a one-hour national ambient air quality standard (NAAQS) for ground-level ozone. The 1990 CAAA further classified degrees of nonattainment of the one-hour standard based on the severity of the monitored levels of the pollutant. The entire commonwealth of Massachusetts was classified as being in serious nonattainment for the one-hour ozone standard, with a required attainment date of 1999. The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new, eight-hour ozone standard that replaced the one-hour standard, effective June 15, 2005. Scientific information had shown that ozone could affect human health at lower levels, and over longer exposure times than one hour. The new standard was challenged in court, and after a lengthy legal battle, the courts upheld it. It was finalized in June 2004. The eight-hour standard is 0.08 parts per million, averaged over eight hours and not to be exceeded more than once per year. Nonattainment areas were again further classified based on the severity of the eight-hour values. Massachusetts as a whole was classified as being in moderate nonattainment for the eight-hour standard, and was separated into two nonattainment areas—Eastern Massachusetts and Western Massachusetts.

In March 2008, EPA published revisions to the eight-hour ozone NAAQS establishing a level of 0.075 ppm, (March 27, 2008; 73 FR 16483). In 2009, EPA announced it would reconsider this standard because it fell outside of the range recommended by the Clean Air Scientific Advisory Committee. However, EPA did not take final action on the reconsideration so the standard would remain at 0.075 ppm.

After reviewing data from Massachusetts monitoring stations, EPA sent a letter on December 16, 2011 proposing that only Dukes County would be designated as nonattainment for the new proposed 0.075 ozone standard. Massachusetts concurred with these findings.

On May 21, 2012, (77 FR 30088), the final rule was published in the Federal Register, defining the 2008 NAAQS at 0.075 ppm, the standard that was promulgated in March 2008. A second rule published on May 21, 2012 (77 FR 30160), revoked the 1997 ozone NAAQS to occur one year after the July 20, 2012 effective date of the 2008 NAAQS.

Also on May 21, 2012, the air quality designations areas for the 2008 NAAQS were published in the Federal Register. In this Federal Register, the only area in Massachusetts that was designated as nonattainment is Dukes County. All other Massachusetts counties were designated as attainment/unclassified for the 2008 standard. On March 6, 2015, (80 FR 12264, effective April 6, 2015) EPA published the Final Rulemaking, “Implementation of the 2008 National Ambient Air Quality Standards (NAAQS) for Ozone: State Implementation Plan Requirements; Final Rule.” This rulemaking confirmed the removal of transportation conformity to the 1997 Ozone NAAQS and the replacement with the 2008 Ozone NAAQS, which (with actually a stricter level of allowable ozone concentration than the 1997 standards) classified Massachusetts as “Attainment/unclassifiable” (except for Dukes County).

However, on February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* (“*South Coast II*,” 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were either nonattainment or maintenance for the 1997 ozone NAAQS and attainment for the 2008 ozone NAAQS when the 1997 ozone NAAQS was revoked. Conformity determinations are required in these areas after February 16, 2019. On November 29, 2018, EPA issued *Transportation Conformity Guidance for the South Coast II Court Decision* (EPA-420-B-18-050, November 2018) that addresses how transportation conformity determinations can be made in these areas. According to the guidance, both Eastern and Western Massachusetts, along with several other areas across the country, are now defined as “orphan nonattainment areas” – areas that were designated as nonattainment for the 1997 ozone NAAQS at the time of its revocation (80 FR 12264, March 6, 2015) and were designated attainment for the 2008 ozone NAAQS in EPA’s original designations rule for this NAAQS (77 FR 30160, May 21, 2012).

Current Conformity Determination

After 2/16/19, as a result of the court ruling and the subsequent federal guidance, transportation conformity for the 1997 NAAQS – intended as an “anti-backsliding” measure – now applies to both of Massachusetts’ orphan areas. Therefore, a conformity determination was made for the 1997 ozone NAAQS on the 2020-2040 Regional Transportation Plans. This conformity determination was finalized in July 2019 following each MPO’s previous endorsement of their regional transportation plan, approved by

the Massachusetts Divisions of FHWA and FTA on October 15, 2019. This conformity determination continues to be valid for the Cape Cod FFY 2024-2028 Transportation Improvement Program, and Massachusetts' FFY 2024-2028 STIP, as each is developed from the conforming 2020-2040 Regional Transportation Plans.

The transportation conformity regulation at 40 CFR 93.109 sets forth the criteria and procedures for determining conformity. The conformity criteria for TIPs and RTPs include: latest planning assumptions (93.110), latest emissions model (93.111), consultation (93.112), transportation control measures (93.113(b) and (c), and emissions budget and/or interim emissions (93.118 and/or 93.119).

For the 1997 ozone NAAQS areas, transportation conformity for TIPs and RTPs for the 1997 ozone NAAQS can be demonstrated without a regional emissions analysis, per 40 CFR 93.109(c). This provision states that the regional emissions analysis requirement applies one year after the effective date of EPA's nonattainment designation for a NAAQS and until the effective date of revocation of such NAAQS for an area. The 1997 ozone NAAQS revocation was effective on April 6, 2015, and the *South Coast II* court upheld the revocation. As no regional emission analysis is required for this conformity determination, there is no requirement to use the latest emissions model, or budget or interim emissions tests.

Therefore, transportation conformity for the 1997 ozone NAAQS for the Cape Cod FFY 2023-2027 Transportation Improvement Program and 2020-2040 Regional Transportation Plans can be demonstrated by showing that remaining requirements in Table 1 in 40 CFR 93.109 have been met. These requirements, which are laid out in Section 2.4 of EPA's guidance and addressed below, include:

- Latest planning assumptions (93.110)
- Consultation (93.112)
- Transportation Control Measures (93.113)
- Fiscal Constraint (93.108)

Latest Planning Assumptions:

The use of latest planning assumptions in 40 CFR 93.110 of the conformity rule generally apply to regional emissions analysis. In the 1997 ozone NAAQS areas, the use of latest planning assumptions requirement applies to assumptions about transportation control measures (TCMs) in an approved SIP (See following section on Timely Implementation of TCMs).

Consultation:

The consultation requirements in 40 CFR 93.112 were addressed both for interagency consultation and public consultation. Interagency consultation was conducted with FHWA, FTA, US EPA Region 1, MassDEP, and the Massachusetts MPOs on March 6, 2019 to discuss the latest conformity-related court rulings and resulting federal guidance. Regular and recurring interagency consultations have been held since on an (at least) annual schedule, with the most recent conformity consultation held on April 27, 2022. This ongoing consultation is conducted in accordance with the following:

- Massachusetts' Air Pollution Control Regulations 310 CMR 60.03 "Conformity to the State Implementation Plan of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 USC or the Federal Transit Act"
- The Commonwealth of Massachusetts Memorandum of Understanding among the Massachusetts Department of Transportation, Massachusetts Department of Environmental Protection, Massachusetts Metropolitan Planning Organizations, and Regional Transit Authorities, titled The Conduct of Air Quality Planning and Coordination for Transportation Conformity (dated September 16, 2019)

Public consultation was conducted consistent with planning rule requirements in 23 CFR 450. Title 23 CFR Section 450.324 and 310 CMR 60.03(6)(h) requires that the development of the TIP, RTP, and related certification documents provide an adequate opportunity for public review and comment. Section 450.316(b) also establishes the outline for MPO public participation programs. The Cape Cod MPO's Public Participation Plan was most recently modified in 2022 and is available online for reference. The Public Participation Plan ensures that the public will have access to the TIP, RTP and all supporting documentation, provides for public notification of the availability of the TIP and RTP and the public's right to review the document and comment thereon, and provides a 21-day public review and comment period prior to the adoption of the TIP and RTP and related certification documents.

The public comment period for this conformity determination commenced on April 24, 2023. During the 21-day public comment period, any comments received were incorporated into this Plan. This allowed ample opportunity for public comment and MPO review of the draft document. The public comment period will close on May 15, 2023 and subsequently, the Cape Cod MPO is expected to endorse this air quality conformity determination before May 23, 2023. These procedures comply with the associated federal requirements.

Timely Implementation of Transportation Control Measures:

Transportation Control Measures (TCMs) have been required in the SIP in revisions submitted to EPA in 1979 and 1982. All SIP TCMs have been accomplished through construction or through implementation of ongoing programs. All of the projects have been included in the Region's Transportation Plan (present or past) as recommended projects or projects requiring further study.

Fiscal Constraint:

Transportation conformity requirements in 40 CFR 93.108 state that TIPs and transportation plans must be fiscally constrained consistent with DOT's metropolitan planning regulations at 23 CFR part 450. The Cape Cod 2024-2028 Transportation Improvement Program and 2020-2040 Regional Transportation Plan are fiscally constrained, as demonstrated in this document.

In summary and based upon the entire process described above, the Cape Cod MPO has prepared this conformity determination for the 1997 Ozone NAAQS in accordance with EPA's and Massachusetts' latest conformity regulations and guidance. This conformity determination process demonstrates that the FFY 2024-2028 Transportation Improvement Program and the 2020-2040 Regional Transportation Plan meet the Clean Air Act and Transportation Conformity Rule requirements for the 1997 Ozone NAAQS, and have been prepared following all the guidelines and requirements of these rules during this time period.

Therefore, the implementation of the Cape Cod MPO's FFY 2024-2028 Transportation Improvement Program and the 2020-2040 Regional Transportation Plan are consistent with the air quality goals of, and in conformity with, the Massachusetts State Implementation Plan.

Appendix C: Greenhouse Gas Analysis

This section summarizes the greenhouse gas (GHG) impacts anticipated to result from the projects that are included in this FFY 2024 – 2028 STIP. It includes a summary of the state laws and policies that call for reducing greenhouse gas in order to mitigate global climate change; actions that respond to these state laws and policies; the role of regional planning and STIP development in reducing GHG emission and tracking these reductions; and the projected GHG emission impacts from the projects programmed in the STIP.

State policy context

The Global Warming Solutions Act (GWSA), which was signed into law in August 2008, makes Massachusetts a leader in setting aggressive and enforceable GHG reduction targets, and implementing policies and initiatives to achieve these targets. In keeping with the law, on December 29, 2010 the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), in consultation with other state agencies and the public, released the Massachusetts Clean Energy and Climate Plan for 2020. In December 2014, DEP issued new regulations that require MPOs to quantify impacts from project investments, track, progress towards reductions, and consider impacts in the prioritization of project investments. The targets for overall statewide GHG emissions are:

- By 2020: 25 percent reduction below statewide 1990 GHG emission levels
- By 2050: 80 percent reduction below statewide 1990 GHG emission levels

Regional Efforts

The 2018 Cape Cod Regional Policy Plan identifies climate change as one of the key challenges facing the region, putting Cape Cod's natural, built, and community systems at risk. It includes a section on climate change response, readiness, and mitigation and planning actions to develop a baseline of greenhouse gas emissions that will help communities better understand opportunities for mitigation. As part of the 2021 Cape Cod Climate Action Plan, a baseline GHG inventory was performed for the region and found the transportation sector as the major contributor to GHG emissions within the region. The proposed TIP projects within the Cape Cod region are consistent both of these plans by reducing GHGs by reducing bottlenecks and multimodal projects to reduce the carbon footprint.

The role of MPOs

The Commonwealth's MPOs are integrally involved in supporting the GHG reductions mandated under the GWSA. The MPOs are most directly involved in helping to achieve the GHG emissions reductions through the promotion of healthy transportation modes

through prioritizing and programming an appropriate balance of roadway, transit, bicycle and pedestrian investments – and assisting smart growth development patterns through the creation of a balanced multi-modal transportation system. This is realized through the transportation goals and policies espoused in the 2020 Regional Transportation Plans (RTPs); the major projects planned in those RTPs; and the mix of new transportation projects that are programmed and implemented through the TIPs. GHG tracking and evaluation processes enable the MPOs to identify anticipated GHG impacts of planned and programmed projects, and also to use GHG impacts as a criterion in prioritizing transportation projects.

Project-level GHG tracking and evaluation in TIPs

It is also important to monitor and evaluate the GHG impacts of the transportation projects that are programmed in the MPOs' TIPs. The TIPs include both the larger, regionally-significant projects from the RTPs, which are reported in the Statewide GHG report, as well as smaller projects that are not included in the RTP but that may nevertheless have impacts on GHG emissions. The primary objective of this tracking is to enable the MPOs to evaluate expected GHG impacts of different projects and to use this information as a criterion for prioritizing and programming projects.

Calculation of GHG Impacts for TIP Projects

MassDOT has adopted spreadsheets used by MPOs to determine CMAQ eligibility and that also include CO₂ impacts. The data and analysis required for these calculations is available from functional design reports that are submitted for projects that would produce a measurable GHG impact.

Projects with quantified impacts

RTP Projects

Major capacity expansion projects are expected to have a significant impact on GHG emissions. These projects are included in each MPO's RTPs and analyzed using either the statewide model or the Boston MPO's regional model, which reflect GHG impacts. As a result, no independent TIP calculations are required.

Quantified Decrease in Emissions

For those projects that are expected to produce a measurable decrease in emissions, the approach for calculating these impacts is described below. These projects are categorized in the following manner:

- **Quantified Decrease in Emissions from Traffic Operational Improvement -**
An intersection reconstruction or signalization project that is projected to reduce delay and congestion.

- **Quantified Decrease in Emissions from Pedestrian and Bicycle Infrastructure** - A shared-use path that enables increased walking and biking and decreases vehicle-miles traveled (VMT).
- **Quantified Decrease in Emissions from New/Additional Transit Service** - A bus or shuttle service that enables increased transit ridership and decreased VMT
- **Quantified Decrease in Emissions from a Park and Ride Lot** - A park and-ride lot that enables increased transit ridership/ increased ridesharing and decreased VMT
- **Quantified Decrease in Emissions from Bus Replacement** - a bus replacement that directly reduces GHG emissions generated by service.
- **Quantified Decrease in Emissions from Complete Streets Improvements** - Improvements to roadway networks that include the addition of bicycle and pedestrian accommodations where none were present before.
- **Quantified Decrease in Emissions from Alternative Fuel Vehicle Procurements** – A vehicle procurement where alternative fuel/advanced technology vehicles replace traditional gas or diesel vehicles.
- **Quantified Decrease in Emissions from Anti-idling Strategies** – Implementation of policies such as limiting idling allowed, incorporating anti-idling technology into fleets and using LED lights on trucks for the purpose of illuminating worksites.
- **Quantified Decrease in Emissions from Bike Share Projects** – A new bike share project or capacity added to an existing project.
- **Quantified Decrease in Emissions from Induced Travel Projects** – A project that changes roadway capacity
- **Quantified Decrease in Emissions from Speed Reduction Programs** – Programs that reduce speed to no less than 55 miles per hour.
- **Quantified Decrease in Emissions from Transit Signal Priority Projects** – A project that applies this technology to a signal intersection or along a corridor that impacts bus service.
- **Quantified Decrease in Emissions from Truck Stop Electrification Projects** – A new truck stop electrification project or capacity added to an existing project.
- **Quantified Decrease in Emissions from Other Improvement**

Quantified Increase in Emissions

Projects expected to produce a measurable increase in emissions.

Projects with no assumed impacts

No Assumed Impact/Negligible Impact on Emissions

Cape Cod Transportation Improvement Program for FFY 2024-2028

Projects that do not change the capacity or use of a facility (e.g. roadway median barrier or retaining wall replacement, or a bridge rehabilitation/replacement that restores the bridge to its previous condition) are assumed to have no/negligible GHG impact.

Qualitative Decrease in Emissions

Projects expected to produce a minor decrease in emissions that cannot be calculated with any precision. Examples of such projects include roadway repaving, signage improvement, ITS improvement, or transit marketing/customer experience improvement

Qualitative Increase in Emissions

Projects expected to produce a minor increase in emissions that cannot be calculated with any precision.

Greenhouse gas impact tables for FFY 2024 – 2028 TIP

The tables summarizing the calculated quantitative and assumed qualitative impacts of the projects included in the FFY 2024 – 2028 TIP are included on the following pages.

Cape Cod Region Transportation Improvement Plan

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼	Fiscal Year of Contract Award (2015 and forward) ▼
607571	DENNIS- YARMOUTH- CONSTRUCTION OF A MULTI-USE PATH OVER THE BASS RIVER, INCLUDES NEW PEDESTRIAN BRIDGE D-07-007=Y-01-010	\$ 3,765,741	Quantified	3668.2	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure		2016
	Cape Cod, Bicycle Rack Program	\$ 50,000	Qualitative	50483.7	Quantified Decrease in Emissions from Other Improvements		2016
606707	DENNIS- CORRIDOR AND STREETScape IMPROVEMENTS ON MAIN STREET (ROUTE 28) FROM DENNIS COMMONS DRIVE TO UPPER COUNTY ROAD	\$ 8,151,859	Qualitative	3512.1	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure		2017
	Cape Cod, Bicycle Rack Program	\$ 100,000	Qualitative	100967	Quantified Decrease in Emissions from Other Improvements		2017
606596	CHATHAM- IMPROVEMENTS ON MAIN STREET (ROUTE 28), FROM GEORGE RYDER ROAD TO BARN HILL ROAD	\$ 4,139,760	Quantified	175	Quantified Decrease in Emissions from Complete Streets Project		2018
607435	BARNSTABLE- INTERSECTION IMPROVEMENTS @ FALMOUTH ROAD (ROUTE 28) & OSTERVILLE-WEST BARNSTABLE ROAD	\$ 3,191,863	Qualitative		Qualitative Decrease in Emissions		2018
	CAPE COD - BICYCLE RACK PROGRAM	\$ 100,000	Quantified	100967	Quantified Decrease in Emissions from Other Improvements		2018
606272	BARNSTABLE- INTERSECTION IMPROVEMENTS AT IYANOUGH ROAD (ROUTE 28) AND YARMOUTH ROAD	\$15,756,274	Quantified	623168	Quantified Decrease in Emissions from Traffic Operational Improvement		2019
606900	Bourne - Traffic and Multi-Modal Improvements at Belmont Circle at Routes 6/25/28	\$ 4,971,140	Quantified	432.05	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure		2020
	CAPE COD - BICYCLE RACK PROGRAM	\$ 100,000	Quantified	100967	Quantified Decrease in Emissions from Other Improvements		2020
607319	Mashpee - Route 151 Corridor Improvements Phase 1	\$ 15,934,387	Quantified	3728	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure		2021-2022
608666	Orleans - Route 28 at Quanset Rd/Route 39 Roundabout	\$ 5,048,808	Quantified	9640	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure		2022
608422	Sandwich - Shared Use Path on Service Road	\$ 8,399,241	Quantified	45215	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure		2022
607397	Wellfleet Intersection Improvements at Route 6 at Main St	\$ 9,940,848	Quantified	287	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure		2023
609067	Barnstable - Construction of a Shared Use Path along Bearses Way	\$ 1,995,386	Quantified	1518	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure		2023

Cape Cod Region Transportation Improvement Program

FTA Activity Line Item ▼	Transit Agency ▼	Project Description ▼	Total Cost ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Fiscal Year Programmed
	CCRTA	CCNS- NEW TRANSIT SERVICE DEMONSTRATION OUTER CAPE BIKE SHUTTLE	87,610	Quantified	62390.8	Quantified Decrease in Emissions from New/Additional Transit Service	2015
	CCRTA	BARNSTABLE - HYANNIS LOOP DEMONSTATION	\$ 2,056,392	Quantified	210240	Quantified Decrease in Emissions from New/Additional Transit Service	2016-2018
	CCRTA	BUY REPLACEMENT <30 FT BUS	\$ 231,750	Quantified	28215	Quantified Decrease in Emissions from Bus Replacement	2020
	CCRTA	BUY REPLACEMENT 30 FT BUS	\$ 1,171,234	Quantified	13452	Quantified Decrease in Emissions from Bus Replacement	2020
RTD0005521	CCRTA	BUY REPLACEMENT TROLLEY BUS	\$ 517,785	Quantified	152704	Quantified Decrease in Emissions from Bus Replacement	2021
RTD0008459	CCRTA	BUY REPLACEMENT 30 FT BUS	\$ 238,700	Quantified	13452	Quantified Decrease in Emissions from Bus Replacement	2021
RTD0008460	CCRTA	BUY REPLACEMENT <30 FT BUS	\$ 1,473,237	Quantified	42808	Quantified Decrease in Emissions from Bus Replacement	2021
RTD0009541	CCRTA	BUY REPLACEMENT 30 FT BUS	\$ 1,000,000	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	2022
RTD0009521	CCRTA	BUY REPLACEMENT 35 FT BUS	\$ 1,582,665	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	2022
RTD0009522	CCRTA	BUY REPLACEMENT <30 FT BUS	\$ 465,000	Quantified	34447	Quantified Decrease in Emissions from Bus Replacement	2022
RTD0010598	CCRTA	BUY REPLACEMENT 30 FT BUS	\$ 1,242,561	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	2023
RTD0010599	CCRTA	BUY REPLACEMENT <30 FT BUS	\$ 245,865	Quantified	34447	Quantified Decrease in Emissions from Bus Replacement	2023

2024 Transit Project GHG Impacts

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
T00133 T00144	BUY REPLACEMENT <30 FT BUS	\$ 6,440,000	Quantified	34447	Quantified Decrease in Emissions from Bus Replacement	\$ 6,440,000		2024
RTD00106021	BUY REPLACEMENT <30 FT BUS	\$ 1,050,000	Quantified	34447	Quantified Decrease in Emissions from Bus Replacement	\$ 1,050,000		2024
T00145	Acquisition Support Vehicles	\$ 70,000	Quantified	99708	Quantified Decrease in Emissions from Bus Replacement	\$ 70,000		2024

2025 Transit Project GHG Impacts

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
RTD0010619	BUY REPLACEMENT <30 FT BUS	\$ 785,971	Quantified	1156	Quantified Decrease in Emissions from Bus Replacement	\$ 785,971		2025
T00146	BUY REPLACEMENT <30 FT BUS	\$ 5,189,029	Quantified	1156	Quantified Decrease in Emissions from Bus Replacement	\$ 5,189,029		2025

2026 Transit Project GHG Impacts

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
RTD0010628	BUY REPLACEMENT 30 FT ELECTRIC BUS	\$ 781,250	Quantified	78744	Quantified Decrease in Emissions from Bus Replacement	\$ 781,250		2026
T00149	BUY REPLACEMENT <30 FT BUS	\$ 1,383,750	Quantified	1156	Quantified Decrease in Emissions from Bus Replacement	\$ 1,383,750		2026
111215	BUY REPLACEMENT VEHICLES/VANS	\$ 260,000	Quantified	75134	Quantified Decrease in Emissions from Bus Replacement	\$ 260,000		2026

2027 Transit Project GHG Impacts

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
RTD0011176	BUY REPLACEMENT 30 FT ELECTRIC BUS	\$ 698,750	Quantified	51507	Quantified Decrease in Emissions from Bus Replacement	\$ 698,750		2027
T00151	BUY REPLACEMENT <30 FT BUS	\$ 781,250	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	\$ 781,250		2027
T00152	BUY REPLACEMENT 30 FT BUS	\$ 4,800,000	Quantified	11224	Quantified Decrease in Emissions from Bus Replacement	\$ 4,800,000		2027
111215	BUY REPLACEMENT VEHICLES/VANS	\$ 576,000	Quantified	73137	Quantified Decrease in Emissions from Bus Replacement	\$ 576,000		2027

2028 Transit Project GHG Impacts

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
T00155	BUY REPLACEMENT < 30 FT BATTERY ELECTRIC BUS	\$ 2,000,000	Quantified	51507	Quantified Decrease in Emissions from Bus Replacement	\$ 2,000,000		2028
T00173	BUY REPLACEMENT 30 FT BUS	\$ 10,390,000	Quantified	5617	Quantified Decrease in Emissions from Bus Replacement	\$ 10,390,000		2028
T00160	BUY REPLACEMENT <30 FT BUS	\$ 781,250	Quantified	1156	Quantified Decrease in Emissions from Bus Replacement	\$ 781,250		2028



Greenhouse Gas (GHG) Analysis Report

Program Activity: Highway

STIP: 2024 - 2028 (D)

MassDot Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG CO2 Impact (kg/yr)	Additional Information
Federal Fiscal Year 2024					
Cape Cod					
607398	YARMOUTH- BARNSTABLE- CAPE COD RAIL TRAIL EXTENSION, INCLUDES NEW BRIDGE OVER WILLOW STREET & RAILROAD (PHASE III)	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	5,728,658	Consultation committee: 11/10/2016
610800	BARNSTABLE- PARK AND RIDE EXPANSION AND IMPROVEMENTS AT THE ROUTE 132 PARK AND RIDE	Quantified	Quantified Decrease in Emissions from Park and Ride Lot	7	
611985	HARWICH- SIDEWALK INSTALLATION ON ROUTE 28 FROM BANK STREET TO SAQUATUCKET HARBOR	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	1,199	Consultation: 04/26/2021 -- for full amount
612574	DENNIS- YARMOUTH- BRIDGE REPLACEMENT, D-07-004=Y-01-003, ROUTE 28 OVER BASS RIVER INCLUDING INTERSECTION IMPROVEMENTS AT MAIN STREET(ROUTE 28)/NORTH MAIN STREET/OLD MAIN STREET	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	194,681	
613195	SANDWICH- BRIDGE PRESERVATION, S-04-007 (4BB) AND S-04-010 (4BC), QUAKER MEETING HOUSE ROAD OVER ROUTE 6/MID-CAPE HIGHWAY	Qualitative	No assumed impact/negligible impact on emissions	0	
Cape Cod			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	5,924,545	
			Total GHG Difference (kg/year)	5,924,545	
2024			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	5,924,545	
			Total GHG Difference (kg/year)	5,924,545	



Greenhouse Gas (GHG) Analysis Report

Program Activity: Highway

STIP: 2024 - 2028 (D)

MassDot Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG CO2 Impact (kg/yr)	Additional Information
Federal Fiscal Year 2025					
Cape Cod					
606082	BOURNE- MEDIAN INSTALLATION ON ROUTE 6 (SCENIC HIGHWAY)	Qualitative	Qualitative Decrease in Emissions	0	Assumed nominal decrease in emissions from sidewalk and bicycle infrastructure
608742	DENNIS- HARWICH- RECONSTRUCTION & RELATED WORK ON MAIN STREET (ROUTE 28), FROM UPPER COUNTY ROAD TO THE HERRING RIVER BRIDGE	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	134,599	Consultation Committee: 10/22/2020
609262	BOURNE- RAIL TRAIL CONSTRUCTION (PHASE 1)	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	63,198	Consultation Committee: 03/06/2019
610670	HARWICH- HARWICH ELEMENTARY SCHOOL (SRTS)	Qualitative	Qualitative Decrease in Emissions	0	Assumed nominal decrease in emissions from sidewalk
Cape Cod			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	197,797	
			Total GHG Difference (kg/year)	197,797	
2025			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	197,797	
			Total GHG Difference (kg/year)	197,797	



Greenhouse Gas (GHG) Analysis Report

Program Activity: Highway

STIP: 2024 - 2028 (D)

MassDot Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG CO2 Impact (kg/yr)	Additional Information
Federal Fiscal Year 2026					
Cape Cod					
611986	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	320,833	AC Project programmed for 2024-2026 Consultation Committee: 04/27/2022
612032	PROVINCETOWN- TRURO- WELLFLEET- RESURFACING AND RELATED WORK ON ROUTE 6	Qualitative	Qualitative Decrease in Emissions	0	Assumed nominal decrease in emissions from sidewalk infrastructure
Cape Cod			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	320,833	
			Total GHG Difference (kg/year)	320,833	
2026			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	320,833	
			Total GHG Difference (kg/year)	320,833	



Greenhouse Gas (GHG) Analysis Report

Program Activity: Highway

STIP: 2024 - 2028 (D)

MassDot Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG CO2 Impact (kg/yr)	Additional Information
Federal Fiscal Year 2027					
Cape Cod					
607405	CHATHAM- INTERSECTION IMPROVEMENTS & RELATED WORK AT MAIN STREET (ROUTE 28), DEPOT ROAD, QUEEN ANNE ROAD AND CROWELL ROAD	Qualitative	Qualitative Decrease in Emissions	0	Assumed nominal decrease in emissions from sidewalk and bicycle infrastructure
608744	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	1,675,184	AC Project programmed for 2025-2027 Consultation committee: 10/22/2020
Cape Cod			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	1,675,184	
			Total GHG Difference (kg/year)	1,675,184	
2027			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	1,675,184	
			Total GHG Difference (kg/year)	1,675,184	



Greenhouse Gas (GHG) Analysis Report

Program Activity: Highway

STIP: 2024 - 2028 (D)

MassDot Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG CO2 Impact (kg/yr)	Additional Information
Federal Fiscal Year 2028					
Cape Cod					
608196	DENNIS- CORRIDOR AND STREETSCAPE IMPROVEMENTS ON MAIN STREET (ROUTE 28), FROM UNCLE BARNEYS ROAD TO OLD MAIN STREET (PHASE 2)	Qualitative	Qualitative Decrease in Emissions	0	Assumed nominal decrease in emissions from sidewalk and bicycle infrastructure; AC Project programmed for 2027-2028
608264	YARMOUTH- CORRIDOR IMPROVEMENTS ON ROUTE 28	Qualitative	Qualitative Decrease in Emissions	0	Assumed nominal decrease in emissions from sidewalk and bicycle infrastructure. AC Project programmed for 2028-2029
608819	BARNSTABLE- RESURFACING AND RELATED WORK ON ROUTE 6	Qualitative	No assumed impact/negligible impact on emissions	0	AC Project programmed for 2026-2028
612063	BOURNE- RESURFACING AND RELATED WORK ON ROUTE 28	Qualitative	No assumed impact/negligible impact on emissions	0	
612111	FALMOUTH- RESURFACING AND RELATED WORK ON ROUTE 28	Qualitative	No assumed impact/negligible impact on emissions	0	
Cape Cod			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	0	
			Total GHG Difference (kg/year)	0	
2028			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	0	
			Total GHG Difference (kg/year)	0	
2024 - 2028			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	8,118,359	
			Total GHG Difference (kg/year)	8,118,359	

Appendix D: Projects in Need of Funding

The following table lists projects that are not currently programmed on the TIP that may be suitable for future TIP funding.

Table 24. Projects in Need of Funding (For Information Only)

Town(s)	Project Number	Project	Estimated Cost
Barnstable	-	Improved access for Hyannis Transportation Center	\$5,000,000
Barnstable	-	Cape Cod Rail Trail Extension (Phase 4)	\$18,800,000
Barnstable	-	Parking garage and related improvements to the Hyannis Transportation Center	\$5,000,000
Barnstable	-	Route 6A Sidewalk Improvements	\$4,584,650
Barnstable	610926	Corridor Improvements on Route 28 including Airport Rotary Retrofit	\$12,897,996
Barnstable Bourne	-	Improvements to Real Time Traffic Information System	\$3,000,000
Barnstable/ Yarmouth	-	Hyannis Access Preferred Alternative	\$90,000,000
Barnstable	612768	Rt 28 Corridor Improvements	\$10,414,775
Barnstable	612776	Route 28 and Santuit Newtown Rd	\$4,617,450
Barnstable	612960	Corridor Improvements on Route 132	\$26,237,325
Bourne	-	Memorial Circle Intersection Improvement Project	\$2,000,000
Bourne	610673	Bourne Rail Trail (Phase II)	\$7,610,000
Bourne	-	Bourne Rail Trail (Phase III and 4A)	\$20,000,000
Bourne	608020	Cape Cod Canal Bridges Program*	TBD
Bourne/Falmouth	611998	Shining Sea Bikeway Extension/Bourne Rail Trail Phase 4b	\$6,375,000
Brewster	-	Cape Cod Rail Trail to Cape Cod Bay Path Connection (Linnell Landing)	\$1,000,000
Dennis	-	Rt 134 at Setucket Rd Intersection Improvements	\$2,000,000
Eastham	-	Route 6 Corridor Improvements	\$20,000,000
Eastham/Orleans	612767	Rotary Improvements on Route 6	\$7,439,125
Falmouth	607444	Route 151 at Route 28A Intersection Improvements	\$3,918,911
Falmouth	609218	Corridor Improvements on Route 28	\$10,000,400
Harwich	-	Route 39, 1.6 miles from Bay Road to Brewster TL and 2.0 miles from Oak Street to Queen Anne Road	\$4,500,000
Mashpee	610298	Corridor Improvements on Route 28 including Rotary Retrofit	\$6,178,601
Outer Cape	-	Outer Cape Rail Trail Extension	\$25,300,000
Provincetown	-	Route 6A Bike & Pedestrian Accommodation, Truro town line to Snail Road	\$14,000,000
Steamship Authority	-	Electric Transit Buses and Charging Stations	\$10,000,000
Steamship Authority	-	Woods Hole Ferry Terminal Reconstruction Project	\$35,000,000
Truro/Wellfleet	612540	Shared Use Path Construction Along Route 6	\$28,036,750
Wellfleet	-	Chequessett Bridge Rehabilitation	\$15,000,000
Wellfleet		Route 6 at School Street	\$6,027,800
TOTAL			\$404,938,783

*Cape Cod Canal Area Transportation Study improvements are also in need of funding but the final dollar amounts are still unknown at this time

Appendix E: Status of Previous TIP Projects

Appendix E: Status of Previous TIP Projects

PROJIS or State Identification (SID) number	MUNICIPALITY of project location	DESCRIPTION	TIP Programmed Amount	Completed?	Project Proponent	Construction Bid/Value	YEAR adver- tised (FFY)
606178	BOURNE	Resurfacing and related work	\$8,417,977	complete	state	\$8,520,668	2014
604488	DENNIS-YARMOUTH	Cape Cod Rail Trail Extension	\$7,412,899	complete	towns	\$7,563,943	2014
603690	CHATHAM	Mitchell River Bridge Replacement	\$14,400,000	complete	state	\$15,298,631	2014
606016	BREWSTER	Route 6A resurfacing	\$5,861,202	complete	state	\$6,714,952	2014
		Ouer Cape Bike Shuttle	\$84,240	transferred	CCNS	\$84,240	2014
2014 ADVERTISING PROGRAM						TOTAL	\$38,182,434
606394	BARNSTABLE	Route 28 at Bearses Way	\$5,509,246	complete	state	\$6,522,364	2015
606179	DENNIS-HARWICH	Route 6 resurfacing	\$2,283,272	complete	state	\$2,429,099	2015
		Ouer Cape Bike Shuttle	\$87,610	transferred	CCNS	\$87,610	2015
2015 ADVERTISING PROGRAM						TOTAL	\$9,039,073
	CAPE COD	Cape Cod Bicycle Rack Program	\$100,000	transferred	CCC	\$80,000	2016
608033	BARNSTABLE	Rte 6 Exit 5 Lighting and Landscaping	\$600,000	complete	state	\$459,906	2016
606461	ORLEANS	Main St at Rte 28 and Main St at Rte 6A	\$3,547,482	complete	town	\$3,727,761	2016
607571	DENNIS-YARMOUTH	Cape Cod Rail Trail Extension - Bass River Bridge	\$3,765,741	complete	towns	\$3,497,963	2016
608349	TRURO-WELLFLEET	Route 6 Bicycle Accommodations	\$500,000	complete	state	\$290,030	2016
608409	Dennis	Route 6 Resurfacing and Related Work	\$2,200,000	complete	state	\$2,278,746	2016
607753	Barnstable	Rte 28 at Strawberry Hill Rd	\$550,000	complete	state	\$690,277	2016
	BARNSTABLE	Hyannis Loop Demonstration (Year 1 of 3)	\$659,100	transferred	CCRTA	\$659,100	2016
2016 ADVERTISING PROGRAM						TOTAL	\$11,683,782
606707	DENNIS	Rte 28 Corridor & Streetscape Improvements	\$8,151,859	complete	town	\$5,129,122	2017
608544	BOURNE	Rte 6&28 Bypass Rd Resurfacing and Related Work	\$2,400,000	complete	state	\$1,125,887	2017
608201	BREWSTER- ORLEANS	Route 6 Resurfacing	\$10,405,837	complete	State	\$7,342,092	2017
608102	HARWICH	Improvements at Rte 124 Park and Ride	\$575,000	complete	state	\$253,483	2017
	BARNSTABLE	Hyannis Loop Demonstration (Year 2 of 3)	\$685,464	transferred	CCRTA	\$685,464	2017
	CAPE COD	Cape Cod Bicycle Rack Program	\$100,000	complete	CCC	\$100,000	2017
2017 ADVERTISING PROGRAM						TOTAL	\$14,636,048
606596	Chatham	Rte 28 - George Ryder Rd to Barn Hill Rd	\$4,629,556	complete	town	\$3,495,909	2018
CC1000	Barnstable	CCRTA Hyannis Loop Demo (Year 3 of 3)	\$711,828	transferred	CCRTA	\$711,828	2018
607435	Barnstable	Rte 28 at Osterville-West Barnstable Rd	\$3,543,856	complete	State	\$3,366,213	2018

Appendix E: Status of Previous TIP Projects

608588	Truro	Route 6 Bicycle Accommodations	\$1,256,634	complete	State	\$896,868	2018
	CAPE COD	Cape Cod Bicycle Rack Program	\$100,000	complete	CCC	\$100,000	2018
2018 ADVERTISING PROGRAM					TOTAL	\$8,570,818	
606272	Barnstable	Route 28 at Yarmouth Road (AC Year 1 of 3)	\$15,756,274	underway	State	\$17,867,914	2019
CC1002	Falmouth	Steamship Authority - New Maintenance and Office Facility	\$4,686,016	transferred	SSA	\$4,686,016	2019
	BOURNE-						
608571	FALMOUTH	Guide and Traffic Sign Replacment on a Section of Route 28	\$433,353	complete	State	\$647,629	2019
CC1001	Eastham	Pavement Overlay on Doane Road	\$337,500	transferred	CCNS	\$337,500	2019
2019 ADVERTISING PROGRAM					TOTAL	\$23,539,059	
606272	Barnstable	Route 28 at Yarmouth Road (AC Year 2 of 3)		underway	State		2019
606900	Bourne	Traffic and Multi-Modal Improvements at Belmont Circle at Rc	\$5,885,786	complete	State	\$4,395,731	2020
	ORLEANS-						
	HARWICH-						
608598	BREWSTER	Stormwater Improvements along Route 28 and Route 6	\$941,243	underway	State	\$692,061	2020
	CAPE COD	Cape Cod Bicycle Rack Program	\$100,000	complete	CCC	\$100,000	2020
CC1003	CAPE COD	Steamship Authority - Reservation System Updates	\$2,790,293	transferred	SSA	\$2,790,293	2020
2020 ADVERTISING PROGRAM					TOTAL	\$7,978,085	
606272	Barnstable	Route 28 at Yarmouth Road (AC Year 3 of 3)	\$12,528,731	underway	town		2021
607319	Mashpee	Route 151 Corridor Improvements (Phase 1) (Year 1 of 2)	\$11,157,034	underway	town	\$10,344,569	2021
2021 ADVERTISING PROGRAM					TOTAL	\$10,344,569	
607319	Mashpee	Route 151 Corridor Improvements (Phase 1) (Year 2 of 2)	\$4,777,353	underway	town		2022
608666	Orleans	Route 28 at Quanset Road/Route 39	\$5,043,808	underway	town	\$5,714,898	2022
608617	Harwich	Bridge Replacement - Azalea Drive over Herring River	\$1,901,718	underway	State	\$3,985,137	2022
609212	Dennis	Culvert Replacements on Route 6A over Sesuit Creek	\$1,437,038	underway	State	\$4,296,971	2022
608422	Sandwich	Shared Use Path on Service Road (Route 130 to Chase Rd)	\$8,399,241	underway	town	\$8,932,505	2022
2022 ADVERTISING PROGRAM					TOTAL	\$22,929,511	
609067	Barnstable	Bearses Way Shared Use Path	\$1,995,386	programmed	town	\$1,995,386	2023
607397	Wellfleet	Route 6 at Main Street	\$9,940,848	programmed	town	\$9,940,848	2023
609098	Wellfleet	Pavement Preservation and Related Work on Route 6	\$17,686,960	programmed	State	\$17,686,960	2023
610542	Bourne	Bourne Rotary Improvements	\$4,831,880	programmed	State	\$4,831,880	2023
2023 ADVERTISING PROGRAM					TOTAL	\$34,455,074	
TOTAL amount advertised or obligated (2014-2023)						\$161,103,853	

Appendix F: Operation and Maintenance Charts

Cape Cod MPO

Operations and Maintenance Summary Table for the Cape Cod Regional Transit Authority‡

The numbers below represent actual numbers for the previous , the current year budget/forecast approved by the CCRTA Advisory Board Executive Committee, and Projections for the out-years as used in the Program Preview meetings with the State. The figures provided in the below table are estimates and a forecast of projected funds necessary to meet the operating needs of the regional transit authority.

Operating Revenues	Previous	Current	Year One	Year Two	Year Three	Year Four	Year Five
	2022	2023	2024	2025	2026	2027	2028
Farebox	\$ 961,319	\$ 912,434	\$ 937,070	\$ 983,924	\$ 1,033,120	\$ 1,084,776	\$ 1,139,014
FTA §5307/5339/Stimulus Funds*	\$ 11,052,554	\$ 20,710,000	\$ 21,227,750	\$ 21,758,444	\$ 21,758,444	\$ 21,758,444	\$ 21,758,444
Fully Funded (Revenues from HST Operations)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Miscellaneous Income	\$ 438,850	\$ 415,943	\$ 361,335	\$ 368,562	\$ 375,933	\$ 383,452	\$ 391,121
State Contract Assistance	\$ 5,067,773	\$ 5,110,796	\$ 5,110,796	\$ 5,264,120	\$ 5,422,043	\$ 5,584,705	\$ 5,752,246
Local Assessments	\$ 2,156,320	\$ 2,103,727	\$ 2,156,320	\$ 2,210,228	\$ 2,265,484	\$ 2,322,121	\$ 2,380,174
Total	\$ 19,676,816	\$ 29,252,900	\$ 29,793,271	\$ 30,585,277	\$ 30,855,024	\$ 31,133,497	\$ 31,420,999

Operating Expenses**	Previous	Current	Year One	Year Two	Year Three	Year Four	Year Five
	2022	2023	2024	2025	2026	2027	2028
Total	\$ 19,779,739	\$ 18,021,150	\$ 18,762,137	\$ 19,325,001	\$ 19,904,751	\$ 20,501,894	\$ 21,116,950

‡ Budget developed is a good faith representation of CCRTA's financial situation. Assumptions made regarding revenues and costs will undoubtedly be significantly altered by how various policy and funding scenarios play out, including use of American Rescue Plan Act funding, approved 3/11/20, passage of the American Jobs Plan, currently before Congress, the elimination of our HST service and the timeframe for restoration of pre-pandemic transit mode share.

*Represents the capitalized operating components of FTA §5307 formula funding, including preventive maintenance, ADA operating, mobility management and over 100 bus rule operating assistance

**Operating Expenses include: Salaries and Wages; Fringe Benefits; Legal, Accounting and Professional Services; Promotion/Marketing; Insurance; Equipment Leases and Rentals; Real Property Leases and Rentals; Maintenance/Repair; Fuel costs; Tire costs; Office Supplies and Equipment; Interest Expense; Utilities; Management Fees; Travel and Training; and Other miscellaneous expense items.

Operating and Maintenance Expenditures as of March 2023						
Statewide and District Contracts plus Expenditures within MPO boundaries						
Program Group/Sub Group	Est SFY 2023 Spending	Est SFY 2024 Spending	Est SFY 2025 Spending	Est SFY 2026 Spending	Est SFY 2027 Spending	
Part 1: Non-Federal Aid						
Section I Non Federal Aid Maintenance Projects State Bondfunds						
01 ADA Retrofits						
Sidewalk Construction and Repairs	\$ 578,675	\$ 1,835,065	\$ 1,712,292	\$ 210,024	\$	
02 - Bicycles and pedestrians program						
Bikeway/Bike Path Construction	\$	\$	\$	\$	\$	
03 - Bridge						
Bridge Inspections	\$	\$	\$	\$ -	\$	
Bridge Maintenance	\$ 47,059,926	\$ 32,973,019	\$ 12,653,389	\$ 294,446	\$	
Bridge Maintenance - Deck Repairs	\$ 17,822,818	\$ 6,025,391	\$ 4,129,146	\$ 750,679	\$	
Bridge Maintenance - Joints	\$ 4,538,192	\$ 1,497,000	\$	\$	\$	
Bridge Preservation	\$ 13,690,335	\$ 6,945,387	\$ 2,808,182	\$ 1,069,091	\$	
Drawbridge Maintenance	\$ 11,208,941	\$ 6,926,247	\$ 5,616,282	\$ 1,517,600	\$	
Painting - Structural	\$ 2,342,316	\$ 492,945	\$ 415,475	\$ -	\$ -	
Structures Maintenance	\$ 384,173	\$ -	\$	\$	\$	
04 - Capacity						
Highway Relocation	\$	\$	\$ -	\$	\$	
Hwy Reconstr - Added Capacity	\$ -	\$ -	\$ -	\$ -	\$	
Hwy Reconstr - Major Widening	\$ -	\$	\$	\$	\$	
05 Facilities						
Vertical Construction (Ch 149)	\$ 12,240,086	\$ 15,061,146	\$ 2,483,199	\$ -963,458	\$	
07 - Intersection Improvements						
Traffic Signals	\$ 3,372,014	\$ 1,802,864	\$	\$	\$	
08 - Interstate Pavement						
Resurfacing Interstate	\$	\$	\$	\$ -	\$ -	
09 Intelligent Transportation Systems Program						
Intelligent Transportation System	\$ -	\$ -	\$	\$ -	\$	
10 Non-Interstate DOT Pavement Program						
Milling and Cold Planing	\$ 1,696,450	\$ 65,316	\$	\$	\$ -	
Resurfacing	\$ 8,580,527	\$ 15,675,205	\$ 14,333,540	\$ 3,186,441	\$	
Resurfacing DOT Owned Non-Interstate	\$ 9,480,716	\$ 3,277,740	\$ 556,452	\$ 140,348	\$	
11 - Roadway Improvements						
Asbestos Removal	\$	\$	\$	\$ -	\$ -	
Catch Basin Cleaning	\$ 2,770,846	\$ 1,397,444	\$ 1,080,147	\$ 222,198	\$	
Contract Highway Maintenance	\$ 5,924,953	\$ 3,360,014	\$ 1,483,986	\$ -	\$ -	
Crack Sealing	\$ 1,678,385	\$ 997,442	\$	\$	\$	
Culvert Maintenance	\$ -	\$	\$ -	\$	\$ -	
Culvert Reconstruction/Rehab	\$	\$	\$	\$	\$	
Drainage	\$ 9,006,958	\$ 5,897,263	\$ 3,395,005	\$ 662,851	\$	
Dredging	\$	\$	\$	\$	\$	
Guard Rail & Fencing	\$ 7,013,409	\$ 4,913,810	\$ 1,918,876	\$ 89,739	\$ -	
Highway Sweeping	\$ 2,158,651	\$ 882,245	\$ 613,047	\$ -	\$ -	
Landscaping	\$ 800,000	\$ 244,014	\$ -	\$ -	\$	
Mowing and Spraying	\$ 3,124,482	\$ 2,989,678	\$ 1,721,246	\$ 374,034	\$	
Sewer and Water	\$ 136,525	\$ 261,650	\$	\$ -	\$ -	
Tree Trimming	\$ 5,497,656	\$ 3,072,476	\$ 1,481,148	\$ -	\$ -	
12 - Roadway Reconstruction						
Hwy Reconstr - No Added Capacity	\$ 2,000	\$ -	\$	\$ -	\$ -	
Hwy Reconstr - Restr and Rehab	\$ 689,151	\$ 369,739	\$ 496,749	\$ 165,565	\$ -	
Roadway - Reconstr - Sidewalks and Curbing	\$ 1,616,313	\$ -	\$	\$ -	\$	
13 - Safety Improvements						
Electrical	\$ 250,085	\$ -	\$	\$	\$	
Impact Attenuators	\$ 1,861,793	\$ 765,000	\$ 134,201	\$ -	\$	
Lighting	\$ 3,584,140	\$ 2,093,264	\$ 1,172,202	\$ 683,784	\$	
Pavement Marking	\$ 5,217,164	\$ 3,914,558	\$ 1,484,295	\$ 75,006	\$	
Safety Improvements	\$ 22,691	\$ -	\$	\$	\$	
Sign Installation/Upgrading	\$ 1,530,285	\$ 1,201,730	\$ 290,837	\$ -	\$	
Structural Signing	\$ 213,951	\$ 320,000	\$ 98,584	\$ -	\$ -	
Section I Total:	\$ 186,094,609	\$ 125,257,651	\$ 60,078,278	\$ 10,405,265	\$ -	
Section II Non Federal Aid Highway Operations State Operating Budget Funding						
Snow and Ice Operations & Materials						
	\$ 86,100,000	\$ 95,000,000	\$ 95,000,000	\$ 95,000,000	\$ 95,000,000	
District Maintenance Payroll						
Mowing, Litter Mgmt, Sight Distance Clearing, Etc.	\$ 35,000,000	\$ 36,050,000	\$ 37,140,000	\$ 38,260,000	\$ 39,410,000	
Section II Total:	\$ 121,100,000	\$ 131,050,000	\$ 132,140,000	\$ 133,260,000	\$ 134,410,000	
Grand Total NFA:	\$ 307,194,609	\$ 256,307,651	\$ 192,218,278	\$ 143,665,265	\$ 134,410,000	

Operating and Maintenance Expenditures as of March 2023					
Statewide and District Contracts plus Expenditures within MPO boundaries					
Program Group/Sub Group	Est SFY 2023 Spending	Est SFY 2024 Spending	Est SFY 2025 Spending	Est SFY 2026 Spending	Est SFY 2027 Spending
Part 2: Federal Aid					
Section I - Federal Aid Maintenance Projects					
01 - ADA Retrofits					
Sidewalk Construction and Repairs	\$ -	\$ -	\$ -	\$ -	\$ -
02 - Bicycles and pedestrians program					
Bikeway/Bike Path Construction	\$ -	\$ -	\$ -	\$ -	\$ -
03 - Bridge					
Bridge Maintenance	\$ 1,702,831	\$ -	\$ -	\$ -	\$ -
Bridge Maintenance - Deck Repairs	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Maintenance - Joints	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Preservation	\$ 510,000	\$ 1,260,000	\$ 747,097	\$ -	\$ -
Bridge Reconstruction/Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
Drawbridge Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Painting - Structural	\$ 1,068,387	\$ 1,640,000	\$ 213,917	\$ -	\$ -
Structures Maintenance	\$ 5,046,803	\$ 754,257	\$ -	\$ -	\$ -
04 - Capacity					
Hwy Reconstr - Added Capacity	\$ -	\$ -	\$ -	\$ -	\$ -
05 - Facilities					
Vertical Construction (Ch 149)	\$ -	\$ -	\$ -	\$ -	\$ -
07 - Intersection Improvements					
Traffic Signals	\$ -	\$ -	\$ -	\$ -	\$ -
08 - Interstate Pavement					
Resurfacing Interstate	\$ -	\$ -	\$ -	\$ -	\$ -
09 - Intelligent Transportation Systems Program					
Intelligent Transportation System	\$ -	\$ -	\$ -	\$ -	\$ -
10 - Non interstate DOT Pavement Program					
Milling and Cold Planing	\$ -	\$ -	\$ -	\$ -	\$ -
Resurfacing	\$ -	\$ -	\$ -	\$ -	\$ -
Resurfacing DOT Owned Non-Interstate	\$ -	\$ -	\$ -	\$ -	\$ -
11 - Roadway Improvements					
Asbestos Removal	\$ -	\$ -	\$ -	\$ -	\$ -
Catch Basin Cleaning	\$ -	\$ -	\$ -	\$ -	\$ -
Contract Highway Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Crack Sealing	\$ -	\$ -	\$ -	\$ -	\$ -
Culvert Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Culvert Reconstruction/Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
Drainage	\$ -	\$ -	\$ -	\$ -	\$ -
Guard Rail & Fencing	\$ -	\$ -	\$ -	\$ -	\$ -
Highway Sweeping	\$ -	\$ -	\$ -	\$ -	\$ -
Landscaping	\$ -	\$ -	\$ -	\$ -	\$ -
Mowing and Spraying	\$ -	\$ -	\$ -	\$ -	\$ -
Sewer and Water	\$ -	\$ -	\$ -	\$ -	\$ -
Tree Trimming	\$ -	\$ -	\$ -	\$ -	\$ -
12 - Roadway Reconstruction					
Hwy Reconstr - Restr and Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
13 - Safety Improvements					
Electrical	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Attenuators	\$ -	\$ -	\$ -	\$ -	\$ -
Lighting	\$ 451,357	\$ 1,213,925	\$ -	\$ -	\$ -
Pavement Marking	\$ -	\$ -	\$ -	\$ -	\$ -
Safety Improvements	\$ -	\$ -	\$ -	\$ -	\$ -
Sign Installation/Upgrading	\$ -	\$ -	\$ -	\$ -	\$ -
Structural Signing	\$ 423,744	\$ -	\$ -	\$ -	\$ -
Section I Total:	\$ 9,203,122	\$ 4,868,181	\$ 961,014	\$ -	\$ -
Grand Total Federal Aid:					
	\$ 9,203,122	\$ 4,868,181	\$ 961,014	\$ -	\$ -

Operating and Maintenance Expenditures as of March 2023

Statewide and District Contracts

Program Group/Sub Group	Est SFY 2023 Spending	Est SFY 2024 Spending	Est SFY 2025 Spending	Est SFY 2026 Spending	Est SFY 2027 Spending
Part 1: Non-Federal Aid					
Section I - Non Federal Aid Maintenance Projects State Bondfunds					
01 ADA Retrofits					
Sidewalk Construction and Repairs	\$ 578,675	\$ 1,835,065	\$ 1,712,292	\$ 210,024	\$
02 - Bicycles and pedestrians program					
Bikeway/Bike Path Construction	\$	\$	\$	\$	\$
03 - Bridge					
Bridge Maintenance	\$ 42,711,481	\$ 30,581,188	\$ 12,653,389	\$ 294,446	\$
Bridge Maintenance - Deck Repairs	\$ 17,822,818	\$ 6,025,391	\$ 4,129,146	\$ 750,679	\$
Bridge Maintenance - Joints	\$ 4,538,192	\$ 1,497,000	\$	\$	\$
Bridge Preservation	\$ 2,148,597	\$ 1,790,000	\$ 670,000	\$ -	\$
Drawbridge Maintenance	\$ 11,208,941	\$ 6,926,247	\$ 5,616,282	\$ 1,517,600	\$ -
Painting - Structural	\$ 1,457,297	\$ 530,000	\$ 415,475	\$ -	\$
Structures Maintenance	\$ 384,173	\$ -	\$	\$	\$
04 - Capacity					
Highway Relocation	\$ -	\$	\$ -	\$	\$ -
Hwy Reconstr - Added Capacity	\$ -	\$	\$	\$	\$
Hwy Reconstr - Major Widening	\$ -	\$	\$	\$	\$
05 Facilities					
Vertical Construction (Ch 149)	\$ 7,302,206	\$ 5,415,780	\$ 2,483,199	\$ 963,458	\$
07 - Intersection Improvements					
Traffic Signals	\$ 3,372,014	\$ 1,802,864	\$	\$	\$ -
08 - Interstate Pavement					
Resurfacing Interstate	\$	\$	\$ -	\$ -	\$
09 Intelligent Transportation Systems Program					
Intelligent Transportation System	\$ -	\$ -	\$	\$ -	\$
10 - Non Interstate DOT Pavement Program					
Milling and Cold Planing	\$ 1,696,450	\$ 65,316	\$ -	\$	\$ -
Resurfacing	\$ 8,580,527	\$ 15,675,205	\$ 14,333,540	\$ 3,186,441	\$
Resurfacing DOT Owned Non-Interstate	\$ 9,480,716	\$ 3,277,740	\$ 556,452	\$ 140,348	\$ -
11 - Roadway Improvements					
Asbestos Removal	\$	\$	\$ -	\$ -	\$
Catch Basin Cleaning	\$ 2,770,846	\$ 1,397,444	\$ 1,080,147	\$ 222,198	\$
Contract Highway Maintenance	\$ -	\$ 3,017,059	\$ 1,483,986	\$ -	\$ -
Crack Sealing	\$ 1,678,385	\$ 997,442	\$	\$	\$
Culvert Maintenance	\$	\$	\$ -	\$	\$ -
Culvert Reconstruction/Rehab	\$	\$	\$	\$	\$
Drainage	\$ 8,134,212	\$ 5,823,287	\$ 3,395,005	\$ 662,851	\$ -
Dredging	\$	\$	\$	\$	\$
Guard Rail & Fencing	\$ 7,013,409	\$ 4,913,810	\$ 1,918,876	\$ 89,739	\$
Highway Sweeping	\$ 2,158,651	\$ 882,245	\$ 613,047	\$ -	\$ -
Landscaping	\$ -	\$ 244,014	\$ -	\$	\$ -
Mowing and Spraying	\$ 2,901,606	\$ 2,864,639	\$ 1,721,246	\$ 374,034	\$ -
Sewer and Water	\$ 136,525	\$ 261,650	\$	\$	\$ -
Tree Trimming	\$ 5,497,656	\$ 3,072,476	\$ 1,481,148	\$ -	\$ -
12 - Roadway Reconstruction					
Hwy Reconstr - No Added Capacity	\$ -	\$ 2,000	\$ -	\$ -	\$ -
Hwy Reconstr - Restr and Rehab	\$ 689,151	\$ 369,739	\$ 496,749	\$ 165,565	\$ -
Roadway - Reconstr - Sidewalks and Curbing	\$ -	\$ 1,616,313	\$	\$ -	\$
13 - Safety Improvements					
Electrical	\$ 250,085	\$ -	\$	\$	\$
Impact Attenuators	\$ 1,861,793	\$ 765,000	\$ 134,201	\$ -	\$
Lighting	\$ 3,584,140	\$ 2,093,264	\$ 1,172,202	\$ 683,784	\$
Pavement Marking	\$ 5,217,164	\$ 3,914,558	\$ 1,484,295	\$ 75,006	\$ -
Safety Improvements	\$ 22,691	\$ -	\$	\$	\$ -
Sign Installation/Upgrading	\$ 1,204,949	\$ 1,020,815	\$ 290,837	\$ -	\$ -
Structural Signing	\$ 213,951	\$ 320,000	\$ 98,584	\$ -	\$ -
Section I Total:	\$ 162,348,827	\$ 107,379,238	\$ 57,940,096	\$ 9,336,174	\$
Section II Non Federal Aid Highway Operations State Operating Budget Funding					
Snow and Ice Operations & Materials					
	\$ 86,100,000	\$ 95,000,000	\$ 95,000,000	\$ 95,000,000	\$ 95,000,000
District Maintenance Payroll					
Mowing, Litter Mgmt, Sight Distance Clearing, Etc.	\$ 35,000,000	\$ 36,050,000	\$ 37,140,000	\$ 38,260,000	\$ 39,410,000
Section II Total:	\$ 121,100,000	\$ 131,050,000	\$ 132,140,000	\$ 133,260,000	\$ 134,410,000
Grand Total NFA:	\$ 283,448,827	\$ 238,429,238	\$ 190,080,096	\$ 142,596,174	\$ 134,410,000

Operating and Maintenance Expenditures as of March 2023

Statewide and District Contracts

Program Group/Sub Group	Est SFY 2023 Spending	Est SFY 2024 Spending	Est SFY 2025 Spending	Est SFY 2026 Spending	Est SFY 2027 Spending
Part 2: Federal Aid					
Section I - Federal Aid Maintenance Projects					
01 - ADA Retrofits					
Sidewalk Construction and Repairs	\$ -	\$ -	\$ -	\$ -	\$ -
02 - Bicycles and pedestrians program					
Bikeway/Bike Path Construction	\$ -	\$ -	\$ -	\$ -	\$ -
03 - Bridge					
Bridge Maintenance	\$ 1,678,476	\$ -	\$ -	\$ -	\$ -
Bridge Maintenance - Deck Repairs	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Maintenance - Joints	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Preservation	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Reconstruction/Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
Drawbridge Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Painting - Structural	\$ 478,387	\$ -	\$ -	\$ -	\$ -
Structures Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
04 - Capacity					
Hwy Reconstr - Added Capacity	\$ -	\$ -	\$ -	\$ -	\$ -
05 - Facilities					
Vertical Construction (Ch 149)	\$ -	\$ -	\$ -	\$ -	\$ -
07 - Intersection Improvements					
Traffic Signals	\$ -	\$ -	\$ -	\$ -	\$ -
08 - Interstate Pavement					
Resurfacing Interstate	\$ -	\$ -	\$ -	\$ -	\$ -
09 - Intelligent Transportation Systems Program					
Intelligent Transportation System	\$ -	\$ -	\$ -	\$ -	\$ -
10 - Non interstate DOT Pavement Program					
Milling and Cold Planing	\$ -	\$ -	\$ -	\$ -	\$ -
Resurfacing	\$ -	\$ -	\$ -	\$ -	\$ -
Resurfacing DOT Owned Non-Interstate	\$ -	\$ -	\$ -	\$ -	\$ -
11 - Roadway Improvements					
Asbestos Removal	\$ -	\$ -	\$ -	\$ -	\$ -
Catch Basin Cleaning	\$ -	\$ -	\$ -	\$ -	\$ -
Contract Highway Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Crack Sealing	\$ -	\$ -	\$ -	\$ -	\$ -
Culvert Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Culvert Reconstruction/Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
Drainage	\$ -	\$ -	\$ -	\$ -	\$ -
Guard Rail & Fencing	\$ -	\$ -	\$ -	\$ -	\$ -
Highway Sweeping	\$ -	\$ -	\$ -	\$ -	\$ -
Landscaping	\$ -	\$ -	\$ -	\$ -	\$ -
Mowing and Spraying	\$ -	\$ -	\$ -	\$ -	\$ -
Sewer and Water	\$ -	\$ -	\$ -	\$ -	\$ -
Tree Trimming	\$ -	\$ -	\$ -	\$ -	\$ -
12 - Roadway Reconstruction					
Hwy Reconstr - Restr and Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
13 - Safety Improvements					
Electrical	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Attenuators	\$ -	\$ -	\$ -	\$ -	\$ -
Lighting	\$ -	\$ -	\$ -	\$ -	\$ -
Pavement Marking	\$ -	\$ -	\$ -	\$ -	\$ -
Safety Improvements	\$ -	\$ -	\$ -	\$ -	\$ -
Sign Installation/Upgrading	\$ -	\$ -	\$ -	\$ -	\$ -
Structural Signing	\$ 423,744	\$ -	\$ -	\$ -	\$ -
Section I Total:	\$ 2,580,607	\$ -	\$ -	\$ -	\$ -
Grand Total Federal Aid:					
	\$ 2,580,607	\$ -	\$ -	\$ -	\$ -

Operating and Maintenance Expenditures as of March 2023

Program Group/Sub Group	Cape Cod				
	Est SFY 2023 Spending	Est SFY 2024 Spending	Est SFY 2025 Spending	Est SFY 2026 Spending	Est SFY 2027 Spending
Part 1: Non-Federal Aid					
Section I - Non Federal Aid Maintenance Projects - State Bondfunds					
01 - ADA Retrofits					
Sidewalk Construction and Repairs	\$ -	\$ -	\$ -	\$ -	\$ -
02 - Bicycles and pedestrians program					
Bikeway/Bike Path Construction	\$ -	\$ -	\$ -	\$ -	\$ -
03 - Bridge					
Bridge Maintenance	\$ 1,163,755	\$ -	\$ -	\$ -	\$ -
Bridge Maintenance - Deck Repairs	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Maintenance - Joints	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Preservation	\$ 1,987,581	\$ 1,094,259	\$ -	\$ -	\$ -
Drawbridge Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Painting - Structural	\$ -	\$ -	\$ -	\$ -	\$ -
Structures Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
04 - Capacity					
Highway Relocation	\$ -	\$ -	\$ -	\$ -	\$ -
Hwy Reconstr - Added Capacity	\$ -	\$ -	\$ -	\$ -	\$ -
Hwy Reconstr - Major Widening	\$ -	\$ -	\$ -	\$ -	\$ -
05 - Facilities					
Vertical Construction (Ch 149)	\$ -	\$ -	\$ -	\$ -	\$ -
07 - Intersection Improvements					
Traffic Signals	\$ -	\$ -	\$ -	\$ -	\$ -
08 - Interstate Pavement					
Resurfacing Interstate	\$ -	\$ -	\$ -	\$ -	\$ -
09 - Intelligent Transportation Systems Program					
Intelligent Transportation System	\$ -	\$ -	\$ -	\$ -	\$ -
10 - Non-interstate DOT Pavement Program					
Milling and Cold Planing	\$ -	\$ -	\$ -	\$ -	\$ -
Resurfacing	\$ -	\$ -	\$ -	\$ -	\$ -
Resurfacing DOT Owned Non-Interstate	\$ -	\$ -	\$ -	\$ -	\$ -
11 - Roadway Improvements					
Asbestos Removal	\$ -	\$ -	\$ -	\$ -	\$ -
Catch Basin Cleaning	\$ -	\$ -	\$ -	\$ -	\$ -
Contract Highway Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Crack Sealing	\$ -	\$ -	\$ -	\$ -	\$ -
Culvert Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Culvert Reconstruction/Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
Drainage	\$ -	\$ -	\$ -	\$ -	\$ -
Dredging	\$ -	\$ -	\$ -	\$ -	\$ -
Guard Rail & Fencing	\$ -	\$ -	\$ -	\$ -	\$ -
Highway Sweeping	\$ -	\$ -	\$ -	\$ -	\$ -
Landscaping	\$ -	\$ -	\$ -	\$ -	\$ -
Mowing and Spraying	\$ -	\$ -	\$ -	\$ -	\$ -
Sewer and Water	\$ -	\$ -	\$ -	\$ -	\$ -
Tree Trimming	\$ -	\$ -	\$ -	\$ -	\$ -
12 - Roadway Reconstruction					
Hwy Reconstr - No Added Capacity	\$ -	\$ -	\$ -	\$ -	\$ -
Hwy Reconstr - Restr and Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
Roadway - Reconstr - Sidewalks and Curbing	\$ -	\$ -	\$ -	\$ -	\$ -
13 - Safety Improvements					
Electrical	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Attenuators	\$ -	\$ -	\$ -	\$ -	\$ -
Lighting	\$ -	\$ -	\$ -	\$ -	\$ -
Pavement Marking	\$ -	\$ -	\$ -	\$ -	\$ -
Safety Improvements	\$ -	\$ -	\$ -	\$ -	\$ -
Sign Installation/Upgrading	\$ -	\$ -	\$ -	\$ -	\$ -
Structural Signing	\$ -	\$ -	\$ -	\$ -	\$ -
Section I Total:	\$ 3,151,336	\$ 1,094,259	\$ -	\$ -	\$ -
Section II - Non Federal Aid Highway Operations - State Operating Budget Funding					
Snow and Ice Operations & Materials					
District Maintenance Payroll	\$ -	\$ -	\$ -	\$ -	\$ -
Mowing, Litter Mgmt, Sight Distance Clearing, Etc.	\$ -	\$ -	\$ -	\$ -	\$ -
Section II Total:	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total NFA:	\$ 3,151,336	\$ 1,094,259	\$ -	\$ -	\$ -

Operating and Maintenance Expenditures as of March 2023

Program Group/Sub Group	Cape Cod				
	Est SFY 2023 Spending	Est SFY 2024 Spending	Est SFY 2025 Spending	Est SFY 2026 Spending	Est SFY 2027 Spending
Part 2: Federal Aid					
Section I - Federal Aid Maintenance Projects					
01 - ADA Retrofits					
Sidewalk Construction and Repairs	\$ -	\$ -	\$ -	\$ -	\$ -
02 - Bicycles and pedestrians program					
Bikeway/Bike Path Construction	\$ -	\$ -	\$ -	\$ -	\$ -
03 - Bridge					
Bridge Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Maintenance - Deck Repairs	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Maintenance - Joints	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Preservation	\$ -	\$ -	\$ -	\$ -	\$ -
Bridge Reconstruction/Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
Drawbridge Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Painting - Structural	\$ -	\$ -	\$ -	\$ -	\$ -
Structures Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
04 - Capacity					
Hwy Reconstr - Added Capacity	\$ -	\$ -	\$ -	\$ -	\$ -
05 - Facilities					
Vertical Construction (Ch 149)	\$ -	\$ -	\$ -	\$ -	\$ -
07 - Intersection Improvements					
Traffic Signals	\$ -	\$ -	\$ -	\$ -	\$ -
08 - Interstate Pavement					
Resurfacing Interstate	\$ -	\$ -	\$ -	\$ -	\$ -
09 - Intelligent Transportation Systems Program					
Intelligent Transportation System	\$ -	\$ -	\$ -	\$ -	\$ -
10 - Non interstate DOT Pavement Program					
Milling and Cold Planing	\$ -	\$ -	\$ -	\$ -	\$ -
Resurfacing	\$ -	\$ -	\$ -	\$ -	\$ -
Resurfacing DOT Owned Non-Interstate	\$ -	\$ -	\$ -	\$ -	\$ -
11 - Roadway Improvements					
Asbestos Removal	\$ -	\$ -	\$ -	\$ -	\$ -
Catch Basin Cleaning	\$ -	\$ -	\$ -	\$ -	\$ -
Contract Highway Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Crack Sealing	\$ -	\$ -	\$ -	\$ -	\$ -
Culvert Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
Culvert Reconstruction/Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
Drainage	\$ -	\$ -	\$ -	\$ -	\$ -
Guard Rail & Fencing	\$ -	\$ -	\$ -	\$ -	\$ -
Highway Sweeping	\$ -	\$ -	\$ -	\$ -	\$ -
Landscaping	\$ -	\$ -	\$ -	\$ -	\$ -
Mowing and Spraying	\$ -	\$ -	\$ -	\$ -	\$ -
Sewer and Water	\$ -	\$ -	\$ -	\$ -	\$ -
Tree Trimming	\$ -	\$ -	\$ -	\$ -	\$ -
12 - Roadway Reconstruction					
Hwy Reconstr - Restr and Rehab	\$ -	\$ -	\$ -	\$ -	\$ -
13 - Safety Improvements					
Electrical	\$ -	\$ -	\$ -	\$ -	\$ -
Impact Attenuators	\$ -	\$ -	\$ -	\$ -	\$ -
Lighting	\$ -	\$ -	\$ -	\$ -	\$ -
Pavement Marking	\$ -	\$ -	\$ -	\$ -	\$ -
Safety Improvements	\$ -	\$ -	\$ -	\$ -	\$ -
Sign Installation/Upgrading	\$ -	\$ -	\$ -	\$ -	\$ -
Structural Signing	\$ -	\$ -	\$ -	\$ -	\$ -
Section I Total:	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total NFA:	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -

Appendix G: Comments on Public Draft

The Cape Cod MPO voted to release the draft TIP for the public review/ comment period at their 1:00 PM virtual meeting on April 24, 2023, officially beginning the 21-calendar-day public comment period.

Public comment opportunities were held in-person at the Hyannis Transportation Center and at a virtual public meeting both on Wednesday, April 26, 2023. These meetings featured a short presentation on the document followed by an opportunity for public comments. Additional opportunities for public comments were gathered at outreach tables located along the region's bike path network. A virtual public meeting of the Cape Cod MPO is scheduled for Monday, May 22, 2023 at 1:00 PM to hear additional public comments and consider endorsement of this document. Details on the online public comment opportunities and the virtual public meeting available at www.capecodcommission.org/mpo.

Comments on this plan were accepted through May 15, 2023 via mail, by facsimile, or via e-mail, as follows:

Mailed:

Cape Cod Commission Transportation Program
Colleen Medeiros, Transportation Program Manager
3225 Main Street (Route 6A)
PO Box 226
Barnstable MA 02630-0226

Sent by facsimile to the attention of Colleen Medeiros (FAX): 508-362-3136

Email - please put "TIP" in the subject line and sent to:

colleen.medeiros@capecodcommission.org

Comments / Questions received on this TIP:

Public Comment Summary Grid is attached that presents a summary of the comments received during the 21-day public comment period. The comments will be presented in their entirety to the Cape Cod MPO during their May 22, 2023 meeting where the body will consider the comments. Consideration of the comments will be detailed in the meeting minutes for that meeting. The response and any action taken by the MPO will be summarized in this table. Discussion of TIP activities is also included in the previous MPO and CCJTC meetings listed in Chapter 2 of this document.

#	Date Received/ Format	Email (if relevant)	Comment From	Summary of Comment	TIP	UPWP	Potential Response/Action for Consideration
Public comments received during UPWP and TIP development, but prior to the public comment period (February 2023 to April 24, 2023)							
1	2/9/2023 (Email)	duncan@duncanberry.com	Duncan Berry	Suggests design modifications to the Route 28 Dennis/Harwich project as an opportunity to align with the historic village district.	X		Thank you for your comment as part of the MassDOT 25% design. Your comment was forwarded to the MassDOT project team. Your comment will be included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023
2	2/10/2023 (Email)	coltoneatkinson@gmail.com	Colton Atkinson	Voice support for TIP scenario that prioritizes Mashpee Route 151 project moving to 2024 based on readiness concerns as the Mashpee project is farther in the design process than the Harwich/Dennis Route 28 project and Provincetown projects.	X		Thank you for your comment and your support for advancing the Mashpee Route 151 Corridor project (Phase 2) project as part of the TIP. We appreciate your thoughtful feedback regarding project readiness and project scoring.
3	2/10/2023 (Email) & 2/14/2023 (Email)	urbanosally@gmail.com charlese50.anita2@gmail.com	Sally Milne	Concern with proposed design for Route 28 Dennis/Harwich corridor project with regards to the historic Captain's Row area in Harwichport. Would like to see modifications to the design to align with the historic character of area, including more brick sidewalk, uniform period lighting, a pocket park, consideration to reducing cross section widths, providing sidewalk on one side of road similar to the project to Saquatucket Harbor. Would like to request a meeting with MassDOT to discuss further.	X		Thank you for your comment as part of the MassDOT 25% design. Your comment was forwarded to the MassDOT project team. Your comment will be included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023
4	2/14/2023 (Email)	charlese50.anita2@gmail.com	Anita Atkinson	Voice support for TIP scenario that prioritizes Mashpee Route 151 project moving to 2024 based on readiness concerns as the Mashpee project is farther in the design process than the Harwich/Dennis Route 28 process and also scores higher on the TIP Project Evaluation.	X		Thank you for your comment and your support for advancing the Mashpee Route 151 Corridor project (Phase 2) project as part of the TIP. We appreciate your thoughtful feedback regarding project readiness and project scoring.
5	2/15/2023 (Email)	kathleenfraini@gmail.com	Kathleen Fraini	Support for the Route 151 sidewalk and bike path project.	X		Thank you for your comment regarding the Mashpee Route 151 Corridor project (Phase 2) as part of the development of the FFY2024-2028 TIP. The Mashpee Route 151 is an important corridor project that will improve safety for all users, provide new accommodations for pedestrians and bicyclists and reduce congestion.
6	2/15/2023 (Email)	giniac1@yahoo.com	Virginia McIntyre	Prioritize Route 151 project as it is a very busy road.	X		Thank you for your comment regarding the Mashpee Route 151 Corridor project (Phase 2) as part of the development of the FFY2024-2028 TIP. The Mashpee Route 151 is an important corridor project that will improve safety for all users, provide new accommodations for pedestrians and bicyclists and reduce congestion.
7	2/15/2023 (Email)	kmcneon001@hotmail.com	Kevin McKeon	Support funding for Route 151 corridor. A resident of Hatchville, has difficulty at the intersection of Route 151/Sam Turner as it is a dangerous and confusing intersection. He often seeks alternate routes due to safety concerns and increased traffic during peak summer period.	X		Thank you for your comment regarding the Route 151 Corridor project as part of the development of the FFY2024-2028 Transportation Improvement Program (TIP). Currently, Phase 1 of the Mashpee Route 151 project is under construction which spans from Mashpee Commons to Old Barnstable Road. Phase 2 of the Mashpee Route 151 project that still needs funding will extend from the Falmouth town line to Old Barnstable Road. Also, the Town of Falmouth is planning for an intersection improvement project at the Route 151 and Sam Turner/Boxberry Hill Road intersection. I encourage you to email them to voice your support for the Falmouth Route 151 intersection project at dpw@falmouthma.gov
8	2/15/2023 (Email)	essex123@gmail.com	Randall Essex	Support for Route 151 improvements. It is a vital and critical link to the Bourne Bridge and warrants the highest transportation consideration.	X		Thank you for your comment regarding the Mashpee Route 151 Corridor project (Phase 2) as part of the development of the FFY2024-2028 TIP. The Mashpee Route 151 is an important corridor project that will improve safety for all users, provide new accommodations for pedestrians and bicyclists and reduce congestion.
9	2/15/2023 (Email)	gumath14@comcast.net	Denise Gushue	Please consider voting for Route 151 improvements. It is not a safe or easy road to drive on.	X		Thank you for your comment regarding the Mashpee Route 151 Corridor project (Phase 2) as part of the development of the FFY2024-2028 TIP. The Mashpee Route 151 is an important corridor project that will improve safety for all users, provide new accommodations for pedestrians and bicyclists and reduce congestion.
10	2/16/2023 (Email)	dsorr2088@gmail.com	Deborah Sorrentino	Support for Route 151 corridor project.	X		Thank you for your comment regarding the Mashpee Route 151 Corridor project (Phase 2) as part of the development of the FFY2024-2028 TIP. The Mashpee Route 151 is an important corridor project that will improve safety for all users, provide new accommodations for pedestrians and bicyclists and reduce congestion.
11	2/19/2023 (Email)	afietek@yahoo.com	Andrew Fietek	Please prioritize Route 151 project as it is a high speed road with no accommodations for pedestrians and bicyclists. There are serious safety and congestion concerns that need to be addressed. Left turns from Algonquin are dangerous.	X		Thank you for your comment regarding the Mashpee Route 151 Corridor project (Phase 2) as part of the development of the FFY2024-2028 TIP. The Mashpee Route 151 is an important corridor project that will improve safety for all users, provide new accommodations for pedestrians and bicyclists and reduce congestion.
12	2/20/2023 (Email)	karifietek@gmail.com	Kari Fietek	Please prioritize Route 151 project as it is a high speed road with no accommodations for pedestrians and bicyclists. There are serious safety and congestion concerns that need to be addressed. Left turns from Algonquin are dangerous.	X		Thank you for your comment regarding the Mashpee Route 151 Corridor project (Phase 2) as part of the development of the FFY2024-2028 TIP. The Mashpee Route 151 is an important corridor project that will improve safety for all users, provide new accommodations for pedestrians and bicyclists and reduce congestion.
13	2/24/2023 (Email)	taylorholland333@yahoo.com	Taylor Holland	Strong support to prioritize TIP funding for Route 151 project. The project will have the greatest benefit for all roadway users and currently has safety concerns that need to be addressed.	X		Thank you for your comment regarding the Mashpee Route 151 Corridor project (Phase 2) as part of the development of the FFY2024-2028 TIP. The Mashpee Route 151 is an important corridor project that will improve safety for all users, provide new accommodations for pedestrians and bicyclists and reduce congestion.
14	4/21/2023 (Email)	raissah.a.kouame@state.ma.us	MassDOT Office of Transportation Planning, Raissah Kouame	Completeness Update TIP document to remove placeholder pages (public comments, O&M charts, GHG spreadsheet) once information is available Performance Measurement Add N/A for blank cells that are not applicable in Table 5 (PM2 Bridge & Pavement targets) Project Listing Include Adjusted TFPC column, consider adding TFPCs in Other Info field Include Provincetown FLAP funding amounts in Other Info field Include Total Project Cost column in Transit TIP	X		TIP Action: Updated document with public comments, O&M charts and GHG info. TIP Action: Updated Table 5 as suggested. TIP Action: Updated Highway Project Listings as suggested. and as requested.
Public comments received during FFY2023-2027 TIP and FFY2023 UPWP public comment period (April 24, 2023 to May 15, 2023)							

#	Date Received/ Format	Email (if relevant)	Comment From	Summary of Comment	TIP	UPWP	Potential Response/Action for Consideration
15	4/26/2023 (Outreach meeting)		John York	UPWP- Canal Bridges Scope has changed so a good UPWP study would be a Canal area multi-modal study. What is the right process to get a project onto the UPWP? Support for the speed limit guidance task. Improvements are being made for cars even if it is stated otherwise and planners think Route 6A is unsafe to bike on so they will not invest in it. Bike and pedestrian infrastructure must be represented in regards to equity and the Regional Safety Action Plan should focus on Route 6A and should start with setting lower speed limits.		X	Thank you - the best way for a project to get onto the UPWP is to have town support for the project.
16	4/26/2023 (Outreach meeting)		John York	Is there any follow up on a TIP project after a project is constructed to confirm it met all the needs it was suppose to? Route 28 in Bourne TIP project, will this incorporate bike & ped elements and will there be a chance for more outreach. Route 6 (Scenic Highway) is a good project, especially the bike path. Support for Safe Routes to School. Can you explain the Greenhouse Gas criteria for TIP projects. How do you look at community support as a criteria factor?	X		There is no follow up once a TIP project is constructed. The Bourne Route 28 resurfacing project was just recently initiated by MassDOT and is in early infancy and it is unknown if multimodal accommodations will be incorporated at this time. The potential for greenhouse gas reduction and level of community support is accounted for as part of the TIP evaluation scoring which staff conducts each year. Additionally, a greenhouse gas analysis is conducted on some TIP projects that are eligible for CMAQ funds.
17	4/26/2023 (Outreach meeting)		Stephen Buckley	Can you explain more about the Canal Bridges Coordination in Task 1.6. Will the Commission take on a task or have a role in the Canal Bridges Program - will staff weigh in in the impacts of the new bridges? Will there be an opportunity to comment on the Chatham parking study before a report is presented to the Town?		X	We are here as staff to the Cape Cod MPO, separate tonight from the Cape Cod Commission. The best way to provide comments on the Canal Bridges Program is through the Canal Bridges Program team during their meetings and website. Commission staff will coordinate with the Chatham Parking Committee to provide updates throughout the project, and the public will have an opportunity to comment through the Committee meetings.
18	4/26/2023 (HTC Outreach Table)		Marybeth Phelan	The CCRTA is great and there are friendly drivers.	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
19	4/26/2023 (Outreach meeting)		Eileen Gunn	Include potential future grant opportunities in Task 1.6 of the UPWP		X	Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 23, 2022.
20	5/3/2023 via email	raissah.a.kouame@state.ma.us	MassDOT Office of Transportation Planning, Raissah Kouame	General Website link not functioning Page viii please refer to link on Page 1 for a properly functioning link Task Listing Task 2.3 - Please reference the estimated amount of consultant spending Task 3.5 - Please reference the estimated amount of consultant spending Task 4.2 - Please reference the estimated amount of consultant spending		X	UPWP Action: Updated broken link UPWP Action: It is too soon to determine how much funding will be needed for a consultant on Task 2.3 & Task 3.5; Task 4.2 will not require consultant spending.
21	5/6/2023 (Email)	coltoneatkinson@gmail.com	Colton Atkinson	I support the prioritization of projects outline in the TIP and wanted to share potential transportation design guidelines from Norway that highlight traffic calming, multimodal accommodations and streetscape elements.	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
22	5/9/2023 (Station Ave Outreach Table)		Anonymus	Speed limit on rail trail (electric and normal bikes). Leisure riders are affected by higher speeds when bikes pass		X	Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
23	5/9/2023 (Station Ave Outreach Table)		Anonymus	Support for bike paths (both rail trails and on-road network)	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
24	5/9/2023 (Station Ave Outreach Table)		Anonymus	Support bike paths and want to see the connection to Hyannis completed	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
25	5/9/2023 (Station Ave Outreach Table)		Anonymus	Extend the Cape Cod Rail, particularly to the Cape Cod Canal path	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
26	5/9/2023 (Station Ave Outreach Table)		Anonymus	More buses to Cape Cod Hospital	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
27	5/9/2023 (Station Ave Outreach Table)		Anonymus	Intersection of Willow Street and Route 6A could use improvements (Yarmouth)	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
28	5/9/2023 (Station Ave Outreach Table)		Anonymus	Overall bike path support	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 23, 2022.
29	5/9/2023 (Station Ave Outreach Table)		Anonymus	Fix the Cape Cod Canal Bridges	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
30	5/11/2023 (Chatham Outreach Table)		Anonymus	Support for the bike path network - The path improves quality of life	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
31	5/11/2023 (Chatham Outreach Table)		Anonymus	Extend the rail trail to Provincetown	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.

#	Date Received/ Format	Email (if relevant)	Comment From	Summary of Comment	TIP	UPWP	Potential Response/Action for Consideration
32	5/11/2023 (Chatham Outreach Table)		Anononymus	Planes landing in Chatham are loud			Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
33	5/11/2023 (Chatham Outreach Table)		Anononymus	Need more rules and regulations for E-bikes on the rail trail network		X	Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
34	5/11/2023 (Chatham Outreach Table)		Anononymus	Overall bike path support	X		Thank you for your comment. Your comment was included in the public comment packet and presented to the MPO for their consideration at their meeting on May 22, 2023.
35	5/15/2023 via email	cassandra.ostrander@dot.gov	Federal Highway Administration Massachusetts Division, Cassie Ostrander	General Call out the activites/tasks that are targeted or contribute to Complete Streets planning initiatives. Change FHWA Division Administrator to Joi Singh		X	UPWP Action: Table 5 was created to display the expected percentage of funding for Complete Streets planning tasks. UPWP Action: FHWA Division Administrator was updated

Acronyms: CCC = Cape Cod Commission; CCRTA = Cape Cod Regional Transit Authority; FFY = Federal Fiscal Year; MassDOT = Massachusetts Department of Transportation; MPO = Metropolitan Planning Organization; RTP = Regional Transportation Plan; TIP = Transportation Improvement Program; UPWP = Unified Planning Work Program

Note: The Public Comment Summary Grid presents a summary of the comments received during the 21-day public comment period. The comments were presented in their entirety to the Cape Cod Metropolitan Planning Organization (MPO) during a public meeting where the body considered the comments. The response and any action taken by the MPO are summarized in this table. This table will be included in the final plan and is available at www.capecodcommission.org/mpo.

COMMENTS RECEIVED ON FFY 2024-2028 TIP AMENDMENT 2

From: [Paula Kelly](#)
To: [Colleen Medeiros](#)
Date: Thursday, April 11, 2024 7:37:48 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello Colleen

So far I'm 0-5 submitting comments to the CCC.
Your organization has failed the public, its purpose and is way overdue for a makeover.

I'm totally against expansion of the 132 park & ride lot. The current size is sufficient for 10 months. The state and you need to look at limiting stays. I viewed one car barnstable ticketed 10 times in 15 days! A tow truck should have been called a LOT sooner. I called Barnstable myself and the vehicle was removed the next day.

Let's start doing a better job of managing that important lot before wasting our tax money and hurting our environment by adding more bituminous roadway!

Paula Kelly
barnstable

PS I'm certain, this was a complete waste of my time.

From: [Paul Phalan](#)
To: [Colleen Medeiros](#)
Subject: park & ride lot on rt 132 expansion
Date: Thursday, April 11, 2024 1:01:52 PM

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Hi Colleen

First and foremost I have zero confidence in the CCC making any planning decisions.

I feel it's truly a waste of time commenting on the , project. The CCC does whatever they want in order to stay in business!

We live 5 min from that location and use it frequently.

It's totally mismanaged by everyone who is in charge. Every time I call authorities to report an issue they point fingers in another direction. "not our problem".

The lot works well for 10 months therefore, it's a plain and simple dumb idea to expand it. We need less hardtop due to the filtration our aquifer requires!

What a tragic waste of our tax money!

Better management, reducing stays to 4 days in a row, etc etc. I won't waste my time giving any more thoughts because the CCC does whatever they want due to its structure. An endless spigot of money.

Paul Phalan
Centerville
781-363-3535

From: [Jonathan Sperber](#)
To: [Colleen Medeiros](#)
Subject: Barnstable Park and Ride
Date: Thursday, April 11, 2024 8:51:48 PM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Ms. Medeiros

The Barnstable Park and Ride bus shelters should be replaced, as they are uncomfortable, unsightly, and offer very little protection from the elements.

Instead of simply paving more land for parking spaces, some of the existing space should be used for a multi-story parking garage.

Yours truly,

Jonathan Sperber

Sent from my iPhone

From: [Bertling, Peter](#)
To: [Colleen Medeiros](#)
Subject: Barnstable Commuter Lot
Date: Friday, April 12, 2024 10:57:46 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Colleen,

I received a phone call from Town Councilor Starr yesterday. He informed me about the possibility of the cancellation of the Barnstable Commuter Lot expansion project. I then read the Cape Cod Times article this morning on the matter, and I felt the need to comment. As the Town of Barnstable's Parking Program Manager and Transportation Coordinator it is my program and staff that are tasked with the parking enforcement at the commuter lot. I disagree that an expansion is not needed. It is desperately needed. The Town of Barnstable's Parking Management office issued 609 citations at the commuter lot from April 1, 2023 to April 1, 2024. Those citations were issued for violations such as parking beyond the 21-day allowed parking period, handicap parking, or parking in prohibited areas such as in the islands or outside of the marked spaces and also for expired registration and inspection stickers as per Town of Barnstable Bylaws.

The article quoted a Dennis resident as saying, "There's plenty of room when it's not the peak season, there's tons of spots, but during the peak season, this place gets insane." I find flaws in this comment. The peak tourist season, from an enforcement side is the least busy time. It is in the off-season, when people head to warmer climates, that we've seen the parking issues there. From late-November to early-April, the commuter lot is near or at capacity. My staff monitor the vehicles for the 21-day period through ticketing, by electronic "chalking" or through observation of things like flat tires, weeds growing around vehicles, piles of snow in the winter, etc. After 21 days, the Town of Barnstable Parking Management Office tries to locate and contact the owner to find out when they might be returning. Many of the owners report not knowing about the 21-day limit, despite signage posted around the lot. My office always urges them to have someone come remove it from the lot if they do not plan on returning within one week.

If unable to locate the owner, the vehicles are reported to the State Police in Yarmouth, as it is a State property. If nothing is done about it on my reporting, the protocol that is followed is to report the vehicles directly to the MassDot District 5 Operations Engineer or call the MassDot Radio Room for them to arrange removal.

Public comments have indicated that the lot is mismanaged. The Town of Barnstable Parking Program is not the managing entity for this lot, the Town is only tasked with enforcement and we do not have the authority from the Chief of Police or Town Manager to remove vehicles by towing. When an inquiry is made, our role is explained to people, we take comments, and do our due diligence to make sure issues haven't fallen off our radar. The Barnstable Police Department is alerted to people living in vehicles in the lot in hopes of relocating them to permanent housing. There are currently 3-6 "unhoused" people who live there on and off.

I do feel that expansion is necessary. If no expansion takes place, then perhaps MassDOT engineers can re-evaluate lot for reconfiguration to make more spaces from existing "parking prohibited" areas, like the large crosshatches at the ends of aisles and maybe convert the curve at the Route 132 end to parallel parking spaces. Most recently there has been a loss of more than ten spaces available

to most vehicles with the installation of the new EV chargers. This installation limits accessibility to all vehicles except those electric cars actively charging. Additionally, more signage would be helpful in managing this lot. I can think of only three (3) signs in this lot that inform people of the 21-day limit. More signs within the lot and perhaps in the bus pickup shelters would be helpful.

I would be happy to meet with you and others out there sometime to show you some of the issues that we encounter. Perhaps persuasion from the Commission to the State could result in changes in how the lot is managed and enforced.

Peter J. Bertling

Parking Program Manager/Community Transportation Coordinator

Town of Barnstable 1367 Main Street 1 Hyannis, MA 02601

<https://www.townofbarnstable.us/Departments/parkingdivision/>

peter.bertling@town.barnstable.ma.us

P 508-862-4673

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From: [Donald Emerson](#)
To: [Colleen Medeiros](#)
Cc: [Steven Tupper](#); [Paul Lagg](#); kgalligan@eastham-ma.gov
Subject: FFY 2024-2028 TIP Amendment 2
Date: Saturday, April 13, 2024 4:29:57 PM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Ms, Medeiros:

I was dismayed to learn that the Cape Cod MPO may vote to remove the Barnstable Park and Ride Improvement Project from the FFY 2024 of the TIP due to funding constraints and project readiness. While I understand that this project is complicated, and that the funding assumed in the adopted TIP may be insufficient, it seems to me that this project should be one of the top transportation priorities for the Cape. Each parking space in Barnstable removes car trips from Route 6 and the canal bridges, relieving congestion and enhancing safety while reducing emissions. The private buses taking people from this lot to Boston, Logan Airport and elsewhere provide a wonderful service for Cape residents, but limited parking capacity undoubtedly discourages people from using this service. In my particular case, since I cannot count on finding a parking space in Barnstable, I try to arrange for someone to drop me off and pick me up - two 50 mile round trips - but finding a driver is not always possible.

With plans moving forward to replace the canal bridges, we should be doing everything possible to encourage people to get in the habit of taking transit rather than driving across the canal. Last summer, as you well know, traffic was severely disrupted when lanes on the bridges were closed for repairs. Rebuilding the bridges and approaches is likely to cause similar or worse traffic delays.

It seems to me that the MPO ought to keep this project in the TIP by making some reasonable assumptions about project cost and funding while the design progresses and funding commitments are sought. Initial cost might be reduced by phasing construction, and perhaps by building a gravel lot with paving to follow when funds are secured. A few funding options that occur to me - and undoubtedly there are others - include:

- Finance the park and ride lot expansion project and charge a nominal fee for parking, with revenues used to service the debt
- Fold the project into the Sagamore bridge reconstruction as an early action item to mitigate traffic during construction
- Swap money in the TIP from lower priority projects into the Barnstable park and ride project.

Thank you for considering these comments and for doing what you can to expeditiously advance this vital project as a priority for the Cape.

Donald Emerson
905 Herring Brook Road
Eastham, MA 02642
703-862-5804

From: Patti Johnson <pattij8409@hotmail.com>
Sent: Tuesday, April 16, 2024 7:53 AM
To: CCC Front Desk <frontdesk@capecodcommission.org>
Subject: Barnstable road work repairs

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Must needed repairs on existing or current road repairs. The corner of Willow Street & Iyanough Road. The End of West main Street to Phinney's Lane. We as Barnstable tax payers needs to show us what our taxes are going to. please take care of these terrible road conditions. May I also add that we need more parking at the commuter lot . The one at Burger King off of mid cape highway. Don't tell me lack of funds. The Commission could have the plans done in one week. Tell Maura Healey to stop giving all our money to Illegal immigrants. Work with us from residences of Barnstable.

From: Greg Becker <gbstrat@yahoo.com>
Sent: Sunday, April 14, 2024 4:12 PM
To: CCC Front Desk <frontdesk@capecodcommission.org>
Subject: Expansion of Barnstable Park and Ride Lot

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Having read the related article in today's Cape Cod Times, I am writing to express my opinion that expanding the parking capacity at the Barnstable Park and Ride facility is one of the most pressing transportation matters facing Cape Cod, and the planning work for such expansion should NOT be removed from the current budget.

Even during the off-season, it's a crap shoot at best as to whether you can find a parking space there... and in peak season, it's not even worth trying.

PLEASE keep this matter on the front burner!!!

Respectfully
Greg Becker (Harwich resident)

Appendix H: Amendments/Adjustments/Administrative Modifications

Amendments/Adjustments to the plan are presented in this appendix.

Programmed totals and project analyses presented in the body of the document and the preceding appendices reflect the projects and funding amounts as of May 22, 2023, the endorsement date of the plan.



Wrong Way Vehicle Detection System
Summary
January 29, 2024

Background

Traffic safety and highway design literature has historically defined a wrong-way driving (WWD) crash as one in which a vehicle traveling in a direction opposing the legal flow of traffic on a high-speed divided highway or access ramp collides with a vehicle traveling on the same roadway in the proper direction¹. Crashes involving wrong way vehicles are rare; however, when they do occur, they are often severe and result in fatalities.

- In the United States, WWD crashes result in 300 to 400 people killed each year on average¹.
- In Massachusetts, around 30 fatalities can be attributed to wrong-way vehicle crashes since 2014.²
- In Massachusetts, there have been over 2000 reports of wrong-way vehicles on limited access highways since 2014.³

Numerous studies from State departments of transportation indicate that there are significant human factors and environmental conditions generally associated with wrong way vehicle crashes. Various research efforts have found the following correlations:

- A substantial percentage of wrong way drivers are impaired by alcohol.
- Over-representation of certain driver age groups, such as older drivers (particularly those over the age of 70) and younger drivers (under the age of 25).
- The majority of WWD crashes that result in a fatality occur at night, when visibility of roadway attributes and signs are diminished, and a disproportionate number occur on the weekend, which potentially coincides with elevated levels of alcohol consumption amongst the driving population.⁴

¹ https://safety.fhwa.dot.gov/intersection/other_topics/wwd/

² Statewide MSP reported crashes, January 1, 2014 to December 22, 2020

³ MSP log query from MSP Report Server, January 1, 2014 to December 22, 2020

⁴ Wrong Way Driving Road Safety Audit Prompt List, 2013

(https://safety.fhwa.dot.gov/intersection/other_topics/wwd/wwdrsa/fhwasa13032.pdf)

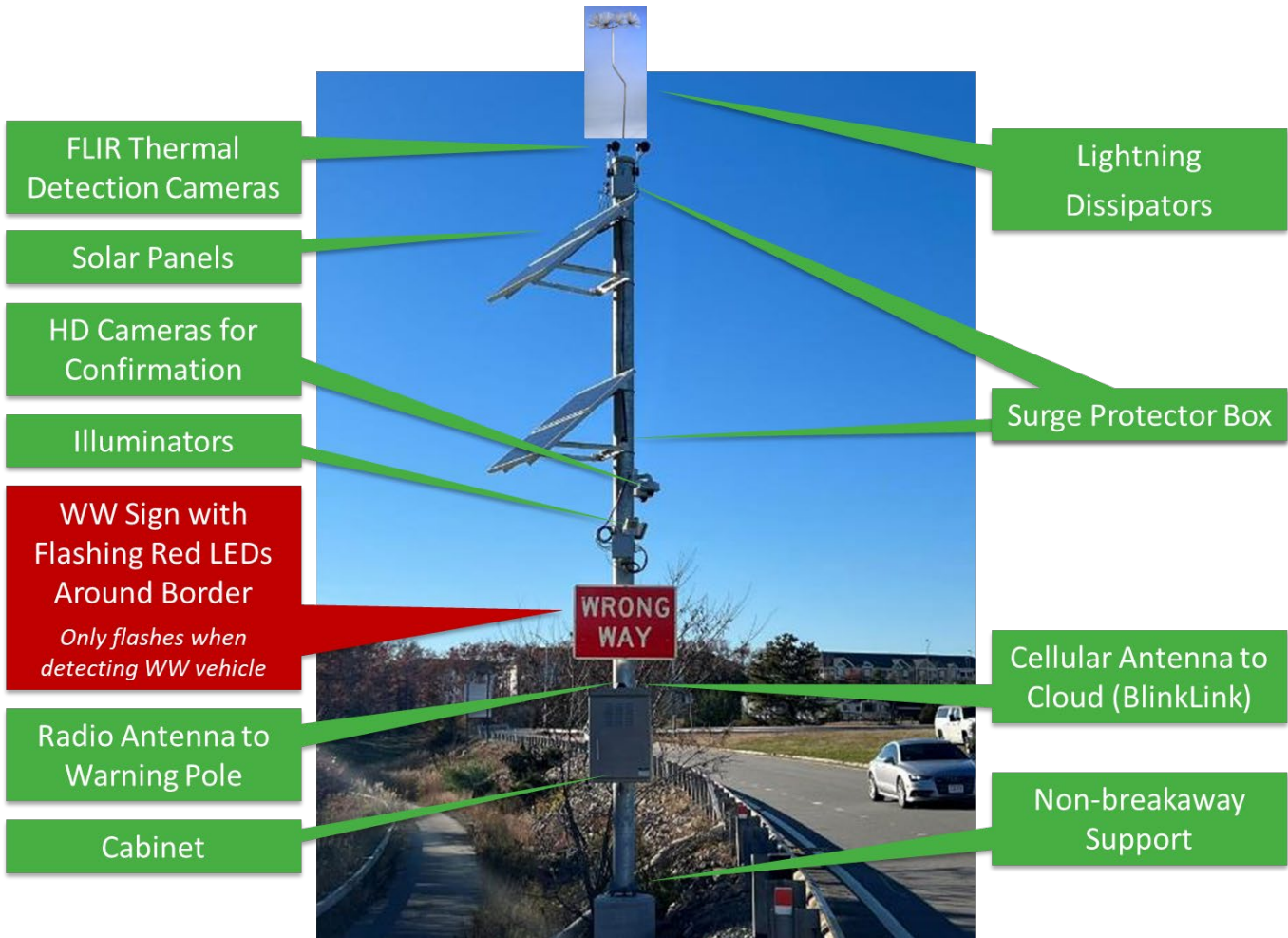
To combat wrong way vehicle events, State DOT's have begun implementing low-cost countermeasures, geometric improvements, as well as intelligent transportation systems to assist in reducing the number of wrong way drivers.

In 2013 MassDOT Highway Division undertook a statewide low-cost countermeasure approach to reduce wrong way vehicle events. MassDOT installed oversized "Do Not Enter" and "Wrong Way" signs as well as pavement marking arrows at 432 ramps.

As a next step, MassDOT Highway Division has recently finished deploying wrong way vehicle detection (WWVD) systems at 16 off-ramp locations as part of a pilot project to test the technology. These 16 off-ramp locations have been identified through a data driven process and were determined to possibly be more prone to wrong way vehicle entries. The purpose of the WWVD system pilot will be to see how affective the WWVD systems are at making wrong way vehicles self-correct and to see how the systems will operate within MassDOT's operating procedures.

Overview of WWVD System

The WWVD systems that are being piloted have the capability to detect an offending vehicle traveling the wrong way on an off-ramp using thermal detection cameras; activate flashing red LED lights mounted to "Wrong Way" signs in attempt to alert the offending vehicle; and, if the offending vehicle continues to travel the wrong way on the off-ramp, the system will trigger a wrong way alert message that is received by appropriate stakeholders. The below figure shows the detection pole of the WWVD system that is currently in operation in Plymouth on MA Rt 3 SB, Exit 13. Not shown in the below figure is a second WW sign with flashing red LEDs that is located on the other side of the ramp that flashes simultaneously with the WW sign on the detector pole.

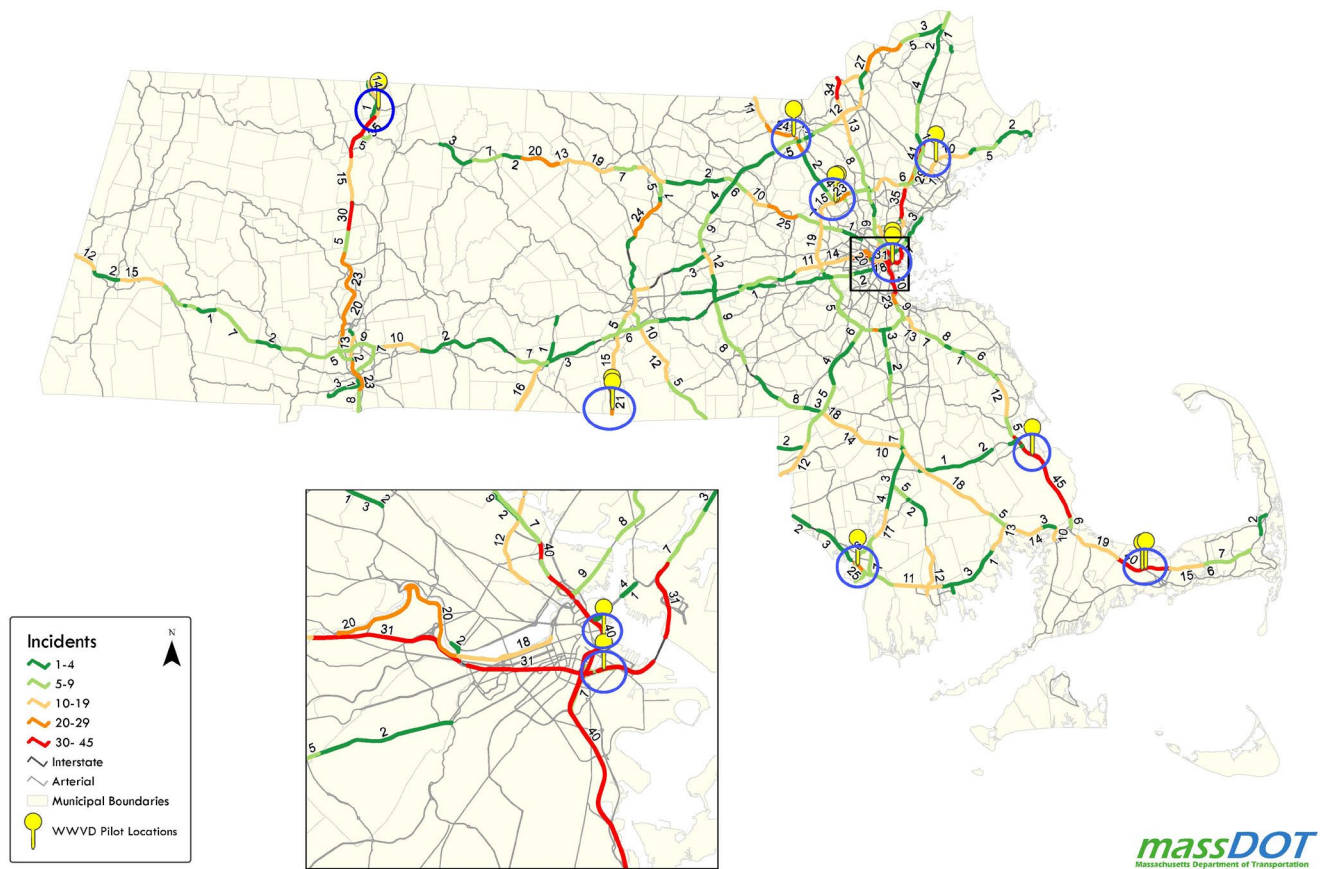


WWVD Pilot Program Locations

Wrong way incidents tend to occur more often at isolated off-ramps that are not part of a typical interchange as well as partial cloverleaf interchanges with side by side on- and off-ramps. MassDOT reviewed State Police incidents logged for wrong way drivers between January 1, 2015 and July 9, 2018 and identified roadways where reported wrong way driver incidents were highest. Within those roadways, interchange locations were reviewed based on design and configuration and 17 ramp locations were identified that may be most prone to wrong way vehicle entries. These areas include partial cloverleaves, tunnel ramps, and isolated off-ramps. Pilot locations are listed in the below table and on the figure on the following page.

Location #	District	Town	Location
1	2	Bernardston	I-91 North Exit 50B
2	2	Bernardston	I-91 South Exit 50
3	3	Webster	I-395 North Exit 1
4	3	Webster	I-395 South Exit 1
5	4	Burlington	I-95 North Exit 50B
6	4	Burlington	I-95 South Exit 50B
7	4	Chelmsford	US-3 South Exit 81C
8	4	Danvers	Route 128 North Exit 43
9	4	Danvers	Route 128 South Exit 43
10	5	Barnstable	US-6 East at Route 132
11	5	Barnstable	US-6 West at Route 132
12	5	Plymouth	Route 3 North Exit 13
13	5	Plymouth	Route 3 South Exit 13
14	5	Fall River	I-195 East Exit 11
15	6	Boston	I-93 North Exit 17
16	6	Boston	I-90 East Exit 135

State Police Incidents Logged for Wrong Way between
January 1st, 2018-December 15th, 2022 on Controlled Access Roadways



Construction of the WWVD Pilot Program

Construction of the WWVD system at each of the 16 ramp locations began in April 2021 and substantial completion was achieved in February 2023. A six-month operational test period began on March 1, 2023 and on August 28, 2023, all 16 locations passed the operational test period and all ownership and maintenance responsibilities were transferred to MassDOT. Total cost of the WWVD pilot project was around \$3 million.

Operation of the WWVD Systems

All 16 WWVD systems are currently being operated by MassDOT. Since the systems were installed, over 100 wrong way vehicles have been detected. Of those 100 vehicles, about half have self-corrected and did not continue driving the wrong way up the ramp.

The WWVD systems require routine maintenance and recertification. TAPCO, the manufacturer of the WWVD system installed in MA, recommends two site visits per year at each location for routine maintenance and one site visit per year at each location for recertification of the WWVD technologies. Since the system has been accepted by MassDOT in August 2023, several other maintenance needs have surfaced, several of which are outstanding. As of January 29, 2024, MassDOT does not have a mechanism or contract in place to perform maintenance on the 16 WWVD systems but is actively in the process of procuring a maintenance contract.



TIP Revisions Report

Cape Cod

FFY 2024-2028 TIP Amendment 1

STIP: 2024 - 2028 (A)

Type	Value Changed	Date of Change	Former Value	New Value	Variance	Comments
Federal Fiscal Year 2024						
Ferry Boat & Facilities						
CCRTA011754 : Steamship Authority - Woods Hole Terminal Solar Power Project						
Adjustment		1/2/2024	5307	OF		
Adjustment	Description	1/2/2024	Woods Hole Solar Panel and Improvements	Steamship Authority - Woods Hole Terminal Solar Power Project		
Amendment	2024: CCRTA-OT-Ferry Boat & Facilities-OF	1/24/2024	\$0	\$2,500,000	\$2,500,000	
Amendment	2024: CCRTA-OT-Ferry Boat & Facilities-OF	1/24/2024	\$0	\$11,400,000	\$11,400,000	
Mobility Assistance Program						
CCRTA011662 : Outer Cape Community Solutions - Outer Cape's Regional Transportation Work Group for Rural Mobility Enhancement						
Amendment	2024: CCRTA-OT-Mobility Assistance Program-ETF	12/20/2023	\$0	\$24,992	\$24,992	
T00152 : CCRTA - BUY REPLACEMENT 30 FT BUS						
Amendment	2024: CCRTA-OT-Mobility Assistance Program-OF	1/12/2024	\$0	\$1,265,929	\$1,265,929	
Operating						
RTD0010606 : CCRTA - OPERATING ASSISTANCE-Fixed Route/Demand Response						
Amendment	2024: CCRTA-OT-Operating-OF	1/12/2024	\$980,000	\$5,293,255	\$4,313,255	
Amendment	2024: CCRTA-OT-Operating-SCA	1/12/2024	\$980,000	\$5,293,255	\$4,313,255	
RTD0010607 : CCRTA - MOBILITY MANAGEMENT						
Amendment	2024: CCRTA-OT-Operating-OF	1/2/2024	\$1,300,000	\$640,000	-\$660,000	
Amendment	2024: CCRTA-OT-Operating-SCA	1/2/2024	\$325,000	\$160,000	-\$165,000	



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FFY 2024-2028 TIP Amendment 1

STIP: 2024 - 2028 (A)

Type	Value Changed	Date of Change	Former Value	New Value	Variance	Comments
RTD0010608 : CCRTA - NON FIXED ROUTE ADA PARA SERV						
Amendment	2024: CCRTA-OT-Operating-OF	1/2/2024	\$900,000	\$240,000	-\$660,000	
Amendment	2024: CCRTA-OT-Operating-SCA	1/2/2024	\$225,000	\$60,000	-\$165,000	
T00142 : CCRTA - PREVENTATIVE MAINTENANCE - Steamship Authority						
Amendment	2024: CCRTA-OT-Operating-5307	1/12/2024	\$7,435,136	\$13,055,754	\$5,620,618	
Amendment	2024: CCRTA-OT-Operating-LF	1/12/2024	\$1,858,784	\$3,263,938	\$1,405,154	
RTA Facility & System Modernization						
RTD0010616 : CCRTA - South Dennis Bus Operations Center/REHAB/RENOVATE - MAINTENANCE FACILITY						
Amendment	2024: CCRTA-OT-RTA Facility & System Modernization-5307	1/12/2024	\$0	\$26,400	\$26,400	
Adjustment	2024: CCRTA-OT-RTA Facility & System Modernization-RTACAP	1/12/2024	\$0	\$6,600	\$6,600	
T00136 : CCRTA- ACQUIRE MISC EQUIPMENT						
Adjustment	2024: CCRTA-OT-RTA Facility & System Modernization-OF	12/29/2023	\$100,000	\$436,450	\$336,450	
T00139 : CCRTA - Construction - Bus Shelters						
Adjustment		1/12/2024	OF	RTACAP		
RTA Facility & Vehicle Maintenance						
RTD0010604 : CCRTA - Hyannis Transportation Center/REHAB/RENOVATE BUS STATIONS						
Amendment	2024: CCRTA-OT-RTA Facility & Vehicle Maintenance-5307	12/29/2023	\$914,640	\$108,400	-\$806,240	
Amendment	2024: CCRTA-OT-RTA Facility & Vehicle Maintenance-RTACAP	12/29/2023	\$228,660	\$27,100	-\$201,560	
Adjustment		1/12/2024	OF	5307		



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FFY 2024-2028 TIP Amendment 1

STIP: 2024 - 2028 (A)

Type	Value Changed	Date of Change	Former Value	New Value	Variance	Comments
T00134 : CCRTA - Construction- EV Infrastructure						
Adjustment	Description	12/29/2023	CCRTA - Construction- Power Distribution Substation	CCRTA - Construction- EV Infrastructure		
Adjustment	2024: CCRTA-OT-RTA Facility & Vehicle Maintenance-OF	12/29/2023	\$750,000	\$389,000	-\$361,000	
T00135 : CCRTA- Acquire- ADP Hardware						
Adjustment	2024: CCRTA-OT-RTA Facility & Vehicle Maintenance-OF	12/29/2023	\$25,800	\$43,200	\$17,400	
T00143 : CCRTA - Acquisition ADP Software						
Adjustment	2024: CCRTA-OT-RTA Facility & Vehicle Maintenance-OF	12/29/2023	\$15,000	\$80,000	\$65,000	
T00145 : CCRTA - Acquisition Support Vehicles						
Amendment	2024: CCRTA-OT-RTA Facility & Vehicle Maintenance-OF	1/2/2024	\$70,000	\$0	-\$70,000	
RTA Replacement Facilities						
T00138 : CCRTA - Construction- Maintenance Facility						
Amendment	2024: CCRTA-OT-RTA Replacement Facilities-OF	12/29/2023	\$25,000,000	\$0	-\$25,000,000	
T00140 : CCRTA - REAL ESTATE ACQUISITION OPERATIONS FACILITY						
Amendment	2024: CCRTA-OT-RTA Replacement Facilities-OF	12/29/2023	\$3,000,000	\$0	-\$3,000,000	
RTA Vehicle Replacement						
RTD0010621 : CCRTA - BUY REPLACEMENT <30-FT BUS - DISCRETIONARY						
Amendment	2024: CCRTA-OT-RTA Vehicle Replacement-DRTACAP	12/29/2023	\$300,000	\$0	-\$300,000	
Amendment	2024: CCRTA-OT-RTA Vehicle Replacement-DOF	12/29/2023	\$750,000	\$0	-\$750,000	



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FFY 2024-2028 TIP Amendment 1

STIP: 2024 - 2028 (A)

Type	Value Changed	Date of Change	Former Value	New Value	Variance	Comments
T00133 : CCRTA - BUY REPLACEMENT <30 FT BUS						
Adjustment		1/12/2024	OF	OF		
Amendment	2024: CCRTA-OT-RTA Vehicle Replacement-RTACAP	1/12/2024	\$157,108	\$138,500	-\$18,608	
Amendment	2024: CCRTA-OT-RTA Vehicle Replacement-OF	1/12/2024	\$5,461,984	\$554,000	-\$4,907,984	
T00152 : CCRTA - BUY REPLACEMENT 30 FT BUS						
Amendment	2024: CCRTA-OT-RTA Vehicle Replacement-RTACAP	1/12/2024	\$0	\$201,568	\$201,568	
Technical Assistance						
T00141 : CCRTA - Training Electric Bus						
Adjustment	2024: CCRTA-OT-Technical Assistance-OF	12/29/2023	\$28,000	\$10,000	-\$18,000	



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FFY 2024-2028 TIP Amendment 2

STIP: 2024 - 2028 (A)

Type	Value Changed	Date of Change	Former Value	New Value	Variance	Comments
Federal Fiscal Year 2024						
Section 1B / Earmark or Discretionary Grant Funded Projects						
Earmark Discretionary						
610800 Barnstable: BARNSTABLE- PARK AND RIDE EXPANSION AND IMPROVEMENTS AT THE ROUTE 132 PARK AND RIDE						
Amendment	2024: Statewide-CON-Earmark Discretionary-CRRSAA	11/9/2023	\$4,000,000	\$0	-\$4,000,000	Received seven public comments, two comments which were against the expansion of the Barnstable Park and Ride project and feel there is enough parking for the majority of the year. The remaining five comments were in support of the expansion and improvement of the Barnstable Park and Ride project and would like to see future funding commitments for the project. The comments offered additional suggestions to be considered such as short term measures of re-striping, additional signage and new bus shelters to long term considerations such as a parking garage or parking fees to help pay for the expansion project.



TIP Revisions Report
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FFY 2024-2028 TIP AMENDMENT 3

STIP: 2024 - 2028 (A)

Type	Value Changed	Date of Change	Former Value	New Value	Variance	Comments
Federal Fiscal Year 2024						
Section 2B / State Prioritized Modernization Projects						
Roadway Reconstruction						
611986 Multiple: MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)						
Amendment	2024: Statewide-CON-Roadway	3/22/2024	\$0	\$9,000,000	\$9,000,000	
Section 2C / State Prioritized Expansion Projects						
Bicycle and Pedestrian						
607398 Multiple: YARMOUTH- BARNSTABLE- CAPE COD RAIL TRAIL EXTENSION, INCLUDES NEW BRIDGE OVER WILLOW STREET & RAILROAD (PHASE III)						
Amendment	2024: Statewide-CON-Bicycle and	4/16/2024	\$12,259,819	\$15,721,324	\$3,461,505	
Amendment	2024: Statewide-CON-Bicycle and	4/16/2024	\$0	\$4,000,000	\$4,000,000	



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FFY 2024-2028 TIP Amendment 4

STIP: 2024 - 2028 (A)

Type		Value Changed	Date of Change	Former Value	New Value	Variance	Comments
Federal Fiscal Year 2024							
RTA Vehicle Replacement							
CCRTA011851 : CCRTA- PURCHASE OF TYPE E2B VANS (6), A-EV (2), DB (4)							
Amendment	2024: CCRTA-OT-RTA Vehicle	5/30/2024	\$0	\$663,104	\$663,104		
Amendment	2024: CCRTA-OT-RTA Vehicle	5/30/2024	\$0	\$219,852	\$219,852		
Federal Fiscal Year 2025							
RTA Vehicle Replacement							
CCRTA011851 : CCRTA- PURCHASE OF TYPE E2B VANS (6), A-EV (2), DB (4)							
Amendment	2025: CCRTA-OT-RTA Vehicle Replacement-GOBOND	5/30/2024	\$0	\$512,096	\$512,096		