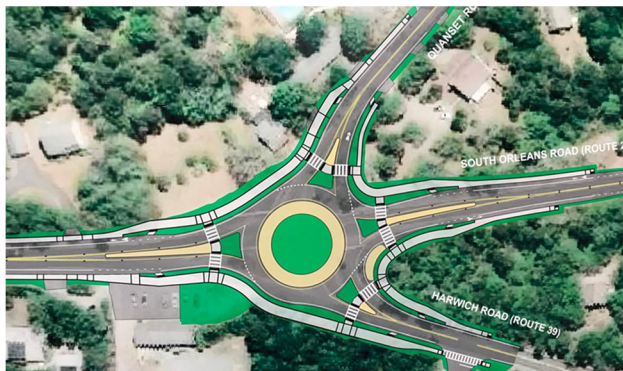




CAPE COD
COMMISSION

Cape Cod Transportation Improvement Program Federal Fiscal Year 2022 – 2026

DRAFT For Public Comment – April 26, 2021



Cape Cod Transportation Improvement Program for FFY 2022-2026 - DRAFT

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 2022-2026 - DRAFT

Cape Cod Transportation Improvement Program (TIP) prepared by the

Cape Cod Metropolitan Planning Organization (MPO) Members:

- Jamey Tesler, Acting 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)
- Jessie Little Doe Baird, Vice Chairwoman, Mashpee Wampanoag Tribal Council

MPO Ex-Officio Members:

- Tom Temple, Chairman, 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
- Jeffrey McEwan, Federal Highway Administration
- Peter Butler, Federal Transit Administration

and the

Cape Cod Joint Transportation Committee

- Tom Temple, Chairman, Chatham
- Richard Waldo, Vice-Chairman, Provincetown

Cape Cod Commission TIP Staff Contact:

- Colleen Medeiros, Transportation Engineer, Cape Cod Commission

Cape Cod Metropolitan Planning Organization

Endorsement of the Federal Fiscal Years 2022-2026 Cape Cod Transportation Improvement Program (TIP)

The signature below certifies that the Cape Cod Metropolitan Planning Organization (MPO), at their meeting on May 24, 2021, hereby endorses the Cape Cod Transportation Improvement Program (TIP) for Federal Fiscal Years 2022 -2026 in its entirety for the Cape Cod Region, in accordance with the certified 3C Transportation Planning Process.

Jamey Tesler, Acting Secretary/Chief Executive Officer – Massachusetts Department of Transportation (MassDOT)

MPO Members:

- Jamey Tesler, Acting Secretary and Chief Executive Officer, Massachusetts Department of Transportation (MassDOT)
- Jonathan Gulliver, Administrator, MassDOT Highway Division
- Robert Lawton, Chair, Cape Cod Regional Transit Authority
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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)
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- Jeffrey McEwan, 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 (MPO) 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 regarding conformity in maintenance areas 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. 114-94) and 49 CFR Part 26 regarding the involvement of disadvantaged business enterprises in U.S. DOT-funded projects.
6. The provisions of the Americans with Disabilities Act of 1990 (42 USC 12101 et seq.) and 49 CFR Parts 27, 37, and 38.
7. The Older Americans Act, as amended (42 USC 6101), prohibiting discrimination on the basis of age in programs or activities receiving federal financial assistance.
8. Section 324 of Title 23 USC regarding the prohibition of discrimination based on gender.
9. Section 504 of the Rehabilitation Act of 1973 (29 USC 794) and 49 CFR Part 27 regarding discrimination against individuals with disabilities.
10. 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 24, 2021.

Cape Cod Metropolitan Planning Organization

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

Jamey Tesler, Acting Secretary/Chief Executive Officer – Massachusetts Department of Transportation (MassDOT)

MPO Members:

- Jamey Tesler, Acting Secretary and Chief Executive Officer, Massachusetts Department of Transportation (MassDOT)
- Jonathan Gulliver, Administrator, MassDOT Highway Division
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- 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)
- Jessie Little Doe Baird, Vice Chairwoman, Mashpee Wampanoag Tribal Council

MPO Ex-Officio Non-Voting Members:

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- Lawrence T. Davis, US Army Corps of Engineers/Cape Cod Canal
- Robert B. Davis, Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority
- Jeffrey McEwan, 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 the Transportation Sector and the Massachusetts Department of Transportation. The regulation requires the MPO to:

1. 310 CMR 60.05, 5(a)(1): Evaluate and report the aggregate transportation GHG emissions and 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 analysis of RTPs and TIPs;
8. 310 CMR 60.05, 8(a)(2)(d): Calculate aggregate transportation GHG emissions for RTPs and TIPs;
9. 310 CMR 60.05, 8(a)(2)(e): Develop public consultation procedures for aggregate transportation GHG 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.
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 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 24, 2021.

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

Jamey Tesler, Acting Secretary/Chief Executive Officer – Massachusetts Department of Transportation (MassDOT)

MPO Members:

- Jamey Tesler, Acting Secretary and Chief Executive Officer, Massachusetts Department of Transportation (MassDOT)
- Jonathan Gulliver, Administrator, MassDOT Highway Division
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- Robert B. Davis, Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority
- Jeffrey McEwan, 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 26, 2021, officially beginning the 21-calendar-day public comment period.

Online public comment opportunities will held on Tuesday, May 12, 2021 at 6:00 PM, Wednesday, May 13, 2021 at 1:00 PM, and Thursday, May 13, 2021 at 10:00 AM. These meetings featured a short presentation on the document followed by an opportunity for public comments. A virtual public meeting of the Cape Cod MPO is scheduled for Tuesday, May 24, 2021 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 will be accepted through May 17, 2021 via mail, by facsimile, or via e-mail, as follows:

Cape Cod Commission Transportation Program
Colleen Medeiros, Transportation Engineer
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

2022-2026 Projects

The following projects are included in the draft Cape Cod Transportation Improvement Program for Federal Fiscal Year 2022-2026:

- Mashpee, Route 151 Corridor Improvements (Phase 1) (2021-2022)
- Orleans, Route 28 at Route 39 and Quanset Rd (2022)
- Dennis, Culvert Replacements on Route 6A over Sesuit Creek (2022)
- Harwich, Bridge Replacement - Azalea Dr over Herring River (2022)
- Sandwich, Shared Use Path on Service Rd (Route 130 to Chase Rd) (2022)
- Barnstable, Bearses Way Shared Use Path (2023)
- Wellfleet, Route 6 at Main St Intersection Improvements (2023)
- Wellfleet, Pavement Preservation and Related Work on Route 6 (2023)
- Dennis/Harwich, Route 28 Reconstruction (Upper County Rd to Herring River Bridge) (2024)
- Provincetown, Shank Painter Road Improvements (2024-2025)
- Yarmouth, Route 28 at North Main St and Old Main St (2024)
- Bourne, Route 6 Scenic Highway Median Installation (2024)
- Harwich, Harwich Elementary School Safe Routes to School (2024)
- Harwich, Sidewalk Installation on Route 28 to Saquatucket Harbor (2025)
- Yarmouth-Barnstable, Cape Cod Rail Trail Extension (2025)
- Bourne, Rail Trail – Phase 1 (2025)
- Barnstable, Route 6 Resurfacing and Related Work (2025)
- Chatham, Route 28 at Main St, Depot Rd, Queen Anne Rd and Crowell Rd (2026)
- Mashpee, Route 151 Corridor Improvements (Phase 2) [AC Year 1 of 2] (2026)
- Provincetown/Truro, Resurfacing and Related Work on Route 6 (2026)
- 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. (2022-2026)

In total, the FFY2022-2026 TIP includes over \$200 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)	Chairman
Cape Cod Commission (CCC)	Chairman
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

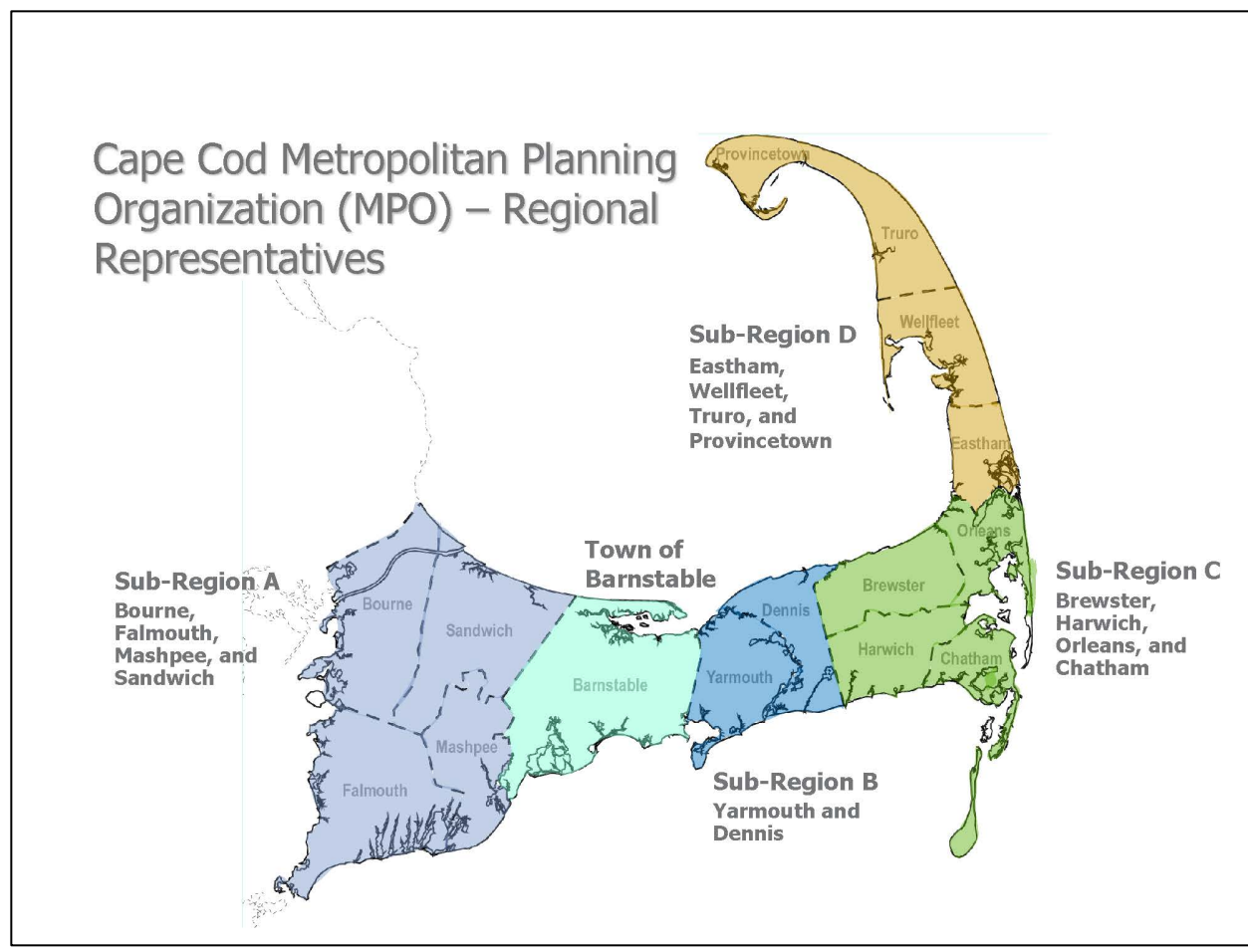


Figure 1. Map of Cape Cod Metropolitan Planning Organization Sub-regions

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: Fixing America's Surface Transportation (FAST) Act and the Clean Air Act Amendments of 1990 (CAAA).

Fixing America's Surface Transportation (FAST) Act

On December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act (Pub. L. No. 114-94) into law—the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes \$305 billion over fiscal years 2016 through 2021 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. A one-year extension of the FAST Act was signed on October 1, 2020.

The FAST Act maintains a focus on safety, keeps intact the established structure of the various highway-related programs, continues efforts to streamline project delivery and, for the first time, provides a dedicated source of federal dollars for freight projects. As required under this legislation, the planning process used in the development of this plan includes consideration of projects that:

- (A) support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- (B) increase the safety of the transportation system for motorized and nonmotorized users;
- (C) increase the security of the transportation system for motorized and nonmotorized users;
- (D) increase the accessibility and mobility of people and for freight;
- (E) protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- (F) enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- (G) promote efficient system management and operation;
- (H) emphasize the preservation of the existing transportation system;
- (I) improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
- (J) enhance travel and tourism.

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

The FAST Act emphasizes 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 FAST Act identifies the following national goal areas:

- **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

Cape Cod Regional Transportation Plan Goals

Consistent with new federal legislation, the 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 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.

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) 2021. In setting these targets, MassDOT has followed FHWA guidelines by using statewide crash data and Highway 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. For CY 2021 targets (2017-2021), four of the five safety measures—total number of fatalities, rate of fatalities per 100 million vehicle miles traveled, total number of serious injuries, and rate of serious injuries per 100 million VMT—were established by extending their trend lines into the 2017-2021 period. All four of these measures reflect a modest decrease in statewide trends. The fifth safety measure, the total number of combined serious injuries and fatalities for non-motorized modes, previously showed an increasing trend line, but has since shown a decline starting in 2017. The CY 2021 target has been set to reflect continued projected reductions in non-motorized fatalities and injuries due to a number of multi-disciplinary and multi-agency implementation strategies contained within the Statewide Bike Plan, Statewide Pedestrian Plan, and

Strategic Highway Safety Plan. In recent years, The Cape Cod MPO has invested in “complete streets,” bicycle and pedestrian infrastructure, intersection and safety improvements 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 Tracker⁵ 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 CY 2021, and that The Cape Cod MPO has adopted, are as follows:

- 1) Fatalities: The target number of fatalities for CY 2021 target is 339, down from an average of 354 fatalities for the years 2015–2019. [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 CY 2021 target is 0.55, down from a 0.56 average for years 2015–2019. [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 serious injuries for CY2021 target is 2580, down from the average of 2753 for years 2015–2019. [See Figure 4 and Figure 5 for the Cape Cod trend and the statewide trend for this performance measure]
- 4) Rate of Serious Injuries per 100 million VMT: The serious injury rate target for CY2021 target is 4.23 per year, down from the 4.37 average rate for years 2015–2019. [See Figure 4 and Figure 5 for the Cape Cod trend and the statewide trend for this performance measure]
- 5) Total Number of Combined Serious Injuries and Fatalities for Non-Motorized Modes: The CY2021 target of number of fatalities and incapacitating injuries for non-motorists is 506 per year, down from the 506 per year average for years 2015–2019. [See Figure 6 and Figure 7 for the Cape Cod trend and the statewide trend for this performance measure]

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

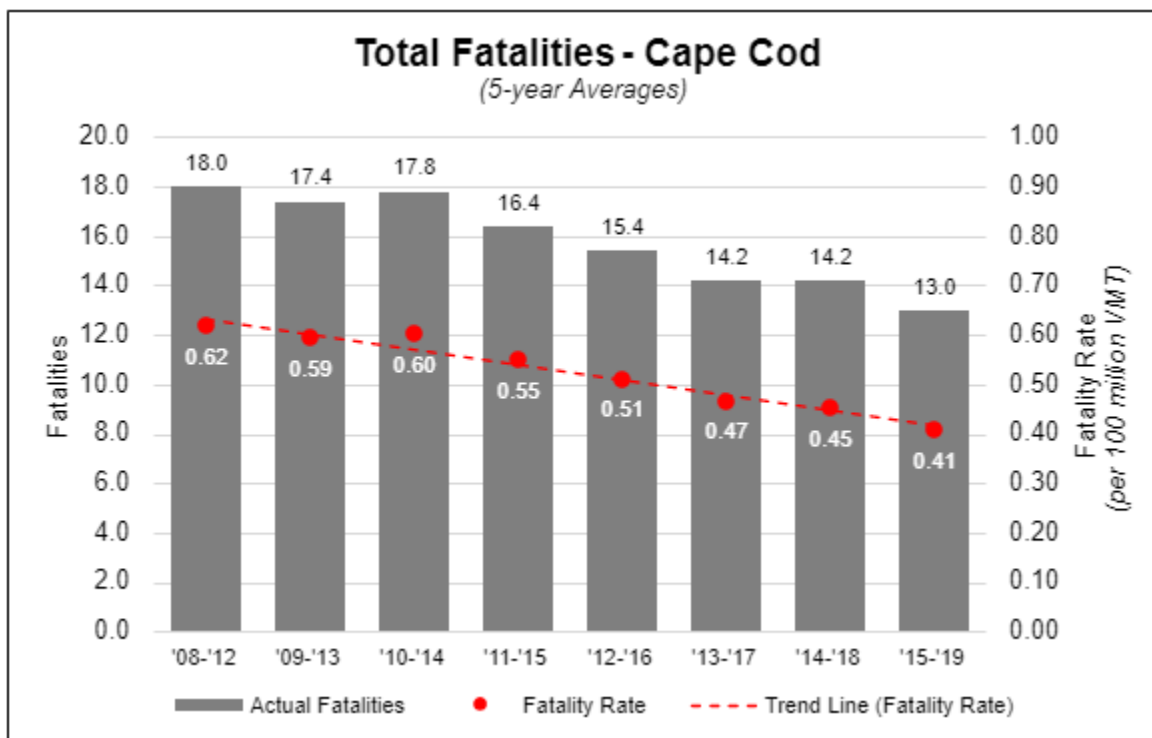


Figure 2. Cape Cod Fatalities Trend

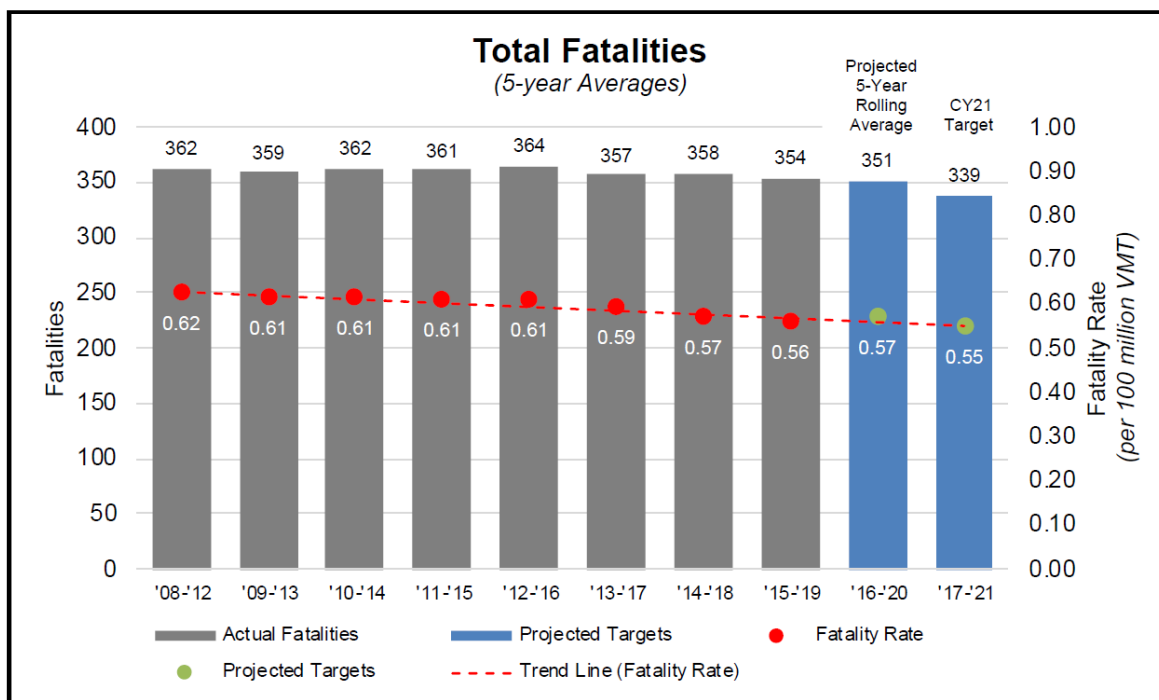


Figure 3. Statewide Fatalities Trend

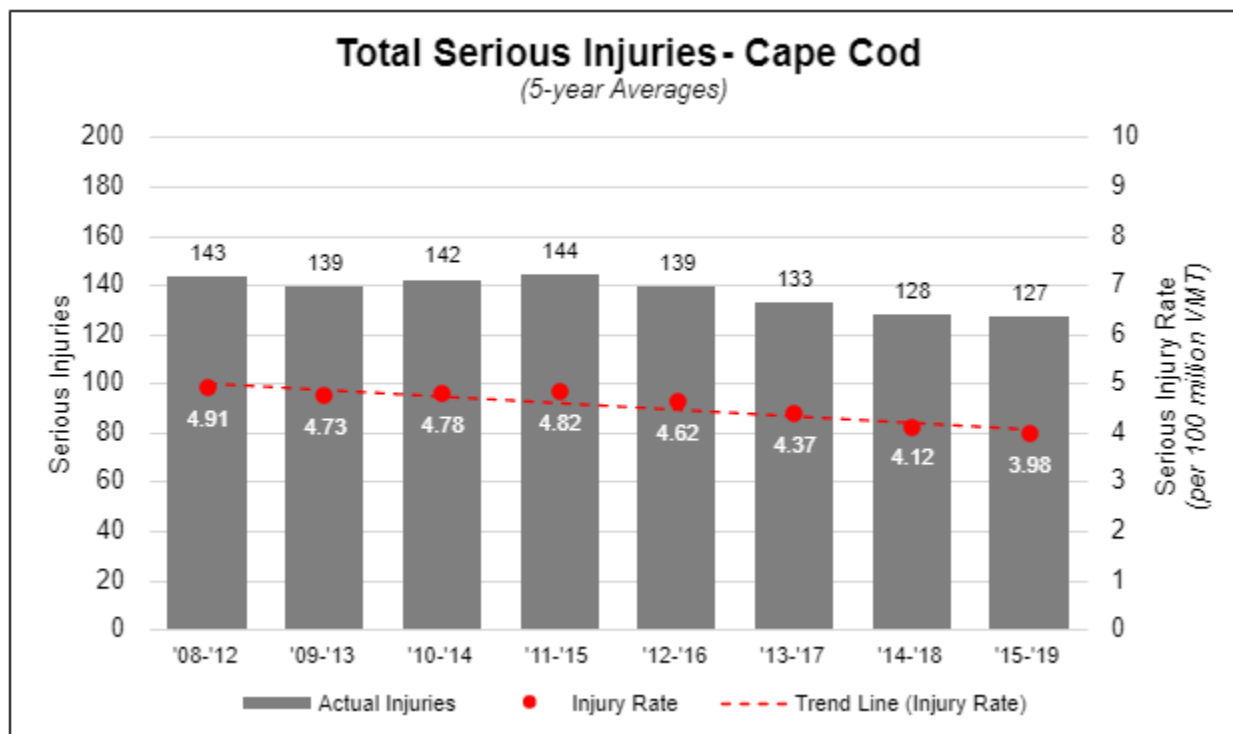


Figure 4. Cape Cod Serious Injury Trend

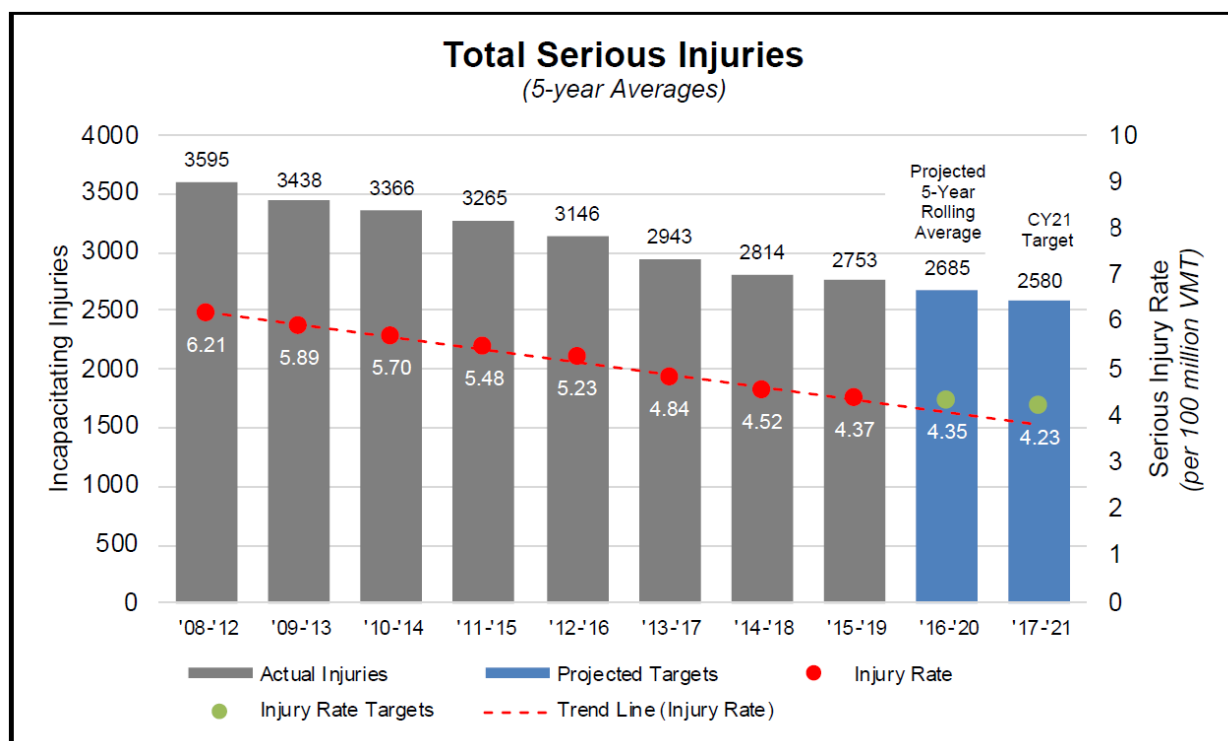


Figure 5. Statewide Serious Injury Trend

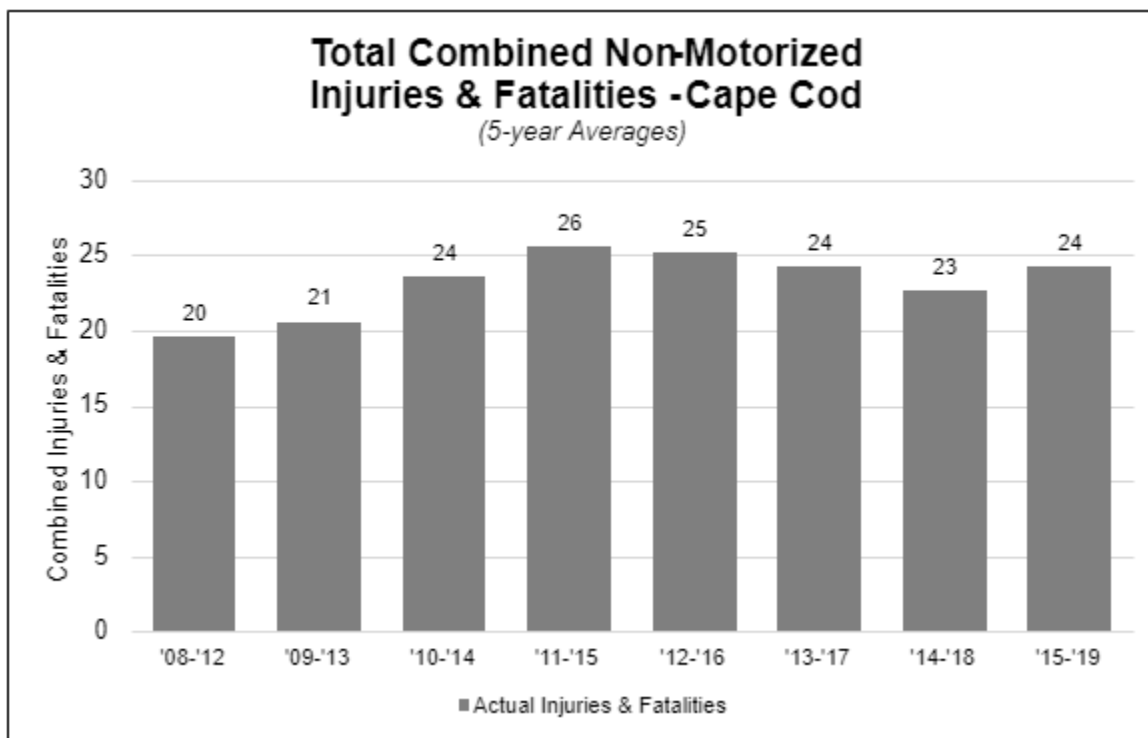


Figure 6. Cape Cod Non-Motorized Injury and Fatality Trend

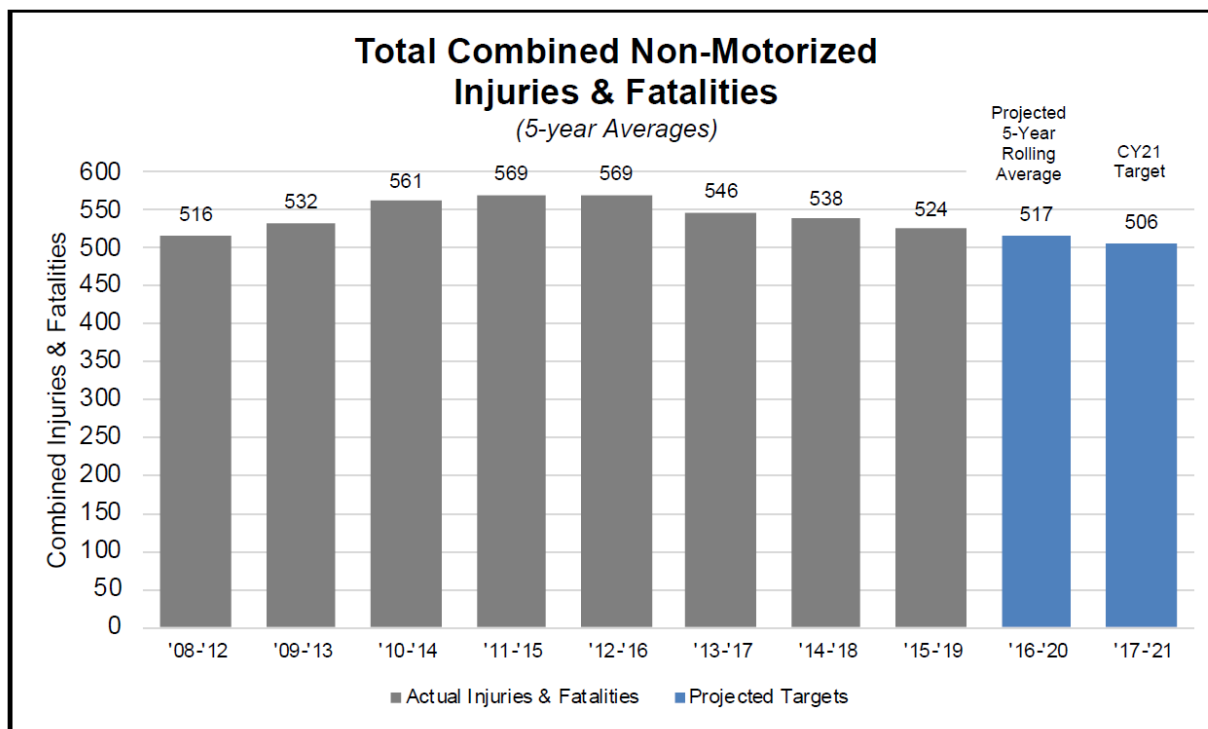


Figure 7. Statewide Non-Motorized Injury and Fatality Trend

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 last adopted the 2-year (2020) and 4-year (2022) statewide bridge and pavement performance measure targets set by MassDOT in October 2018. 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. Two-year and four-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 Transportation Asset Management Plan (TAM), which was finalized in September 2019, as well as, MassDOT's Annual Performance Management Report and Tracker.

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 two-year mark, 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 (2019)	2-YEAR TARGET (2020)	4-YEAR TARGET (2022)
Bridges in good condition	16.10%	15%	16%
Bridges in poor condition	12.56%	13%	12%
Non-Interstate Pavement in good and excellent condition	32.9%	30%	30%
Non-Interstate Pavement in poor condition	31.4%	30%	30%

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 last adopted the 2-year (2020) and 4-year (2022) statewide reliability, congestion, and emissions performance measure targets set by MassDOT in October 2018.

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. As this data set has but one year of consistent data, FHWA guidance has been to set conservative targets and to adjust future targets once more data becomes available. To that end, MassDOT's reliability performance targets are set to remain the same.

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 (2017)	2-YEAR TARGET (2020)	4-YEAR TARGET (2022)
Interstate LOTTR	68%	68%	68%
TTTR	1.85	1.85	1.85

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).

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 2020 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	FY2020 PERFORMANCE	FY2022 TARGET
Rolling Stock	Bus	28	% at or past ULB	0%	0%
Rolling Stock	Cutaway Bus	100	% at or past ULB	9.35%	10%
Rolling Stock	Vans	7	% at or past ULB	0%	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 2020 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 April 2021.

Table 8. Cape Cod Transit Safety Performance Targets

Mode of Transit Service	Fatalities (Total)	Fatalities (per 100K VRM¹)	Injuries (Total)	Injuries (per 100K VRM)	Safety Events (Total)	Safety Events (per 100K VRM)	System Reliability (MMBF²)
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 CY2021.

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 listed 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 submitted• Designer 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 meeting 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 11, 2020	CCJTC	Virtual Meeting
January 8, 2021	CCJTC	Virtual Meeting
January 25, 2021	Cape Cod MPO	Virtual Meeting
February 12, 2021	CCJTC	Virtual Meeting
February 22, 2021	Cape Cod MPO	Virtual Meeting
March 12, 2021	CCJTC	Virtual Meeting
March 15, 2021	Cape Cod MPO	Virtual Meeting
April 9, 2021	CCJTC	Virtual Meeting
April 26, 2021	Cape Cod MPO	Virtual Meeting
May 14, 2021	CCJTC	Virtual Meeting
May 24, 2021	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, measures in place to limit the spread of the COVID-19 virus, including the state's stay-at-home advisory, closure of physical workplaces for non-essential businesses, and restrictions on gatherings, present challenges to the public outreach. To allow for and encourage public input while maintaining the safety of staff and the public, emphasis was placed on online content and virtual public engagement.

Additional website content, including a plan summary and video, provided new ways for members of the public to engage in the process. An executive summary of the plan were made available in English and Portuguese. Online public comment opportunities will held on Tuesday, May 12, 2021 at 6:00 PM, Wednesday, May 13, 2021 at 1:00 PM, and Thursday, May 13, 2021 at 10:00 AM. These meetings will feature a short presentation on the documents followed by an opportunity for public comments. Information on these meetings will be 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 Fixing America's Surface Transportation (FAST) Act. Most funding categories in this TIP are through federal sources: Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) as provided by federal legislation. Table 13 and Table 14 provide brief descriptions of the funding programs 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 (TA)	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.

Table 14. Federal Transit Funding Administration Programs

PROGRAM	ELIGIBLE USES
Bus and Bus Facilities (FTA 5309)	This category is discretionary funds for capital expenditures such as buses and terminal facilities; projects need federally earmarked 5309 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 in rural areas.
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.
Mobility Assistance Program (MAP)	This MassDOT program funds capital improvements for transportation services for people who are elderly and/or have disabilities.
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.

For federal fiscal years 2022-2026 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
2022	\$11,384,218
2023	\$11,632,859
2024	\$11,785,328
2025	\$11,510,198
2026	\$11,211,300
Total	\$57,523,903

For federal fiscal years 2022-2026 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
2022	\$15,237,709
2023	\$14,057,626
2024	\$15,706,443
2025	\$15,676,000
2026	\$16,100,000
Total	\$76,777,778

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.

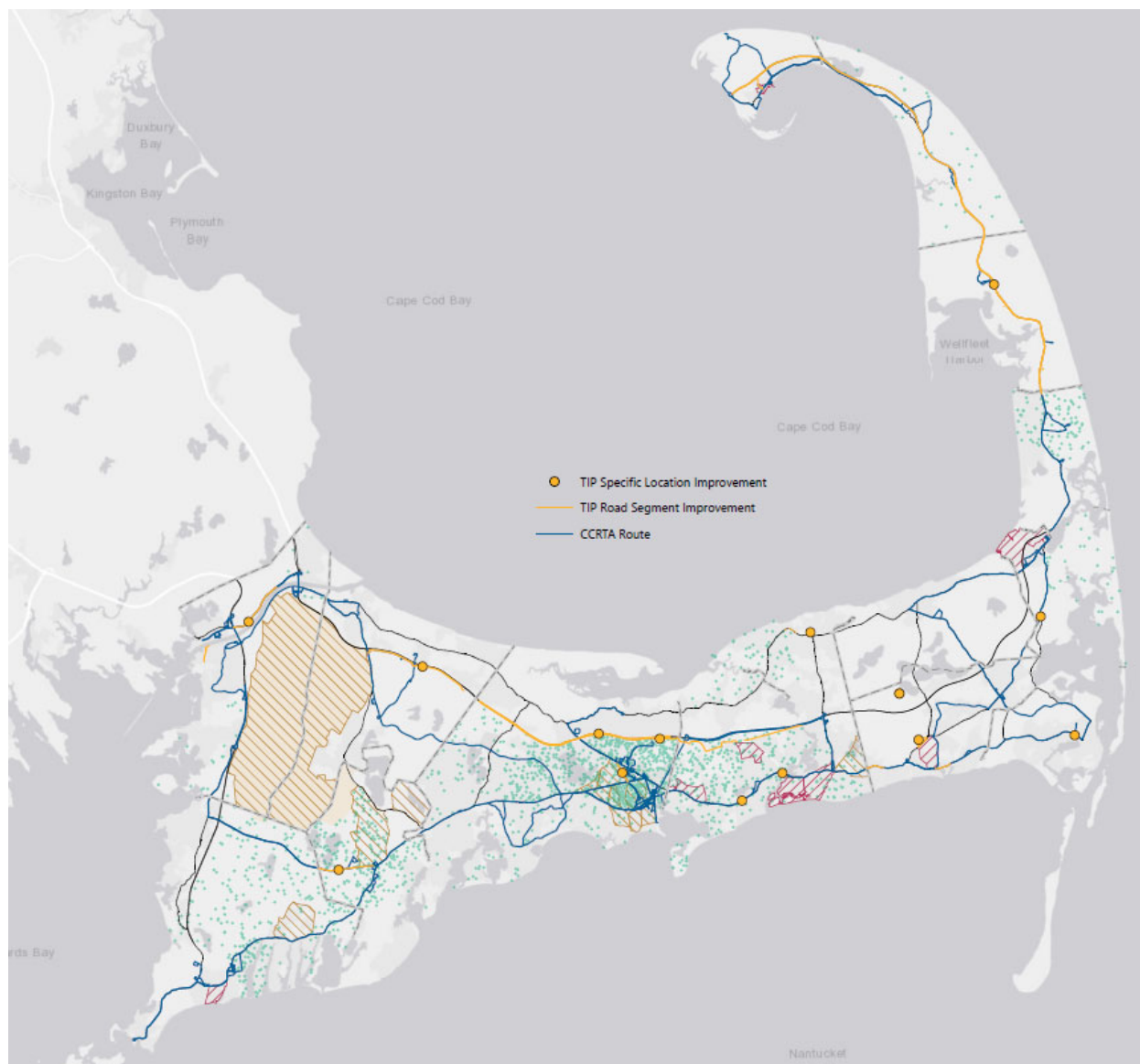


Figure 8. Map of Funded Highway Projects

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.

Mashpee, Route 151 Corridor Improvements (Phase 1) (#607319)

Work on this project will consist of corridor improvements on Route 151 from Old Barnstable Road to the Market Street. Work will include intersection improvements, new drainage, pavement markings and signage. In addition, traffic signal upgrades are proposed at key intersections, Route 151 at Frank Ellis Drive/Jobs Fishing Rd, Route 151 at Old Barnstable Rd and Route 151 at Market St. The project will address the lack of continuous 'complete streets' (bicycle and pedestrian accommodation) along the corridor and at the signalized intersections.

Orleans, Route 28 at Route 39 and Quanset Rd (#608666)

Work on this project consists of the installation of a roundabout along with associated geometric improvements. ADA compliant sidewalks are proposed within the project limits.

Dennis, Culvert Replacements on Route 6A over Sesuit Creek (#609212)

This project consists of replacing two existing 24-inch reinforced culverts that would be adequately sized hydraulically to be resilient to severe storms, reduce maintenance requirements (sediment removal), pass diadromous fish, and reduce impacts of flooding on the roadway. The roadway would be reconstructed within the project limits to include wider shoulders, guardrail and bridge rail with retaining walls.

Harwich, Bridge Replacement - Azalea Dr over Herring River (#608617)

This project consists of a bridge replacement pm Azalea Drive. The project includes a number of safety improvements, including an increased sidewalk width of 6'-0" on the bridge and approaches with ADA compliant handicap ramps, new approach guardrail and bridge rail meeting current crash safety standards, roadway profile changes that will improve sight distances and a new 2'-0" shoulder on the west side of the roadway, all of which have been provided in accordance with the applicable design guides and specifications.

Sandwich, Shared Use Path on Service Rd (Route 130 to Chase Rd) (#608422)

The Town of Sandwich coordinated with National Grid during a gas main installation project to include tree removal and rough grading along the proposed gas line alignment that would serve as a base for constructing this first phase of a multi-phase shared-use path project on Service Road. The project is intended to provide a 12-foot wide multi-use path along Service Road, beginning just east of Route 130 and terminating at

Chace Rd, with a planned future connection to the Cape Cod Rail Trail. The project also includes crossing improvements at several intersections and the construction of parking areas.

Barnstable, Bearses Way Shared Use Path (#609067)

This project involves construction of a ten-foot shared use path along the western side of Bearses Way, from the DPW driveway to Pitchers Way (0.75 miles).

Wellfleet, Route 6 at Main St (#607397)

The intent of this project is to provide safety upgrades and improved accommodation for all modes of travel. Work on this project includes traffic signal improvements and the installation of bike lanes and sidewalks. Also included is pavement milling and overlay, drainage upgrades and the installation of new pavement markings and signs. In addition, the design of this intersection project is being coordinated with the design of the MassDOT Wellfleet Route 6 Pavement Preservation project.

Wellfleet, Pavement Preservation and Related Work on Route 6 (#609098)

This project involves resurfacing and related work on Route 6 for approximately 10 miles and will also include multi-modal accommodations to connect to the Route 6 at Main Street intersection project. This design and construction of this pavement preservation project is being coordinated with the Route 6 at Main Street TIP project.

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.

Yarmouth, Route 28 at North Main St and Old Main St (#608568)

The intent of this project is to address a high crash location. Work on this project consists of traffic signal upgrades, roadway rehabilitation and improvements for pedestrian/bicycle accommodation.

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.

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.

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.

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.

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 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.

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.

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.

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 will also include the construction of a sidewalk on the west side of the roadway from the public safety facility to Shore Road. Further bicycle and pedestrian accommodations will be considered as the design progresses.

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 limits just west of Old Barnstable Road. Work will include 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.

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 vehicle and other infrastructure needed to meet the transportation needs of the Cape Cod region. The agency 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. COVID-19 presented unique challenges for transit agencies. The CCRTA has adapted and implemented safety measures to maintain these critical services and to meet unique needs including transit to testing & vaccinations sites

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.

Regional service is also supplemented by Peter Pan Bus Lines and Plymouth and Brockton Bus Lines who typically offer inter-city route connections to Boston, MA and Providence, RI. However, due to the COVID-19 pandemic, service has been reduced on Peter Pan Bus Lines and completely suspended on Plymouth and Brockton Bus Lines.



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, and the current amount programmed is the right column.

Table 17. Cape Cod Federal Aid Target Programmed Amounts

YEAR	TOTAL FEDERAL AID	AMOUNT PROGRAMMED
2022	\$11,384,218	\$11,258,199
2023	\$11,632,859	\$11,209,113
2024	\$11,785,328	\$11,785,328
2025	\$11,510,198	\$10,411,714
2026	\$11,211,300	\$11,211,300
Total	\$57,523,903	\$55,875,654

Projects programmed in years 2022-2026 reflect 2022 cost estimates. An inflation rate of 4% per year is added to project cost estimates in years 2023-2026, and therefore, the project cost estimates are by Year of Expenditure (YOE) for the target projects.

In addition to funding highway projects, a significant amount of TIP funding is allocated for public transportation. Table 18 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 18. Cape Cod TIP Funding Programmed for Highway and Transit Projects

YEAR	HIGHWAY	TRANSIT	TOTAL
2022	\$21,559,158	\$15,237,709	\$36,796,867
2023	\$28,257,580	\$14,057,626	\$42,315,206
2024	\$24,411,420	\$15,706,443	\$40,117,863
2025	\$40,450,826	\$15,676,000	\$56,126,826
2026	\$26,962,763	\$16,100,000	\$43,062,763
Total	\$141,641,747	\$76,777,778	\$218,419,525

The list of specific Cape Cod projects is presented on the following pages. 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.

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Cape Cod Region Program

STIP: 2022 - 2026 (D)										
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2022										
Section 1A / Regionally Prioritized Projects							\$9,951,036	\$8,006,680	\$1,944,356	
Roadway Reconstruction	607319	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON NATHAN ELLIS HIGHWAY (ROUTE 151), FROM MASHPEE ROTARY TO FALMOUTH T.L.	5	CMAQ	\$1,146,285	\$917,028	\$229,257	AC over 2021-2022; Municipality is TAP proponent; RSA conducted; CMAQ analysis approved October 2019
Roadway Reconstruction	607319	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON NATHAN ELLIS HIGHWAY (ROUTE 151), FROM MASHPEE ROTARY TO FALMOUTH T.L.	5	HSIP	\$458,514	\$412,663	\$45,851	AC over 2021-2022; Municipality is TAP proponent; RSA conducted; CMAQ analysis approved October 2019
Roadway Reconstruction	607319	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON NATHAN ELLIS HIGHWAY (ROUTE 151), FROM MASHPEE ROTARY TO FALMOUTH T.L.	5	STBG	\$3,096,620	\$2,477,296	\$619,324	AC over 2021-2022; Municipality is TAP proponent; RSA conducted; CMAQ analysis approved October 2019
Roadway Reconstruction	607319	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON NATHAN ELLIS HIGHWAY (ROUTE 151), FROM MASHPEE ROTARY TO FALMOUTH T.L.	5	TAP	\$205,809	\$164,647	\$41,162	AC over 2021-2022; Municipality is TAP proponent; RSA conducted; CMAQ analysis approved October 2019
Roadway Reconstruction	608666	Cape Cod	Orleans	ORLEANS- INTERSECTION IMPROVEMENTS AT ROUTE 28 (SOUTH ORLEANS ROAD), ROUTE 39 (HARWICH ROAD) AND QUANSET ROAD	5	STBG	\$5,043,808	\$4,035,046	\$1,008,762	CMAQ analysis completed October 2019
Roadway Reconstruction	609212	Cape Cod	Dennis	DENNIS- CULVERT REPLACEMENTS ON ROUTE 6A OVER SESUIT CREEK	5	STBG	\$1,437,038	\$1,149,630	\$287,408	
							CMAQ Programmed	\$1,146,285	\$917,028	\$229,257
							HSIP Programmed	\$458,514	\$412,663	\$45,851
							STBG Programmed	\$9,447,591	\$7,558,073	\$1,889,518
							TAP Programmed	\$205,809	\$164,647	\$41,162
							Total Programmed for Cape Cod Region Projects*	\$11,258,199	\$9,052,411	\$2,205,788
							Program Target for Cape Cod Region Projects	\$11,384,219	\$9,107,375	\$2,276,844
							Target Funds Available for Cape Cod Region Projects	\$126,020	\$54,964	\$71,056
Section 2A / State Prioritized Reliability Projects							\$1,901,718	\$1,521,374	\$380,344	
Bridge Off-system	608617	Cape Cod	Harwich	HARWICH- BRIDGE REPLACEMENT, H-10-019, AZALEA DRIVE OVER HERRING RIVER	5	STBG-BR-Off	\$1,901,718	\$1,521,374	\$380,344	
Section 2C / State Prioritized Expansion Projects							\$8,399,241	\$6,719,393	\$1,679,848	
Bicycle and Pedestrian	608422	Cape Cod	Sandwich	SANDWICH- CONSTRUCTION OF SHARED USE PATH ALONG SERVICE ROAD FROM ROUTE 130 TO CHASE ROAD	5	CMAQ	\$8,399,241	\$6,719,393	\$1,679,848	CMAQ approved;



Cape Cod Region Program

STIP: 2022 - 2026 (D)										
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2023										
Section 1A / Regionally Prioritized Projects							\$11,209,113	\$9,013,142	\$2,195,971	
Intersection Improvements	607397	Cape Cod	Wellfleet	WELLFLEET- INTERSECTION IMPROVEMENTS & RELATED WORK AT ROUTE 6 & MAIN STREET	5	HSIP	\$458,514	\$412,663	\$45,851	Municipality is TAP proponent; RSA completed; CMAQ completed October 2020
Intersection Improvements	607397	Cape Cod	Wellfleet	WELLFLEET- INTERSECTION IMPROVEMENTS & RELATED WORK AT ROUTE 6 & MAIN STREET	5	STBG	\$9,350,574	\$7,480,459	\$1,870,115	Municipality is TAP proponent; RSA completed; CMAQ completed October 2020
Intersection Improvements	607397	Cape Cod	Wellfleet	WELLFLEET- INTERSECTION IMPROVEMENTS & RELATED WORK AT ROUTE 6 & MAIN STREET	5	TAP	\$205,809	\$164,647	\$41,162	Municipality is TAP proponent; RSA completed; CMAQ completed October 2020
Bicycle and Pedestrian	609067	Cape Cod	Barnstable	BARNSTABLE- CONSTRUCTION OF A SHARED USE PATH ALONG BEARSES WAY, FROM ROUTE 28 TO PITCHERS WAY	5	CMAQ	\$1,146,285	\$917,028	\$229,257	CMAQ Approved October 2019
Bicycle and Pedestrian	609067	Cape Cod	Barnstable	BARNSTABLE- CONSTRUCTION OF A SHARED USE PATH ALONG BEARSES WAY, FROM ROUTE 28 TO PITCHERS WAY	5	STBG	\$47,931	\$38,345	\$9,586	CMAQ Approved October 2019
							CMAQ Programmed	\$1,146,285	\$917,028	\$229,257
							HSIP Programmed	\$458,514	\$412,663	\$45,851
							STBG Programmed	\$9,398,505	\$7,518,804	\$1,879,701
							TAP Programmed	\$205,809	\$164,647	\$41,162
							Total Programmed for Cape Cod Region Projects*	\$11,209,113	\$9,013,142	\$2,195,971
							Program Target for Cape Cod Region Projects	\$11,632,859	\$9,306,287	\$2,326,572
							Target Funds Available for Cape Cod Region Projects	\$423,746	\$293,145	\$130,601
Section 2A / State Prioritized Reliability Projects							\$17,048,467	\$13,638,774	\$3,409,693	
Non-Interstate Pavement	609098	Cape Cod	Wellfleet	WELLFLEET- PAVEMENT PRESERVATION AND RELATED WORK ON ROUTE 6	5	NHPP	\$17,048,467	\$13,638,774	\$3,409,693	



Cape Cod Region Program

STIP: 2022 - 2026 (D)										
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2024										
Section 1A / Regionally Prioritized Projects							\$11,785,328	\$9,428,262	\$2,357,066	
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	\$1,146,285	\$917,028	\$229,257	Municipality is TAP proponent; CMAQ completed October 2020
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	\$6,763,406	\$5,410,725	\$1,352,681	Municipality is TAP proponent; CMAQ completed October 2020
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	\$205,809	\$164,647	\$41,162	Municipality is TAP proponent; CMAQ completed October 2020
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	STBG	\$3,669,828	\$2,935,862	\$733,966	AC over 2024-2025; CMAQ analysis completed October 2020;
							CMAQ Programmed	\$1,146,285	\$917,028	\$229,257
							STBG Programmed	\$10,433,234	\$8,346,587	\$2,086,647
							TAP Programmed	\$205,809	\$164,647	\$41,162
							Total Programmed for Cape Cod Region Projects*	\$11,785,328	\$9,428,262	\$2,357,066
							Program Target for Cape Cod Region Projects	\$11,785,328	\$9,428,262	\$2,357,066
							Target Funds Available for Cape Cod Region Projects	\$0	\$0	\$0
Section 2A / State Prioritized Reliability Projects							\$11,601,076	\$9,540,497	\$2,060,579	
Non-Interstate Pavement	606082	Cape Cod	Bourne	BOURNE- MEDIAN INSTALLATION ON ROUTE 6 (SCENIC HIGHWAY)	5	NHPP	\$9,004,716	\$7,203,773	\$1,800,943	
Safety Improvements	608568	Cape Cod	Yarmouth	YARMOUTH- IMPROVEMENTS AT MAIN STREET (ROUTE 28) AT NORTH MAIN STREET AT OLD MAIN STREET	5	HSIP	\$2,596,360	\$2,336,724	\$259,636	RSA conducted;
Section 2B / State Prioritized Modernization Projects							\$1,025,016	\$822,513	\$202,503	
Roadway Reconstruction	610670	Cape Cod	Harwich	HARWICH- HARWICH ELEMENTARY SCHOOL (SRTS)	5	TAP	\$1,000,015	\$800,012	\$200,003	TAP
Intersection Improvements	608568	Cape Cod	Yarmouth	YARMOUTH- IMPROVEMENTS AT MAIN STREET (ROUTE 28) AT NORTH MAIN STREET AT OLD MAIN STREET	5	HSIP	\$25,001	\$22,501	\$2,500	RSA conducted;

*Only includes funds counting against obligation authority
Reported Date:



Cape Cod Region Program

STIP: 2022 - 2026 (D)										
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2025										
Section 1A / Regionally Prioritized Projects							\$10,411,714	\$8,329,371	\$2,082,343	
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	CMAQ	\$1,146,285	\$917,028	\$229,257	AC over 2024-2025; CMAQ analysis completed October 2020;
Roadway Reconstruction	608744	Cape Cod	Provincetown	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM ROUTE 6 TO BRADFORD STREET	5	STBG	\$8,162,229	\$6,529,783	\$1,632,446	AC over 2024-2025; CMAQ analysis completed October 2020;
ADA Retrofits	611985	Cape Cod	Harwich	HARWICH- SIDEWALK INSTALLATION ON ROUTE 28 FROM BANK STREET TO SAQUATUCKET HARBOR	5	STBG	\$897,391	\$717,913	\$179,478	Municipality is TAP Proponent; CMAQ analysis approved April 2021
ADA Retrofits	611985	Cape Cod	Harwich	HARWICH- SIDEWALK INSTALLATION ON ROUTE 28 FROM BANK STREET TO SAQUATUCKET HARBOR	5	TAP	\$205,809	\$164,647	\$41,162	Municipality is TAP Proponent; CMAQ analysis approved April 2021
							CMAQ Programmed	\$1,146,285	\$917,028	\$229,257
							STBG Programmed	\$9,059,620	\$7,247,696	\$1,811,924
							TAP Programmed	\$205,809	\$164,647	\$41,162
							Total Programmed for Cape Cod Region Projects*	\$10,411,714	\$8,329,371	\$2,082,343
							Program Target for Cape Cod Region Projects	\$11,510,198	\$9,208,158	\$2,302,040
							Target Funds Available for Cape Cod Region Projects	\$1,098,484	\$878,787	\$219,697
Section 2A / State Prioritized Reliability Projects							\$18,547,200	\$14,837,760	\$3,709,440	
Non-Interstate Pavement	608819	Cape Cod	Barnstable	BARNSTABLE- RESURFACING AND RELATED WORK ON ROUTE 6	5	NHPP	\$18,547,200	\$14,837,760	\$3,709,440	
Section 2C / State Prioritized Expansion Projects							\$11,491,912	\$9,193,530	\$2,298,382	
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	\$9,486,061	\$7,588,849	\$1,897,212	CMAQ approved;
Bicycle and Pedestrian	609262	Cape Cod	Bourne	BOURNE- RAIL TRAIL CONSTRUCTION (PHASE 1)	5	CMAQ	\$2,005,851	\$1,604,681	\$401,170	CMAQ approved;

*Only includes funds counting against obligation authority
Reported Date:



Cape Cod Region Program

STIP: 2022 - 2026 (D)										
Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other Information
Federal Fiscal Year 2026										
Section 1A / Regionally Prioritized Projects							\$11,211,300	\$9,014,891	\$2,196,409	
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	\$2,952,059	\$2,361,647	\$590,412	Municipality is TAP Proponent; CMAQ analysis to be completed
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	TAP	\$205,809	\$164,647	\$41,162	Municipality is TAP Proponent; CMAQ analysis to be completed
Roadway Reconstruction	611996	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	CMAQ	\$1,146,285	\$917,028	\$229,257	AC over 2026-2027; RSA conducted; CMAQ analysis approved October 2019
Roadway Reconstruction	611996	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	HSIP	\$458,514	\$412,663	\$45,851	AC over 2026-2027; RSA conducted; CMAQ analysis approved October 2019
Roadway Reconstruction	611996	Cape Cod	Mashpee	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON ROUTE 151, FROM THE FALMOUTH T.L. TO OLD BARNSTABLE ROAD (PHASE 2)	5	STBG	\$6,448,633	\$5,158,906	\$1,289,727	AC over 2026-2027; RSA conducted; CMAQ analysis approved October 2019
CMAQ Programmed							\$1,146,285	\$917,028	\$229,257	
HSIP Programmed							\$458,514	\$412,663	\$45,851	
STBG Programmed							\$9,400,692	\$7,520,554	\$1,880,138	
TAP Programmed							\$205,809	\$164,647	\$41,162	
Total Programmed for Cape Cod Region Projects*							\$11,211,300	\$9,014,891	\$2,196,409	
Program Target for Cape Cod Region Projects							\$11,211,300	\$8,969,040	\$2,242,260	
Target Funds Available for Cape Cod Region Projects							\$0	-\$45,851	\$45,851	
Section 2A / State Prioritized Reliability Projects							\$15,751,463	\$12,601,170	\$3,150,293	
Non-Interstate Pavement	612032	Cape Cod	Multiple	PROVINCETOWN- TRURO- RESURFACING AND RELATED WORK ON ROUTE 6	5	NHPP	\$15,751,463	\$12,601,170	\$3,150,293	
Cape Cod Region Total Program Summary							\$141,641,747	\$113,713,088	\$27,928,659	



TIP 2022 - 2026 2022

5307

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0009521	CCRTA	111203	Cape Cod Regional Transit Authority/BUY REPLACEMENT 35-FT BUS (Statewide 5339 funds)		\$633,066	\$949,599	\$0	\$0	\$1,582,665
RTD0009518	CCRTA	117C00	Cape Cod Regional Transit Authority/NON FIXED ROUTE ADA PARA SERV		\$600,000	\$150,000	\$0	\$0	\$750,000
RTD0009541	CCRTA	111700	Cape Cod Regional Transit Authority/111303 BUY 30-FT BUS FOR EXPANSION		\$800,000	\$200,000	\$0	\$0	\$1,000,000
RTD0009519	CCRTA	300900	Cape Cod Regional Transit Authority/OPERATING ASSISTANCE-Fixed Route/Demand Response		\$800,000	\$800,000	\$0	\$0	\$1,600,000
RTD0009522	CCRTA	111204	Cape Cod Regional Transit Authority/BUY REPLACEMENT <30 FT BUS (Low Floor Cutaways)		\$372,000	\$93,000	\$0	\$0	\$465,000
RTD0010116	CCRTA	442400	Cape Cod Regional Transit Authority/Hyannis Transportation Center Campus/SHORT RANGE TRANSIT PLANNING		\$40,000	\$10,000	\$0	\$0	\$50,000
RTD0009520	CCRTA	117A00	Cape Cod Regional Transit Authority/PREVENTIVE MAINTENANCE		\$5,700,000	\$1,425,000	\$0	\$0	\$7,125,000
RTD0009517	CCRTA	117L00	Cape Cod Regional Transit Authority/MOBILITY MANAGEMENT		\$1,200,000	\$300,000	\$0	\$0	\$1,500,000
					\$10,145,066	\$3,927,599	\$0	\$0	\$14,072,665

5339

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0009515	CCRTA	114207	Cape Cod Regional Transit Authority/Hyannis and South Dennis/ACQUIRE - ADP HARDWARE		\$19,840	\$4,960	\$0	\$0	\$24,800

RTD0009516	CCRTA	114220	Cape Cod Regional Transit Authority/South Dennis Bus Operations Center/ACQUIRE - MISC SUPPORT EQUIPMENT		\$371,395	\$92,849	\$0	\$0	\$464,244
RTD0009514	CCRTA	119202	Cape Cod Regional Transit Authority/Dennis Harwich Rts 28/134/PURCHASE BUS SHELTERSPURCHASE BUS SHELTERS		\$60,800	\$15,200	\$0	\$0	\$76,000
RTD0009540	CCRTA	114301	Cape Cod Regional Transit Authority/South Dennis Bus Operations Center/REHAB/RENOVATE - MAINTENANCE FACILITY		\$400,000	\$100,000	\$0	\$0	\$500,000
					\$852,035	\$213,009	\$0	\$0	\$1,065,044

Other NonFederal

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0010212	CCRTA	114110	Cape Cod Regional Transit Authority/AUTOMATIC FARE COLLECTION (AFC) 2.0LL EQUIP		\$0	\$100,000	\$0	\$0	\$100,000
					\$0	\$100,000	\$0	\$0	\$100,000
					10,997,101	4,240,608	0	0	15,237,709



TIP 2022 - 2026 2023

5307

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0009524	CCRTA	114207	Cape Cod Regional Transit Authority/Hyannis and South Dennis/CCRTA ACQUIRE - ADP HARDWARE	2022 - \$24,960	\$24,960	\$6,240	\$0	\$0	\$31,200
RTD0009525	CCRTA	442400	Cape Cod Regional Transit Authority/Hyannis Transportation Center Campus/SHORT RANGE TRANSIT PLANNING	2021 - \$80,000	\$80,000	\$20,000	\$0	\$0	\$100,000
RTD0009526	CCRTA	114401	Cape Cod Regional Transit Authority/Hyannis Transportation Center/REHAB/RENOVATE - ADMINISTRATIVE FACILITY	2021 - \$400,000	\$400,000	\$100,000	\$0	\$0	\$500,000
RTD0009527	CCRTA	114220	Cape Cod Regional Transit Authority/South Dennis Bus Operations Center/ACQUIRE - MISC SUPPORT EQUIPMENT	2020 - \$400,000	\$400,000	\$100,000	\$0	\$0	\$500,000
RTD0009529	CCRTA	111204	Cape Cod Regional Transit Authority/BUY REPLACEMENT <30 FT BUS (Low Floor Cutaways)	2020 - \$196,692	\$196,692	\$49,173	\$0	\$0	\$245,865
RTD0009530	CCRTA	117L00	Cape Cod Regional Transit Authority/MOBILITY MANAGEMENT	2020 - \$1,200,000	\$1,200,000	\$300,000	\$0	\$0	\$1,500,000
RTD0009531	CCRTA	117C00	Cape Cod Regional Transit Authority/NON FIXED ROUTE ADA PARA SERV	2022 - \$600,000	\$600,000	\$150,000	\$0	\$0	\$750,000
RTD0009532	CCRTA	300901	Cape Cod Regional Transit Authority/OPERATING ASSISTANCE-Fixed Route/Demand Response	2022 - \$800,000	\$800,000	\$800,000	\$0	\$0	\$1,600,000
RTD0009533	CCRTA	117A00	Cape Cod Regional Transit Authority/PREVENTIVE MAINTENANCE	2020 - \$1,873,231; 2021 - \$4,126,769	\$6,000,000	\$1,500,000	\$0	\$0	\$7,500,000
RTD0009528	CCRTA	111203	Cape Cod Regional Transit Authority/BUY REPLACEMENT 30-FT BUS (part Statewide 5339 funds)		\$994,048	\$248,513	\$0	\$0	\$1,242,561

\$10,695,700	\$3,273,926	\$0	\$0	\$13,969,626
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5339

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0009523	CCRTA	119302	Cape Cod Regional Transit Authority/Falmouth and Barnstable Rte 28/CONSTRUCTION - BUS SHELTERS	2018 - \$30,400	\$30,400	\$7,600	\$0	\$0	\$38,000
					\$30,400	\$7,600	\$0	\$0	\$38,000

Other NonFederal

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0010213	CCRTA	114110	Cape Cod Regional Transit Authority/AUTOMATIC FARE COLLECTION (AFC) 2.0LL EQUIP		\$0	\$50,000	\$0	\$0	\$50,000
					\$0	\$50,000	\$0	\$0	\$50,000
					10,726,100	3,331,526	0	0	14,057,626



TIP 2022 - 2026 2024

5307

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0009534	CCRTA	113400	Cape Cod Regional Transit Authority/Hyannis Transportation Center/REHAB/RENOVATE BUS STATIONS	2020 - \$133,656; 2021 - \$1,466,344	\$1,600,000	\$400,000	\$0	\$0	\$2,000,000
RTD0009535	CCRTA	117A00	Cape Cod Regional Transit Authority/PREVENTIVE MAINTENANCE	2020 - \$778,090; 2021 - \$302,097; 2022 - \$4,919,813	\$6,000,000	\$1,500,000	\$0	\$0	\$7,500,000
RTD0009536	CCRTA	300901	Cape Cod Regional Transit Authority/OPERATING ASSISTANCE-Fixed Route/Demand Response	2022 - \$800,000	\$800,000	\$800,000	\$0	\$0	\$1,600,000
RTD0009537	CCRTA	117L00	Cape Cod Regional Transit Authority/MOBILITY MANAGEMENT	2020 - \$1,200,000	\$1,200,000	\$300,000	\$0	\$0	\$1,500,000
RTD0009538	CCRTA	117C00	Cape Cod Regional Transit Authority/NON FIXED ROUTE ADA PARA SERV	2022 - \$95,542; 2023 - \$504,458	\$600,000	\$150,000	\$0	\$0	\$750,000
RTD0009553	CCRTA	111202	Cape Cod Regional Transit Authority/BUY REPLACEMENT 35-FT BUS (part Statewide 5339)		\$600,000	\$150,000	\$300,000	\$0	\$1,500,000
					\$10,800,000	\$3,300,000	\$300,000	\$0	\$14,850,000

5339

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0009539	CCRTA	114200	Cape Cod Regional Transit Authority/South Dennis Bus Operations Center/ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2019 - \$685,154	\$685,154	\$171,289	\$0	\$0	\$856,443
					\$685,154	\$171,289	\$0	\$0	\$856,443
					11,485,154	3,471,289	300,000	0	15,706,443



TIP 2022 - 2026 2025

5307

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0009542	CCRTA	300901	Cape Cod Regional Transit Authority/OPERATING ASSISTANCE-Fixed Route/Demand Response	2023 - \$800,000	\$800,000	\$800,000	\$0	\$0	\$1,600,000
RTD0009543	CCRTA	117L00	Cape Cod Regional Transit Authority/MOBILITY MANAGEMENT	2024 - \$1,200,000	\$1,200,000	\$300,000	\$0	\$0	\$1,500,000
RTD0009544	CCRTA	117C00	Cape Cod Regional Transit Authority/NON FIXED ROUTE ADA PARA SERV	2023 - \$600,000	\$600,000	\$150,000	\$0	\$0	\$750,000
RTD0009545	CCRTA	117A00	Cape Cod Regional Transit Authority/PREVENTIVE MAINTENANCE		\$5,600,000	\$1,400,000	\$0	\$0	\$7,000,000
RTD0009548	CCRTA	114402	Cape Cod Regional Transit Authority/South Dennis Bus Operations Center/REHAB/RENOVATE - MAINTENANCE FACILITY	2023 - \$640,000	\$640,000	\$160,000	\$0	\$0	\$800,000
RTD0009549	CCRTA	113401	Cape Cod Regional Transit Authority/Hyannis Transportation Center/REHAB/RENOVATE - BUS TERMINAL	2024 - \$400,000	\$400,000	\$100,000	\$0	\$0	\$500,000
RTD0009550	CCRTA	119302	Cape Cod Regional Transit Authority/Yarmouth and Chatham/CONSTRUCTION - BUS SHELTERS	2023 - \$60,800	\$60,800	\$15,200	\$0	\$0	\$76,000
RTD0009547	CCRTA	111202	Cape Cod Regional Transit Authority/BUY REPLACEMENT 35-FT BUS (\$750,000 Statewide 5339)	2024 - \$300,000	\$1,200,000	\$300,000	\$0	\$0	\$1,500,000
					\$10,500,800	\$3,225,200	\$0	\$0	\$13,726,000

5339

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
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RTD0009546	CCRTA	114220	Cape Cod Regional Transit Authority/South Dennis Bus Operations Center/ACQUIRE - MISC SUPPORT EQUIPMENT	2023 - \$400,000	\$400,000	\$100,000	\$0	\$0	\$500,000
RTD0009551	CCRTA	111204	Cape Cod Regional Transit Authority/BUY REPLACEMENT <30 FT BUS	2022 - \$200,000	\$200,000	\$50,000	\$0	\$0	\$250,000
RTD0009552	CCRTA	111303	Cape Cod Regional Transit Authority/BUY 30-FT BUS FOR EXPANSION	2023 - \$960,000	\$960,000	\$240,000	\$0	\$0	\$1,200,000
					\$1,560,000	\$390,000	\$0	\$0	\$1,950,000
					12,060,800	3,615,200	0	0	15,676,000



TIP 2022 - 2026 2026

5307

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0010200	CCRTA	117L00	Cape Cod Regional Transit Authority/MOBILITY MANAGEMENT	2025 - \$1,360,000	\$1,360,000	\$340,000	\$0	\$0	\$1,700,000
RTD0010206	CCRTA	117C00	Cape Cod Regional Transit Authority/NON FIXED ROUTE ADA PARA SERV	2025 - \$600,000	\$600,000	\$200,000	\$0	\$0	\$800,000
RTD0010207	CCRTA	117A00	Cape Cod Regional Transit Authority/PREVENTIVE MAINTENANCE	2025 - \$1,400,000; 2025 - \$5,600,000	\$5,600,000	\$1,400,000	\$0	\$0	\$7,000,000
RTD0010208	CCRTA	300900	Cape Cod Regional Transit Authority/OPERATING ASSISTANCE-Fixed Route/Demand Response	2025 - \$800,000	\$800,000	\$800,000	\$0	\$0	\$1,600,000
RTD0010217	CCRTA	113401	Cape Cod Regional Transit Authority/Hyannis Transportation Center/REHAB/RENOVATE - BUS TERMINAL	2025 - \$800,000	\$800,000	\$200,000	\$0	\$0	\$1,000,000
RTD0010216	CCRTA	114402	Cape Cod Regional Transit Authority/South Dennis Bus Operations Center/REHAB/RENOVATE - MAINTENANCE FACILITY	2025 - \$800,000	\$800,000	\$200,000	\$0	\$0	\$1,000,000
					\$9,960,000	\$3,140,000	\$0	\$0	\$13,100,000

5339

Project Number	Agency	Line Item	Project Description	Carry Over	Federal Funds	State Funds	TDC	Local Funds	Total
RTD0010218	CCRTA	119302	Cape Cod Regional Transit Authority/Mashpee and Dennis/CONSTRUCTION - BUS SHELTERS	2024 - \$80,000	\$80,000	\$20,000	\$0	\$0	\$100,000
RTD0010215	CCRTA	111204	Cape Cod Regional Transit Authority/BUY REPLACEMENT <30 FT BATTERY ELECTRIC BUS	2025 - \$1,600,000	\$1,600,000	\$400,000	\$0	\$0	\$2,000,000

RTD0010214	CCRTA	114220	Cape Cod Regional Transit Authority/South Dennis Bus Operations Center/ACQUIRE - MISC SUPPORT EQUIPMENT	2025 - \$720,000	\$720,000	\$180,000	\$0	\$0	\$900,000
					\$2,400,000	\$600,000	\$0	\$0	\$3,000,000
					12,360,000	3,740,000	0	0	16,100,000

Glossary

Table 19. 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 20. 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
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
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
SIP	State Implementation Plan
SOV	Single Occupancy Vehicle

Table 20. Acronyms (continued)

ACRONYM	MEANING
SSA	Steamship Authority
STBG	Surface Transportation Block Grant
STIP	Statewide Transportation Improvement Program
TA	Transportation Alternatives
TDM	Transportation Demand Management
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TSM	Transportation Systems Management
USGS	United States Geographical 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 FFY2021/22. Also, in the first RTP time band is "Route 28 Multimodal Improvements." This appears as a series of projects in the 2022-2026 TIP. Other projects in the 2022-2026 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 2022-2026 TIP includes several regional path projects including the first phase of the Bourne Rail Trail and expansion projects of the Cape Cod Rail Trail and the Shining Sea Bikeway plus additional path projects in Barnstable and Sandwich. 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 2022-2026 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. 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.

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. The COVID-19 pandemic did not significantly change regional priorities but did highlight the region's shared use path network as true asset. Many of the region's bike paths saw significant increases in user counts throughout 2020 as indoor activities were prohibited and social distancing was encouraged during the COVID-19 pandemic. Historically, path projects have been prioritized by the Cape Cod MPO in the TIP and will continue to be prioritized in the FFY 2022-2026 TIP with several path projects in Bourne, Falmouth, Sandwich, Barnstable and Yarmouth.

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 FFY2022-2026 TIP)

Cape Cod TIP Project Evaluation																													
Scoring Summary (For FFY2022-2026 TIP)																													
			System Preservation and Modernization	Mobility	Safety	Economic Impact	Environmental and Health Effects				Cost Effectiv- eness	Policy Support																	
#	Project	A1 Primary asset condition / effect on condition	A2 Enhancements to other assets	A3 Modern technology/regional ITS efforts	B1 Existing motorist congestion / effect on motorist congestion	B2 Effect on mobility / accommodation of non-motorists	B3 Effect on connectivity / access	C1 Motorist crash history and anticipated safety impact	C2 Non-motorist crash history and anticipated safety impact	D1 Effect on regionally-designated economic development area	D2 Effect on locally-designated business district	D3 Housing, job, cultural centers, & essential services connections	D4 Ability of the region's freight network to handle current and future freight needs	E1 Wetlands, wildlife, or other resources	E2 Stormwater management/treatment	E3 Air quality / GHG emission	E4 Coastal Resiliency/SLR Vulnerability	E5 Cultural resources or open space	E6 Healthy Transportation Options	F1 Project cost per user	G1 Community support (demonstrated through highest elected officials)	G2 Regional plans/policies	G3 Local plans/policies	G4 Supports Federal/State policies/goals					
607319	Mashpee, Rte 151 (Phase 1)	12	10	10	4	3	3	5	4	3	2	3	2	1	1	1	0	1	1	12	2	3	1	1	85	2022		M, LEP	
607397	Wellfleet, Rte 6 at Main St	15	10	9	4	3	3	5	4	3	2	3	2	1	1	2	0	0	1	8	3	3	1	1	84	2023		None	
611985	Harwich, Route 28 Sidewalk to Saquatucket Harbor	15	10	7	4	3	3	3	3	2	3	0	0	0	1	1	2	1	1	12	3	3	1	1	82	2025		I	
609218	Falmouth, Corridor Improvements on Route 28	12	10	7	4	3	3	5	5	3	2	3	2	0	1	1	0	1	1	10	2	3	2	1	81	Future		I, LEP	
611986	Mashpee, Rte 151 (Phase 2)	12	10	7	4	3	3	5	4	2	2	3	2	1	1	1	0	1	1	12	2	3	1	1	81	2026		M, LEP	
607398	Yarmouth-Barnstable, Cape Cod Rail Trail Extension	15	10	7	3	3	3	3	5	3	2	3	0	0	0	2	0	1	1	10	3	3	2	1	80	2025	X	I, M, LEP	
608742	Dennis/Harwich, Route 28 Reconstruction (Upper County Rd to Herring River Bridge)	12	10	7	4	3	3	3	4	3	2	3	2	1	1	2	0	0	1	12	2	3	1	1	80	2024		I, M	
608196	Dennis, Route 28 Streetscape Improvements (Phase 2)	12	10	7	2	3	3	3	4	3	2	3	2	1	1	2	0	1	1	12	2	3	1	1	79	Future		I, M	
608744	Provincetown, Shank Painter Road Improvements	12	10	7	1	3	3	3	4	3	2	3	2	1	1	2	0	1	1	12	3	3	1	1	79	2024		I	
610928	Mashpee, Route 28 Corridor Improvements including Rotary Retrofit	10	10	7	4	3	2	4	4	3	2	3	2	0	0	2	0	1	1	15	2	2	1	1	79	Future		M, LEP	
607405	Chatham, Rte 28 at Main St, Depot Rd, Queen Anne Rd and Crowell Rd	15	10	7	4	3	3	3	3	2	2	3	2	0	1	1	0	0	1	10	3	3	1	1	78	2026		None	
608422	Sandwich, Shared Use Path on Service Rd (Rte 130 to Chase Rd)	15	10	7	3	3	3	3	4	2	2	3	0	0	0	2	0	1	1	10	3	3	2	1	78	2022	X	None	
609067	Barnstable, Bearse Way Shared Use Path	15	10	7	3	3	3	3	5	3	2	3	0	0	0	2	0	1	1	10	2	2	1	1	77	2023		I, M, LEP	
608568	Yarmouth, Route 28 at North Main St and Old Main St	12	8	7	4	3	3	5	4	3	2	3	2	0	1	1	0	0	1	10	2	3	1	1	76	2024	X	I, M, LEP	
610926	Barnstable, Route 28 Corridor Improvements including Rotary Retrofit	10	10	7	2	2	2	4	4	3	2	3	2	0	0	2	0	0	1	15	2	2	1	1	75	Future		I, M, LEP	
607394	Bourne/Falmouth, Bourne Rail Trail Phase 4/Shining Sea Bikeway Extension	15	10	7	2	3	2	2	3	0	2	1	0	0	0	2	0	1	1	10	3	3	2	2	71	Future		None	
610673	Bourne, Bourne Rail Trail (Phase 2)	15	10	7	2	3	2	2	3	0	2	1	0	0	0	2	0	1	1	10	3	3	2	2	71	Future		None	
607444	Falmouth, Rte 28A at Rte 151	15	10	7	1	3	3	5	4	0	2	2	2	0	1	1	0	0	1	8	3	1	1	1	71	Future		None	
609262	Bourne, Bourne Rail Trail (Phase 1)	15	10	7	2	3	1	2	3	0	2	1	0	0	0	2	0	1	1	10	3	3	2	2	70	2025	X	None	
606082	Bourne, Rte 6 Scenic Highway Median Installation	15	10	0	1	1	2	5	2	2	2	2	2	0	1	0	0	0	0	15	3	3	2	1	69	2024	X	M	
608666	Orleans, Route 28 at Route 39 and Quanset Rd	10	10	9	1	3	2	3	3	1	2	2	2	0	1	1	0	0	1	8	3	3	1	1	67	2022		I	
610670	Harwich, Harwich Elementary School (SRTS)	15	7	0	1	3	3	3	3	0	2	3	0	0	0	1	0	1	1	15	3	3	2	1	67	2024	X	I	
609098	Wellfleet, Pavement Preservation and Related Work on Route 6	12	10	7	1	2	2	3	4	1	1	1	1	0	1	0	0	0	1	12	2	3	1	1	66	2023	X	None	
606236	Barnstable, Rte 28 Resurfacing and Related Work	15	7	0	1	2	2	5	3	2	1	2	2	1	1	0	0	0	1	12	2	3	1	1	64	Future		I, M, LEP	
608264	Yarmouth, Rte 28 Resurfacing and Related Work	15	7	0	1	2	2	3	4	2	1	1	1	1	1	0	0	1	1	15	1	3	1	1	64	Future	X	I, M, LEP	
612032	Provincetown/Truro, Resurfacing and Related Work on Route 6	15	7	0	2	3	1	3	3	0	1	3	1	0	0	0	0	0	1	15	3	3	0	1	62	2026	X	LEP	
610542	Bourne Rotary Improvements	8	4	7	2	0	2	4	0	1	1	3	2	0	0	1	0	0	0	12	2	2	1	1	53	Future		M	
CC2000	Cape Cod, Bicycle Rack Program	15	0	0	1	2	2	0	1	1	2	1	0	0	0	2	0	1	1	15	3	2	1	1	51	Future		TBD	
608819	Barnstable, Route 6 Repaving and Related Work	15	3	0	1	0	1	3	0	1	1	2	1	1	1	0	0	0	0	15	0	2	1	1	49	2025	X	I, M, LEP	
609212	Dennis, Culvert Replacements on Route 6A over Sesuit Creek	15	4	0	0	1	1	0	1	0	0	1	0	2	2	0	2	0	1	8	0	1	1	1	41	2022		None	
608617	Harwich, Bridge Replacement - Azalea Dr over Herring River	15	8	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	5	2	2	1	1	36	2022	X	None	
Maximum Possible			15	10	10	4	3	3	5	5	3	2	3	2	2	2	2	2	1	1	15	3	3	2	2	100			

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 21. Distribution of TIP Funds by Community

Community	2022-2026 Total	2022-2026 Community Share	2012-2021 Total	2012-2021 Community Share
Barnstable	\$26,855,962	18.9%	\$39,649,207	23.8%
Bourne	\$11,010,567	7.8%	\$18,885,929	11.3%
Brewster	\$0	0.0%	\$10,614,378	6.3%
Chatham	\$3,157,868	2.2%	\$18,794,540	11.3%
Dennis	\$3,448,900	2.4%	\$28,724,488	17.2%
Eastham	\$0	0.0%	\$0	0.0%
Falmouth	\$0	0.0%	\$9,124,286	5.5%
Harwich	\$10,091,558	7.1%	\$10,614,560	6.4%
Mashpee	\$12,960,660	9.1%	\$11,157,034	6.7%
Orleans	\$5,043,808	3.6%	\$7,467,415	4.5%
Provincetown	\$16,916,208	12.0%	\$0	0.0%
Sandwich	\$8,399,241	6.0%	\$5,744,903	3.4%
Truro	\$11,813,597	8.3%	\$969,376	0.6%
Wellfleet	\$27,063,364	19.1%	\$217,523	0.1%
Yarmouth	\$4,992,876	3.5%	\$4,888,661	2.9%
Regional	\$0	-	\$380,000	-
CCRTA (including pass-throughs)	\$76,777,778	-	\$116,567,900	-
CCNS	\$0	-	\$3,686,236	-
SSA	\$0	-	\$7,476,309	-
Total	\$218,532,387	100.0%	\$294,962,744	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 21, TIP projects were accounted for in all 15 towns, except in Eastham. Cape Cod Transportation staff are currently working with Eastham on a number of potential TIP projects. 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 recently awarded for the Harwich Elementary School, which is currently programmed on the TIP. The towns of Barnstable, Harwich and Provincetown 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 21, tends to be skewed by larger bridge projects, such as in the case with recent large bridge projects in Chatham (approximately \$19 million Mitchell's River bridge replacement) and Dennis (approximately \$12 million Upper County Road bridge replacement).

Equity Analysis by Impacted Population

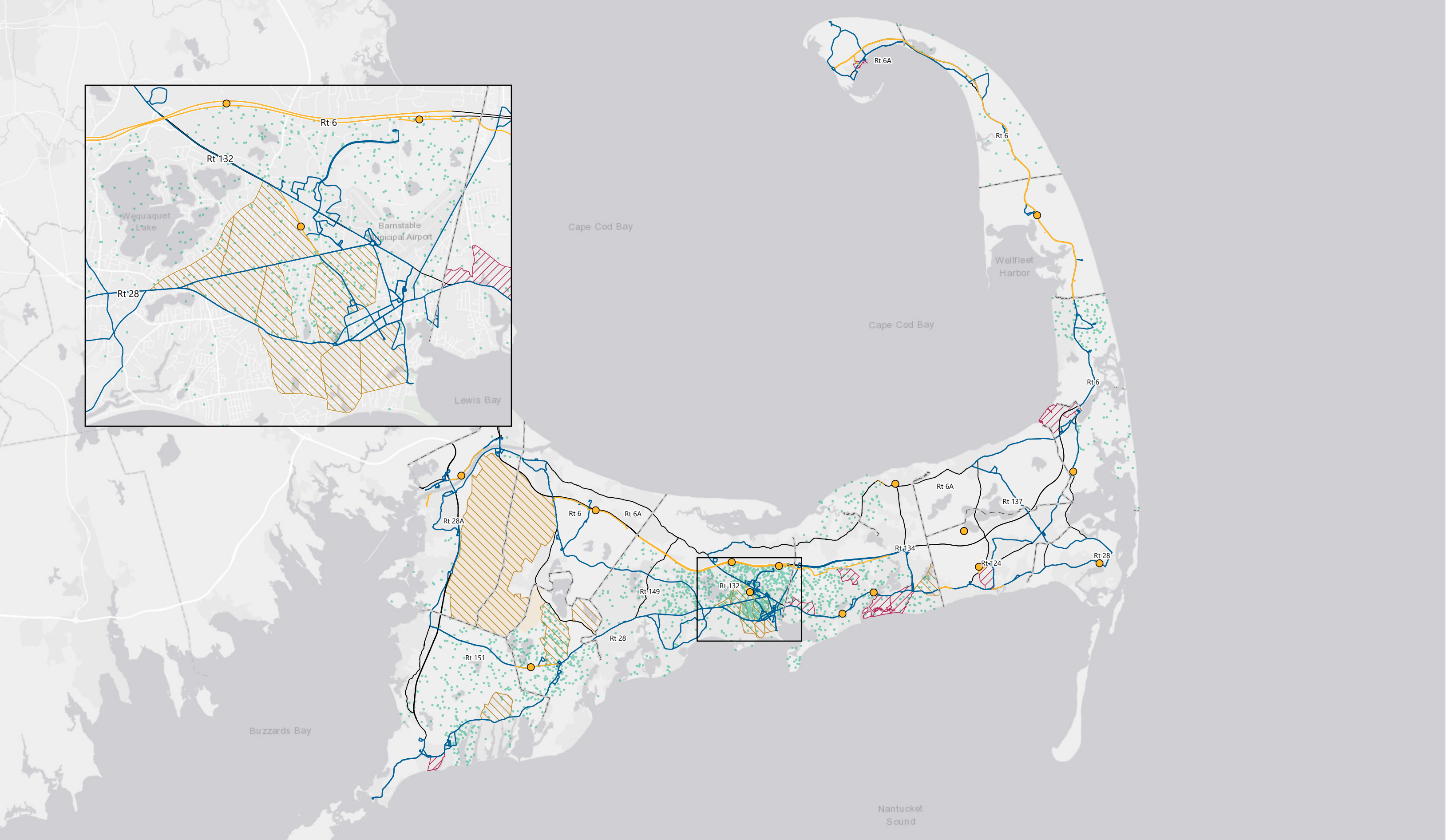
An equity analysis of projects included in the TIP was conducted with respect to anticipated impacts on minority, low income, and limited English proficiency populations. An equity analysis of the previous ten years of TIP projects was also conducted. The maps at the end of this Appendix show the locations of projects in relation to identified concentrations of these populations both for the current TIP and the ten-year look back.

Overall, 40% of the FFY 2022-2026 regional TIP highway funding is allocated to projects that will positively impact minority populations, 51% to projects that will positively impact low income populations, and 25% 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 22.

Table 22. Anticipated Impacts of TIP Projects on Minority (M), Low Income (I), and Limited English Proficiency (LEP) Populations

Project (#)	Year	Impacted Population	Anticipated Impact
Mashpee, Rte 151 Corridor Improvements (Phase 1) (#607319)	2021-2022	M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Barnstable, Bearses Way Shared Use Path (#609067)	2023	I, M, LEP	Improved bicycle/ pedestrian access, safety
Orleans, Route 28 at Route 39 and Quanset Rd (#608666)	2022	I	Improved bicycle/ pedestrian access, safety
Yarmouth, Route 28 at North Main St and Old Main St (#608568)	2024	I, M, LEP	Improved bicycle/ pedestrian access, safety
Yarmouth-Barnstable, Cape Cod Rail Trail Extension (#607398)	2025	I, M, LEP	Improved bicycle/ pedestrian access, safety
Dennis/Harwich, Route 28 Reconstruction (Upper County Rd to Herring River Bridge) (#608742)	2024	I, M	Improved bicycle/ pedestrian access, safety
Bourne, Rte 6 Scenic Highway Median Installation (#606082)	2024	M	Improved safety, traffic flow
Harwich, Harwich Elementary School (SRTS) (#610670)	2024	I	Improved bicycle/ pedestrian access, safety
Provincetown, Shank Painter Road Improvements (Phase 1) (#608744)	2024-2025	I	Improved bicycle/ pedestrian access, safety
Barnstable, Route 6 Repaving and Related Work (#608819)	2025	I, M, LEP	Improved pavement condition
Harwich, Sidewalk Installation on Route 28 to Saquatucket Harbor	2025	I	Improved bicycle/ pedestrian access, safety
Provincetown/Truro, Route 6 Resurfacing and Related Work (#612032)	2026	LEP	Improved pavement condition, and multi-modal access, safety
Mashpee, Rte 151 Corridor Improvements (Phase 2) (#611986)	2026	M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow

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



Proposed 2022-2026 Transportation Improvement Plan (TIP)
Minority, Low Income, and Limited English Proficiency Populations

- TIP Specific Location Improvement
- TIP Road Segment Improvement
- CCRTA Route
- Low Income Block Group
- Minority Block Group

Each point represents one Portuguese speaking individual who speaks English less than very well

- Town Line
- Major Road
- Joint Base Cape Cod

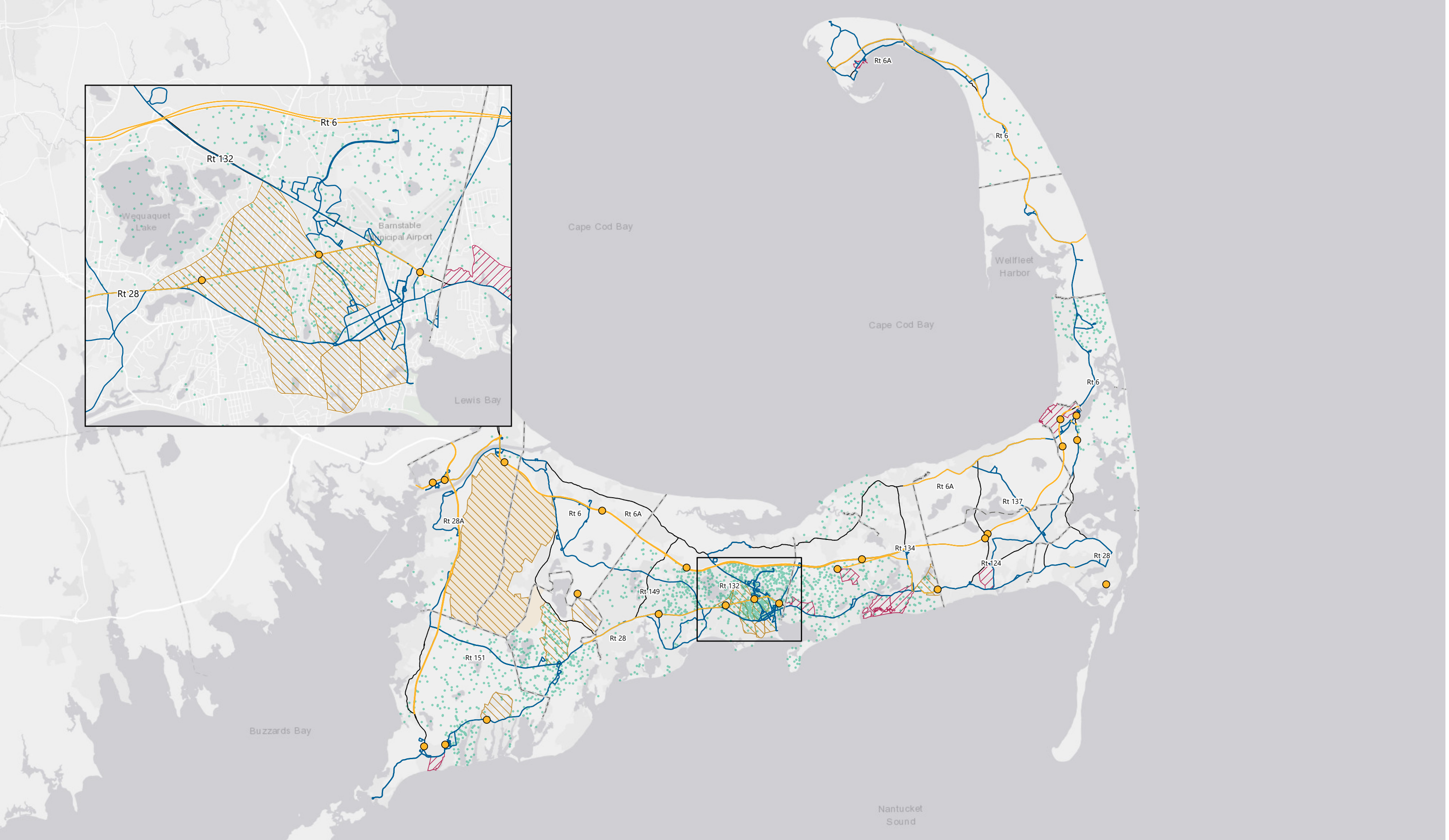
Income: Median household income of census block is less than or equal to 60% Barnstable County median household income (\$59,000)

Minority: 15% or more residents of census block self-identify as a race other than white

Barnstable County Census Block Minority Population:
Mean % Minority: 8.45%
Median % Minority: 6.39%

Population classified as minority represents residents who self-identify as a race other than white





10 Years Review (2012-2021)
Transportation Improvement (TIP)
Minority, Low Income, and Limited
English Proficiency Populations

- TIP Specific Location Improvement
- TIP Road Segment Improvement
- CCRTA Route
- Low Income Block Group
- Minority Block Group

Each point represents one Portugese speaking individual who speaks English less than very well

- Town Line
- Major Road
- Joint Base Cape Cod

Income: Median household income of census block is less than or equal to 60% Barnstable County median household income (\$59,000)

Minority: 15% or more residents of census block self-identify as a race other than white

Barnstable County Census Block Minority Population:
Mean % Minority: 8.45%
Median % Minority: 6.39%

Population classified as minority represents residents who self-identify as a race other than white



Appendix B: Air Quality Conformity Determination

Air Quality Conformity Determination

Air Quality Conformity Determination Cape Cod Metropolitan Planning Organization FFY 2022-2026 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. These 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 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, and 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 2022-2026 Transportation Improvement Program, and Massachusetts’ FFY 2022-2026 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 2022-2026 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 January 21, 2021. 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 as updated in 2017. 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 26, 2021. 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 17, 2021 and subsequently, the Cape Cod MPO is expected to endorse this air quality conformity determination before May 24, 2021. 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 2022-2026 TIP and 2020-2040 RTP 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 2022-2026 TIP and the 2020-2040 RTP 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 2022-2026 TIP and the 2020-2040 RTP 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 2022 – 2026 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. Beginning in 2020, the Cape Cod Climate Action Initiative was launched and performed a baseline GHG inventory 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

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 2022 – 2026 TIP

The tables summarizing the calculated quantitative and assumed qualitative impacts of the projects included in the FFY 2022 – 2026 TIP are included on the following pages.



Greenhouse Gas (GHG) Analysis Report

STIP: 2022 - 2026 (D)

MassDot Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG CO2 Impact (kg/yr)	Additional Information
Federal Fiscal Year 2022					
Cape Cod					
607319	MASHPEE- CORRIDOR IMPROVEMENTS & RELATED WORK ON NATHAN ELLIS HIGHWAY (ROUTE 151), FROM	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian	-3,728	AC Project programmed for 2021, 2022
608422	SANDWICH- CONSTRUCTION OF SHARED USE PATH ALONG SERVICE ROAD FROM ROUTE 130 TO CHASE ROAD	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	-45,215	
608617	HARWICH- BRIDGE REPLACEMENT, H-10-019, AZALEA	Qualitative	No assumed impact/negligible impact	0	
608666	ORLEANS- INTERSECTION IMPROVEMENTS AT ROUTE 28 (SOUTH ORLEANS ROAD), ROUTE 39 (HARWICH ROAD) AND QUANSET ROAD	Quantified	Quantified Decrease in Emissions from Traffic Operational Improvement	-9,640	
609212	DENNIS- CULVERT REPLACEMENTS ON ROUTE 6A	Qualitative	No assumed impact/negligible impact	0	
Cape Cod			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	-58,583	
			Total GHG Difference (kg/year)	-58,583	
2022			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	-58,583	
			Total GHG Difference (kg/year)	-58,583	

Greenhouse Gas (GHG) Analysis Report

STIP: 2022 - 2026 (D)

MassDot Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG CO2 Impact (kg/yr)	Additional Information
Federal Fiscal Year 2023					
Cape Cod					
607397	WELLFLEET- INTERSECTION IMPROVEMENTS & RELATED WORK AT ROUTE 6 & MAIN STREET	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	-287	
609067	BARNSTABLE- CONSTRUCTION OF A SHARED USE PATH ALONG BEARSES WAY, FROM ROUTE 28 TO PITCHERS WAY	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	-1,518	
609098	WELLFLEET- PAVEMENT PRESERVATION AND RELATED WORK ON ROUTE 6	Qualitative	Qualitative Decrease in Emissions	0	Assumed nominal decrease in emissions from sidewalk and bicycle infrastructure
Cape Cod			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	-1,805	
			Total GHG Difference (kg/year)	-1,805	
2023			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	-1,805	
			Total GHG Difference (kg/year)	-1,805	

Greenhouse Gas (GHG) Analysis Report

STIP: 2022 - 2026 (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					
606082	BOURNE- MEDIAN INSTALLATION ON ROUTE 6 (SCENIC	Qualitative	No assumed impact/negligible impact	0	
608568	YARMOUTH- IMPROVEMENTS AT MAIN STREET (ROUTE 28) AT NORTH MAIN STREET AT OLD MAIN STREET	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	-1,338	
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	0	AC Project programmed for 2024, 2025
610670	HARWICH- HARWICH ELEMENTARY SCHOOL (SRTS)	Qualitative	Qualitative Decrease in Emissions	0	Assumed nominal decrease in emissions from sidewalk and bicycle infrastructure
Cape Cod				Total GHG Increase (kg/year)	0
				Total GHG Reduction (kg/year)	-1,338
				Total GHG Difference (kg/year)	-1,338
2024				Total GHG Increase (kg/year)	0
				Total GHG Reduction (kg/year)	-1,338
				Total GHG Difference (kg/year)	-1,338



Greenhouse Gas (GHG) Analysis Report

STIP: 2022 - 2026 (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					
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	-48,220	
608744	PROVINCETOWN- CORRIDOR IMPROVEMENTS AND RELATED WORK ON SHANK PAINTER ROAD, FROM	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian	-4,854	AC Project programmed for 2024, 2025
608819	BARNSTABLE- RESURFACING AND RELATED WORK ON	Qualitative	No assumed impact/negligible impact	0	
609262	BOURNE- RAIL TRAIL CONSTRUCTION (PHASE 1)	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	-652	
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	
Cape Cod			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	-54,924	
			Total GHG Difference (kg/year)	-54,924	
2025			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	-54,924	
			Total GHG Difference (kg/year)	-54,924	



Greenhouse Gas (GHG) Analysis Report

STIP: 2022 - 2026 (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					
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
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	-7,942	AC Project programmed for 2026, 2027
612032	PROVINCETOWN- TRURO- RESURFACING AND RELATED WORK ON ROUTE 6	Qualitative	Qualitative Decrease in Emissions	0	Assumed nominal decrease in emissions from sidewalk and bicycle infrastructure
Cape Cod			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	-7,942	
			Total GHG Difference (kg/year)	-7,942	
2026			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	-7,942	
			Total GHG Difference (kg/year)	-7,942	
2022 - 2026			Total GHG Increase (kg/year)	0	
			Total GHG Reduction (kg/year)	-124,592	
			Total GHG Difference (kg/year)	-124,592	

Cape Cod Region Transportation Improvement Program

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	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

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 ▼	Additional Description ▼	Fiscal Year Programmed (2015 and forward) ▼
	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		2016-18

2022 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) ▼
RTD0009541	BUY REPLACEMENT 30 FT BUS	\$ 1,000,000	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	\$ 1,000,000		2022
RTD0009521	BUY REPLACEMENT 35 FT BUS	\$ 1,582,665	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	\$ 1,582,665		2022
RTD0009522	BUY REPLACEMENT <30 FT BUS	\$ 465,000	Quantified	34447	Quantified Decrease in Emissions from Bus Replacement	\$ 465,000		2022

2023 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) ▼
RTD0009528	BUY REPLACEMENT 30 FT BUS	\$ 1,242,561	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	\$ 1,242,561		2023
RTD0009529	BUY REPLACEMENT <30 FT BUS	\$ 245,865	Quantified	34447	Quantified Decrease in Emissions from Bus Replacement	\$ 245,865		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) ▼
RTD0009553	BUY REPLACEMENT 35 FT BUS	\$ 1,500,000	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	\$ 1,500,000		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) ▼
RTD0009547	BUY REPLACEMENT 35 FT BUS	\$ 1,500,000	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	\$ 1,500,000		2025
RTD0009551	BUY REPLACEMENT <30 FT BUS	\$ 250,000	Quantified	1156	Quantified Decrease in Emissions from Bus Replacement	\$ 250,000		2025
RTD0009552	BUY REPLACEMENT 30 FT BUS	\$ 1,200,000	Quantified	12195	Quantified Decrease in Emissions from Bus Replacement	\$ 1,200,000		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) ▼
RTD0009541	BUY REPLACEMENT 30 FT ELECTRIC BUS	\$ 2,000,000	Quantified	-385825	Quantified Decrease in Emissions from Bus Replacement	\$ 2,000,000		2026

Appendix D: Projects in Need of Funding

Table 23. 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	606236	Route 28 Repaving and Related Work	\$2,875,000
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
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	610542	Bourne Rotary Improvements (Rotary Retrofit)	\$4,460,000
Bourne/Falmouth	611998	Shining Sea Bikeway Extension/Bourne Rail Trail Phase 4b	\$6,375,000
Dennis	608196	Route 28 Streetscape Improvements (Phase 2)	\$6,400,000
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 section, 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
Sandwich	-	Quaker Meetinghouse Road Corridor Improvements (Accessibility and Traffic Signal Upgrades)	\$2,000,000
Steamship Authority	-	Relocation of Administrative Offices	\$6,600,000
Steamship Authority	-	Woods Hole Terminal Reconstruction Project	\$61,750,000
Steamship Authority	-	M/V Martha's Vineyard Mid-Life Refurbishment Project	\$10,000,000
Wellfleet	-	Chequessett Bridge Rehabilitation	\$15,000,000
Yarmouth	607394	Safety improvements at Route 6 ramps at Exit 8 (Union Street/Station Avenue).	\$5,000,400
Yarmouth	608264	Route 28 Resurfacing and Related Work	\$21,288,482
TOTAL			\$377,829,790

*Footnote for Implementation of Cape Cod Canal Area Transportation Study improvements

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)
605243	YARMOUTH	Old Town House Rd at Forest Rd Intersection & Signal improv	\$1,221,000	completed	town	\$1,106,689	2012
605375	DENNIS	Rte. 134 from Upper County Rd. to Rte. 28	\$4,390,504	completed	town	\$3,862,027	2012
605291	DENNIS	BR# D-007-001 UpperCountyRd, BR# D-07-006	\$10,964,561	completed	state	\$10,709,091	2012
	CCRTA	New transit service Bourne-Sandwich	\$138,580	transferred	CCRTA	\$138,580	2012
	CCRTA	New transit service Bourne-Falmouth	\$137,540	transferred	CCRTA	\$137,540	2012
2012 ADVERTISING PROGRAM					TOTAL	\$15,953,927	
602213	ORLEANS	Roundabout at Route 28 & Route 6a	\$1,789,759	complete	state	\$1,668,830	2013
605671	FALMOUTH	Rte 28 Improvements: Davisville/Old Mtghouse & Jones/Worce	\$3,308,075	complete	state	\$3,269,348	2013
607263	BARN-BOU-SAN	Changeable Message Boards/Cameras on Rtes 6, 25 and 28	\$1,500,000	complete	state	\$1,301,769	2013
606286	BOURNE-SANDWICH	Rte 6 Resurfacing;Sagamore Bridge - Sandwich/Barnstable T.I	\$8,200,948	complete	state	\$8,061,702	2013
605792	CCNS	Various Pavement Management Projects	\$587,000	transferred	CCNS	\$587,000	2013
	CCRTA	New transit service Bourne-Sandwich	\$180,154	transferred	CCRTA	\$180,154	2013
	CCRTA	New transit service Bourne-Falmouth	\$178,803	transferred	CCRTA	\$178,803	2013
	CCRTA	Ouer Cape Bike Shuttle	\$101,250	transferred	CCNS	\$101,250	2013
2013 ADVERTISING PROGRAM					TOTAL	\$15,348,856	
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

Appendix E: Status of Previous TIP Projects

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	underway	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
	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	underway	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	underway	State	\$3,366,213	2018
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	\$15,756,274	2019
CC1002	Falmouth	Steamship Authority - New Maintenance and Office Facility	\$4,686,016	transferred	SSA	\$4,686,016	2019
608571	BOURNE-	Guide and Traffic Sign Replacment on a Section of Route 28	\$433,353	underway	State	\$647,629	2019
CC1001	Eastham	Pavement Overlay on Doane Road	\$337,500	transferred	CCNS	\$337,500	2019
2019 ADVERTISING PROGRAM						TOTAL	\$21,427,419
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 Rou	\$5,885,786	underway	State	\$4,395,731	2020
	ORLEANS-						
608598	HARWICH-	Stormwater Improvements along Route 28 and Route 6	\$941,243	underway	State	\$692,061	2020
	CAPE COD	Cape Cod Bicycle Rack Program	\$100,000	underway	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	\$12,528,731	2021
607319	Mashpee	Route 151 Corridor Improvements (Phase 1) (Year 1 of 2)	\$11,157,034	programmed	town	\$11,157,034	2021
2021 ADVERTISING PROGRAM						TOTAL	\$23,685,765
						TOTAL amount advertised or obligated	\$346,508,611

Appendix F: Operation and Maintenance Charts

Cape Cod MPO

Operations and Maintenance Summary Table for the Cape Cod Regional Transit Authority 2021-2026†

The numbers below represent actual numbers for FY21, the FY22 year budget/forecast currently under review 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	Year One (Draft)	Year Two	Year Three	Year Four	Year Five
	2021	2022	2023	2024	2025	2026
Farebox	\$ 734,335	\$ 766,924	\$ 786,097	\$ 805,750	\$ 825,893	\$ 846,541
FTA §5307/5339/Stimulus Funds*	\$ 6,567,916	\$ 6,892,038	\$ 7,064,339	\$ 7,240,947	\$ 7,421,971	\$ 7,607,520
Fully Funded (Revenues from HST Operations)	\$ 7,934,799	\$ 8,303,207	\$ 8,510,787	\$ 8,723,557	\$ 8,941,646	\$ 9,165,187
Miscellaneous Income	\$ 269,020	\$ 250,016	\$ 256,266	\$ 262,673	\$ 269,240	\$ 275,971
State Contract Assistance	\$ 5,170,501	\$ 5,226,234	\$ 5,356,890	\$ 5,490,812	\$ 5,628,082	\$ 5,768,784
Local Assessments	\$ 1,963,334	\$ 2,052,417	\$ 2,103,727	\$ 2,156,321	\$ 2,210,229	\$ 2,265,484
Total	\$ 22,639,905	\$ 23,490,836	\$ 24,078,107	\$ 24,680,060	\$ 25,297,061	\$ 25,929,488

Operating Expenses**	Previous	Year One (Draft)	Year Two	Year Three	Year Four	Year Five
	2021	2022	2023	2024	2025	2026
Total	\$ 22,639,905	\$ 23,490,836	\$ 24,078,107	\$ 24,680,060	\$ 25,297,061	\$ 25,929,488

† 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 Commonwealth of Massachusetts' plan to overhaul HST service as early as 7/1/21, 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 under 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.

Operation and Maintenance Charts to be inserted in when available.

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 26, 2021, officially beginning the 21-calendar-day public comment period.

Online public comment opportunities for the plan were held on Tuesday, May 12, 2020 at 5:30 PM and Thursday, May 14, 2020 at 10:00 AM. These meetings featured a short presentation on the document followed by an opportunity for public comments. A virtual public meeting of the Cape Cod MPO is scheduled for Tuesday, May 24, 2021 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 be accepted through May 17, 2021 via mail, by facsimile, or via e-mail, as follows:

Mailed:

Cape Cod Commission Transportation Program
Colleen Medeiros, Transportation Engineer
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 24, 2021 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.

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 May 24, 2021, the endorsement date of the plan.