4 Affected Environment, Environmental Consequences, and Mitigation

4.16 Cultural Resources

4.16.1 Introduction

This section considers the potential effects of the No Build Alternative and the Build Alternative on architectural and archaeological historic properties that are listed in or eligible for listing in the National Register of Historic Places (NRHP). Historic architectural properties refer to aboveground historic resources, including buildings, structures, objects, sites, and districts of historical importance. Archaeological resources are subsurface physical remains of pre-contact (prehistoric, or the remains of Indigenous American societies) or post-contact (historical, between Native Americans and Europeans) activities.

Where the Massachusetts Department of Transportation (MassDOT) has determined that the Build Alternative would result in unavoidable adverse effects to any historic properties, this section also identifies mitigation measures that will be implemented to resolve those effects. This section is supported by additional information in **Appendix 4.16, Cultural Resources Technical Report**, which includes technical reports and documentation of consultation and coordination.

4.16.1.1 Regulatory Context

The following sections describe the two key federal regulations governing potential effects to historic resources. Refer to **Appendix 4.16, Cultural Resources Technical Report**, for additional federal and state regulations and guidance used for this assessment.

Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (Section 106) (54 USC 506.108) requires a federal agency with direct or indirect jurisdiction over a proposed federal or federally assisted undertaking (project) or with licensing or permitting authority, to:

> "take into account the effects of the undertaking on historic properties, which includes any prehistoric or historic district, site, building, structure, or object that is included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior."

The Section 106 implementing regulations (36 Code of Federal Regulations [CFR] 800) require that a project's Lead Federal Agency consult with the State Historic Preservation Officer (SHPO) to:

1. Initiate the Section 106 process.
2. Identify historic properties within the Area of Potential Effects (APE), defined as "the geographic

area(s) within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties."[1]

3. Assess adverse effects to historic properties within the APE
4. Resolve any adverse effects on historic properties within the APE.

The Section 106 regulations prescribe a consultation process, involving the SHPO, the Advisory Council on Historic Preservation (ACHP), federally recognized Indian Tribes/Tribal Historic Preservation Officers (THPOs), local governments, and the public, that the Lead Federal Agency must follow to "avoid, minimize, or mitigate" adverse effects to historic properties that might be caused by the project.

Section 4(f) of the Department of Transportation Act of 1966

Section 4(f) of the Department of Transportation Act of 1966 (Section 4(f)) (49 USC 303) requires U.S. Department of Transportation agencies to coordinate with the SHPO before using land from a historic site of national, state or local significance for transportation projects. Refer to the appendices to **Chapter 5, Draft Section 4(f) Evaluation**, for details regarding potential impacts of the No Build Alternative and the Build Alternative on Section 4(f)-protected historic sites.

4.16.1.2 Methodology

Identifying Consulting Parties

The Federal Highway Administration (FHWA) initiated the Section 106 process with the SHPO in March 2023. In addition to the SHPO, FHWA, and MassDOT identified the following consulting parties to provide advice and guidance during the Section 106 process regarding the identification of historic properties and the assessment of effects to those properties:

- THPO of the Wampanoag Tribe of Gay Head (Aquinnah)
- THPO of the Mashpee Wampanoag Tribe
- THPO of the Narragansett Indian Tribe
- Chairperson of the Herring Pond Wampanoag Tribe
- Executive Director of the Massachusetts Commission on Indian Affairs
- Massachusetts Board of Underwater Archaeological Resources
- Massachusetts Executive Office of Energy and Environmental Affairs
- Bourne Historical Commission
- Sandwich Historical Commission
- Cape Cod Commission
- U.S. Army Corps of Engineers
- National Trust for Historic Preservation
- Advisory Council on Historic Preservation

[1] Section 106 Tutorial: Key Terms. https://www.environment.fhwa.dot.gov/env_topics/section_106_tutorial/keyterms.aspx

Defining Areas of Potential Effects

MassDOT defined APEs in consultation with the Massachusetts Historic Commission (MHC), the state agency designated as the SHPO. Separate and distinct APEs (Construction APEs) were identified to assess effects upon historic properties due to the construction of each replacement bridge, including construction or demolition activities, approach highway realignment, interchange reconstruction, construction of new bicycle and pedestrian accommodations, establishment of temporary construction staging or laydown areas, and right-of-way acquisitions. These Construction APEs match the boundaries of the Sagamore and Bourne Project Limits. MassDOT identified a single, more expansive APE (Viewshed APE) to assess potential viewshed effects due to the replacement bridges. The Viewshed APE was established using Geographic Information System (GIS) mapping and Light Detection and Ranging (LiDAR) data, which considered topography and the influence of trees and buildings within the landscape, to identify where the existing and replacement bridges would be visible. **Section 4.16.2** presents the Construction APEs and the Viewshed APE for the Sagamore and Bourne Bridges based on preliminary design.

The SHPO concurred with the APEs on July 7, 2023. The FHWA and MassDOT presented the APEs to the other Section 106 consulting parties on January 22, 2024. None of the consulting parties objected to the geographical limits established for the APEs. The FHWA will seek approval from the SHPO, in coordination with the Section 106 consulting parties, for any updates to the approved APEs warranted by design development, as necessary.

Identifying and Evaluating Historic Properties

MassDOT's identification and evaluation of historic properties within the Construction and Viewshed APEs focused on the State Register of Historic Places (SRHP)/NRHP criteria of eligibility, as defined by the National Register Criteria for Evaluation:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) that are associated with the lives of persons significant in our past; or
>
> (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) That have yielded, or may be likely to yield, information important in prehistory or history.[2]

[2] https://www.ecfr.gov/current/title-36/chapter-I/part-60/section-60.4

To identify historic architectural properties in the Construction and Viewshed APEs, MassDOT reviewed its Historic Bridge Inventory Files, MHC's Inventory of Historic and Archaeological Assets of the Commonwealth (MHC Inventory), which is managed through the online Massachusetts Cultural Resources Information System (MACRIS),[3] and other state, regional, and local resources. Additionally, in 2023, MassDOT conducted a Reconnaissance Level Architectural Resources Survey within the Construction and Viewshed APEs to identify historic architectural properties that could be temporarily and/or permanently affected by the Build Alternative based on preliminary plans. In its field walkover, MassDOT identified architectural properties that would be at least 40 years old as of 2027 (the construction start date) that were not previously evaluated for SRHP/NRHP eligibility or included in the MHC Inventory, but which could meet the SRHP/NRHP criteria of eligibility based on the National Register Criteria for Evaluation. Based on the criteria, MassDOT then prepared NRHP Inventory (Determinations of Eligibility) Forms for those properties for the SHPO's review.

MassDOT conducted a search of MACRIS to identify previously recorded archaeological sites and reviewed reports of cultural resource management investigations in the Cape Cod Bridges Program (Program) APEs. MassDOT conducted an Archaeological Reconnaissance Survey (Archaeological Sensitivity Assessment) in fall 2023 to identify known and potential pre-contact and post-contact archaeological sites within the Construction APEs, to assess the archaeological sensitivity of the Construction APEs, and to make recommendations for the protection of cultural resources or additional investigations. MassDOT used the information collected during the archival research and walkover survey to develop a predictive model for archaeological sensitivity, with rankings of low, moderate, or high archaeological sensitivity. Based on the results of the predictive model, MassDOT identified areas where further archaeological testing would be warranted.

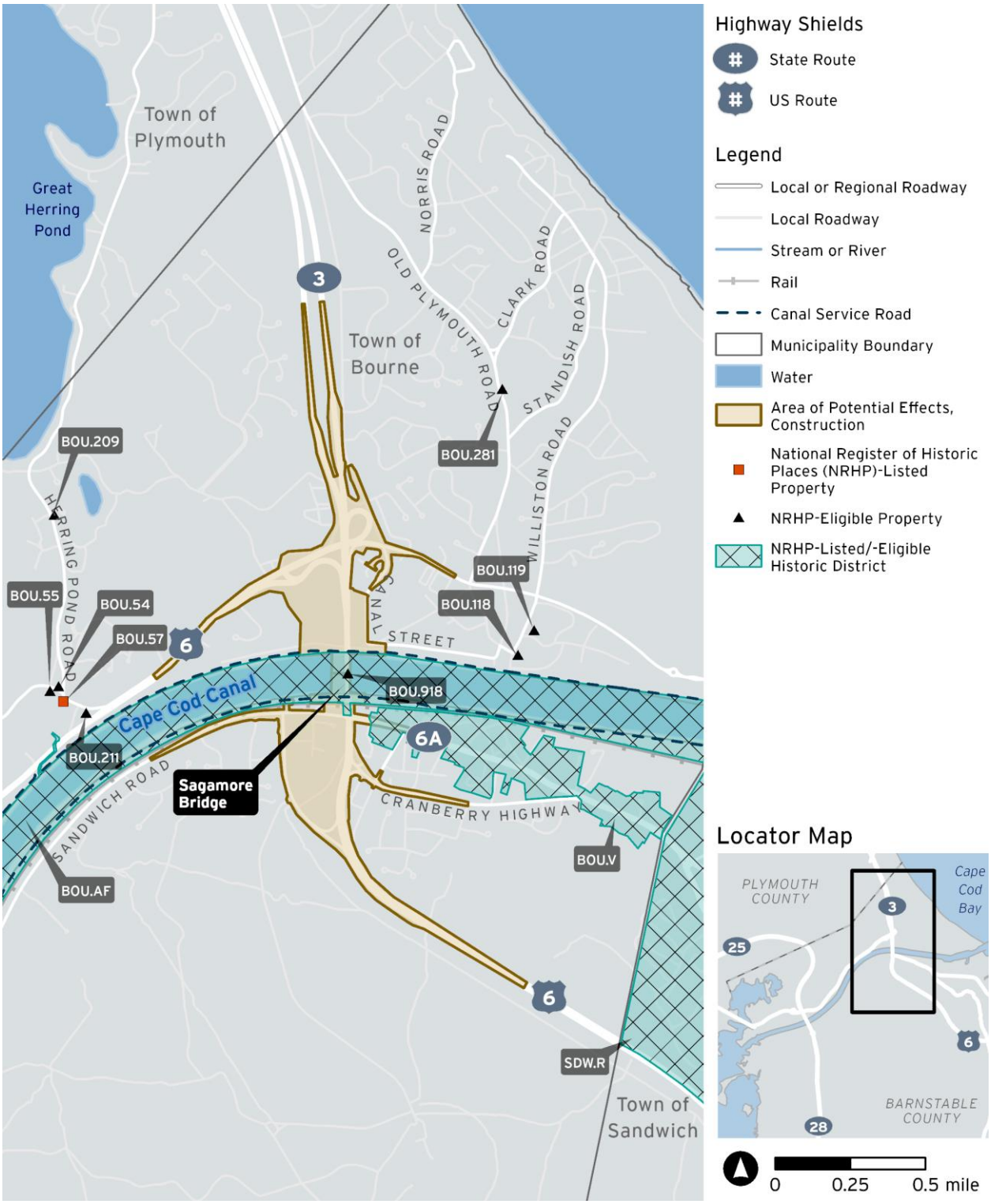
4.16.2 Affected Environment

4.16.2.1 Historic Architectural Properties within the Construction APEs

Figure 4.16-1 presents the Sagamore Bridge Construction APE, and **Figure 4.16-2** presents the Bourne Bridge Construction APE. Sagamore Bridge, Bourne Bridge, and the Cape Cod Canal Historic District are the only historic architectural properties identified within the Construction APEs that are eligible for listing in the NRHP. No NRHP-listed properties were identified within the Construction APEs.

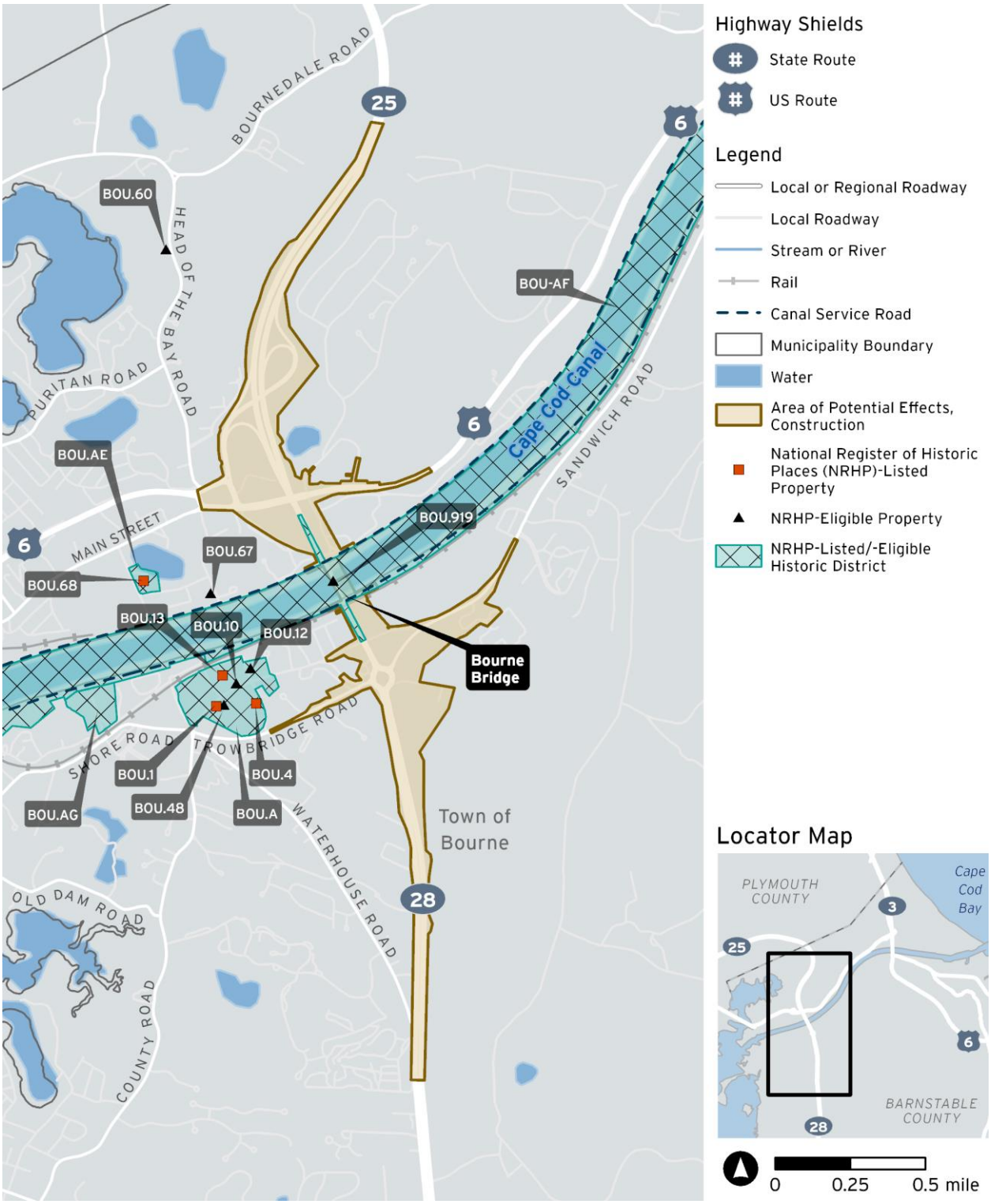
[3] https://mhc-macris.net/

Figure 4.16-1. Construction Area of Potential Effects (Sagamore Bridge)



Source: Massachusetts Department of Transportation, 2025

Figure 4.16-2. Construction Area of Potential Effects (Bourne Bridge)



Source: Massachusetts Department of Transportation, 2025

Sagamore Bridge

Sagamore Bridge is a three-span, 1,408-foot-long steel riveted Warren continuous truss bridge that carries U.S. Route 6 across Cape Cod Canal, Sandwich Road, and the Massachusetts Coastal Railroad. It was funded under the National Industrial Recovery Act of 1933 and constructed between 1933 and 1935 by the American Bridge Company through the Depression-era Public Works Administration.

According to the original U.S. Army Corps of Engineers (USACE) design drawings, Sagamore Bridge is comprised of three continuous spans with span lengths of 396 feet, 616 feet, and 396 feet. The arched 616-foot-long center span over Cape Cod Canal is supported by two granite-stone-facing concrete piers on each side of the canal. There are hollow abutments at either end of the bridge that are approximately 220 feet long; these are vaulted and consist of concrete T-beams.[4] Sagamore Bridge was determined individually eligible for listing in the NRHP at the state level under Criteria A and C on March 6, 1991. In identifying its NRHP Significance Criteria, MACRIS notes that the continuing "swinging" truss represents an unusual or unique style, the design provides a valuable contribution to bridge technology, the bridge retains its integrity, the builder is known and important, and the bridge is historically important to the area. Additionally, the bridge is a contributing resource to the NRHP-eligible Cape Cod Canal Historic District.

Sagamore Bridge is an exceptional example of the continuous arched through truss type—a rare bridge type in Massachusetts. The center span crossing Cape Cod Canal consists of deck truss side spans transitioning into an arched through truss with a "swinging" deck suspended from the lower chord of the arch by 44 suspension cables. The bridge has concrete open-web column piers and concrete abutments with stylized Art Deco pylons. The continuous arched through truss span is a particularly graceful example of this form, which has been perfected by nationally acclaimed engineers Fay, Spofford and Thorndike. The main arched span has a cleaner, boxed appearance to the built-up, riveted truss members since flat plates were applied to the outward faces of the beams and the connecting angles were turned inward. The bridge is further distinguished by its well-detailed Art Deco architectural elements, including the massive Art Deco pylons set at the abutments to provide a gateway to the bridge.

Sagamore Bridge is included in the MHC Inventory as BOU.918. The MHC Inventory Form notes that in a national competition for the most beautiful steel bridges erected each year, Sagamore Bridge was awarded an Honorable Mention – Class A – 1935 Award from the American Institute of Steel Construction for its graceful design.[5]

Bourne Bridge

Bourne Bridge is a seven-span, 2,384-foot-long steel riveted Warren continuous truss bridge that carries State Route 28 over Cape Cod Canal, Sandwich Road, and the Massachusetts Coastal Railroad. Like Sagamore Bridge, Bourne Bridge was funded under the National Industrial Recovery Act of 1933

[4] Massachusetts Department of Transportation, Bridge Type Selection Worksheet, Bridge No. B-17-005, Sagamore Bridge Arch/Delta Spans, April 2025. Draft.

[5] https://mhc-macris.net/details?mhcid=BOU.918

and constructed between 1933 and 1934 by the American Bridge Company through the Depression-era Public Works Administration.

According to the original 1934 USACE design drawings, Bourne Bridge is comprised of two simple spans with spans lengths of 242 feet and 274.5 feet; three continuous spans with span lengths of 398.5 feet, 616 feet, and 398.5 feet; and two simple spans with span lengths of 244.5 feet and 210 feet. The arched 616-foot-long center span over Cape Cod Canal is supported by two granite-stone facing concrete piers on each side of the channel. There are hollow abutments at either end of the bridge that are approximately 150 feet long.[6] Like Sagamore Bridge, the main span crossing Cape Cod Canal consists of deck truss side spans transitioning into an arched through truss with a "swinging" deck suspended from the lower chord of the arch by 44 suspension cables. The approach spans flanking the main span are deck truss spans, leading into the deck truss approach spans. The superstructure is supported by six reinforced open-web concrete column piers and reinforced concrete abutments with stylized Art Deco pylons.

Along with Sagamore Bridge, Bourne Bridge was determined individually eligible for listing in the NRHP at the state level under Criteria A and C on March 6, 1991, and it is a contributing resource to the NRHP-eligible Cape Cod Canal Historic District. Nearly identical to Sagamore Bridge, Bourne Bridge is an exceptional example of the continuous arched through truss type designed by Fay, Spofford and Thorndike. Like Sagamore Bridge, in identifying its NRHP Significance Criteria, MACRIS notes that the continuing "swinging" truss represents an unusual or unique style, the design provides a valuable contribution to bridge technology, the bridge retains its integrity, the builder is known and important, and the bridge is historically important to the area.

Bourne Bridge is included in the MHC Inventory as BOU.919. The MHC Inventory Form notes that Bourne Bridge was awarded the First Place – Class A – 1934 and is included in American Institute of Steel Construction's Prize Bridges 1928-1938.[7]

Cape Cod Canal Historic District

Explorations into the concept of a canal to encourage commerce among European colonists and Indigenous tribes date to the early 1600s.[8] After several failed attempts to dig the canal in the late 18th century, Cape Cod Canal was constructed by the privately owned Boston, Cape Cod and New York Canal Company from 1909 to 1914. The U.S. government acquired Cape Cod Canal in 1928 and implemented a widening and improvement program from 1933 to 1940, which included construction of the highway bridges and the NRHP-eligible Buzzards Bay Vertical Lift Railroad Bridge.[9] Cape Cod Canal has been recognized as a masterful effort of engineering and for the significant effect it had on

[6] Massachusetts Department of Transportation, Bridge Type Selection Worksheet, Bridge No. B-17-004, Bourne Bridge Arch/Delta Spans, May 2025. Draft.

[7] https://mhc-macris.net/details?mhcid=BOU.919

[8] Massachusetts Cultural Resource Information System. Historic Area Detail: BOU.AF. https://mhc-macris.net/details?mhcid=BOU.AF

[9] Massachusetts Historical Commission, Massachusetts Cultural Resource Information System. https://mhc-macris.net/details?mhcid=BOU.901

both the surrounding communities and on maritime transportation and economic development in New England. Additionally, the canal had an important role in coastal defense during World War II.

The 8.1-mile-long land cut portion of Cape Cod Canal, including the multiple buildings, structures, features, and sites associated with the construction and operation of the canal, has been determined eligible for listing in the NRHP as a historic district[10] and is eligible at the state level under Criteria A and C. Cape Cod Canal is included in the MHC Inventory as BOU.AF/FAL.BG/SDW.Z/WRH.V.

4.16.2.2 Other Architectural Properties within and Adjacent to the Construction Area of Potential Effects

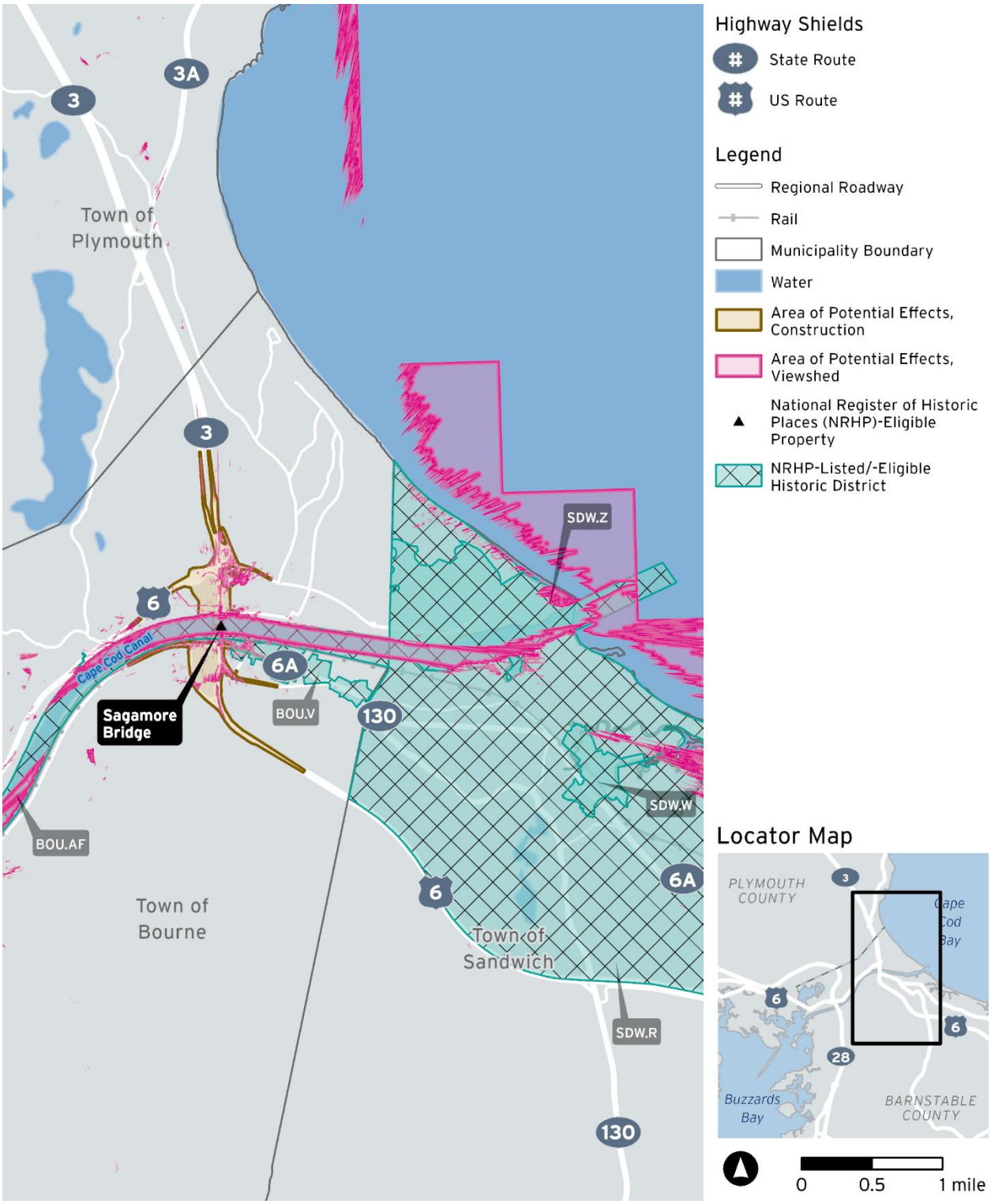
MassDOT evaluated architectural properties and areas within or immediately adjacent to the Sagamore Bridge and Bourne Bridge Construction APEs that are more than 40 years old and were not previously included in the MHC Inventory. Of the three individual structures and two areas that MassDOT evaluated in the Sagamore Bridge Construction APE, none were determined eligible for the NRHP. MassDOT evaluated one historic area within the Bourne Bridge Construction APE and determined it was not eligible for the NRHP. Additionally, MassDOT determined that one previously inventoried area in the Bourne Bridge Construction APE was not NRHP eligible, and that one previously inventoried property no longer exists. **Appendix 4.16, Cultural Resources Technical Report**, provides additional details, including the properties' NRHP Eligibility Forms and agency coordination.

4.16.2.3 Historic Architectural Properties within the Viewshed Area of Potential Effects

Figure 4.16-3 and **Figure 4.16-4** present the Viewshed APE, which includes the viewsheds for the Sagamore and Bourne Bridges, respectively. **Table 4.16-1** identifies NRHP-listed and NRHP-eligible historic architectural properties, including structures and areas, within the Viewshed APE of the Sagamore and/or Bourne Bridge.

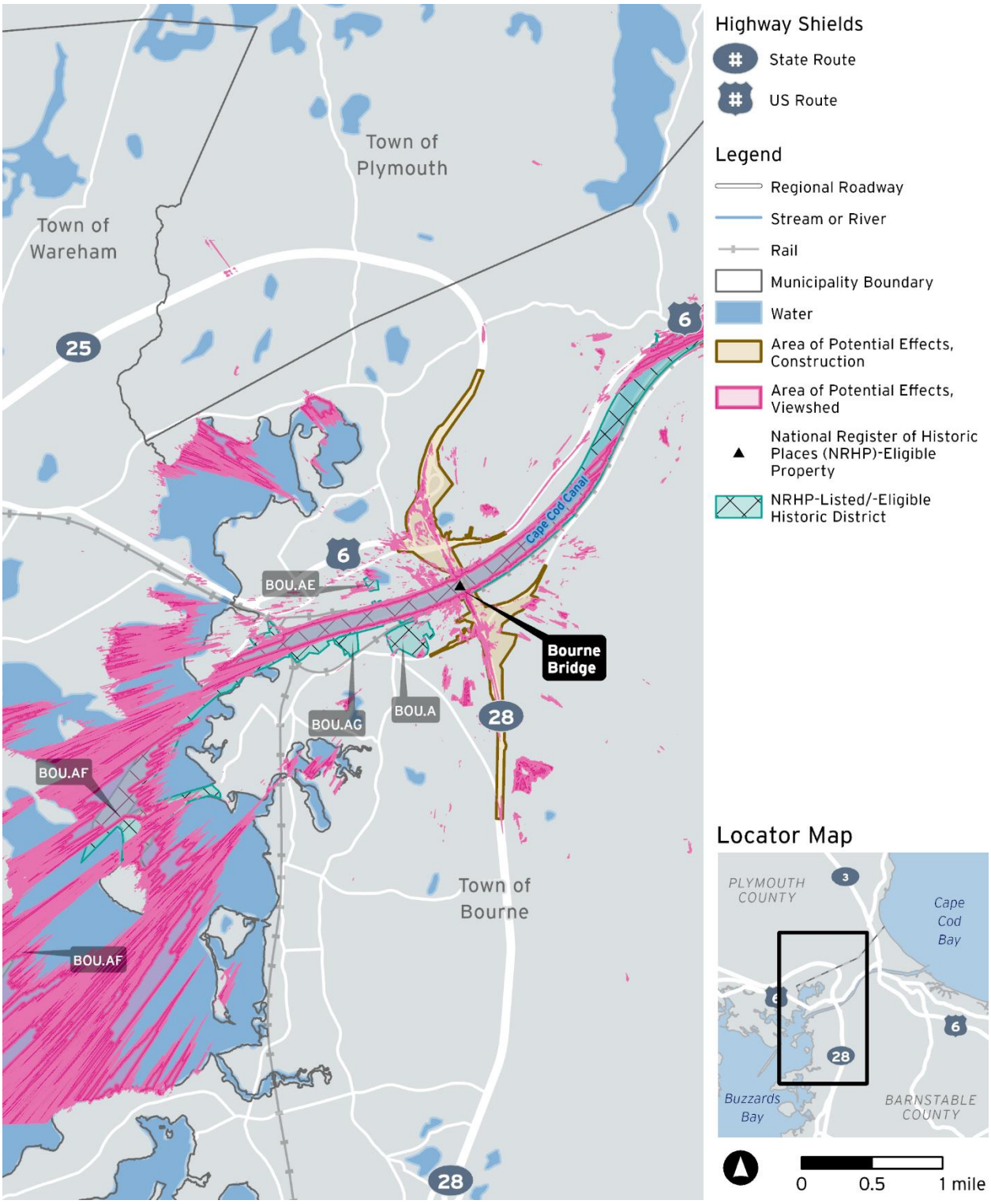
[10] The U. S. Army Corps of Engineers (USACE) issued a formal determination that the Bourne Bridge, the Sagamore Bridge, and the Cape Cod Canal Historic District are eligible for listing in the NRHP as part of a Programmatic Agreement with the SHPO, related to the USACE's MRER/EA and Finding of No Significant Impact (FONSI) for the Cape Cod Canal Highway Bridges. The USACE signed and fully executed the Programmatic Agreement on March 11, 2022.

Figure 4.16-3. Viewshed Area of Potential Effects (Sagamore Bridge)



Source: Massachusetts Department of Transportation, 2025

Figure 4.16-4. Viewshed Area of Potential Effects (Bourne Bridge)



Source: Massachusetts Department of Transportation, 2025

Table 4.16-1. Historic Architectural Properties within the Viewshed Area of Potential Effects (Sagamore and Bourne Bridges)

Historic Properties/ Area	Address	Massachusetts Historical Commission Inventory Number	Bridge Viewshed	Protection
Cape Cod Canal Historic District	Cape Cod Canal	BOU.AF, FAL.BG, SDW.Z, WRH.V.	Sagamore & Bourne Bridges	National Register of Historic Places (NRHP)-eligible
South Sagamore Area	Sandwich Road area/Sagamore Village	BOU.V	Sagamore Bridge	NRHP-eligible
Bournedale Village School	29 Herring Pond Road	BOU.57	Sagamore Bridge	NRHP-listed
Mason White-Battles House	6 Bournedale Road	BOU.54	Sagamore Bridge	NRHP-eligible
Wilson D. Bent House	9 Bournedale Road	BOU.55	Sagamore Bridge	NRHP-eligible
Josiah Ellis House	166 Herring Pond Road	BOU.209	Sagamore Bridge	NRHP-eligible
Nathan Bourne Ellis House	854 Scenic Highway	BOU.211	Sagamore Bridge	NRHP-eligible
Swift Memorial Methodist Episcopal Church	10 Williston Road	BOU.118	Sagamore Bridge	NRHP-eligible
Sagamore Grammar School	30 Williston Road	BOU.119	Sagamore Bridge	NRHP-eligible
Capt. William Crowell Gibbs House	252 Old Plymouth Road	BOU.281	Sagamore Bridge	NRHP-eligible
Keene Street-Sandwich Road Area	Keene Street-Sandwich Road area/Bourne Village	BOU.A	Bourne Bridge	NRHP-eligible
Aptucxet Trading Post Museum Historic District	6 Aptucxet Road	BOU.AG	Bourne Bridge	NRHP-listed
George I. Briggs House	22 Sandwich Road	BOU.1	Bourne Bridge	NRHP-listed
Bourne High School	85 Cotuit Road	BOU.4	Bourne Bridge	NRHP-listed

Historic Properties/ Area	Address	Massachusetts Historical Commission Inventory Number	Bridge Viewshed	Protection
Jonathan Bourne Public Library	30 Keene Street	BOU.13	Bourne Bridge	NRHP-listed
Bourne Town Hall	24 Perry Avenue	BOU.68	Bourne Bridge	NRHP-listed
Albert R. Eldridge House	43 Sandwich Road	BOU.10	Bourne Bridge	NRHP-eligible
Moses Calvin Waterhouse House	59 Keene Street	BOU.12	Bourne Bridge	NRHP-eligible
Alonzo E. Booth Blacksmith Shop	22 Sandwich Road	BOU.48	Bourne Bridge	NRHP-eligible
Gibbs House	291 Head of the Bay Road	BOU.60	Bourne Bridge	NRHP-eligible
Abram F. Swift House	37 Old Bridge Road	BOU.67	Bourne Bridge	NRHP-eligible

4.16.2.4 Archaeological Resources Within and Near the Construction Area of Potential Effects

The MHC Inventory files indicate that there are nine recorded archaeological sites within and near the Sagamore Bridge Construction APE and 15 recorded archaeological sites within and near the Bourne Bridge Construction APE. Prior to the construction of Cape Cod Canal, the areas around the Sagamore and Bourne Bridges had high archaeological sensitivity, based on the presence of known Native American and early European settlements in proximity to the Monument and Scusset Rivers. However, construction of the canal resulted in large-scale disturbances that most likely destroyed any sites near the rivers. Further, investigations conducted by the USACE in 1994, and subsequent investigations indicate that most of the areas immediately adjacent to the existing bridges have been disturbed by bridge construction.

Based on the results of its 2023 Archaeological Reconnaissance Survey, MassDOT determined that much of the surveyed landscape has low archaeological sensitivity for intact archaeological resources due to disturbances caused by previous canal, roadway, bridge, railroad, utility, and drainage construction and residential and commercial development. In the segments of the surveyed area where prior disturbance is evident, no further archaeological investigations are recommended.

MassDOT conducted an intensive (locational) archaeological survey in the following five locations within the Construction APEs with intact soils to assess their sensitivity:

- Sagamore Bridge South Interchange, wooded terrace west of the Market Basket parking lot
- Bourne Bridge North Interchange, north of Nightingale Pond

- Bourne Bridge North Interchange, east of Nightingale Pond
- Bourne Bridge South Interchange, low ridge off Sandwich Road east of the interchange
- Bourne Bridge South Interchange, south of the interchange along proposed State Route 28 northbound

No significant archaeological resources were identified during the locational survey. Further, MassDOT determined that one previously recorded site and three new pre-contact spots within the Bourne Bridge Construction APE are not eligible for listing in the NRHP. MassDOT received concurrence from the SHPO on its level of investigation and findings on January 14, 2025 (provided in **Appendix 4.16, Cultural Resources Technical Report**). No other comments were received from consulting parties on the Reconnaissance Survey or the results of the intensive archaeological survey.

4.16.3 No Build Alternative

The No Build Alternative would involve continued operation of the NRHP-eligible Sagamore and Bourne Bridges. In the No Build Alternative, which is consistent with the No Action Alternative identified in the USACE's Major Rehabilitation Evaluation Report/Environmental Assessment, major rehabilitation efforts would not be conducted, and components of the structures would be repaired and critical elements replaced as they deteriorate and before they fail. It is anticipated that there would be no effects on the bridges or other historic architectural properties, as there would be no change in appearance or location of the bridges.[11]

In the No Build Alternative, MassDOT would comply with Section 106 and Massachusetts-related historic regulations as needed to maintain the highway interchange approach networks at the two bridges and implement the Transportation Improvement Program projects (identified in **Chapter 3, Proposed Action and Alternatives**).

4.16.4 Build Alternative

4.16.4.1 Historic Architectural Properties

The demolition of the Sagamore and Bourne Bridges in the Build Alternative would have an unavoidable adverse effect on each of those NRHP-eligible structures in accordance with 36 CFR 800.5(a)(2)(i). Additionally, the Build Alternative would result in the loss of the two historic structures that are contributing resources to the NRHP-eligible Cape Cod Canal Historic District. Further, construction of new bridges to replace Sagamore and Bourne Bridges would affect the lands within the historic district.

To minimize impacts to the feeling and setting of the Cape Cod Canal Historic District, and in coordination with the FHWA and with input from the public, MassDOT selected the replacement bridge type design in part because it would have a kinship with the existing historic high-level through truss

[11] Cape Cod Canal Bridges Major Rehabilitation Study. https://www.nae.usace.army.mil/Missions/Projects-Topics/Cape-Cod-Canal-Bridges-Major-Rehabilitation-Study/

bridges and would provide a similar monumental gateway experience across Cape Cod Canal. By incorporating a network arch main span across the canal and maintaining the arched bridge profiles similar to the existing structures, MassDOT determined that the proposed replacement bridges—parallel, twin steel tied-arch bridges supported on delta frames—would be compatible with the existing historic through truss bridges in scale and form. As a result, MassDOT determined that the replacement bridges would not have an adverse effect on the Cape Cod Canal Historic District.

MassDOT determined that due to their similar arched bridge profiles, the views of the replacement bridges from historic properties would be comparable to current views of the existing bridges. In accordance with 36 CFR 800.5(b), MassDOT determined that the replacement bridges would avoid adverse effects on historic architectural properties, including districts and individual structures within the Viewshed APE.

4.16.4.2 Archaeological Resources

As the Program's plans develop during the design-build process, MassDOT will continue to consult with the ACHP, SHPO, THPOs, and other Section 106 consulting parties. Although the Archaeological Reconnaissance Survey confirmed that much of the surveyed landscape within the Construction APEs has low archaeological sensitivity and the intensive survey did not identify any significant archaeological resources, MassDOT will continue to monitor the need for additional archaeological investigations through final design and construction of the Build Alternative as follows:

1. MassDOT will require the Program's contractor(s) to regularly provide updated construction plans for review and assessment by MassDOT's Archaeologist.
2. MassDOT's Archaeologist will consult with the State Archaeologist, the USACE's Archaeologist, and the Section 106 consulting parties regarding the need for and scope of additional archaeological surveys.

Additionally, MassDOT will include a Discovery of Unanticipated Archaeological and Skeletal Remains Special Provision in the construction contract.

4.16.5 Mitigation

MassDOT has prepared a Draft Programmatic Agreement among the FHWA, MassDOT, and SHPO in accordance with 36 CFR 800.14(b) (provided in **Appendix 4.16, Cultural Resources Technical Report**). The Programmatic Agreement commits the FHWA and MassDOT to certain stipulations to mitigate the adverse effects on the NRHP-eligible Sagamore and Bourne Bridges and to guide the Program through Section 106 consultation process. The mitigation stipulations include the following:

- Design and construct new, high-level bridges comprising parallel, twin steel tied-arch superstructures supported on delta frames at each crossing. Each new bridge will provide four through-traffic lanes (two lanes in either direction), two auxiliary (acceleration/deceleration) lanes, and a single shared-use path for bicycle and pedestrian use.
- Prepare historic recordation documentation for submittal to the Historic American Engineering Record maintained by the National Park Service.

- Prepare and fabricate at least one interpretive historic panel for installation at each of the pedestrian overlooks along each bridge.
- Salvage original bridge plaques at both existing bridges.
- Provide updated construction plans to the MassDOT Archaeologist, who will review the plans to determine whether additional archaeological survey is needed in consultation with the State Archaeologist and the Section 106 consulting parties.
- Include a Special Provision in the Construction Contract for the Discovery of Unanticipated Archaeological and Skeletal Remains.

The Programmatic Agreement also includes stipulations regarding the design-build process, including specifying that the agreement will be included in the Request for Qualifications, Request for Proposals, and construction contracts for both bridge replacement projects.

Additional details on the proposed mitigation stipulations are included in the Draft Programmatic Agreement. The FHWA and MassDOT will consult with the ACHP, the SHPO, THPOs, and other Section 106 consulting parties before finalizing the Programmatic Agreement. The Final Environmental Impact Statement will include the signed, executed Programmatic Agreement.