



Cape Cod Bridges Program

Bourne, Massachusetts

Combined Final Environmental Impact Statement/Record of Decision
Volume 2: Record of Decision

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CAPE COD BRIDGES PROGRAM

Barnstable County, Massachusetts

RECORD OF DECISION

Prepared by:

U.S. Department of Transportation – Federal Highway Administration

Submitted Pursuant to:

National Environmental Policy Act of 1969 (42 USC § 4321 et. seq.)

Department of Transportation Environmental Impact & Related Procedures (23 CFR Part 771)

Efficient Environmental Reviews for Project Decisionmaking (23 USC § 139)

Section 4(f) of the United States Department of Transportation Act of 1966 (49 USC § 303) and
implementing regulations at 23 CFR Part 774)

Section 106 of the National Historic Preservation Act of 1966, as amended (54 USC § 306101)

Clean Air Act of 1970, as amended (42 USC § 7401 et seq.)

Clean Water Act of 1972 (33 USC § 1251-1387)

Rivers and Harbors Act of 1899, as amended (33 USC § 403)

Endangered Species Act of 1973 (16 USC § 1531-1544)

Migratory Bird Treaty Act of 1918 (16 USC § 703)

Bald and Golden Eagle Protection Act (16 USC § 668)

Fish and Wildlife Coordination Act (16 USC 661)

Magnuson-Stevens Fishery Conservation and Management Act (16 USC § 1801-1891d)

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BMP	best management practice
CFR	Code of Federal Regulations
DEIS	Draft Environmental Impact Statement

Acronym/Abbreviation	Definition
EA	Environmental Assessment
EIS	environmental impact statement
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
MassDEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
MRER	Major Rehabilitation Evaluation Report
NEPA	National Environmental Policy Act
NOAA Fisheries	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NRHP	National Register of Historic Places
Program	Cape Cod Bridges Program
ROD	Record of Decision
SHPO	State Historic Preservation Officer
USACE	U.S. Army Corps of Engineers
USC	United States Code

1 Decision

The Federal Highway Administration (FHWA) has determined, pursuant to 42 United States Code (USC) 4321 et seq., 23 USC 139, and FHWA Environmental Impact and Related Procedures Final Rule (23 Code of Federal Regulations [CFR] 771.124), that the requirements of the National Environmental Policy Act of 1969 (NEPA) have been satisfied for the Cape Cod Bridges Program (Program). This Record of Decision (ROD) applies to the Program as described in this combined Final Environmental Impact Statement (FEIS)/ROD and Final Section 4(f) Evaluation, which was prepared jointly by FHWA, as the lead federal agency, and Massachusetts Department of Transportation (MassDOT), as the joint lead agency and local sponsor.

The Build Alternative for the Program consists of replacing Sagamore and Bourne Bridges that cross Cape Cod Canal, which is a federal navigation project operated by the U.S. Army Corps of Engineers (USACE), in the town of Bourne, Barnstable County, Massachusetts. The new bridges would be built to modern highway design standards, and the highway approach networks north and south of Cape Cod Canal would be reconfigured to align with the replacement bridges. The Build Alternative is planned to be delivered in two phases, with the Sagamore Bridge Project as Phase 1 and the Bourne Bridge Project as Phase 2.

Pursuant to 23 USC 139(n)(2), FHWA is issuing a combined FEIS/ROD that presents the Program background and initial alternatives considered, identifies the No Build and Build Alternatives, and summarizes the potential effects of the No Build and Build Alternatives on the natural and human environment within the Study Areas. The FEIS/ROD documents the avoidance, minimization, and mitigation measures that will be incorporated into the Program. The public, stakeholders, local governments, elected officials, non-governmental organizations, Native American Tribes, and federal, state, and local agencies have been and will continue to be involved in the Program until it is completed.

FHWA hereby designates the Build Alternative as the Selected Alternative for the Cape Cod Bridges Program. The Build Alternative was identified as the Preferred Alternative in the Draft Environmental Impact Statement (DEIS) and FEIS. A detailed description of the Selected Alternative is provided in Section 5 of this ROD and in Chapter 3 of the FEIS. Based on its consideration of the environmental review documents, including anticipated effects, avoidance, minimization, and mitigation measures, and public and agency review, FHWA further finds that the ROD is complete and supports its determination that all NEPA requirements have been met.

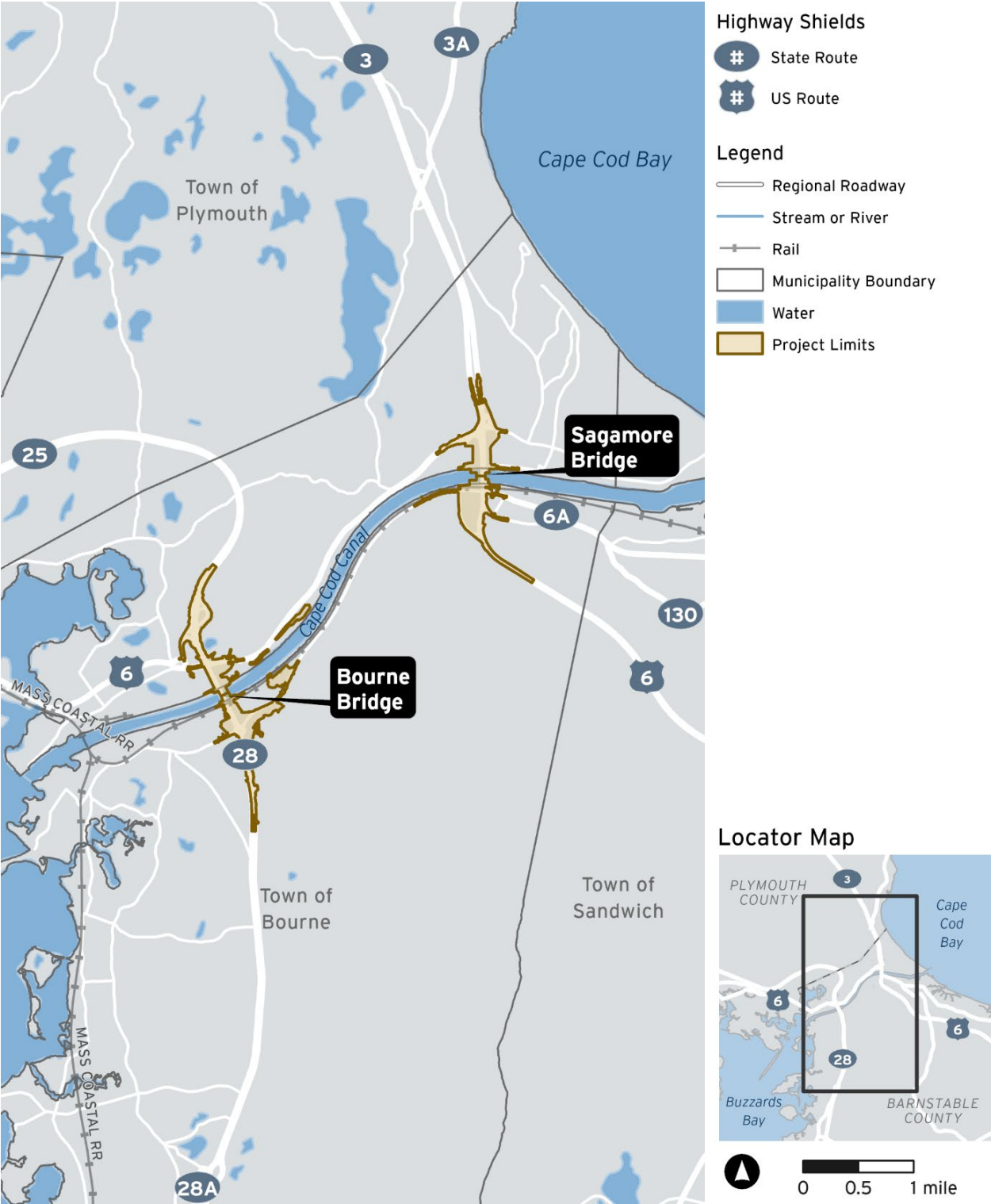
2 Program Location

The Cape Cod Bridges Program is located in the town of Bourne in Barnstable County, Massachusetts, where Sagamore Bridge and Bourne Bridge cross over Cape Cod Canal. These two highway bridges provide the only roadway connections between mainland Massachusetts and the Cape Cod peninsula, forming critical links in the regional and statewide transportation network. U.S. Route 6 travels over Sagamore Bridge, and State Route 28 travels over Bourne Bridge.

The bridges span the federally owned and operated Cape Cod Canal, a 17.4-mile constructed waterway operated and maintained by the New England District of USACE as part of the Cape Cod Canal Federal Navigation Project. The highways providing access to and from Sagamore and Bourne Bridges include State Route 3, U.S. Route 6, State Route 25, and State Route 28, as well as Scenic Highway (U.S. Route 6) and Sandwich Road (State Route 6A), which are two highways that run parallel to Cape Cod Canal and connect the two bridge crossings. MassDOT owns and maintains these highways as part of the Massachusetts State Highway System. State Route 3, U.S. Route 6, State Route 25, State Route 28, and Scenic Highway (U.S. Route 6) are also part of the National Highway System.

Figure 1 depicts the location of Sagamore and Bourne Bridges and the proposed Project Limits at each crossing. More detailed geographic context, including roadway approaches, interchange configurations, and the broader supporting transportation network, is provided in **Chapter 1**.

Figure 1. Project Limits at Sagamore and Bourne Bridges



Source: Massachusetts Department of Transportation, 2025

3 Background

Pursuant to 23 USC 139(f)(4)(E)(ii), the Program builds upon and references prior foundational studies that evaluated alternatives for addressing the deteriorating performance of the aging Sagamore and Bourne Bridges and the multimodal transportation deficiencies of the surrounding approach roadway networks. These studies, along with formal agreements between MassDOT and USACE, established the basis for advancing the Program into the NEPA process. [Section 3.1](#) summarizes the key planning studies, associated agreements, and [Section 3.2](#) summarizes the NEPA process undertaken for the Program.

3.1 Planning Process: Program Background and Foundational Studies

The planning process for the Program was informed by federal and state studies that assessed the condition and long-term transportation needs of Sagamore and Bourne Bridges and the surrounding roadway network. [MassDOT's Cape Cod Canal Transportation Study](#)¹ and [USACE's Major Rehabilitation Evaluation](#)² served as key pre-NEPA planning documents, helping to identify the transportation needs and potential solutions that shaped the range of alternatives considered during the Program's NEPA process. Together with formal agreements between MassDOT and USACE, these efforts provided essential context for the Program's development.

3.1.1 MassDOT Office of Transportation Planning Cape Cod Canal Transportation Study

MassDOT's Office of Transportation Planning initiated the Cape Cod Canal Transportation Study (CCCTS), which was a comprehensive assessment of multimodal transportation needs in the Cape Cod Canal area that was conducted from 2015 through 2019. The CCCTS Study Area extended several miles north and south of the existing bridges and considered roadway, transit, bicycle, and pedestrian conditions. The CCCTS identified existing and future deficiencies in mobility, safety, and multimodal access, and evaluated strategies to improve mobility, enhance safety, and expand multimodal access, ranging from localized traffic improvements to major upgrades at interchanges and rotaries.³ The study concluded that substantial improvements to the approach roadway networks, reconstruction of the Sagamore and Bourne Bridges approaches, and pedestrian, bicycle, and multimodal enhancements were warranted. A summary of the CCCTS findings is provided in **Chapter 1, Section 1.2.1**.

¹ Cape Cod Canal Transportation Study. October 2019. <https://www.mass.gov/lists/cape-cod-canal-study-documents#cape-cod-canal-transportation-study-final-report>

² <https://www.nae.usace.army.mil/Missions/Projects-Topics/Cape-Cod-Canal-Bridges-Major-Rehabilitation-Study/>

³ A broader set of concepts, including public-private-partnership alternatives and new canal crossing locations, was screened and dismissed due to environmental impacts, right-of-way constraints, and community concerns.

3.1.2 USACE Major Rehabilitation Evaluation of Sagamore and Bourne Bridges

USACE's Major Rehabilitation Evaluation (MRE), initiated in 2016 and completed in 2020, assessed the structural condition, long-term performance, and economic viability of major rehabilitation versus replacement of the existing Sagamore and Bourne Bridges. The MRE evaluated 12 conceptual alternatives, including continued maintenance, major rehabilitation, and several bridge and tunnel replacement concepts. Through engineering, environmental, and economic analyses, USACE determined that replacing both bridges with modern structures meeting current design standards provided the most cost-effective and reliable solution. The MRE resulted in the publication of a Major Rehabilitation Evaluation Report (MRER)⁴ and an accompanying Environmental Assessment (EA) that identified bridge replacement as the preferred alternative, and in March 2022, USACE issued a Finding of No Significant Impact for the action. **Chapter 1, Section 1.2.2**, of the FEIS provides additional background on the MRER/EA and its conclusions.

3.1.3 Memorandum of Understanding Between USACE and MassDOT Regarding Bourne and Sagamore Bridges

A Memorandum of Understanding (MOU) between MassDOT and USACE, originally executed in 2018 and updated in 2020 and 2024, outlines the parties' respective roles and responsibilities related to planning for the replacement of Sagamore and Bourne Bridges. Under the MOU, the United States will continue to be responsible for ownership of the two bridges until their demolition by MassDOT, and USACE will continue to be responsible for their operation and maintenance during that period, while partnering with MassDOT on the funding, design, and construction of the replacement bridges. The MOU can be found in **Appendix 1, Attachment 4**.

3.2 NEPA Process

Prior to funding, authorizing, or implementing a federal action, federal agencies are required to evaluate the potential environmental, social, and economic effects of that action in accordance with NEPA. FHWA is the lead federal agency for the Program and is responsible for managing the NEPA review process. MassDOT serves as the project sponsor and joint lead agency, with shared responsibility for preparation of the environmental impact statement (EIS) and public involvement.

In August 2023, FHWA determined that the Program is likely to have significant environmental impacts, thereby requiring preparation of an EIS. Following this determination, and in accordance with the requirements of NEPA (42 USC 4321), 23 USC 139, and FHWA's regulations implementing NEPA (23 CFR 771.109 and 23 CFR 771.111), FHWA and MassDOT conducted early coordination with appropriate agencies and the public to determine the scope of issues for analysis in the EIS. This early coordination included inviting the participation of potentially affected federal, state, tribal, and local agencies and

⁴ Major Rehabilitation Evaluation Report and Environmental Assessment, Cape Cod Canal Highway Bridges, Bourne, Massachusetts, March 2020.

governments and likely affected or interested persons into the process, and conducting early scoping meetings.

FHWA, in coordination with MassDOT, initiated the formal NEPA process by publishing a [Notice of Intent \(NOI\) to prepare an EIS](#) in the Federal Register on February 29, 2024.⁵ The NOI announced FHWA and MassDOT's intent to prepare an EIS, provided background information on the Program, and established a scoping period to obtain input from agencies and the public on the purpose and need, alternatives retained for detailed study, and identification of potentially significant adverse environmental impacts to be evaluated in the EIS. A Supplementary NOI document was released jointly with the NOI publication to provide additional information regarding the Program, including background information on the purpose and need and proposed alternatives analysis process.

FHWA and MassDOT prepared a DEIS in compliance with NEPA,⁶ the FHWA *Environmental Impact and Related Procedures*,⁷ and *Efficient Environmental Reviews for Project Decisionmaking and One Federal Decision*.⁸ The DEIS identified the Build Alternative as the Preferred Alternative and disclosed FHWA's intent to issue a combined FEIS/ROD pursuant to 23 USC § 139(n)(2) and 23 CFR 771.123(g). FHWA filed the DEIS with the U.S. Environmental Protection Agency, and a [Notice of Availability](#) was published in the Federal Register on November 21, 2025,⁹ initiating a 45-day public review period that concluded on January 5, 2026. An in-person public hearing was held on December 16, 2025. Comments received during the DEIS comment period were considered in preparing the FEIS/ROD. Responses to comments are provided in **Chapter 6, Appendix 6.3**.

Following consideration of public and agency comments, FHWA and MassDOT prepared a combined FEIS and ROD. The FEIS builds upon the analyses presented in the DEIS and describes the anticipated beneficial and adverse social, economic, and environmental effects of the Program during construction and long-term operation. This ROD documents FHWA's decision based on the analyses in the FEIS.

4 Purpose and Need

The purpose of the Program is to improve cross-canal mobility and accessibility between Cape Cod and mainland Massachusetts for all road users and to address the increasing maintenance needs and functional obsolescence of the aging Sagamore and Bourne Bridges.

The bridges are also known as the Cape Cod Canal highway bridges, which the United States owns and USACE operates and maintains as part of the Cape Cod Canal Federal Navigation Project.

⁵ <https://www.federalregister.gov/documents/2024/02/29/2024-04160/notice-of-intent-to-prepare-an-environmental-impact-statement-for-the-cape-cod-bridges-program-in>

⁶ 42 United States Code (USC) 4321

⁷ 23 Code of Federal Regulations (CFR) part 771

⁸ 23 USC 139

⁹ <https://www.govinfo.gov/content/pkg/FR-2025-11-21/pdf/2025-20586.pdf>

The needs for the Program are as follows:

- Address the deteriorating structural condition and escalating maintenance demands of the Sagamore and Bourne Bridges.
- Address the substandard design elements of the Sagamore and Bourne Bridges, the immediate mainline approaches, and their adjacent interchanges and intersections.
- Improve vehicular operations.
- Improve accommodations for pedestrians and bicyclists.

5 Alternatives Considered

A reasonable range of alternatives was considered and the No Build and Build Alternatives were carried forward for detailed evaluation in the EIS. The following sections describe the alternatives.

5.1 No Build Alternative

The No Build Alternative represents the conditions that would exist if the Program were not implemented in the project design year of 2050. A No Build Alternative was carried forward and evaluated in the DEIS as a baseline condition for comparison to the Build Alternative, in compliance with NEPA. In the No Build Alternative, the Sagamore and Bourne Bridges would retain their current configuration of four 10-foot-wide travel lanes, two in each direction, with one 6-foot sidewalk and a 2-foot-wide safety curb.

The No Build Alternative represents the “Fix as Fails” Base Condition of USACE’s MRER/EA. In this alternative, USACE would continue to manage and maintain Sagamore and Bourne Bridges as components of the United States-owned Cape Cod Canal Federal Navigation Project. USACE would implement a maintenance and repair program to maintain bridge operations and public safety. No major rehabilitation efforts involving extensive repairs and replacement of major bridge components would occur. Structural components would be repaired, and critical elements would be replaced only when inspections indicate unsatisfactory reliability ratings.

In the No Build Alternative, MassDOT would continue to own, operate, and maintain the state highway networks at the two bridges. The No Build Alternative would include recently completed and proposed transportation improvement projects identified in the Cape Cod Metropolitan Planning Organization’s Federal Fiscal Year (FFY) 2026-2030 Transportation Improvement Program, as described in the FEIS. No other improvements to the interchange approach network at the bridge sites would be implemented, including addressing the substandard design elements of the immediate mainline approaches and their adjacent interchanges and intersections, improving vehicular traffic operations, and improving pedestrian and bicycle accommodations.

5.2 Build Alternative (Selected Alternative)

The Build Alternative, identified throughout the EIS as the Replacement Highway Bridges Built to Modern Design Standards, would replace the existing Sagamore and Bourne Bridges with two new adjacent bridges at each crossing location that meet current federal and state highway design requirements. Additionally, at both canal crossings, the Build Alternative would include a reconfiguration of the highway interchange approach networks north and south of Cape Cod Canal to align with the replacement highway bridges. The DEIS identified the Build Alternative as the Preferred Alternative based on its ability to best meet the Program's purpose and need while avoiding, minimizing, and mitigating environmental effects to the extent practicable. Following public and agency review of the DEIS, the Build Alternative was carried forward into the FEIS. FHWA hereby designates the Build Alternative as the Selected Alternative in this ROD.

As described in **Chapter 3, Proposed Action and Alternatives**, the Build Alternative incorporates USACE's Preferred Alternative from the MRER/EA. Additionally, it incorporates the results of MassDOT's extensive analyses of the following design parameters, evaluated relative to the Program's purpose and need and other factors, including environmental effects, public safety, and cost:

- Highway bridge cross-section and shared-use path
- Bridge vertical and horizontal navigation clearances
- Main span length and bridge pier location
- Bridge deck configuration
- Mainline alignment location
- Bridge type
- Highway interchange approach improvements

A detailed description of the Selected Alternative, including all design parameters and interchange configurations, is provided in **Chapter 3, Proposed Action and Alternatives**. The Build Alternative has been designed to support MassDOT's planned design-build delivery method. Construction is planned to occur in two phases, beginning with the Sagamore Bridge Project (Phase 1) followed by the Bourne Bridge Project (Phase 2). At least two lanes of traffic in each direction across the canal would be maintained throughout construction.¹⁰

Between publication of the DEIS and FEIS, MassDOT refined the Build Alternative in response to public and agency comments, performed further development of preliminary design, and conducted additional coordination with agencies and community stakeholders. The purpose of these refinements was to further avoid or minimize environmental effects, enhance multimodal connectivity, improve constructability and traffic management during construction, and respond to issues raised during the

¹⁰ Phase 1 of the Program, replacement of Sagamore Bridge and State Route 3 over U.S. Route 6, is listed in the FFY 2026-2030 Transportation Improvement Program for the Cape Cod Metropolitan Planning Organization as programmed Project S13144. Phase 2 of the Program, replacement of Bourne Bridge and State Route 28 over Cape Cod Canal, is listed in the FFY 2026-2030 TIP as unprogrammed Project 608020.

DEIS comment period. Additionally, MassDOT further developed the aesthetic design features and landscaping plan to compensate for the disturbance and clearing required for the Program, including bridge replacements and connections to the local roadway networks on the mainland and Cape Cod.

6 Factors in the Decision-Making Process, including Measures to Minimize Harm

This section includes each factor or resource considered in the decision-making process, and their organization is consistent with the FEIS. It summarizes the key findings from the FEIS technical analyses for the Build Alternative, including any measures to avoid, minimize, or mitigate harm.

FHWA and MassDOT identified the Build Alternative as the Selected Alternative based on a balanced consideration of transportation needs, environmental protection goals, and the full range of social, economic, and environmental effects documented in the FEIS. The Build Alternative best meets the Program's Purpose and Need while incorporating the environmental commitments identified in [Section 8, Environmental Commitments and Mitigation Measures](#).

The following subsections summarize the resource-specific analyses and key factors that informed FHWA and MassDOT's determination.

6.1 Introduction

FHWA and MassDOT evaluated the social, economic, and environmental effects of the Build Alternative alongside its performance in meeting the Program's purpose and need. The decision to identify the Build Alternative as the Selected Alternative reflects a comprehensive assessment of technical analyses, environmental commitments, and coordination with federal, state, and local agencies, the public and stakeholders.

The subsections that follow provide summaries of how each environmental resource and decision factor contributed to the overall evaluation of the Build Alternative. For each subject matter/environmental resource, potential effects were assessed within specific study areas established for the two general Program areas, defined as the areas of the existing Sagamore and Bourne bridges and highway approach intersections, including pedestrian-bicycle accommodations, for each crossing.

6.2 Transportation, Traffic, and Safety

The Build Alternative would not result in adverse long-term effects on transportation networks, traffic operations, or safety. As documented in **Chapter 4, Section 4.2, Transportation, Traffic, and Safety**, the Build Alternative would improve vehicular operations by addressing congestion and geometric deficiencies at the existing Sagamore and Bourne Bridges and their approaches, providing modern interchange configurations, enhancing traffic flow, and improving travel times. The Build Alternative would also reduce conflicts between local and regional traffic and incorporate design elements recommended through multiple Road Safety Audits, including upgraded roadway geometry, improved

circulation, and enhanced multimodal connections. The FEIS concludes that the Build Alternative would improve overall safety performance by correcting existing deficiencies, reducing crash risks associated with narrow lanes and the lack of shoulders, and providing physical separation between traffic traveling in opposite directions.

During construction, temporary traffic pattern changes, lane closures, and localized delays may occur. However, pedestrian, bicycle, and vehicular access would be maintained to the extent feasible through a comprehensive Transportation Management Plan. As detailed in **Section 4.2.9**, the plan would include temporary traffic control plans, transportation operations and strategies, and a public information and communication program to minimize disruption and maintain safe and reliable travel. As the Build Alternative results in improved long-term mobility and safety and does not cause adverse operational effects, no long-term mitigation is required beyond the measures incorporated into the project's design.

6.3 Pedestrian and Bicycle Facilities

The Build Alternative would not result in adverse impacts on pedestrian or bicycle facilities. As documented in **Chapter 4, Section 4.3 Pedestrian and Bicycle Facilities**, the Build Alternative would provide designated, physically separated pedestrian and bicycle accommodations on each replacement bridge and improve connections to the shared-use Canal Service Roads and surrounding sidewalk and shared-use path networks. The Build Alternative would improve multimodal safety, accessibility, and connectivity within the Study Areas and is consistent with state and regional pedestrian and bicycle plans.

As described in **Section 4.3.4**, the Build Alternative would expand multimodal access, close existing gaps in the multimodal network, and incorporate Americans with Disabilities Act (ADA)-compliant pedestrian and bicycle facilities along the approaches and local roadway connections. During construction, temporary, localized closures and rerouting of pedestrian and bicycle facilities would be required, primarily beneath the bridges and along portions of Scenic Highway, Sandwich Road, and the shared-use Canal Service Roads. However, pedestrian and bicycle movements would be maintained to the extent feasible. The FEIS concludes that long-term effects are beneficial and construction-period effects would be minimized through signage, barriers, temporary connections, and public information and outreach measures.

6.4 Maritime Transportation, Traffic, and Safety

The Build Alternative would not result in adverse effects on maritime transportation, marine traffic, or navigational safety within Cape Cod Canal. As documented in **Chapter 4, Section 4.4, Maritime Transportation, Traffic, and Safety**, operations of the replacement bridges would not alter the federally authorized navigation channel, and the relocation of bridge piers farther outside the navigation channel would improve navigational safety and reduce the risk of vessel collisions. The Build Alternative maintains existing vertical and horizontal clearances and is designed in coordination with USACE and the U.S. Coast Guard to ensure continued accommodation of vessel types that currently transit the canal.

Construction-period effects would be minimized through coordination with USACE and the U.S. Coast Guard, including advance notification to mariners, temporary aids to navigation, and management of short-term, limited canal closures. Construction activities would be staged to maintain navigation for nearly the entirety of the construction period, with temporary encroachments or closures occurring only as necessary for major operations. As described in **Section 4.4.5**, these measures ensure no adverse effects on maritime transportation or navigational safety are anticipated, and permanent mitigation is not required.

6.5 Socioeconomics

The Build Alternative would not result in adverse socioeconomic effects. As documented in **Chapter 4, Section 4.5, Socioeconomics**, population, housing, employment, income, and commercial real estate trends in the Study Area would remain consistent with existing and projected regional conditions, and community access to employment, services, and commercial destinations would be improved due to more reliable travel times across Cape Cod Canal.

As described in **Section 4.5.4** and **Appendix 4.5, Socioeconomics Technical Report**, the Build Alternative would generate long-term socioeconomic benefits, including increased access to jobs, expanded consumer market areas, and positive regional economic effects associated with improved travel efficiency. Construction would also contribute temporary economic benefits through job creation and spending. The FEIS concludes that no socioeconomic mitigation is required beyond standard construction-period traffic management measures.

6.6 Land Use, Zoning, and Community Cohesion

The Build Alternative would not result in adverse land use or zoning effects. As documented in **Chapter 4, Section 4.6, Land Use, Zoning, and Community Cohesion**, the Study Areas contain a mix of residential, commercial, industrial, institutional, park/open space, and transportation land uses, and zoning includes residential, business, government, scenic development, and downtown districts. The Build Alternative would be designed to minimize effects to adjacent land uses and would remain consistent with the goals and policies of local and regional master plans.

As described in **Section 4.6.4** and **Appendix 4.6, Socioeconomics Technical Report**, the Build Alternative would strengthen community cohesion by providing improved access, mobility, and connectivity throughout the Study Areas. The Build Alternative would be designed to maintain access to community facilities during and after construction and improve local connectivity through new ADA-compliant sidewalks and shared-use paths. Community cohesion benefits would include improved travel flow, enhanced access to recreational and cultural resources, and the inclusion of outlooks and benches on the replacement bridges. Temporary construction-period effects, such as closures of portions of the Canal Service Roads, would be minimized. The FEIS concludes that land use and community cohesion effects of the Build Alternative are not adverse and that mitigation measures include the development of a landscaping plan, construction-period access management, and measures described in **Chapter 4, Section 4.2, Transportation, Traffic and Safety**.

6.7 Community Facilities

The Build Alternative would not result in adverse effects on community facilities. As documented in **Chapter 4, Section 4.7, Community Facilities**, the Build Alternative would not physically displace any community facilities, and proposed easements and property acquisitions would not hinder the ongoing activities or functions of affected community facility properties. Access to all community facilities would be maintained during and after construction. The Build Alternative would improve traffic operations to community facilities, and the construction of shared-use paths would improve multimodal access to community facilities between the mainland and Cape Cod.

As described in **Section 4.7.4**, temporary construction-period effects, such as traffic delays near community facilities, may occur, but access would be maintained throughout construction. Measures to minimize disruption will be implemented, including maintaining continuous access, coordinating with local facility representatives, and implementing a comprehensive Transportation Management Plan. The FEIS concludes that the Build Alternative's community facility effects are not adverse and that mitigation consists primarily of construction-period access management, coordination, and noise and vibration control measures.

6.8 Property Acquisition, Displacement, and Relocation

The Build Alternative would require property acquisitions and easements to construct the replacement bridges and associated approach roadway improvements. As documented in **Chapter 4, Section 4.8, Property Acquisition, Displacement, and Relocation**, these effects include full and partial acquisitions and temporary and permanent easements necessary for construction, access, and maintenance. The Project Limits were refined to avoid and minimize property effects where practicable, including adjustments to roadway alignment, driveway access, and shared-use path locations.

The Build Alternative would result in residential and commercial displacements. As described in **Section 4.8.4**, all property acquisitions will be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act and Massachusetts relocation laws. MassDOT will provide relocation services, moving assistance, and comparable replacement housing, as necessary, and will prepare property-specific relocation plans to support affected occupants.

Temporary construction-period easements would also be required for activities such as construction access, grading, utility relocations, and temporary pedestrian or roadway detours. Permanent easements would be required for the long-term maintenance of stormwater infrastructure, utilities, structures, and shared-use paths. Final easement needs would be refined during final design.

The FEIS concludes that property acquisition and relocation effects under the Build Alternative would be addressed through compensation provided in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Additionally, MassDOT's relocation plan with phased implementation and continued coordination with affected residents and businesses would ensure that relocations occur with assistance and support.

6.9 Wetlands and Floodplains

The Build Alternative would result in temporary and permanent effects on inland and coastal wetland resource areas and floodplains, as documented in **Chapter 4, Section 4.9, Wetlands and Floodplains**. These effects would primarily occur where construction of the new bridge piers, riprap pier protection, temporary work structures, and roadway improvements would affect federally and state-regulated resources. Temporary effects include construction access, cofferdams, work trestles, and localized dredging to facilitate construction. Permanent effects include bridge pier installation, riprap pier protection, and limited roadway and drainage improvements within regulated resource areas. The FEIS concludes that these effects are unavoidable given the location and function of the existing highway and canal crossings and that avoidance and minimization measures have been incorporated through design refinements, such as using retaining walls and limiting in-water work footprints.

As described in **Section 4.9.5**, unavoidable permanent effects to jurisdictional inland wetlands will be compensated through on-site wetland creation and participation in the Massachusetts In-Lieu Fee Program, consistent with the Clean Water Act and Massachusetts Wetlands Protection Act. Temporary effects to inland and coastal resource areas will be restored, including removal of temporary structures and restoration of riprap and canal side slopes. Inland floodplain effects associated with roadway and parkland improvements will be mitigated through creation of compensatory flood storage, and no substantial adverse effects on flood storage or conveyance are anticipated. With the implementation of required restoration, compensatory mitigation, stormwater controls, and construction best management practices (BMPs), including measures to prevent invasive species spread, wetland and floodplain effects associated with the Build Alternative would not result in long-term adverse effects.

6.10 Water Quality and Stormwater

As described in **Chapter 4, Section 4.10, Water Quality and Stormwater**, the Build Alternative would modify stormwater drainage and increase impervious surface area within the Project Limits. The Study Area overlaps with the Cape Cod and Plymouth/Carver Sole Source Aquifers, and existing infrastructure within the Project Limits includes older drainage systems that discharge largely untreated runoff into Cape Cod Canal. The Build Alternative incorporates stormwater control measures, like infiltration basins and other low-impact designs, which meet Massachusetts Stormwater Management Standards and would improve treatment and groundwater recharge compared with existing conditions.

During construction, stormwater runoff could mobilize sediment or pollutants. Therefore, compliance with a U.S. Environmental Protection Agency Construction General Permit and a Stormwater Pollution Prevention Plan is required, and MassDOT will develop a Construction Period Erosion, Sedimentation, and Pollution Prevention Plan. These measures, along with BMPs, will minimize erosion, turbidity, and potential water quality effects. With these protections in place, the Build Alternative would not result in substantial long-term adverse effects on water quality or stormwater resources.

6.11 Threatened, Endangered, and Protected Species and Habitats

As described in **Chapter 4, Section 4.11, Threatened, Endangered, and Protected Species and Habitats**, the Build Alternative would not result in substantial adverse effects on threatened, endangered, or protected species under the federal Endangered Species Act, Massachusetts Endangered Species Act, Marine Mammal Protection Act, Migratory Bird Treaty Act, and Essential Fish Habitat provisions of the Magnuson-Stevens Act. Effects on terrestrial species, including the northern long-eared bat, tricolored bat, monarch butterfly, and other state-listed species, would be minimized through seasonal tree-clearing restrictions, structure inspections, exclusion measures, and revegetation using native species. The U.S. Fish and Wildlife Service concurred that the Build Alternative is not likely to adversely affect Endangered Species Act-listed terrestrial species.

The Build Alternative would introduce temporary and permanent in-water work associated with new bridge piers and riprap, resulting in limited habitat disturbance within Cape Cod Canal. The National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) made a determination that construction of the Program may affect, but is not likely to adversely affect marine mammals, sea turtles, sturgeon, and Essential Fish Habitat, with implementation of time-of-year restrictions, vessel-speed limitations, turbidity controls, and protected-species monitoring. Coordination will continue with NOAA Fisheries, Massachusetts Department of Environmental Protection, and USACE for compensatory mitigation for small areas of eelgrass affected at Bourne Bridge. With these measures in place, the Build Alternative would not result in long-term adverse effects on Endangered Species Act-protected terrestrial or aquatic species, marine mammals, migratory birds, or Essential Fish Habitat.

6.12 Coastal Zone Consistency

The Build Alternative will be consistent with the enforceable Massachusetts Coastal Zone Management policies, with the implementation of the identified mitigation measures. As documented in **Chapter 4, Section 4.12, Coastal Zone Consistency**, all work would occur within the designated coastal zone and existing transportation corridors. The Build Alternative would result in unavoidable effects to coastal wetlands, habitat, recreation areas, and other coastal resources. However, these effects will be minimized through design measures, such as landward pier placement, stormwater controls, cofferdams, and seasonal work restrictions. Any unavoidable effects would be mitigated in accordance with federal and state requirements.

6.13 Air Quality

The Build Alternative would not result in adverse operational air quality effects. As documented in **Chapter 4, Section 4.13, Air Quality**, the Study Area is in attainment for all National Ambient Air Quality Standards. Future traffic operations under the Build Alternative would reduce vehicle delays, travel times, and vehicle miles traveled compared to the No Build Alternative, resulting in lower regional emissions of carbon monoxide, nitrogen oxides, and particulate matter.

Construction of the Build Alternative would generate temporary emissions from diesel equipment, construction trucks, and marine vessels. All projected annual construction emissions would remain below U.S. Environmental Protection Agency *de minimis* thresholds. Dust and exhaust emissions would be controlled through MassDOT's required BMPs, including diesel emissions controls, dust suppression, and air quality monitoring during certain activities. Construction-related air quality effects would be temporary and localized.

6.14 Noise and Vibration

The Build Alternative would result in some traffic noise impacts, but no noise barriers were found to be both feasible and reasonable under FHWA and MassDOT criteria, as described in **Chapter 4, Section 4.14, Noise and Vibration**. Although several receptors across the Sagamore and Bourne Bridges quadrants are predicted to approach or exceed FHWA's Noise Abatement Criteria in the future design year, the Build Alternative would not cause substantial increases over existing noise levels.

Construction activities would generate temporary noise and vibration, including periods where predicted levels may exceed MassDOT's construction noise and vibration criteria. These effects would be managed through required noise control and vibration control plans, equipment muffling, schedule limitations, monitoring, and other best practices included in MassDOT's contract special provisions. The Build Alternative would not result in substantial long-term operational noise effects, and construction-related effects would be temporary and mitigated.

6.15 Visual Resources

The Build Alternative would result in a mix of beneficial, neutral, and localized adverse visual effects, as documented in **Chapter 4, Section 4.15, Visual Resources**. The replacement Sagamore and Bourne Bridges are designed to maintain the arched profile of the existing structures, and views of the replacement bridges would remain visually compatible with current conditions. Many interchange areas would experience beneficial visual changes due to the removal of overhead utilities, addition of roundabouts and landscaped medians, and new shared-use paths.

The Build Alternative would also introduce new elevated roadway elements at several locations. Two locations, Eleanor Avenue (Sagamore South Quadrant) and Nightingale Pond (Bourne North Quadrant) would experience adverse effects due to the increased prominence of new transportation infrastructure. Mitigation for this effect includes extensive landscaping, aesthetic bridge lighting, shared-use path enhancements, coordinated wall and railing treatments, and additional visual amenities, such as overlooks and viewing platforms. The Build Alternative would maintain overall visual compatibility within the Cape Cod Canal setting.

6.16 Cultural Resources

The Build Alternative would result in adverse effects on cultural resources due to the demolition of the National Register of Historic Places (NRHP)-eligible Sagamore and Bourne Bridges, which are also contributing elements to the NHRP-eligible Cape Cod Canal Historic District. As documented in

Chapter 4, Section 4.16, Cultural Resources, replacement bridge designs were selected to maintain the iconic arched form of the existing Sagamore and Bourne Bridges and avoid adverse effects to the NRHP-eligible Cape Cod Canal Historic District. Archaeological surveys determined that most areas within the Area of Potential Effect have low sensitivity due to past disturbance, and no significant archaeological resources are likely to be affected.

A Section 106 Programmatic Agreement was executed between FHWA, State Historic Preservation Officer (SHPO), MassDOT, USACE, and other invited parties to document stipulations for mitigating adverse effects. The agreement includes mitigation commitments, such as providing Historic American Engineering Record documentation, installing interpretive panels, salvaging and adaptively reusing select bridge elements, developing context-sensitive architectural and landscape designs, and establishing procedures for unexpected discoveries during construction. The Build Alternative would avoid additional adverse effects on historic architectural or archaeological resources beyond the necessary loss of the existing Sagamore and Bourne Bridges.

6.17 Public Parks, Recreational Facilities, and Open Space

The Build Alternative would result in temporary and permanent effects to several public parks and recreational facilities within the Study Area and, for those resources subject to Section 4(f), would constitute a use in the form of temporary occupancy or direct use. These resources include Sagamore Recreation Area, Keith Field Recreation Area, Bourne Scenic Park, Bourne Recreation Area, and Gallo Ice Arena. As described in **Chapter 4, Section 4.17, Public Parks, Recreational Facilities, and Open Space**, these effects include construction easements, long-term access agreements for bridge maintenance, and limited permanent easements to support shared-use paths, roadway reconfigurations, or utility relocations.

As several affected properties are protected under Section 4(f), the FEIS includes avoidance, minimization, and mitigation commitments, such as coordination with officials with jurisdiction, improvements to Sagamore and Bourne Recreation Areas, and property enhancements at Bourne Scenic Park to compensate for construction-period effects. The Build Alternative would not result in adverse effects to public parks, recreational facilities, or open space.

6.18 Solid and Hazardous Waste Material Management

The Build Alternative would not result in adverse effects related to solid or hazardous waste management. As described in **Chapter 4, Section 4.18, Solid and Hazardous Waste Material Management**, demolition of the existing bridges and construction activities would encounter lead-based paint, asbestos-containing materials, potential polychlorinated biphenyl-containing components, and areas of contaminated soil or groundwater associated with historical industrial and transportation uses. Construction would also generate contaminated sediments when removing the existing canal piers. These materials would be managed under federal and state requirements through hazardous building material surveys, soil and sediment testing, and the Design-Builder's health and safety and spill-prevention plans.

Operation of the Build Alternative would not create long-term hazardous material concerns and would reduce potential exposure by removing aging structures and contaminated soils. Solid and hazardous waste effects would be effectively controlled.

6.19 Utilities and Services

The Build Alternative would require the relocation of existing public and private utilities within the Project Limits, including water, sewer and septic systems, electrical distribution lines, telecommunications infrastructure, and USACE utilities, as documented in **Chapter 4, Section 4.19, Utilities and Services**. Many relocations would occur to avoid conflicts with the new bridge abutments, roadway reconstruction, and anticipated locations for construction laydown areas. All utility relocations would be coordinated with the responsible providers and service interruptions would be minimized. No adverse long-term effects on utilities and services would result from the Build Alternative. New utility infrastructure would be installed and commissioned prior to removing existing facilities, ensuring continuity of service.

6.20 Public Health

The Build Alternative would not result in adverse public health effects. As documented in **Chapter 4, Section 4.20, Public Health**, public health conditions in the Study Area include chronic diseases, disabilities, and social determinants of health for vulnerable populations, such as children and older adults. The FEIS concludes that, with the implementation of BMPs and through compliance with applicable public health regulations, construction would not have adverse effects on public health conditions. Operationally, the Build Alternative would provide long-term public health benefits through improved traffic operations, reduced delays accessing healthcare and essential services, improved emergency response, and enhanced pedestrian and bicycle accommodations with ADA-accessible facilities.

As described in **Section 4.20.4**, construction-period effects related to water quality, air quality, noise and vibration, and hazardous materials would be minimized through measures outlined in a stormwater pollution prevention plan, air quality controls, noise and vibration management, and hazardous materials handling plans. Access to essential services would be maintained during construction. The FEIS concludes that with the mitigation measures summarized in **Section 4.20, Table 4.20-4**, the Build Alternative would not result in adverse effects to public health during construction. No additional long-term mitigation is required beyond the permanent stormwater controls and design features that improve connectivity and mobility for all users.

6.21 Adaptation and Resiliency

The Build Alternative would improve the overall resiliency of the Sagamore and Bourne Bridges and adjacent transportation network to extreme weather and climate stressors, as documented in **Chapter 4, Section 4.21, Adaptation and Resiliency**. The replacement Sagamore and Bourne Bridges would meet modern design standards, maintain required navigational clearance under future water levels, and include scour-resistant foundations. Proposed stormwater basins are sized for extreme

rainfall and fitted with backflow preventers where needed. Landscaping and tree-replacement plans will mitigate localized heat effects from the addition of impervious surfaces. The Build Alternative would increase system resilience and would not result in adverse effects.

6.22 Indirect Effects

The Build Alternative is not expected to result in indirect effects on land use, development patterns, or regional travel demand, as documented in **Chapter 4, Section 4.22, Indirect Effects**. Regional constraints, including limited housing capacity, high construction and living costs, and wastewater and water-supply limitations, would continue to limit growth on Cape Cod independent from the Program. The Build Alternative would not induce residential or commercial development or lead to new trip-making or increased visitation from travel time improvements.

The Build Alternative would generate minor positive indirect effects, including small increases in regional economic activity from construction-related spending and long-term operational benefits that support public health. Indirect effects would be limited.

7 Section 4(f) Finding

For a project that is reviewed or funded by agencies within the U.S. Department of Transportation, Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 USC § 303, as amended) prohibits the “use” of land from parks and recreational areas of national, state, or local significance that are both publicly owned and open to the public, or from any significant historic or archaeological site, unless no feasible and prudent alternative exists for the use of the resource and all possible alternatives have been evaluated to minimize harm to the Section 4(f) resource. Compliance with Section 4(f) may also be demonstrated through a *de minimis* determination or the application of a programmatic Section 4(f) evaluation, when applicable criteria can be met.

The Program is subject to review by FHWA; therefore, it is subject to the requirements of Section 4(f).

7.1 Public Parks and Recreation Areas

The Build Alternative would result in the use of five Section 4(f)-protected public parks and recreation areas.

- **Sagamore Recreation Area:** The Build Alternative would result in temporary occupancy and direct use of Sagamore Recreation Area. FHWA has made a *de minimis* impact determination for this use. Concurrence has been received from the official with jurisdiction, USACE, and documentation is provided in **Chapter 5, Final Section 4(f) Evaluation**.
- **Keith Field Recreation Area:** The Build Alternative would result in temporary occupancy and direct use of Keith Field Recreation Area. FHWA has made a *de minimis* impact determination for this use. Concurrence has been received from the official with jurisdiction, Town of Bourne, and documentation is provided in **Chapter 5, Final Section 4(f) Evaluation**.

- **Bourne Scenic Park:** The Build Alternative would result in temporary occupancy and direct use of Bourne Scenic Park. FHWA has made a *de minimis* impact determination for this use. Concurrence has been received from the officials with jurisdiction, USACE and Bourne Recreation Authority, and documentation is provided in **Chapter 5, Final Section 4(f) Evaluation**.
- **Bourne Recreation Area:** The Build Alternative would result in temporary occupancy and direct use of Bourne Recreation Area. FHWA has made a *de minimis* impact determination for this use. Concurrence has been received from the official with jurisdiction, USACE, and documentation is provided in **Chapter 5, Final Section 4(f) Evaluation**.
- **Gallo Ice Arena:** The Build Alternative would result in temporary occupancy and direct use of Gallo Ice Arena. FHWA has made a *de minimis* impact determination for this use. Concurrence has been received from the officials with jurisdiction, USACE and Bourne Recreation Authority, and documentation is provided in **Chapter 5, Final Section 4(f) Evaluation**.

Based on the analyses, coordination with officials with jurisdiction, and public review described in **Chapter 5, Final Section 4(f) Evaluation**, and in accordance with 23 CFR 774, FHWA has determined that all Section 4(f) requirements for public parks and recreation areas have been satisfied for the Program.

7.2 Historic Properties

7.2.1 Sagamore Bridge and Bourne Bridge

Sagamore and Bourne Bridges are both eligible for listing in NRHP and would be demolished as part of the Program, constituting a direct use under Section 4(f). FHWA coordinated with the Massachusetts Historical Commission (SHPO) as the official with jurisdiction for each property, which concurred with the finding of Adverse Effect under Section 106 of the National Historic Preservation Act. To address the Section 4(f) use of the historical structures, the FHWA has applied the *Nationwide Historic Bridges Programmatic Section 4(f) Evaluation and Approval for Federal Highway Administration Projects that Necessitate the Use of Historic Bridges*. More information is provided in **Appendix 5.1** and **Appendix 5.2**.

7.2.2 Cape Cod Canal Historic District

The Cape Cod Canal Historic District is eligible for listing in NRHP. Due to the demolition of the NRHP-eligible Sagamore and Bourne Bridges, which are contributing resources to the Cape Cod Canal Historic District, the Build Alternative would result in the direct use of land within the historic district. FHWA coordinated with SHPO on the finding of No Adverse Effect under Section 106 of the National Historic Preservation Act, based on the replacement bridge design type, and SHPO concurred with this finding. Specifically, the replacement steel twin network tied-arch bridges were selected because their arched profiles would be compatible with the existing historic truss bridges. **Appendix 5.3** provides FHWA's *de minimis* impact determination for the use of the Cape Cod Canal Historic District.

7.2.3 South Sagamore Area

The South Sagamore Area is eligible for listing in the NRHP. The proposed shared-use path along the north side of Sandwich Road, the shared-use path connection from Keith Field Recreation Area (a non-contributing resource) to south Canal Service Road, and the sidewalk along the south side of Sandwich Road are located within the NRHP-eligible South Sagamore Area. Additionally, the proposed work within the historic district would require fee takings, permanent utility easements, and temporary use of land on the parcel occupied by Keith Car Company Apartments, a contributing resource to the historic district.

Based on preservation of existing trees during construction, restoration of temporary occupancy areas, and landscaping upon construction completion, SHPO concurred with FHWA's finding of No Adverse Effect under Section 106 of the National Historic Preservation Act. To address the Section 4(f) use of the NRHP-eligible South Sagamore Area, FHWA has made a *de minimis* impact determination in accordance with 23 CFR 774.5(b)(1)(ii). Additional information is provided in **Chapter 5** and **Appendix 5.4**.

Based on the analyses and coordination with the officials with jurisdiction, as described in **Chapter 5**, and in accordance with 23 CFR 774, FHWA has determined that all Section 4(f) requirements for historic properties have been satisfied for the Program.

7.3 Approval

On June 24, 2026, FHWA issued final determinations on the Program's use of Section 4(f) properties, provided in **Attachment 1, Section 4(f) Approval**.

Regarding the Program's *de minimis* impacts to public parks and recreation areas, FHWA determined that the use of the properties includes any measures to minimize harm through avoidance, minimization, mitigation or enhancement measures. Further, FHWA determined that appropriate coordination has been conducted with the officials with jurisdiction per each Section 4(f) property.

Regarding the Program's *de minimis* impacts and those impacts to be covered under the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges*, FHWA determined that all Section 106 requirements have been satisfied with respect to the Program's use of historic properties. FHWA determined that the use of the properties includes any measures to minimize harm through avoidance, minimization, mitigation, or enhancement measures; and that appropriate coordination has been conducted with the officials with jurisdiction per each Section 4(f) property. Further, FHWA determined that there is no feasible and prudent avoidance alternative to the use of the land from the properties and the action includes all possible planning, as defined in 23 CFR 774.17, to minimize harm to the properties resulting from such use.

FHWA approved the use of the Section 4(f) properties associated with the Program per 23 CFR 774.3.

8 Environmental Commitments and Mitigation Measures

FHWA and MassDOT have developed extensive measures to avoid, minimize, and mitigate the Program's potential adverse effects. [Table 1](#) identifies the commitments and mitigation measures that will be implemented to reduce the effects of the Program on the environment. The commitments listed herein, organized by subject matter or environmental resource identified in the FEIS, are the result of regulatory requirements, agency consultations, and comments on the DEIS, and reflect the most practicable means to minimize environmental harm from the Selected Alternative. Each commitment has been assigned to a responsible party, and would be implemented, as appropriate, during design, construction and/or following construction.

[Table 1](#) identifies only the subject matters and environmental resources where temporary or permanent effects are anticipated from the Selected Alternative. Temporary effects that apply to multiple categories are indicated as such.

Table 1. Final Environmental Impact Statement (FEIS) Environmental Commitments and Mitigation Measures

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Transportation, Traffic, and Safety (Section 4.2)	Permanent Removal of Bourne Train Station on the Cape Main Line to accommodate construction of the replacement Bourne Bridge	Relocation of the Bourne Train Station within the new Bourne Recreation Area west of Gallo Ice Arena to include a new bus loop with approximately 24 parking spaces to support transit operations and short-term parking needs; a larger parking lot accommodating up to 100 vehicles for rail users, recreational visitors, and rideshare activities; a new 24-foot-wide roadway providing access from Sandwich Road; and a shared-use path connection.	Design-Builder	During construction
	Permanent Loss of 12 parking spaces within the Massachusetts Department of Transportation's (MassDOT) Bourne Park and Ride Lot due to realignment of Scenic Highway and construction of a shared-use path on the south side of Scenic Highway. The lot would be reduced from 396 to 384 spaces	No mitigation proposed. MassDOT will coordinate with local and regional partners to assess the need for replacement parking and ensure functionality of the lot is maintained.	MassDOT	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
	Temporary Increased congestion and delays anticipated due to additional construction vehicle trips, work zone interactions, and reduced traffic speeds	Prepare and implement a comprehensive Transportation Management Plan (TMP) for managing work zone operations and communicating anticipated impacts to roadway users during construction. Components of the TMP will include a temporary traffic control plan (TTCP), transportation operations (TO) strategies, and a Public Involvement and Communication Plan.	Design-Builder	Before and during construction
	Temporary Service disruptions to freight and seasonal passenger train operations along Cape Main Line Corridor	Prepare and implement a Public Involvement and Communication Plan as part of the TMP to provide timely information to stakeholders and the traveling public regarding construction activities that could affect freight and seasonal passenger rail operations.	Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Pedestrian and Bicycle Facilities (Section 4.3)	Temporary Closure of sections of the Canal Service Roads, Scenic Highway, and Sandwich Road during construction	- Establish and maintain temporary pedestrian and bicycle detours, wherever practicable, to ensure safe travel around work zones. - Deploy closure warning signage in coordination with the U.S. Army Corps of Engineers (USACE). - Install fencing and barricades to prevent pedestrian access into construction work zones, where appropriate. - Maintain coordination with the public as part of the TMP to ensure timely communication of any upcoming closures, detours, and access changes.	Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Maritime Transportation, Traffic, and Safety (Section 4.4)	Temporary Construction equipment and/or vessel encroachment into the 480-foot-wide federal navigation channel	- Coordinate with the USACE Marine Traffic Controller and U.S. Coast Guard (USCG). - Maintain a minimum navigational width of 350 feet for vessel passage. - Coordinate with USCG during construction plan development for a determination of temporary lighting needs.	Design-Builder	During construction
	Temporary Six short-term, full closures of Cape Cod Canal associated with the float-in and float-out activities during construction	- Advise the public of in-water construction work through the Cape Cod Bridges Program (Program) website. - Maintain ongoing communication with the Town of Bourne Harbormaster, U.S. Coast Guard, and USACE regarding channel closures, to facilitate their advance notifications to mariners and use of temporary aids to navigation. - Meet with marinas and marine-related users as needed.	Design-Builder	During construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
	Permanent Construction of new bridges across navigable Waters of the United States	- Construct vertical and horizontal bridge clearances through the navigable channel of Cape Cod Canal in accordance with USCG's Preliminary Navigation Clearance Determination, dated March 11, 2025. - Submission of plans to the USCG for permanent navigation lights on the replacement bridges in accordance with 33 CFR Part 118.	Design-Builder	Before and during construction
Land Use, Zoning, and Community Cohesion (Section 4.6)	Permanent Alteration of 328.10 acres of land, consisting of: 146.77 acres of tree clearing 76.33 acres of existing pavement 105.00 acres of previously disturbed areas	- Minimize tree clearing and grading by using steeper safe slopes, existing disturbed corridors, and tree-preservation measures. - Construct MassDOT/USACE access roads with pervious gravel to limit new impervious area. - Provide approximately 185.83 acres of new landscaping and vegetation. - Install tree protection fencing at grading limits and adjust disturbance boundaries to preserve existing conditions where feasible. - Incorporate low-impact stormwater features (e.g., vegetated swales, infiltration basins) to offset impervious impacts. - Restore unused acquired areas to pre-existing conditions after land-based construction.	Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
		Prioritize early planting of fast-growing native species to accelerate canopy recovery and ecological function.		
Community Facilities (Section 4.7)	Permanent Property acquisitions (partial fee takings, permanent easements and temporary easements) from community facility locations including: - United States Postal Service (Sagamore South) - State Policy Station D7 (Bourne South) - Bourne High School, Bourne Intermediate School, Bourne Middle School (Bourne South) - Upper Cape Cod Regional Technical School (Bourne South)	Adherence to the Uniform Relocation Assistance and Real Property Acquisition Policies Act for all property acquisitions.	MassDOT	Before construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Property Acquisition, Displacement, and Relocation (Section 4.8)	Permanent Full acquisition of 30 parcels; partial acquisition of 59 parcels Permanent and/or Temporary Easements on 143 parcels, consisting of 53 partial acquisitions and 90 easements Permanent Displacement of 26 property owners, consisting of 17 residential displacements, 7 commercial displacements, and 2 personal property displacements	• Compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act and Massachusetts General Laws, primarily Chapter 79. • Phase relocations to secure suitable housing for all displaced residents. • Identify tailored mitigation solutions in coordination with property owners affected by easements or partial acquisitions.	MassDOT	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Wetlands and Floodplains (Section 4.9)	Permanent - Approximately 3.8 acres of permanent impact to tidal waters of the U.S. - Approximately 6,350 square feet of permanent impact to non-tidal (inland) vegetated wetlands	- Compensatory mitigation will comply with Section 404 of the Clean Water Act. Final mitigation type and location will be determined through the Section 404 permitting process. - Mitigation may include wetland creation, restoration, or enhancement, and/or use of an approved mitigation bank or In-Lieu Fee Program. - On-site compensatory mitigation will be implemented for non-tidal (inland) vegetated wetlands at ratios greater than 1:1. - Net impacts to tidal waters will be addressed through coordination with USACE.	MassDOT	Before and during construction
	Permanent Approximately 2,130 cubic feet of flood storage lost within inland Zone A 100-year floodplain associated with Nightingale Pond	Compensatory flood storage will be provided on a foot-by-foot basis at each elevation in an area not previously used for flood storage and having an unrestricted hydraulic connection to Nightingale Pond, in accordance with the Massachusetts Wetlands Protection Act (310 CMR 10.57(4)(a)1).	MassDOT	During construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
	Temporary Disturbance of federal inland wetland resources - Relatively Permanent Waters (2,675 sf) - Vegetated Wetlands (160 sf)	- Restore all disturbed areas upon project completion. - Photo document and survey temporary effect areas before disturbance to establish preconstruction baseline conditions and document existing ground elevations. - Provide contract specifications for the management and disposal of soil and plant material and prevention of the spread of invasive species via equipment.	MassDOT	Before and during construction
	Permanent Effects to federal coastal resources including navigable coastal Waters of the United States.	Develop strategy for eelgrass mitigation in coordination with USACE, Massachusetts Department of Environmental Protection (MassDEP), and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries).	MassDOT	During design
	Temporary Impacts to federal coastal resources Waters of the United States (166,900 cubic yards dredge/excavation)	- Mitigate impacts through in-kind restoration and natural re-establishment. - Restore shoreline riprap and canal side slopes to pre-existing conditions to the maximum extent possible. Allow impacted resource areas waterward of riprap pier protection to restore naturally.	MassDOT and Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Water Quality and Stormwater (Section 4.10)	Permanent Increase of approximately 52.3 acres of impervious area, resulting in potential increased surface runoff, higher peak flows during storm events, higher pollutant loads, and reduced groundwater discharge	Design, implement, and maintain stormwater control measures, including infiltration basins and bioretention areas/rain gardens, to comply with the Massachusetts Stormwater Management Standards.	MassDOT and Design-Builder	Before and during construction
	Temporary Potential sedimentation of waterbodies due to soil disturbance and runoff, impacting water quality and aquatic habitats	Prepare, implement, and maintain a comprehensive Stormwater Pollution Prevention plan (SWPPP) in accordance with U.S. Environmental protection Act National Pollutant Discharge Elimination System (NPDES) requirements, ensuring the identification, control, and ongoing monitoring of potential pollution sources associated with stormwater runoff.	Design-Builder	During construction
Threatened, Endangered, and Protected Species and Habitats (Section 4.11)	Temporary Effects to terrestrial species due to permanent tree clearing within suitable habitat for federally listed northern long-eared bats (NLEB) and tricolored bats (TCB), the federally proposed monarch butterfly, migratory birds, and Birds of Conservation Concern	• Avoid tree removal within 0.25 miles of known bat hibernacula and within 0.25 miles of known roost trees during the pup season (June 1 – August 15). • Follow all time-of-year (TOY) restrictions for tree clearing to protect bats and migratory birds: March 15 – November 30 on Cape Cod; April 15 – October 31 on the mainland. • Implement conservation mowing per monarch butterfly BMPs, following TOY restrictions (October 1 – May 1), mowing only portions of	MassDOT and Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
		parcels after native plants have bloomed and seeded, maintaining a 10-12 inch height, using a flushing bar, reducing speed, and limiting mowing to one or two times annually. • Re-vegetate cleared areas with native plant species to restore habitat for bats, pollinators, and other wildlife. • Follow National Bald Eagle Management Guidelines to minimize impacts on bald eagles.		
	Temporary Effects to federally listed NLEB and TCB due to demolition of existing buildings and bridge abutments that could serve as roosting locations or hibernacula during winter months	• Conduct inspections of structures and bridge abutments prior to demolition. • Seal entry points to buildings and bridge abutments following Massachusetts Division of Fisheries and Wildlife (MassWildlife) guidance in the late summer period when juvenile bats typically disperse and before the start of the hibernation period (pending demolition method and timing).		
	Temporary Disruption of roosting of federally listed NLEB and TCB due to acoustic effects	Prohibit in-water construction activities with the potential to cause acoustic effects (i.e., impact or vibratory pile driving and rotary drilling) from March 1 through August 31 of any year.	MassDOT	During construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
	Temporary Potential for vessel collisions with federally listed NLEB and TCB and the federally proposed monarch butterfly during construction	Operate vessels transiting within Cape Cod Canal and between Cape Cod Canal, Buzzards Bay, Cape Cod Bay, and supply ports at speeds not to exceed 10 knots to reduce the potential for collisions with species traveling over the waterway.	Design-Builder	During construction
	Temporary Potential for vessel collisions with the federally listed fin whale, North Atlantic right whale, sea turtles, Atlantic sturgeon, and shortnose sturgeon during construction	- Operate vessels transiting within Cape Cod Canal and between Cape Cod Canal, Buzzards Bay, Cape Cod Bay, and supply ports, or within a North Atlantic right whale Seasonal Management Area at speeds not to exceed 10 knots. - Coordinate with NOAA Fisheries and implement the Marine Mammal and Sea Turtle Monitoring and Mitigation Plan that incorporates design features and operational procedures to avoid and/or minimize impacts on marine mammals and sea turtles, in accordance with NOAA Fisheries' guidance.	Design-Builder	During construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
	Temporary Potential for underwater noise to cause harassment of federally listed fish, sea turtles, and marine mammals and Essential Fish Habitat (EFH) species during construction	• Comply with TOY restriction of March 1 to August 31 for in-water work with the potential to cause acoustic effects. • Use equipment ramp-ups and soft starts during pile driving and rotary drilling. • Implement the Marine Mammal and Sea Turtle Monitoring and Mitigation Plan that incorporates design features and operational procedures to avoid and/or minimize impacts on marine mammals and sea turtles in accordance with NOAA Fisheries' guidance.	Design-Builder	During construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
	Temporary Potential for in-water construction to cause direct disturbance or injury to EFH species, federally listed fish, sea turtles, and marine mammals Permanent Potential effects to EFH species due to permanent loss of EFH habitat within zones of marine disturbance due to the pier protection system	- Follow the March 1 – August 31 TOY restriction for dredging and excavation. - Use clamshell buckets for dredging to the maximum extent practicable and follow USACE excavation guidance. - Use cofferdams to allow in-the-dry construction of new bridge piers and demolition of the existing bridge piers. - Conduct diver surveys of cofferdams prior to dewatering. - Use dolphins and bollards to anchor construction vessels. - Use vibratory pile driving or rotary drilling to drive piles when feasible; use cushion blocks during impact pile driving when feasible. - Maintain water pumped from cofferdams in settling basins before discharge back into the canal to minimize potential turbidity impacts to protected species.	Design-Builder	During construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
	Permanent Loss of approximately 2,445 square feet of submerged aquatic vegetation (eelgrass)	For unavoidable loss of eelgrass due to the Bourne Bridge Project, implement a Memorandum of Agreement with DMF in coordination with MassDEP to meet the state's mitigation requirements; and purchase credits from USACE's Massachusetts In-lieu Fee Program to meet USACE's mitigation requirements, to be finalized through the Section 404 permitting process.	MassDOT	During final design and pre-construction
Coastal Zone Consistency (Section 4.12)	Permanent Project requires listed federal actions that have been determined to have reasonably foreseeable effects on coastal uses or resources, thereby subject to federal consistency review by the Massachusetts Office of Coastal Zone Management (CZM).	Prepare and submit Individual Federal Consistency Review determination to MA CZM for approval.	MassDOT	Before construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Air Quality (Section 4.13)	Temporary Increases in construction-period emissions due to operation of diesel-powered construction equipment and marine vessels, and fugitive dust emissions from demolition and ground disturbing activities.	- Adherence to MassDOT's Diesel Emission Control Specification, which requires the use of cleaner fuels, verified emission control technologies, and strict idling limits for construction equipment to reduce diesel emissions during construction. - Adherence to MassDOT's Dust Control Specification, which requires proactive measures, such as regular watering of exposed soils, covering loads, cleaning paved surfaces, and preparation and implementation of an approved Dust Control Plan.	Design-Build Contractor	During construction
	Temporary Potential generation of airborne lead dust and particulate matter due to bridge demolition and work involving painted steel.	Adherence to MassDOT's Standard Specifications for demolition activities including painted steel, which requires development and implementation of a site-specific plan with monitoring and other protective measures to prevent potential exposure of workers and surrounding receptors to airborne contaminants.		

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Noise and Vibration (Section 4.14)	Permanent A total of 65 sensitive receptors are predicted to experience traffic noise levels that approach or exceed Federal Highway Administration (FHWA) Noise Abatement Criteria (NAC) in the 2050 Build condition: • Sagamore North: 9 • Sagamore South: 45 • Bourne North: 9 • Bourne South: 2	No mitigation measures are proposed. Noise abatement was not determined to be feasible and reasonable based on FHWA noise regulations in 23 Code of Federal Regulations (CFR) 772 and MassDOT's traffic noise policies.	N/A	N/A
	Temporary Exceedances of one or more of MassDOT's construction noise limits at sensitive receptors due to the operation of construction equipment, demolition activities, and pile driving: • Daytime: 194 receptors • Evening: 568 receptors • Nighttime: 628 receptors	Prepare and implement a Noise Control Plan to establish procedures for predicting construction noise levels before performing construction activities, including identification of noise reduction measures required to meet the noise level limitations and minimize nuisance noise conditions.	Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
	Temporary Potential for structural damage and exceedances of Federal Transit Administration land-use category annoyance thresholds based on the distance between vibration generating construction activities and nearby receptors.	Prepare and implement a Vibration Control and Mitigation Plan that identifies nearby structures susceptible to vibration impacts, establish monitoring procedures, and define measures to minimize construction-related vibration impacts.	Design-Builder	Before and during construction
Visual Resources (Section 4.15)	Permanent Loss of existing residences and/or introduction of incompatible elements to existing viewsheds at two visual inventory locations, resulting in adverse changes to the visual quality of the areas of visual effect at these locations.	- Design replacement bridges to visually resemble the existing bridges, retaining the iconic arch form and proportions while simplifying superstructure elements and incorporating contemporary pier designs compatible with modern construction methods. - Provide context-sensitive bridge lighting that maintains the canal's historic low-light character, using standard roadway and pedestrian lighting and subtle architectural lighting on select bridge elements to enhance aesthetics without visual intrusion. - Incorporate pedestrian viewing platforms and scenic overlooks at each bridge crossing, providing new public vistas of the Cape Cod Canal as a visual natural and cultural resource. - Implement a substantial landscape plan, including recreational features and amenities,	MassDOT and Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
		to restore the disturbed sites, enhance sight lines and views, screen undesirable areas, and soften the visual impact of new infrastructure to maintain the region's character. • Design shared-use path elements with a coordinated, context-sensitive aesthetic to provide coordinated appearance throughout the Project Limits. • Apply visual/aesthetic treatments to high-visibility bridge abutment walls and retaining walls, using different materials to enhance Cape Cod's coastal character and improve visual quality for travelers and neighbors. • Incorporate Section 106 and Section 4(f) mitigation measures as visual enhancements throughout the Project Limits, such as reuse of historic bridge elements and design features that improve viewsheds and reinforce historic character.		
	Temporary Visual impacts due to staging areas, construction lighting, and vegetation clearing	• Stabilize and protect disturbed areas during construction through seeding, erosion controls, and tree/plant protection measures while minimizing fugitive light near residential areas. • Restore all disturbed areas upon completion of construction.		

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Cultural Resources (Section 4.16)	Permanent - Adverse effects due to the demolition of National Register-eligible Sagamore and Bourne Bridges. - No adverse effects to the Cape Cod Canal Historic District or historic architectural properties within the viewshed area of potential effect - No adverse effects to the South Sagamore Area due to the shared-use path at Keith Field Recreation Area	- Adherence to stipulations in the executed Section 106 Programmatic Agreement to resolve adverse effects associated with demolition of the existing Sagamore and Bourne Bridges. - Salvage, reuse, or adaptively repurpose historic bridge elements, including plaques and other components, consistent with Section 106 and Section 4(f) mitigation.	MassDOT and Design-Builder	During design, construction, and post construction
	Temporary Disturbance of areas with low archaeological sensitivity	- Provide updated construction plans for review by the MassDOT Archaeologist to determine the need for additional archaeological survey. - Include a special provision in the construction contract for the Discovery of Unanticipated Archaeological and Skeletal Remains.	Design-Builder	During construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Public Parks, Recreational Facilities, and Open Space (Section 4.17)	Permanent Partial parcel acquisition, permanent easements, and/or long-term access agreements on Bourne Scenic Park, Bourne, Recreation Area, Sagamore Recreation Area, Keith Field Recreation Area, and Gallo Ice Arena.	Coordinate with USACE on mitigation and enhancements at Sagamore Recreation Area; with the Town of Bourne on permanent easements and facility enhancements at Keith Field Recreation Area; with the Bourne Recreation Authority and USACE on permanent enhancements to Bourne Scenic Park; and with the USACE on mitigation for permanent effects at Bourne Recreation Area and Gallo Ice Arena, including permanently enhancing park facilities.	MassDOT, FHWA	During design, construction, and post-construction (operation)
	Temporary Closure of sections of the Canal Service Roads, Scenic Highway, and Sandwich Road during construction.	Establish and maintain temporary pedestrian and bicycle detours, wherever practicable, to ensure safe travel around work zones.	Design-builder	Before and during construction
Solid and Hazardous Waste Material Management (Section 4.18)	Temporary Potential to encounter hazardous materials in contaminated soil, groundwater, and sediment during excavation, dredging, and construction.	- Conduct Phase I and, if needed, Phase II Environmental Site Assessments prior to finalizing land acquisitions, to identify potential environmental liabilities. - Use a MassDEP Licensed Site Professional to oversee work within areas of known or suspected contamination. - Prepare and implement a Sediment Sampling and Analysis Plan to identify the presence of contaminants in anticipated dredge material to inform the need for special management considerations during construction.	MassDOT and Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
		• Develop and implement a Soil and Groundwater Management Plan identifying procedures for the field screening, classification, and proper handling of soil and groundwater generated during excavation activities. • Comply with regulatory requirements for the management of contaminated groundwater under the Massachusetts Contingency Plan or U.S. Environmental Protection Agency's Dewatering and Remediation General Permit. • Develop and implement a site-specific Environmental Health and Safety Plan to identify potential hazards and necessary measures to protect the health and safety of employees, the public, and the environment during construction. • Develop and implement a Spill Prevention Plan to minimize impacts from accidental spills or releases of oil and hazardous materials during construction.		
	Temporary Potential to encounter hazardous material during structure and/or building demolition and construction.	Adherence to applicable laws and regulations governing the removal, handling, storage, and transport of hazardous materials for any future bridge and roadway maintenance activities		

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Utilities and Services (Section 4.19)	Permanent Relocation or replacement of water, sewer and septic, gas, electrical, and telecommunication facilities	- Relocate affected water mains in coordination with appropriate water districts. - Develop land damage agreements through the right-of-way process with affected property owners to support restoration of impacted leach fields and septic systems. - Relocate or replace affected sewer facilities within Bourne Scenic Park before the existing facilities are taken out of service. - Coordination with Enbridge to support its efforts in ensuring that all necessary work by the utility company is completed in advance of the Program. - Relocate or bury and protect electrical lines as needed to avoid construction conflicts and coordinate all work with Eversource. - Relocate or bury and protect telecommunications lines as needed to avoid construction conflicts. Relocate utility poles as needed. - Relocate USACE power, navigation, and signal facilities along Cape Cod Canal into underground ducts prior to demolition of the existing bridges. - Coordinate with utilities that are currently crossing the existing bridges via outgrants with	MassDOT and Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
		USACE to obtain new agreements via MassDOT's Highway Access Permit.		
	Temporary Short-term service disruptions due to utility relocations.	• Coordinate with local water authorities to restore water systems and minimize service disruptions. • Coordinate with Bourne Sewer Department, Bourne Recreation Authority, and property owners to minimize sewer service disruptions, ensuring affected facilities are relocated or replaced before existing infrastructure is taken out of service. • Coordinate with Eversource and property owners to minimize short-term electrical outages. • Coordinate with USACE to ensure new connections from USACE utilities to the proposed bridges are made prior to demolition of the existing bridges.	MassDOT and Design-Builder	During construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Adaptation and Resiliency (Section 4.21)	Permanent Potential for submerged or partially submerged outfalls and infiltration basin flooding due to storm surge in permanent condition	Installation of backflow preventers at seven stormwater control measure infiltration basins or in-pipe tide gates for outfalls, where appropriate, to reduce backflow into infiltration basins.	MassDOT	During design
	Permanent Potential for flooding of roadways, evacuation routes, and shared-use paths due to fluctuations in relative sea level and storm surge in permanent condition	Update Cape Cod Emergency Traffic Plan to reflect construction and proposed configurations and flows, and potential remaining flood risk at Belmont Circle, including signage and public notices when storms are forecast, as appropriate.	MassDOT	During design
	Permanent Potential for winter weather icing on bridge in permanent condition	Implementation of deicing measures for bridge cables in accordance with best management practices.	MassDOT	During design
Indirect Effects (Section 4.22)	Permanent Potential unintended introduction of invasive plant species due to construction activities	Include and implement contract specifications for the management and disposal of soil and plant material and the prevention of the spread of invasive species via equipment (per Executive Order 13112).	MassDOT and Design-Builder	Before and during construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
Section 4(f) Resources (Chapter 5 and appendices)	Permanent <i>De minimis</i> use of the following Section 4(f) resources: Sagamore Recreation Area, Keith Field Recreation Area, Bourne Scenic Park, Bourne Recreation Area, and Gallo Ice Arena.	Implement measures established in coordination with officials with jurisdiction to minimize harm at Sagamore Recreation Area, Keith Field Recreation Area, Bourne Scenic Park, Bourne Recreation Area, and Gallo Ice Arena such that: 1) the proposed use of each Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures, will not adversely affect the activities, features, or attributes that qualify the resource for protection under Section 4(f); and 2) FHWA proposes and officials with jurisdiction concur that a <i>de minimis</i> impact finding is appropriate.	MassDOT	During final design, pre-construction, construction, and post construction
	Permanent Use of NRHP-eligible Sagamore and Bourne Bridges through demolition of the bridges and loss of NRHP-eligible structures that are contributing resources to the NRHP-eligible Cape Cod Canal Historic District.	In coordination with FHWA, MassDOT has conducted all possible planning to minimize harm, including: 1) marketing the bridges for adoption for an alternative use (via USACE), provided a responsible party agrees to maintain and preserve the bridges, and 2) reaching agreement among SHPO, USACE, and FHWA, via the Section 106 Programmatic Agreement, on measures to minimize harm and incorporating these measures into the projects; thereby meeting the criteria for a Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges.	MassDOT	During final design, pre-construction, construction, and post construction

Environmental Resource (FEIS Chapter or Section Number)	Potential Permanent or Temporary Effect	Mitigation Measures and Commitments	Responsible Party	Implementation Schedule
	Permanent <i>De minimis</i> use of Cape Cod Canal Historic District through construction and operation of Sagamore Bridge Project and Bourne Bridge Project.	MassDOT has received written concurrence from SHPO that the replacement bridge type design and the Program's required temporary uses and permanent easements within the Cape Cod Canal FNP would avoid an adverse effect on the Cape Cod Canal Historic District; additionally, MassDOT has consulted with Consulting Parties.	MassDOT	During final design, pre-construction, construction, and post construction
	Permanent <i>De minimis</i> use of NRHP-eligible South Sagamore Area through construction of shared-use paths and sidewalk and fee takings, utility easements, and temporary use of contributing resource parcel.	MassDOT has received written concurrence from SHPO that through the protection of existing trees, restoration of temporary occupancy areas, and implementation of a landscape plan following construction, there would be no adverse effect on the historic area due to the construction of shared-use paths and sidewalk and fee takings, utility easements, and temporary use of contributing resource parcel; additionally, MassDOT has consulted with Consulting Parties.	MassDOT	During construction, and post construction

9 Monitoring or Enforcement Program

The Program will be subject to further review by federal and state agencies through the permits and approvals identified in **Chapter 7** of the FEIS. These approvals and permits will ensure mitigation measures related to the waters of the United States, including stormwater management and erosion control, are obtained before construction begins. The Program would be implemented in two phases: the Sagamore Bridge Project as Phase 1 and the Bourne Bridge Project as Phase 2. MassDOT is applying for individual permits and approvals for each phase.

All required permits and approvals for each phase of the Program will be obtained prior to the start of construction and incorporated into the contract specifications. The Design-Builder will be responsible for complying with all permit conditions and schedules, whether obtained by MassDOT or the Design-Builder, and all applicable federal and state environmental laws and policies.

In addition to permit conditions, mitigation measures identified in **Chapter 4** of the FEIS will be implemented through the development and execution of project-specific management and monitoring plans, including but not limited to:

- Transportation Management Plan, including temporary traffic control plans, transportation operations strategies, and a Public Involvement and Communications Plan (**Section 4.2, Transportation Traffic and Safety** and **Section 4.3, Pedestrian and Bicycle Facilities**);
- Marine Mammal and Sea Turtle Monitoring Plan and Eelgrass Survey and Mitigation Plan (**Section 4.11, Threatened and Endangered Species**);
- Diesel Emission Control Specifications, Dust Control Specifications, and MassDOT Standard Specifications for construction and demolition activities (**Section 4.13, Air Quality**);
- Noise Control Plan and Vibration Control Plan (**Section 4.14, Noise and Vibration**);
- Phased Environmental Site Assessments, Sediment Sampling and Analysis Plan, Soil and Groundwater Management Plan, Environmental Health and Safety Spill Plan, and compliance with the Massachusetts Contingency Plan (**Section 4.18 Solid and Hazardous Waste Material Management**);
- MassDOT Highway Access Permit requirements (**Section 4.19, Utilities and Services**); and
- Cape Cod Emergency Traffic Plan (**Section 4.21, Adaptation and Resiliency**).

The Design-Builder is responsible for applying for coverage under the National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP) for Stormwater Discharges from Construction Activities, including any updates to the 2022 CGP. The CGP requires preparation and implementation of a Stormwater Pollution Prevention Plan in accordance with the Clean Water Act. The plan will include the NPDES CGP conditions and detailed descriptions of stormwater controls, erosion and sedimentation controls, pollution prevention controls, and construction dewatering controls to be implemented during construction.

The Design-Builder is also responsible for complying with the Massachusetts Wetlands Protection Act Stormwater Management Standards, including preparation of construction-period erosion, sedimentation, and pollution prevention plans, as well as the Order of Conditions under the Massachusetts Wetlands Protection Act, 401 Water Quality Certification, USACE Section 404 Individual Permit conditions, and other environmental permits applicable to the project.

The Section 106 Programmatic Agreement among FHWA, SHPO, USACE, and MassDOT outlines procedures for consultation and establishes measures to mitigate the adverse effects of the Program on the NRHP-eligible Sagamore and Bourne Bridges, including measures for archaeological monitoring and post-review discoveries of archaeological resources or human remains.

The determinations and conservation recommendations from NOAA Fisheries and the U.S. Fish and Wildlife Service, issued pursuant to Section 7 of the Endangered Species Act, and the conservation recommendations of NOAA Fisheries for Essential Fish Habitat, issued pursuant to the Magnuson-Stevens Fishery Conservation and Management Act and the Fish and Wildlife Coordination Act, specify BMPs, including avoidance, minimization, and conservation measures, as well as monitoring requirements, that will be implemented throughout the duration of construction to protect terrestrial and aquatic species and habitats.

10 Public and Agency Coordination and Opportunities to Comment

10.1 Agency Coordination

In accordance with 23 USC 139, FHWA and MassDOT prepared an Agency Coordination Plan to document the agency coordination process and for soliciting and considering input from agencies and the public throughout the environmental review process for the Program. The following agencies, with jurisdiction by law or special experience, served as Cooperating Agencies: USACE, New England District; U.S. Coast Guard; U.S. Environmental Protection Agency, New England Regional Office; NOAA Fisheries, Greater Atlantic Regional Fisheries Office; U.S. Fish and Wildlife Service; Massachusetts Historical Commission (SHPO); Massachusetts Executive Office of Energy and Environmental Affairs; Massachusetts Department of Fish and Game; Massachusetts Department of Environmental Protection; and Massachusetts Office of Coastal Zone Management.

FHWA and MassDOT hosted a series of cooperating agency meetings between June 2023 and March 2025, obtaining concurrences on the Program's Purpose and Need Statement, alternatives carried forward in the DEIS, effect assessment methodologies, selection of the Preferred Alternative, and preliminary mitigation measures.

10.2 Public Outreach

FHWA and MassDOT conducted public outreach throughout the NEPA process. Outreach activities used a variety of communication tools, including a dedicated Program website, stakeholder database of over 6,200 individuals, email communications, social media, multilingual formal

notices, press releases, flyers, and surveys. Nine rounds of outreach were conducted between 2021 and 2026, comprised of virtual public meetings, in-person open houses, and one public hearing. A full description of public involvement activities is provided in **Chapter 6, Agency Coordination and Public Involvement**. All comments received during the EIS scoping comment period and DEIS comment period were considered in the environmental review process. Responses to comments are provided in **Chapter 6, Appendix 6.2, Responses to EIS Scoping Comments** and **Appendix 6.3, Responses to DEIS Comments**.

11 Statute of Limitations

Pursuant to 23 USC 139(1), FHWA will publish a statute of limitations notice in the Federal Register. A claim arising under federal law seeking judicial review of the federal agency actions on the Program will be barred unless the claim is filed within 150 days of the publication of the statute of limitations notice in the Federal Register.

12 Conclusion

FHWA has considered all the alternatives, information, and analyses submitted by federal, state, tribal, and local governments; and all public and Cooperating Agencies' comments. FHWA has determined the following:

- Adequate opportunity was afforded for the presentation of views by all parties with substantive economic, social, and environmental interests.
- Fair consideration has been given to the preservation and enhancement of the environment and interests of the communities in which the Selected Alternative is located.
- All reasonable steps have been taken to minimize adverse environmental effects of the Selected Alternative.

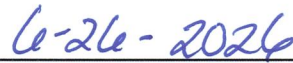
Based on a balanced consideration of the need for safe and efficient transportation, the social, economic, and environmental effects of the proposed transportation improvements, along with national and state environmental program goals, FHWA has determined the following:

- The requirements of 23 CFR 771 have been met.
- Consistent with social, economic, and other essential considerations, adverse environmental effects identified in the EIS process will be minimized or avoided to the maximum extent practicable.
- The Program incorporates environmental investigations, reviews, and consultations in a single coordinated process to the fullest extent practicable.
- Compliance with all applicable environmental requirements is reflected in the environmental document, as required under NEPA.
- Public involvement and an established and comprehensive interdisciplinary approach were integral in the development process for the proposed action

13 Signature and Date



Joi B. Singh
Division Administrator
Federal Highway Administration,
Massachusetts Division



Date of Approval