

Advisory Group Meeting #3

Cape Cod Bridges Program

April 9, 2024

Project File No. 608020



Agenda

01 Introductions

02 Funding Update

03 NEPA Update

04 Assessment of Highway Interchange Options

05 Schedule

06 Bridge Update

Advisory Group Members

Program Team

- MassDOT
- USACE
- HNTB
- Stantec

State and Federal Elected Officials

- Office of Gov. Healey
- Office of Sen. Markey
- Office of Sen. Warren
- Office of U.S. Rep. Keating
- Office of U.S. Rep. Lynch
- State Sen. Moran
- State Senator Cyr
- State Rep. Vieira
- State Rep. Peake
- State Rep. Diggs
- State Rep. Xiarhos
- State Rep. Fernandes

Stakeholders

- Town of Bourne
- Association to Preserve Cape Cod
- Barnstable County Sheriff's Office
- Bourne Commission on Disabilities
- Bourne Police
- Bourne Public Schools
- Bourne Recreation Authority
- Bourne Selectboard
- Bourne Town Administrator's Advisory Committee on Pedestrian Bicycle Committee
- Cape Cod Canal Region Chamber of Commerce
- Cape Cod Chamber of Commerce
- Cape Cod Commission
- Cape Cod Metropolitan Planning Organization
- Cape Cod Regional Transit Authority
- US Army Corps of Engineers
- Federal Highway Administration
- Mass State Police
- MEMA



Funding Update

Funding Overview

- In the Summer of 2023, MassDOT announced a phased approach to securing funds for the Cape Cod Bridges Program
- The Sagamore Bridge was identified as Phase 1 with the Bourne Bridge identified as Phase 2
- Funding for the Sagamore Bridge is proposed to be comprised of three different funding sources:
 - Multimodal Project Discretionary Grant (MPDG) program
 - Bridge Investment Program (BIP) Grant
 - State Bond Funds



MPDG Funds

- On August 21, 2023, MassDOT (lead applicant) filed jointly with USACE for funding under the Multimodal Project Discretionary Grant (MPDG) program
- A single application was filed for both the Nationally Significant Multimodal Freight and Highway Projects (INFRA) program and the National Infrastructure Project Assistance (Mega) program
- MassDOT requested a total of \$372 Million under the MPDG program
- On January 25, 2024, MassDOT was formally notified that the Sagamore Bridge Project was selected to receive \$372 Million in Mega grant funding.



BIP Grant Funds

- On December 4, 2023, MassDOT (lead applicant) filed jointly with USACE for funding under the Bridge Investment Program (BIP)
- MassDOT requested \$1.060 Billion in BIP funds
- On February 29, 2024, USDOT briefed MassDOT on the preliminary scores for the Project.
- The Sagamore Bridge Project received an Overall Rating of “Recommended”.
- All projects that receive this rating move on for further consideration by USDOT.
- On March 14, 2024, MassDOT submitted an amendment to the original application addressing all areas of the application that did not receive the highest possible rating.

State Bond Funds

- MassDOT has committed \$700 Million to the Sagamore Bridge Project.
- These funds are included in MassDOT's Capital Investment Plan.
- The State Treasurer has provided a letter to USDOT affirming the availability of the \$700 Million



**Massachusetts Department of Transportation
Final 2024-2028 Capital Investment Plan (CIP)**

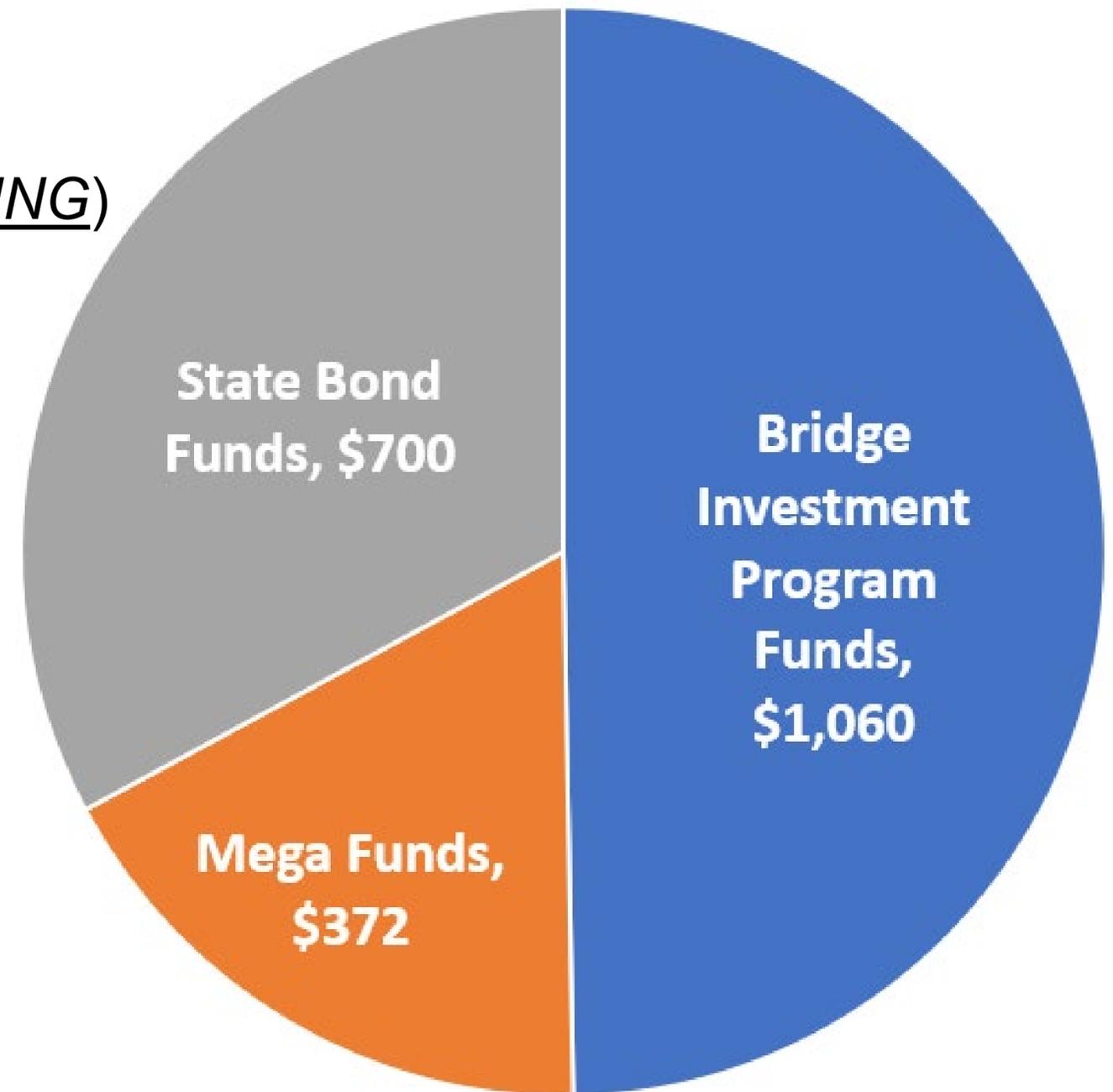
July 2023

massDOT

Funding Update

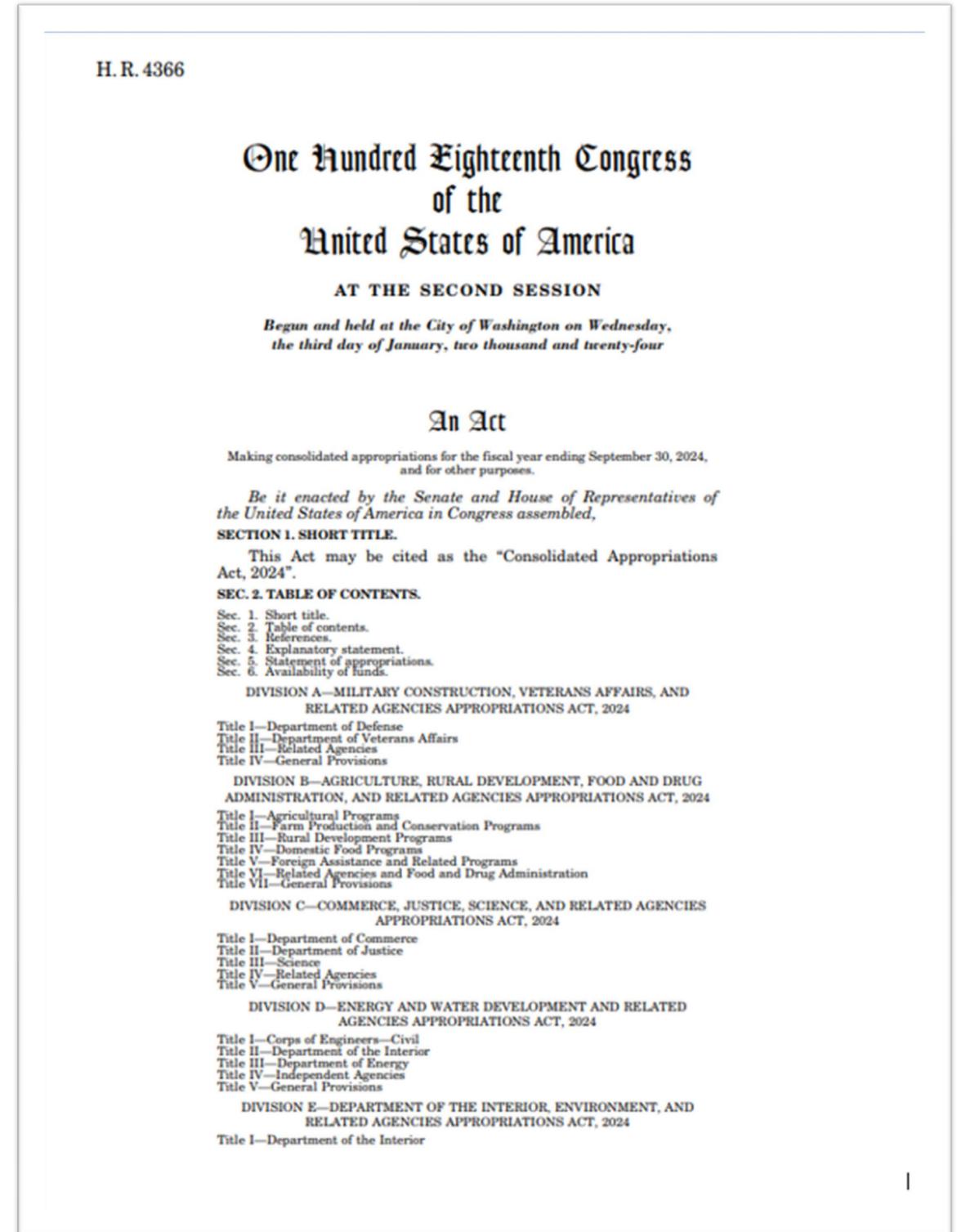
- Mega Funds – \$372 Million
- Bridge Investment Program - \$1.060 Billion (PENDING)
- State Bond Funds - \$700 Million
- The total cost is based on the FHWA led Cost and Schedule Risk Assessment
- MassDOT will continue to work with the USACE to identify funding for the Bourne Bridge replacement

Sagamore Bridge Total Cost \$2.131 Billion
(Costs below are in Millions)



Funding Update

- On March 9, 2024, the President signed the Consolidated Appropriations Act of 2024.
- This Act includes \$350 Million for the Cape Cod Canal bridges.
- These funds are appropriated to the United States Army Corps of Engineers (USACE)
- The Finance Plan submitted to USDOT as part of the Bridge Investment Program application does not rely upon on these funds.
- MassDOT will work with USACE and the FHWA to determine the most appropriate mechanism to apply these funds to the overall Cape Cod Bridges Program.
- It is anticipated that a future President’s Budget will include an additional \$250 Million.



Funding Update



- On March 25, 2024, the USDOT released a Notice of Funding Opportunity for the FY 2025-2026 Multimodal Project Discretionary Grant (MPDG) Program
- MassDOT intends to submit an MPDG application for the Bourne Bridge Replacement Project
- Applications are due on May 6
- The Financial Plan is under development.
- This plan may include potential funding under the FY 2025 Bridge Investment Program (BIP).
- Applications for the FY 2025 BIP are due on August 1, 2024.



NEPA Update

Status of NEPA

- 12/29/22, MassDOT requested FHWA to serve as Lead Federal Agency.
- 01/20/23, FHWA agreed to serve as Lead Federal Agency.
- 08/11/23, FHWA determined an Environmental Impact Statement (EIS) is required.
- 02/29/24, Notice of Intent (NOI) published in Federal Register, including NOI Supplemental Document, and Alternatives Analysis Report. Publication of NOI starts 2-year NEPA process.

MassDOT will combine NEPA & MEPA and publish the DEIS/DEIR in Spring 2025 and the FEIS/FEIR in Spring 2026, with an anticipated decision document in Spring 2026.

Federal Register / Vol. 89, No. 41 / Thursday, February 29, 2024 / Notices 14923

August 25, 2024 *—Board's decision becomes effective.
 [FR Doc. 2024-04271 Filed 2-28-24; 8:45 am]
 BILLING CODE 4915-01-P

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration
 [Docket No. FHWA-2024-0014]

Notice of Intent To Prepare an Environmental Impact Statement for the Cape Cod Bridges Program in Barnstable County, Massachusetts

AGENCY: Federal Highway Administration (FHWA), Department of Transportation (DOT).

ACTION: Notice of intent to prepare an environmental impact statement.

SUMMARY: The FHWA in coordination with the Massachusetts Department of Transportation Highway Division (MassDOT) is issuing this Notice of Intent (NOI) to solicit comments and advise the public, agencies, and stakeholders that an Environmental Impact Statement (EIS) will be prepared in accordance with the National Environmental Policy Act (NEPA) to study the potential environmental and related social and economic effects of proposed transportation improvements through the Cape Cod Bridges Program in the town of Bourne, Barnstable County, Massachusetts. The Cape Cod Bridges Program proposes critical transportation infrastructure improvements including replacement of the Bourne and Sagamore highway bridges spanning Cape Cod Canal; reconfiguration of the highway approach networks north and south of Cape Cod Canal to align with the replacement highway bridges; and provision of separated pedestrian and bicycle accommodations along the replacement bridges with connections to the local roadway network. This NOI contains a summary of the information required in the Council on Environmental Quality (CEQ) NEPA regulations. This NOI should be reviewed together with the Supplementary NOI Document, which includes important details about the Cape Cod Bridges Program and complements the information in this NOI. Persons and agencies who may be interested in or affected by the Cape Cod Bridges Program are encouraged to comment on the information in this NOI and the Supplementary NOI Document. All comments received in response to this NOI will be considered and changes may be made to the study as appropriate.

DEADLINE FOR COMMENTS: Comments on the NOI or the Supplementary NOI Document are to be received by FHWA through the methods below by April 1, 2024.

ADDRESSES: This NOI and the Supplementary NOI Document are also available in the docket referenced above at www.regulations.gov and on the Program website located at <http://www.mass.gov/cape-bridges>. The Supplementary NOI Document will be mailed upon request. Interested parties are invited to submit comments by any of the following methods:

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

Mailing address or for hand delivery or courier: Cassandra Ostrander, Program Development Team Leader, Federal Highway Administration, 220 Binney Street, 9th Floor, Cambridge, Massachusetts 02142. Office Hours: Monday through Friday (except Federal holidays) from 8 a.m. to 4:30 p.m.

All submissions should include the agency name and the docket number that appears in the heading of this Notice. All comments received will be posted without change to www.regulations.gov, including any personal information provided. A summary of the comments will be included in the Draft EIS (DEIS).

FOR FURTHER INFORMATION CONTACT:
FHWA: Cassandra Ostrander, Program Development Team Leader, Federal Highway Administration, 220 Binney Street, 9th Floor, Cambridge, Massachusetts 02142; email: cassandra.ostrander@dot.gov; (617) 494-3113.
MassDOT: Bryan Cordeiro, Project Manager, Massachusetts Department of Transportation, 10 Park Plaza, Suite 6340, Boston, Massachusetts 02116; email: bryan.j.cordeiro@dot.state.ma.us; (774) 993-9632.

SUPPLEMENTARY INFORMATION: The FHWA and MassDOT are committed to public involvement for this study. The FHWA, as the Lead Federal Agency, and MassDOT, as sponsor and joint lead agency, are preparing an EIS for the Cape Cod Bridges Program to identify, analyze, and disclose the potential impacts of the proposed project and prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321, *et seq.*); 23 U.S.C. 139; Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508); FHWA regulations implementing NEPA (23 CFR 771.101-771.139); and applicable Federal, State, and local laws and regulations.

The Supplementary NOI Document provides additional information on the Purpose and Need for the proposed action, alternatives considered, and expected impacts on the human, natural and built environments. The FHWA requests comments and suggestions on the Purpose and Need, study alternatives and impacts, and the identification of any relevant information, studies or analyses of any kind concerning impacts to the quality of the human and natural environment. All public comments received in response to this NOI will be considered, and changes may be made to the study as appropriate.

Program Background

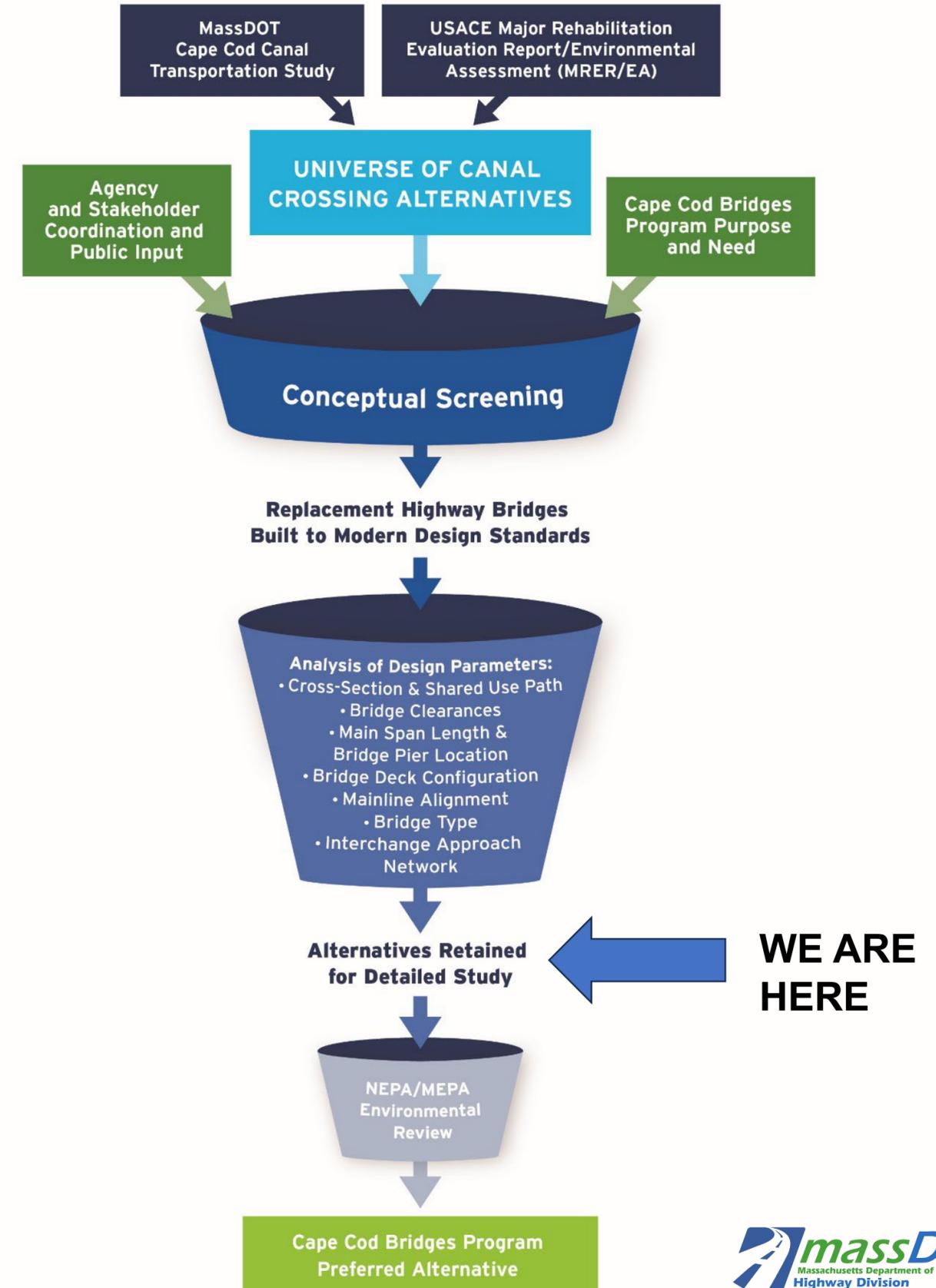
The Bourne and Sagamore Bridges, which were simultaneously built between 1933 and 1935, are two high level, fixed span highway bridges spanning Cape Cod Canal in the town of Bourne, Barnstable County, Massachusetts. The New England District of the U.S. Army Corps of Engineers (USACE) owns, operates, and maintains the Bourne and Sagamore Bridges (collectively referred to as the Cape Cod Canal highway bridges) as part of the Cape Cod Canal Federal Navigation Project. The Cape Cod Canal highway bridges provide the only roadway access for the more than 35 million vehicles that cross Cape Cod Canal each year and serve as the gateway to Cape Cod for more than 250,000 year-round residents of the Cape and Islands (Barnstable, Dukes, and Nantucket counties), and millions of annual visitors to the region during the height of the summer tourist season between Memorial Day and Labor Day. As the only roadway access points between mainland Massachusetts and Cape Cod, and by extension to the islands of Martha's Vineyard and Nantucket via Cape Cod based ferry services, the Cape Cod Canal highway bridges serve as essential routes for general transportation, commerce, tourism, and evacuations in case of emergency. The Cape Cod Canal

Notice of Intent, February 29, 2024

- Initiates DEIS Scoping Process and Agency and Public Comment Period.
- Presents Overview of Cape Cod Bridges Program:
 - Program Background and Purpose and Need Statement
 - Key resources and expected impacts
 - Summary of direct and indirect effects to be evaluated in DEIS
 - Anticipated Federal and State permits and approvals
 - Schedule
 - Agency coordination and public involvement to date
- Identifies *Build Alternative Retained for Detailed Study* in the DEIS.
- Summarizes the alternatives assessment process occurring to date.

Notice of Intent: Program Alternatives Analysis Process

- Consisted of multi-tiered alternative screening and evaluation **funnel-like process**;
- Used the Cape Cod Canal Transportation Study and the USACE’s Major Rehabilitation Evaluation Report/Environmental Assessment (MRER/EA) as the **foundational planning documents**;
- Conducted **eight qualitative and quantitative engineering assessments** at conceptual (5 percent) level and preliminary (10 percent) design stages to further define Program design parameters.
- Identified **Alternatives Retained for Detailed Study** in DEIS/DEIR.



Build Alternative Retained for Detailed Study in DEIS:

Replacement Highway Bridges built to modern design standards;

Single pairing of two highway interchange approach options at each Canal crossing.

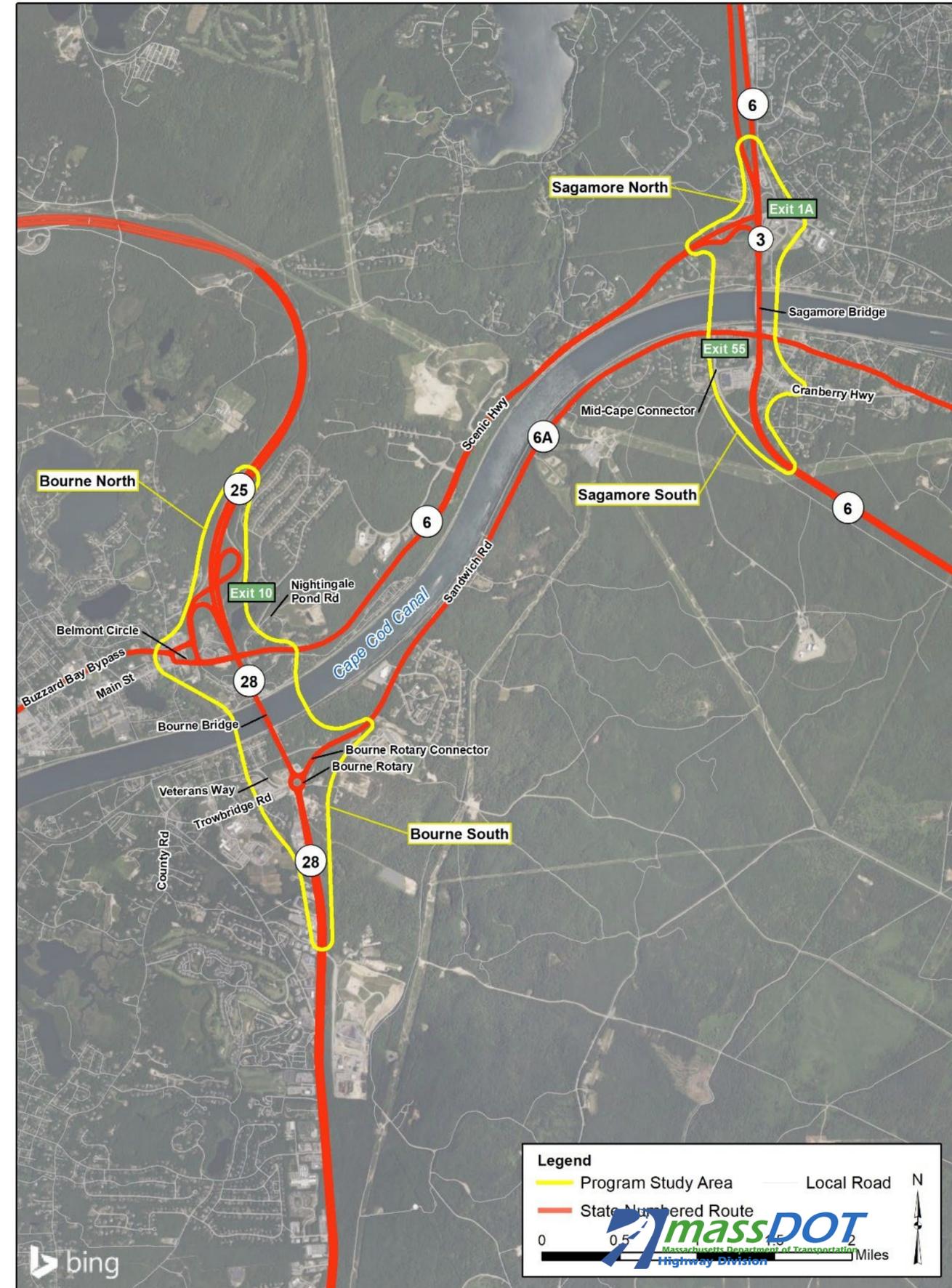
| | |
|---|---|
| Replacement Highway Bridges | In-Kind Bridge Replacement, updated to comply with Federal and state highway and design safety standards. |
| Bridge Highway Cross-Section and Shared Use Path | Each replacement highway bridge would provide four 12-foot-wide through travel lanes (two in each direction), two 12-foot-wide entrance/exit (auxiliary) lanes, a 4-foot-wide left shoulder, and a 10-foot-wide right shoulder. Right and left barriers would be offset an additional 2 feet beyond the limits of the shoulders. Each crossing location would include one bi-directional pedestrian and bicycle shared-use path (SUP), separated from vehicular traffic by the shoulder and barrier; the width of SUP to be determined as design advances. |
| Bridge Clearances | Maintain the existing vertical clearance of 135 feet above mean high water (MHW) and account for future SLR. Provide a minimum of 500 feet of horizontal channel width to be consistent with existing conditions. |
| Main Span Length and Bridge Pier Location | Main span length of approximately 700 feet, which would locate the bridge piers at the waterline adjacent to the service road (shoreline piers), into the rip rap slope but above the low tide line. |
| Bridge Deck Configuration | Each crossing (Bourne and Sagamore) would have two separate decks (twin structures). |
| Bridge Type | Twin Tied Arch Bridges with Delta Frames supporting an approximate 700-foot mainline span. |
| Mainline Alignment | Fully Offline Inboard Mainline Alignment. Both barrels of the replacement highway bridge would be located fully outside the footprint of the existing bridge, approximately 10 feet apart and parallel to each other, and on the side of the canal between the existing Bourne Bridge and Sagamore Bridge. |
| Highway Interchange Approach Network | One recommended highway interchange approach option for each quadrant (Bourne North, Bourne South, Sagamore North, Sagamore South). |



Assessment of Highway Interchange Options

Recap: Conceptual Screening of Interchange Highway Approach Concepts

- Using the 2017 Cape Cod Canal Area Transportation Study as the starting point, MassDOT identified 80 highway interchange approach concepts for the Bourne and Sagamore Program Study Areas.
- Conceptual screening was conducted according to feasibility and reasonability.
- Screening resulted in nine active options for the Bourne Program Study Area and 13 active options for the Sagamore Program Study Area for a more advanced Initial Assessment.



Recap: Highway Interchange Approach Options Assessment Process

- **Initial Assessment:** MassDOT’s Initial Assessment of 22 options relative to the Highway Design Evaluation Criteria resulted in 10 options for a Detailed Assessment.
- **Detailed Assessment:** MassDOT will conduct a detailed assessment of the 10 options related to the following Program Needs identified in the Purpose and Need Statement:
 - Operations;
 - Geometric/Safety;
 - Multi-Modal Accommodations; and
 - Maintenance/Structural.

MassDOT’s detailed assessment may also include performance measures related to Program Goals and Objectives.
- **Options Retained for Detailed Study:** MassDOT will identify one single interchange pairing for each Canal crossing as the **Options Retained for Detailed Study** in the DEIS/DEIR.

| Program Study Area | Option | Summary Description |
|--------------------|----------|---|
| Bourne North | BN-6.1 | Like the existing interchange configuration, modified to meet the offset mainline while adding a new northbound on-ramp directly from Scenic Highway east of the mainline. |
| | BN-13.1 | Builds upon Alternative BN-6.1 and adds a connection from Route 25 southbound off-ramp directly to Scenic Highway. |
| | BN-14.4b | Like Alternative BN-13.1 and provides a combination of direct connection ramps between Route 25 and Route 6. |
| Bourne South | BS-2 | Replaces the existing Bourne Rotary with a grade separated diamond interchange. |
| | BS-2.2 | Replaces the existing Bourne Rotary with a grade separated single point interchange configuration. |
| Sagamore North | SN-1A | Like the existing interchange ramp configurations with modifications to support the relocated Route 3 alignment. |
| | SN-8A | Like Alternative SN-1A but provides a single exit point from a relocated Route 3. |
| Sagamore South | SS-1 | Modifies ramp alignments to accommodate the relocated Route 6 mainline while largely maintaining the existing ramp configurations. Extends Cranberry Highway under Route 6 to provide a connection to Mid-Cape Connector. |
| | SS-1.1 | Provides the same interchange configuration as Alternative SS-1 but eliminates the Cranberry Highway Extension. |
| | SS-3.1A | Like Alternative SS-1 but relocates the northbound on-ramp so it shares the same entrance point as the southbound on-ramp off the Mid-Cape Connector. |

Proposed Detailed Assessment of Highway Interchange Approach Options: Purpose & Need Evaluation Criteria – Operations

| Program Need | Evaluation Criteria |
|--------------------------|---|
| <p>Operations</p> | Assess impact on regional traffic operations |
| | Reduce congestion on mainline, ramps, and local roads |
| | Reduce regional travel times |
| | Reduce local travel times |
| | Improve cross-canal mobility |
| | Minimize queue spillback onto the highway |
| | Separate local and regional traffic |

Proposed Detailed Assessment of Highway Interchange Approach Options: Purpose & Need Evaluation Criteria – Geometrics/Safety

| Program Need | Evaluation Criteria |
|---------------------------------|---|
| <p>Geometrics/Safety</p> | Minimize weaving movements |
| | Minimize high-speed merges |
| | Minimize wrong-way driving risk |
| | Assess flexibility to achieve target speed on local corridors |
| | Minimize complexity of decision points |
| | Evaluate spacing between entrance and exit ramps |
| | Minimize acceleration/deceleration speed variances |
| | Reduce vehicular/pedestrian/bicycle conflict points |
| | Assess design relative to driver expectations |

Proposed Detailed Assessment of Highway Interchange Approach Options: Purpose & Need Evaluation Criteria – Multi-Modal Accommodations

| Program Need | Evaluation Criteria |
|--|--|
| <p>Multi-Modal Accommodations</p> | Improve pedestrian/bicycle access to local roads |
| | Improve pedestrian/bicycle access to existing trail facilities |
| | Enhance pedestrian/bicycle experience |
| | Improve pedestrian/bicycle connections at ramp terminals |
| | Reduce Shared Use Path grade at bridge approaches |
| | Increase pedestrian/bicycle accommodations in Program Study Area |
| | Improve pedestrian/bicycle access to transit facilities |

Proposed Detailed Assessment of Highway Interchange Approach Options: Purpose & Need Evaluation Criteria – Maintenance/Structural

| Program Need | Evaluation Criteria |
|--------------------------------------|---|
| <p>Maintenance/Structural</p> | <p>Minimize risk of disruptive maintenance on existing bridges</p> |
| | <p>Implement most efficient and simplest structural system to accommodate the interchange ramps</p> |

Proposed Detailed Assessment of Highway Interchange Approach Options: Program Goals and Objectives

| Goals | Objectives |
|--|--|
| <p>Maintain and Improve the Socioeconomic Fabric of the Surrounding Community</p> | <p>Minimize residential property impacts, including acquisitions and displacement</p> |
| | <p>Minimize commercial property impacts, including acquisitions and displacement</p> |
| | <p>Improve access to commercial properties</p> |
| | <p>Improve neighborhood accessibility to community facilities & services</p> |
| | <p>Improve neighborhood cohesion</p> |
| | <p>Avoid disproportionate adverse impact to Environmental Justice (EJ) populations</p> |
| | <p>Minimize construction period effects upon the traveling public</p> |
| | <p>Avoid and/or minimize effects to parks, open space, and recreational facilities</p> |

Proposed Detailed Assessment of Highway Interchange Approach Options: Program Goals and Objectives

| Goals | Objectives |
|--|---|
| <p>Preserve and Protect Natural Resources</p> | <p>Minimize effects to Areas of Critical Environmental Concern (ACEC)</p> |
| | <p>Minimize effects to wildlife habitats</p> |
| | <p>Maintain floodplain functions</p> |
| | <p>Maintain wetland and surface water buffers</p> |

Proposed Detailed Assessment of Highway Interchange Approach Options: Program Goals and Objectives

| Goals | Objectives |
|--|---|
| <p>Enhance the Resiliency and Sustainability of the Built Environment</p> | <p>Minimize air quality effects</p> |
| | <p>Minimize land alteration and reduction in tree cover, including urban heat island effect</p> |
| | <p>Minimize vulnerability to flooding</p> |
| | <p>Manage stormwater</p> |
| | <p>Maintain consistency with existing local and regional land use plans</p> |

Proposed Detailed Assessment of Highway Interchange Approach Options: Program Goals and Objectives

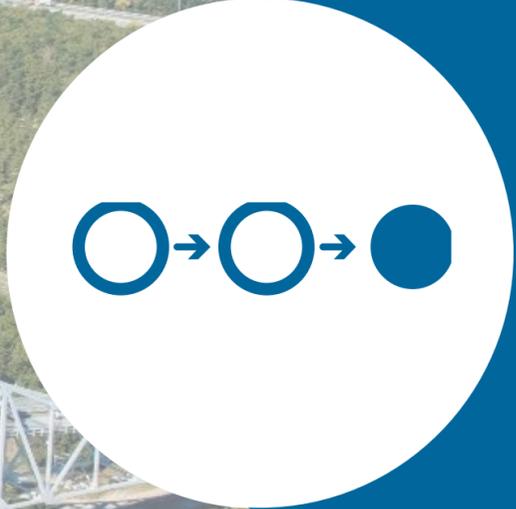
| Goals | Objectives |
|----------------------------------|--|
| <p>Maximize Constructability</p> | <p>Minimize the construction duration</p> |
| | <p>Maintain existing connections during construction</p> |

Proposed Detailed Assessment of Highway Interchange Approach Options: Program Goals and Objectives

| Goals | Objectives |
|---|--|
| <p>Facilitate Emergency Response</p> | <p>Improve emergency evacuation capabilities from Cape Cod and the islands to mainland Massachusetts</p> |
| | <p>Improve emergency response</p> |

Proposed Detailed Assessment of Highway Interchange Approach Options: Program Goals and Objectives

| Goals | Objectives |
|--------------|--|
| Costs | Maximize construction cost effectiveness |



Schedule

Schedule for the Sagamore Bridge Project





Bridge Update

Bridge Update



*Conceptual Rendering. Final design activities will conclude during the design-build phase.

Bridge Update



*Conceptual Rendering. Final design activities will conclude during the design-build phase.

Bridge Update



*Conceptual Rendering. Final design activities will conclude during the design-build phase.

Bridge Update

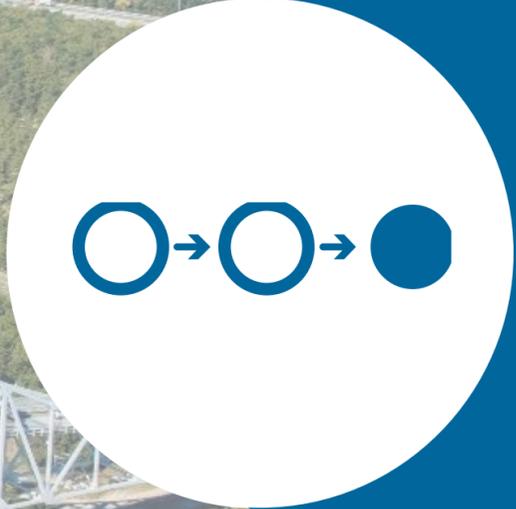


*Conceptual Rendering. Final design activities will conclude during the design-build phase.

Bridge Update



*Conceptual Rendering. Final design activities will conclude during the design-build phase.



Next Steps

Next Steps

- Virtual Public Meeting on April 25, 2024
- Open House on May 13, 2024
- Continue to seek funding for the Bourne Bridge

Communications

For General Information,

Visit the Project Website: www.mass.gov/cape-bridges

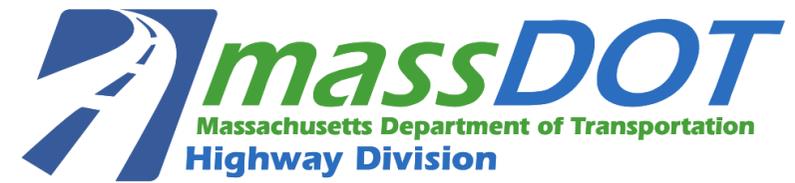


Project Contacts:

- Bryan Cordeiro, Project Manager, Email: bryan.cordeiro@dot.state.ma.us
- Gareth Saunders, Office of Legislative Affairs Highway Liaison,
Email: gareth.saunders@dot.state.ma.us



Questions and Discussion

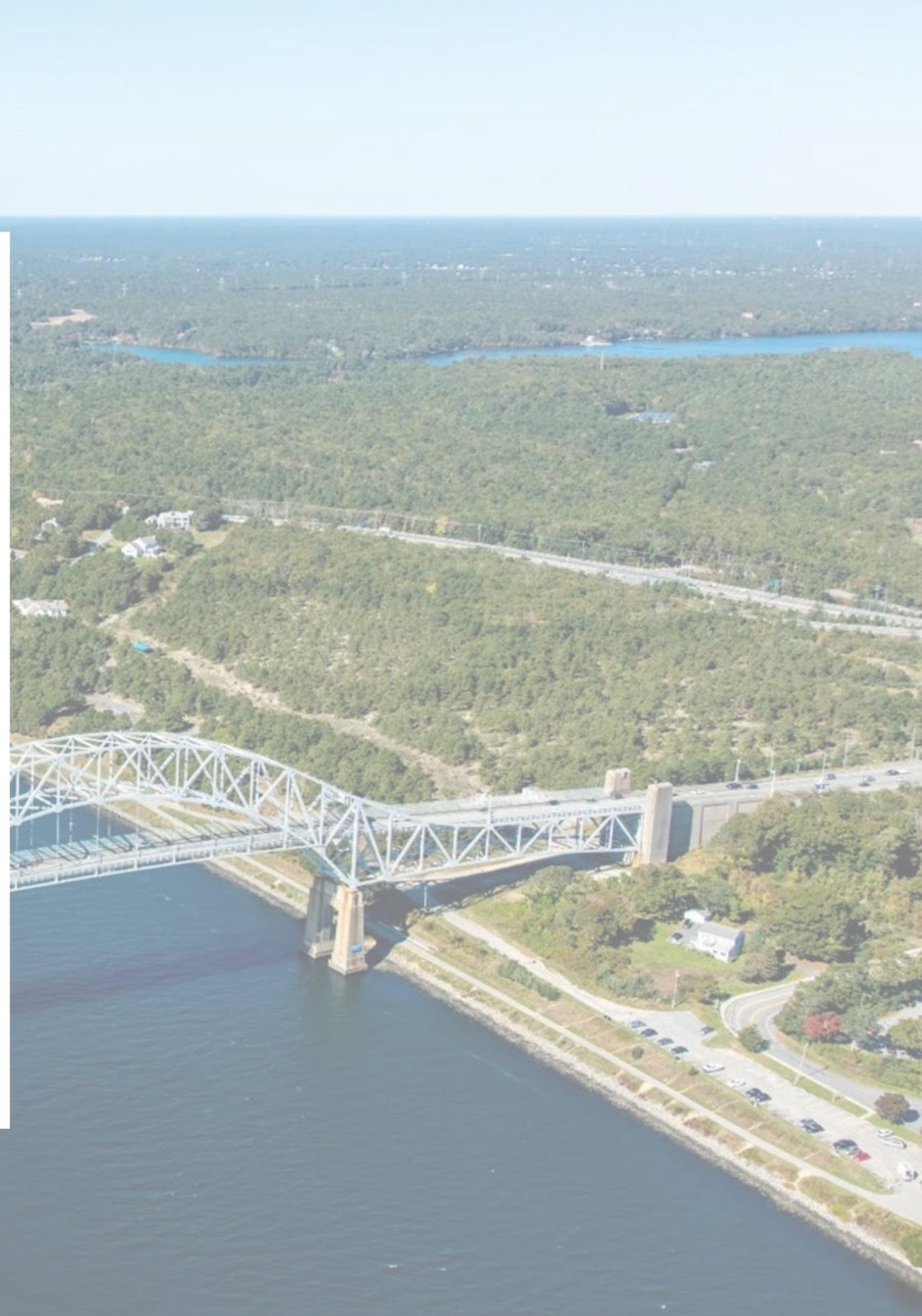


Thank You

Cape Cod Bridges Program

April 9, 2024

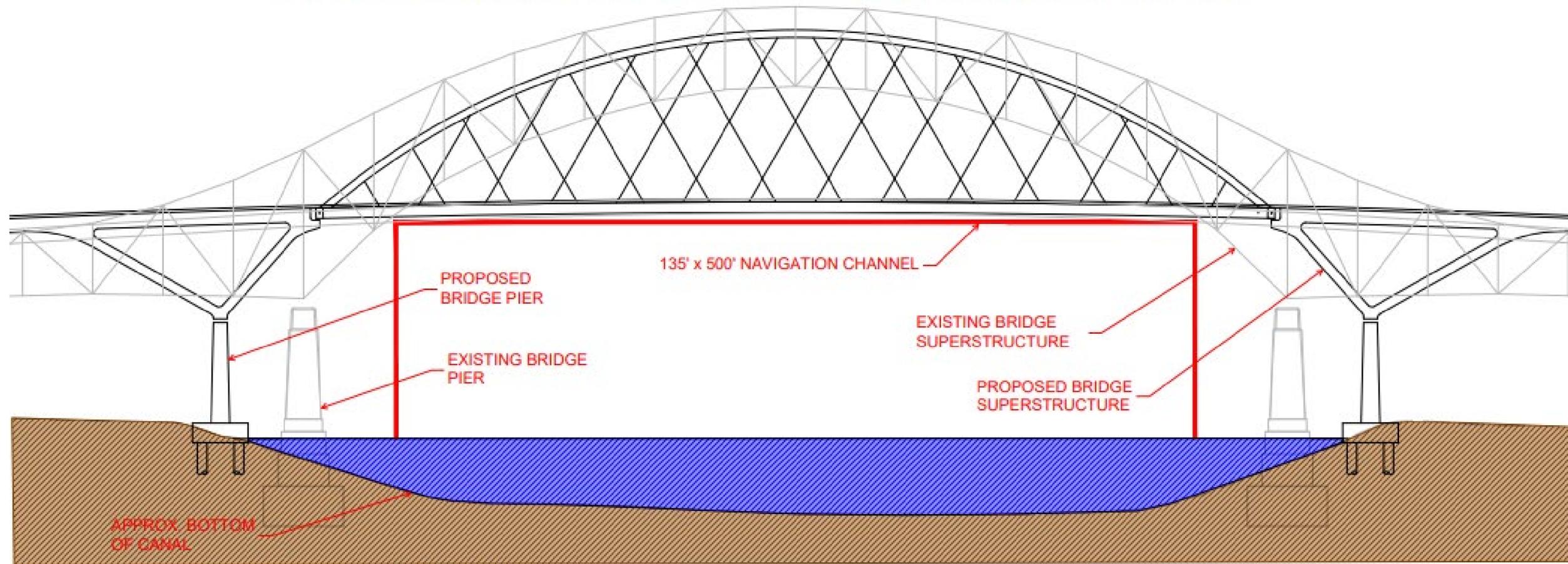
Project File No. 608020





Appendix

CAPE COD CANAL BRIDGE - VESSEL IMPACT RISK MITIGATION



Proposed Cape Cod Canal Pier

-To reduce risk of vessel collision, the proposed bridge piers and superstructure were located further outside the navigation channel than existing bridge piers

- Proposed piers located are along shoreline, so that large vessels would run aground before directly striking the proposed pier.

- The bridge piers and superstructure will be designed to meet the current AASHTO provisions for appropriate vessel impact loads. These code provisions were not in place at the time the Baltimore bridge was designed and constructed.



Francis Scott Key Bridge, Baltimore MD

Conceptual Construction Staging - Twin Bridges at Each Crossing

