

Round 4 Public Engagement

Cape Cod Bridges Program

January 24, 2023 Project File No. 608020





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- Your feedback is important.

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Notice of MassDOT's policy on diversity and civil rights:

- All MassDOT activities, including public meetings, are free of discrimination.
- MassDOT complies with all federal and state civil rights requirements preventing discrimination based on sex, race, color, ancestry, national origin (limited English proficiency), religion, creed, gender, sexual orientation, gender identity or expression, or veteran's status.
- We welcome the diversity from across our entire service area. If you have any questions or concerns, please visit <u>https://www.mass.gov/nondiscrimination-in-transportation-program</u> to reach the Office of Diversity and Civil Rights.

Thank you for joining our meeting. We appreciate your participation!



Panelists

MassDOT

- Bryan Cordeiro, Project Manager •
- Mike O'Dowd, Director of Major Projects \bullet
- Adetoyin Olaoye, Producer/Facilitator •
- Leah Grodstein, Producer/Facilitator •
- Makaela Niles, Producer/Facilitator •

FHWA

 Cassandra Ostrander, **Program Development Team** Leader

USACE

- Craig Martin, Navigation Section New England District
- Scott Acone, Programs and • **Project Management Division**





US Army Corps of Engineers®



HNTB

- Dave Anderson, Project Manager
- Mark Kolonoski, Deputy Project Manager • and Environmental Lead
- John Smith, Lead Bridge Designer •

HNTB Stantec



FHWA Update

 In January 2023, FHWA formally responded to MassDOT's request to be the Lead Federal Agency.



Massachusetts Division

Carrie Lavallee, P.E. Deputy Administrator and Chief Engineer Massachusetts Department of Transportation 10 Park Plaza Boston, MA 02116

Subject: Response to Lead Federal Agency Request for the Cape Cod Bridges Program

Dear Ms. Lavallee:

Thank you for your letter dated December 19, 2022, requesting that the Federal Highway Administration (FHWA) serve as the lead federal agency for the Cape Cod Bridges Program. As stated in your letter, it is the Massachusetts Department of Transportation's intent to fund a portion of the Cape Cod Bridges Program with U.S. Department of Transportation funding, triggering an FHWA nexus.

The FHWA Massachusetts Division agrees to serve as the lead federal agency for the Cape Cod Bridges Program. We will work closely with you and the U.S. Army Corps of Engineers, which we intend to invite to serve as a Cooperating Agency on the Program since they are the owners of both the Bourne and Sagamore Bridges and have been intimately involved with the Program thus far.

We look forward to working with you on the Cape Cod Bridges Program. FHWA Massachusetts Division is committed to efficiently and effectively advancing the Program to ensure timely and successful project delivery.

Should you have any questions, please contact me at (617) 494-3657 or Cassandra Ostrander at (617) 494-3113.

January 20, 2023

55 Broadway, 10th Floor Cambridge, MA 02142 (617) 494-3657 (617) 494-3355 www.fhwa.dot.gov/madiv

> In Reply Refer To: HDA-MA

Sincerely,

Joi Singh Division Administrator



Agenda

- **01** Update on Grant Opportunities
- 02 Update on Draft Program Purpose and Need
- **03** Public Feedback on Bridge Types
- **04** Lane Configuration
- 05 Roadway Grades
- **06** Roadway Locations
- 07 Next Steps





Update on Grant Opportunities

- Both the Bourne and Sagamore Bridges are assets of the federal government, under the jurisdiction of the United States Army Corps of Engineers (USACE)
- A Memorandum of Understanding between USACE and MassDOT was executed on July 7, 2020
 - USACE will:
 - Own, operate and maintain the existing Bridges until the new Bridges are in place
 - Share information, provide technical support and facilitate the transfer of ownership of the new bridges to MassDOT
 - MassDOT will:
 - Lead project delivery agency to complete the feasibility study and alternatives analysis, preliminary design and environmental permitting process, and construct replacement Bridges
 - Own, operate, and maintain the completed Bridges and Approaches



- Starting in 2018, MassDOT began providing Engineering Services to support the program
- \$350 Million included in State Transportation Bond Bill
- MassDOT has spent approximately \$25 Million to advance the program
 - Cape Cod Canal Transportation Study
 - Field Survey (Base Mapping)
 - Pilot Borings and Geophysical Explorations
 - Traffic Data Collection
 - Conceptual Engineering
 - Environmental Coordination
- The current schedule results in a Design-Build Request for Proposals in September of 2025
- The Design-Build methodology allows the procurement to commence based on preliminary design – final design and construction is performed by the selected entity



- The USACE, in partnership with MassDOT, submitted grant applications associated with the INFRA, Mega and Bridge Investment Program (BIP) provided by the Infrastructure Investment and Jobs Act (IIJA)
 - The INFRA and Mega grants may be used to fund up to 60% of the total project costs
 - BIP grants may be used to fund up to 50% of the total project costs
 - The remaining matching funds must come from other sources





- USACE has been informed funding will not be awarded under the 2022 INFRA nor BIP Large Bridge Program
- USACE has requested a debrief from USDOT regarding the review of the applications
- In January 2023 USDOT awarded USACE a \$1.6 Million BIP planning grant to support advancement of the Program
- USDOT has not released decisions regarding the Mega grant
- Most grant programs will be available on an annual basis through 2026.
- USACE and MassDOT will continue to pursue all possible avenues for funding
- MassDOT is continuing to aggressively advance the project development process





2022 BIP Large Bridge

Program:

- Only four projects
 awarded 2022 funding
- The closest in scope to the Cape Cod Bridges Program, is the Brent Spence Bridge in Kentucky and Ohio
- This project was awarded
 \$1.35 Billion







Update on Purpose and Need

Update on Purpose and Need

70 comments specifically on Purpose and Need.

Topics spanning:

- Bicycle and pedestrian accommodations
- Congestion and lane capacity
- Safety
- Master planning (climate resiliency, housing)

"As a resident I have 2 main concerns: 1. Safety in the rotaries. I have had numerous near misses and actually avoid going off Cape in summer. 2. Bicycling access - walking across the Bourne with a bike is not safe....We need a lane that is fenced off from cars this would help commuters and recreational cyclists as well as reduce car traffic."

"Collect data to balance technical needs with expanding use to multi modal transport without sacrificing aesthetics to a historical landmark."



Update on Purpose and Need

- Purpose Statement describes the desired transportation outcome based on needs.
- Improved traffic operations, multimodal accommodations, dependable cross-canal movement, and addressing the increasing maintenance needs are currently included.
- Non-transportation outcomes will be considered for Goals and Objectives of the Program.





Update on Bridge Types

How important is it that the new Cape Cod Bridges resemble the current Bourne and Sagamore Bridges?



2,204 Total Responses



The existing bridges are iconic as portals into Cape Cod. How important is it to replace them with landmark structures?



2,201 Total Responses



Please rate the Arch bridge type according to your preference.





4.5 Star Average





Please rate the Cable Stayed bridge type according to your preference.















Frequently Asked Questions from Public Feedback

Which bridge type has the shortest construction duration?	Preliminary Schedule a type bridge is expect construction duratio
Which bridge type has the lowest cost?	Based on the prelimination type is expected to h
Which bridge type is the most resistant to extreme wind events?	All three bridge types a storms.
Does one bridge type have more property impacts?	Property impacts are p alignment chosen, no

analysis indicates the Twin Arch ted to have the shortest on.

hary cost estimate, the Twin Arch have the lowest cost.

can withstand anticipated future

primarily dependent on the not the bridge type.



Frequently Asked Questions from Public Feedback - cont.

Which bridge type has the longest lifespan with the lowest maintenance impacts and cost?

- bridge.
- designed and constructed for ease of

• Any of the three bridge types would be designed and constructed to achieve a 100-year lifespan. • Maintenance on all three modern bridge types would have much lower costs and impact on traffic than maintenance on the existing truss

• Any of the three modern bridge types would be maintenance while minimizing impact to traffic.



Preferred Bridge Type – Twin Arch



Drive-Through View

Canal View



Next Steps

Below are some additional areas of interest and concern from public feedback. All are being considered as the design develops and will be discussed at future public meetings.

- Arch and bridge pier aesthetics lacksquare
- Aesthetic and highway lighting lacksquare
- Barrier fencing for pedestrian safety ${\color{black}\bullet}$
- Bridge Shared Use Path configuration, overlook areas and safety provisions ullet
- Retention and reuse of historic artifacts from the existing bridges lacksquare
- Arch float-in and erection lacksquare





Lane Configurations

Lane Configuration on the Bridges

Roadway Design will:

- Meet current roadway design standards
- Be consistent with roadway function
- Be compatible with adjacent roadways
- Be consistent with driver expectations



Roadway Elements – Through Travel Lane

Purpose

Provides for the movement of vehicles travelling from one destination to another

Two through travel lanes in each direction at each crossing







Roadway Elements – Entrance/Exit lanes

Purpose

- Provides space for acceleration and deceleration •
- Provides space for weaving of entering vehicles with exiting vehicles ullet
- Improves safety •

Due to the close proximity of adjacent ramps, the lane will be continuous between the nearest on ramp to the canal crossing and the nearest off ramp to the canal crossing







Roadway Elements – Shoulders

Purpose

- Provides space for disabled vehicles •
- Provides space for emergency response ullet
- Provides area to perform certain maintenance activities ullet

Located on both the left and right side of the roadway in each direction Usable shoulder

Usable shoulder width does not include a 2-foot buffer to barrier or guardrail ullet





Roadway Elements – Shared Use Path

Purpose

Dedicated space for bicycles and pedestrians

The Shared Use Path will be separated from vehicles by barrier

Shared Use Path at each crossing (Bourne/Sagamore)

Opportunities for overlook areas are under consideration along the Shared Use Path







Roadway Elements – Arch Ribs

Purpose

• Location of arch ribs and cable supports

Dimension will be determined as the design advances





Lane Configuration

Lane configuration described below is consistent with state and federal design guidelines

Lane configuration is applicable for both directions of travel at each crossing (Bourne and Sagamore)

- Through travel lanes two through lanes 12 feet wide each
- Entrance/Exit lane 12 feet wide
- Left side shoulder 4 feet wide
- Right side shoulder 10 feet wide









Vertical Clearance at Canal

- The existing Bourne and Sagamore Bridges provide 135 feet of navigational • clearance (measured from Mean High Water to bottom of bridge structure)
- Proposed clearance is 138 feet to account for approximately 3 feet of future sea ${\bullet}$ level rise
- Navigational clearance will be coordinated with USACE and United States Coast ${\bullet}$ Guard (USCG)



Roadway Grades

- Existing steep roadway grades reach 6% (6 feet of vertical rise for every 100 feet of ullethorizontal distance)
- Proposed flatter roadway grades reach 4.5% at Bourne and 4% at Sagamore (4.5) ulletand 4 feet of vertical rise for every 100 feet of horizontal distance)





The flatter proposed grades will:

- Be consistent with current design standards ullet
- Reduce speed variations due to grades which improves safety lacksquare
- Reduce the likelihood of vehicles having difficulties during snow and ice events ullet



The flatter proposed grades will:

- Be accessible for people with disabilities ullet
- Architectural Access Board (AAB) (521 CMR 22.3) \bullet
- Americans with Disabilities Act (ADA) lacksquare
- Improve rider experience for cyclists ${\color{black}\bullet}$
- Easier to ride uphill to the crest of the bridge ${\bullet}$
- Less opportunity for excessive speed when travelling downhill •







Roadway Locations

Options presented are conceptual

- Exact locations will be refined as design advances
- Conceptual sketches do not yet include ramps connecting to local roadways lacksquare
- Conceptual sketches do not yet depict the area necessary to construct the bridges ${}^{\bullet}$
- Analysis of future traffic operations is ongoing
- These topics will be discussed at future public meetings as preliminary design • advances





ROADWAY OPTIONS SCREENING CRITERIA





Roadway Locations



crossing

- Outboard Closer to Buzzards Bay for the Bourne Bridge – closer to Cape Cod Bay for the Sagamore Bridge
- Inboard located on the side of the canal
 - between the existing Bourne Bridge and
 - Sagamore Bridge
- Split Traffic heading On-Cape on one side of

 - other side of the existing bridge

Three options will be presented for each

existing bridge, traffic headed Off-Cape on the











Roadway Location – Bourne Bridge

Property

- There is a higher density of residential and commercial properties outboard of the existing roadway
- Therefore, the **Inboard** option has the least impacts to properties followed by the split option and outboard option, which has the greatest impacts

Constructability

- The Inboard option best allows the maintenance of traffic connections during construction
- The split and outboard options do not provide practical means to maintain all traffic connections and access to businesses during construction



Roadway Location Recommendation – Bourne Bridge

The analysis indicates that the **Inboard** option is the most favorable out of the three options studied because it has the least impacts to residential and commercial properties and is the least impactful to the traveling public during construction.





Bourne Scenic Park

Scenic Highway

Legend

Bridge Structures ---

Roadways

Notes:

- Location of roadway option shown is approximate.
- Ramp connections will be shown at future public meetings.



Sagamore Location Plan



Market Basket



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Roadway Options – Sagamore Inboard



Notes:

- Location of roadway option shown is approximate.
- Ramp connections will be shown at future public meetings.

Eleanor Ave/Cecilia Terrace Neighborhood

Market Basket



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Roadway Options – Sagamore Outboard



Notes:

- Location of roadway option shown is approximate.
- Ramp connections will be shown at future public meetings.

Eleanor Ave/Cecilia Terrace Neighborhood

Market Basket



Roadway Options – Sagamore Split



Notes:

- Location of roadway option shown is approximate.
- Ramp connections will be shown at future public meetings.

Eleanor Ave/Cecilia Terrace Neighborhood

Market Basket



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Roadway Location – Sagamore Bridge Property

- The Inboard option has the least amount of property impacts of the three options studied.
- The outboard option results in the greatest impacts to residential and commercial properties out of the three options studied.
- Although less impactful than the outboard option, the split option has considerable impacts to residential and commercial properties on both the east and west side of the existing roadway.

Constructability

- The Inboard option best allows the maintenance of traffic connections during construction.
- The split and outboard options do not provide practical means to maintain all traffic connections and access to businesses during construction.



Roadway Location Recommendation – Sagamore Bridge

The analysis indicates that the **Inboard** option is the most favorable out of the three options studied because it has the least impacts to residential and commercial properties and is the least impactful to the traveling public during construction.

> Eleanor Ave/Cecilia Terrace Neighborhood

> > Market Basket



Roadway Screening

- At both crossings, our preliminary analysis indicates the **Inboard** option is most ulletfavorable
- This is consistent with the location used for conceptual analysis by the USACE ulletin the MRER





Next Steps

Next Steps

- Seeking input from the public:
 - Comment tool and survey
- Continue program development:
 - Conceptual roadway alternatives
 - Environmental coordination
- USACE and MassDOT will continue to pursue all possible avenues for funding
- File Environmental Notification Form (Massachusetts Environmental Policy Act) in Spring of 2023
- National Environmental Policy Act coordination
- Public Outreach
 - Round 5 meetings
 - Update on public input / feedback
 - Feasible alternatives
 - Continue stakeholder engagement

venues for funding onmental Policy Act) in Spring of 2023



Public Outreach

Newspaper

- Cape Cod Chronicle
- The Barnstable Patriot
- El Planeta
- Provincetown Independent
- Vocero Hispano •

MassDOT Social Media

- Facebook
- Twitter

CAPE COD TIMES The Barnstable Patriot



The Provincetown INDEPENDENT



Thanks to the following for sending notice of this meeting:

- Cape Cod Commission ٠
- **Registry of Motor Vehicles**
- Cape Cod Pride
- Sandwich Council on Aging





CAPE COD COMMISSION















How will we keep you informed?

Communications

For General Information, Visit the Project Website: www.mass.gov/cape-bridges

To Leave a Comment Online, Visit:

pima.massdotpi.com/public/comment/project-comment-dynamic?project_id=13868

To Submit a Comment by Mail, Write to:

Carrie Lavallee, P.E., Chief Engineer Suite 6340, 10 Park Plaza, Boston, MA 02116, Attention: Project Management, Project File No. 608020

or Email:

MassDOTMajorProjects@dot.state.ma.us







Questions and Discussion

Share Your Questions and Comments



- Submit your questions and comments; Alt+H
- "Raise your hand" to be unmuted for verbal questions; Alt+Y



*9

Please state your name before your question



- To ask a question via phone, dial *9 and the moderator will call out the last 4-digits of your phone number and unmute your audio when it is your turn.
- Please take a moment to take the survey on your experience after this meeting

Please be advised that all comments are subject to disclosure for public records, therefore use these functions for project-related business only.





Thank You

Cape Cod Bridges Program

January 24, 2023 Project File No. 608020



