



Cape Cod Bridges Program

Bourne, Massachusetts

Appendix 7
Secretary's Certificate and MEPA Review Comments

SUBMITTED TO:
Secretary of Energy and Environmental Affairs
Executive Office of Energy and Environmental Affairs (EEA)
Massachusetts Environmental Policy Act (MEPA) Office
100 Cambridge Street, Suite 900
Boston, MA 02114

PROPONENT:
The Massachusetts Department of Transportation
Highway Division
10 Park Plaza
Boston, MA 02116

Submitted August 2025

massDOT
Massachusetts Department of Transportation

The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Maura T. Healey
GOVERNOR

Kimberley Driscoll
LIEUTENANT GOVERNOR

Rebecca L. Tepper
SECRETARY

Tel: (617) 626-1000
Fax: (617) 626-1081
http://www.mass.gov/eea

July 7, 2023

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME	: Cape Cod Bridges Program
PROJECT MUNICIPALITY	: Bourne
PROJECT WATERSHED	: Buzzards Bay, South Coastal, and Cape Cod
EEA NUMBER	: 16695
PROJECT PROPONENT	: Massachusetts Department of Transportation - Highway Division
DATE NOTICED IN MONITOR	: May 10, 2023

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62L) and Section 11.06 of the MEPA Regulations (301 CMR 11.00), I have reviewed the Environmental Notification Form (EENF) and hereby determine that this project **requires** the submission of a mandatory Environmental Impact Report (EIR). The Proponent should submit a Draft EIR (DEIR) in accordance with the Scope included in this Certificate.

Project Description

As described in the ENF, the Cape Cod Bridges Program (the "Program" or "project") consists of the replacement of the Bourne and Sagamore Bridges over the Cape Cod Canal (the "Canal") and reconfiguration of the corresponding highway intersection approach networks on each side of the Canal. The Program proposes to replace each of the existing Bourne and Sagamore Bridges with parallel, twin bridge structures (barrels), approximately 10 ft apart, resulting in two bridges at each crossing and four bridges total. The replacement highway bridges will support an approximate 700 foot (ft) mainline span length across the Canal and follow a "Fully Offline Inboard" alignment where the replacement highway bridges would be located outside the footprint of the existing Bourne Bridge and Sagamore Bridges. For

the Bourne Bridge, the replacement bridges would be east of the existing bridge closer to Cape Cod Bay. For the Sagamore Bridge, the replacement bridges would be west of the existing bridge closer to Buzzards Bay. Each of the two parallel barrels at each crossing would provide two 12 ft wide through travel lanes, a 12 ft wide entrance/exit (auxiliary) lane, a 4 ft wide left shoulder, and a 10 ft wide right shoulder. Additionally, each bridge crossing would include one bi-directional pedestrian and bicycle shared use path, located on the west side of the southbound "barrel" of the crossing separated from vehicular traffic by the shoulder and a barrier.

According to the ENF, the primary goals of the Program are to improve cross-canal connectivity between Cape Cod and mainland Massachusetts for all road users, and to address the increasing maintenance needs of the aging Bourne and Sagamore Bridges. Implementation of the Program is anticipated to improve traffic operations and multimodal accommodations to facilitate the dependable and efficient movement of people, goods, and services across the Canal.

As detailed below, the ENF indicates that a prior evaluation was conducted by the U.S. Army Corps of Engineers (ACOE) to determine whether to proceed with rehabilitation or replacement of the bridges. Replacement was determined to be the most reliable and fiscally responsible solution, and, therefore, a rehabilitation alternative or "No Action" Alternative were dismissed on this basis. The ENF also described alternatives for certain project components—namely, the proposed bridge span and pier locations; bridge deck configuration; bridge type; and mainline alignment location—and indicates that a Preferred Alternative was selected for each component to carry forward into the DEIR. The ENF indicates that the chosen bridge design (the Fully Offline Inboard option with 700-ft span length, double deck structure, and tied-arch bridges) minimizes environmental impacts and is the most cost feasible. As discussed below, however, while these alternatives were described in concept, the ENF did not provide full detail or quantitative analysis to support selection of the Preferred Alternative for each component. And, while an Environmental Assessment (EA) under the federal National Environmental Policy Act (NEPA) was completed for the initial evaluation of rehabilitation options conducted by ACOE, a future NEPA process will be required to evaluate all design elements of this replacement project. It is unclear at this time whether the project will undergo a formal scoping process under NEPA, and/or whether consideration of additional or different alternatives will be required. For this reason, as further described below, I am allowing the Proponent to carry forward the selected Preferred Alternatives for the project components identified above, but am requiring further documentation and analysis to support this selection including analysis of environmental impacts associated with all alternatives considered. To the extent additional alternatives or other analyses are required under federal NEPA, such information should be included in the DEIR.

The Proponent initially identified and evaluated 67 highway interchange approach alternatives using the Program's design criteria including traffic operations; roadway connectivity; roadway geometry; safety; constructability; multi-modal accommodations; utility impacts; environmental impacts; and right-of-way impacts. The ENF did not identify a Preferred Alternative for the interchange design, but did identify ten conceptual interchange approach alternatives that will be advanced for further evaluation as part of the DEIR. The Proponent proposes to analyze the interchange approaches only with respect to the bridge design selected as the preferred alternative based on the four project components identified above; in particular, the DEIR will assess how the various interchange approach options will tie in to the "Fully Offline Inboard" alignment where the replacement highway bridges would be located outside the footprint of the existing Bourne Bridge and Sagamore Bridges. For the

reasons stated above, I am allowing the DEIR to include analysis in this manner, provided that full documentation and quantitative analysis are provided to support selection of the preferred bridge design. To the extent additional bridge design alternatives are analyzed as part of the NEPA process, the DEIR should include a corresponding alternatives analysis for the interchange approaches. I shall retain discretion to require further supplementation of the alternatives analysis for all project components, based on review of the DEIR.

Background

In 2020, ACOE completed a multi-year Major Rehabilitation Evaluation of the Bourne and Sagamore Bridges which examined the relative merits of rehabilitating or replacing the bridges. The primary purpose of the study was to examine whether standard operation and maintenance, a program of repair and major rehabilitation, or replacement of one or both bridges, would provide the most reliable and fiscally responsible solution. Subsequently, the ACOE issued a Major Rehabilitation Evaluation Report (MRER) and an Environmental Assessment (EA), pursuant to NEPA, detailing their findings, evaluating potential alternatives, and recommending the most cost-effective course of action for meeting future needs. Based on a detailed evaluation of the costs and benefits of all feasible alternatives, the MRER concluded that replacement of each of the current bridges with two new bridges built to modern-day highway design standards provides the best long-term investment for safe and reliable access across the Canal.

In July 2020, a Memorandum of Understanding (MOU) was executed between the ACOE and the Massachusetts Department of Transportation (the Proponent) regarding the future ownership, operation, and maintenance of the Bourne and Sagamore Bridges. According to the terms of the MOU, the ACOE is responsible for the ownership, operation, and maintenance of the two existing bridges until replacement bridges are built and operational. The Proponent is responsible for leading Program delivery (including the feasibility study for bridge designs, alternatives analysis, preliminary design, and environmental permitting processes), as well as overseeing procurement and construction of the new bridges. Upon completion, the Proponent will then own, operate, and maintain the completed bridges and approaches as part of the system of state highways in Massachusetts.

Project Site

The project site encompasses approximately 835.8 acres within the Town of Bourne and consists of the existing Bourne and Sagamore Bridges and corresponding highway intersection approach networks on each side of the Canal. The project site also includes a larger study area adjacent to the bridges and their approaches, which represent areas beyond the existing roadway network footprint that may be impacted as part of the project. The Bourne and Sagamore Bridges are two high level, fixed span highway bridges that provide four 10 ft wide vehicular travel lanes (two lanes in each direction) with a double yellow centerline, and a single 5 ft wide sidewalk. Each bridge provides a 135 ft vertical clearance over mean high water (MHW) and a 500 ft horizontal clearance across the Canal. The bridges were originally constructed in 1933, when the Canal was widened, and opened to traffic in 1935, replacing two original low-level drawbridges.

The bridges are central to a larger study area which is divided into two distinct areas (one for each bridge crossing): the Bourne Program Study Area (BPSA) and the Sagamore Program Study Area

(SPSA), collectively known as the Program Study Areas. The BPSA includes the Bourne Bridge as well as the Route 25 and Route 28 approaches to the Bourne Bridge. The Route 25 approach consists of Route 25, Scenic Highway (U.S. Route 6), and the roadways approaching Belmont Circle, including the Route 25 exit- and entrance-ramps and portions of the Head of the Bay Road, Main Street, and the Buzzards Bay Bypass. The Route 28 approach consists of Route 28 and the roadways approaching the Bourne Rotary, including Sandwich Road, Trowbridge Road, Veterans Way, and the Bourne Rotary Connector. The SPSA includes the Sagamore Bridge as well as the Route 3 and U.S. Route 6 approaches to the Sagamore Bridge. The Route 3 approach consists of Route 3, the Scenic Highway (U.S. Route 6) and Meetinghouse Lane approaches, the Route 3/Scenic Highway (U.S. Route 6) interchange, and portions of Canal Street and State Road. The U.S. Route 6 approach consists of U.S. Route 6, the U.S. Route 6 exit- and entrance-ramps, Cranberry Highway (Route 6A), Sandwich Road, and the Mid-Cape Connector.

State and local wetland resource areas located within the project site include Land Under Ocean (LUO), Coastal Bank, Land Subject to Coastal Storm Flowage (LSCSF), Land Under Waterbodies and Waterways (LUWW), Bank, Bordering Vegetated Wetlands (BVW), Isolated Vegetated Wetlands (IVW), Bordering Land Subject to Flooding (BLSF), Isolated Land Subject to Flooding (ILSF), and potentially Rocky Intertidal Shore and Land Containing Shellfish. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) (Panel No. 25001C0313K 25001C0314K, 25001C0501J, 25001C0502J, 25001C0316K, and 25001C0318K, effective July 6, 2021), portions of the project site are located within the A Zone and AE Zone with a Base Flood Elevations (BFE) varying from 15 ft to 16 ft NAVD88.

According to the Massachusetts Natural Heritage and Endangered Species Program (NHESP) Atlas (15th Edition), portions of the project site are located within Estimated and Priority Habitats of Rare Species. The project site is also located within flowed tidelands and contain two certified vernal pools.[1] A portion of the project site is located within the Herring River Watershed Area of Critical Environmental Concern (ACEC) and located less than a half-mile of an Outstanding Resource Water (ORW) associated with a certified vernal pool. Additionally, the project site contains structures listed in the State Register of Historic Places and/or the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth.

The project site is located within one mile of one Environmental Justice (EJ) Population characterized as Minority and Income which spans the Town of Bourne and the Town of Sandwich and constitutes the entirety of Joint Base Cape Cod, including the Camp Edwards Management Wildlife Area/ Upper Cape Water Reserve. The site is not located within any census block group constituting an EJ Population. The site is located within five miles of two additional EJ Populations characterized as Income within the Town of Bourne and two EJ Populations characterized as Minority (1) and Income (1) within the Town of Wareham.[2] As described below, the ENF identified the "Designated Geographic Area" (DGA) for the project as one mile around EJ Populations, included a review of potential impacts and benefits to the EJ Populations within this DGA, and described public involvement efforts undertaken to date.

[1] Comments provided by MassDEP note that two additional vernal pools eligible for certification are also present within or near the Program Study Areas.
[2] The EEA EJ Mapper is available at: https://www.mass.gov/info-details/environmental-justice-populations-in-massachusetts

Environmental Impacts and Mitigation

Potential environmental impacts associated with the project include the direct alteration of 168 acres of land, the creation of 29.1 acres of impervious surface, and the demolition of two structures listed on the Inventory of Historic and Archaeological Assets of the Commonwealth. The project will result in temporary and permanent impacts to wetland resources areas present within the project site. The project will also require land takings via the right-of-way acquisition process.[3] The project may result in impacts to Estimated and/or Priority Habitats of Rare Species, and land protected under Article 97 of the amendments to the state constitution. Not all of these impacts were quantified in the ENF and must be fully described in the DEIR.

Measures to avoid, minimize, and mitigate environmental impacts include selection of a bridge alignment alternative that allows for continued use of the existing bridges during construction; construction of a stormwater management system to improve water quality, reduce flow rates and infiltrate runoff; and implementation of construction-period best management practices (BMPs) to minimize noise, air and water quality impacts. These and other mitigation measures must be fully described and analyzed in greater detail in the DEIR in accordance with the Scope below.

Jurisdiction and Permitting

The project is subject to MEPA review and a mandatory EIR because it requires Agency Action, and exceeds the thresholds at 301 CMR 11.03(1)(a)(1) for the direct alteration of 50 or more acres of land and 301 CMR 11.03(1)(a)(2) for the creation of ten or more acres of impervious area. It also exceeds the ENF thresholds at 301 CMR 11.03(6)(b)(1)(b) for the widening of an existing roadway by four or more feet for one-half or more miles; 301 CMR 11.03(6)(b)(2)(a) for the construction, widening, or maintenance of a roadway or its right-of-way that will alter the bank or terrain located ten more feet from the existing roadway for one-half or more miles; and 301 CMR 11.03(6)(b)(2)(b) for the construction, widening, or maintenance of a roadway or its right-of-way that will cut five or more living public shade trees of 14 or more inches in diameter at breast height. The project is also required to prepare an EIR pursuant to 301 CMR 11.06(7)(b) because it is located within a DGA of one or more EJ Populations.

The project will require a Water Quality Certification (WQC) pursuant to Section 401 of the Clean Water Act and a Chapter 91 (c.91) Waterways License pursuant to M.G.L. c. 91 and the Waterways Regulations at 310 CMR 9.00, both from the Massachusetts Department of Environmental Protection (MassDEP). The project will require an Order of Conditions (OOC) from the Bourne Conservation Commission (or in the case of an appeal, a Superseding Order of Conditions from MassDEP) and a State Archaeologist Permit from the Massachusetts Historical Commission (MHC). The project will also require a Public Benefit Determination (PBD) from the Secretary of the Executive Office of Energy and Environmental Affairs (EEA) and a Development of Regional Impact (DRI) review by the Cape Cod Commission (CCC) under § 12(i) of the Cape Cod Commission Act, St. 1989, c. 716. Additionally, the project may require a Conservation and Management Permit (CMP) from the Natural Heritage and Endangered Species Program (NHESP) pursuant to the Massachusetts Endangered Species Act (MESA).

[3] All land takings will be conducted in compliance with the federal Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) (amended in 1987) and Massachusetts General Laws Chapter 79.

The project must conduct environmental assessments under federal NEPA and will require a Section 4(f) Approval by the Federal Highway Administration (FHWA) (and other officials with jurisdiction) pursuant to Section 4(f) of the U.S. Department of Transportation Act.[4] The Program will also require a National Pollutant Discharge Elimination System (NPDES) Construction General Permit, for the disturbance of greater than one acres of land, and a Massachusetts Small Municipal Separate Storm Sewer Systems (MS4) Permit, for the implementation of the stormwater management system, from the U.S. Environmental Protection Agency (EPA). The Program will require the submittal of a Pre-Construction Notification (PCN) to the ACOE seeking authorization under the General Permits for Massachusetts in accordance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, as well as Section 408 Permission to Alter a ACOE Civil Works Project pursuant to Section 14 of the Rivers and Harbors Act, and a Federal Archaeologist Permit. The Program will require consultation and review by the U.S. Fish and Wildlife Service (USFWS) in accordance with Section 7 of the federal Endangered Species Act (ESA), the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and the Fish and Wildlife Coordination Act, as well as consultation and review by the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the ESA, the Magnuson-Stevens Fishery Conservation and Management Act, and the Marine Mammal Protection Act of 1972. The Program will require a Notice of Construction/ Determination of No Hazard to Air Navigation by the Federal Aviation Administration (FAA); a Memorandum of Agreement and Amended Programmatic Agreement between the Proponent, FHWA, ACOE, and the Massachusetts State Historic Preservation Officer (SHPO) in accordance with Section 106 of the National Historic Preservation Act; and a U.S. Coast Guard (USCG) Bridge Permit pursuant to Section 9 of the Rivers and Harbors Appropriations Act. Additionally, the Program requires Federal Consistency Review by the Massachusetts Office of Coastal Zone Management (CZM).

Because the Program will be undertaken by an Agency (MassDOT), MEPA jurisdiction is broad in scope and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in MEPA regulations.

Review of the ENF

The ENF included a project description, alternatives analysis, Public Involvement Plan (PIP), an Existing Conditions Traffic Analysis (ECTA), existing and proposed conditions plans, estimates of project-related impacts, cultural resource information, and an identification of measures to avoid, minimize and mitigate environmental impacts. It included a description of measures taken to enhance public involvement by EJ Populations. Consistent with the MEPA Interim Protocol on Climate Change Adaptation and Resiliency, the EENF contained an output report from the Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the "MA Resilience Design Tool"),[5] together with information on climate resilience strategies to be undertaken by the project.

As described in the ENF, the Bourne and Sagamore Bridges are the only vehicular access points from Cape Cod to mainland Massachusetts, serving as essential routes for general transportation, freight

[4] Section 4(f) of the Department of Transportation Act established the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites during the transportation project development process.
[5] Available at: https://resilientma.mass.gov/rmat_home/designstandards/

distribution, emergency response, tourism, and access to major national defense facilities at Joint Base Cape Cod in the upper western portion of Cape Cod. According to the ENF, the Bourne Bridge currently supports 46,380 average daily trips (adt) and the Sagamore Bridge supports 62,030 adt.[6] The bridges have deteriorated over time and require frequent repairs with associated lane closures that are highly disruptive to traffic and access by emergency responders crossing the Canal. In addition to escalating maintenance issues, the aging bridges do not meet current design and safety standards due to their narrow travel lanes, lack of shoulders, and physical separation between opposing traffic lanes; the bridges also lack of accessible accommodations for pedestrian and bicyclists.

I have received several comment letters that both recognize the importance of the Program and emphasize the need for careful planning and design to avoid, minimize, and mitigate impacts to the proximate sensitive environmental resources. Comment letters also note the difficulty of fully evaluating alternatives that are conceptual and in an early design phase. As noted above, the Proponent has selected a Preferred Alternative as to certain project components related to bridge design (bridge span and pier locations; bridge deck configuration; bridge type; and mainline alignment location), and seeks to advance just the selected bridge design into the DEIR, where further evaluation of interchange approach alternatives would be studied as related to that design. Because full detail and analysis were not provided as to the selected bridge design, I am allowing the design to be advanced as the "Preferred Alternative" as to the project components identified above, but requiring further documentation and analysis to support that selection. To the extent further scoping or alternatives are required under federal NEPA, such information should be provided in the DEIR. I shall retain discretion to require supplemental alternatives analyses as part of future filings.

I expect that the DEIR will be a comprehensive and thorough filing that includes a robust analysis of environmental impacts of all project alternatives and will identify an ultimate Preferred Alternative for the project as a whole, including for each of the interchange approaches. I commend Proponent for initiating the public participation process early in the design phase and developing a PIP to govern public outreach activities throughout the course of MEPA review and subsequent permitting. The ENF presents the PIP as an iterative document that can be modified over time as outreach needs and strategies evolve for the project.

SCOPE

General

The DEIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope. It should clearly demonstrate that the Proponent has sought to avoid, minimize, and mitigate Damage to the Environment to the maximum extent practicable through project alternatives and design.

The purpose of the DEIR for any project is to provide sufficient information to analyze and support a selection of preferred alternatives that will avoid, minimize and mitigate environmental impacts to the maximum extent feasible. The existing infrastructure is located within multiple and

[6] The existing average daily trips (adt) for the Bourne and Sagamore Bridges were determined using Fall 2019 data.

important resource and conservation areas. The selection of preferred alternatives will require balancing important transportation goals of improving mobility and safety with legitimate environmental concerns. The goal of the subsequent MEPA process, which will include the filing of a DEIR and a FEIR with associated public review and comment periods, is a thorough vetting of the relative impacts and benefits of alternatives that will allow, the Proponent and the state permitting agencies to make an informed decision about which alternative strikes the most appropriate balance in view of MEP A's statutory directives.

The Proponent has indicated that the selected mainline alignment (the "Fully Offline Inboard" alternative) was chosen as it minimizes the number of property takings as well as impacts on traffic and other impacts to surrounding communities. As noted below, due to recent revisions to the Environmental Justice (EJ) Mapper, no areas designated for property takings are located within EJ neighborhoods. The Proponent will provide a full and complete description of local impacts to the neighborhoods surrounding the bridges, as well as nearby EJ populations within 1 mile of the site, in the DEIR.

Project Description and Permitting

The DEIR should describe any changes to the Program since the filing of the ENF. The DEIR should identify, describe, and assess the environmental impacts of any changes to the Program that have occurred between the preparation of the ENF and DEIR. The DEIR should also include an updated list of required Permits, Financial Assistance, and other state, local and federal approvals and provide an update on the status of each of these pending actions. The DEIR should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the Program's consistency with those standards. MEPA 01 MEPA 02

The DEIR should include updated site plans for existing and proposed conditions at a legible scale that clearly identify all Program components (e.g. structures, roadways, etc.); public areas; impervious areas; surface elevations; wetland resource areas; c.91 jurisdictional limits; rare species habitat; conservation land; ownership of parcels including easements; historic resources; and stormwater and utility infrastructure. These plans should also identify roadway infrastructure (classified by at-grade or above-grade), bicycle and pedestrian corridors, on-street accommodations and access points to key destinations, the type and location of potential vehicle and bicycle parking (including expanded shared bicycle infrastructure), dedicated rail facilities, rail activity support buildings or structures, and adjacent land uses. MEPA 03

The DEIR should expand the discussion presented in the ENF regarding the Program's compliance or consistency with local and regional planning documents. In particular, the Program's relationship to the Town of Bourne's Local Comprehensive Plan; Cape Cod Regional Policy Plan; Cape Cod Regional Transportation Plan; Cape Cod Comprehensive Economic Development Strategy; Massachusetts Pedestrian Transportation Plan; Massachusetts Bicycle Transportation Plan; local and regional bicycle plans; and current MassDOT transportation planning and capital expenditure documents. MEPA 04

Alternatives Analysis

As discussed above, the ACOE completed a multi-year evaluation of alternatives for addressing deficiencies of the Bourne and Sagamore Bridges and subsequently issued a MRER (Major Rehabilitation Evaluation Report) and EA (Environmental Assessment) under federal NEPA. The MRER and EA evaluated 12 alternatives (including the No-Action Alternative which would consist of a "fix as it fails" maintenance approach) at a conceptual level to determine whether major rehabilitation or bridge replacement would provide the most cost effective, safe, efficient, and reliable means of providing long-term vehicular crossings of the Canal. Based on a detailed evaluation of costs and benefits of all feasible alternatives presented in the MRER and EA, the ACOE determined that the replacement of each of the current bridges with two new bridges built to modern-day highway design standards (with four through-traffic lanes, two acceleration/deceleration (auxiliary) lanes, and one separated bi-directional lane for pedestrians and bicycles) provides the best long-term investment for safe and reliable access across the Canal. The No-Action Alternative, consisting of an ongoing program of continued inspections and maintenance and repair of both existing bridges as needed to maintain safety ("fix as it fails"), was dismissed because the bridges have deteriorated to a condition well beyond the state in which actions and funding from the ACOE's operations and maintenance program could correct the deficiencies and restore and sustain reliability. Additionally, based on the findings and receipt of public comments, the ACOE issued a Finding of No Significant Impact (FONSI), pursuant to NEPA, for the proposed action to replace the Bourne and Sagamore Bridges in lieu of rehabilitation. Therefore, this proposed action was carried forward for further evaluation by the Proponent (MassDOT) through subsequent permitting and reviews, including a second NEPA process and this MEPA review.

Project Components for Which Preferred Alternative Has Been Selected

The Proponent utilized the findings of the MRER and EA as the foundation for the Program design and conducted a subsequent alternatives analysis which evaluated specific project components, including proposed bridge span and pier locations; bridge deck configuration; bridge type; and mainline alignment location. The ENF states that while all alternatives considered would achieve the Program's goal, each would have varying impacts on environmental resources, land takings, constructability, and cost. A discussion of the alternatives considered for each project component and reasons for selecting the preferred alternative within each component category is summarized below. The Proponent also solicited public input on the selection of bridge type and design by presenting preliminary recommendations to the public. Based on the public's review of the preliminary recommendations (as detailed below), including an assessment of community considerations and bridge aesthetics, the Proponent selected a preferred design consisting of parallel, twin tied-arch bridge structures supported on Delta frames with an approximate 700-foot mainline span length with a Fully Offline Inboard mainline alignment. As noted, the Proponent proposes to analyze interchange approach alternatives in the DEIR, only as they relate to the selected bridge design alternative described below.

Bridge Span Length & Pier Locations

Alternative 1 would involve locating the bridge piers within the Canal (in-water) to support a main bridge span length of 525 ft. The shortest possible span length of 525 ft is dictated by the minimum required horizontal clearance of 480 feet between the edges of the footings. Although this alternative would have the lowest superstructure cost in comparison to the other main span lengths, it would have

the highest foundation costs relative to the other span lengths. The piers would need to be constructed from the water using a cofferdam, with access from the water via a construction trestle (work platform), resulting in significant impacts to environmental resources, including water quality. Additionally, locating the main span footings at the navigation channel limits would increase the potential for vessel impacts and would adversely impact existing navigation conditions.

Alternative 2 would also involve locating the bridge piers within the Canal (in-water) but would support a main bridge span length of 616 ft. The 616 ft span length equals the span length of the existing bridges, thereby maintaining the existing condition for channel operations. This alternative would have similar impacts to Alternative 1, with respect to foundation costs and environmental resources. While this span length would not alter existing navigation conditions, the ACOE indicated that longer bridge spans would be preferred due to the potential for impacts to the pier foundations by small vessels and shallow draft barges.

Alternative 3 would involve locating the bridge piers entirely on land (out-of-water) on either side of the Canal to support a main bridge span length of 820 ft. While this alternative would provide the best accessibility for foundation construction, it would have the highest superstructure costs relative to the other span lengths. Additionally, the land location of the piers would impact the ACOE's existing service roads along each bank of the Canal. While it avoids in-water impacts for foundation installation, the longer span length would necessitate the use of temporary structures within the Canal to support installation of the arched-bridge structure.

The Preferred Alternative would involve locating the bridge piers within the rip rap slope of the Canal above the low tide line to support a main bridge span length of 700 ft. Pier construction would be conducted from the land, balancing the costs of constructing the foundations and the superstructure in the rip rap area. Although the foundation installation would still require some land-based installation of sheeting for work in the tidal zone, impacts to environmental resources within the Canal would be minimized. In particular, a floating barge would be used to float in the pre-constructed main span for bridge installation, thereby avoiding the use of temporary structures in the Canal as with Alternative 3. Additionally, with the piers located outside of the waterway there would be an improvement to navigation conditions. For these reasons, the Preferred Alternative was deemed the most favorable when considering environmental impacts and cost/constructability.

Bridge Deck Configuration

Alternative 1 would consist of constructing a bridge with a single deck to accommodate the roadways, shoulders, and pedestrian/bicycle path. Constructing a single deck would add a level of complexity associated with transportability of materials, potentially resulting in larger float-in weights and sizes, larger crane requirements for erection, and interim stability. Additionally, a single deck configuration would have a greater structure depth, requiring a steeper or longer approach on both sides of the Canal (which could result in additional land alterations, impervious area, and land takings), when compared to the Preferred Alternative. The constructability challenges of a single roadway deck would also increase overall project costs.

The Preferred Alternative would consist of constructing separate deck structures for each replacement highway bridge mainline, consisting of two parallel separate northbound and southbound

decks (barrels). Separate structures would use cost-effective, smaller construction elements with a shallower floor beam depth, which would simplify fabrication and erection. Additionally, separate structures would allow for phased construction of parallel bridge structures, facilitating an earlier decommissioning and demolition of the existing highway bridges than Alternative 1. The Preferred Alternative was selected primarily due to its constructability and cost considerations.

Bridge Type

Alternative 1 would involve constructing truss bridges, which are load-bearing structures composed of a series of interconnected triangles, known as trusses, providing a stable form that can support considerable loads over a large span. This alternative would be slower to construct than alternative designs, requiring falsework for stick-building that would reduce the horizontal clearance at the bridge site for the entire duration of superstructure construction. Further, temporary fendering or other means of pier protection around the falsework during construction would introduce additional expense and complexity. Additionally, the tension elements, such as the tension diagonals and chords, are considered fracture-critical and must be fully inspected every other year.

Alternative 2 would involve constructing two-tower cable-stayed bridges, where the weight of the steel deck is supported by multiple diagonal cables in tension running directly to two towers. Under this alterative the cantilever superstructure construction using prefabricated steel or concrete elements would have short-term impacts on canal traffic where navigation would be impacted by the periodic, partial obstructions of the Canal. However, neither the main span nor the side span design could accommodate any highway design plan curvature, reducing flexibility for the approach highway networks. Additionally, this alternative is not highly rated with respect to adverse weather conditions, including response to wind, snow, and ice.

Alternative 3 would involve constructing post-tension concrete box girder bridges, where the deck is built on top of girders, rigid horizontal support beams, which are bound together in a hollow box shape. This alternative would require a girder depth of 10 to 20 feet greater than that required for the other bridge types; the deeper substructure would require longer or steep approaches, resulting in higher main span foundation and overall costs. This alternative would also present the opportunity for accelerated construction by working from two piers simultaneously. Additionally, while this alternative is rated most favorable regarding structural redundancy and frequency of inspection and maintenance in comparison with other bridge types, a deck replacement would not be possible, should it be required in the future.

The Preferred Alternative would involve constructing tied-arch bridges, where the arch is positioned above the bridge deck and attached cables support the deck. The Preferred Alternative would implement a variation of a tied-arch bridge where the approach spans cantilever into the main span via a Delta frame, thereby shortening the length of the tied arch. The Preferred Alternative offers the potential for accelerated bridge construction, with the steel arch structure fabricated offsite while on-site foundation and substructure construction progress simultaneously. Due to the structural design of a tied-arch bridge, the Preferred Alternative could accommodate curvatures, increasing flexibility for the approach highway networks. The design's cable network would also provide structural redundancy and improved stability, such that the loss of one or several cables could be easily accommodated by the rest of the structure without the threat of critical failure. Additionally, the tied-arch design was also selected

as it most closely mimics the existing bridges and would help preserve the historical character of the crossings; however, the specific bridge type design is a topic of ongoing consultation with MHC.

Mainline Alignment Location

Alternative 1 would consist of the Fully Offline Outboard option where the replacement highway bridges would be located outside the footprint of the existing bridge on the bay side of the existing bridge. For Bourne, the replacement bridge would be west of the existing bridge closer to Buzzards Bay. For Sagamore, the replacement bridge would be east of the existing bridge closer to Cape Cod Bay. This alternative would facilitate the construction of the new bridge structures without impacting the existing bridges. However, this alternative would involve complex construction staging with more stages and result in extensive access issues to existing businesses.

Alternative 2 would consist of the Partially Offline Outboard where portions of the replacement highway bridges would be located both within and outside of the footprint of the existing bridges on the bay side of the existing bridge. For Bourne, the replacement bridge would be west of the existing bridge closer to Buzzards Bay. For Sagamore, the replacement bridge would be east of the existing bridge closer to Cape Cod Bay. Under this alternative, demolition of the existing bridges would need to occur before beginning construction of the replacement southbound barrel. This alternative would involve complex construction staging with more stages, including requiring temporary structures.

Alternative 3 would consist of the Partially Offline Inboard option where portions of the replacement highway bridges would be located both within and outside of the footprint of the existing bridges between the existing Bourne Bridge and Sagamore Bridge. For Bourne, the replacement bridge would be east of the existing bridge closer to Cape Cod Bay. For Sagamore, the replacement bridge would be west of the existing bridge closer to Buzzards Bay. Under this alternative, demolition of the existing bridges would need to occur before beginning construction of the replacement southbound barrel. While the existing ramp connections could potentially be maintained in this alternative, construction sequencing would extend the construction schedule by at least one year in comparison to the Preferred Alternative. This alternative would also require multiple traffic pattern changes that would disrupt the existing flow of traffic.

Alternative 4 would consist of the split option where the two barrels of the replacement highway bridges would be located on either side of the existing bridge. For Bourne, the southbound barrel of the replacement highway bridge would be west of the existing bridge closer to Buzzards Bay and the northbound barrel of the replacement highway bridge would be east of existing bridge closer to Cape Cod Bay. For Sagamore, the westbound barrel of the replacement highway bridge would be east of existing bridge closer to Cape Cod Bay and the eastbound barrel of the replacement highway bridge would be west of existing bridge closer to Buzzards Bay. This alternative would facilitate the construction of the new bridge structure without impacting the existing bridges. However, there would be adverse constructability issues and extensive access issues to existing businesses.

The Preferred Alternative would consist of the Fully Offline Inboard option where the replacement highway bridges would be located outside the footprint of the existing Bourne Bridge and Sagamore Bridge. For the Bourne Bridge, the replacement bridge would be east of the existing bridge closer to Cape Cod Bay. For the Sagamore Bridge, the replacement bridge would be west of the existing

bridge closer to Buzzards Bay. The Preferred Alternative was chosen as it would facilitate the construction of the new bridge structures without impacting the existing bridges and without causing disruption to surrounding businesses and traffic patterns.

As discussed above, the Proponent has identified a Preferred Alternative with respect to four project components: proposed bridge span and pier locations; bridge deck configuration; bridge type; and mainline alignment location. The ENF indicates that the chosen design (the Fully Offline Inboard option with 700-ft span length, double deck structure, and tied-arch bridges) minimizes environmental impacts and is the most cost feasible. However, a full analysis was not provided to support the selection of this design. The DEIR should provide further documentation to support the preferred bridge design alternatives, including by quantifying and comparing the environmental impacts of the alternatives considered for each project component with respect to land alteration, impervious area, traffic, wetlands, climate resiliency, EJ impacts, and any other impacts to environmental resources. The comparison should be provided in the narrative and in a tabular format. To the extent a preferred alternative chosen for any of these project components has greater environmental impacts than other alternatives, the DEIR should provide a clear justification for dismissing less impactful alternatives. In particular, the comparative resiliency of each alternative to future climate conditions should be fully assessed and compared across all studied alternatives. The DEIR should discuss what procedures the Proponent will follow in the event future evaluations and reviews, such as federal NEPA and MHC consultations, may result in project changes to accommodate a new or modified alternative other than the ones selected as the Preferred Alternatives for the project. Any additional alternatives analyses or scoping required as part of other ongoing reviews should be included in the DEIR. MEPA 05 MEPA 06

Interchange Approach Alternatives to be Carried Through to DEIR

The Proponent seeks to advance the preferred design described above to the DEIR as the basis for identifying and evaluating interchange approach alternatives for the four quadrants of the Canal crossings, hereinafter referenced as Bourne North, Bourne South, Sagamore North, and Sagamore South. As summarized below, the interchange approach alternatives were evaluated against the established design evaluation criteria which assessed traffic operations; roadway connectivity; roadway geometry; safety; constructability; multi-modal accommodations; utility impacts; environmental impacts; and right-of-way impacts.[7] According to the ENF, the Proponent initially evaluated 67 interchange approach alternatives and has identified ten interchange approach alternatives (including three alternatives for Bourne North, two alternatives for Bourne South, two alternatives for Sagamore North, and three alternatives for Sagamore South) to be advanced for further evaluation in the DEIR.

Bourne North Interchange Approach

Alternative 1 (Option BN-6.1) would largely mimic the existing interchange configuration. All entering and exiting movements would utilize existing ramp configurations with minor modifications to meet the new bridge alignment while adding a new northbound on-ramp directly from Scenic Highway (U.S. Route 6) to Route 25 between the relocated mainline and the existing intersection with Nightingale Road. Similar to existing conditions, all other access ramps would begin/terminate northeast of Belmont Circle.

[7] Right-of-way impacts were defined as impacts to properties, including full acquisitions and partial impacts, potential displacement, and adverse effects to Environmental Justice (EJ) communities.

Alternative 2 (Option BN-13.1) would build upon the roadway modifications proposed in Alternative 1 (Option BN-6.1). This alternative would add a connection from the Route 25 southbound off-ramp directly to Scenic Highway (U.S. Route 6) via a division of the existing southbound off-ramp that continues south parallel to the relocated mainline. This alignment would require the Route 25 southbound off-ramp to pass under the Route 25 southbound on-ramp in a braided ramp configuration. After passing under the southbound on-ramp, the southbound off-ramp would continue until it intersects with Scenic Highway (U.S. Route 6) at an at-grade intersection controlled by a signal.

Alternative 3 (Option BN-14.4b) would address the high travel demand movements from Route 25 to Scenic Highway (U.S. Route 6) by providing a combination of direct connection ramps. This alternative would provide a connection between Scenic Highway (U.S. Route 6) westbound and Route 25 northbound with an exit ramp prior to the Nightingale Road intersection. The ramp would pass over Nightingale Road before turning northerly to continue parallel to the relocated Route 25 mainline. This alternative would also provide a connection between Route 25 southbound and Scenic Highway (U.S. Route 6) eastbound with an off-ramp, following a similar alignment to the ramp proposed in Alternative 2 (Option BN-13.1). However, rather than the ramp terminating at an at-grade intersection, the ramp would stay elevated and span over Scenic Highway (U.S. Route 6) while curving easterly. It would then cross under the relocated Route 25 mainline before merging with Route 6 eastbound after the Nightingale Road intersection. All other access ramps would begin/terminate northeast of Belmont Circle.

Bourne South Interchange Approach

Alternative 1 (Option BS-2) would replace the existing Bourne Rotary with a grade separated diamond interchange. The relocated Route 25/Route 28 would span over the reconfigured Trowbridge Road with local connections from Route 25/Route 28 made via slip ramps connecting to Trowbridge Road. This alternative would provide a two-way frontage road west of Route 28 southbound at an intersection with Trowbridge Road, providing local access to businesses that are currently accessed only from existing Route 28 southbound.

Alternative 2 (Option BS-2.2) would the existing Bourne Rotary with a grade separated single point interchange configuration. Similar to Alternative 1 (Option BS-2) the relocated Route 25/Route 28 would span over a reconfigured Trowbridge Road. The on and off slip ramps would terminate at Trowbridge Road with a central intersection located beneath the relocated Route 25/Route 28 bridge. This alternative would also include a two-way frontage road west of Route 28 southbound that provides access to local businesses that are currently accessed from existing Route 28 southbound. However, due to the geometry of the turning lanes associated with the central intersection, access to the frontage road from Trowbridge Road may not be feasible. To provide access to frontage road, a connecting roadway from the southbound on-ramp would be provided.

Sagamore North Interchange Approach

Alternative 1 (Option SN-1A) would mimic the existing interchange ramp configurations and include the modifications necessary to support the relocated Route 3 alignment. In this alternative, acceleration and deceleration lane lengths would be increased to meet current design standards and

improve user safety and operations. Additionally, State Road would not be modified and there would be no change to the Route 6 westbound off-ramp loop to Scenic Highway (U.S. Route 6).

Alternative 2 (Option SN-8A) would build upon the roadway modifications proposed in Alternative 1 (Option SN-1A) but introduce a variation to the existing interchange by providing a single exit point from a relocated Route 3. This alterative would relocate the northbound to eastbound off-ramp movement and eliminate the northbound to eastbound slip ramp. Vehicles exiting Route 3 northbound and continuing to State Road or Meetinghouse Lane would cross over Scenic Highway (U.S. Route 6)/Meetinghouse Lane before turning easterly to connect directly to State Road. State Road would be widened to the west, allowing for further improvements to the ramp geometry and State Road.

Sagamore South Interchange Approach

Alternative 1 (Option SS-1) would modify ramp alignments to accommodate the relocated U.S. Route 6 mainline while largely maintaining the existing ramp configurations. The westbound on-ramp and off-ramp movements would utilize a diamond type configuration to meet a modified Cranberry Highway (Route 6A). Acceleration and deceleration lanes would be lengthened to improve safety and operations along the U.S. Route 6 mainline and ramps. The eastbound on-ramp would maintain its existing configuration but feature a lengthened acceleration lane to meet current design standards and improve operations and safety. While the eastbound off-ramp maintains the same general configuration as the existing off-ramp, it shifts approximately 400 ft toward the existing infield area to meet the relocated U.S. Route 6 roadway. This alternative would also extend Cranberry Highway (Route 6A) under U.S. Route 6 and continue to the intersection with the Mid-Cape Connector.

Alternative 2 (Option SS-1.1) would provide the same interchange configuration as Alternative 1 (Option SS-1), but would eliminate the Cranberry Highway (Route 6A) extension. This elimination would result in an option that largely mimics the existing interchange configuration with modifications limited to those necessary to match the relocated U.S. Route 6 mainline and provide lengthened acceleration and deceleration lanes.

Alternative 3 (Option SS-3.1A) would mirror the modifications proposed in Alternative 1 (Option SS-1); however, the northbound on-ramp would be relocated to begin off the Mid-Cape Connector, sharing the same entrance point as the southbound on-ramp. From this location, the ramp would curve northerly and cross under U.S. Route 6 before merging with the U.S. Route 6 northbound roadway. The merge would occur as the northbound on-ramp and U.S. Route 6 cross over the Cranberry Highway (Route 6A) extension.

The ENF states that the Proponent will conduct a Phase 2 highway interchange approach alternatives analysis to select the preferred interchange approach alternative for each crossing through further public comment and input before and during DEIR review. As noted, the project proposes to locate one bi-directional shared use path on each of the bridge crossings (on the west side of the southbound “barrel” at each crossing). Concurrently with evaluation of interchange approach alternatives, the Proponent will continue to evaluate alternatives to the design and width of the shared use path, including connections with the local roadway network.

The DEIR should provide a detailed comparison of the ten interchange approach alternatives advanced for additional evaluation, including more detailed descriptions and site plans showing the layout of each alternative. The DEIR should separately assess alternatives for construction of the shared use path, including more detailed descriptions and plans highlighting the design, width, and interconnection with existing pedestrian/bicycle facilities on either side of the Canal. The DEIR should discuss how these alternatives would be incorporated into each of the ten interchange approach alternatives under consideration. The DEIR should compare the environmental impacts of each interchange approach and shared use path alternative, with respect to land alteration, impervious area, trip generation, traffic operations, wetlands, GHG emissions, climate resiliency, and any other impacts to environmental resources. In particular, the results of the traffic analysis should be reviewed for all of the interchange approach alternatives under consideration, given the potential for differences across alternatives in terms of localized impacts to specific intersections within the traffic study area. The DEIR should also discuss whether and how demolition activities will be conducted under each interchange approach alternative, and how construction staging, methods and timing will occur across alternatives. The comparison should be provided in the narrative and in a tabular format. The alternatives analysis and project narrative should support the selection of the Preferred Alternative for each project component that includes all feasible measures to avoid Damage to the Environment, or to the extent Damage to the Environment cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable.

MEPA 07

MEPA 08

MEPA 09

Environmental Justice (EJ)

The project site is located within one mile of one EJ Population characterized by Minority and Income which spans the Town of Bourne and the Town of Sandwich (Block Group 1, Census Tract 141) and constitutes the entirety of Joint Base Cape Cod, including the Camp Edwards Management Wildlife Area/ Upper Cape Water Reserve. The site is also located within five miles of two additional EJ Populations characterized by Income within the Town of Bourne and two EJ Populations characterized by Minority (1) and Income (1) within the Town of Wareham. No languages were identified as being spoken by 5% or more of Limited English Proficiency ("LEP") residents within one or five miles of the project site; however, the Proponent, in coordination with the MassDOT Office of Diversity and Civil Rights, voluntarily provided Spanish and Portuguese translation of relevant program materials, such as the comment forms and informational handouts, and interpretation services at all public information meetings.

Public Outreach

Prior to preparing the ENF, the Proponent met with legislators and targeted stakeholders to apprise them of the planning processes for the bridge replacements and approach roadway network improvements. Informal meetings were also held with representatives of the Mashpee Wampanoag Tribe, the Wampanoag Tribe of Gay Head (Aquinnah), and the Herring Pond Wampanoag Tribal Council. Subsequently, the Proponent developed the PIP to guide the public involvement process during all phases of program development. The PIP details the anticipated outreach and program schedule as well as strategies to be used to solicit feedback from key stakeholders, and the local community. The PIP identifies a list of key measures, such as the establishment of an advisory group, project website, survey tool, community meetings, open houses, and pop-up events, to engage with the public in an inclusive, transparent, and accessible manner.

In accordance with the PIP, the Proponent has employed a number of best practices in its outreach strategy. An advisory board, consisting of local and elected officials, planning commissions, emergency services representatives, economic development representatives, and chambers of commerce, has been established to provide feedback and input on design alternatives, community and environmental impacts, and the construction schedule. The Proponent has also conducted targeted stakeholder meetings with local and regional community-based organizations (CBOs) to anticipate the needs and concerns of the broader public and support a collaborative development process. In addition, a stakeholder database, consisting of over 3,000 individuals, organizations, and Agencies, has also been developed to disseminate information such as schedule updates, public meeting invites and reminders, milestones, and public engagement opportunities. Specific communication strategies detailed in the PIP include:

- Sending emails to stakeholders and interested parties to provide program updates, public meeting notifications and reminders, meeting invites and coordination, and details on upcoming outreach activities;
- Mailing letters notifying individuals of field work and providing formal response to stakeholder comments or inquiries;
- Responding to stakeholder phone call inquiries and coordinating stakeholder meetings;
- Notifying media outlets of important program milestones, developments, and public meetings through target press releases; and
- Publishing newspaper advertisements in print and digital publications in English, Spanish, and Portuguese to advertise public meetings.

I note that the ENF did not specifically discuss whether the PIP reflects the best practices set forth in the MEPA Public Involvement Protocol for Environmental Justice Populations. In particular, while the PIP reflects a robust plan for outreach to targeted stakeholders, the identified stakeholders do not include local CBOs, and the PIP does not appear to include community-based strategies for outreach such as partnerships with CBOs to act as on-going advisors to the project. In particular, the Advisory Group members are listed as including "local and elected officials, planning commissions, emergency services representatives, economic development representatives, and chambers of commerce," but not CBOs. The Proponent should consider adding key CBOs and tribes/indigenous organizations as formal members of the Advisory Group. MEPA 10 The Proponent should conduct outreach to additional EJ Populations that may be adjacent to the Program Study Areas; specifically, Block Group 1, Census Tract 139 is shown on the EEA EJ Mapper to be very close to the 1-mile radius around the site. MEPA 11 The Proponent should update its PIP to include any additional outreach strategies conducted or planned by the time of the DEIR. MEPA 12

The ENF described public involvement activities conducted prior to filing, including advanced public notification to a list of CBOs and tribes/indigenous organizations (the "EJ Reference List") provided by the MEPA Office. Additional stakeholders and community organizations that were coordinated with through the outreach process were also added to the EJ Reference List. The Proponent circulated an EJ Screening Form with an overview of the project to these entities (with accompanying translations in Spanish and Portuguese in coordination with the MEPA Office), and information on ways

to provide written comments or request a formal briefing. The Proponent also created a project website[8] to provide a centralized, easy navigable location for the public to access online resources and information on the program, and an online comment tool[9] to gather, evaluate, and respond to public inquiries. Additionally, the Proponent organized and hosted five rounds of public meetings which all included a presentation followed by an extensive question and answer period, with opportunities to submit written comments.

Outreach	Public Meeting	Date	Topics
Round 1 Outreach	Public Information Meeting	June 29, 2021 June 30, 2021	• Field investigations data collection • Regional transportation improvement needs • Program scope and timeline
Round 2 Outreach	Public Information Meeting	November 16, 2021 November 18, 2021	• Draft Purpose and Need • Draft Measures of Effectiveness • Draft Analyses
Round 3 Outreach	Public Information Meeting	November 15, 2022 November 17, 2022	• Purpose and Need • Bridge Types • Program Updates • Next Steps
Round 4 Outreach	Public Information Meeting	January 24, 2023 January 26, 2023	• Program status • Bridge types • Proposed bridge lane configurations • Potential bridge locations • Next steps
Round 5 Outreach	Public Information Meeting	March 22, 2023	• Program Status • Interchange Alternatives – Bourne Crossing • Next Steps
		March 29, 2023	• Program Status • Interchange Alternatives – Sagamore Crossing • Next Steps

During the MEPA review period, the notice of the MEPA remote consultation session was translated into Spanish and Portuguese and circulated to the EJ Reference List, and the Proponent provided interpretation in Spanish, Portuguese, and American Sign Language at the consultation session. The Proponent also hosted two in-person open house sessions at the Bourne Veteran's Memorial Community Center on May 17, 2023 during which 532 registered attendees were given the opportunity to engage the project team on all material included in the ENF and directed on how comments can be submitted to the MEPA Office. Additionally, an in-person tour of the project area was provided for Agency representatives on June 6, 2023.

The DEIR should include a separate section on "Environmental Justice," and contain a description of measures the Proponent intends to undertake to promote public involvement by EJ Populations during the remainder of the MEPA review process, including any updates to the PIP that the

MEPA 12

[8] The project website is available at: https://www.mass.gov/cape-cod-canal-area-transportation-improvement-program.
[9] The online comment tool is available at: https://pima.massdotpi.com/public/comment/project-comment-dynamic?project_id=13868.

project intends to employ or has employed by the time of the DEIR filing. The Proponent should continue robust outreach and engagement prior to filing the DEIR, and should conduct one or more community meetings focused on discussion of remaining project alternatives prior to filing the DEIR. The DEIR should demonstrate that the selection of the Preferred Alternative was informed by community input as reflected in outreach activities conducted prior to filing. The DEIR, or a summary thereof with translations or offers of translation, should be distributed to the EJ Reference List, and an updated list should be obtained from the MEPA Office prior to filing the DEIR so as to ensure that organizational contacts are up to date. I encourage the Proponent to request an extension of the public comment period for the review of the DEIR from 30 days to 60 days to provide for enhanced opportunities for public review and comment of these submittals. MEPA 13

Enhanced Analysis

The ENF contains a baseline assessment of any existing unfair or inequitable Environmental Burden and related public health consequences impacting EJ Populations in accordance with 301 CMR 11.07(6)(n)1. and the MEPA Interim Protocol for Analysis of EJ Impacts. According to the ENF, the data surveyed show some indication of an existing "unfair or inequitable" burden impacting the identified EJ Populations. Specifically, the DPH EJ Tool identifies two municipalities within the one mile DGA as exhibiting "vulnerable health EJ criteria"; this term is defined in the DPH EJ Tool to include any one of four environmentally related health indicators that are measured to be 110% above statewide rates based on a five-year rolling average.[10] Within the project's DGA, Bourne and Wareham meet the "vulnerable health EJ criteria" for the following parameters:

- heart attack hospitalization (Bourne and Wareham)
- childhood asthma emergency department visits (Wareham)

According to the ENF, the Program is anticipated to take approximately eight years to complete once construction commences. While the Proponent is evaluating design options that would maximize constructability; reduce complexity relative to staging and the need for temporary structures; and limit impacts upon the traveling public, temporary construction period impacts are anticipated to affect both EJ and non-EJ Populations. As noted above, none of the takings potentially required for the Program are anticipated to occur within EJ Populations. Additionally, any minor construction adverse effects would not be targeted to EJ Populations or experienced disproportionately by such Populations and would be mitigated to the greatest extent practicable through use of construction period BMPs. The ENF states also that the program will provide benefits to both EJ and non-EJ Populations through improved cross-canal mobility and accessibility, as well as enhanced traffic operations and safety within the Canal area roadway system.

The DEIR should include a description of the potential sources of pollution within the Program Study Areas, based on mapping layers available through the DPH EJ Tool. The DEIR should contain a comprehensive discussion of whether any of the impacts from the Program are likely to extend to the identified EJ Populations, and if so, explain how. Block Group 1, Census Tract 139 should be included MEPA 14 MEPA 15

[10] See https://matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html. Four vulnerable health EJ criteria are tracked in the DPH EJ Viewer, of which two (heart attack hospitalization and childhood asthma) are tracked on a municipal level and on a census tract level, and two (childhood blood lead, and low birth weight) are tracked only on a census tract level.

in this analysis, in addition to the one EJ Population within the DGA, for all analysis referenced in this paragraph. The DEIR should discuss whether project impacts may materially exacerbate any existing environmental burdens or public health consequences that are assessed as "unfair or inequitable" as compared to the general population. The DEIR should discuss whether the project serves to provide "Environmental Benefits" (as defined in 301 CMR 11.02) to the surrounding EJ neighborhoods, including enhanced access to the waterfront, open space or recreational opportunity. The DEIR should evaluate any temporary potential adverse effects to the identified EJ Populations that may result from construction. Specifically, it should address the any substantial construction impacts, such as those related to traffic, noise, or air quality and provide an analysis as to how any such impacts would be mitigated. As part of the Transportation analysis, the DEIR should assess whether impacts to the surrounding roadway network would disproportionately affect EJ populations through intersection delays or other reasons. As noted below, a corresponding Air Quality analysis should be prepared to document changes in air pollutants associated with changes in traffic patterns. The DEIR should assess the potential for the project to induce additional demand for vehicular use, and if so, assess whether those impacts will be borne disproportionately by EJ populations. For purposes of this transportation analysis, any additional EJ populations, if any, identified within the traffic study area should be included for comparison. The DEIR should assess the potential secondary growth effects that may result from the project, and whether those effects will be felt disproportionately by EJ populations. To the extent additional assessment of disproportionate adverse effects is required under federal NEPA or MassDOT's own Title VI guidance and procedures, such analysis should be included in the DEIR. The DEIR should assess whether the project will increase the risks of climate change on surrounding EJ Populations within the Program Study Areas, consistent with the Climate Change Scope below.

MEPA 16

MEPA 17

MEPA 18

Public Health

The DEIR should include a separate section on "Public Health," and discuss any known or reasonably foreseeable public health consequences that may result from the environmental impacts of the project. Particular focus should be given to any impacts that may materially exacerbate "vulnerable health EJ criteria," in accordance with the MEPA Interim Protocol for Analysis of EJ Impacts. In addition, other publicly available data, including through the DPH EJ Tool, should be surveyed to assess the public health conditions in the immediate vicinity of the project site, in accordance with 301 CMR 11.07(6)(g)10. Any project impacts that could materially exacerbate such conditions should be analyzed. To the extent any required Permits for the project contain performance standards intended to protect public health, the DEIR should contain specific discussion of such standards and how the project intends to meet or exceed them. In particular, the public health effects of increased air emissions, traffic and noise should be assessed.

MEPA 19

MEPA 20

Noise

Proponent should conduct a noise monitoring program to establish ambient background noise levels within the project area to develop the project criteria noise limits. The DEIR should present the results of the noise evaluation for each conceptual alternative and propose abatement measures to mitigate anticipated noise impacts that may exceed applicable criteria.

MEPA 21

The DEIR should discuss what regulatory requirements, such as MassDEP regulations or policies, apply to noise impacts of construction operations. The DEIR should discuss whether noise

MEPA 22

impacts are likely to disproportionately affect surrounding EJ neighborhoods or other vulnerable populations (including those that may be considered "sensitive receptor") and what mitigation could be considered to minimize the noise impacts of construction operations.

Land Alteration, Impervious Area, and Stormwater

The Program will alter up to 168 acres of land and create up to 29.1 acres of impervious area. The project will also remove a number of existing mature trees from the Program Study Areas. The DEIR should provide an updated table which quantifies the land alteration and impervious area associated with each project component in a tabular format. The DEIR should clarify the amount of alteration including the type of vegetation that will be cleared (i.e., mature trees, scrub shrub, etc.). It should clarify the location, type and amount of alteration in previously undisturbed areas. In particular, the DEIR should evaluate and quantify the land alteration to occur within the proposed transportation right-of-way due to the construction of the new bridge abutments. The DEIR should identify how the project is designed to avoid and minimize land alteration and impervious area. It should provide a comprehensive evaluation of all measures preserve open space and tree cover, to reduce the amount of land alteration, and to convert impervious areas to pervious materials, including reductions in pavement associated with the removal of the existing interchange approaches, and supplemental landscaping or tree planting to mitigate impacts associated with clearing. The DEIR should quantify open space that will remain undisturbed and/or restored upon completion of construction. The DEIR should include site plans that clearly locate and delineate areas proposed for development and those to be left undisturbed. The DEIR should also identify all easements and public utilities on-site and off-site and provide information on the parties to the easements and location and condition of said utility infrastructure. It should describe any constraints on project design or use of the site posed by these conditions.

MEPA 23

MEPA 24

MEPA 25

MEPA 26

The ENF states that the Program will largely be considered redevelopment according to Massachusetts Stormwater Management Standards (SMS). As such, the Program will be required to meet SMS to the maximum extent practicable while improving upon existing conditions. Any areas determined to be new development will also be treated per SMS accordingly. Proposed stormwater improvements include installation of drainage systems for the new replacement bridges, connecting roadways to the existing stormwater system, and retrofitting the existing closed drainage system by providing new deep sump catch basins. Comments provided by MassDEP state that where the addition of the new auxiliary lane will occur, this component of the Program will not be evaluated as redevelopment and the SMS must be fully met. For redevelopment portions of the Program which include adding shoulders; correcting substandard intersections; improving existing drainage systems and repaving; and for the shared use path, provided it meets the criteria of 310 CMR 10.05(6)(m)6, a complete evaluation will be required that identifies possible stormwater control measures (SCMs), Low Impact Development (LID) techniques, and improvements to existing conditions for each viable alternative being considered, must demonstrate compliance with Standard 7. MassDEP also notes that areas where the existing approaches will be removed may provide significant opportunities to install SCMs and LID techniques.

MEPA 27

The DEIR should describe how the proposed stormwater management system will fully comply with the SMS. Given the significant amount of impervious area to be added to the project site, the Proponent should take all feasible measures to manage stormwater runoff, including by exceeding stormwater management standards and incorporating LID strategies, SCMs, and green infrastructure

MEPA 28

wherever practicable; such measures should be described in the DEIR. Green infrastructure is an effective way to treat stormwater generated by impervious surfaces and provide cooling and other benefits for the community and should be incorporated into design to the maximum extent possible. LID designs should be carefully considered, and where not used, the DEIR should provide a thoughtful explanation as to why they are infeasible for implementation on-site. The DEIR should identify any infiltration systems that may require registration under MassDEP's Underground Injection Control (UIC) program. The DEIR should also identify all measures that will be employed to protect the water quality of the Cape Cod Sole Source Aquifer. MEPA 29 MEPA 30

The DEIR should describe the extent to which the project will preserve existing tree canopies and plant additional trees, including estimates of the number of trees that will be planted. The DEIR should quantify and evaluate pre- and post- precipitation depths; peak intensities; groundwater recharge and runoff rates; and changes in water quality. The DEIR should demonstrate the system will be designed to accommodate larger storm events. The DEIR should provide quantitative modeling and analysis to assess the rainfall volumes that will be accommodated by the stormwater design, including under future climate conditions. It should include a plan showing the location of BMPs. Additional requirements related to climate change adaptation and resiliency are discussed below. MEPA 31 MEPA 32 MEPA 33 MEPA 34

The DEIR should quantify the number of property takings/acquisitions associated with each alternative evaluated, provide a detailed description of the acquisition procedure that will be implemented, and include an update as to the status of any said acquisitions. The DEIR should include graphics that clearly delineate and describe either existing land ownership or acquisitions, easements and associated rights (e.g., rail operations, sewer lines, drainage culverts, etc.) required for project construction, and roadway and intersection jurisdictions. The DEIR should also provide plans at a reasonable scale to discern limits of the existing and proposed roadway rights-of-way and adjacent Article 97 and/or parkland/open space, particularly in the area within and adjacent to the Bourne Scenic Park and the Shawme-Crowell State Forest. MEPA 35 MEPA 36

Article 97

According to the ENF, the Camp Edwards Management Wildlife Area/ Upper Cape Water Reserve within Joint Base Cape Cod and the Shawme-Crowell State Forest are located within the Sagamore Program Study Area (SPSA), south of the Canal. These parcels are owned by the Commonwealth of Massachusetts and protected by Article 97 of the Amendments to the Massachusetts Constitution (Article 97). Any disposition or change in use of Article 97 land requires approval by a 2/3 vote of the legislature, and compliance with the EEA Article 97 Land Disposition Policy (the EEA Article 97 Policy). The ENF states that based on preliminary conceptual designs, the Program is not anticipated to trigger an Article 97 land disposition.

Comments provided by DCR confirm that the SPSA overlaps with a portion of Shawme-Crowell State Forest in Sandwich and that review, and coordination will be required if there is any anticipated access to or use of state forest land related to the construction of the replacement Sagamore Bridge. As evaluation of the selected interchange approach alternatives is advanced, the Proponent should consult with DCR relative to potential impacts to the Shawme-Crowell State Forest. Additionally, consistent with newly enacted St. 2022, c. 274, *An Act Preserving Open Space in the Commonwealth* (codified as M.G.L. c. 3, § 5A), the Proponent should also consult the EEA land division (at plpa@mass.gov) prior MEPA 37

to filing the DEIR to determine whether the Program will result in a disposition or change in use of Article 97 land. The DEIR should provide an update on any such coordination and identify any changes made to the project design in response to this consultation.

Traffic and Transportation

The ENF includes an Existing Conditions Traffic Analysis (ECTA), which developed existing conditions traffic models for the 2019 Base Year of the study area and includes areas within and beyond the Program Study Areas. The calibrated existing conditions 2019 Base Year traffic models will be used to create Future Year 2045 No Build and 2045 Build condition models to assess expected traffic operations with proposed roadway concept alternatives and future year traffic volumes. Base Year 2019 traffic models were developed for the following six time periods:

- Fall Weekday AM peak hour (off-peak season)
- Fall Weekday PM peak hour (off-peak season)
- Fall Saturday Midday peak hour (off-peak season)
- Summer Weekday AM peak hour (peak season)
- Summer Weekday PM peak hour (peak season)
- Summer Saturday Midday peak hour (peak season)

Study Area

The ECTA evaluated two geographic areas to assess baseline traffic conditions. The general area, which includes major regional roadways, interchanges and intersections within Plymouth, Wareham, Bourne, and Sandwich was established to evaluate regional traffic conditions and secondary impacts associated with traffic crossing the Canal. The focus area consists of the 2-mile area centered around the Bourne and Sagamore Bridges and was established to evaluate traffic volumes and conditions, crash rates, traffic operations, and other base metrics. The focus area is the primary study area for the ECTA and will serve as the primary study area for the subsequent traffic analysis. The intersections within the study area that have been analyzed and evaluated include the following:

Unsignalized Intersections

- Maple Springs Rd at NB Rte. 25 on-ramp
- Maple Springs Rd at SB Rte. 25 off-ramp
- Glen Charlie Rd at NB Rte. 25 off-ramp
- Glen Charlie Rd at SB Rte. 25 on-ramp
- Sandwich Rd/County Rd at Trowbridge/Shore Rd
- Trowbridge Rd at Veterans Way
- Sandwich Rd at Bourne Rotary Connector
- Sandwich Rd at Upper Cape Cod Tech School
- Sandwich Rd at Harbor Lights Rd
- Sandwich Rd at Jefferson Rd
- Sandwich Rd at Jarvis Rd
- Herring Pond Rd at State Rd
- Herring Pond Rd at NB Rte. 3 ramps
- Herring Pond Rd at SB Rte. 3 ramps
- State Rd at NB Rte. 3 on-ramp
- Cranberry Hwy at Adams St
- Sandwich Rd at Adams St
- Cranberry Hwy at Sandwich Rd/Regency Drive
- Old King's Hwy (Rte. 6A) at Main St (Rte. 130)/Tupper Rd
- Old King's Hwy (Rte. 6A) at Tupper Rd
- Water St. (Rte. 130) at Beale Avenue
- Main St at Beale Avenue
- Old King's Hwy (Rte. 6A) at Main St/Old Main St
- Quaker Meeting House Rd at EB Rte. 6 ramps
- Quaker Meeting House Rd. at WB Rte. 6 ramps
- Rte. 130 at Cotuit Rd
- Nathan Ellis Hwy (Rte. 151) at NB Rte. 28 ramps
- Nathan Ellis Hwy (Rte. 151) at SB Rte. 28 ramps

Signalized Intersections

- Scenic Hwy (Rte. 6) at Nightingale Rd/Andy Olivia Drive
- Sandwich Rd at Mid-Cape Connector
- Mid-Cape Connector at Factor Outlet Way
- Scenic Hwy at Church Lane
- Scenic Hwy at SB Rte. 3 off-ramp
- Meetinghouse Lane at State Rd./Canal St
- Forestdale Rd (Rte. 130) at EB Rte. 6 ramps
- Water St (Rte. 130) at WB Rte. 6 ramps

Safety

The Bourne and Sagamore Bridges do not meet current highway safety standards. Based on their roadway functional classification as limited access highways, the 10 ft wide travel lanes along both existing bridges are two feet narrower than the 12 ft lane width standard specified by the American Association of State Highway and Transportation Officials (AASHTO). The bridges also lack physical separation between opposing traffic lanes and lack shoulder accommodation to provide refuge for drivers in the event of a vehicle breakdown, emergency, crash, or other incidents. The Bourne and Sagamore bridges experienced a substantially higher crash rate than the MassDOT average crash rate for similar roadways during the most recently studied period of January 2017 through December 2019. The

MassDOT crash rate for a similar roadway is 0.80 crashes per million vehicle miles traveled (MVMT). The Bourne Bridge experienced a crash rate of approximately 1.8 crashes per MVMT or 120 percent higher than the state average and the Sagamore Bridge experienced a crash rate of approximately 2.6 crashes per MVMT or 228 percent higher than the state average. The ENF provides the following table which details the quantity and types of collisions reported between 2017 and 2019:

Location	Rear-End	Sideswipe – Same Direction	Sideswipe – Opposite Direction	Head-On	Fixed Object/ Single Vehicle Crash	Not Reported	Total
Bourne Bridge	20	6	11	0	8	0	45
	45%	24%	13%	0%	18%	0%	100%
Sagamore Bridge	20	15	6	2	12	1	56
	36%	27%	11%	4%	21%	1%	100%

The Proponent also performed a Road Safety Audit (RSA) of the Bourne Rotary in 2013, which identified traffic safety issues related to signage, pavement markings, access management and site distance. The Proponent is proposing interim improvements to address these traffic operations and safety issues through the Bourne Rotary (MassDOT Project No. 610542), including upgraded pavement markings and signage, and minor adjustments to roadway geometry; however, long-term improvements to address safety issues are anticipated through the implementation of the Program.

Trip Generation

The base traffic condition models were developed by adjusting 2014 traffic counts to a 2019 base year utilizing a methodology approved by the Proponent. In order to calibrate the 2019 base year traffic models, data were also collected from record plans for the traffic signals within the study area obtained by the Massachusetts Department of Transportation (MassDOT) District 5 office; a site visit to inspect the traffic signal controllers and download current timing information; field observations to observe traffic patterns and behavior; Google Maps "Typical Traffic Conditions" feature for typical queue lengths; and INRIX typical travel times.

According to the ENF, the Proponent examined the potential for induced visitor travel demand due to proposed Program improvements. Induced travel demand could occur from new trips due to latent demand or from modifications of existing travel patterns. Trips due to latent demand are identified as new trips that drivers would make if travel conditions improved, such as less congestion or higher design speeds. In addition to trips due to latent demand, induced travel demand could result from changing travel patterns. The ENF states that it is not anticipated that the safety and operational improvements of the Program would encourage additional visitor vehicle trips; however, several commenters note concerns that reduced congestion may induce additional demand. Further analysis of induced demand should be provided in the DEIR.

Traffic Operations

Level-of-service (LOS) analyses were conducted within the study area under existing volume conditions. LOS is represented using letter grades "A" through "F," with LOS A representing very low delays and free flow conditions and LOS F representing unacceptable conditions for most drivers and conditions in which vehicle demand generally exceeds roadway capacity. Based on the analysis, study area intersections within a 2-mile radius of the bridges typically experience higher levels of traffic volumes and congestion than intersections further from the bridges due to the high concentration of traffic crossing the bridges.

During the Fall and Summer Weekday AM peak hours:

- The southbound side of the Bourne Bridge operates at LOS F due to congestion at the Bourne Rotary.
- Southbound Route 25 approaching the exit for Belmont Circle operates at LOS D and LOS E during the Fall and Summer, respectively.
- Northbound Route 28 approaching the Bourne Rotary operates at LOS D.
- Westbound Route 6 approaching the northbound Sagamore Bridge operates at LOS F
- Southbound Route 3 approaching the Sagamore Bridge operates at LOS F and LOS E during the Fall and Summer, respectively.
- Both directions of the Sagamore Bridge operate at LOS F.

During the Fall and Summer Weekday PM peak hours:

- The southbound side of the Bourne Bridge operates at LOS F due to congestion at the Bourne Rotary.
- Southbound Route 25 approaching the exit for Belmont Circle operate at LOS F due to congestion at the Bourne Rotary.
- Northbound Route 28 approaching the Bourne Rotary operates at LOS F.
- Westbound Route 6 approaching the northbound Sagamore Bridge operates at LOS F.
- Southbound Route 3 approaching the Sagamore Bridge operates at LOS E and LOS F during the Fall and Summer, respectively.
- Both directions of the Sagamore Bridge operate at LOS F.

During the Fall and Summer Saturday Midday peak hours:

- The southbound side of the Bourne Bridge operates at LOS F due to congestion at the Bourne Rotary.
- Southbound Route 25 approaching the exit for Belmont Circle operates at LOS E and LOS F during the Fall and Summer, respectively.
- Northbound Route 28 approaching the Bourne Rotary operates at LOS F.
- Westbound Route 6 approaching the northbound Sagamore Bridge operates at LOS F.
- Southbound Route 3 approaching the Sagamore Bridge operates at LOS F.
- Both directions of the Sagamore Bridge also operate at LOS F.

Transit

The Cape Cod Regional Transit Authority (CCRTA) operates a year-round fixed public transit service that runs through the Program Study Areas, consisting of the Bourne Run and the Sandwich Line. The Bourne Run travels between the Buzzards Bay Train Station and Mashpee Commons, crossing both Bourne and Sagamore Bridges. The Sandwich Line travels between downtown Hyannis to Buzzards Bay, crossing the Sagamore Bridge. Two private bus carriers, also operate services that travel between Cape Cod and mainland Massachusetts crossing both the Bourne and Sagamore Bridges. The CCRTA operates the CapeFLYER, which provides summer weekend service to Cape Cod through the Middleborough/ Lakeville commuter rail line. The service runs from South Station in Boston to the Hyannis Transportation Center, with a stop at the Bourne Station located on Main Street.

Pedestrian and Bicycle Facilities

The existing Bourne and Sagamore Bridges each provide a single, narrow (approximately 5 ft) sidewalk for pedestrian/bicycle use. The sidewalks have steep grades of between 6 and 6.5 percent that are not compliant with the Americans with Disabilities Act (ADA), are adjacent to high-speed traffic, and have poor connections to local facilities due to several of the approach roadways to the bridges lacking accessible sidewalk connections.

According to the ENF, the Program will implement a dedicated shared-use path at each bridge crossing that will connect into the adjacent pedestrian/bicycle network on each side of the Canal, to the extent feasible. The proposed shared use paths would be designed in accordance with MassDOT, AASHTO, and FHWA design criteria, as well as the ADA and the Architectural Access Board's guidance. The shared use paths on the Bourne and Sagamore Bridges would follow the proposed mainline roadway profiles and, where possible, the grades would be reduced on the approaches to the bridges. Additionally, each shared use path would be bi-directional and separated from vehicular traffic by a shoulder and barrier.

Comments provided by the Massachusetts Department of Conservation and Recreation (DCR) state that DCR has been working with the Proponent to enhance public bicycle and pedestrian facilities throughout the Commonwealth. DCR notes that it looks forward to working with the Proponent to enhance connections to shared-use bicycle and pedestrian paths and to maintain access to local DCR parks as the Program moves forward.

The DEIR should include a Traffic Impact and Access Study (TIAS) prepared in accordance with EEA/MassDOT Guidelines for EIR/EIS Traffic Impact Assessments. The TIAS should use data and methodologies provided through collaborative efforts with Central Transportation Planning Staff (CTPS), the Cape Cod Commission, and other key stakeholders to identify study area intersections, mode-split data, and data forecasting. The TIAS should examine existing and future No Build and future Build alternative transportation conditions. The TIAS should discuss existing and proposed traffic volumes and conditions, crash rate data, LOS operations at study area intersections and the surrounding interchanges, and a queuing analysis for all approaches. The DEIR should identify the specific measures to be implemented by the Program that will improve traffic safety. The results of the traffic analysis should be reviewed for all of the interchange approach alternatives under consideration. MEPA 38

The DEIR should describe the interchange approach alternatives under consideration and detail the overall integration into the roadway network. The DEIR should evaluate the existing and proposed traffic volumes, conditions, and LOS operations for each of the ten interchange approach alternatives advanced for further evaluation. The DEIR should detail how this analysis contributed to the selection of the preferred interchange approach alternatives. The DEIR should also contain a description of existing and proposed bicycle accommodations within the traffic study area including their location, type, width, and routes between key destinations. Supporting graphics depicting proposed roadway cross-sections and routes should be included in the DEIR to facilitate review. The DEIR should explore alternative designs and connections to existing bicycle and pedestrian facilities in conjunction with the evaluation of the interchange approach alternatives. The DEIR should quantify and compare the environmental impacts of the share use path alternatives considered with respect to land alteration, impervious area, traffic, wetlands, climate resiliency, EJ impacts, and any other impacts to environmental resources. MEPA 39 MEPA 40

The DEIR should include a traffic management plan that describes measures to avoid, minimize, and mitigate construction period impacts on the surrounding roadway network. The DEIR should evaluate potential construction period impacts on existing transit MEPA 50

The DEIR should also include an analysis that examines the potential influence the Program may have on unintended and undesirable secondary development within the region that would ultimately add to, instead of alleviate, traffic congestion. In addition, the DEIR should evaluate whether improvements in traffic operations will result in induced demand for both seasonal vacation trips and short-term trips (i.e. day trips or weekend trips). The DEIR should describe the process for evaluating the potential for induced demand and discuss in detail the basis for any conclusions reached regarding induced demand including references to published guidance, academic articles, and publicly available research. The DEIR should also evaluate whether any additional trips due to induced demand will have disproportionate adverse impacts to EJ Populations, including Block Group 1, Census Tract 139 identified in the Environmental Justice section above. MEPA 51

Air Quality

The ENF states that the Program is not anticipated to have adverse effects on the identified EJ Populations relative to air quality as the proposed transportation improvements would not result in added capacity to the regional or local roadway network. The DEIR should include a mesoscale air quality analysis using the MOVES model, consistent with the *MassDEP Guidelines for Performing Mesoscale Analysis of Indirect Sources*, for the study area used for the traffic study performed for the project. Data on volatile organic compounds (VOCs), oxides of nitrogen (NOx), greenhouse gas (GHG) emissions, carbon monoxide (CO), sulfur oxides (Sox), and particulate matter (PM_{10}/$PM_{2.5}$) should be provided. These emissions inventories should estimate the mobile source emissions of motor vehicles on roadways, measured as tons per year (tpy), in the traffic study area for the existing, future No Build, and future Build conditions. The analysis should provide a breakdown of EJ versus non-EJ roadway segments within the study area. MEPA 52 MEPA 53

The DEIR should estimate the number of construction period truck trips that are anticipated for the project, and indicate whether routes of travel will extend through EJ Populations within one mile of the site. The DEIR should identify any air quality related indicators in EJ Screen that are elevated at or above the 80th percentile of statewide average, and provide these data for any EJ Populations that are MEPA 54

adjacent to anticipated routes of travel for project-generated truck traffic (including travel along state and interstate highways). The DEIR should estimate the extent of new vessel traffic (on daily basis) that would be required by the project based on the anticipated construction needs of the preferred mainline alignment alternative. The DEIR should discuss whether such vessel traffic would pass by any EJ Populations and estimate the increase in air emissions associated with the new vessel traffic. MEPA 55

Wetlands and Fisheries

As noted above, wetland resource areas are located on and adjacent to the project site. Given the level of conceptual design, the ENF did not provide refined estimates of temporary and permanent impacts to all wetland resource areas associated with each interchange alternative being considered or complete details on proposed mitigation measures.

According to the ENF, the Proponent filed an Abbreviated Notice of Resource Area Delineation (ANRAD) with the Bourne Conservation Commission in January 2022 to confirm the boundaries of the wetland resource areas located within the Program study area. The Bourne Conservation Commission accepted the wetland delineation and issued an Order of Resource Area Delineation (ORAD) on May 5, 2022. The Bourne Conservation Commission (or MassDEP in the case of an appeal) will also review the project for its consistency with the Massachusetts Wetlands Protection Act (WPA) (M.G.L. c. 131 §40), the Wetland Regulations (310 CMR 10.00) and associated performance standards including the SMS, and local bylaws.

Comments provided by the MassDEP Wetlands Program state that the preliminary impact assessments provided in the ENF indicate impacts may only occur to LSCSF, ILSF, and buffer zone; however, no 100 ft buffer zone impacts would occur at the Sagamore Bridge crossing. MassDEP states that coastal bank along the Cape Cod Canal would also be afforded a 100 ft buffer zone under the WPA. In addition, the Program proposes to add a 12-foot-wide auxiliary lane to each crossing that will improve traffic safety and operations by easing the effects of entering and exiting merging traffic on each side of the bridges. The Program will also include a new shared use path to improve pedestrian and bicycle accommodations. MassDEP states that these functions are not equivalent to the functions provided by the existing bridge, and therefore pursuant to Section 24 of Chapter 79 of the Acts of 2014, the bridges are not considered to be exempt from the WPA.

The DEIR should include a copy of the ORAD, including the approved plans, issued by the Bourne Conservation Commission on May 5, 2022. The DEIR should provide an updated table which quantifies wetland resource area and buffer zone impacts, both temporary and permanent, associated with each Program component. The DEIR should also demonstrate that the project can be designed and constructed consistent with the WPA Regulations (310 CMR 10.00) and all applicable performance standards, as well as describe all measures proposed to mitigate said impacts. MEPA 56

The DEIR should include updated figures that depict and identify all the surveyed vernal pools and their current status (i.e., certified, eligible to be certified, and non-eligible to be certified). All efforts should be taken to avoid impacts to these vernal pools and the area within 100 feet of the mean annual high-water boundaries of these pools. MEPA 57

The DEIR should detail the impacts to said vernal pools and the area within 100 feet of the mean annual high-water boundaries of the pools, if any; the specific measures taken to avoid said impacts; and measures proposed to mitigate any such impacts. MEPA 58

As noted in comments provided by the Division of Marine Fisheries (DMF), the Canal includes habitat for a variety of benthic invertebrate species. The shorelines of the Canal are mapped shellfish habitat for blue mussel (*Mytilus edulis*) and support both benthic and larval life history phases of lobster (*Homarus americanus*). The Canal provides passage habitat for several diadromous species, including alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), American eel (*Anguilla rostrata*), and white perch (*Morone americana*). It also supports migrating and seasonally resident striped bass (*Morone saxatilis*) and has been designated as Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act for 27 species. Additionally, as described below, the Canal supports active commercial and recreational fishing using hook and line from the shoreline, as well as recreational lobster fishing. In accordance with the Construction Period Scope below, the DEIR should provide details on the in-water work plan and identify potential impacts to marine species. The DEIR should provide an overview of the potential construction timeline in order for Agencies to assess whether time-of-year (TOY) restrictions may be warranted to protect migratory species using the Canal. MEPA 59

As suggested in comments provided by OFBA, the DEIR should also evaluate the feasibility of reusing demolition materials generated from the removal of the existing bridge foundations to support DMF's underwater reef program. MEPA 60

Waterways / Public Benefit Determination (PBD)

The Canal is a sea-level waterway that extends 17.4 miles from Buzzards Bay and Cape Cod Bay. On an annual basis, the Canal is used by more than 3,000 cargo vessels, at least 750 fishing vessels, approximately 150 to 200 military vessels, and more than 4,000 recreational vessels. The ACOE is congressionally mandated to maintain the Canal for navigation purposes. As submerged land subject to tidal action, the Canal meets the definition of flowed tidelands per the Massachusetts Waterways Regulations (310 CMR 9.00). Comments from the MassDEP Waterways Regulation Program (WRP) affirm that the project is an Activity Subject to Jurisdiction and will require the submittal of a c.91 License Application (BRP WW01). MassDEP WRP also notes that based on the information contained in the EENF, the proposed activities would be classified as a water-dependent use project pursuant to the Waterways Regulations at 310 CMR 9.12. The DEIR should identify any permanent or temporary navigation impacts resulting from implementation of the Program, specifically noting differences in impacts between alternatives considered. The DEIR should also discuss the Program's compliance or consistency with the U.S. Coast Guard's requirements. MEPA 61

The ENF states the Canal and bordering land serve as a hub of activity in Bourne by providing opportunities for scenic views and recreational activities, including boating, fishing, walking, biking, in-line skating, birdwatching, and picnicking with several access spots, viewing areas, and rest facilities along the length of the waterway. However, comments provided by OFBA state that there is only a single location along the Canal, located at the DCR Scusset Beach Reservation, dedicated for fishing access. OFBA states that the Program affords a great opportunity to promote the general public's use and enjoyment of the water's edge, expand existing recreation facilities, and develop new public areas for recreational activities. As suggested in comments provided by OFBA, the DEIR should evaluate the efficacy of reusing the existing bridge piers to expand recreational opportunities and promote the general public's use and enjoyment of the water's edge. To the extent that reuse of the existing bridge piers is determined to be infeasible, the DEIR should identify and evaluate other opportunities to expand recreational access as part of the Program's design. The DEIR should present more than one recreational access alternative, in accordance with the Alternatives Analysis Scope above. The DEIR should also MEPA 62

quantify any additional impacts associated with the reuse of the existing bridge piers and each recreational access alternative. The DEIR should also identify any additional permitting required in order to implement such recreational access.

Consistent with the provisions of *An Act Relative to Licensing Requirements for Certain Tidelands* (2007 Mass. Acts, c. 168, § 8) (the Act), as codified in M.G.L. c. 91, § 18B, and the Public Benefit Determination (PBD) regulations (301 CMR 13.00), I must conduct a Public Benefit Review for projects in tidelands that are required to file an EIR.

The legislation states the following regarding the PBD:

> "In making said public benefit determination, the secretary shall consider the purpose and effect of the development; the impact on abutters and the surrounding community; enhancement to the property; benefits to the public trust rights in tidelands or other associated rights, including, but not limited to, benefits provided through previously obtained municipal permits; community activities on the development site; environmental protection and preservation; public health and safety; and the general welfare; provided further, that the secretary shall also consider the differences between tidelands, landlocked tidelands and great pond lands when assessing the public benefit and shall consider the practical impact of the public benefit on the development."

The DEIR should include a discussion of how the Program complies with the PBD (301 CMR 13.00) criteria. The DEIR should also include information regarding the public benefits associated with the Program. MEPA 63

Area of Critical Environmental Concern (ACEC)

According to the ENF, approximately 28 acres of the SPSA is located within the Herring River Watershed ACEC, which is generally comprised of open space, lakes and ponds, freshwater wetlands, and cranberry bogs. The Herring River Watershed ACEC was designated due to the significance of its coastal wetland resource areas for the protection of groundwater and public water supplies, the prevention of pollution, flood control, the prevention of storm damage, fisheries, and wildlife habitat. The Herring River Watershed ACEC provides added protection for Great Herring Pond, a regionally important freshwater fishery resource; state-listed species habitat; the Plymouth/Carver Sole Source Aquifer; and important historical, archaeological, and cultural resources.

The DEIR should clarify how each of the proposed project alternatives would avoid or minimize impacts to the Herring River Watershed ACEC and present mitigation proposals for unavoidable impacts. The DEIR should also detail how Program-related activities occurring within the ACEC support the intent and the protections afforded by its designation. The protection of wildlife habitat and wetlands play an increasingly important role in promoting system resiliency and mitigating climate change impacts. The DEIR should also detail any changes to wildlife habitat and/or hydrology within the ACEC, including any efforts to improve or restore wildlife habitat and natural hydrology within the ACEC. MEPA 64 MEPA 65

Rare Species

As described previously, portions of the Program Study Areas are mapped by NHESP as Priority and Estimated Habitat for various state-listed species pursuant to the Massachusetts Endangered Species Act (M.G.L. c. 131A) (MESA) and its implementing regulations (321 CMR 10.00). All projects or activities proposed within Priority Habitat, which are not otherwise exempt pursuant to 321 CMR 10.14, require prior review through a direct filing with NHESP for compliance with the MESA (321 CMR 10.18). Additionally, all projects or activities proposed within Estimated Habitat that require review under the Wetlands Regulations (310 CMR 10.00), also require prior review through a direct filing with the NHESP for compliance with the rare species provisions of the WPA (310 CMR 10.37, 10.58(4)(b), 10.59). The U.S. Fish and Wildlife Service (USFWS) has also identified the potential presence of the endangered Northern Long-eared Bat (*Myotis septentrionalis*) and Plymouth Redbelly Turtle (*Pseudemys rubriventis bangsi*), federally protected species pursuant to the U.S. Endangered Species Act (ESA, 50 CFR 17.11), within the vicinity of the Program Study Areas. However, the Program Study Areas themselves are not mapped to contain critical habitats for either species.

According to the ENF, the Proponent has initiated early consultation with the NHESP to obtain information on state-listed species that may be present within the Program Study Areas. The Proponent has also initiated early coordination with USFWS to assess potential concerns for any federally identified Rare, Threatened, and Endangered Species (RTE). In Summer 2020, Proponent conducted a RTE Habitat Assessment within and adjacent to the Program Study Areas. A Study Plan for this assessment was submitted and approved by NHESP and USFWS prior to initiating the field survey. The RTE Habitat Assessment confirmed that potential suitable habitat for several state-listed wildlife and moth species, and the New England Cottontail is located south of the Bourne and Sagamore Bridges and adjacent to existing transportation infrastructure within the Program Study Areas. The Proponent also commissioned an acoustic bat survey to evaluate the presence or probable absence of the Northern Long-eared Bat (*Myotis septentrionalis*) within the Program Study Areas and adjacent areas. The survey did not identify presence of the Northern Long-eared Bat (*Myotis septentrionalis*) within or adjacent to the Program Study Areas, indicating their probable absence in 2020. However, the survey confirmed the presence of Little Brown Bat (*Myotis lucifugus*) and Tricolored Bat (*Perimyotis subflavus*), both state-listed as endangered, in areas adjacent to the Program Study Areas.[11]

The National Oceanic and Atmospheric Administration (NOAA) has identified Essential Fish Habitat (EFH) within the Canal for 30 species and the National Marine Fisheries Service (NMFS) has identified 11 federally protected aquatic species within the Canal. The Canal has also been identified as Habitat Area of Particular Concern for Summer Flounder (*Paralichthys dentatus*) and Atlantic Cod (*Gadus morhua*). Additionally, comments provided by DMF state that the Canal is utilized by federally threatened or endangered species transiting between Cape Cod Bay and southern New England, including Atlantic Sturgeon (*Acipenser oxyrhynchus oxyrhynchus*), Shortnose Sturgeon (*Acipenser brevirostrum*), Humpback Whale (*Magaptera novaeangliae*), North Atlantic Right Whale (*Eubalaena glacialis*), Fin Whale (*Balaenoptera physalus*), Loggerhead Turtle (*Caretta caretta*), Kemp's Ridley Turtle (*Lepidochelys kempii*), Leatherback Turtle (*Dermochelys coriacea*), and Green Turtle (*Chelonia mydas*).

[11] USFWS is currently reviewing the Little Brown Bat (*Myotis lucifugus*) for protection under the ESA and proposed to list the Tricolored Bat (*Perimyotis subflavus*) as an endangered species under ESA on September 14, 2022.

The ENF states that early consultations with the NHESP indicate that the Program could result in a take of species protected under the MESA. Comments from NHESP affirm that the Proponent has engaged in collaborative pre-filing consultations; however, the information presented in the ENF is not sufficient to enable NHESP to provide concrete guidance regarding the next steps in the MESA review process. The DEIR should evaluate and quantify all impacts to Priority and Estimated Habitat associated with the interchange alternatives advanced for additional analysis. The DEIR should also provide a discussion on the potential impacts to species utilizing the Canal as habitat and/or to transit between Cape Cod Bay and southern New England during construction period activities. To the extent that the Program will impact rare species or their habitats, the DEIR should identify the BMPs that will be implemented to minimize and/or mitigate such impacts in order to meet state and federal performance standards. The Proponent should continue to consult with NHESP, DMF, and other federal agencies to ensure that it evaluates the full extent of potential impacts to rare species and their habitats, and to ensure it assesses all measures to avoid, minimize and or mitigate any impacts. The DEIR should provide an update on any such coordination and identify any changes made to the project design in response to this consultation.

MEPA 66

MEPA 67

Historical and Archaeological Resources

The Program Study Areas are located within the Cape Cod Canal Historic District (BOU.AF/FAL.BG/ SWD.Z/WRH.V), an area identified by MHC as being eligible for listing in the National Register of Historic Places (NRHP). The Cape Cod Canal Historic District consists of 23 historic resources, 18 of which would be contributing resources. These resources include the Bourne Bridge (BOU.919) and the Sagamore Bridge (BOU.918), which were formally recommended by MHC in 1991 to be eligible for individual listing in the NRHP and determined to be contributing elements to the Cape Cod Canal Historic District. The Bourne and Sagamore Brides are also listed on the Inventory of Historic and Archaeological Assets of the Commonwealth. In addition, there are multiple other historic districts and individual resources close to the two study area boundaries.

The ENF states that demolition 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. The creation and use of temporary construction staging, and access areas could also result in an adverse effect to the NRHP-eligible Cape Cod Canal Historic District. To address these impacts, a Programmatic Agreement (PA), pursuant to Section 106 of the National Historic Preservation Act was finalized between the ACOE and the Massachusetts State Historic Preservation Officer (SHPO) in March 2022. The PA was developed in coordination with the Proponent, the Massachusetts Board of Underwater Archaeological Resources (BUAR), and local interested parties to avoid, minimize, or mitigate the effects of replacing the Bourne and Sagamore Bridges on historic properties. In addition, the Cape Cod Commission (CCC), the Historical Commissions of the Towns of Bourne and Sandwich, and the Tribal Historic Preservation Officers (THPOs) of the Mashpee Wampanoag and the Wampanoag Tribe of Gay Head (Aquinnah) were invited as concurring parties. It is anticipated that an amended PA and a new Memorandum of Agreement (MOA) among the Federal Highway Administration (FHWA), SHPO, ACOE, and the Proponent will be prepared for the Program. It is anticipated that the MOA and new PA would contain stipulations to address direct and indirect adverse effects to historic properties resulting from the Program.

According to the ENF, multiple archaeological resources have been documented in and near the Program Study Areas, including pre-colonial sites and historic-period archaeological sites. Assessments conducted as part of the ACOE MRER process determined that there are no recorded archaeological sites within the vicinity of the Sagamore Bridge; however, there are two recorded archaeological sites within the vicinity of the Bourne Bridge. Native American Tribes also consider the Program Study Areas to be culturally and archaeologically sensitive. The ENF states that the Proponent will engage a professional archaeological firm will prepare an Archaeological Reconnaissance Report (ARR) to determine areas of archaeological sensitivity within the Area of Potential Effect (APE). The Proponent will subsequently conduct a professional archaeological survey based on the ARR as design options are developed and refined. Any necessary archaeological surveys on federal land shall be conducted under a permit issued in accordance with the U. S. Archaeological Resource Protection Act. Any necessary archaeological survey on non-federal land shall be conducted under a permit issued by the State Archaeologist. The Proponent will continue to consult with the Tribes throughout Program design, including archaeological investigations, and will invite the Tribes to participate in all archaeological field investigations. The ENF indicates that the Proponent has expanded Tribal consultation to include the THPO of the Herring Pond Wampanoag Tribe as a consulting party. This will afford the Herring Pond Wampanoag Tribe an opportunity to share their views, receive and review pertinent information, offer ideas, and consider possible alternatives as part of the Program development.

Comments from MHC affirm the execution of a PA and acknowledge the need to enter into a revised PA that will include FHWA and future MOAs. The DEIR should include a copy of the amended PA and new MOA. The DEIR should identify the APE to be developed for each bridge crossing and provide an evaluation of potential impacts of the construction and operation of the Program on the APE's historic resources. The DEIR should also detail the process for identifying and evaluating archaeological resources, and should identify avoidance, minimization, and/or mitigation measures for the protection and preservation of archaeological resources identified during cultural resource investigations. The DEIR should include an update on consultations with parties that have been granted consulting party status. To the extent these consultations result in any changes to project design, including bridge type and design and construction methodology, the DEIR should fully describe any such changes and resulting changes to environmental impacts. If any changes are made to any of the preferred alternatives already chosen for certain project components, this should be explained in the DEIR. MEPA 68 MEPA 69 MEPA 70

Solid and Hazardous Materials

According to the ENF, solid waste will be generated during the demolition of the Bourne and Sagamore Bridges. The existing highway bridge decks are comprised of steel grids filled with five inches of concrete and topped with a two-inch bituminous concrete surface. Channel piers are pairs of hollow concrete columns sitting on footing pedestals within the Canal. It is anticipated that the steel will be recycled and all other solid waste will be disposed of in accordance with the Solid Waste Management Regulations (310 CMR 19) and other applicable MassDEP policies and guidance. The selected contractor will also be required to develop a Construction and Demolition Waste Management Plan (CDWMP) prior to the start of construction and demolition activities. Additionally, lead paint, dating to the 1935 construction of the bridges, is likely present. The ENF states that prior to demolition, materials will be tested for the presence of lead paint and all hazardous waste management will be conducted in accordance with 310 CMR 30.00 and 310 CMR 40.00.

The DEIR should identify the nature and volume of solid waste to be generated by the project. It should describe handling, reuse, recycling and disposal of solid waste. The Proponent should review MassDEP's comment letter for solid waste handling and disposal requirements. The DEIR should describe how the project will comply with all applicable requirements. MEPA 71

Comments provided by the MassDEP Bureau of Waste Site Cleanup (BWSC) state there is convenient way to determine all the Release Tracking Numbers (RTNs) located within the Program Study Areas. BWSC notes that it will assist the Proponent in identifying those locations for inclusion in the DEIR. The DEIR should describe if proposed improvements will be located within any of the disposal sites previously or currently regulated under the Massachusetts Contingency Plan (MCP) (310 CMR 40.0000). The DEIR should include a plan that clearly identifies the location of disposal sites and project elements. It should describe if conditions associated with any disposal sites may require remedial measures in the areas where proposed improvements will occur. Residual contamination that remains in the soil in the area of the releases may affect the handling of soil for construction of proposed improvements. The DEIR should describe any potential excavation or disturbance in disposal sites and identify any necessary mitigation measures or handling and disposal requirements. The DEIR should also discuss any generation of hazardous waste and/or waste oil and identify potential measures to reduce, recover and reuse hazardous waste. The DEIR should describe implementation of a spills contingency plan that addresses prevention and management of potential releases of oil and hazardous materials from pre- and post-construction activities and will be presented to workers at the site and enforced. The plan should include but not be limited to, refueling of machinery, storage of fuels, and potential on-site activity releases. MEPA 72 MEPA 73 MEPA 74

Climate Change

Adaptation and Resiliency

Effective October 1, 2021, all MEPA projects are required to submit an output report from the MA Resilience Design Tool to assess the climate risks of the project. Based on the output report attached to the ENF, the project has a "High" exposure rating based on the location of the Bourne and Sagamore Bridges for the following climate parameters: sea level rise/storm surge, extreme precipitation (urban flooding), extreme precipitation (riverine flooding), and extreme heat. Based on the 75-year useful life and the self-assessed criticality identified for the bridges, the MA Resilience Design Tool recommends a planning horizon of 2070 and a return period associated with a 1000-year (0.1%) storm event for sea level rise/storm surge and a return period associated with a 100-year (1%) storm event for extreme precipitation. It also recommends planning for the 90th percentile for applicable extreme heat parameters.

The MA Resilience Design Tool output indicates that the site is located within the predicted mean high-water shoreline by 2030; exposed to the 1% annual coastal flood event as early as 2030; located within the 0.1% annual coastal flood event within the project's useful life; and located within the existing 100-year FEMA floodplain. These factors are indicated in the MA Resilience Design Tool as contributing to the High exposures for the sea level rise/storm surge parameter. According to the MA Resilience Design Tool output report for the Bourne Bridge, the projected maximum water surface elevation associated with a 1000-year storm event in 2070 is elevation 18.8 ft NAVD88, with an area

weighted average elevation of 18.2 ft NAVD88. The projected maximum wave action water surface elevation associated with a 1000-year storm event in 2070 is elevation 23.7 ft NAVD88, with an area weighted average elevation of 20.1 ft NAVD88. Additionally, according to the MA Resilience Design Tool output report for the Sagamore Bridge, the projected maximum water surface elevation associated with a 1000-year storm event in 2070 is elevation 13.5 ft NAVD88, with an area weighted average elevation of 12.9 ft NAVD88. The projected maximum wave action water surface elevation associated with a 1000-year storm event in 2070 is elevation 19.3 ft NAVD88, with an area weighted average elevation of 15.2 ft NAVD88. The ENF states that a Program-specific hydrologic model to assess coastal storm inundation and a local stormwater model for inland flood areas are being developed to better understand these conditions. Impacts related to changes to the site's topography will be evaluated in subsequent design stages and discussed in the DEIR, as applicable.

The MA Resilience Design Tool output indicates that the maximum annual daily rainfall exceeds 10" within the overall project's useful life; the project site is anticipated to have a 30+ day increase in days over 90 degrees Fahrenheit within project's useful life; and the project proposes to remove trees and create new impervious surface. These factors are indicated in the Tool as contributing to the High exposures for the extreme precipitation (urban flooding) and extreme heat climate parameters. According to the MA Resilience Design Tool output report for the Bourne and Sagamore Bridges, the projected 24-hour precipitation depth associated with a 2070 100-year storm event is 9.8". The ENF does not detail any stormwater management measures as the specific measures will be developed as the interchange approach design alternatives are advanced and preferred alternatives are selected.

As noted in comments provided by CZM, future sea level rise is important for the design elevation of the bridge to allow clearance for navigation as well as the future floodplain and the resiliency of the approach roads to the bridges. Multiple factors need to be balanced to determine how much sea level rise will be incorporated into the elevation of the bridges for navigation. Based on a preliminary analysis, the Program is proposing to increase the vertical clearance of the bridges by 3.18 ft to accommodate for NOAA sea level rise projections, which project 3.15 ft and 3.18 ft at the Buzzards Bay Tidal Station and Sandwich Marina Tidal Station, respectively, for the year 2070. The downscaled sea level rise projections available on the EEA Climate Clearinghouse website for the Woods Hole Tide gauge indicate that 7.7 to 10.3 feet of sea level rise are projected to occur by 2100. A more detailed analysis explaining how the appropriate sea level rise factors for the elevation of the bridges as well as for the elevations of the approach roadways should be provided in the DEIR. CZM also notes that portions of the approach roads and ramps to the area of the bridges are located in AE flood zones, as delineated on the FEMA FIRMs. As such, floodwaters will move across the project sites during coastal storm events. Fill, retaining walls, new impervious surfaces, and curbing can change the way floodwaters move over the project sites. These changes will be exacerbated over time by changes to the flooding frequency and depth caused by sea level rise and increasing coastal storm frequency and intensity. Understanding how the proposed design may modify the flow velocity, direction, depth, and extent of flooding on the site because of these pathway changes can be used to inform design changes that could ensure that project components will not exacerbate impacts associated with coastal storm events.

The DEIR should include a narrative and quantitative results of the Program-specific hydrologic model used to assess coastal storm inundation and local stormwater flooding. Specifically, the DEIR should evaluate how changes to the site's topography will impact coastal storm inundation and local MEPA 75

stormwater flooding. The DEIR should include a detailed analysis explaining how the appropriate sea level rise factors for the elevation of the bridges as well as for the elevations of the approach roadways was determined. The DEIR should also include additional information on how the alternative interchange approaches have been designed to avoid increases or changes in velocity, reflection, or channelization of floodwaters by conducting and providing a pre- and post-construction flow path analysis. The Proponent should refer to comments from CZM regarding the content of the flow path analysis, which are incorporated herein by reference. I encourage the Proponent to consult with CZM to develop this analysis. The DEIR should compare proposed elevations of the approach roadways and pier foundations to water elevations shown in the MA Resilience Design Tool and discuss how climate data and projections were used to determine the proposed elevations. The results of any quantitative modeling performed should be provided in the DEIR, and also summarized in narrative form in the body of the DEIR. MEPA 76 MEPA 77 MEPA 78

The DEIR should identify the Program Study Areas' vulnerabilities to climate change and potential features incorporated into the design of the project that will increase the resiliency of the Program Study Areas to likely climate change impacts. The DEIR should include a comprehensive discussion of the potential effects of climate change on the project site and describe features incorporated into the project design (including climate-related design specifications and standards) that will increase the resiliency of the site to these changes. The DEIR should include information about the potential adaptation of the project to future conditions. MEPA 79

The DEIR should describe the precipitation data used for the design of the stormwater management system. The DEIR should discuss how the stormwater system will be sized to address future climate conditions. The MA Resilience Design Tool provides rainfall volumes associated with a 24-hour storm for the project as input by the user. The DEIR should discuss whether the proposed stormwater design will accommodate the recommended 2070 100-year return period (24-hour rainfall volume of 9.8 inches) from the Tool. The DEIR should discuss whether the stormwater management system will attenuate peak flows and meet pollutant loading requirements based on future climate conditions in 2070 and should provide a copy of the Stormwater Report for the project. MEPA 80 MEPA 81

Greenhouse Gas Emissions (GHG)

This project is subject to review under the May 2010 MEPA GHG Policy and Protocol (GHG Policy) because it exceeds thresholds for a mandatory EIR. The GHG Policy requires projects to quantify carbon dioxide (CO_2) emissions and identify measures to avoid, minimize or mitigate such emissions.

The project does not propose to add or modify any stationary sources of GHG emissions. The DEIR should include an assessment of GHG emissions generated by mobile sources using data gathered as part of the mesoscale analysis. The DEIR should use traffic volume, delay and speed data along with emissions factors (as described in the Policy) for an existing, future No-Build condition, and future Build condition. The DEIR should describe mitigation measures implemented as part of the future Build. These measures may include, but should not be limited to, improvements to roadway operations, physical roadway infrastructure upgrades, and use of CO_2 reduction technologies. I recognize the purpose of the project is to address deficiencies in the existing infrastructure, improve traffic operations and safety, and reduce congestion; however, I note concerns expressed in comment letters that these MEPA 82

benefits will be eroded over time, including due to induced demand. The Proponent should address this concern in the DEIR. The DEIR should provide a summary of other MassDOT initiatives that seek to reduce the Commonwealth's overall reliance on single-occupant vehicles (e.g., the MassRIDES program, park-and-ride areas, etc.) and discuss the extent to which these programs may benefit from the project or be employed to minimize long-term effects.

The ENF states that the Program will alter up to 168 New acres of land and require the removal of up to 9 public shade trees of 14+ inches in diameter at breast height; however, the full extent of land clearing required for the Program is not quantified in the ENF. In particular, the land alteration to occur within the proposed transportation right-of-way due to the construction of the new bridge abutments. Consistent with the Land Section above, the DEIR should quantify the total areal extent of proposed clearing on-site and off-site, characterized by cover type (i.e., forested, scrub/shrub, grassland, etc.). The DEIR should discuss the measures taken to avoid and/or minimize tree clearing and identify measures that will be implemented to mitigate for the removal of trees. To the extent the degree of mature tree removal is greater than initially estimated in the ENF, I reserve the right to require supplemental analysis of the GHG impacts from tree clearing. MEPA 83

Construction Period

According to the ENF, the project is anticipated to commence construction in 2027 and be completed by 2035. By selecting the Fully Offline Inboard mainline alignment alternative, it is anticipated that construction of the replacement highway bridges can commence while traffic continues to utilize the existing bridges.

The DEIR should identify how the bridges are anticipated to be constructed, including but not limited to any in-water access, cofferdams, and staging areas. The DEIR should describe the proposed timing and duration of in-water work as well as proposed methodologies. The DEIR should further describe the BPMs that will be implemented to avoid, minimize, and mitigate any potential noise and turbidity impacts to marine resources associated with removal of old piers and installation of new piers in the Canal. Comments from DCR also note that visitor access to the Scusset Beach State Reservation in Sandwich must be taken into consideration related to potential impacts during the Sagamore Bridge construction phase. The Proponent should coordinate with DCR to ensure that construction-period interruptions to visitor access to the Scusset Beach State Reservation are minimized to the extent feasible. The DEIR should provide an update on said coordination and identify any proposed mitigation measures should visitor access be impacted by the Program. MEPA 84 MEPA 85

The DEIR should describe how construction activities will be managed in accordance with applicable MassDEP regulations regarding Air Pollution Control (310 CMR 7.01, 7.09-7.10), and Solid Waste Facilities (310 CMR 16.00 and 310 CMR 19.00, including the waste ban provision at 310 CMR 19.017). The DEIR should describe all construction-period impacts and mitigation relative to wetlands, stormwater, noise, air quality, water quality, and traffic. It should describe truck routes and other mitigation measures that may be implemented to minimize impacts to residential areas by trucks travelling to the site during the construction period. Construction equipment should use engines meeting Tier 4 federal emissions standards, or if unavailable, confirm that the project will require its construction contractors to use Ultra Low Sulfur Diesel fuel, and discuss the use of after-engine emissions controls, such as oxidation catalysts or diesel particulate filters. MEPA 86 MEPA 87

The DEIR should provide detailed information regarding the project's generation, handling, recycling, and disposal of construction and demolition debris (C&D) and identify measures to reduce solid waste generated by the project. I strongly encourage the Proponent to commit to C&D recycling activities as a sustainable measure for the project. The Proponent is reminded that any contaminated material encountered during construction must be managed in accordance with the MCP and with prior notification to MassDEP. The DEIR should describe stormwater management measures that will be implemented during construction. It should describe potential construction period dewatering activities and associated permitting (i.e., NPDES) and identify mitigation measures. All construction-period mitigation measures should be listed in the draft Section 61 Findings. I refer the Proponent to the comprehensive review of construction-period regulatory requirements in MassDEP's comment letter. The DEIR should describe how the project will comply with all said applicable requirements. MEPA 88 MEPA 89

Mitigation and Draft Section 61 Findings

The DEIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the environmental and related public health impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ Populations. The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (wetlands, traffic, rare species, GHG, environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact. Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project. The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase. MEPA 90

Responses to Comments

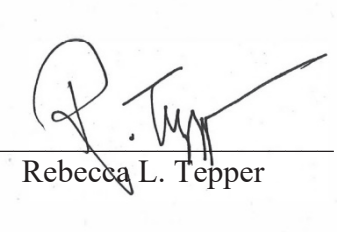
The DEIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the DEIR should include a comprehensive response to comments on the DEIR that specifically address each issue raised in the comment letter; references to a chapter or sections of the DEIR alone are not adequate and should only be used, with reference to specific page numbers, to support a direct response. This directive is not intended, and shall not be construed, to enlarge the scope of the DEIR beyond what has been expressly identified in this certificate. MEPA 91

Circulation

In accordance with 301 CMR 11.16(3), the Proponent should circulate the DEIR to each Person or Agency who commented on the ENF, each Agency from which the project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. Pursuant to 301 CMR 11.16(5), the Proponent may circulate copies of the DEIR to commenters in a digital format (e.g., CD-ROM, USB drive) or post to an online website. However, the Proponent should make MEPA 92

available a reasonable number of hard copies to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. The Proponent should send correspondence accompanying the digital copy or identifying the web address of the online version of the DEIR indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. A copy of the DEIR should be made available for review in the Bourne Public Library.

July 7, 2023
Date



Rebecca L. Tepper

Comments received:

Comments submitted on the MEPA Public Comments Portal

5/16/2023 Art Akeley
6/26/2023 Association to Preserve Cape Cod (APCC)
6/27/2023 Stephen Buckley

Comments submitted by email

6/2/2023 Susan Barlow
6/12/2023 Massachusetts Office of Fishing and Boating Access (OFBA)
6/22/2023 Vanasse & Associates, Inc. (VAI)
6/23/2023 Robert Dwyer
6/26/2023 Massachusetts Division of Marine Fisheries (DMF)
6/26/2023 Natural Heritage and Endangered Species Program (NHESP)
6/27/2023 Massachusetts Department of Conservation and Recreation (DCR)
6/27/2023 Massachusetts Office of Coastal Zone Management (CZM)
6/27/2023 Massachusetts Department of Environmental Protection (MassDEP)
6/27/2023 Cape Cod Commission (CCC)
6/27/2023 Massachusetts Historical Commission (MHC)

RLT/NJM/njm

Mass.gov | Executive Office of Energy & Environmental Affairs (EEA)

An official application of the Commonwealth of Massachusetts

Energy & Environmental Affairs
Public Comments Portal

Nicholas.Moreno@mass.gov

Dashboard(javascript:void(0);) › View Comment(javascript:void(0);)

View Comment

Comment Details

EEA #/MEPA ID	First Name	Address Line 1	Organization
16695	Art	10 Ocean Pines Dr	--
Comments Submit Date	**Last Name**	**Address Line 2**	**Affiliation Description**
5-16-2023	Akeley	--	--
Certificate Action Date	**Phone**	**State**	**Status**
6-27-2023	--	MASSACHUSETTS	Accepted
Reviewer	**Email**	**Zip Code**	
Nicholas Moreno, (617)699-4254, Nicholas.Moreno@mass.gov	aaakeley@comcast.net	02562	

Comment Title or Subject

Topic: Sound Abatement Measures Should be Installed

Comments

Segoe UI 10 pt Paragraph

I believe sound abatement measures should be planned along both sides of Route 3 that protects the residents from the increased noise, more traffic, and faster traffic that will obviously occur after this project is completed.

AA 01

Attachments

Update Status

Status

Accepted

SUBMIT

Share Comment

SHARE WITH A REGISTERED USER

BACK TO SEARCH RESULTS

Cape Cod Bridges Program and EEA# 16695 i

Susan Barlow <efgsue@gmail.com>

Fri 6/2/2023 9:24 AM

To:Moreno, Nicholas (EEA) <Nicholas.Moreno@mass.gov>

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Dear Mr. Moreno,

As a resident of Buzzards Bay, I'd like to comment that if we could get traffic out of Belmont Circle, it would greatly improve the economic development of Bourne's Main Street and downtown area. Bourne residents say they avoid our downtown due to tie-ups at the bridge, **but also major back ups around Belmont Circle** as people must pass through the circle to connect from Scenic Highway to the Bourne Bridge and Rte. 25 to off Cape destinations. SUB 01

Thank you for your assistance with this very important project.

Best,

Susan Barlow
125 Puritan Rd.
Buzzards Bay, MA 02532

Commonwealth of Massachusetts
Department of Fish and Game

FISHING AND BOATING ACCESS

1 Rabbit Hill Road, Westborough, MA 01581
Tel. (617)828-3532 **Fax. (508)389-7890**
Douglas H. Cameron, Director

June 12, 2023

Nicholas Moreno, MEPA Analyst
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, 9th Floor
Boston, MA 02114

Re: Cape Cod Bridges Program ENF
EEA No.: 16695

Dear Mr. Moreno

The Department of Fish and Game ("DFG") – Office of Fishing and Boating Access ("OFBA") is a state agency responsible for providing recreational public fishing and boating access to the waters of the commonwealth. The DFG – Division of Marine Fisheries ("DMF") provides the administration of the saltwater fishing programs funded by the sale of recreational saltwater fishing permits. The Cape Cod Canal is well known for its recreational fishing opportunities. Presently, there is only one location dedicated for fishing access. The fishing access is located within the Department of Conservation and Recreations Scusset Beach Reservation, located off Scusset Beach Road, Sagamore, MA. This facility consists of a handicapped accessible 300' long timber fishing pier, public restrooms, and parking. While there is only one dedicated place for fishing, the ACOE has done a good job enhancing many locations where anglers fish successfully, such as, the bulkheads in Sandwich, and the parking area at Gray Gables, where the vegetation was removed, and the area graded. The remainder of the fishing occurs along the steep rocky banks of the seven-mile-long canal.

The Cape Cod Bridges Program affords a great opportunity to promote the general public's use and enjoyment of the water's edge and expand existing recreation facilities and develop new public areas for recreational activities. This could be achieved by incorporating fishing pier structures extending seaward from the service road to the new bridge piers proposed to be located within the intertidal zone. An alternative would be to repurpose a portion of the existing bridge piers to support the new fishing structures. This would eliminate the need, cost and potential wetland/waterway resources impacts by eliminating the need to demolish and dispose of the in-water portion of the existing

OFBA 01

bridge piers. In either case, the inclusion of fishing piers as part of the bridge program would improve fishing access overall, it would greatly improve safe access for the very young and for those with physical disabilities that cannot safely navigate the steep banks and slippery rocks along the canal's shoreline.

In addition, the Division of Marine Fisheries has a program that develops underwater reefs to provide fish habitat, which also promotes and improves recreational fishing opportunities. Most recently, DMF obtained and deployed granite and concrete salvaged from demolition of portions of the South Coast Rail project. Demolition materials generated from the removal of the existing canal bridge foundations could be utilized for the DMF's underwater reef program's future projects. OFBA 02

The Department of Fish and Game, Office of Fishing and Boating Access, and Division of Marine Fisheries fully supports the inclusion of improved recreational public fishing access and the reuse of demolition materials for underwater reef project to the Cape Cod Bridges Program.

Sincerely,

Douglas H. Cameron
Director/Chief Engineer

Cc: Tom O'Shea, Commissioner, Department of Fish and Game
Daniel J. McKiernan, Director, Division of Marine Fisheries

Mr. Nicholas Moreno
Mass. DOT
Cape Bridges Program

June 21, 2023

Dear Mr. Moreno and Colleagues:

I first want to thank you for the informative Open House you staged on May 17 in Bourne. My Pocasset neighbors and I found it very informative, and an efficient way to interact with your agency and consultants.

By way of introduction, my name is Robert Dwyer. I am President of the Pocasset Village Association, a civic organization with a membership of over 150 Pocasset families. However, I should note that the comments below are my own, since I have not had the opportunity to present these to our Board for revision and ratification before your June 27 deadline.

My comments below go somewhat beyond the scope of your ENF for the project, but I think they should be considered at this stage in your planning.

General Objectives of Bridge Approaches

The general objectives of your design of bridge approaches should be:

- Allow the passage of Through Traffic (i.e., drivers who have no need or desire to stop in Bourne) to get to their final destinations with as few impediments as possible, and
- Allow Bridge-crossing drivers, or local residents, to access businesses and facilities without having to interact with Through Traffic.

I will focus on the proposed Bourne Bridge approaches:

Through Traffic generally are coming down Rt. 25 with the intention of using Rt. 28 (MacArthur Blvd.) to get south of the Otis Rotary and head on to Falmouth, Mashpee, etc. OR
the other segment of Through Traffic is headed for Rt. 6, either by Scenic Highway/US Rt. 6) or Sandwich Road.

RD 01

Bourne North Crossing: The Directional Interchange Alternative appears to be the best for segregating or separating Through Traffic heading for Rt. 6 from local traffic. I believe it is imperative to keep Through (Rt. 6-bound) Traffic from having to exit and use the Belmont (East) Rotary (or westbound Scenic Highway traffic from needing to enter, and then exit, that rotary to head north on Rt. 25).
I will not discuss the Bourne North Crossing further.

Bourne South Crossing: I would like to discuss, and generally endorse, the two alternatives presented at the Open House for the Bourne Bridge South approaches: the Diamond Interchange Alternative and the Single Point Interchange Alternative. I think generally, these concept designs are a useful starting point to improve the current poor traffic flow.

However, they do not alleviate a glaring deficiencies of the current interchange around the Bourne Bridge Rotary and south along MacArthur Boulevard/Mass. Rt. 28. They do not segregate Through Traffic from local traffic. RD 02

Separation of local traffic accessing MacArthur Blvd. Businesses from Through Traffic

Both alternatives propose separating the most northern section of the west side of MacArthur Blvd. (current southbound lanes) from proposed new Through Traffic southbound lanes, calling the new separated roadway the "Frontage Road", presumably for use by traffic needing to access the businesses on the west side of the boulevard.

However, this separation must be extended much further – all the way to the Otis Rotary. RD 03
The current northbound lanes would become the new southbound lanes, and new northbound lane should be constructed immediately to the east – on the strip west of the existing power line ROW. Almost all of this land is now State- or Town of Bourne-owned.

Local Bourne traffic needing to access the businesses should be fully segregated from Through Traffic, RD 04
and only allowed to enter/exit the Through Traffic lanes at the new Interchange (as shown at the north end of "Frontage Road" for your two alternatives, or at the Otis Rotary at the south end. All of the current dangerous and problematic U-turns through the current median should be eliminated. Through Traffic drivers coming south on Rt. 25 can be informed using your standard practice of using blue signs to exit after crossing the bridge onto the extended Frontage Road to access gas stations, restaurants, etc.

Note that this scheme was extensively studied and planned out about two decades ago, and was called something like the "Southside Connector" Plan. Mr. Barry Johnson, a member of your Advisory Group, was part of that planning process and can provide more information. I will copy Mr. Johnson on my transmittal email for this letter, so he can bring it up at your next Advisory Group meeting.

I realize that the required extension of the South Approaches further to the south is likely beyond the RD 05
current Project Area of DOT's design contractor, and would certainly be more expensive to construct than either of the two South Approach Alternatives. However, these changes at least must be included in the planning now, because traffic volumes will certainly increase over the 50+ year lifetime of the new bridge.

Providing access to ISWM and the Monument Beach Sportsmens Club - fully separated from Through Traffic

The current arrangement of access to these facilities is dangerous – traffic from the north must make a RD 06
median U-Turn, then immediately cross two lanes of northbound traffic. This can be eliminated by constructing a connection road from these facilities east of the relocated lanes of Rt. 28, with a separate, or perhaps combined, intersection with Sandwich Rd. This would move the current residential, and likely increasing truck traffic with demolition debris, household waste, and likely-contaminated incinerator bottom and fly ash completely out of Through Traffic lanes.

Need for providing unimpeded Through Traffic Access to Mid-Cape Highway (Rt. 6) after crossing the new Bourne Bridge

The design process for the South Approaches Interchange presents a once-in-a generation opportunity to at least plan for dedicated exit/entry connector ramps to facilitate traffic between Rt. 25 and the Mid-Cape Highway (Rt. 6) along the south side of the Canal. This roadway could be a single lane in each direction with limited or no access points between the bridges. It could run along the southeast border of the Upper Cape Tech campus, and the housing developments along Sandwich Road. This route could be routed adjacent to or under existing power line ROWs, or could be along the perimeter of the JBCC reservation, which is State-owned property. The east end of this connector would intersect the Mid-Cape Connector near Market Basket, facilitating easy entry to eastbound Rt. 6 (access of traffic returning westbound would require more extensive redesign of the new Sagamore South Approaches…). RD 07

The Residents of the developments along Sandwich Road, users of the Gallo Ice Arena, and bus drivers from Upper Cape Tech would welcome the resulting reduction of between-bridge traffic on Sandwich Road.

Again, I conclude by restating that your designs for the Boaurne Bridge South approaches represent good starting points for alleviating the horrendous local traffic conditions south of the current Bourne Bridge. However, the scope of your designs must be expanded to fully segregate Through Traffic from local traffic. If this is not done now, or planned for in the near future, your designs will not be able to efficiently and safely accommodate the expected future increases in traffic.

Thank you for your attention,

Robert L. Dwyer
25 Kenwood Road
Pocasset, MA 02559

Vanasse & Associates inc
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

Ref: 8712

June 22, 2023

Secretary of Energy and Environmental Affairs
Executive Office of Energy and Environmental Affairs (EEA)
100 Cambridge Street, Suite 900
Boston, MA 02114

Attn: MEPA Office
Nicholas Moreno, Analyst
EEA No. 16695

Re: EEA No. 16695
Cape Cod Bridges Program
Comments on the ENF
Market Basket Shopping Plaza
1 Factory Outlet Road, Bourne, MA

Dear Nicholas:

Vanasse & Associates, Inc., on behalf of our client DSM MB II LLC (DSM), is pleased to submit comments on the Environmental Notification Form (ENF) for the Cape Cod Bridges Program, dated April 2, 2023, EEA File No. 16695. DSM owns the Market Basket property on the southwest quadrant of the Sagamore Bridge improvement project. All three Sagamore Bridge Alternatives advanced in the ENF result in significant direct impacts to this property. DSM is continuing to coordinate with the MassDOT project team to better understand these impacts; however, we thought it would be helpful to identify, with this letter, a few of DSM's preliminary questions, issues, and concerns in response to the information presented in the ENF.

All three alternatives for the proposed interchange configuration will impact the road network used by thousands of daily Market Basket patrons to access the establishment. Design decisions in this early stage therefore are critical as the roadway modifications associated with the Cape Cod Bridges program would substantially impact the continued operation and development of the DSM property. We respectfully request that the following questions and considerations be directly addressed prior to advancing any of the three alternatives in the DEIR:

1. The proposed Route 6 re-alignment bisects the DSM property and will require the removal of a commercial retail building that houses several businesses; will impact the location of an additional commercial building that is already permitted and not yet constructed; will impact on-site utilities and existing septic system; and will require the removal of a large portion of the property's available parking. The precise limit of the roadway alignment impacts for each design alternative is not clear as the Route 6 alignment appears to be only schematically shown in the ENF. DSM requests additional alignment, profile, and cross section information for each alternative to further evaluate and respond to these impacts before an alternative is selected and the design is advanced. VAI 01

2. DSM requests that traffic analyses of the three Sagamore South Interchange Approach alternatives, with specific reference to the approaches, intersections and access points to the DSM property, be provided for our review before a single interchange alternative is advanced. VAI 02

3. Related to the above displacement issue, DSM is concerned about the ability to accommodate parking demands on its site, and needs to understand how any reduction in available parking impacts the highest and best use of the property, specifically including but not limited to the supermarket operation, especially during periods of peak usage. VAI 03

4. The existing interchange configuration currently requires vehicles travelling between Route 6 westbound and points west of Route 6 to travel additional distance along the Cranberry Highway and Sandwich Road. Sagamore South Approach Alternatives SS-1 and SS-3.1A would extend the Cranberry Highway to the Mid-Cape Connector, which appears to reduce this travel distance by over 1.5 miles. SS-1.1 does not extend the Cranberry Highway to the Mid-Cape Connector and may be a missed opportunity at reducing vehicle travel time and improving network operations. VAI 04

5. With respect to the proposed design alternatives that include a westerly extension of the Cranberry Highway to the Mid-Cape Connector: VAI 05

    - To properly evaluate and understand this option, and considering how integral the DSM property is to this project, we need to understand traffic and parking lot access impacts and lane usage, and identify other associated property impacts so that they may be mitigated to the greatest extent possible.

    - Related to the above issue, DSM needs to understand intersection operations and the pavement width at the proposed traffic signal at the Mid-Cape Connector. It appears that one alternative would send all interchange traffic through this intersection, and the impacts to access at the DSM property need to be quantified and better understood. For example, if the Cranberry Highway Extension has multiple lanes, long queues, or medians, patrons will have difficulty turning left in and out of DSM's property.

    - Based upon the projected location and width of the Cranberry Highway Extension at its intersection with the Mid-Cape Connector, DSM is concerned about the resulting impacts to the property's truck circulation and access to the loading dock area and parking lot along the north side of the Market Basket building.

6. DSM requests that MassDOT continue to explore opportunities to shift the replacement bridge and roadways as far to the east as is possible, to help minimize the detrimental impacts on DSM's property. VAI 06

7. DSM requests that MassDOT explore the ability to shift the proposed Route 6 eastbound off-ramp further to the south (whether by adjusting the on/off ramp radii or otherwise), to maximize the remaining land between the DSM property and the Altered State Highway Layout to the south. VAI 07

8. The project will have considerable construction impacts on the road network surrounding the DSM property for a lengthy, multi-year construction period. We request that provisions for adequate and uninterrupted site access and parking for DSM's employees, suppliers, and customers, to the greatest extent possible, be included in the project's construction management plan. VAI 08

We are interested in ensuring that the safety and functionality of the various roadways and intersections used by patrons of the DSM property contribute to, and do not impede, the continued success of this critical supermarket and retail establishment. We look forward to continuing our discussion with MassDOT and the MEPA team to assess potential project impacts.

We are readily available to discuss these topics at your request. Thank you for your consideration.

Sincerely,

VANASSE & ASSOCIATES, INC.

Stephen Boudreau

Stephen M. Boudreau, P.E.
Partner

SMB/jpc

Enclosures

cc: Bryan Cordeiro – MassDOT, Project Manager
Gareth Saunders – MassDOT Government and Public Affairs, Highway Liaison
Dave Anderson, P.E. – HNTB, Program Manager
Jill McLaughlin, P.E. – Stantec, Sagamore Bridge Design
Carmine Tomas, Esq. – LT Development LLC
Gary Crossen – DSM MB II LLC
File

Andrew Gottlieb
Executive Director

BOARD OF DIRECTORS

Eliza McClennen
President

Steven Koppel
Vice President

Bob Ciolek
Treasurer

Jack Looney
Clerk

Tom Cohn

John Cumbler

Margo Fenn

Joshua Goldberg

DeeDee Holt

Pat Hughes

Molly Karlson

Elysse Magnotto-Cleary

Blue Magruder

Wendy Northcross

Rick O'Connor

Kris Ramsay

Robert Summersgill

Charles Sumner

Taryn Wilson

June 26, 2023

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs
Attention: Nicholas Moreno, MEPA Analyst
MEPA Office
100 Cambridge St., Suite 900
Boston, MA 02114

RE: Cape Cod Bridges Program Environmental Notification Form, EEA #16695

Dear Secretary Tepper:

The Association to Preserve Cape Cod (APCC) has reviewed the Cape Cod Bridges Program Environmental Notification Form (ENF) and submits the following written comments.

Founded in 1968, APCC is the leading nonprofit environmental advocacy and education organization for Cape Cod, working for the adoption of laws, policies and programs that protect, preserve and restore the Cape's natural resources.

The Cape Cod Bridges Program proposes to replace the existing Bourne and Sagamore bridges, reconfigure highway approaches north and south of the Cape Cod Canal to align with the new bridges, and construct new accessible pedestrian and bicycle connections to the local roadway network associated with the two bridges. In conducting this important project, it is vital that the various project alternatives under consideration be carefully studied to identify and understand potential impacts to local and regional environmental resources and to ultimately refine the preferred alternatives to avoid any adverse impacts and, when avoidance is not possible, to minimize impacts to the greatest extent possible and provide appropriate mitigation.

<u>Impacts to Wetlands and Rare Species Habitat</u>

According to the ENF, there are multiple wetland and water resources within the greater project study area in addition to the Cape Cod Canal itself that should be considered in the project planning, including Nightingale Pond in the Bourne Program Study Area, located approximately 100 feet east of Route 25.

APCC 01

This part of the study area also includes several freshwater wetland areas located north of the canal within the Route 25 exit ramps and Belmont Circle that have the potential to be impacted by the project. For example, MassDOT has indicated that it is evaluating potential design changes to Belmont Circle that could result in impacts to

bordering vegetated wetlands. In addition, the 100-year floodplain extends beyond the banks of Cape Cod Canal west of the Bourne Bridge and extends north of the canal from Nightingale Pond to Bourne Pond, including portions of Route 6, Belmont Circle, and Main Street in Buzzards Bay. The 100-year floodplain also extends up to 750-feet south of Cape Cod Canal. All of these wetland resources are within the project study area.

Priority and estimated habitat for state-designated rare species is mapped within the Sagamore Program Study Area to the east and west of Route 6 south of the Cape Cod Canal, which includes portions of the Upper Cape Water Supply Reserve at Joint Base Cape Cod and the Shawme-Crowell State Forest. The Bourne Program Study Area includes mapped rare species habitat approximately 1,700 feet south of the Bourne Rotary to the east of Route 28. The state's Natural Heritage and Endangered Species Program (NHESP) has identified 13 rare species within the project study area and has indicated that the project has the potential to result in a take of one or more of the identified rare species. APCC 02

The ENF states that MassDOT identified highway interchange approach network alternatives that include three alternatives for Bourne North, two alternatives for Bourne South, two alternatives for Sagamore North, and three alternatives for Sagamore South. These alternatives will be further evaluated to identify the preferred alternatives for each replacement bridge crossing and will be presented in the Draft Environmental Impact Report (DEIR). APCC recommends that the identification of the preferred alternatives in the DEIR be accompanied by a more comprehensive analysis than what was provided in the ENF regarding how these alternatives will affect the wetlands, wetland buffers, and rare species habitats described above. The analysis should include a detailed discussion of how the alternatives will be designed to avoid impacts to environmental resources and how any unavoidable impacts will be minimized and mitigated. APCC 03

APCC also recommends that the DEIR provide more detailed analysis of potential impacts to Article 97 lands from project alternatives considered for the Sagamore south crossing interchanges, including Article 97 land associated with the Upper Cape Water Supply Reserve, Shawme-Crowell State Forest and DCR-owned land. Refinements to the alternatives should be considered that would avoid impacts to these Article 97 lands, which, according the ENF, would also result in a take of state-listed species. APCC 04

<u>Stormwater Management</u>

According to the ENF, the project will include stormwater management that conforms to MassDEP's Stormwater Management Standards to improve upon existing conditions. Improvements will include drainage systems to the new bridges and roadways, retrofitting the existing closed drainage system with new deep sump catch basins, and incorporating green infrastructure, low impact development and best management practices. APCC strongly encourages the use of green infrastructure to meet stormwater management requirements and recommends that the DEIR provide more detailed information about the stormwater management plan for the project. APCC 05

The ENF states that the proposed Route 25 ramp connection on the Bourne Bridge crossing would be within five feet of Nightingale Pond, and proposed routing of the shared use path over wetlands could

create indirect shading impacts to approximately 2,000 sf of wetlands. APCC recommends that the DEIR provide more specific information about how the proposed Route 25 northbound onramp connection will impact Nightingale Pond and its wetland buffer and how the shared use path may affect wetlands, particularly with regard to stormwater runoff. APCC is concerned about the potential for stormwater runoff impacts from the very close proximity of the project elements to these wetland resource areas. APCC 06

Traffic Congestion

MassDOT's planned improvements to the roadway interchange systems connecting to the new bridges is intended to "address future traffic volumes, accommodate multi-modal connections, and construct facilities in compliance with roadway geometric and structural standards." APCC recommends that the DEIR include an analysis of the proposed interchange system preferred alternatives that examines the potential influence these improvements may have on unintended and undesirable secondary development within the region that would ultimately add to, instead of alleviate, traffic congestion. APCC 07

The ENF points out that induced travel demand in the region could occur from new trips prompted by improvements to existing travel patterns, such as less congestion or higher design speeds. In response to this possibility, MassDOT assessed the potential for latent visitor demand trips within the context of typical seasonal vacation trips. MassDOT concluded that, "in general, seasonal trips to Cape Cod are long distance in nature, where visitors travel from mainland Massachusetts, New England, and beyond, and involve stays of multiple days" and the project would therefore not encourage additional visitor vehicle trips. However, not all visitors come to the Cape for an extended vacation stay. APCC questions whether MassDOT took into account the potential for the bridge project to encourage an increase in weekend day trips to the Cape from Boston and other short distance locations during the summer months that would result in larger numbers of vehicles crossing the bridges. APCC recommends that MassDOT consider this potential scenario and address it in the DEIR. APCC 08

Multi-Modal Connections and Other Transportation Alternatives

APCC recommends the DEIR provide a discussion of the proposed multi-modal connections that includes an assessment of the number of automobile trips that are anticipated to be replaced by use of the multi-modal pathways. APCC also encourages the project to explore the adoption of programs that actively promote use of multi-modal alternatives that would help reduce traffic congestion on the bridges and surrounding roadways, which in turn would provide the additional benefit of helping to reduce automobile-generated carbon emissions. Providing viable options that reduce carbon emissions through the use of alternative modes of transportation should be an important component of the bridge replacements and interchange improvements. This project provides the ideal opportunity to rethink canal region transportation with the goal of incorporating meaningful climate change mitigation features. APCC 09

It would also be beneficial for the DEIR to include discussion of possible types of investments in electrification of the Cape's transportation system that the Commonwealth can make to offset any potential increases in future traffic coming to Cape Cod, including, but not limited to, additional EV charging stations and investments that support electrification of Cape Cod Regional Transit Authority vehicles. Such investments would not be limited to the immediate canal bridges corridor. APCC 10

The ENF describes the multi-modal path routing for the Bourne Bridge north crossing as likely being "fairly circuitous to provide the length necessary to allow the path to descend from the bridge structure elevation to the elevation of the path termini." APCC recommends that the DEIR should describe the infrastructure anticipated for the preferred path alternative that would be necessary to achieve the desired elevation. Will it require elevated ramps and overpasses? If so, how will this alter existing regional visual character? It also appears from conceptual plans in the ENF that the proposed multi-modal path's location on the west side of Route 25 is within a DEP-mapped wetland area. The DEIR should further specify the proposed location of the path and its relationship to the wetland area. If the path does impact the wetland or wetland buffer, the DEIR should explain how this impact could be avoided, or if impossible, how it will be appropriately mitigated.

APCC 11

Project Visualizations

APCC recommends that the DEIR provide ground level visualizations of ramps, bridges, overpasses, etc. for the identified preferred alternatives from various key locations in order to gauge the visual impact of proposed changes to the bridge interchanges.

APCC 12

APCC appreciates the opportunity to provide comments on the Cape Cod Bridges Program ENF and looks forward to reviewing more detailed information about the project in the DEIR when it is released.

Sincerely,



Andrew Gottlieb
Executive Director

The Commonwealth of Massachusetts
Division of Marine Fisheries

(617) 626-1520 | www.mass.gov/marinefisheries

MAURA T. HEALEY, Governor | KIMBERLEY DRISCOLL, Lt. Governor | REBECCA L. TEPPER, Secretary | THOMAS K. O'SHEA, Commissioner | DANIEL J. MCKIERNAN, Director

June 26, 2023

Secretary Rebecca Tepper
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Nicholas Moreno, EEA No. 16695
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Tepper:

The Division of Marine Fisheries (MA DMF) has reviewed the Environmental Notification Form (ENF) by MassDOT for the Cape Cod Bridges Program on the Cape Cod Canal in the Town of Bourne. The proposed project is a joint initiative of MassDOT and the U.S. Army Corps of Engineers and includes the Bourne and Sagamore Bridges and associated highway approach networks. The Program includes the replacement of the Bourne and Sagamore Highway Bridges, reconfiguration of the highway approach networks north and south of the Cape Cod Canal, and construction of new pedestrian and bicycle connections to the local roadway network. The proposed replacement bridges would be parallel, twin network tied-arch bridge structures supported on Delta frame with an approximate 700 foot mainline span length. The Out-of-Water Option is identified in the ENF as the Preferred Alternative, which would relocate the support piers from the waterway to the rip rap slope of the Cape Cod Canal above the low tide line. The in-water piers associated with the existing bridges would be removed as part of the Program. The proposed Out-of-Water Option identified as the Preferred Alternative in the ENF would result in a reduced area of impact to subtidal waters within the Canal relative to the existing bridge structures. Existing marine fisheries resources and habitat are outlined in the following paragraphs following by recommendations for information to include in the Draft Environmental Impact Report (DEIR).

The Cape Cod Canal includes habitat for a variety of benthic invertebrate species. The shorelines of the Canal are mapped shellfish habitat for blue mussel (*Mytilus edulis*) and support both benthic and larval life history phases of lobster (*Homarus americanus*).

The Cape Cod Canal provides passage habitat for several diadromous species, including alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), American eel (*Anguilla rostrata*), and white perch (*Morone americana*) [1]. It also supports migrating and seasonally resident striped bass (*Morone saxatilis*) and has been designated as Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act for 27 species. The Canal supports active commercial and recreational fishing using hook and line from the shoreline, as well as recreational lobster fishing.

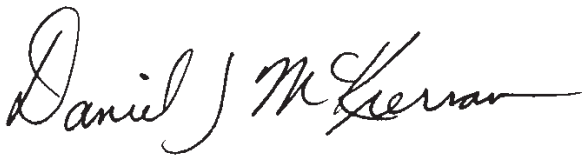
The Canal is also utilized by federally threatened or endangered species transiting between Cape Cod Bay and southern New England. These include Atlantic sturgeon (*Acipenser oxyrhynchus oxyrhynchus*), shortnose sturgeon (*Acipenser brevirostrum*), humpback whale (*Magaptera novaeangliae*), North Atlantic Right Whale (*Eubalaena glacialis*), fin whale (*Balaenoptera physalus*), loggerhead turtle (*Caretta caretta*), Kemp's ridley turtle (*Lepidochelys kempii*), leatherback turtle (*Dermochelys coriacea*), and green turtle (*Chelonia mydas*).

MA DMF offers the following comments for your consideration:

- The DEIR should describe proposed timing and duration of in-water work as well as methodologies. Time-of-year (TOY) restrictions [2] may be warranted to protect migratory species using the Cape Cod Canal depending on the details of the in-water work plan. DMF 01
- The DEIR should further describe Best Management Practices to avoid and minimize potential noise and turbidity impacts to existing marine resources associated with removal of old piers and installation of new piers in the Canal. DMF 02
- MA DMF supports recommendations of the MA Office of Fishing and Boating Access to utilize the old bridge abutments to enhance recreational fishing access. DMF 03

Questions regarding this review may be directed to John Logan in our New Bedford office at john.logan@mass.gov.

Sincerely,



Daniel J. McKiernan

Director

cc: Bourne Conservation Commission
Mark Kolonoski, HNTB
Sabrina Pereira, NMFS
Robert Boeri, CZM
Rachel Croy, Ed Reiner, EPA
David Wong, DEP
Doug Cameron, MA OFBA
Amanda Davis, Emma Gallagher, Kaley Towns, Simone Wright, Matt Camisa, Ben Gahagan, Mark Rousseau, DMF

References

1. MA DMF. MassGIS Data: Diadromous Fish. https://www.mass.gov/info-details/massgis-data-diadromous-fish. Accessed February 8, 2023. 2023.

2. Evans NT, Ford KH, Chase BC, Sheppard J. Recommended Time of Year Restrictions (TOYs) for Coastal Alteration Projects to Protect Marine Fisheries Resources in Massachusetts. Massachusetts Division of Marine Fisheries Technical Report, TR-47. https://www.mass.gov/doc/time-of-year-recommendations-tr-47/download. Accessed September 29, 2021. 2011.

DM/JL/eg

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

June 26, 2023

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs
Attention: MEPA Office
Analyst Moreno, EEA No. 16695
100 Cambridge St.
Boston, Massachusetts 02114

Project Name:	*Cape Cod Bridges Program*
Proponent:	*Massachusetts Department of Transportation*
Location:	*Bourne & Sagamore Bridges & Highway Approach Networks*
Project Description:	*Transportation Infrastructure Improvements*
Document Reviewed:	Environmental Notification Form
EEA File Number:	*16695*
NHESP Tracking No.:	*23-1184*

Dear Secretary Tepper:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") has reviewed the Environmental Notification Form (the "ENF") for the Cape Cod Bridges Program (the "Project") and would like to offer the following comments regarding state-listed species and their habitats.

According to the Massachusetts Natural Heritage Atlas (15th Edition), portions of the Project site are mapped as *Priority* and *Estimated Habitat* for various state-listed species pursuant to the Massachusetts Endangered Species Act (M.G.L. c. 131A) and its implementing regulations (MESA; 321 CMR 10.00) and will require additional review by the Division. All projects or activities proposed within Priority Habitat, which are not otherwise exempt pursuant to 321 CMR 10.14, require prior review through a direct filing with the Division for compliance with the MESA (321 CMR 10.18). All projects or activities proposed within Estimated Habitat that require review under the Massachusetts Wetlands Protection Act Regulations (WPA; 310 CMR 10.00) also require prior review through a direct filing with the Division for compliance with the rare species provisions of the WPA (310 CMR 10.37, 10.58(4)(b), 10.59).

The MESA is administered by the Division and prohibits the Take of state-listed species, which is defined as "in reference to animals…harm…kill…disrupt the nesting, breeding, feeding or migratory activity…and in reference to plants…collect, pick, kill, transplant, cut or process…Disruption of nesting, breeding, feeding, or migratory activity may result from, but is not limited to, the modification, degradation, or destruction of Habitat" of state-listed species (321 CMR 10.02).

Although the information provided in the ENF isn't sufficient to enable the Division to provide concrete guidance at this time regarding next steps in the MESA review process, the Proponent has engaged in

collaborative pre-filing consultations with the Division and is aware that further consultation, review and permitting pursuant to MESA will be required. The Division requests that the proponent quantify all impacts to Priority Habitat associated with the preferred alternatives in the Environmental Impact Report (EIR) to facilitate further review under MESA. The Division recommends that the Proponent continue to consult with the Division to ensure that it evaluates the full extent of potential impacts to state-listed species and their habitats, and to ensure it assesses all measures to avoid, minimize and or mitigate any impacts. We look forward to continuing pre-filing discussions with the Proponent as it proceeds through the MESA review and permitting process. NHESP 01

The Division will not render a final decision until the MEPA review process and its associated public and agency comment period is complete, and until all required materials have been submitted to the Division.

If you have any questions about this letter, please contact Tim McGuire, Endangered Species Review Biologist, at (508) 389-6366 or timothy.mcguire2@mass.gov. We appreciate the opportunity to comment on this Project.

Sincerely,

Everose Schlüter, Ph.D.
Assistant Director

cc: Town of Bourne
Town of Bourne Conservation Commission
DEP Southeast Regional Office, Wetlands and Waterways
Massachusetts Department of Transportation, Highway Division

Mass.gov | Executive Office of Energy & Environmental Affairs (EEA)
An official application of the Commonwealth of Massachusetts

Energy & Environmental Affairs (https://www.mass.gov/orgs/executive-office-of-energy-and-environmental-affairs)
Public Comments Portal

Nicholas.Moreno@mass.gov

Dashboard(javascript:void(0);) › View Comment(javascript:void(0);)

View Comment

Comment Details

EEA #/MEPA ID	First Name	Address Line 1	Organization
16695	Stephen	--	--
Comments Submit Date	**Last Name**	**Address Line 2**	**Affiliation Description**
6-27-2023	Buckley	--	--
Certificate Action Date	**Phone**	**State**	**Status**
6-27-2023	--	--	Accepted
Reviewer	**Email**	**Zip Code**	
Nicholas Moreno, (617)699-4254, Nicholas.Moreno@mass.gov	sbuckley714@gmail.com	--	

Comment Title or Subject

Topic: EEA # 16695: Cape Cod Bridges Program; My Comment on ENF for

Comments

Hello,

I grew up in Chatham and so, during my job as an Environmental Engineer in the federal government writing Environmental Impact Statements, I often thought about what the effect on the Cape Cod region would be if the historic traffic congestion at the Cape Cod Canal during the peak summer months .. was suddenly cleared up with new (and wider) bridges.

Apparently, the answer is "not much", according to MassDOT in its "Environmental Notification Form" (ENF) issued for public comment on May 10, 2023.

According to the ENF's discussion on "Induced Visitor Travel Demand" (Attachment 1, page 104, Section 6.4), MassDOT does admit that "Cape Cod's popularity as a vacation destination creates a strong demand for vehicle access across the Sagamore and Bourne Bridges during summer weekends."

However, MassDOT goes on to say that such trips to Cape Cod are .. "in general" .. "long-distance in nature" .. involving "stays of multiple days" .. and so, a few hours stuck in traffic is a relatively insignificant factor in deciding to travel by car for a week's vacation on Cape Cod.

What MassDOT fails to consider is the other segment of travelers to Cape Cod during that same time, i.e., the people who are "day-trippers" or the "week-enders" who are staying for only a night. For those people, a few hours stuck in traffic (or not) at the #CanalBridges is a much more significant factor in deciding whether to make the trip or not. For Cape Codders, along with the people who are invited to visit them, the threat of "being caught at the Bridges" (in either direction) is common knowledge. STB 01

So, of course, if that threat of being caught in traffic congestion is eliminated, then all those people who are currently deterred from traveling to and from Cape Cod (including additional daily commuters) will be much more inclined to change their driving plans to take advantage of the fact that the "new bridges" will be able to handle much more traffic, perhaps around 50% or more during peak periods.

The potential for 50% more people coming over the bridges to Cape Cod during its peak season would not be an insignificant effect on the human environment and the entire infrastructure (e.g., waste-water treatment plants) of the Cape Cod region. As such, the Environmental Impact Report (EIR) should be more curious and thoughtful (than the ENF) in foreseeing what the long-term, regional impact of new bridges will be. STB 02

I have been attending meetings about the "new bridges" since 2014, attempting to raise the regional aspect instead of just the travel routes along the Canal. Anyone interested in sharing their similar concern is invited to contact me at the number below.

sincerely,

Stephen Buckley

Chatham, Mass.

508-348-9090

Attachments

Update Status

Status

Accepted

SUBMIT

Share Comment

SHARE WITH A REGISTERED USER

BACK TO SEARCH RESULTS

3225 MAIN STREET • P.O. BOX 226
BARNSTABLE, MASSACHUSETTS 02630

(508) 362-3828 • Fax (508) 362-3136 • www.capecodcommission.org

CAPE COD
COMMISSION

Via Email

June 27, 2023

Rebecca Tepper, Secretary of Energy and Environmental Affairs
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office, Nicholas Moreno, MEPA Analyst
100 Cambridge Street, Suite 900, Boston, MA 02114

Re: Environmental Notification Form
EEA No. 16695 (Cape Cod Commission File No. 23011)
Cape Cod Bridges Program, Bourne

Dear Secretary Tepper:

Thank you for the opportunity to provide comments on the above-referenced Environmental Notification Form ("ENF"). As safe and reliable transportation connections over the Cape Cod Canal are vital to the long-term vitality of the Cape Cod region and its people, the Project will set the course for the future of the Canal area and the entire region. Understanding that the Cape Cod Commission does not have any direct regulatory jurisdiction over the Project, Commission staff look forward to collaborating with the Applicant to address issues of regional significance as the permitting and review process advances.

Commission staff offer the following comments on the ENF:

Transportation

- A number of regional plans, including the Cape Cod Regional Policy Plan, Cape Cod Regional Transportation Plan, and Cape Cod Comprehensive Economic Development Strategy, identify that safe and reliable transportation connections over the Cape Cod Canal are vital to the long-term vitality of the Cape Cod region and its people. As detailed in these plans and heard through public discourse on the topic, traffic delays and poor travel time reliability impact residents, businesses, and visitors through lost time, missed appointments, aggravation, and pollution from auto emissions, and lead to a public perception that Cape Cod should be avoided because of traffic problems. These impacts and perceptions result in businesses and visitors choosing not to locate or travel here. It is undeniable that the bridges play a significant role in Cape Cod's economy.
- As stated in the ENF, "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 Program will improve traffic operations and multimodal accommodations to facilitate the dependable and efficient movement of people, goods, and services across Cape Cod Canal." The focus on improving both mobility and accessibility is essential to delivering a Project that will meet both regional and local transportation needs of the region. While the age and the condition of the bridges is clearly the driver of the Project, Commission staff appreciates the identification of the many functions that bridges provide in defining the program purpose.

- The program need appropriately identifies the substandard design as it relates to motorist safety. It is clear from the ENF that, through designs being brought up to modern standard, motor vehicle safety will be improved on the bridges and on the connecting roadways. Additionally, the program need appropriately identifies the substandard design as it relates to non-motorist safety. It is clear from the ENF that accommodations on the new bridges will greatly improve non-motorist safety. The DEIR should provide more details on proposed pedestrian and path connections to the adjacent roadway and path networks. While state and federal standards, including the MassDOT Healthy Transportation Directive, will ensure new facilities will be built to modern standards, it will require careful planning to ensure that connections maximize safety, convenience, comfort, and usability. CCC 01
- While the Project is focused on improvements to infrastructure within the study area, it would be beneficial in the DEIR to identify any mitigation actions anticipated to support and enhance public transportation options within and beyond the study area. These mitigation actions ideally would be implemented during construction with the opportunity to become a permanent solution. For example, investment in infrastructure and operations of bus and rail service that would allow for increased frequency could help reduce traffic on the bridges. Traditional barriers, such as the schedule of the Canal Rail Bridge and infrastructure deficiencies identified in the Cape Rail Study, could be addressed to allow for increased rail service to and from Cape Cod. Additionally, investing in bicycle and pedestrian infrastructure within the Upper Cape region could provide for connected modes of transportation to reduce automobile dependence. For example, making meaningful progress on efforts to connect the regional trail network, like building out the Bourne Rail Trail, could improve the options available to travelers in the Canal area. Finally, other measures outside of the study area that may be helpful in reducing vehicle trips, like improvements to or addition of new Park and Ride facilities, should be identified. CCC 02
- As detailed in the ENF, ten interchange approach alternatives will be advanced for Phase 2 screening. The DEIR should present detailed analysis of these alternatives to allow for comparisons between alternatives. With respect to the Bourne South Program Study Area, it would be helpful to have more detail on concepts that were considered but dismissed through Phase 1 screening. Where Option BS2.2 identifies that "the single point interchange would reach near capacity in the future build condition" it would be helpful to understand if a similar option was considered with a multi-level ramp system that could provide a free flow movement from Route 28 southbound to Sandwich Road eastbound, one of the heaviest volume movements. CCC 03
- Commission staff were encouraged to see that "The Program would deploy Smart Work Zones and real-time traffic management devices to manage traffic and increase safety for construction workers and the traveling public. Sensors, cameras, and changeable message signs would be deployed to provide real-time information to motorists such as travel times, speed warnings, dynamic merge feedback, queue warnings, and truck warnings." Additionally, the DEIR and future documents should provide more detail on additional actions that will be taken to manage the traffic impacts of construction activities. For a project of this scale, we would expect the development of a Traffic Management Plan that considers all modes with involvement of all stakeholders and all agency partners from the outset, development and implementation of specific incident management CCC 04

protocols, a dedicated and proactive informational campaign with updates on construction progress and specific guidance on times to travel and modal options, and utilization of innovative contracting mechanisms to incentive desirable outcomes (ex. maximize safety, minizine delay).

Land Alterations

- The Project includes the alteration of up to 168 new acres of land. Clearing of natural forested land is generally discouraged to protect the region's most sensitive resources. An understanding of the existing conditions of any land proposed to be altered would be helpful in assessing impacts to regional resources. The DEIR should provide detail on existing vegetation and any plans to mitigate loss of forested area. The DEIR should also consider and minimize cumulative effects to natural resources of any other non-bridge but associated MassDOT projects (e.g., bike paths, parking, other mitigation projects). CCC 05
- The Project includes the cutting of public shade trees and the ENF includes a table estimating numbers of trees to be removed. Shade tree removal should be avoided to the extent possible. The DEIR should include any updates on shade trees to be removed and plans to replace these within the Town. CCC 06
- While work within protected open space is discouraged, the DEIR should provide documentation of meetings/conversations with open space managers on any plans to use or convert protected open space. CCC 07

Wildlife

- According to the ENF, pending further design and evaluation of the highway interchange approach alternatives, the Program could meet or exceed review thresholds related to rare species or habitat, which will be reported in the DEIR. The ENF identifies that MassDOT will also continue to coordinate with MassWildlife, USFWS, and NMFS through design to confirm the presence of protected species, critical habitat, and EFH in the Program Study Areas. Commission staff suggest that the Applicant consider significant wildlife on and around the bridges and the Canal and any actions that may be needed to avoid, minimize, or mitigate impacts. CCC 08

Wetlands

- According to the ENF, wetland resource areas have been delineated and a field survey to evaluate potential vernal pool habitat was conducted. MassDOT will refine permanent and temporary impacts to protected wetland resource areas, including the potential to impact Nightingale Pond, as design advances. A detailed analysis of impacts to jurisdictional resource areas, discussion of measures to avoid or minimize impacts, and identification of mitigation measures will be provided in the DEIR. CCC 09
- Details of the improvement dredging mentioned in the ENF should be provided in the DEIR. CCC 10

Climate change/sea level rise/flooding

- To account for future sea level rise and maintain the existing 135-foot vertical clearance, MassDOT proposes to increase the elevation of the bridges by approximately three feet above MHW, for a proposed clearance of 138 feet above MHW. It is not clear that is sufficient for the 100-year design life of the project. Commission staff suggest adding more detail on the Project specific, locally based, hydraulic and stormwater models being developed to inform bridge design and associated project related infrastructure in the DEIR. If, alternatively, the decision is being made that it would be CCC 11

acceptable to have a reduced vertical clearance in the event that future sea level rise exceeds the three feet within the life of the structure, this decision should be identified in the DEIR.

Water Resources

- According to the ENF, the DEIR will include stormwater management updates. Green infrastructure and low impact development (LID) items, including best management practices (BMPs) will be used in the design where space permits to provide water quality treatment measures. In the DEIR, the Applicant should provide more details on proposed LID and BMP elements. CCC 12
- Commission staff are pleased that the project, as proposed, will not permanently impact the Upper Cape Water Supply Reserve or other water supply lands. Some work elements for the Bourne North approach overlap with Bourne Water District Wellhead Protection Areas, and potential impacts to this area should also be assessed. While temporary impacts may be reduced through construction phase erosion and sediment control plan and management, additional details on the identified temporary impacts, and the measures planned to minimize those impacts, to the Upper Cape Water Supply Reserve and other water supply areas should be provided in the DEIR. CCC 13
- Based on the options for the Bourne North approach, Nightingale Pond may be impacted from the Project. Additional details are needed to provide an understanding of the impacts to Nightingale Pond and its surrounding conservation area, including the area's relation to potential roadways and bridges. As approach designs are refined, roadway footprint, elevations, and location of any support structures relative to Nightingale Pond, and possible mitigation strategies, should be provided. CCC 14

Historic Resources

- The existing Bourne and Sagamore Bridges have been determined individually eligible for listing on the National Register of Historic Places. The Cape Cod Canal Historic District, an area encompassing numerous historic resources adjacent to the Cape Cod Canal, is determined eligible for listing on the National Register of Historic Places as a district. Because these resources are eligible for the National Register, they are afforded the same protections as National Register-listed resources under the National Historic Preservation Act (NHPA). They are significant historic resources requiring consideration during the planning and design of this project. In addition, there are other cultural resources in the project area that have been inventoried in the State's cultural resource database (MACRIS), as well as some nearby historic neighborhoods that have been found eligible for listing on the National Register of Historic Places.
- The NHPA Section 106 Programmatic Agreement (PA) signed in March 2022 with MHC and MBUAR identifies ways to mitigate the effects of demolishing and replacing the historic bridges. It also acknowledges that construction of the new bridges and of the new roadway approaches to the bridges could impact both historic and archaeological resources in the area. To ensure cultural resources that may be impacted are identified and assessed for significance, study areas are defined that encompass all possible road construction alternatives. Once all resources within the study area have been identified and evaluated, a revised PA would be developed with stipulations to address any adverse impacts to cultural resources. To specifically address archaeological resource concerns, MassDOT will conduct archaeological assessments within the study areas (under a permit from MHC).
- The preferred alternative for each element of the Project should be chosen with a goal of having little or no disturbance of significant archaeological resources, and limited adverse impacts to significant historic resources in the Project area. CCC 15

Thank you for the opportunity to provide comments on the Project. Please reach out with any questions.

Sincerely,

Kristy Senatori

Kristy Senatori
Executive Director

Cc: Project File
Mark Kolonoski, HNTB, via email
Marlene McCollem, Bourne Town Administrator, via email
Jennifer Copeland, Bourne Town Planner, via email
Stephen Mealy, Bourne Cape Cod Commission Representative, via email
Cape Cod Commission Chair, via email
Cape Cod Commission Committee on Planning and Regulation Chair, via email
Cape Cod Metropolitan Planning Organization Chair, via email
Cape Cod Metropolitan Planning Organization Subregion A Representative, via email

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 Cambridge Street, Suite 900, Boston, MA 02114 ◦ (617) 626-1200

MEMORANDUM

TO:	Rebecca L. Tepper, Secretary, EEA
ATTN:	Nicholas Moreno, MEPA Office
FROM:	Lisa Berry Engler, Director, CZM
DATE:	June 27, 2023
RE:	EEA-16695, Cape Cod Canal Bridges Program, Bourne

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Environmental Notification Form (ENF), noticed in the *Environmental Monitor* dated May 10, 2023, and offers the following comments.

Project Description

The project proposes the replacement of the Bourne and Sagamore highway bridges and reconfiguration of the highway approach networks north and south of the Cape Cod Canal to align with the replacement highway bridges. The replacement bridges will be parallel, twin network tied-arch bridge structures supported on Delta frames with an approximate 700-foot mainline span length. The replacement bridges and their interchange approaches will accommodate shared-use pedestrian and bicycle paths that connect to the local roadway network on both sides of Cape Cod Canal in the town of Bourne. The project site encompasses the Bourne Program Study Area and the Sagamore Program Study Area, which include the areas of the existing Bourne and Sagamore bridges and highway approach intersections for each crossing.

The Bourne Program Study Area includes Route 25 and Route 28 approaches to the Bourne Bridge. North of the Cape Cod Canal, roadways within the Bourne Program Study Area include Route 6 (Scenic Highway) and the roadways approaching Belmont Circle, including the Route 25 exit and entrance ramps and portions of the Head of the Bay Road, Main Street, and the Buzzards Bay Bypass. South of the Cape Cod Canal, roadways within the Bourne Program Study Area include the Bourne Rotary and approach roadways, consisting of Route 28, Sandwich Road, Trowbridge Road, Veterans Way, and the Bourne Rotary Connector.

The Sagamore Program Study Area includes Route 3 and Route 6 approaches to the Sagamore Bridge. North of the Cape Cod Canal, roadways within the Sagamore Program Study Area include the Scenic Highway and Meetinghouse Lane approaches, the Route 3/Scenic Highway interchange, and portions of Canal Street and State Road. South of the Cape Cod Canal, roadways within the Program Study Area include Cranberry Highway, Sandwich Road, and Route 6, extending south of the Mid-Cape Connector ramps to Route 6.

The project will result in the new alteration of 168 acres of land, the creation of 29.1 acres of impervious surface, and the demolition of two structures listed on the Inventory of Historic and Archaeological Assets of the Commonwealth. The project may also result in impacts to wetland resource areas, Estimated and/or Priority Habitats of Rare Species, and Article 97 land.

Project Comments

The proposed project represents a large-scale structure project to replace two of Cape Cod's most important pieces of infrastructure, the canal bridges. The size and scope of the project necessitated a detailed planning process that considers many critical aspects of the project, including public safety, highway traffic, and safety design standards, public and private property ownership, Cape Cod Canal marine operations requirements, impacts to wetland and other environmental resources, project costs, and community engagement. The information presented in the ENF represents a conceptual design and roadway layout that will be further refined in detail and design as the planning and design process progresses.

As a participating agency in the Cooperative Agencies Review Team, direct input will be provided relative to our Coastal Program Policies which include coastal hazards, energy, growth management, habitat, ocean resources, ports & harbors, protected areas, public access, and water quality. The DEIR should address the following:

The design life of the bridges is estimated to be 100 years. The ENF states that multiple sources of climate change data were considered to determine the sea level rise scenario that will be used in the design. Future sea level rise is important for the design elevation of the bridge to allow clearance for navigation as well as the future floodplain and the resiliency of the approach roads to the bridges. Multiple factors need to be balanced to determine how much sea level rise will be incorporated into the elevation of the bridges for navigation. MassDOT is proposing to increase the vertical clearance of the bridges by 3.18 feet. The downscaled sea level rise projections available on the EEA Climate Clearinghouse website for the Woods Hole Tide gauge indicate that 7.7 to 10.3 feet of sea level rise are projected to occur by 2100. A more detailed analysis explaining how the appropriate sea level rise factors for the elevation of the bridges as well as for the elevations of the approach roadways should be provided in the DEIR. CZM 01

Portions of the approach roads and ramps to the area of the bridges located in AE flood zones, as delineated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps. As such, floodwaters will move across the project sites during coastal storm events. Fill, retaining walls, new impervious surfaces, and curbing can change the way floodwaters move over the project sites. These changes will be exacerbated over time by changes to the flooding frequency and depth caused by sea level rise and increasing coastal storm frequency and intensity. Understanding how the proposed design may modify the flow velocity, direction, depth, and extent of flooding on the site because of these pathway changes can be used to inform design changes that could ensure that project components will not exacerbate impacts associated with coastal storm events.

The project should not increase the velocity of flood waters and/or change flow directions on the subject site in a way that may impact the site, adjacent properties, or public or private ways. The DEIR should include additional information on how the alternative approaches have been designed to avoid increasing the impacts described above by conducting and providing a pre- and post-construction flow path analysis. The analysis should include: CZM 02

- A plan showing existing conditions that include:
  - Current topography
  - Surface conditions (paved, vegetated, lawn, etc.)
  - Any buildings, walls, berms, etc. that may affect flow pathways or velocity of flow (floodplain functions)

    - The pathways that coastal flood waters would be expected to travel onto and off the site based on the topography and current site conditions
- A plan showing proposed conditions that include:
    - Topography resulting from proposed design changes, grading, and fill
    - Proposed surface conditions
    - Any buildings, walls, berms, etc. that may affect flow pathways or velocity of flow (floodplain functions)
    - The pathways that coastal flood waters would be expected to travel onto and off the site based on the proposed topography and site conditions
    - Flow velocity changes resulting from each project alternative
- A narrative comparing the existing to the proposed conditions and expected pathways, noting any potential increases or changes in velocity, reflection, or channelization of floodwaters within the site or onto adjacent parcels. CZM 03
- A narrative describing how the proposed design of the site avoids, minimizes, or if necessary, mitigates these potential impacts. CZM 04
- The analysis should look at potential impacts for the present using FEMA flood zones and base flood elevations as well as expected conditions over the design life of the project, including the best available data regarding sea level rise for the life of the project. CZM 05

More information regarding the functions of Land Subject to Coastal Storm Flowage (LSCSF) is detailed in Applying the Massachusetts Coastal Wetlands Regulations: A Practical Manual for Conservation Commissions to Protect the Storm Damage Prevention and Flood Control Functions of Coastal Resource Areas (aka the Coastal Manual). The functions of LSCSF are specifically addressed on pages 2-37 – 2.42.

Federal Consistency Review

The proposed project will be subject to CZM federal consistency review and therefore must be found to be consistent with CZM's enforceable program policies. For further information on this process, please contact Robert Boeri, Project Review Coordinator, at robert.boeri@mass.gov, or visit the CZM website at www.mass.gov/federal-consistency-review-program.

LBE/sm/rh

cc:
Mark Kolonoski, MassDOT
Nate Corcoran, MassDEP
Brendan Mullaney, MassDEP
Rebecca Haney, CZM
Stephen McKenna, CZM

dcr
Massachusetts

June 27, 2023

Secretary Rebecca L. Tepper
Executive Office of Energy and Environmental Affairs
MEPA Office, Attn: Nicholas Moreno
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: EEA #16695 Cape Cod Bridges Program ENF

Dear Secretary Tepper:

The Department of Conservation and Recreation ("DCR") is pleased to submit the following comments in response to the Environmental Notification Form ("ENF") for the Cape Cod Bridges Program (the "Project"), submitted by the Highway Division of the Massachusetts Department of Transportation ("MassDOT").

The Project proposes replacement of the Bourne and Sagamore highway bridges and reconfiguration of the highway approach networks north and south of the Cape Cod Canal to align with the replacement highway bridges. DCR notes that ENF Figure 3-4 shows that the Sagamore Program Study Area overlaps with a portion of Shawme-Crowell State Forest in Sandwich. DCR review and coordination will be required if there is any anticipated access to or use of state forest land related to construction of the replacement Sagamore bridge. Visitor access to Scusset Beach State Reservation in Sandwich must be taken into consideration related to potential impacts during the Sagamore construction phase. DCR looks forward to coordinating with MassDOT to ensure that interruptions to visitor access are minimized as much as possible. DCR 01

DCR is working with MassDOT throughout the state to enhance public bicycle and pedestrian facilities. The Department looks forward to working with MassDOT to enhance connections to shared-use bicycle and pedestrian paths and to maintain access to local DCR parks as this challenging Project moves forward. Please contact DCR MEPA Review Coordinator Andy Backman at andy.backman@mass.gov with any questions or to initiate Project coordination with DCR.

Sincerely,

Brian Arrigo
Commissioner

cc: Priscilla Geigis, Patrice Kish, Tom LaRosa, Jeff Parenti

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

June 27, 2023

Rebecca L. Tepper
Secretary of Energy and Environment
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
ATTN: MEPA Office
Boston, MA 02114

RE: ENF Review. EOEEA 16695 BOURNE.
Cape Cod Bridges Program

Dear Secretary Tepper,

The Department of Environmental Protection (MassDEP) has reviewed the Environmental Notification Form (ENF) for Cape Cod Bridges Program, Bourne, Massachusetts (EOEEA #16695). The Project Proponent provides the following information for the Project:

MassDOT, in partnership with the Federal Highway Administration (FHWA) and the New England District of the U.S. Army Corps of Engineers (USACE), proposes advancement of the Cape Cod Bridges Program (Program) in the town of Bourne, Barnstable County, Massachusetts. 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 Bourne and Sagamore highway bridges, which are owned, operated, and maintained by the USACE, as part of the Cape Cod Canal Federal Navigation Project.

The Program proposes replacement of the Bourne and Sagamore highway bridges and reconfiguration of the highway approach networks north and south of the Cape Cod Canal to align with the replacement highway bridges. The replacement bridges, and their interchange approaches will accommodate shared use pedestrian and bicycle paths that connect to the local roadway network on both sides of Cape Cod Canal in the town of Bourne.

A Memorandum of Understanding (MOU) was executed between the USACE and MassDOT regarding the Bourne and Sagamore highway bridges on July 7, 2020. According to the terms of the agreement, the USACE will continue to own, operate, and maintain the existing Bourne and Sagamore highway bridges and MassDOT will lead Program delivery with responsibility to construct and subsequently own, operate and maintain the replacement highway bridges and approaches as part of the Commonwealth's network of roads and bridges. MassDOT will work in partnership with FHWA and USACE to pursue all possible avenues of Program funding for these critical public roadway infrastructure improvements in the town of Bourne.

Bureau of Water Resources (BWR) Comments
Wetlands (Boston and SERO).

Existing Conditions
In addition to the Cape Cod Canal, several freshwater and coastal wetland resource areas are located within the Study Area. These include Land Subject to Coastal Storm Flowage (LSCSF), Isolated Land Subject to Flooding (ILSF), Bordering Vegetated Wetlands (BVWs), Land Under the Ocean, Coastal Bank, Land Under Water (LUW), Banks of Land under the Ocean, Ponds, Streams, Rivers, Lakes, or Creeks that Underlie an Anadromous/Catadromous Fish Run ("Fish Run") and potentially Rocky Intertidal Shore and Land Containing Shellfish. Two certified vernal pools and two vernal pools eligible for certification are also present within or near the Study Areas. Approximately 28 acres of the Herring River Watershed Area of Environmental Critical Concern (ACEC) is present within the Sagamore Program Study Area. A portion of both Study Areas are within and near mapped Priority and Estimated Habitats of Rare Wildlife. The ENF indicates there is an existing closed drainage stormwater system.

Wetlands Comments
Preliminary impact assessments provided in the ENF indicate impacts may only occur to LSCSF, ILSF, and buffer zone. The ENF notes that no 100-foot buffer zone impacts would occur at the Sagamore Bridge crossing. Please note that coastal bank along the Cape Cod Canal would be afforded 100-foot buffer zone under the Massachusetts Wetlands Protection Act. Proposed work within all buffer zones or wetland Resource Areas should be identified in the Draft Environmental Impact Report (DEIR). A copy of the Order of Resource Area Delineation (ANRAD) issued by the Bourne Conservation Commission on May 5, 2022, should be included in the DEIR, including the approved plan. The DEIR should also identify how the bridge is anticipated to be constructed, including but not limited to any in-water access, cofferdams, staging areas, etc. DEP 01 DEP 02 DEP 03

Figures 5-1 through 5-4 should depict and identify all the surveyed vernal pools and their current status (i.e., certified, eligible to be certified, and non-eligible to be certified) in the DEIR. All efforts should be taken to avoid impacts to these vernal pools and the area within 100 feet of the mean annual high-water boundaries of these pools. DEP 04

The existing bridges include four 10-foot-wide travel lanes and a 5-foot-wide sidewalk. The Project proposes to add a 12-foot-wide auxiliary lane to each crossing. The auxiliary lane will improve traffic safety and operations by easing the effects of entering and exiting merging traffic on each side of the bridges. The Project will also include a new shared use path to improve pedestrian and bicycle accommodations. These functions are not equivalent to the functions provided by the existing bridge, and therefore pursuant to Section 24 of Chapter 79 of the Acts of 2014. the bridges are not considered to be exempt from the Wetlands Protection Act.

Rare Species

Early consultation with the Massachusetts Natural Heritage and Endangered Species Program (NHESP) indicates the Project may result in a "take" of listed species under the Massachusetts Endangered Species Program (MESA). Per 314 CMR 9.06(2), no project may be permitted which will have any adverse effect on specified habitat sites of rare species. MassDEP understands MassDOT will continue

to consult with the NHESP as the Program design is advanced and may seek, if required, a MESA Conservation and Management Permit from the Massachusetts Division of Fisheries & Wildlife.
.

Stormwater

The ENF states proposed stormwater improvements include, where applicable, installation of drainage systems for the new replacement bridges, connecting roadways to the existing stormwater system, and retrofitting the existing closed drainage system by providing new deep sump catch basins. Details on the existing and proposed stormwater system should be provided in the DEIR. DEP 05

Where the addition of the new auxiliary lane will occur, this component of the Project will not be evaluated as redevelopment and the Massachusetts Stormwater Standards must be fully met. For redevelopment portions of the Project which include adding shoulders, correcting substandard intersections, improving existing drainage systems and repaving, and for the shared use path - provided it meets the criteria of 310 CMR 10.05(6)(m)6 - a complete evaluation will be required that identifies possible stormwater control measures (SCMs), Low Impact Development (LID) techniques, and improvements to existing conditions for each viable alternative being considered, must demonstrate compliance with Standard 7. Areas where the existing approaches will be removed may provide significant opportunities to install SCMs and LID techniques.

Alternatives Analysis

The Project description states that 700-foot out-of-water spans are proposed, but the alternatives analysis states both 700-foot and 820-foot out-of-water spans are the preferred options. It appears the 820-foot option would avoid and minimize impacts to coastal resource areas more than the 700-foot option and may avoid permanent impacts entirely. Based on information provided in the ENF, unless otherwise prohibitive, it appears the 820-foot option would be considered the environmentally preferred alternative based on the information provided. MassDEP understands that further evaluation of these options will be provided when the alternatives design advances in the DEIR. DEP 06

Waterways. As stated in the ENF, the Project is considered water dependent in accordance with 310 CMR 9.12 and a Chapter 91 Waterways license will be required. DEP 07

Stormwater Management/National Pollutants Discharge Elimination System (NPDES) Permit. The Project Proponent acknowledges the need for a NPDES permit for its construction activities.

The Proponent is advised, if necessary, to consult with Sania Kamran at Kamran.Sania@epa.gov, 617-918-1522 for any of its questions regarding EPA's NPDES stormwater permitting requirements.

Underground Injection Control. The Proponent is advised that the use of conveyances of stormwater through underground stormwater infiltration structures that qualify as under the jurisdiction of the MassDEP *Underground Injection Control (UIC)* program must be registered with the MassDEP UIC program through the submittal of a BRP WS-06 UIC Registration application through MassDEP's electronic filing system, eDEP. DEP 08

The statewide UIC program contact is Joe Cerutti, who can be reached at (781) 465-4123 or at joseph.cerutti@mass.gov. All information regarding on-line (eDEP) UIC registration applications may be obtained at the following web page under the category "Applications & Forms": https://www.mass.gov/underground-injection-control-uic.

Bureau of Waste Site Cleanup (BWSC) Comments

The BWSC data portal does not have a convenient way to determine all the Release Tracking Numbers located in such a large study area. BWSC will assist the Proponent in identifying those locations for inclusion in the DEIR.

The Project Proponent is advised that if oil and/or hazardous material are identified during the implementation of this project, notification pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000) must be made to MassDEP, if necessary. A Licensed Site Professional (LSP) should be retained to determine if notification is required and, if need be, to render appropriate opinions. The LSP may evaluate whether risk reduction measures are necessary if contamination is present. The BWSC may be contacted for guidance if questions arise regarding cleanup. DEP 09

Spills Prevention and Control. A spills contingency plan addressing prevention and management of potential releases of oil and/or hazardous materials from pre- and post-construction activities should be presented to workers at the site and enforced. The plan should include but not be limited to, refueling of machinery, storage of fuels, and potential on-site activity releases. DEP 10

Bureau of Air and Waste (BAW) Comments

Air Quality. Construction and operation activities shall not cause or contribute to a condition of air pollution due to dust, odor or noise. To determine the appropriate requirements please refer to:

310 CMR 7.09 Dust, Odor, Construction, and Demolition
310 CMR 7.10 Noise

Construction-Related Measures

MassDOT reports that it "*will implement measures to limit emissions from construction equipment. MassDOT requires that contractors install emissions control devices in all off-road vehicles. The Revised Diesel Retrofit specification states that emission control standards must be met, or technology must be used for nonroad, diesel powered construction equipment exceeding 50 horsepower on MassDOT job sites. MassDOT is a participant in the MassCleanDiesel Program established by MassDEP. As such, the contractor will be required to certify that all contractor and sub-contractor diesel-powered non-road construction equipment and vehicles greater than 50 brake horsepower utilize emission control devices, as specified by the MassDOT Standard Specifications Subsection 7.02 Pollution Prevention. Additionally, the contractor will be required to install on-site anti-idling signage at loading and drop-off/pick up areas to prohibit trucks from engine idling for more than five minutes in compliance with Massachusetts General Law (MGL) Chapter 90, Section 16A and MassDEP anti-idling regulations (310 CMR 7.11(1)(b)).*"

MassDEP requests that all non-road diesel equipment rated 50 horsepower or greater meet EPA's Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. DEP 11

Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review.

MassDEP reminds the Proponent that unnecessary idling (*i.e.,* in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (Section 7.11 of 310 CMR 7.00). Regarding construction period activity, typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure compliance with this regulation once the Project is occupied, MassDEP requests that the Proponent install permanent signs limiting idling to five minutes or less on-site.

Solid Waste Management.

The Project Proponent states: "*Solid waste will be generated during the demolition of the existing Bourne and Sagamore highway bridges. The existing highway bridge decks are steel grids filled with five inches of concrete and topped with a two-inch bituminous concrete surface. Channel piers are pairs of hollow concrete columns sitting on footing pedestals in the canal. It is anticipated that the steel will be recycled. MassDOT will dispose of solid waste in accordance with the Solid Waste Management Regulations (310 CMR 19) and other applicable MassDEP policies and guidance. The contractor will develop a Construction and Demolition Waste Management Plan (CDWMP) prior to the start of construction and demolition activities. Lead paint, dating to the 1935 construction of the bridge, likely exists on the bridges. Prior to demolition, materials will be tested for the presence of lead paint. MassDOT will conduct hazardous waste management in accordance with 310 CMR 30.00 and 310 CMR 40.00*."

The Project Proponent is advised of the following requirements:

1. MassDEP recommends that the Construction and Demolition Waste Management Plan shall include how solid waste/recyclables will be stockpiled, and that erosion controls are provided for the stockpile area of solid waste/recyclables to minimize or prevent runoff impacts. DEP 12

2. *Compliance with Waste Ban Regulations*: Waste materials discovered during construction that are determined to be solid waste (e.g., construction and demolition waste) and/or recyclable material (e.g., metal, asphalt, brick, and concrete) shall be disposed, recycled, and/or otherwise handled in accordance with the Solid Waste Regulations including *310 CMR 19.017: Waste Bans*. Waste Ban regulations prohibit the disposal, transfer for disposal, or contracting for disposal of certain hazardous, recyclable, or compostable items at solid waste facilities in Massachusetts, including, but not limited to, metal, wood, asphalt pavement, brick, concrete, and clean gypsum wallboard. The goals of the waste bans are to promote reuse, waste reduction, or recycling; reduce the adverse impacts of solid waste management on the environment; conserve capacity at existing solid waste disposal facilities; minimize the need for construction of new solid waste disposal facilities; and support the recycling industry by ensuring that large volumes of material are available on a consistent basis. Further guidance can be found at: https://www.mass.gov/guides/massdep-waste-disposal-bans.

   MassDEP recommends the Proponent consider source separation or separating different recyclable materials at the job site. Source separation may lead to higher recycling rates and lower recycling costs. DEP 13

Further guidance can be found at: https://recyclingworksma.com/construction-demolition-materials-guidance/

For more information on how to prevent banned materials from entering the waste stream the Proponent should contact the RecyclingWorks in Massachusetts program at (888) 254-5525 or via email at info@recyclingworksma.com. RecyclingWorks in Massachusetts also provides a website that includes a searchable database of recycling service providers, available at http://www.recyclingworksma.com.

3. *Asphalt, brick, and concrete (ABC) rubble,* such as the rubble generated by the demolition of buildings or other structures must be handled in accordance with the Solid Waste regulations. These regulations allow, and MassDEP encourages, the recycling/reuse of ABC rubble. The Proponent should refer to MassDEP's Information Sheet, entitled " Using or Processing Asphalt Pavement, Brick and Concrete Rubble, Updated February 27, 2017 ", that answers commonly asked questions about ABC rubble and identifies the provisions of the solid waste regulations that pertain to recycling/reusing ABC rubble. This policy can be found on-line at the MassDEP website: https://www.mass.gov/files/documents/2018/03/19/abc-rubble.pdf.

4. Although the ENF did not indicate that the Proponent intends to reuse of any demolition materials, the Proponent is reminded that reuse of any demolition material requires submittal of MassDEP's BWP SW41 – Beneficial Use Determination – Restricted Applications. The permit is intended to protect public health, safety, and the environment by comprehensively regulating the reuse of waste materials as effective substitutes for a commercial product or commodity. Information pertaining to this requirement is available at https://www.mass.gov/doc/instructions-sw-39-40-41-42-beneficial-use-determinations/download. DEP 14

5. Although the ENF did not indicate that tree removal/land clearing will be conducted for the Project, the Proponent is reminded of the MassDEP's requirements for clean wood from land clearing. As defined in 310 CMR 16.02, clean wood means "discarded material consisting of trees, stumps and brush, including but limited to sawdust, chips, shavings, bark, and new or used lumber" …etc. Clean wood does not include wood from commingled construction and demolition waste, engineered wood products, and wood containing or likely to contain asbestos, chemical preservatives, or paints, stains or other coatings, or adhesives. The Proponent should be aware that wood is not allowed to be buried or disposed of at the Site pursuant to 310 CMR 16.00 & 310 CMR 19.000 unless otherwise approved by MassDEP. Clean wood may be handled in accordance with 310 CMR 16.03(2)(c)7 which allows for the on-site processing (i.e., chipping) of wood for use at the Site (i.e., use as landscaping material) and/or the wood to be transported to a permitted facility (i.e., wood waste reclamation facility) or other facility that is permitted to accept and process wood. DEP 15

6. Although the Proponent did not indicate that the project will encounter asbestos containing material, the Project Proponent is advised that demolition activity must comply with both Solid Waste and Air Quality Control regulations. Please note that MassDEP promulgated revised Asbestos Regulations (310 CMR 7.15) that became effective on June 20, 2014. The new regulations contain requirements to conduct a pre-demolition/renovation asbestos survey by a licensed asbestos inspector and post abatement visual inspections by a licensed asbestos project monitor. The Massachusetts Department of Labor and Work Force Development, Division of Labor Standards (DLS) is the agency responsible for licensing and DEP 16

regulating all asbestos abatement contractors, designers, project monitors, inspectors and analytical laboratories in the state of Massachusetts.

7. In accordance with the revised Asbestos Regulations at **310 CMR 7.15(4),** any owner or operator of a facility or facility component that contains suspect asbestos containing material (ACM) shall, prior to conducting any demolition or renovation, employ a DLS licensed asbestos inspector to thoroughly inspect the facility or facility component, to identify the presence, location and quantity of any ACM or suspect ACM and to prepare a written asbestos survey report. As part of the asbestos survey, samples must be taken of all suspect asbestos containing building materials and sent to a DLS certified laboratory for analysis, using USEPA approved analytical methods.

8. If ACM is identified in the asbestos survey, the Proponent must hire a DLS licensed asbestos abatement contractor to remove and dispose of any asbestos containing material(s) from the facility or facility component in accordance with **310 CMR 7.15**, prior to conducting any demolition or renovation activities. The removal and handling of asbestos from the facility or facility components must adhere to the Specific Asbestos Abatement Work Practice Standards required at **310 CMR 7.15(7)**. The Proponent and asbestos contractor will be responsible for submitting an ***Asbestos Notification FormANF-001*** to MassDEP at least ten (10) working days prior to beginning any removal of the asbestos containing materials as specified at **310 CMR 7.15(6).**

9. The Proponent shall ensure that all asbestos containing waste material from any asbestos abatement activity is properly stored and disposed of at a landfill approved to accept such material in accordance with **310 CMR 7.15 (17).** The Solid Waste Regulations at **310 CMR 19.061(3)** list the requirements for any solid waste facility handling or disposing of asbestos waste. Pursuant to **310 CMR 19.061(3) (b) 1,** no asbestos containing material; including VAT, asphaltic-asbestos felts or shingles; may be disposed at a solid waste combustion facility.

10. In accordance with the Air Quality Regulations at **310 CMR 7.09(2),** the Proponent must submit a **BWP AQ 06 Notification Prior to Construction or Demolition** form to MassDEP for any construction or demolition of an industrial, commercial or institutional building or residential building with 20 or more dwelling units at least ten (10) working days prior to initiation of said construction or demolition project. The Proponent should propose measures to prevent or alleviate dust, noise, and odor nuisance conditions, which may occur during the demolition.

If you have any questions regarding the Solid Waste Management Program comments above, please contact Elza Bystrom at elza.bystrom@mass.gov or Mark Dakers at Mark.Dakers@mass.gov for solid waste comments or Colleen Ferguson at colleen.ferguson@mass.gov for asbestos comments.

Support for Commonwealth Environmental Priorities

The Project provides potential opportunities to provide support in meeting the Commonwealth's priorities such as reliability, resiliency, clean energy and the reduction of nitrogen pollution in Massachusetts estuaries.

Given the location of the Project and Eversource's proposed near-by electric transmission infrastructure investment - driven by anticipated offshore wind energy interconnections on the Cape - MassDEP, in consultation with the Massachusetts Department of Energy Resources, recommends the MassDOT

DEP 17

consult with Eversource to evaluate the potential to coordinate and reduce costs for any required energy infrastructure.

MassDEP also recommends that the Proponent provide information in the DEIR about the potential and feasibility for the design of the bridges to include drinking water, wastewater, and telecommunications corridors. DEP 18

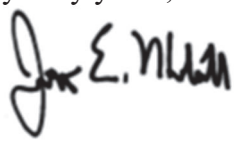
Proposed s.61 Findings

The "Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form" may indicate that this Project requires further MEPA review and the preparation of an Environmental Impact Report. Pursuant to MEPA Regulations 301 CMR 11.12(5)(d), the Proponent will prepare Proposed Section 61 Findings to be included in the EIR in a separate chapter updating and summarizing proposed mitigation measures. In accordance with 301 CMR 11.07(6)(k), this chapter should also include separate updated draft Section 61 Findings for each State agency that will issue permits for the Project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.

Other Comments/Guidance

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this proposed Project. If you have any questions regarding these comments, please contact George Zoto at George.Zoto@mas.gov or Jonathan Hobill at Jonathan.Hobill@mass.gov.

Very truly yours,



Jonathan E. Hobill,
Regional Engineer,
Bureau of Water Resources

JH/GZ

Cc: DEP/SERO
ATTN: Gary Moran Deputy Commissioner of Operations and Environmental Compliance (OEC)
Millie Garcia-Serrano, Regional Director
Gerard Martin, Deputy Regional Director, BWR
John Handrahan, Deputy Regional Director, BWSC
Seth Pickering, Deputy Regional Director, BAW
Jennifer Viveiros, Deputy Regional Director, ADMIN
Maissoun Reda, Chief, Wetlands and Waterways, BWR
Lisa Rhodes, Chief, Wetlands, BWR/Boston
Daniel Padien, Chief, Waterways, BWR/Boston
Heidi Davis, Wetlands Highway Supervisor, Boston/BWR
Ryan Hale, Wetlands Highway, Boston/BWR

Brendan Mullaney, Waterways, BWR
Mark Dakers, Chief, Solid Waste, BAW
Elza Bystom, Solid Waste, BAW
Colleen Ferguson, Chief, Asbestos & Strike Force, BAW
Angela Gallagher, Chief, Site Management. BWSC
Jennifer Wharff, Site Management, BWSC

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

June 27, 2023

Secretary Rebecca Tepper
Executive Office of Energy
and Environmental Affairs (EEA)
100 Cambridge Street, Suite 900
Boston MA 02114

ATTN: Nicholas Moreno, MEPA Unit

RE: Cape Cod Canal Bridges, Bourne and Sandwich, MA; MHC# RC.66038; **EEA #16695**

Dear Secretary Tepper:

Staff of the Massachusetts Historical Commission (MHC), office of the State Historic Preservation Officer, have reviewed the Environmental Notification Form Volume 1 for the proposed demolition and replacement of the historic historic Bourne and Sagamore Bridges over the Cape Cod Canal and have the following comments.

The MHC is reviewing this project in consultation with the Federal Highway Administration (FHWA), MassDOT, and the Army Corps of Engineers in compliance with Section 106 of the National Historic Preservation Act (36 CFR 800).

The MHC signed a Programmatic Agreement (PA) with the Army Corps and MassDOT in 2022, which is included in the ENF. The MHC looks forward to entering into a revised PA that will include the FHWA and future MOAs, as stated on pages 112-113 of the ENF. MHC 01

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act (36 CFR 800), Mass. General Laws Ch.9 ss.26-27C (950 CMR 70 & 71), and MEPA. If you have any questions, please contact me.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: Cassandra Ostrander, FHWA
Marcus Paiva, US Army Corps of Engineers
Jeffrey Shrimpton, MassDOT Highway Division, Cultural Resources Unit
David Weeden, Mashpee Wampanoag Tribe THPO
Bettina Washington, Wampanoag Tribe of Gay Head Aquinnah THPO
Jim Peters, MA Commission on Indian Affairs

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.sec.state.ma.us/mhc