U.S. Department of Transportation
Federal Highway Administration

massDOT
Massachusetts Department of Transportation

Supplementary Notice of Intent Document

Cape Cod Bridges Program
Bourne, Barnstable County, Massachusetts
Environmental Impact Statement

This Supplementary Notice of Intent (NOI) Document provides additional information to what is contained in the Notice of Intent (NOI) to prepare an Environmental Impact Statement for proposed transportation improvements through the Cape Cod Bridges Program in the town of Bourne, Barnstable County, MA. The NOI can be reviewed in the docket referenced above at http://www.regulations.gov. Persons and agencies who may be interested in or affected by the proposed project are encouraged to comment on the information in the NOI and the Supplementary NOI Document by following the instructions for commenting, as provided in the NOI. Comments must be received within 30 days of the date of the NOI publication in the Federal Register.

The following persons may be contacted for additional information concerning this Notice:

Cassandra Ostrander, Program Development Team Leader
Federal Highway Administration, Massachusetts Division
220 Binney Street, 9th Floor
Cambridge, Massachusetts, 02142
email address: cassandra.ostrander@dot.gov
Telephone: (617) 494-3113

or

Bryan Cordeiro, Project Manager
Massachusetts Department of Transportation
10 Park Plaza, Suite 6340,
Boston, Massachusetts 02116
email address: bryan.cordeiro@state.ma.us
Telephone: (774) 993-9632

CONTENTS

ATTACHMENTS

1.0 INTRODUCTION

The Federal Highway Administration (FHWA), as Lead Federal agency, and the Massachusetts Department of Transportation (MassDOT), as project sponsor and joint lead agency, are preparing an Environmental Impact Statement (EIS) for the Cape Cod Bridges Program in the town of Bourne, Massachusetts, in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321, *et seq.*) 23 USC 139, *Efficient Environmental Reviews for Project Decisionmaking and One Federal Decision,* Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508), FHWA regulations implementing NEPA (23 CFR 771.101-771.139), and applicable Federal, State, and local laws and regulations.

The purpose of the Cape Cod Bridges 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 Cape Cod Canal highway bridges. In accordance with 23 CFR Part 771.119(i), FHWA has determined that the Cape Cod Bridges Program has the potential to "have a significant impact on the environment." To ensure that a full range of issues is addressed in the EIS and potential issues are identified, comments and suggestions are invited from all interested parties. FHWA requests comments and suggestions on potential project alternatives and impacts, and the identification of any relevant information, studies, or analyses of any kind concerning impacts affecting the quality of the human environment. The purpose of this request is to bring relevant comments, information, and analyses to FHWA's attention, as early in the process as possible, to enable FHWA to make maximum use of this information in decision making.

The Bourne and Sagamore Bridges, which were simultaneously built between 1933 and 1935, are two high level, fixed span highway bridges spanning Cape Cod Canal in the town of Bourne, Barnstable County, Massachusetts. The Rivers and Harbors Act of 1935 gave the authority for the U.S. Army Corps of Engineers (USACE) to operate and maintain the Bourne and Sagamore Bridges, as part of the Cape Cod Canal Federal Navigation Project (FNP). The Cape Cod Canal FNP consists of a 32-foot-deep channel in an 8.1-mile land cut linking Buzzards Bay to Cape Cod Bay; access and recreation areas surrounding the canal; the Buzzards Bay Railroad Bridge; and the Bourne and Sagamore Highway Bridges.

The Bourne Bridge is 2,684 feet long with seven spans, carrying State Route 28 across Cape Cod Canal, Sandwich Road, and the Massachusetts Coastal Railroad. The Sagamore Bridge is 1,833 feet long with three spans, carrying U.S. Route 6 across Cape Cod Canal, Sandwich Road, and the Massachusetts Coastal Railroad. State Route 28, which crosses Cape Cod Canal via the Bourne Bridge, and U.S. Route 6, which crosses Cape Cod Canal via the Sagamore Bridge, are functionally classified as Urban Principal Arterials on the National Highway System (NHS). The Bourne and Sagamore Bridges each provide four 10-foot-wide vehicular travel lanes (two lanes in each direction) and have a horizontal span of 616 feet over Cape Cod Canal, with a vertical clearance

of 135 feet above mean high water. Currently, there are several utilities located on the existing Bourne and Sagamore Bridges including natural gas, electricity, and telecommunications. The natural gas transmission lines, owned by National Grid, are suspended beneath the decks of the Bourne and Sagamore Bridges and are authorized under a license agreement with USACE. Photos of the Bourne and Sagamore Bridges are shown in Figures 1 and 2.

The Bourne and Sagamore Bridges (collectively referred to as the Cape Cod Canal highway bridges) provide the only roadway access for the more than 35 million vehicles that cross Cape Cod Canal each year and serve as the gateway to Cape Cod for more than 250,000 year-round residents of the Cape and Islands (Barnstable, Dukes, and Nantucket counties), and millions of annual visitors to the region during the height of the summer tourist season between Memorial Day and Labor Day. As the only roadway access points between mainland Massachusetts and Cape Cod, and by extension to the islands of Martha's Vineyard and Nantucket via Cape Cod based ferry services, the Cape Cod Canal highway bridges serve as essential routes for general transportation, commerce, tourism, emergency evacuations, and access to major national defense facilities at Joint Base Cape Cod (JBCC) in the upper western portion of Cape Cod. JBCC is a full-scale, joint-use military base spanning approximately 21,000 acres within the upper western portion of Cape Cod. JBCC is home to five military commands training for missions at home and overseas, conducting airborne search and rescue missions, and intelligence command and control. In addition to supporting military training operations and national security interests, the northern 15,000 acres of JBCC (Camp Edwards Training Area) are located above the Cape Cod Aquifer, which is the sole source aquifer that provides drinking water to JBCC and Upper Cape Cod; this area, designated as the Upper Cape Water Supply Reserve/Camp Edwards Wildlife Management Area, is owned by the Commonwealth of Massachusetts. In addition to the Cape Cod Aquifer, southwest of the Sagamore Bridge, the Plymouth Carver Sole Source Aquifer located northwest of the Sagamore Bridge, is the principal source of drinking water for residents in six neighboring communities.

Figure 1. View of the Bourne Bridge looking west towards the Buzzards Bay Railroad Bridge

Figure 2. Aerial View of Sagamore Bridge looking west

FHWA and MassDOT have defined two Program Study Areas for the Cape Cod Bridges Program, which include the Bourne Program Study Area and the Sagamore Program Study Area. The Bourne Program Study Area includes the Bourne Bridge and sections of its mainline highway approaches along State Route 25 and State Route 28, which are owned and maintained by MassDOT. Major interchanges and intersections within the Bourne Program Study Area include the Route 28/U.S. Route 6 interchange just north of the Bourne Bridge; Belmont Circle immediately west of the Route 28/U.S. Route 6 interchange; and the Bourne Rotary interchange immediately south of the Bourne Bridge. The Sagamore Program Study Area includes the Sagamore Bridge and sections of its mainline highway approaches along State Route 3 and U.S Route 6, which are owned and maintained by MassDOT. Major interchanges within the Sagamore Program Study Area include the State Route 3/U.S. Route 6 interchange and the Route 6 Exit 55 interchange immediately north and south of the Sagamore Bridge, respectively. Refer to Figures 3 and 4 for maps illustrating the limits of the Bourne and Sagamore Program Study Areas.

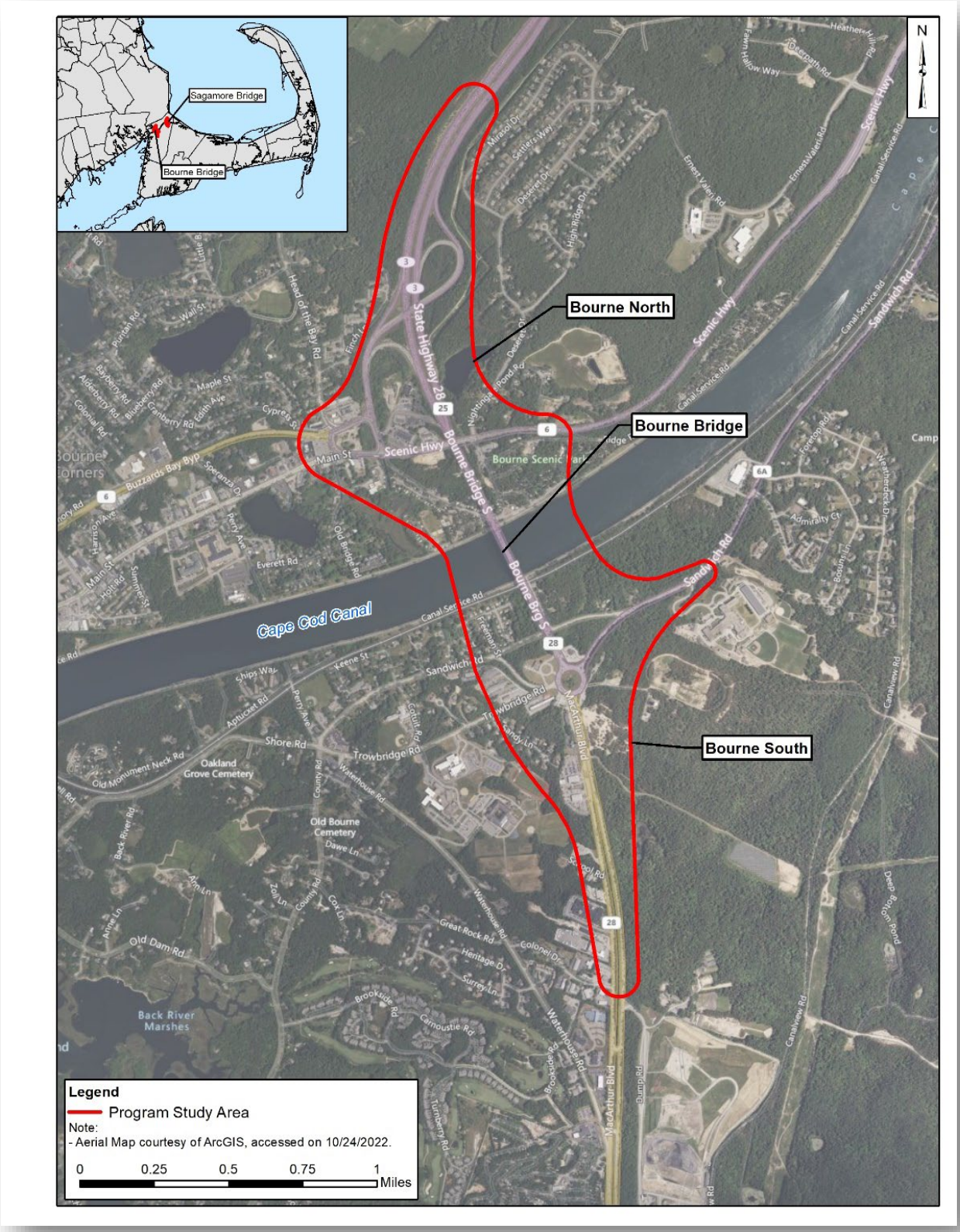

Figure 3. Bourne Program Study Area

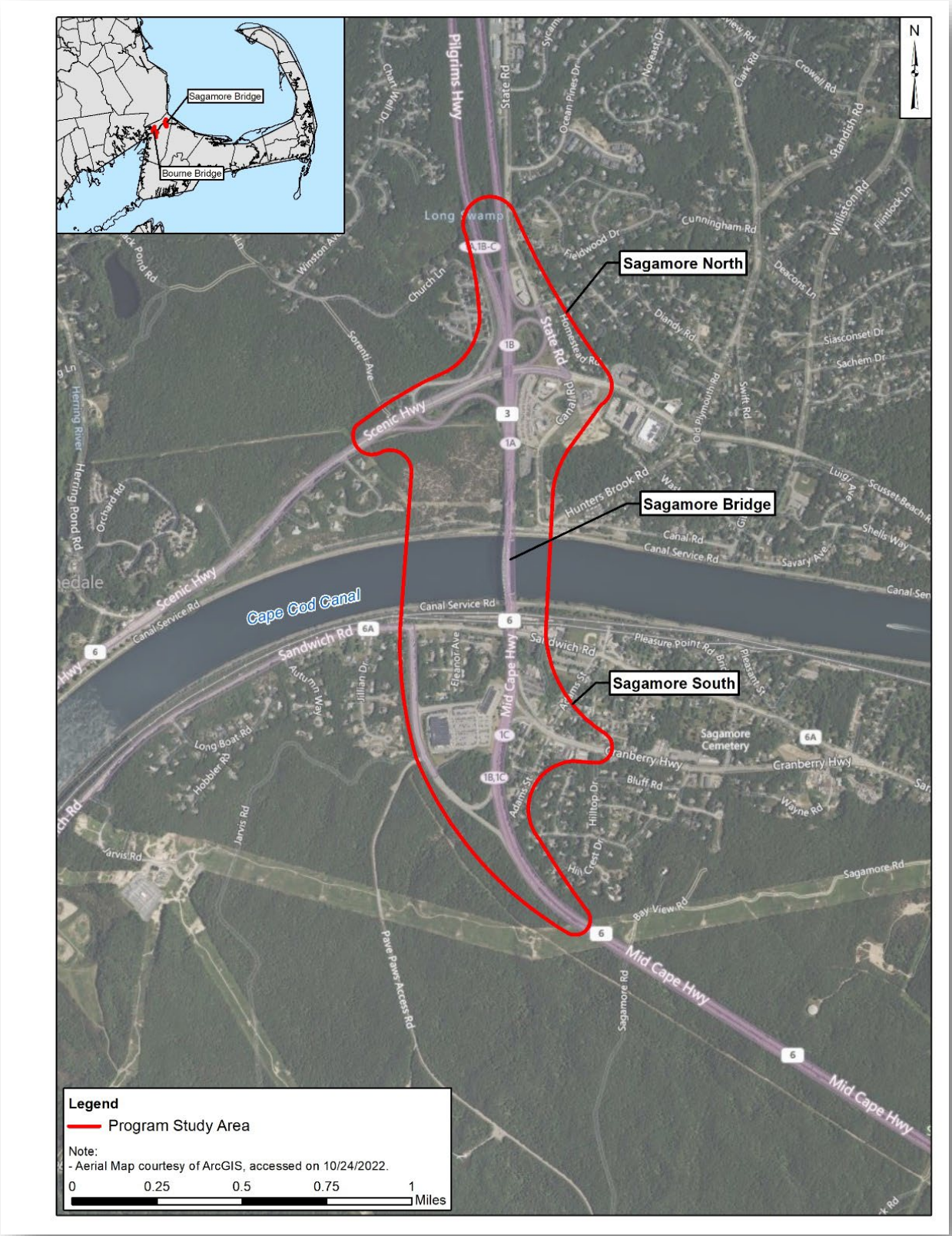

Figure 4. Sagamore Program Study Area

2.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Cape Cod Bridges 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 Cape Cod Canal highway bridges.

The needs for the Cape Cod Bridges Program are as follows:

- Address the deteriorating structural condition and escalating maintenance demands of the Cape Cod Canal highway bridges,
- Address the substandard design elements of the Cape Cod Canal highway bridges, the immediate mainline approaches and their adjacent interchanges and intersections,
- Improve vehicular traffic operations, and
- Improve accommodations for pedestrians and bicyclists.

Discussion of the identified needs for the Cape Cod Bridges Program is provided below. For further information, refer to Attachment 1, the Purpose and Need Statement for the Cape Cod Bridges Program.

Address the deteriorating structural condition and escalating maintenance demands of the Cape Cod Canal highway bridges: The Bourne and Sagamore highway bridges have been in service for almost 90 years. Despite the USACE's ongoing maintenance efforts and major rehabilitation of superstructure components in 1981, these aging steel truss bridges have deteriorated over time and are now beyond their functional service lives. Based on the latest information available from a routine inspection conducted by the USACE in October 2022, the Bourne Bridge was classified as structurally deficient due to the poor condition of the bridge superstructure. The poor superstructure rating was based on continuing deterioration of the concrete T-beams, deterioration of gusset plates at truss joints, and broken anchor bolts at truss expansion bearings. Although the Sagamore Bridge was not considered to be structurally deficient as of the latest available inspection conducted by the USACE in September 2021, many individual bridge components warranted overall ratings of poor, such as gusset plates, bearings, and welds. Gusset plates connect fracture critical truss elements. Severe deterioration or warping of gusset plates could lead to localized failures and in extreme cases a progressive collapse of the truss. The continuing deterioration of the aging Bourne and Sagamore Bridges necessitates frequent, costly, and escalating maintenance and repair efforts to maintain serviceability of the structures. These frequent maintenance and repair efforts require lane closures for extended periods of time that are highly disruptive to traffic and access by emergency responders crossing Cape Cod Canal.

Address the substandard design elements of the Cape Cod Canal highway bridges, the immediate mainline approaches and their adjacent interchanges and intersections: The Bourne and Sagamore Bridges were constructed in the 1930s to standards that are not in use today. The existing bridges have substandard geometric features, such as lane width, sidewalk width, and lack of shoulders. The geometric deficiencies include:

- Narrow 10-foot-wide travel lanes on the bridges, which are below the required minimum 12-foot lane width for limited access highways;
- No shoulders, auxiliary lanes, or physical separation between opposing traffic lanes are on the bridges;
- Abrupt transition to connecting surface roads, which require the bridges' through-travel lanes to double as acceleration/deceleration lanes; and
- One narrow 6-foot-8-inch wide sidewalk for pedestrians and bicyclists on the bridges immediately adjacent to the travel lanes. Each sidewalk is grade separated from the travel lanes by a two-foot-wide safety curb, but there are no physical barriers or dividers between the sidewalks and travel lanes on the bridges.

Narrow travel lanes, lack of shoulders, the absence of separation between opposing travel lanes, and inadequate transition lanes on the bridges result in frequent reports of sideswipe collisions between vehicles traveling in the same or opposite directions. The proximity of interchanges and intersections at the end of each bridge and the lack of auxiliary lanes across the bridges and near the adjoining roadways result in weaving and merging issues for drivers. The Bourne and Sagamore Bridges and their approaches also feature steep grades of up to six percent. At a six percent grade, the vertical profile of the bridges is steeper than the four- to five-percent maximum grade typical for limited-access highways.

Other substandard roadway design features within the Program Study Areas include a lane reduction along the Route 3 southbound approaching the Sagamore Bridge from the north, short acceleration and deceleration lanes at Route 6 Exit 55 immediately south of the Sagamore Bridge, and lack of lane designation and pavement markings within the wide circulatory lane in the Bourne Rotary and at the entrance points immediately south of the Bourne Bridge.

Improve vehicular traffic operations: Heavy traffic volumes on the Bourne and Sagamore Bridges, coupled with the above-referenced substandard roadway conditions, contribute to poor traffic operations within the Program Study Areas during peak travel periods. The approaches to the Bourne and Sagamore bridges from both directions operate at poor levels of service (LOS) for all peak hours analyzed under 2019 base year conditions. The southbound side of the Bourne Bridge and both directions of the Sagamore Bridge also operate at poor LOS during all peak hours analyzed under 2019 base year conditions. The Bourne and Sagamore Bridges experienced a significantly higher crash rate than the statewide average crash rate for similar principal arterial roadways during the most recently studied period between January 2017 and December 2019, with rear-end and sideswipe collisions reported as the most common types of crash.

Traffic volumes in the Bourne and Sagamore Study Areas are forecast to increase under the future (2050) No Build Condition predominantly due to projected growth in annual visitor trips to the Cape Cod region and the continued trend of lower-wage Cape Cod workers living off Cape Cod. With projected growth in traffic volumes in future years, traffic operations within the Program Study Areas are expected to worsen over time.

Improve accommodations for pedestrians and bicyclists: The Bourne and Sagamore Bridges each provide a narrow slightly raised sidewalk that includes steep grades. There are no designated bicycle accommodations across the bridges. The lack of shoulders and physical barriers between the sidewalks and travel lanes on the bridges presents unsafe and uncomfortable conditions for pedestrians and bicyclists crossing Cape Cod Canal. There are also gaps for pedestrian and bicycle access across Cape Cod Canal and between the Cape Cod Canal service road (bike path) and local roadways in the Bourne and Sagamore Program Study Areas.

Public and Agency Input on the Purpose and Need

The preliminary Purpose and Need was presented to the public during two prior rounds of public engagement meetings held by MassDOT in November 2021. The public was invited to submit comments on the preliminary Purpose and Need following these meetings. MassDOT held a follow up round of public engagement meetings in January 2023 to provide the public with updates on the preliminary Purpose and Need based on receipt of comments. FHWA shared the preliminary Purpose and Need with Cooperating Agencies and requested their review and comment in advance of a second Cooperating Agencies Coordination Meeting held for the Cape Cod Bridges Program in October 2023. The Cooperating Agencies approved the Purpose and Need Statement at the October 17, 2023 meeting.

3.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES THE ENVIRONMENTAL IMPACT STATEMENT WILL CONSIDER

Foundational Studies and Agreements

In accordance with 23 USC 139(f)(4)(E)(ii) and 40 CFR 1501.2, the Cape Cod Bridges Program builds upon and references prior, multi-year foundational studies conducted by MassDOT and USACE, including the MassDOT Office of Transportation Planning (OTP) October 2019 Cape Cod Canal Transportation Study and the USACE March 2020 Major Rehabilitation Evaluation (MRE) Study of the Cape Cod Canal highway bridges.

In collaboration with FHWA, MassDOT launched the Cape Cod Canal Transportation Study in 2015 to identify and evaluate existing and future multimodal transportation deficiencies and needs around the Cape Cod Canal area. The study area for the Cape Cod Canal Transportation Planning Study included land up to four miles on either side of the canal, extending farther at certain points to include major highway interchanges. The Cape Cod Transportation Study involved a Study Working Group, including local and state elected officials; Federal agencies including the USACE, state agencies, area municipalities, metropolitan planning organizations, chambers of commerce, key businesses, and other interested parties; and an extensive public outreach program. At the conclusion of the Cape Cod Canal Transportation Study in 2019, MassDOT, in coordination with the Study Working Group, provided recommendations for addressing multimodal deficiencies within the Cape Cod Canal area including:

- Improvements to pedestrian and bicycle accommodations and connections proximate to and from local roadways over Cape Cod Canal via the Bourne and Sagamore Bridges; and
- Implementation of major transportation system improvements at roadway approaches to the Bourne and Sagamore Bridges, including adjacent interchanges and intersections.

Simultaneously, the USACE, New England District completed a multi-year MRE Study of the Cape Cod Canal highway bridges in 2020. The purpose of the MRE was to evaluate the current condition of the bridges and determine whether standard operation and maintenance, major rehabilitation, or replacement of either or both bridges would provide the most reliable, fiscally responsible solution for providing long-term vehicular access across Cape Cod Canal. The MRE resulted in publication of a Major Rehabilitation Evaluation Report (MRER) in March 2020, which evaluated the risk and reliability of the Bourne and Sagamore Bridges, as well as the economic impacts and benefits of major rehabilitation and numerous bridge replacement alternatives versus continuing to repair the bridges as needed. The MRER included a detailed analysis of multiple alternatives for new canal crossings, including new bridges, tunnels, causeways, low level versus high level bridges, and closure of the Canal to navigation with restoration to the pre-Canal road system, based on functionality, cost, impacts, maintaining maritime use of Cape Cod Canal, and compliance within the existing Federal authority for the Cape Cod Canal Federal Navigation Project.

On April 3, 2020, a decision was made by the USACE and the Assistant Secretary of the Army for Civil Works to replace the current Bourne and Sagamore Bridges with two new bridges built to modern-day standards. In its decision, the USACE noted that this solution would provide the federal government with the best long-term investment for safe access to Cape Cod for the traveling public over the next 50 plus years.

To support the MRER decision document, the USACE prepared an Environmental Assessment (EA), in compliance with NEPA, to examine the potential effects of alternatives examined within the MRER and allow for public involvement in the evaluation process. The scope of the EA was to examine potential alternatives, including major rehabilitation and replacement, to determine the most feasible option for maintaining reliability of service, improving safety and ease of maintenance, and providing safe, secure, and cost-effective access across Cape Cod Canal. From an assessment of multiple alternatives, three alternatives were advanced for further analysis in the MRER/EA including: (1) No Action (Base Condition), consisting of continued standard maintenance and replacing elements as identified through regular inspection; (2) Major Rehabilitation of Both Bridges; and (3) Replacement of Both Highway Bridges with New Bridges, consisting of four through-traffic lanes and two auxiliary lanes.

In its MRER/EA, USACE stated that both a major rehabilitation alternative and bridge replacement alternative would require utility relocations, including the natural gas utility transmission lines suspended beneath the decks of the existing bridges. The MRER/EA stated that in the major rehabilitation of each bridge, the deck and floor beam replacements would require removal, necessitating the natural gas line removal. Further, the gas lines would not be permitted to cross the new bridges due to safety considerations. In both scenarios, the MRER/EA stated that gas

lines that cross the canal would likely be replaced with one or more directional drill lines beneath the canal.

The USACE's MRER/EA Preferred Alternative is replacement of both highway bridges with new bridges, consisting of four through-traffic lanes and two auxiliary lanes and updated to comply with current design standards, to be constructed adjacent to the existing bridges. Based on the findings of the MRER/EA and receipt of public comments, the USACE determined that the replacement of both highway bridges with new adjacent bridges (Preferred Alternative) would have no significant impacts on the quality of the environment. On March 29, 2022, pursuant to NEPA, the USACE formally issued a Finding of No Significant Impact (FONSI) for the EA and the proposed action to replace the Bourne and Sagamore Bridges. The USACE committed to the preparation of a Phase II NEPA document, including bridge replacement design.

Based on close coordination during development of the MRER/EA and the Cape Cod Canal Transportation Study, the USACE and MassDOT engaged in a collaborative approach to future project development through execution of a Memorandum of Understanding (MOU), dated July 7, 2020, regarding the Cape Cod Canal highway bridges and approaches. According to the terms of the MOU, the USACE will continue to own, operate, and maintain the existing bridges until replacement bridges are built and operational, while supporting MassDOT's efforts for construction approval of the replacement bridges. MassDOT will lead project delivery to complete the feasibility study and alternatives analysis, preliminary design and environmental permitting process, and construction of the replacement bridges. MassDOT will then own, operate, and maintain the completed bridges and approaches as part of the system of state highways.

Transition to FHWA Environmental Impact Statement

On January 20, 2023, in response to a request from MassDOT, FHWA agreed to serve as the lead federal agency for the Cape Cod Bridges Program. FHWA committed to working closely with the USACE as the Program design advances, including requesting the USACE to serve as a Cooperating Agency on the Program. On August 11, 2023, FHWA determined that the Program would require the preparation of an EIS, to ensure that full and fair discussion of significant environmental impacts are disclosed to decision makers and the public, and to ensure all reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the environment are considered.

Alternatives Analysis Process

Utilizing the Cape Cod Canal Transportation Study and the USACE's MRER/EA as the foundational planning documents, and pursuant to 23 USC 139(f)(4)(E)(ii), MassDOT screened the Universe of Alternatives presented in the MRER/EA and confirmed the USACE's recommended Preferred Alternative of replacing the highway bridges with new bridges built to modern highway design standards. Incorporating the USACE's Preferred Alternative, pursuant to 40 CFR 1501.2, MassDOT conducted a series of conceptual and preliminary level engineering and environmental evaluations on the Program's design parameters. MassDOT's evaluations consisted of qualitative

and quantitative analyses of Program design parameters relative to the Program Purpose and Need, as well as engineering design criteria and other factors established in coordination with FHWA and USACE. As a result of the progressively refined alternatives analysis process, and with agency and stakeholder input and public review, MassDOT recommended advancing a replacement highway bridge alternative and highway interchange approach options for further consideration.

MassDOT's assessments, detailed in the Cape Cod Bridges Program Alternatives Analysis Report, included the following:

- Screening of Alternatives Considered in USACE's Major Rehabilitation Evaluation Report/Environmental Assessment (MRER/EA), in which MassDOT concurred with the USACE's Preferred Alternative as the only reasonable Build Alternative to be Retained for Detailed Study in the EIS;
- Bridge Highway Cross-Section and Shared Use Path Assessments, in which MassDOT evaluated and confirmed the proposed bridge cross-section, including the highway travel lanes, auxiliary lanes, and shared-use path, presented in the USACE's MRER/EA;
- Bridge Vertical and Horizontal Clearances Assessment, in which MassDOT evaluated and confirmed the proposed bridge vertical and horizontal clearances presented in the USACE's MRER/EA;
- Main Span Length and Bridge Pier Location Assessments, in which MassDOT identified and screened options for the main span length and location of bridge piers for the replacement bridges;
- Bridge Deck Configuration Assessments, in which MassDOT evaluated alternative bridge deck configurations and confirmed the most appropriate configuration based on the recommended bridge type;
- Bridge Type Assessments, in which MassDOT screened a wide range of bridge types and parameters to determine the most appropriate bridge type in accordance with highway geometrics, constructability, and public review;
- Mainline Alignment Location Alternatives Analysis, in which MassDOT screened multiple mainline alignment locations per highway design evaluation criteria to identify the recommended mainline alignment Retained for Detailed Study;
- Highway Interchange Approach Options Assessments, in which MassDOT initially screened a wide range of interchange approach options and identified a reasonable range of options, to be further assessed in a secondary analysis to identify the Options Retained for Detailed Study.

Proposed Action and Alternatives

Build Alternative Retained for Detailed Study. Pursuant to 23 USC 139(f)(4)(E)(ii), the Cape Cod Bridges Program builds upon the analyses and findings of MassDOT's Cape Cod Canal Transportation Study and the USACE's Cape Cod Canal Highway Bridges MRER/EA, and

incorporates the USACE's proposed action to replace the Bourne and Sagamore Bridges with new adjacent highway bridges, with each structure providing four through-travel lanes and two auxiliary acceleration/deceleration lanes, updated to comply with current state and Federal highway design standards. The Cape Cod Bridges Program proposes to replace the Bourne and Sagamore highway bridges with parallel, twin tied-arch bridge structures supported on Delta frames with an approximate 700-foot mainline span length. At both the Bourne and Sagamore crossings, the replacement bridge mainline alignment location will be fully offline and inboard of the existing highway bridges, on the side of the canal between the existing Bourne Bridge and Sagamore Bridge. Additionally, at both canal crossings, the Cape Cod Bridges Program will 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 will include a summary of MassDOT's ongoing analysis to identify the highway interchange approach Options Retained for Detailed Study and a detailed evaluation of those options in compliance with NEPA.

Table 3-1 presents the recommended design elements of the Cape Cod Bridge's Program's Build Alternative Retained for Detailed Study.

Table 3-1. Summary of Recommended Build Alternative Retained for Detailed Study

Design Element	Description
Replacement Highway Bridges	Replacement of both Highway Bridges with New Bridges with Four Through-Traffic Lanes and Two Auxiliary Lanes (In-Kind Bridge Replacement, updated to comply with Federal and state highway and design safety standards).
Bridge Highway Cross-Section and Shared Use Path	Each replacement highway bridge would provide four 12-foot-wide through travel lanes (two in each direction), two 12-foot-wide entrance/exit (auxiliary) lanes, a 4-foot-wide left shoulder, and a 10-foot-wide right shoulder. Right and left barriers would be offset an additional 2 feet beyond the limits of the shoulders.
	Each crossing location would include one bi-directional pedestrian and bicycle shared-use path (SUP), separated from vehicular traffic by the shoulder and barrier; the width of SUP to be determined as design advances.
Bridge Clearances	The replacement bridges would maintain the existing vertical clearance of 135 feet above mean high water (MHW) and account for future SLR.
	The replacement bridges would provide a minimum of 500 feet of horizontal channel width to be consistent with existing conditions.
Main Span Length and Bridge Pier Location	The replacement bridges would have a main span length of approximately 700 feet, which would locate the bridge piers at the waterline adjacent to the

Design Element	Description
	service road (shoreline piers), into the rip rap slope but above the low tide line.
Bridge Deck Configuration	Each crossing (Bourne and Sagamore) would have two separate decks (twin structures).
Bridge Type	The replacement bridges would be twin Tied-Arch Bridges with Delta Frames supporting an approximate 700-foot mainline span.
Mainline Alignment	The mainline alignment locations at both crossings would be Fully Offline Inboard. Both barrels of the replacement highway bridge would be located fully outside the footprint of the existing bridge, approximately 10 feet apart and parallel to each other, and on the side of the canal between the existing Bourne Bridge and Sagamore Bridge. At the Bourne crossing, both barrels of the replacement highway bridge would be located east of the existing Bourne Bridge, towards Cape Cod Bay. At the Sagamore crossing, both barrels of the replacement highway bridge would be located west of the existing Sagamore Bridge, toward Buzzards Bay.
Highway Interchange Approach Network	Ten interchange approach options will be advanced for additional assessment: three for Bourne North; two for Bourne South; two for Sagamore North, and three for Sagamore South. It is MassDOT's and FHWA's intent to include and identify one recommended highway interchange approach option for each quadrant (Bourne North, Bourne South, Sagamore North, Sagamore South) in the DEIS.

No Build Alternative. A No Build Alternative also will be carried forward for study in the Cape Cod Bridges Program EIS as a baseline condition for comparison to the Build alternative, in compliance with NEPA. In the No Build Alternative, the Sagamore and Bourne highway 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 safety curb. The No Build Alternative represents the "Fix as Fails" Base Condition of the USACE's MRER/EA; in this alternative, the USACE would implement an ongoing program of continued inspections and maintenance and repair of both existing bridges as needed to maintain 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. The decision to advance a No Build Alternative would nullify the 2020 MOU between USACE and MassDOT. USACE would continue to own the Bourne and Sagamore Bridges and would implement a maintenance and repair program as needed to maintain bridge operations and public safety. MassDOT would continue to own, operate, and maintain the State highway networks at the two bridges.

4.0 SUMMARY OF EXPECTED IMPACTS

In coordination with FHWA, and in accordance with 23 USC 139(f)(4)(E)(ii), MassDOT has initiated data collection, preliminary resource evaluations, and agency coordination to identify environmental, cultural, and socio-economic resources present in the Program Study Areas with the potential for direct and indirect effects, and reasonably foreseeable cumulative effects.

The following key resources and issues have been identified for further evaluation in the EIS and supporting technical studies:

- ***Historic Properties***: There are numerous historical and cultural resources within and adjacent to the Program Study Areas, including but not limited to the Bourne and Sagamore Bridges and the Cape Cod Canal Historic District, which are eligible for listing in the National Register of Historic Places. The EIS will provide a discussion of historical and cultural resources within and adjacent to the Program Study Areas. Removal of the existing bridges would cause an adverse effect to the two National Register-eligible structures in accordance with Section 106 of the National Historic Preservation Act. In addition, the creation and use of temporary construction staging, and access areas could result in an adverse effect to the National Register-eligible Cape Cod Canal Historic District. MassDOT will conduct a professional archaeological survey to determine if any unidentified pre-contact sites, unmarked human burials or ceremonial sites are within the Area of Potential Effects (APE). Technical reports prepared on any identified archaeological resources will be made confidential and will not be reproduced as part of the public distribution of the EIS.

- ***Section 4(f) Properties***: The Build Alternative may affect publicly owned parks and recreational areas, and public and private historical sites listed or eligible for listing on the National Register of Historic Places that are subject to protection under Section 4(f) of the Department of Transportation Act of 1966 [Section 4(f)]. The Section 4(f) protected public parks and recreational areas within the Program Study Areas include local, State, and federal resources. Historic sites within and near the Program Study Areas include the Bourne and Sagamore Bridges, the Cape Cod Canal Historic District, and other public and private historic properties. Potential impacts to Section 4(f) properties will be evaluated, avoided, or minimized to the greatest extent possible as the Program design elements are refined during development of the EIS and the Section 4(f) evaluation.

- ***Relocations*****:** The Build Alternative may require full and partial right-of-way acquisitions from residential and commercial properties within the Program Study Areas. Potential impacts to surrounding residential and commercial properties will be evaluated, avoided, or minimized to the greatest extent possible as the Program design elements are refined during development of the EIS. FHWA and MassDOT will ensure that any necessary right-of-way is acquired in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

The EIS will also evaluate potential direct and indirect effects and reasonably foreseeable cumulative effects of the No Build and Build Alternatives relative to the following:

- Transportation, Traffic, and Safety
- Pedestrian and Bicycle Facilities
- Navigation
- Socioeconomics, including local and regional economies
- Land Use, Zoning, and Community Cohesion

- Community Facilities
- Property Acquisition, Displacement, and Relocation
- Environmental Justice
- Wetlands and Floodplains
- Water Quality and Stormwater
- Rare, Threatened and Endangered Species
- Coastal Resources
- Air Quality and Greenhouse Gas Emissions
- Noise
- Visual Resources
- Cultural Resources
- Public Parks and Recreation Facilities
- Section 4(f) Evaluation of public parks and recreational facilities and historic properties,
- Solid and Hazardous Material and Waste Management
- Public Utilities and Services
- Public Health
- Climate Change Adaptation and Resiliency

The analyses and evaluations conducted for the EIS will identify the potential for effects, including whether the anticipated effects would be adverse, and will identify measures to avoid, minimize, and/or mitigate for adverse effects. Impacts will be identified and assessed for the Program's construction period and the permanent condition. Individual technical reports will be prepared for the evaluation of environmental resources. In accordance with 23 USC 139, *Efficient Environmental Review for Project Decisionmaking and One Federal Decision*, the EIS will summarize the major findings of the technical reports, which will be appended to the EIS. Additionally, in accordance with USDOT's *Interim Policy on Page Limits for NEPA Documents and Focus Analyses*, the EIS will focus only on issues that are significant to the proposed action. The following resources are not present in the Program Study Areas and will not be addressed in the EIS: farmlands, wild and scenic rivers, coastal barriers, hazardous waste/Superfund sites, and energy.

5.0 ANTICIPATED PERMITS AND STUDY SCHEDULE

Anticipated Federal Permits and Authorizations

In addition to the NEPA decision document, anticipated Federal permits and authorizations for the Cape Cod Bridges Program include:

- USACE permits under Section 404 of the Clean Water Act (33 USC 1344) and Section 10 of the Rivers and Harbors Act (33 USC 403) for discharges of dredged or fill material into Waters of the U.S., and for structures in navigable waters of the U.S.; and Section 408 approval under Section 14 of the Rivers and Harbors Act of 1899 (33 USC 408) for occupation and alteration of Cape Cod Canal, a Federally authorized Civil Works project;

- U.S. Coast Guard (USCG) Bridge Permits under Section 9 of the Rivers and Harbors Act of 1899, as amended (33 USC 403) for construction of new bridges across navigable waters of the U.S.;
- National Marine Fisheries Service (NMFS) consultation for potential impacts to Federally listed threatened, endangered, and/or protected species in Cape Cod Canal under Section 7 of the Endangered Species Act (16 USC 1536) and the Marine Mammal Protection Act of 1972 (16 USC 1371);
- U.S. Fish and Wildlife Service (USFWS) consultation for potential impacts to Federally listed threatened, endangered, and/or protected species of wildlife or plants under Section 7 of the Endangered Species Act (16 USC 1536), the Migratory Bird Treaty Act of 1918 (16 USC 703), the Bald and Golden Eagle Protection Act (16 USC 668), and the Fish and Wildlife Coordination Act (16 US. 661);
- NMFS Essential Fish Habitat Consultation/Assessment under the Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801- 1891d) for potential impacts to aquatic habitat within Cape Cod Canal;
- Section 4(f) of the U.S. Department of Transportation Act (49 USC 303(c)) evaluation for the proposed "use" of significant publicly owned public parks and recreational areas, and historic sites listed or eligible for listing on the National Register of Historic Places;
- Section 106 of the National Historic Preservation Act (54 USC 306108) Memorandum of Agreement (MOA) for removal of the National Register-eligible Bourne and Sagamore Bridges;
- United States Environmental Protection Agency (USEPA) National Pollutant Discharge Elimination System (NPDES) – Construction General Permit for discharge of stormwater from construction sites that disturb one acre or more of land under Section 402 of the Clean Water Act (33 USC 1342);
- Federal Aviation Administration (FAA) review under Air Commerce and Safety Regulations (29 USC 44718); and a
- Federal Archaeologist Permit from the USACE pursuant to 43 CFR 7, Protection of Archaeological Resources.

Anticipated State and Local Permits and Authorizations

Anticipated state and local permits and approvals for the Cape Cod Bridges Program include:

- Massachusetts Executive Office of Energy and Environmental Affairs (EEA) Secretary Certification under the Massachusetts Environmental Policy Act (MEPA), (301 Code of Massachusetts Regulations [CMR] 11.00);
- Bourne Conservation Commission Order of Conditions (OOC) under the Massachusetts Wetlands Protection Act (310 CMR 10.00);
- Massachusetts Department of Environmental Protection (MassDEP) 401 Water Quality Certification (WQC) under 314 CMR 9.00;
- MassDEP Chapter 91 Licenses under the Massachusetts Public Waterfront Act (310 CMR 9.00;

- Massachusetts Office of Coastal Zone Management (MA CZM) Federal Consistency Review under the Coastal Zone Management Act (321 CMR 20.00);
- Massachusetts Historical Commission (MHC) State Archaeologist Permit pursuant to 950 CMR 70.00; and
- A potential Massachusetts Division of Fisheries and Wildlife (MA DFW) Conservation and Management Permit (CMP) under the Massachusetts Endangered Species Act (MESA) (321 CMR 10.00).

Additional Compliance and Continued Permitting Consultation

The Cape Cod Bridges Program will comply with the Clean Air Act (42 USC 7401 et seq.), and Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" and other applicable state and Federal laws.

As the Cape Cod Bridges Program is subject to project development procedures in 23 USC 139, agencies with jurisdiction by law (via permitting or land transfer authority) must be invited to serve as Cooperating Agencies in the NEPA review process.

The following Federal agencies were invited to serve as Cooperating Agencies in the NEPA review process for the Cape Cod Bridges Program:

- United States Army Corps of Engineers
- National Marine Fisheries Service
- United States Fish and Wildlife Service
- Unites States Coast Guard
- Unites States Environmental Protect Agency
- Advisory Council on Historic Preservation
- Federal Energy Regulatory Commission

The following state agencies were invited to serve as Cooperating Agencies in the NEPA review process for the Cape Cod Bridges Program:

- Massachusetts Department of Environmental Protection
- Massachusetts Office of Coastal Zone Management
- Massachusetts Executive Office of Energy and Environmental Affairs
- Massachusetts Historical Commission
- Massachusetts Division of Fish and Wildlife

FHWA and MassDOT have hosted two meetings with Cooperating Agencies to date; meetings with Cooperating Agencies and other Participating Agencies with special interest in the Cape Cod Bridges Program will continue to be held throughout the environmental review process. FHWA and MassDOT also will work with Cooperating and Participating Agencies to determine if additional permits or authorizations are required for the Cape Cod Bridges Program.

Permit and Study Schedule Milestones

The permit and study schedule for the Cape Cod Bridges Program will be established as part of the requirements of the environmental review process under 23 USC 139 and will comply with 40 CFR 1501.10(b)(2), which requires that environmental reviews and authorization decisions for major infrastructure projects occur within two years (from the date of publication of the NOI to the date of issuance of the Record of Decision [ROD]), and all necessary authorizations be issued efficiently and in a timely manner, in cooperation with the FHWA.

Anticipated permit and study schedule milestones required by NEPA regulations are provided in Table 5-1. Following the issuance of this Notice, FHWA and MassDOT will coordinate with the Participating and Cooperating Agencies to develop study documentation and the DEIS. The schedule will be provided on the FHWA Permitting Dashboard website (https://www.permits.performance.gov/) and updated as the Cape Cod Bridges Program develops.

Table 5-1. Anticipated Cape Cod Bridges Program Permit and Study Milestone Schedule

Program Permit and Study Milestone	Proposed Schedule
Continued Scoping Outreach	Through Spring 2024
Publish Notice of Intent (NOI) to Prepare an EIS	Winter 2024
Notice of Availability of the DEIS	Spring 2025
DEIS Public Hearing	Spring 2025
End of DEIS Comment Period	Spring 2025
Complete Consultation and Authorizations related to Section 4(f), US DOT Act; Section 106, National Historic Preservation Act; Section 7, Endangered Species Act; Magnuson-Stevens Fishery Conservation and Management Act; Fish and Wildlife Coordination; Marine Mammal Protection Act of 1972; Bald and Golden Eagle Protection Act; Fish and Wildlife Coordination Act; and Migratory Bird Treaty Act	Winter 2026
Publish Combined FEIS & Record of Decision (ROD)	Winter 2026
All Federal Permits and Other Authorizations Received	Spring 2026

6.0 SCOPING AND PUBLIC REVIEW

In accordance with 23 USC 139(f)(4)(E)(ii), the EIS will incorporate public and stakeholder review obtained relative to the Cape Cod Bridges Program Environmental Notification Form (ENF) filing under the Massachusetts Environmental Policy Act (MEPA) on April 28, 2023. MassDOT held five rounds of public information meetings between June 2021 and March 2023 to present Program updates, highlight key milestones, and offer the public the opportunity to provide input and feedback on various aspects of the Cape Cod Bridges Program, including the Preliminary Purpose and Need, Draft Measures of Effectiveness criteria, and alternatives of bridge types, deck configurations, mainline alignment locations, as well as highway interchange approach options

under consideration for the replacement Bourne and Sagamore Bridges. Additionally, MassDOT convened an Advisory Group comprised of local interests and representation to provide feedback and share information throughout Program development. The first meeting of the Advisory Group was held on May 16, 2023, and a second meeting was held on September 26, 2023. MassDOT also hosted an in-person Open House in Bourne on May 17, 2023, to solicit public feedback on the alternative mainline alignment locations and deck configurations and highway interchange approach options, as well as the defined Program Study Areas, as published in the ENF. The public review and Advisory Group meeting presentations and meeting summaries are posted, in an accessible format, on the Program's website (https://www.mass.gov/cape-bridges).

In addition to public outreach and engagement, FHWA and MassDOT hosted two Cooperating Agency meetings for the Cape Cod Bridges Program on June 14, 2023 and October 17, 2023, during which FHWA and MassDOT provided an overview of the prior foundational planning studies conducted by the USACE and MassDOT. Cooperating Agencies were presented with a discussion of the roles and responsibilities for Cooperating Agencies in the EIS process; the Cape Cod Bridges Program Purpose and Need; Program Study Areas; existing environmental constraints; evaluation screening of the Universe of Alternatives identified by the USACE during the MRE; and anticipated permits and approvals. Additionally, FHWA and MassDOT provided information on various aspects of the Cape Cod Bridges Program, including the Purpose and Need, existing environmental constraints, design development, alternatives to be evaluated in the NEPA process and the anticipated Program schedule. The Cooperating Agencies reviewed and concurred with the Program Purpose and Need at the October 17, 2023 meeting; a meeting summary documenting Cooperating Agency concurrence was distributed to the Agencies on October 26, 2023.

The public and agency scoping process is continuing with the publication of this NOI. Publication of this NOI initiates a 30-day scoping period during which time the public, Tribal governments and other Federal, State, and local agencies are requested to review and comment on any element of the Cape Cod Bridges Program study, including the Purpose and Need for the proposed action; Alternatives Retained for Detailed Study; and identification of any potential significant adverse environmental impacts to be evaluated in the EIS.

To ensure that the full range of issues related to this proposed project are addressed, and all significant issues are identified, comments and suggestions are invited from all interested parties during Scoping. FHWA will hold at least one public scoping meeting as part of the public scoping process for the EIS. Advanced notice of the date, time and location of the public Scoping meeting will be provided to the public through the Program website, public notices, and press releases. Such comments or questions concerning the NOI and/or the scope of the EIS may be submitted via the Program website provided below or in writing to FHWA or MassDOT at the addresses provided above. Public input received during the Scoping process will be considered in the development of the DEIS. Once complete, the DEIS will be available for public and agency review and comment prior to the DEIS Public Hearing. Advanced notice of the date, time, and location of the DEIS Public Hearing will be provided to the public through

the Program website, public notices, and press releases. There will be a public review period lasting at least 45 days for the DEIS. All substantive public comments on the DEIS will be addressed in the Final EIS (FEIS). Per USDOT's Guidance on the Use of Combined Final Environmental Impact Statements/Records of Decision and Errata Sheets in National Environmental Policy Act Reviews, FHWA will issue a single document that consists of the Final Environmental Impact Statement and Record of Decision pursuant to 49 U.S.C. 304a(b) [and 23 U.S.C. 139(n)(2)] unless FHWA determines that statutory criteria or practicability considerations preclude issuance of such a combined document.

7.0 REQUEST FOR IDENTIFICATION OF POTENTIAL ALTERNATIVES, INFORMATION, AND ANALYSES

FHWA is solicitating comments from agencies, non-governmental organizations, and the public regarding the Alternatives Retained for Detailed Study, information on resources to analyze, analysis methods, and potential environmental effects from the proposed action for inclusion in the EIS. Interested parties are invited to submit comments by any of the following methods:

Website*:* For access to the documents, go to the Federal eRulemaking Portal located at http://www.regulations.gov or the Program website located at http://www.mass.gov/cape-bridges. Follow the online instructions for submitting comments.

Mailing address or for hand delivery or courier:

FHWA*:* Cassandra Ostrander, Program Development Team Leader, Federal Highway Administration, 220 Binney St., 9th Floor, Cambridge, Massachusetts, 02142. Office Hours: Monday through Friday (except Federal holidays) from 8:00 am to 4:30 pm. *Email address:* cassandra.ostrander@dot.gov;

MassDOT*:* Bryan Cordeiro, Project Manager, Massachusetts Department of Transportation, 10 Park Plaza, Suite 6340, Boston, Massachusetts 02116; Office Hours: Monday through Friday (except state holidays) from 8:00 am to 4:30pm. *Email address:* bryan.j.cordeiro@dot.state.ma.us.

All submissions should include the agency name and the docket number that appear in the heading of this Notice. All comments received will be posted without change to http://www.regulations.gov. A summary of the comments received will be included in the Draft EIS.

8.0 CONTACT INFORMATION

FHWA: Cassandra Ostrander, Program Development Team Leader, Federal Highway Administration, 220 Binney St., 9th Floor, Cambridge, Massachusetts, 02142; email: cassandra.ostrander@dot.gov; (617) 494-3113.

Massachusetts Department of Transportation: Bryan Cordeiro, Project Manager, Massachusetts Department of Transportation, 10 Park Plaza, Suite 6340, Boston, Massachusetts 02116; email: bryan.j.cordeiro@state.ma.us; (774) 993-9632.