

Cultural Resources Identification and Evaluation

Cape Cod Canal Transportation
Study
Bourne, Sandwich and Plymouth,
Massachusetts



Prepared for submission to:
The Massachusetts Department
of Transportation

Prepared by:
Archaeological and Historical
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CULTURAL RESOURCES IDENTIFICATION AND EVALUATION

EVALUATION OF POTENTIAL EFFECTS ON ARCHAEOLOGICAL AND CULTURAL/ETHNOGRAPHIC RESOURCES
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ABSTRACT AND MANAGEMENT SUMMARY

The Cape Cod Canal Transportation Study is being conducted by the Massachusetts Department of Transportation (MassDOT). The purpose of the study is to develop and analyze potential improvement alternatives to the transportation system around the Cape Cod Canal, including possible new crossings of the canal and new highway, interchange, and non-highway improvements.

This report presents the results of the identification and evaluation of cultural resources that may be affected by the project. It was prepared by Archaeological and Historical Services, Inc. (AHS), under contract to Stantec, the engineering firm that is conducting the Study. For the purpose of this study, cultural resources are defined here as historic, archaeological and cultural/ethnographic resources. Historic resources include above-ground manmade resources such as buildings, structures, objects, districts, landscapes, and sites that meet the criteria for listing in the National Register of Historic Places (NRHP). Archaeological resources are buried pre-colonial Native American and historic-period sites. Cultural/ethnographic resources are above and below-ground areas of cultural sensitivity and importance to the Mashpee, Gay Head (Aquinnah) and Herring Pond tribes.

The Project Focus Area, located almost entirely in the town of Bourne, is rich in above-ground cultural resources. The Bourne Bridge and the Sagamore Bridge have already been identified by MHC as eligible for individual listing in the National Register of Historic Places (NRHP). The Cape Cod Canal itself and associated resources are considered potentially eligible as a National Register historic district. In the surrounding neighborhoods in Bourne, some buildings are individually listed in the NRHP, one has been determined by MHC as NRHP-eligible, and many others have been identified as potentially eligible for individual NRHP listing. Some Bourne neighborhoods have been identified as potential NRHP historic districts.

Several historic areas in Plymouth and Sandwich are also within and adjacent to the Project Focus Area. In Plymouth, one historic cemetery was identified in the Project Focus Area, potentially NRHP-eligible as part of a district. Several historic areas in Sandwich were identified in the vicinity of the proposed Route 6 lane addition extending to the Route 130 interchange, and the Route 6A/Route 130 intersection. All the Sandwich resources are listed in the State Register of Historic Places and included in the Old King's Highway Regional Historic District; some are potentially NRHP-eligible as districts.

The Project Focus Area is also rich in archaeological and cultural resources. The river, marsh, and coastal resources available on the Cape made the area a prime place for Native American settlement for thousands of years. Villages were present, as evidenced by archaeological finds during the construction of the canal, and by oral tradition among the Wampanoag tribes. Archaeological surveys previously undertaken as part of cultural resource management projects in the Focus Area have identified dozens of archaeological sites. Areas of cultural importance to the Wampanoag tribes are present in numerous locations in the Project Focus Area.



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In addition to archaeological sites associated with Native Americans, historic-period Euro-American sites are also likely present, due to the colonial settlement on the Cape in the early 17th century. As a result of the thousands of years of human habitation of Cape Cod, the potential for archaeological resources in undeveloped portions of the focus area is high, in even in residential lawn areas and areas that have been capped with gravel or asphalt, such as parking lots.

In summary, substantial modifications to the existing transportation systems related to the Cape Cod Canal will likely have potential direct and indirect adverse effects on a number of historic resources, including the canal itself, its bridges, and surrounding neighborhoods, as well as archaeological and cultural resources.

MassDOT is currently studying a number of alternatives to improve transportation over and around the Cape Cod Canal. The conclusions and recommendations presented in this document are subject to change as the designs progress and further work is undertaken to assist MassDOT and FTA in evaluating impacts to historic resources. The conclusions and recommendations are the opinion of the historic preservation consultant. Actual determinations of National Register eligibility and assessment of effects are properly part of the ongoing consultative process among FTA, MassDOT, and MHC, and will continue to develop as the project progresses.

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1.0 INTRODUCTION AND SCOPE OF WORK

1.1 INTRODUCTION

The Massachusetts Department of Transportation (MassDOT) is conducting the Cape Cod Canal Transportation Study to develop and analyze improvements to the transportation system around the Cape Cod Canal, including potential new crossings of the Canal and new highway, interchange, and non-highway improvements. MassDOT is reviewing a number of alternatives to improve transportation over and around the Cape Cod Canal (Figure 1, Appendix A). The study is at the preliminary, feasibility level, and the locations and design requirements of the alternatives are not sufficiently developed to precisely assess their potential direct effects on cultural resources. However, based on preliminary plans, evaluation of the potential effects of the alternatives is possible in a general sense.

The project is receiving state funding, thus requiring it to comply with the Massachusetts Environmental Policy Act (MEPA), which mandates consideration of possible effects to significant historic and archaeological resources. The project may eventually involve the U.S. Army Corps of Engineers (ACOE), which would require the project to comply with the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800). These laws require consultation with the Massachusetts Historical Commission (MHC), regarding possible project-related effects to archaeological and historical resources eligible for listing in the National Register of Historic Places (NRHP).

This report presents the results of the identification of existing conditions with respect to cultural resources, inclusive of historic, archaeological, and cultural/ethnographic resources within the alternatives and within the Project Focus Area, roughly one mile north and south of the Canal (Figure 1, Appendix A). The report also presents an evaluation of potential effects of the various alternatives on historic, archaeological and cultural resources.

For the purposes of this report, historic resources are defined as above-ground cultural (i.e., standing) resources: buildings, structures, objects, districts, landscapes, and sites that meet or likely meet the criteria for listing in the NRHP. Archaeological resources are defined as below-ground pre-colonial Native American or historic-period sites. Cultural/ethnographic resources are defined as areas of significance identified by the Mashpee, Gay Head (Aquinnah) and Herring Pond Wampanoag tribes.

The report was prepared by Archaeological and Historical Services, Inc. (AHS) for Stantec, project engineers. This report is organized as follows: Section 2 presents the methodology used. Section 3 provides the historical background of the Project Focus Area. Section 4 discusses the existing conditions of the Cape Cod Canal and its three bridges. Section 5 addresses the existing conditions of the Project Focus Area's non-canal architecture and other historic resources. Section 6 presents existing conditions related to archaeological and cultural resources. Section 7 presents a preliminary evaluation of potential effects to historic resources. Section 8 presents an

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evaluation of potential effects to archaeological and cultural resources. Section 9 contains conclusions and recommendations.

1.2 SCOPE OF WORK

The scope of work is an assessment-level survey of existing conditions with respect to cultural resources, within the Project Focus Area, with specific reference to a variety of alignment alternatives presented by MassDOT. In addition, an assessment of potential effects of various alternatives was made. The study area for the Cape Cod Canal Transportation Study is the Project Focus Area, the area within a roughly one-mile radius of the Bourne Bridge, the Sagamore Bridge, and the roads that parallel the Cape Cod Canal between the bridges (Route 6/Scenic Highway to the north and Sandwich Road to the south) (Figure 1, Appendix A). The Project Focus Area is located almost entirely within the Town of Bourne, with a small portion in Plymouth. The Cape Cod Canal Transportation Study also includes road improvements outside of the Project Focus Area's one-mile radius in two locations: at Belmont Circle in Buzzards Bay, north of the Bourne Bridge; and at Route 6, south of Sagamore and to the 130 interchange. Two of the proposed alternatives (the Sagamore Twin and relocated Exit 1 options) also extend a short distance into the town of Sandwich.

The survey was conducted in accordance with *The Secretary of the Interior's Standards and Guidelines for Identification* and *The Secretary of the Interior's Standards and Guidelines for Evaluation* (1983 and ongoing revisions). AHS personnel inspected the Project Focus Area in May, July, September, and October 2016. A survey of the immediate vicinity of the canal was conducted on foot, resulting in field notes and about 500 photographs of historic properties. In addition to the walking survey, all public streets in the Project Focus Area were assessed in a windshield survey to identify additional historic properties that could be affected. Assessment of noise and vibration effects on National Register-listed or eligible resources will be deferred until information from those studies becomes available. Standing historic resources within and adjacent to the 200-foot buffer zone were identified in these areas.

AHS conducted background research to evaluate the potential for effects on historic resources in the Project Focus Area. A series of historic maps and views was assembled (see Appendices B and C), and existing National Register nomination forms were reviewed for individual properties and districts. AHS also reviewed survey information from the MHC's Massachusetts Cultural Resource Inventory System database (MACRIS) database. The research identified a significant number of standing historic resources in the Project Focus Area, including buildings, structures, sites, landscapes and objects.

In addition to consulting histories of the Cape Cod Canal, Bourne and adjacent towns, and of Cape Cod in general, AHS undertook additional background research to clarify the historic contexts for evaluating resources in the project vicinity. Sources included the collections of the Bourne Historical Society, the Bourne Archives, and the Cape Cod Canal Visitor Center and Museum, operated by the U.S. Army Corps of Engineers.

Additional research was conducted to collect data on recorded archaeological and cultural properties, and to assemble data sufficient to evaluate the archaeological sensitivity of an area (i.e., the potential of an area for containing significant, NRHP-eligible buried archaeological resources). The research also permitted the assessment of potential effects to known and possibly significant archaeological and cultural resources; recommending additional studies, if

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necessary, to identify specific archaeological sites rather than broader areas of archaeological sensitivity; and developing strategies for avoiding or mitigating effects to potential significant archaeological and cultural resources.

1.3 PROJECT PERSONNEL

Architectural Historian Marguerite Carnell Rodney conducted the historical background research and historic resource identification. She and Architectural Historian Stacey Vairo field-checked historic resources in the Focus Area and photographed them to document existing conditions. Together they also evaluated the historic resources for potential listing in the NRHP. Senior Archaeologist Sarah Sportman and Project Archaeologist Brianna Rae conducted the archaeological, historical, and environmental background research. Senior Archaeologist and GIS Specialist David Leslie prepared the figure graphics. AHS President Mary Harper served as project manager. Mary Harper and Senior Archaeologists Ross Harper and Sarah Sportman conducted Native American consultation.

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2.0 METHODOLOGY

2.1 HISTORICAL RESOURCE RESEARCH

The scope of work included the identification and evaluation of standing (above-ground) historic resources, listed in or potentially eligible for listing in the NRHP, within the Project Focus Area and immediately adjacent to its borders. The study tasks included documentary research to identify historic properties and to establish an historic context to interpret the significance of canal- and non-canal-related historic resources. Site-specific resources included maps from the late 18th century to ca. 1937, Sanborn insurance maps from 1941-1959, and the Historic American Building Survey (HABS) documentation of Camp Edwards. AHS assembled a series of historic maps and images (see Appendices B and C) and reviewed existing National Register forms for individual properties and districts. Previous survey information from the MHC MACRIS database was also consulted, including review of inventory forms for individual resources, area inventories, and reconnaissance town reports.

In order to establish an overall historical context and help in the identification of historic resources, AHS consulted general Cape Cod and local published histories such as Freeman (1862) and Cumbler (2014). Additional research was undertaken to establish the historic contexts for evaluating resources in the project vicinity, including the records and photograph collections of the Bourne Historical Society and the Bourne Archives, as well as the Cape Cod Canal Visitor Center and Museum, operated by the U.S. Army Corps of Engineers.

2.2 ARCHAEOLOGICAL AND CULTURAL RESOURCE RESEARCH

The tasks of the archaeological assessment survey included researching the past environmental and historical development of the Project Focus Area and adjacent areas affected by design alternatives, and researching previously-documented archaeological resources in the vicinity of the Project Focus Area and alternatives. This included a review of historical maps to compile a capsule history of documented land use in the Project Focus Area, and to assess the potential of the Project Focus Area and alternatives to contain historic-period archaeological resources related to past use of the land. AHS also consulted with the federally-recognized Mashpee Wampanoag Tribe, Gay Head (Aquinnah) Wampanoag Tribe, and the Herring Pond Wampanoag Tribe about culturally sensitive areas that may be affected by the proposed improvements.

AHS researched the files of recorded archaeological sites and reports of past archaeological surveys conducted in the Project Focus Area on MACRIS and at the MHC. Relevant cultural resource management reports and archaeological publications were reviewed to help develop a pre-colonial Native American and historical context preparatory to assessing the potential for significant buried archaeological sites to be present in the Project Focus Area. Environmental sources on hydrology, geology, and soils were reviewed to establish an understanding of the natural environment that existed in the Project Focus Area prior to modern development, because these resources have known associations with pre-colonial Native American occupation.

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2.3 EVALUATION OF SIGNIFICANCE

2.3.1 National Register of Historic Places Criteria

The criteria for listing in the National Register of Historic Places are generally used in historic and archaeological surveys as a bar metric for assessing the significance of historic, archaeological and cultural resources. Resources determined by the State Historic Preservation Office or a federal agency to be National Register-eligible are provided a measure of protection from federally funded or federally-permitted projects. Such resources are also accorded protection under Massachusetts Environmental Policy Act (MEPA).

Some historic resources within or adjacent to the Project Focus Area are already listed in the National Register of Historic Places (NRHP), or have been determined to be NRHP-eligible by MHC. Other resources identified by the project historians were evaluated for their potential eligibility for listing in the NRHP by applying the National Register criteria of significance, which state the following:

The quality of significance in American history, architecture, archaeology, 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:

Criterion A *That are associated with events that have made a significant contribution to the broad patterns of our history; or*

Criterion B *That are associated with the lives of persons significant in our past; or*

Criterion 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*

Criterion D *That have yielded or may be likely to yield, information important in history or prehistory.*

Resources may qualify under one or more of the National Register eligibility criteria.

2.3.2 National Register of Historic Places Integrity

Historic properties were also evaluated for their integrity, which is the ability of a resource to visually convey its significance. The seven aspects of integrity are: location, design, setting, materials, workmanship, feeling, and association. The property must still possess several, if not most, aspects of the historical identity for which it is significant. The National Register defines these aspects of integrity as follows:

1. **Location** *is the place where the historic property was constructed or the place where the historic event occurred.*

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2. **Design** is the combination of elements that create the form, plan, space, structure, and style of a property.
3. **Setting** is the physical environment of a historic property.
4. **Materials** are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. **Workmanship** is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
6. **Feeling** is a property's expression of the aesthetic or historic sense of a particular period of time.
7. **Association** is the direct link between an important historic event or person and a historic property.

2.3.3 State Register of Historic Places

Properties listed in the National Register of Historic Places are automatically listed in the Massachusetts State Register of Historic Places. Properties located in the Old King's Highway Regional Historic District are also automatically included in the State Register; see Section 5.5.1.

2.3.4 Other Criteria for Evaluation

For many known archaeological resources, and for areas of identified archaeological sensitivity (i.e., areas with high potential for containing intact archaeological sites), State or National Register-eligibility has not been determined. Such determination would require additional research beyond the scope of this feasibility-level study. However, there are areas and landscape features considered to have high cultural importance to Native American tribes; these areas and features may qualify for NRHP listing as Traditional Cultural Properties.

3.0 HISTORICAL BACKGROUND OF THE PROJECT FOCUS AREA

3.1 ENVIRONMENTAL CONTEXT AND ARCHAEOLOGICAL SENSITIVITY

Cape Cod is located in an ecoregion identified as the Cape Cod and Long Island Pine Barrens (Griffith et al. 2009). The topography in this ecoregion consists primarily of level to rolling plains, with some steeper slopes on moraines. Parts of the Cape are characterized by a "knob and kettle" topography, consisting of an undulating landscape with knolls or ridges of glacial debris interspersed with irregular depressions and pits that may contain swamps or ponds (Natural Resources Canada 2016). Coastal areas are defined by bays and inlets, dunes, beaches, tidal flats. Elevations are generally low, ranging from 0-150 feet above mean sea level (amsl).

The bedrock on the Cape is comprised of Precambrian granite, gneiss, and schist covered by 200-400 feet or more of gravel, sand, silt, and clay. The surficial geology, formed as a result of the Wisconsin glaciation (21,000 to 13,600 ya) is primarily comprised of quaternary outwash sand and gravel, and loose sandy till related to the kame moraine.

Cape Cod and the Islands are characterized by abundant natural resources. Cape Cod has over 350 ponds, 209 of which are classified as Great Ponds, because they are ten or more acres in area (MHC 1986). The vegetational patterns on the Cape and Islands are influenced by the proximity to the ocean, drainage, soil, and the history of human land use (MHC 1986). Vegetational zones include a mix of inland forests and woodlands, coastal forests, maritime woodlands, swamps and bogs, dunes, sandplain grass and heathlands, and salt marshes (Griffith et al 2009). These zones result in a range of microhabitats supporting a variety of plants, animals, birds, and fish. The region's rich and varied wild flora and fauna resource bases made Cape Cod attractive for pre-colonial Native American and later colonial and historic-period European settlement. As a result, most undeveloped portions of Cape Cod are considered to have high archaeological sensitivity for both pre-colonial and historic-period resources.

3.2 GROWTH AND DEVELOPMENT OF BOURNE

The town of Bourne was incorporated in 1884. It is the western-most town on Cape Cod and in Barnstable County, consisting of several villages formerly in the northwestern part of Sandwich (Maps 1-2, Appendix B). Bourne includes the following communities: Buzzard's Bay (previously Cohasset; Map 3), Bourne Village (previously Monument, Manomet; Map 4), Pocasset and Cataumet (previously North and South Pocasset, south of the Project Focus Area), Bournedale (previously North Sandwich, Herring River, Comassakumanit/Comassukumkanet, Maps 5-6), and Sagamore (previously West Sandwich, Scusset; Map 7) (Dimock 2013: 7).

The first European settlement in the Bourne area was established in 1627, by the Plymouth colony, for the purpose of trade. Known as Aptucxet, the trading post was located on the south side of the Manomet River, close to the shore of Buzzard's Bay. Settlements at Manomet and Pocasset soon followed. Missionaries such as Richard Bourne and Thomas Tupper worked to convert Native peoples to Christianity; a settlement of Christian Natives was founded in the area now known as Bournedale, where a meeting house was built for them south of Great Herring Pond. Economic activities during this early period including agriculture, livestock, fishing, shell-

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fishing, and trade with Plymouth and settlements further east on Cape Cod. Later in the colonial period, these pursuits continued, and gristmills were built to process corn, oats, wheat, and rye. Cutting of wood and production of pine products (e.g. turpentine, pitch and tar) were other important sources of income (MHC 1984: 2-7).

By the early 19th century, small settlements had been established at Sagamore (Scusset), including an inn and a Methodist church. In the Bournedale area, a small textile mill and a factory that produced axes and triphammers were established. In Bourne Village (Monument), a Congregational church was built in 1794 and the settlement continued to grow. Other new communities were associated with a salt works north of Monument. Pocasset emerged as a local transportation center, and it also had ironworks. The majority of these villages were located along the coasts of Buzzard's Bay and Cape Cod Bay, while inland was primarily undeveloped woodland (Maps 1-2, Appendix B). In Sagamore, the Herring River provided power for small industries, including a woolen mill and a nail factory, both built in 1831. The nail factory was later turned into the Manomet Iron Works, a foundry. These economic pursuits flourished in concurrence with agriculture, wood cutting, and maritime activities (MHC 1984: 7-8) (Image 1, Appendix C).

In the mid- to late 19th century, transportation routes were expanded and new markets developed. The Cape Cod Branch Railroad was established in 1848, first running from Middleboro to the center of Sandwich. On the north side of the Monument River, the railroad's arrival fostered the growth of wharves and facilities to transport coal. The railroad also contributed to the cranberry industry in Bourne. The Woods Hole Branch Railroad began providing service in 1872, running from Buzzard's Bay through Bourne Village (Monument) south to Cataumet (MHC 1984: 8-13).

The late 19th to the early 20th century constituted the period of fastest growth in Bourne, mostly due to the railroad. By 1915 Bourne was the fourth largest town on the Cape (after Barnstable, Falmouth, and Provincetown). The railroad provided transportation for tourists, and hotels were erected near the railroad depot in the village of Buzzard's Bay, which began to develop into a commercial center (Images 2-3, Appendix C). Summer estate properties sprang up along the Buzzard's Bay coast and Buttermilk Bay. In Bourne Village and Buzzard's Bay, municipal buildings were constructed in this period, including the town hall, the library, and the high school (Images 4-5, Appendix C). In Sagamore, the Keith Manufacturing Company (founded in 1829 for blacksmithing and wheel production, later shifting to tools, carriages, stage coaches, schooners, and railroad cars) built a large factory (Image 6, Appendix C). Housing was also erected to accommodate its workforce. By 1910, Sagamore Beach to the north had a hotel and small collection of houses. Industry such as ironworks and tool production continued to flourish in Bourne, along with the emerging tourist economy (MHC Reconnaissance Survey Town Report 1984: 10-16) (Image 7, Appendix C).

3.3 CAPE COD CANAL

The Cape Cod Canal is located at an eight-mile isthmus separating Buzzard's Bay from the Cape Cod Bay. Before the canal, the isthmus was crossed by the Monument (Manomet) and Scusset rivers and Herring Brook. In order to avoid navigating around Cape Cod, Native populations would travel on the Manomet and Scusset rivers (about five miles were navigable) and portage their boats between the river valleys. Plans for a canal through the isthmus had been proposed in 1627 by William Bradford, Governor of Plymouth Colony, and possibly as early

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as 1623 by Miles Standish, the colony's military leader. George Washington ordered the first survey of the area in 1776 (Map 8, Appendix B). A series of surveys was undertaken in the late 18th century and throughout the 19th century, and several canal building campaigns began and were subsequently abandoned (Orwig 2013: 7-8)(Map 9, Appendix B).

The successful completion of the canal was accomplished by August Perry Belmont (1853-1924), who purchased the Boston, Cape Cod and New York Canal Company. Led by engineer William Barclay Parsons (1859-1932), work began in 1909. The canal was constructed with dredges, steam shovels, and narrow-gauge railroad equipment (Images 8-11, Appendix C). It first opened in 1914 on a limited basis as a privately-owned toll waterway (Image 12, Appendix C). The original crossings comprised a ferry service for passengers in Bourne, two highway drawbridges, and a railroad drawbridge. Dredging continued until 1916 to increase the canal depth to 25 feet (Orwig 2013: 7-8; MHC Area Form BOU.AF 2000: 6-14) (Map 10, Appendix B).

When German submarines threatened U.S. vessels off of Cape Cod during World War I, the federal government assumed jurisdiction and operation of the Cape Cod Canal in 1918, made improvements, and returned it to private ownership in 1920. The U.S. government purchased the canal in 1928 and the U.S. Army Corps of Engineers was tasked with its improvements and operation as a free waterway. During the Great Depression in the 1930s, the Corps undertook an extensive canal reconstruction, straightening the Buzzards Bay approach channel, widening and deepening the waterway, and replacing the bridges (Map 11, Appendix B; Image 13, Appendix C). The bridges were completed in 1935 and the canal work was finished in 1940. At 480 feet wide and 32 feet deep, the Cape Cod Canal was the widest sea-level canal worldwide (MHC Area Form BOU.AF 2000: 17-18).

3.4 CAPE COD CANAL BRIDGES

Before the canal was built, the Monument River had a wooden bridge built in 1824, which was replaced in 1892. The later bridge was removed in 1914. These bridges were located near Bridge Street, now known as Old Bridge Road in Buzzards Bay and Keene Street in Bourne Village.

The canal necessitated the construction of three new bridges and related railroads and roadways. During canal construction, the railroad was relocated and a new steel Strauss trunnion bascule railroad bridge was completed in 1910. The Bourne Highway Bridge (1911), included a streetcar sidetrack for the New Bedford & Onset Street Railway, which operated in Bourne 1901-1926 (Image 14, Appendix C). The north abutment of this bridge is still extant, west of the Bourne Bridge. The Sagamore Highway Bridge was completed in 1913, on the site of the Willow Dam on Swift Mill pond, which was drained when the canal was built (Image 15, Appendix C). The two highway bridges were steel, on concrete footings, with deck girders and truss spans that flanked Scherzer double-leaf rolling bascule bridges. Road improvements followed the bridge construction. In the 1920s, the new Route 3 was extended to reach Sagamore, and Route 6 was built through Buzzards Bay and Sagamore. Route 28 was an upgraded county road that led to Falmouth (MHC Area Form BOU.AF 2000:11).

The location of the 1934-1935 Cape Cod Canal highway bridges that accompanied U.S. Army Corps of Engineers' canal reconstruction had been a source of debate. The government had proposed a single new highway bridge mid-way along the canal. The single-bridge plan was rejected by local communities, however, and the new Bourne and Sagamore bridges were constructed close to the 1911 and 1913 drawbridges (MHC Area Form BOU.AF 2000:13). The

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award-winning, nearly identical bridges were designed by Fay, Spofford, and Thorndike of Boston, in collaboration with architectural firm Cram and Ferguson (Images 16-19, Appendix C). Accompanying traffic circulation upgrades were upgraded four-lane highways, the rotaries, and the Route 6 Sagamore bypass (MHC Area Form BOU.AF 2000: 13-14).

The new Buzzards Bay Railroad Lift Bridge was located to the east of the 1910 railroad bridge (Image 20, Appendix C). It was designed by Parson, Klapp, Brinckerhoff and Douglas of New York, in collaboration with the architectural firm of McKim, Mead & White for the towers' decorative treatment. It was completed in 1935 (MHC Area Form BOU.AF 2000:14).

4.0 EXISTING CONDITIONS: CAPE COD CANAL AND BRIDGES

4.1 CAPE COD CANAL

The Cape Cod Canal (MHC ID BOU.AF, SDW.Z, and WRH.V), owned and operated by the U.S. Army Corp of Engineers, is located within the towns of Bourne, Sandwich, and Wareham (Figure 1, Appendix A; Photographs 1-4, Appendix D). The Cape Cod Canal and its approach channels are roughly 18 miles long, extending from the Cleveland Ledge Lighthouse in Buzzards Bay to the North Breakwater in Sandwich, on the Cape Cod Bay.

The land-cut canal section (visible above water) is about 8 miles long, extending from the Buzzards Bay village in the town of Bourne to the Cape Cod Bay in Sandwich. The canal is a man-made, sea-level waterway, with an average width of 540 feet at the water's surface that narrows to 480 feet at the bottom. There are access roads on both sides of the canal that are used for biking and pedestrian recreation. Three bridges span the canal: the Bourne Bridge, the Sagamore Bridge, and the Buzzards Bay Railroad Lift Bridge.

The MHC survey of the Cape Cod Canal identifies it as a district that is potentially eligible for the National Register of Historic Places (NRHP), consisting of 23 historic resources. Eighteen of the 23 retain a significant amount of historic integrity and would be contributing resources. The five non-contributing resources are located at the ends of the canal, outside of the Project Focus Area. The eastern end of the canal, and the land just north of it in Sandwich (but not in Bourne), is included in SDW.R (the Old King's Highway Regional Historic District) and is listed in the State Register. (See section 5.5.1 regarding the Old King's Highway Regional Historic District.)

4.2 BOURNE BRIDGE

The 1934 Bourne Bridge (BOU.919) carries a highway (Route 6W and Route 28) over the canal in Bourne, from the village of Buzzards Bay to Bourne Village (Figure 2, Appendix A; Photographs 5-6, Appendix D). The three-span bridge has a continuous swinging-type deck and through riveted steel Warren-type truss. Its overall length is 2,384 feet. The arched center span is 616 feet long, and the highway deck is suspended from the lower truss chords by steel wire cables. The center span is flanked by Warren deck truss spans that are each 396 long, as well as 2 additional approach spans on each side. The overall deck width is 487 feet. Vertical clearance under the bridge is 135 feet. The bridge has concrete open-web column piers and concrete abutments. The concrete piers feature Art Moderne stylistic elements. MHC has determined that the Bourne Bridge is individually eligible for the NRHP.

4.3 SAGAMORE BRIDGE

The 1935 Sagamore Bridge (BOU.918) is almost identical to the Bourne Bridge (Figure 2, Appendix A; Photographs 7-8, Appendix D). It carries Route 6 over the canal from North Sagamore to South Sagamore in the town of Bourne. The three-span bridge has a continuous swinging-type deck and through riveted steel Warren-type truss. Its overall length is 1,408 feet. The arched center span is 616 feet long, and the highway deck is suspended from the lower truss chords by

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steel wire cables. The center span is flanked by Warren deck truss spans that are each 396 long supported by concrete abutments. The overall deck width is 487 feet. Vertical clearance under the bridge is 135 feet. The bridge's concrete piers feature Art Moderne stylistic elements. MHC has determined that the Sagamore Bridge is individually eligible for the NRHP.

4.4 BUZZARDS BAY RAILROAD LIFT BRIDGE

The 1935 Buzzards Bay Railroad Lift Bridge (BOU.901) is a Waddell patent vertical lift bridge with Warren-type trusses (Figure 2, Appendix A; Photograph 9, Appendix D). It has two approach spans, two towers, and an arched center lift span is that 544 feet long; all are of riveted steel frame construction. The steel superstructure is supported by granite block substructure. The approach spans are each 128 feet long, with 4-panel X-braced through-trusses. The control booth is located on the east side. When the center span is lifted, the vertical clearance under the bridge is 135 feet. Each tower is surmounted by conical openwork pinnacles that rest on the bridge drive houses. The Buzzards Bay Railroad Lift Bridge is potentially eligible for individual listing in the NRHP. It is located just west of the Project Focus Area.

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5.0 EXISTING CONDITIONS: NON-CANAL HISTORIC RESOURCES

5.1 NORTH OF CANAL: BOURNE

5.1.1 Head of the Bay & Surrounding Area

Head of the Bay (BOU.C) is a small MHC-inventoried area on the east side of Buttermilk Bay, north of the Cape Cod Canal, along Head of the Bay Road (Figure 2, Appendix A). There are 4 inventoried houses (BOU.28 through BOU.31) dating from the 1680s to ca. 1840 in a rural setting (Photograph 10, Appendix D). Further research will be necessary to determine this area's NRHP eligibility. It is located northwest of the Project Focus Area.

Just southeast of BOU.C, the ca. 1725 Gibbs House was identified in 1999 as a potential NRHP individually-eligible resource. Since that time, its integrity of setting has been compromised by a large new house built adjacent to it (Photograph 11, Appendix D).

The Head of the Bay Cemetery (BOU.803) is located south of BOU.C, on the west side of Head of the Bay Road, and within the Project Focus Area. It is a small cemetery, less than one acre and with about 25 grave markers, dating from 1885 to 1996 (Photograph 12, Appendix D).

5.1.1.1 NRHP Potential Individually-Eligible Resources

- The ca. 1725 Gibbs House (BOU.60), 295 (formerly 291) Head of the Bay Road, is located south of BOU.C and is just north of the Project Focus Area.

Refer to Appendix E, Table 1.

5.1.2 Buzzards Bay Main Street & Surrounding Area

The Main Street Commercial Area (BOU.J) is located in the village of Buzzards Bay on the north side of the Cape Cod Canal (Figure 2, Appendix A). The Project Focus Area overlaps the east end of this inventoried area. BOU.J is about 35 acres in size, with architecture ranging from the late 19th to the early 20th centuries, including commercial and residential uses along Main Street. There is little landscaping and most buildings are sited close to the street. Infill buildings from the second half of the 20th century are located throughout the area, and many of the earlier buildings have been altered. Stylistically, the area includes several examples of the Gothic, Spanish, Classical, and Colonial Revivals, Art Deco, Craftsman Bungalows, but many of the commercial buildings and modest houses have no particular style. The Bourne Family Cemetery (BOU.804) is set back from Main Street behind a parking lot. It has about 12 grave markers dating from 1862 to the early 20th century. This area contains 20 inventoried resources.

According to the MHC survey, the eligibility of this area as a NRHP district appears to be low. The Buzzards Bay Railroad Station at the west end of the area is a potential NRHP individually-eligible resource (Photographs 13-14, Appendix D). The Bourne Town Hall, just south of the area

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boundaries, is individually listed in the NRHP and the State Register (Image 5, Appendix C; Photograph 15, Appendix D).

The Mass. Army National Guard Armory (BOU.388), just north of the BOU.J boundary, has been determined by MHC to be individually NRHP-eligible (Figure 2, Appendix A; Photograph 16, Appendix D). The Abraham F. Swift House, also south of the area boundary, is potentially NRHP individually-eligible (Photograph 17, Appendix D). These resources are located within the Project Focus Area.

South of the district along the Cape Cod Canal, the First Bourne Bridge Abutment (BOU.940) and the Cape Cod Canal Electrical Substation (BOU.389), at the south end of Perry Avenue, are part of the Cape Cod Canal area (BOU.AF), potentially eligible as a NRHP district (Photographs 18-19, Appendix D). These resources are located with the Project Focus Area.

5.1.2.1 NRHP-Listed Individual Resources

- Bourne Town Hall (BOU.AE; BOU.68), 24 Perry Ave. is just south of BOU.J.

5.1.2.2 NRHP Individually Eligible Resources per MHC Opinion

- Mass. Army National Guard Armory (BOU.388) 10 Armory Rd, just north of BOU.J.

5.1.2.3 NRHP Potential Individually-Eligible Resources

- Buzzards Bay Railroad Station (BOU.65) and Tower (BOU.66) on Main Street at Academy Drive, just west of the project focus area.
- Abram Swift House (BOU.67), 37 Old Bridge Street, is located southeast of BOU.J adjacent to the Cape Cod Canal and within the Project Focus Area.

Refer to Appendix E, Table 1.

5.1.3 Bournedale & Surrounding Area

The Bournedale Area (BOU.I) is located on the north side of the Cape Cod Canal between the Bourne and Sagamore bridges (Figure 2, Appendix A). It lies entirely within the Project Focus Area. The inventoried area is about one mile in length, beginning at the south end at Route 6 (Scenic Highway) and extending north along Bournedale Road and Herring Pond Road. The resources in Bournedale include examples from the 17th, 18th, 19th, and 20th centuries. The area is sparsely settled, with some late 20th-century infill located mostly along residential side roads. The streets are lined with mature trees. The Bournedale area includes 16 inventoried resources.

The architecture of the Bournedale area is primarily residential, but includes several commercial buildings and a former school. This area includes examples of the Federal, Greek Revival, Gothic Revival, and Victorian Eclectic styles, as well as traditional "Cape Cod" houses with few stylistic details, and other buildings of no particular style from the 19th and early 20th centuries.

There are several important sites and structures in Bournedale. Burying Hill (BOU.920) on Herring Pond Road is a focal point as the site of the First Meeting House (non-extant) and Native

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American burials (Photographs 20-21, Appendix D). This hill is one of the highest points north of the Cape Cod Canal. The Herring Run (BOU.921), at the west end of the Carter Beal Conservation Area located west of Bournedale Road (Photograph 22, Appendix D). Just outside the southwest corner of the Bournedale area is the 1936 Herring Run Fish Ladder (BOU.938), which runs along Route 6 east, adjacent to the Cape Cod Canal (Photograph 23, Appendix D). The Herring Run Fish Ladder is inventoried as part of the Cape Cod Canal area (BOU.AF), which is potentially eligible as a NRHP district.

Further research will be necessary to determine Bournedale's NRHP eligibility. The 1897 Village School is individually listed in the NRHP and the State Register (Figure 2, Appendix A; Photograph 24, Appendix D). Three properties are potential NRHP individually-eligible resources: the Wilson D. Bent, Sr. House, the Josiah Ellis House, and the Nathan Bourne Ellis House and Bournedale Lodge (Photographs 25-27, Appendix D). The Mason White/Battles House was previously identified as a potential NRHP individually-eligible resource, but its integrity has since been compromised by incompatible door and window replacement and vinyl siding (Photographs 28, Appendix D).

North of the Bournedale, within the Project Focus Area, is the Indian Cemetery (BOU.800) located on the south shore of Great Herring Pond (Photograph 29, Appendix D). The cemetery straddles the Bourne/Plymouth town line and is the same resource as Indian Cemetery (PLY.800). It comprises 16 grave markers, with the earliest marker dating to 1849, and likely includes earlier unmarked graves. The cemetery is still in use. It is potentially eligible for the NRHP as a contributing resource to the Cedarville Area in Plymouth (PLY.G). See Section 5.2.

5.1.3.1 NRHP-Listed Individual Resources

- Bournedale Village School (BOU.57), 29 Herring Pond Rd.

5.1.3.2 NRHP Potential Individually-Eligible Resources

- Wilson D. Bent, Sr. House (BOU.55) and garage (BOU.56), 9 Bournedale Rd.
- Josiah Ellis House (BOU.209) and barn (BOU.210), 166 Herring Pond Rd.
- Nathan Bourne Ellis House (BOU.211) and Bournedale Lodge (BOU.212, 213), 854 Route 6 (Scenic Highway).

Refer to Appendix E, Table 1.

5.1.4 North Sagamore

North Sagamore (BOU.O) is located on the north side of the Cape Cod Canal, east of the Sagamore Bridge, and entirely within the Project Focus Area (Figure 2, Appendix A). It is north of Savery Avenue (BOU.P), and south of Sagamore Beach (BOU.U). North Sagamore is about 90 acres in size, with architecture that ranges from the early 18th through the early 20th centuries, including houses and several garages, a school, and a church. Most are located along Old Plymouth, Williston, and Hunters Brook roads. North Sagamore's architecture includes traditional "Cape Cod" houses with few stylistic details as well as examples of the Greek Revival, Classical Revival, and Victorian Eclectic styles. BOU.O contains 13 inventoried resources; some historic resources in this area remain un-inventoried.

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Further research would be necessary to determine this area's NRHP eligibility. Three properties within it are potential NRHP individually-eligible resources: the Swift Memorial Methodist Episcopal Church, the Sagamore Grammar School, and the Captain William Crowell Gibbs House (Image 21, Appendix C; Photographs 30-32, Appendix D).

5.1.4.1 NRHP Potential Individually-Eligible Resources

- Swift Memorial Methodist Episcopal Church (BOU.118), 10 Williston Rd.
- Sagamore Grammar School (BOU.119), 30 Williston Rd.
- Captain William Crowell Gibbs House (BOU.281) and outbuildings (BOU.282, 282), 252 Old Plymouth Rd.

Refer to Appendix E, Table 1.

5.1.5 Savery Avenue

Savery Avenue (BOU.P) is located along the north side of the Cape Cod Canal, east of the Sagamore Bridge, and entirely within the Project Focus Area (Figure 2, Appendix A; Image 22, Appendix C; Photographs 33-34, Appendix D). It is just south of North Sagamore (BOU.P). The Savery Avenue area contains about 3 acres, with closely-spaced houses of 2 types (Dutch Colonial Revival and hipped-roof Four Squares) constructed ca. 1908-1909. It contains 15 inventoried resources. Further research would be necessary to determine this area's NRHP eligibility.

Refer to Appendix E, Table 1.

5.1.6 Sagamore Beach

Sagamore Beach (BOU.U) is an MHC-inventoried area located on Cape Cod Bay, on the north side of the Cape Cod Canal (Figure 2, Appendix A). It consists of about 100 acres, with residential properties ranging from the late 17th to the early 20th centuries; most date to the early 20th century. There are 13 inventoried resources and additional un-inventoried historic resources. Sagamore Beach is located just northeast of the Project Focus Area.

Further research would be necessary to determine this area's NRHP eligibility. Three of its inventoried properties, the Crowell Farm, Assembly Hall, and the Rev. William E. Wolcott House, are potential NRHP individually-eligible resources (Photographs 35-37, Appendix D).

5.1.6.1 NRHP Potential Individually-Eligible Resources

- Crowell Farm (BOU.27), 31 Crowell Rd.
- Assembly Hall/Harold S. Clark Hall (BOU.175), 30 Robinson Rd.
- Rev. William E. Wolcott House, (BOU.323), 39 Robinson Rd.

Refer to Appendix E, Table 1.

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5.2 NORTH OF CANAL: PLYMOUTH

5.2.1 Cedarville

The Project Focus Area includes a small area in Plymouth at the southern edge of Great Herring Pond. This area is part of Cedarville (PLY.G), an MHC-inventoried area on the east and south sides of the pond (Figure 2, Appendix A). It consists of residential and commercial properties ranging from ca. 1800 to the present along with a church and five cemeteries. Most of the houses are mid-19th century Greek Revival. Before European settlement, the area was a large Wampanoag settlement known as Comassukumkanet, and later as the Herring Pond Indian Reservation.

Within the Project Focus Area is the Indian Cemetery (PLY.800), the same resource as Indian Cemetery (BOU.800), located on the south shore of Great Herring Pond (Photograph 29, Appendix D). The cemetery straddles the Bourne/Plymouth town line. It comprises 16 grave markers, with the earliest marker dating to 1849, and likely includes earlier unmarked graves. The cemetery is still in use. It is potentially eligible for the NRHP as a contributing resource to the Cedarville Area (PLY.G). See Section 5.1.3.

Refer to Appendix E, Table 1.

5.3 NORTH OF CANAL: SANDWICH

5.3.1 Sagamore Hill Gun Battery

The Sagamore Hill Gun Battery (SDW.AA) is just east of the Project Focus Area on Cape Cod Bay, located within SDW.Z, the eastern end of the Cape Canal in the town of Sandwich (Figure 2, Appendix A). The Sagamore Hill Gun Battery area is about one acre in size, located at the top of Sagamore Hill in the Scusset Beach State Reservation (Photograph 38, Appendix D). It consists of two "Panama"-type gun mounts and two accompanying shelters. This installation dates to 1941-1942, constructed by the U.S. Army Corps of Engineers for the protection of the Cape Cod Canal during World War II. It is potentially eligible for the NRHP.

The Sagamore Hill Gun Battery is included in SDW.R (the Old King's Highway Regional Historic District and is listed in the State Register. See section 5.5.1 regarding the Old King's Highway Regional Historic District.

Refer to Appendix E, Table 1.

5.4 SOUTH OF CANAL: BOURNE

5.4.1 Keene Street – Sandwich Road

Keene Street – Sandwich Road Area (BOU.A) is located in Bourne Village, on the south side of the Cape Cod Canal and west of the Bourne Bridge (Figure 2, Appendix A). It lies entirely within the Project Focus Area. It is about 24 acres in size, with architecture that ranges from the late 17th to the early 20th centuries, including a mix of residential and institutional uses. The area extends



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along Sandwich Road from the intersection of Perry Avenue and Sandwich, Trowbridge, Waterhouse, Cotuit, and Shore roads at the west end, to the intersection of Sandwich Road and Coastal Way at the eastern end. It also includes Keene Street, which is a loop road on the north side of Sandwich Road, adjacent to the Cape Cod Canal. The area includes 23 inventoried buildings.

The architecture of the Keene Street – Sandwich Road Area is primarily residential but also includes several institutional buildings. This area provides a remarkable view of Bourne Village's history, including buildings and structures from its inception as a settlement through the early 20th century, as Bourne was developing into a vacation destination. Architecture in this area includes the Federal, Greek Revival, Italianate, Victorian Eclectic, and Classical Revival styles, as well as traditional "Cape Cod" houses.

According to the MHC survey, the Keene Street – Sandwich Road Area is eligible for listing in the NRHP as a district. Three buildings are already listed in the NRHP and the State Register: the George I. Briggs House (BOU.1), the Jonathan Bourne Public Library (BOU.13, now the Jonathan Bourne Historical Center), and the Bourne High School (BOU.4, now the Waldorf School of Cape Cod) (Figure 2, Appendix A; Image 23, Appendix C; Photographs 39-41, Appendix D).

In the Keene Street – Sandwich Road Area (BOU.A), 6 properties in the Project Focus Area are potential NRHP individually-eligible resources: the Arabella Parker-George Ellis House, the Moses Waterhouse House, the Ordello Swift House, the Alonzo E. Booth Blacksmith Shop, the Jonathan Bourne Public Library (former Bourne Grammar School), and the Albert E. Eldridge House (Photographs 42-47, Appendix D).

East of BOU.A, also in the Project Focus Area, is the Deacon Gershom Ellis/Henry S. Blackwell House (BOU.50), previously identified as a potential NRHP individually-eligible resource. The integrity of the house has since been compromised by incompatible door and window replacement and vinyl siding (Photograph 48, Appendix D).

5.4.1.1 NRHP-Listed Individual Resources

- George I. Briggs House (BOU.1), 22 Sandwich Rd.
- Jonathan Bourne Historical Center (former Jonathan Bourne Public Library) (BOU.13), 30 Keene St.
- Old Bourne High School (BOU.4), 86 Cotuit Rd.

5.4.1.2 NRHP Potential Individually-Eligible Resources

- Arabella Parker-George Ellis House (BOU.49), 66 Sandwich Road
- Moses Waterhouse House (BOU.12 and barn (BOU.200), 59 Keene St.
- Ordello Swift House (BOU.45) and barn (BOU.46), 60 Keene St.
- Alonzo E. Booth Blacksmith Shop (BOU.48), 22 Sandwich Rd.
- Jonathan Bourne Public Library (former Bourne Grammar School) (BOU.14), 19 Sandwich Rd.
- Albert E. Eldridge House (BOU.10) and barn (202), 43 Sandwich Rd.

Refer to Appendix E, Table 1.



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5.4.2 Shore Road North

Shore Road North Area (BOU.AH) is located in Bourne Village, just west of the Keene Street – Sandwich Road Area (BOU.A), on the south side of the Cape Cod Canal and west of the Bourne Bridge (Figure 2, Appendix A; Photographs 49-52, Appendix D). It lies entirely within the Project Focus Area. Much of its architecture dates from the 19th and early 20th centuries and is primarily residential in use. The area extends west along Shore Road from the intersection of Perry Avenue and County Road. The area includes over a dozen inventoried resources, including the Oakland Grove Cemetery (BOU.802).

The architecture of the Shore Road North Area is primarily residential, with good examples of the Greek Revival, Italianate, Colonial Revival, and Craftsman styles. The MHC survey of this area is still in production and a full draft was not available to review for this report. Information will be updated as it becomes available. The NRHP eligibility of BOU.AH as a district has not been fully evaluated.

The Rev. Herman Perry House has been identified as a potential NRHP individually-eligible resource (Photograph 53, Appendix D).

5.4.2.1 NRHP Potential Individually-Eligible Resources

- Rev. Herman Perry House (BOU.51), 7 Shore Rd.

Refer to Appendix E, Table 1.

5.4.3 Aptucxet Trading Post

The Aptucxet Trading Post Area (BOU.AG) is located in Bourne Village, west of the Keene Street – Sandwich Road Area (BOU.A), on the south shore of the Cape Cod Canal and west of the Bourne Bridge (Figure 2, Appendix A). It lies entirely within the Project Focus Area. The Aptucxet Trading Post building is a 1930 replica of the trading post established in 1627 by Plymouth Colony, representing the first European settlement in Bourne (Photograph 54, Appendix D). The current building was constructed on the foundation of the original trading post. The area contains 10 inventoried resources, including an outbuilding associated with saltworks.

The MHC survey of this area is still in production and a full draft was not available to review for this report. Information will be updated as it becomes available. This area is potentially eligible for listing in the NRHP as a district.

Refer to Appendix E, Table 1.

5.4.4 County Road North

County Road North Area (BOU.AJ) is located in Bourne Village, just west of the Keene Street – Sandwich Road Area (BOU.A), on the south side of the Cape Cod Canal and west of the Bourne Bridge (Figure 2, Appendix A; Photographs 55-57, Appendix D). It lies almost entirely within the Project Focus Area. Much of its architecture dates from the 19th and 20th centuries and is primarily residential. The area extends south along County Road from the intersection of Shore Road and

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Trowbridge Road. The area includes over three dozen inventoried resources, including the Oakland Grove Cemetery (BOU.801).

The MHC survey of this area is still in production and a full draft was not available to review for this report. Information will be updated as it becomes available. The NRHP eligibility of BOU.AJ as a district has not been evaluated.

The Deacon Elijah Perry House (BOU.43 and barn (BOU.44) have been identified as a potential NRHP individually-eligible resource (Photograph 57, Appendix D).

5.4.4.1 NRHP Potential Individually-Eligible Resources

- Deacon Elijah Perry House (BOU.43) and barn (BOU.44), 203 County Rd.

Refer to Appendix E, Table 1.

5.4.5 Cape Cod Air Station – Otis Air Force Base

Cape Cod Air Station – Otis Air Force Base (BOU.B), sometimes also referred to the Camp Edwards, is now known as the Joint Base of Cape Cod (JBCC) (Figure 2, Appendix A). It serves as the base for several military commands training for missions in the USA and international missions. The base has about 22,000 acres on the south side of the Cape Cod Canal. The northern 15,000 acres are largely undeveloped (the largest undeveloped parcel on Cape Cod) and is used for soldiers' training. Within this area, there are several inventoried resources (BOU.351 through BOU.358) associated with the Cape Cod Air Station's PACE PAWS radar station, located on Flatrock Hill. These buildings and structures were constructed 1978 to 1985, of insufficient age to be NRHP-eligible. Many Camp Edwards resources have been documented by the Historic American Buildings Survey (HABS) program. Further research would be necessary to determine this area's NRHP eligibility.

No inventoried resources in the Cape Cod Air Station – Otis Air Force Base area are within, or adjacent to, the Project Focus Area or the proposed Route 6 lane addition.

Refer to Appendix E, Table 1.

5.4.6 South Sagamore

South Sagamore (BOU.V) is located on the east side of the Sagamore Bridge and is separated from North Sagamore by the Cape Cod Canal (Figure 2, Appendix A). It is located entirely within the Project Focus Area. South Sagamore is about 55 acres in size, with architecture ranging from the 18th through the early 20th centuries, including a mix of residential and commercial buildings as well as a church. It is a linear area with most resources located along Sandwich Road, with several on Pleasant and Burgess streets. Stylistically, the area has examples of the Federal, Greek Revival, Italianate, Victorian Eclectic, Queen Anne, Shingle, Colonial Revival, and Craftsman styles, as well as a number of buildings of no particular style. The South Sagamore area contains 41 inventoried resources, including houses, four apartment buildings, a cemetery, and three stone road markers. The cemetery is about seven acres, with roughly 500 grave markers dated from 1803 to the present day.

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South Sagamore's eligibility for listing in the NRHP as a district appears to be high. In the South Sagamore Area (BOU.V), eight properties are potential NRHP individually-eligible resources: the Burgess Homestead, the Isaac N. Keith House, the Old Gurney Store, the S. Harlow/Benjamin Harlow Pope House, the Crowell/Hannah Rebecca Burgess House, the C. G. Ellis House, the Rogers House, and the Freeman Farm Foreman's House (Photographs 58-65, Appendix D).

There are numerous historic buildings within the surveyed area that remain un-inventoried; a cursory walking survey identified over 30 additional buildings. In addition, side streets outside of the surveyed area such as Adams, Commonwealth, and Westdale streets include many un-inventoried late 19th to early 20th-century buildings that, although modest, retain historic integrity. The walking survey identified close to 20 such buildings (Photographs 66-69, Appendix D).

5.4.6.1 NRHP Potential Individually-Eligible Resources

- Burgess Homestead (BOU.177), 11 Burgess St.
- Keith House (BOU.184) and garage (BOU.185), 66 Pleasant St.
- Old Gurney Store (BOU.186), 896 Sandwich Rd.
- S. Harlow/Benjamin Harlow Pope House (BOU.188), 941 Sandwich Rd.
- Crowell/Hannah Rebecca Burgess House (BOU.192) and barn (BOU.193), 1005 Sandwich Rd.
- C. G. Ellis House (BOU.344), 1071 Sandwich Rd.
- Rogers House (BOU.345), 1085 Sandwich Rd.
- Freeman Farm Foreman's House (BOU.194) and barn (BOU.195), 1101 Sandwich Rd.

Refer to Appendix E, Table 1.

5.5 SOUTH OF CANAL: SANDWICH

5.5.1 Old Kings Highway Regional Historic District

This regional district, which includes the area north of Route 6 in the towns of Sandwich, Barnstable, Yarmouth, Dennis, Brewster, and Orleans, was established in 1973. It is the largest historic district in the United States. Its purpose is to "promote the general welfare of the inhabitants of the applicable regional member towns so included, through the promotion of the educational, cultural, economic, aesthetic and literary significance through the preservation and protection of buildings, setting and places within the boundaries of the regional district and through the development and maintenance of appropriate settings and the exterior appearance of such buildings and places, so as to preserve and maintain such regional district as a contemporary landmark compatible with the historic, cultural, literary and aesthetic tradition of Barnstable County, as it existed in the early days of Cape Cod, and through the promotion of its heritage" (Old King's Highway 2008: 3).

The district is administered by the Old King's Highway Historic District Commission of six members, who also serve as chairmen of the six member towns' Historic District Committees. Within the district, new buildings, structures, or parts thereof must receive a certificate of appropriateness or certificate of exemption issued by the town's Historic District Committees. No building, structure,

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or part thereof may be demolished or removed until an application has been filed with the Historic District Committee and a certificate for demolition has been filed with the town. Signs and billboards are also regulated (Old King's Highway 2008: 5-8).

The Sandwich section of this regional historic district is area is included in the MHC inventory as SDW.R (Figure 2, Appendix A). It is located within the Project Study Area but outside the Project Focus Area. The proposed relocated Exit 1 is adjacent to the west end of this district. All SDW.R resources are listed in the State Register (SR). Resources in the Old King's Highway Regional Historic District that are located within or adjacent to the Project Focus Area are discussed in sections 4.1, 5.3.1, and 5.5.2 to 5.4.4.

Refer to Appendix E, Table 1.

5.5.2 Shawme Road

The Shawme Road Area (SDW.F) is located outside the Project Focus Area, just north of Route 6, on the west side of the highway's interchange with Route 130 (Figure 2, Appendix A). It is a small inventoried area consisting of a ca. 1900 summer colony, with 5 inventoried houses, several outbuildings, and an open-air theater (Photograph 70, Appendix D). It is a good example of the many summer colonies built on Cape Cod in the late 19th and early 20th centuries, and it is the only such colony in Sandwich.

According to the MHC survey, the Shawme Road Area is eligible for listing in the NRHP as a district. It is located in the Old Kings Highway Regional Historic District (SDW.R). All resources in this local district are listed in the State Register.

East of the Shawme Road Area are two bridges (SDW.906 and 907) that carry Route 6 over Route 130 (Photograph 71, Appendix D). They are located in the Old King's Highway Regional Historic District (SDW.R) and are listed in the State Register. They would likely be affected by work at this interchange.

Refer to Appendix E, Table 1.

5.5.3 Route 6A West

The Route 6A West Area (SDW.G) is a section of the road that was built in the 1930s as a bypass to Main Street/Route 130 (Figure 2, Appendix A). It is located within the Project Study Area but outside the Project Focus Area. This inventoried area is a modern suburban landscape, with motor courts and other commercial buildings with paved parking lots, along with houses and lawns (Photographs 72-73, Appendix D). All buildings were constructed in the 20th century, and most date to after World War II. It also contains the Saddle and Pillion Burial Ground (SDW.802), a small late 17th-century cemetery (Photograph 74 Appendix D). The proposed relocated Exit 1 is adjacent to the west end of this inventoried area, close to this cemetery and a collection of 20th-century motor courts and houses.

According to the MHC survey, the eligibility of this area as a NRHP district appears to be low. It is located in the Old King's Highway Regional Historic District (SDW.R). All resources in this local district are listed in the State Register.

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Refer to Appendix E, Table 1.

5.5.4 Main Street – Route 130

The Main Street – Route 130 Area (SDW.I) is a section of road that traverses the original Old King's Highway route (Figure 2, Appendix A). It is located within the Project Study Area but outside the Project Focus Area. Most of the buildings in this area are 20th-century houses, representing the trend toward suburbanization after World War II (Photographs 75-76, Appendix D). It also includes a number of 17th, 18th, and 19th-century buildings, along with two cemeteries. The proposed relocated Exit 1 is adjacent to the west end of this inventoried area.

According to the MHC survey, the eligibility of this entire area as a NRHP district appears to be low, but a small portion at its east end might be eligible as boundary increase of the NRHP-listed Town Center Historic District. This area is located in the Old King's Highway Regional Historic District (SDW.R). All resources in this local district are listed in the State Register.

Refer to Appendix E, Table 1.

6.0 EXISTING CONDITIONS: ARCHAEOLOGICAL AND CULTURAL RESOURCES

6.1 PRE-COLONIAL ARCHAEOLOGICAL RESOURCES

The Cape Cod Canal is a 17.5-mile-long artificial water passage that connects Buzzards Bay to the west and Cape Cod Bay to the east. The canal lies mainly within the limits of the town of Bourne, though a small eastern portion falls within the town of Sandwich. Initially constructed between 1910 and 1914 by August Belmont, the canal widened and conjoined the path of two previously disconnected rivers, the Manomet (or Monumet) and the Scusset (Davin and Herbster 1994:102). The Manomet River originally ran from the extant Great Herring Pond to Buzzards Bay, while the Scusset was a tidal river surrounded by a saltwater marsh system (Figures 3a and 3b).

Due to the canal's location, there is a high probability that intact areas surrounding the present channel contain pre-colonial archaeological resources. This includes the yard areas of existing houses and other structures, as well as areas that may simply be capped with asphalt or gravel, such as parking lots. The Project Focus Area encompasses different environmental settings that would have been attractive for food procurement, habitation, transportation, water sources, or burial grounds. In addition to the rivers that once flowed through this area, there are several freshwater ponds including Bourne Pond, Great Herring Pond, Nightingale Pond, Foundry Pond, Goat Pasture Pond, Black Pond, Great Pond, and Horse Pond. Kettle ponds would have been a vital resource from the earliest days of human settlement on the Cape, but seem to have been especially attractive during the Middle Archaic Period (Herbster and Laskoski 2011:34). The current marsh systems at both mouths of the canal would also have provided important resources once sea levels stabilized, beginning around 3,000 B.P.

To date, there are over 30 documented pre-colonial archaeological sites within the Project Focus Area, as well as an additional 23 sites located along proposed alternatives that extend beyond the Project Focus Area (Figure 4, Appendix A; Table 10, Appendix E). Identified sites date from the Middle Archaic through Contact period and there are also several sites without diagnostic materials or features that cannot be assigned to a particular period.

6.1.1 Identified Pre-Colonial Sites

A number of sites were identified along the canal in the first half of the 20th century. In 1911, the Grove Field Ossuary site (19-BN-612) was accidentally discovered by Frederick F. Bumpus while digging a cesspool. This probable Late Woodland site was located just south of Bourne Pond, on the north side of the canal and about 2000 feet west of the Bourne Bridge and Connections option (Figure 4). The portion of the ossuary that was excavated contained a mixture of cremated and non-cremated remains of at least 15 individuals in a shallow trench. No artifacts were recovered from the investigation; the remains appeared haphazardly arranged, and the ossuary is believed to be the result of a massacre or an epidemic (Bradley 1989).

Further west, and on the opposite side of the canal, an inscribed stone slab called the Aptucxet Petroglyph (19-BN-218) was documented in 1939 by E.B. Delabarre (MHC Site Form 19-BN-218,

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1967). According to Delabarre, the stone served as the doorstep at an Indian meeting house in 1658, with "pictographs made by Indians at that time or later." At the time of the report, the stone was being curated at the Aptucxet Trading Post. The trading post area, which is discussed in greater detail below, is located approximately 4300 feet west of the Bourne Bridge and Connections option (Figure 4).

In the 1940s, local avocational archaeologist Jesse Brewer documented several sites in the area surrounding the canal. In 1940, Brewer reported the destruction of a shell midden (19-BN-225) located on the north bank of the canal, between the Sagamore Bridge and the western edge of Scusset Beach State Park, about 2000 feet east of the Sagamore Twin option (Figure 4). In 1942, he recovered sherds from a large castellated Native pot along the northern bank of the canal where the Herring River now empties into the canal (Brewer 1961). The sherds were reassembled into an almost complete pot that is now housed in the Wampanoag Collection of Plimouth Plantation (Plimouth Plantation 2016). The pot is thought to be residual evidence of a Late Woodland/Contact village site (19-BN-224) destroyed by canal and road construction. Site 19-BN-224 is located along the path of the Scenic Highway option (Figure 4). In 1947, Brewer, along with William Whiting, excavated a rock shelter (19-PL-345), known as the Wampsett Rock site, on the Bourne/Plymouth line, located north of Goat Pasture Pond in the vicinity of Route 25 (Davin and Herbster 1994: 45). This rockshelter site did not produce diagnostic materials indicative of a particular time period, but excavations yielded several pre-colonial artifacts, including dozens of flakes and a possible hearth feature (the feature was not radiocarbon-dated). This site is located at the northern extent of the Project Focus Area along the Middle Bridge 1 option.

In 1977, an archaeological survey conducted prior to the construction of Route 25 located the Nightingale Site (19-BN-244), a pre-colonial site found west of Nightingale Pond and immediately northeast of the Bourne Bridge (Mueller et al. 1977), just west of the Bourne Bridge and Connections option (Figure 4). Artifacts included quartz debitage and a quartz biface fragment. The site has since been destroyed by a gas pipeline (Mueller et al. 1977). Another survey was conducted to the east of Nightingale Pond in 1977 by the Public Archaeology Laboratory, Inc. (PAL) for a proposed land development project (Mowchan and Gallagher 1988). Excavations produced two small loci of artifacts—one represented by two quartz flakes, and the other by a possible hearth feature. The lithic artifacts appeared to be isolated and were not considered significant enough for further testing, and the hearth was also not recommended for further testing because it could be avoided by construction.

A 1982 archaeological survey for the Route 25 alignment project identified several areas of pre-colonial artifact concentrations (Cheney 1982). The sites are located between Goat Pasture Pond and Horse Pond, east of Bourne Road and along the current path of Route 25. Valley Road, a former native trail that connected Great Herring Pond to Buttermilk Bay, runs through the survey area. Site 1 (19-BN-821) was identified based on a test pit with a quartz flake and charcoal fragments. Site 2 was located northeast of Wampsett Rock, which is the rockshelter site 19-PL-345 discussed above. The site contained 13 quartz flakes from two test pits adjacent to the rock, and additional test pits within the rock shelter displayed disturbance from the 1947 excavations. Site 3 contained two possible hearth features with fire-cracked rock but no further artifacts. In addition, three other areas that were collected by local residents clustered immediately south of these sites, and produced a variety of projectile points, most commonly small-stemmed quartz points.

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A series of sites was located during a 1991 survey for a proposed wastewater treatment plant at the Otis Air Force Base in Bourne and Sandwich (Macomber 1991) (Figure 4). Most of the sites were found within a half-mile of the southern bank of the canal, between the Bourne and Sagamore bridges. The closest site to the canal's edge was located only about 150 meters south of the canal, directly across from Foundry Pond on the northern side. This site (19-BN-654) reflects an isolated quartz small stemmed projectile point base that was recovered from the topsoil in a test pit. An isolated quartz biface preform (19-BN-651) was found on the surface at the edge of a dirt access road on a power line right-of-way just northeast of Donnelly Pond. Site 19-BN-655 consisted of an isolated surface find of a quartz small stemmed projectile point on a sloping edge of a dirt power line access road, about seven kilometers from the banks of the canal. About a mile northeast of this site, another isolated quartz small stemmed projectile point (19-BN-650) was recovered in the same manner. An isolated piece of quartz debris (19-BN-653) was found in the B horizon of a test pit just north of Discovery Hill. Less than a kilometer northeast, an isolated quartz small stemmed projectile point fragment (19-BN-656) was found on the ground surface. All of these sites represent isolated finds, and were not considered to be archaeologically significant at the time of survey. However, based on the number of identified sites and cultural materials, the Mashpee Wampanoag consider this portion of the base to have high cultural sensitivity (Figure 5; Ramona Peters, personal communication, September 2016).

In 1994, a PAL survey for a proposed gas pipeline located the Ridge Site (19-BN-685) in Bourne. The site was found on a ridge about 500 feet west of the Herring River, west of the terminus of Harding Lane (Figure 4). This location also abuts the eastern edge of the Carter Beale Conservation Area. The site contained six rhyolite flakes from a test pit and an array. The flakes were found within the first 30 centimeters of the test pits, which includes the upper B horizon. The site is described as a small upland temporary campsite or habitation site.

Also in 1994, PAL conducted an archaeological reconnaissance/inventory survey along the canal for the U.S. Army Corps of Engineers (Davin and Herbster 1994). The purpose of the survey was to locate areas of archaeological sensitivity to inform future construction plans. Several areas were considered to have low archaeological sensitivity due to prior disturbance. At the Buzzards Bay entrance to the canal, PAL ruled out the Rocky Point and Stony Point Dikes because both areas were artificially constructed to maintain the canal passage. The Army Corps Canal Field Office, located west of the railroad bridge on the north side of the canal, was found to be too developed to warrant testing. All of the bridges that traverse the canal—including the Bourne, Sagamore, and Railroad—were found to have disturbance in the areas below and adjacent to the structures. At the eastern mouth of the canal, the East Boat Basin was found to be heavily paved and developed.

Several areas were determined to have moderate to high archaeological sensitivity, resulting in further walkover assessment and subsurface testing. A total of 337 test pits were dug in nine areas along the canal (Davin and Herbster 1994). At Sagamore Hill, which is located in Sandwich at the eastern end of the canal within Scusset Beach State Reservation, two different loci of pre-colonial activity were located in undisturbed contexts. Sagamore Hill Locus 1 represents three flakes from two test pits on the hilltop, while Locus 2 represents eight flakes from seven test pits southeast of the hill, adjacent to wetlands. These loci were designated site 19-BN-687. This site, along with a village site identified immediately to the north (19-BN-227), fall just outside the Project Focus Area.

PAL also tested a linear transect between Route 6 and Canal Access Road on the north side of the canal in Bourne, immediately west of where the Herring River drains into the canal. The area

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is considered highly sensitive due to the proximity of the Herring Run as well as site 19-BN-224 (Figure 4), which was found in the same area along the banks of the canal. In addition, U.S. Army Corps construction in this area in 1984 uncovered flakes and fragments of grit-tempered, decorated aboriginal ceramics. PAL's survey produced a total of 44 artifacts from nine test pits at depths of 0-70 cmbs. One of the test pits produced the highest density of pre-colonial materials from the entire canal survey, and also contained a possible feature. Another test pit produced a diagnostic Late Woodland Levanna projectile point. The site (19-BN-690), which was ultimately found to extend about 130 meters within the linear testing area, is likely a slice of a larger Late Woodland/Contact site that includes the artifacts previously discovered. These two sites are located within the path of the Scenic Highway option (Figure 4).

At the Midway Recreation Center in Bourne, PAL excavated 49 test pits within a 150-acre-area. Although a large portion of the area consisted of a gravel pit, the remaining intact area was thought to be archaeologically sensitive due to the proximity of the five findspot sites from the 1991 survey of the adjacent property (Macomber 1991). While PAL's excavations revealed natural soil profiles, no cultural materials were recovered.

PAL also surveyed two areas situated on either side of the canal to the east of the Bourne Bridge, about a half mile south of the Nightingale Site (19-BN-244) and Nightingale Pond. At the Bourne Recreation Area, which is located on the south side, PAL excavated 89 sterile test pits (i.e., contained no artifacts). Some of the test pits contained intact soils, while others were disturbed. On the north side, 26 sterile test pits were excavated at Bourne Scenic Park, most of which exhibited layers of fill over intact soils. A mile west of this area, PAL tested the Bourne Pond project area, a grassy strip paralleling the canal between Canal Service Road and residential housing. A transect of 28 test pits produced 26 flakes from seven pits, many of which exhibited disturbed soils. This since-named Bourne Pond-Canal Locus (19-BN-689) is within the vicinity of several archaeological sites, including the Grove Field Ossuary site (19-BN-612) and the Canal Place 1 and 2 sites (19-BN-886, 19-BN-887) (Figure 3). The site form also notes that residents of the immediate area have collected artifacts from their property that range in age from the Middle Archaic to Contact periods. The presence of these sites suggests that undisturbed areas in the westernmost portion of the Bourne Bridge and Connections option on the north side of the canal is highly sensitive for archaeological resources (Figure 4).

In the same survey, seven test pits were excavated at the Aptucxet Trading Post area, which is located west of the Bourne Bridge near the southern banks of the canal. The test pits contained intact soils and a small number of historic artifacts. The area was considered to be sensitive due to the high amount of cultural material found on the property. The Aptucxet Trading Post itself is a known historical site (BOU.5; discussed in greater detail below), and two other pre-colonial sites—the Hammond Site (19-BN-787) and the Cattail Site (19-BN-788)—have also been identified (Figure 4). The Hammond Site, which was excavated in the 1990s by Barbara Luedtke's field schools, produced over 140 flakes, four utilized flakes, one pestle fragment, an Onondaga chert Jack's Reef Pentagonal point, and a quartz point that is either a Jack's Reef Pentagonal or Fox Creek, as well as a Native American storage pit feature. Northwest of this area, adjacent to a small wetland, excavations at the Cattail Site produced over 300 flakes, two quartz cores, and one quartz biface or possible preform fragment in undisturbed soils. The trading post and adjacent sites are located in the southwest corner of the focus area and will not be directly impacted by any of the proposed options.

A 2003 University of Massachusetts Amherst survey of the Bourne and Sagamore rotaries identified an isolated quartz flake in a test pit. While no additional artifacts were found, the

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authors surmised that the flake may be related to the series of sites located south of the Great Herring Pond, and the site was designated 19-BN-870 (Figure 4).

In 2005, PAL conducted a survey for a proposed housing development along the north side of the canal in Bourne, just west of Bourne Pond (Herbster and Millard 2005). Two sites were identified. Canal Place 1 (19-BN-886) produced a rhyolite Levanna projectile point, unidentified stone tool, 29 flakes, and a shell fragment. All of the artifacts were recovered from the plow zone except for one flake, which was found in intact subsoil. At Canal Place 2 (19-BN-887), a total of four flakes were found within the plowzone (Figure 4).

In 2007, PAL conducted a survey for improvements to Route 6 in Bourne, MA, on the north side of the canal, east of the intersection between Edgehill Road and Route 6 (Graves and Herbster 2007). About one-half-mile to the east is Foundry Pond and the outlet of Herring River into the canal. No artifacts were recovered from the excavation of 20 test pits. However, several artifacts were identified on the ground surface by Wampanoag Tribe of Gay Head/Aquinnah Tribal Historic Preservation Office members during the monitoring of construction. Artifacts included two rhyolite Levanna projectile points, as well as an unspecified number of flakes and bifaces.

A 2011 PAL survey for an NSTAR pole replacement project identified several areas with pre-colonial artifacts (Herbster and Laskoski 2011). The area with the highest artifact density was located at Pole 5, an area about 1.5 kilometers from the southern banks of the canal and west of the canal power plant. The site is bordered by a wetland to the east. Soil profiles indicated one or multiple layers of fill overlying a truncated plowzone and intact subsoils. At Pole 5, 37 of the 60 test pits contained cultural material, amounting to 1405 pre-colonial artifacts from both the plow zone and natural B subsoil. This included two Levanna projectile points, a Brewerton point, four untyped points, over 500 flakes, quartz bifaces, a steatite bowl fragment, aboriginal ceramic fragments, lithic cores, a drill, shell, charcoal, and calcined bone. At adjacent Pole 6, which is just east of 6A, 11 test pits were excavated, two of which contained a total of three flakes. To identify site boundaries, transects were placed between the Pole 5 and Pole 6, and between Pole 5 and the adjacent wetland. Between Poles 5 and 6, 15 of the 35 test pits produced a total of 387 flakes, three quartz projectile points, three bifaces, one quartz core, one calcined bone, and a shell fragment. Between Pole 5 and the wetland, 11 of the 15 test pits produced a total of 207 flakes, a quartz Levanna point, three bifaces, a groundstone fragment, and two shell fragments. Ultimately, the site extended from Pole 6 to about 40 meters east of Pole 5, where the wetland prevented any further testing. Due to evidence of site use from approximately 6,000 to 450 B.P., and the existence of previously identified findspots in the area, PAL recommended the site as eligible for listing in the NRHP.

6.1.2 Pre-colonial Archaeological Sensitivity

Despite the fact that the Project Focus Area surrounding the Cape Cod Canal includes small neighborhoods, major roadways, a rail line, and an artificially created waterway, there are many pockets of undeveloped and apparently undisturbed land, and these areas are likely to contain archaeological resources. Thus far, a combination of scattered professional testing and avocational collecting activities have revealed evidence of human occupation and activity in this area that ranges from the Middle Archaic Period to the present. While many sites have been officially recorded throughout the past century, there are likely numerous private collections with artifacts from this area as well. Overall, it is likely that cultural materials are broadly spread throughout the entire Project Study Area. As such, any area that is not already developed or

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disturbed must be considered as potentially containing pre-colonial sites. These areas include clearly undeveloped parcels, as well as the yard areas of existing structures and any areas that may simply have been capped by asphalt, gravel or fill.

6.2 HISTORIC-PERIOD ARCHAEOLOGICAL RESOURCES

6.2.1 Identified Historic-Period Sites

Research in the files of MHC and the MACRIS database indicate that there are a total of seven documented historic-period archaeological sites in the focus area (Figure 4). These sites include three historic residential sites, two large boulders, and the Aptucxet Trading Post. The Herring Pond Wampanoag Burial Ground (BOU.800) does not have an archaeological site number, but should also be considered in an evaluation of historic-period archaeological sites.

Site BOU.1, the Gas House Site, is located in the Nightingale Pond conservation area, situated east of Route 25 as it approaches the Bourne Bridge. The site, which sits on a low, flat area on the west bank of Nightingale Pond, consists of the remains of a late 18th- to mid-late 19th-century house. The structure was identified during an archaeological survey conducted in 1976 as part of the Routes 25 and 28 Environmental Impact Statement. The survey identified the corner of a dressed fieldstone house foundation, as well as a kaolin pipe, redware, and creamware sherds (Mueller 1977).

Site BOU.2, the Chamber Rock Site, is large, flat-topped boulder located immediately west of the intersection of the AGT pipeline and Chamber Rock Road (Figure 4). The cultural use of this rock dates back to the European Contact period, if not earlier, and both European and Native oral tradition gives significance to the site (Keen 1937; Torrey 1953; Ramona Peters, personal communication, 2016). One account of Chamber Rock has a very Christian, European bent. In the *History of Bourne*, Betsey Keene (1937) indicates that the site was originally known as "Sacrifice Rock" due to sacrifices that Native Americans carried out there. Supposedly, when Richard Bourne attempted to put a stop to the practice, lightning struck and broke the rock, killing some Indians. Another version of the events surrounding Chamber Rock was recorded by Howard Torrey in 1953. In this account, the Wampanoag villagers from Comassakumkanet were suffering from a poor, dry growing season and their crops lay wilted on the ground. Allegedly, the sachem and his sagamores decided that a great sacrifice to the Thunder people was required to end the drought. They took a captive and brought him to rock to be sacrificed. As they prepared to burn the captive on the rock, the sky darkened and lightening flashed. Suddenly the storm broke and a huge bolt of lightning struck the rock, rendering it into pieces. The strike killed all of the Native leaders involved in preparing the sacrifice and left the intended victim unharmed. The Wampanoag took this as an indication that the Thunder people did not approve of human sacrifice, and the practice was ended. It is important to note that this version of the story was related to Torrey by Nathan Bourne Hartford, a Bourne descendent. To date, no archaeological testing has been carried in the immediate vicinity of the rock, so there are no recorded archeological materials associated with the site. Given its size and shape, it is possible that Chamber Rock may have served as rockshelter in the past.

Site BOU.3, Wishing Rock, is another large boulder located a short distance from Chamber Rock (Figure 4). The significance of this site is also related to oral tradition and dates at least as far back as the Contact period. Keene (1937) stated that a worn Native path ran past Wishing Rock. As local Native Americans passed the site, they would toss a stone upon the rock and

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make a wish. Given this account, it seems likely that the site served as a memory pile. Information provided by the Tribal Historic Preservation Office of the Mashpee Wampanoag indicates that both Chamber Rock and Wishing Rock are important cultural sites in the present day (Ramona Peters, personal communication, September 2016).

The Bog Site, BOU.4, is located between Head of the Bay Road and Route 25 (Figure 4). The site consists of the remnants of an abandoned, undated cranberry bog and includes sand quarries, two sub-rectangular pits for pumping and holding excess water, the bog enclosure, and an irrigation ditch. BOU.4 was documented in 1977 (Mueller 1977).

The three remaining sites are located in the vicinity of the Aptucxet Trading Post Museum. These sites were all identified by Professor Barbara Luedtke in 1995, when she carried out an archaeological survey of the trading post area with field school students (Luedtke 1997). The Aptucxet Trading Post Museum Site (BOU.5) is located off Aptucxet Road along the Cape Cod Canal (Figure 4). The site is the purported location of an early (17th-18th century) English trading post. Archaeological testing at the site resulted in the recovery of a variety of archaeological materials believed to related to the trading post: whetstones, a button mold, fire-cracked rock, architectural stone, gun flints, strike-a-lights, lithic debris, and nails (Luedtke 1997). Site BOU.6, known in the MHC files as Site #4, is located east of the Aptucxet Trading Post Museum on Aptucxet Road. Recovered cultural material include domestic materials, charcoal, and shell. The associated features included a cellar hole, stone-lined well, trash dump areas, ornamental plantings, and part of a stone wall. Finally, BOU.7 or Site #5 is a 19th-20th-century cellar hole located west of the museum access road on Aptucxet Road. Associated features and materials included dump areas, abandoned farm equipment, glass, ceramics, brick, coal, and shell.

The 1825 Canal Survey map (Perrault, et al. 1825; Figures 3a and 3b) shows the "Old Indian Burial Ground," within the Project Focus Area at the southern end of Herring Pond along the Megansett Trail. This location is an historic-period cemetery associated with the Herring Pond Wampanoag tribe. Ground penetrating radar, conducted around the periphery of the cemetery in 2015, identified likely burials outside the accepted boundaries of the cemetery (Gately 2015).

6.2.2 Historic-Period Archaeological Sensitivity

Contact between Native American and Europeans occurred early on Cape Cod. It is likely that European fishermen fished the Cape waters in the early 16th century and by the second quarter of the century several European explorers had visited the coast of New England. The early 17th century brought English, French, and Dutch traders to the area and the start of hostilities between the Europeans and the local Native people (MHC 1986:56). The Monument and Scusset Rivers, now the Cape Cod Canal, were important local transportation routes and numerous Native American sites, including habitation areas and cemeteries, were located along their banks. The Native population on the Cape is believed to have been quite large in the early Contact Period, although the epidemics of 1617-1619 likely resulted in a rapid and dramatic population decline.

Following Contact, the Native residents of Cape Cod quickly became commercially and politically entangled with their new European neighbors. By 1627 the Aptucxet trading post (BOU.5) was established in the Project Focus Area and the first permanent European settlement was organized at Sandwich in 1637. New settlements at Barnstable, Yarmouth, and Nauset soon

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followed. As the European population increased, Native groups were displaced and encouraged to settle on reservations and in praying towns (Christianized Indian settlement). The three major reservations on the Cape in this period were established around 1660 and included Mashpee, another reservation at the outlet of Herring Pond, straddling what are now the towns of Bourne and Plymouth, and the Potanunquut reservation in the Nauset area. By 1674, Richard Bourne reported seven congregations of "Praying Indians" (MHC 1986:72-73), although many of these were short-lived.

The 1825 Canal Survey map (Perrault, et al. 1825; Figures 3a and 3b) shows several Native sites at the southern end of Herring Pond and along Herring Pond Road, including two farmsteads and "Indian Hill." The "Old Indian Burial Ground," an historic-period cemetery associated with the Herring Pond Wampanoag tribe, is also located within the Project Focus Area at the southern end of Herring Pond along the Megansett Trail. Ground penetrating radar, conducted around the periphery of the cemetery in 2015, identified likely burials outside the accepted boundaries of the cemetery (Gately 2015). The documented presence of these sites, as well as the long-established history of the Wampanoag people in the Project Focus Area, suggests that the potential for contact and historic-period Native American sites is high throughout much of the study area. The 1825 map also depicts the locations of numerous Euro-American homes and farmsteads, most of which were located along the route of the proposed canal (Figures 3a and 3b). The presence of identified 17th-19th century house remains such as sites BOU.1, BOU.6, and BOU.7, suggest that more such sites likely exist in portions of the focus area that have not been greatly disturbed by modern development. Therefore, undisturbed and minimally-disturbed portions of the focus area are considered sensitive for historic-period archaeological resources.

An 1880 map of the Project Focus Area (Figure 6, Appendix A; Walker 1880) shows the most intensive settlement along existing roads, rather than along the rivers, as was the case in 1825. The most heavily settled areas in the focus area at this time appear to have been along the Herring Pond Road and present-day Head of the Bay Road. A "Herring House" is depicted in the location of the present-day Herring Run, near Foundry Pond between Bournedale Road and Route 6. The Old Colony Rail Road is shown on the map, running alongside much of the proposed canal route. Based on the 1880 map, it is likely that archaeological materials related to 19th-century farmsteads and railroad-related sites exist in minimally-disturbed portions of the focus area.

6.3 NATIVE AMERICAN CULTURAL SENSITIVITY

Archaeological sensitivity is largely based on environmental factors, the presence of documented archaeological resources and ethnographic and historic information. However, several portions of the Project Focus Area are also considered to have high levels of cultural and archaeological sensitivity by local Native American groups. These determinations are made on the basis of oral tradition, known archaeological sites, known burial sites, and other cultural knowledge. Coordination with federally-recognized Native American tribes on the Cape (the Mashpee and Gay Head [Aquinnah] Wampanoag) resulted in the identification of several areas of cultural sensitivity (Figure 5). These include most of the northern and eastern portions of the military base at Camp Edwards, and a linear area that runs south from Herring Pond, along Herring Pond Road, crosses the canal and extends into the northern portion of the base, and the locations of Chamber Rock (BOU.2) and Wishing Rock (BOU.3). The Wampanoag Tribe of Gay Head (Aquinnah) also indicated that any undeveloped areas along the north and south banks of the canal should be considered culturally sensitive (Elizabeth Perry, personal communication,

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2016). These areas overlap with areas identified as archaeologically sensitive, indicating that their importance to Native people extends into the deep past. The Herring Pond Wampanoag Tribe, whose traditional lands are in the northern portion of the focus area in the vicinity of Herring Pond, consider the area surrounding Herring Pond to have a high level of cultural sensitivity (Melissa Ferretti, personal communication, September 2016) (Figure 5, Appendix A).

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7.0 EVALUATION OF POTENTIAL EFFECTS ON HISTORIC RESOURCES

The new bridges and road improvement options in the Cape Cod Canal Transportation Study can be expected to affect historic properties in the Project Focus Area that are listed in the National Register of Historic Places (or are potentially eligible for listing in the NRHP), the State Register of Historic Places, and the Inventory of Historic and Archaeological Assets of the Commonwealth.

Below is a preliminary review of the anticipated effects of the options as depicted on the MESA Information Request Canal Crossing and Approach Options, Cape Cod Canal Transportation Study Overview (received by AHS on September 9, 2016).

7.1 MIDDLE BRIDGE 1

Middle Bridge 1 involves a new highway bridge roughly halfway between the Bourne and Sagamore Bridges that would be accessible on the north side from Route 25 via a traffic circle, and from Route 6 (Scenic Highway) via a partial cloverleaf interchange (Figure 2, Appendix A).

Middle Bridge 1 could have a direct and indirect adverse effect on the Cape Cod Canal itself (BOU.AF), which is potentially NRHP eligible (Photographs 1-3, Appendix D). Middle Bridge 1 is very close to the Herring Run Recreation Area Fish Ladder (BOU.938), a contributing resource to the potential Cape Cod Canal NRHP district. It could have a potential direct or indirect adverse effect on the Herring Run Fish Ladder (Photograph 23, Appendix D).

This option could have a potential indirect adverse effect on integrity of setting for the southwest part of Bournedale (BOU.I). The Nathan Bourne Ellis House/Bournedale Lodge (BOU.211, 212, 213) at 854 Route 6/Scenic Highway in this area of Bournedale are potentially individually eligible for the NRHP (Photograph 27, Appendix D).

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 2.

7.2 MIDDLE BRIDGE 2

Middle Bridge 2 involves a new highway bridge roughly halfway between the Bourne and Sagamore Bridges that would be accessible on the south side from Route 6 via a new road (Figure 2, Appendix A).

Middle Bridge 2 could have direct and indirect adverse effects on the Cape Cod Canal itself (BOU.AF), which is potentially NRHP-eligible.

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It could also have a potential direct adverse effect on the Cape Cod Air Station – Otis Air Force Base (BOU.B) if that entire area is NRHP-eligible, which has not been determined (see section 5.4.5).

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 3.

7.3 SANDWICH ROAD

Sandwich Road work involves improvements to the existing roadway and its interchange with Route 6, and a new connection to the Bourne Rotary (Figure 2, Appendix A).

Potential Sandwich Road improvements not appear to have direct or indirect effects on any inventoried areas (such as BOU.A Keene Street-Sandwich Road Area), or other identified standing historic resources.

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 4.

7.4 RELOCATED EXIT 1C 4 LEG ROUNDABOUT EFFECTS

Relocated Exit 1C involves a new Route 6 exit and new road to Route 6A (Figure 7-9, Appendix A). The road would be constructed within an existing power transmission line corridor, terminating in a roundabout at the intersection with Route 6 and Main Street.

Relocated Exit 1 could have a possible indirect adverse effect on west end of the Route 6A West Area (SDW.G), which is listed in the State Register and is located within the Old King's Highway Regional Historic District (SDW.R). Inventoried resources that appear to be in close proximity to the proposed Relocated Exit 1C include the Saddle and Pillion Burial Ground (SDW.802) and a collection of 20th-century buildings including motor courts and houses (SDW.489, SDW.490, SDW.491, SDW.492, SDW.493, SDW.494, SDW.495, SDW.496, SDW.497, and others.) See Photographs 72 to 74, Appendix D. The Watson Freeman House (SDW.100) has been demolished.

It could also have an indirect adverse effect on the west end of the Main Street – Route 130 Area (SDW.I), which is listed in the State Register and is located within the Old King's Highway Regional Historic District (SDW.R). Inventoried resources that appear to be in close proximity to the proposed Relocated Exit 1C include houses at 8, 12, and 14 Main Street (SDW.504, 505, and 506). The road alignment appears to encroach on the front yards of these three properties.

The proposed Relocated Exit 1C could have a direct or indirect adverse effect on the east end of South Sagamore (SDW.V), which is potentially NRHP eligible as a district. Inventoried resources that appear to be in close proximity to the proposed Relocated Exit 1 include the early 20th-century Sagamore Inn (BOU.346), stone markers BOU.925 and BOU.927, the early 18th-century Freeman House and Barn (BOU.194 and 195), and the early 20th-century Rogers House (BOU.345).

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The road alignment appears to have a direct adverse effect on Bourne Highway Marker BOU.927, located in front of the Sagamore Inn at 131 Sandwich Road (BOU.346), and also Town Line Marker BOU.927, located across the street from the Sagamore Inn. These markers are not individually eligible for the NRHP.

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 5.

7.5 ROUTE 3 TO ROUTE 25

Route 3 to Route 25 would construct a new road connecting Route 3 and the Sagamore Bridge with Route 25 (Figure 2, Appendix A). The new road would connect to Route 25 via a rotary, and to Route 3 and the Sagamore via ramp interchanges.

A potential new connector from Route 3 to Route 25 does not appear to have direct or indirect effects on inventoried areas (such as Head of the Bay BOU.C, Bournedale BOU.I, North Sagamore BOU.O, Savery Ave BOU.P or the Cape Cod Canal BOU.AF), or on other identified standing historic resources.

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 6.

7.6 SCENIC HIGHWAY

Scenic Highway work would involve improvements to the existing highway (Figure 2, Appendix A).

Improvements to the Scenic Highway (Route 6) between the Bourne and Sagamore bridges could have an overall indirect adverse effect (integrity of setting) on the Cape Cod Canal (BOU.AF), a potential NRHP-eligible district. The Scenic Highway is very close to the Herring Run Recreation Area Fish Ladder (BOU.938), a contributing resource in the potential canal historic district. Improvements to the highway could have a potential direct or indirect adverse effect on the fish ladder (Photograph 23, Appendix D).

In Bournedale, historic resources close to the Scenic Highway that are potentially individually eligible for the NRHP include the Nathan Bourne Ellis House/Bournedale Lodge (BOU.211, 212, 213) at 854 Route 6/Scenic Highway (Photograph 27, Appendix D). Improvements to the highway could have a potential direct or indirect adverse effect on this property.

Other inventoried resources that are close to the Scenic Highway include several mid 19th-century houses and commercial properties (BOU.204, BOU.205, BOU.206, BOU.207). The eligibility of Bournedale as a NRHP-eligible district has not been fully assessed. Improvements to the highway could have a potential direct on BOU.204 or BOU.205, or an indirect adverse effect (integrity of setting) on all of these properties.

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The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 7.

7.7 SAGAMORE TWIN

Sagamore Twin would construct a new bridge immediately west of the existing Sagamore Bridge (Figure 2, Appendix A). New ramps would connect the existing and new bridges with Route 3 and Route 6/Scenic Highway north of the canal, and to Route 6 south of the canal.

The new twin bridge would have a potential adverse and definitely indirect adverse effect on the Sagamore Bridge, which MHC has classified as individually NRHP-eligible (Photograph 7, Appendix D).

The new twin bridge and its approaches would have a potential direct or indirect adverse effect on the Cape Cod Canal, a potential NRHP-eligible district.

The new twin bridge approaches could have a potential indirect adverse effect on North Sagamore and Savery Avenue, possibly affecting their integrity of setting if they are determined to be NRHP-eligible districts.

The new twin bridge approaches could have a potential indirect adverse effect on South Sagamore, especially the Adams Street area, which could be included in a South Sagamore NRHP district (see Figure 2, Appendix A).

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 8.

7.8 NEW ROUTE 6 EB TRAVEL LANE

New Route 6 EB Travel Lane would extend from the Sagamore bridge to the Route 130 interchange. The new lane would be located on land currently owned by MassDOT, within the wide ROW (Figures 10-11, Appendix A).

SDW.906 and 907 are two Route 6 bridges over Route 130. They are within the Old King's Highway Regional Historic District (SDW.R) and they are SR-listed (Photograph 71, Appendix D). The new Route 6 EB travel lane would have a direct adverse effect on bridge SDW.907 (eastbound), and an indirect adverse effect on bridge SDW.906. (westbound) (Figure 11, Appendix A).

The new Route 6 EB travel lane could have a potential indirect adverse effect (integrity of setting) on the Cape Cod Air Station – Otis Air Force Base (BOU.B) if that entire area is NRHP eligible, which has not been determined. Such a potential indirect adverse effect would result only if work extends beyond the existing ROW.

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In Sandwich, the area north of Route 6 is included in the Old King's Highway Regional Historic District (SDW.R) & SR listed. The new Route 6 EB travel lane could have a potential indirect adverse effect (integrity of setting) for the overall area, only if work extends beyond the existing ROW.

Shawme Road (SDW.F) in Sandwich is a potentially NR-eligible area. It is also included in the Old King's Highway Regional Historic District (SDW.R) & is SR-listed. The new Route 6 EB travel lane could have potential indirect adverse effect on integrity of setting, only if work extends beyond the existing ROW.

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 9.

7.9 BOURNE BRIDGE REPLACEMENT & IMMEDIATE APPROACHES

Bourne Bridge involves the replacement of the Bourne Bridge and improved ramps and roadways to access the bridge (Figure 2, Appendix A).

This option would have a direct adverse effect on the Bourne Bridge, which MHC has classified as individually NRHP-eligible (Photograph 5, Appendix D). It would have a potential direct or indirect adverse effect on the Cape Cod Canal, a potential NRHP-eligible district.

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 10.

7.10 BELMONT CIRCLE AND SCENIC HIGHWAY TO ROUTE 25 RAMP

Belmont Circle involves a new rotary and road alignments to replace the Belmont Circle in Buzzard's Bay north of the Bourne Bridge (Figure 12, Appendix A)

Improvements to Belmont Circle and its connections in Buzzard's Bay do not appear to have direct or indirect effects on inventoried areas or other identified standing historic resources.

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 11.

7.11 BOURNE ROTARY ALTERNATIVE 2

Bourne Rotary Alternative 2 involves new intersections to replace the Bourne Rotary south of the Bourne Bridge (Figure 13, Appendix A). It also includes improved ramps and roadways to access the bridge.

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The Bourne Rotary Alternative 2 and its connections east of Bourne Village could have indirect adverse effects on inventoried areas and National Register-listed properties in Bourne Village to the west. The proposed realignment of Sandwich Road could have a direct or indirect adverse effect on the Arabella Parker-George Ellis House (BOU.49) at 66 Sandwich Road, which is potentially NRHP-eligible as an individual property (Photograph 42, Appendix D).

To the east on Sandwich Road, these improvements might have had a potential direct or indirect adverse effect on the Gershom Ellis/Henry S. Blackwell House at 201 Sandwich Road (BOU.50). This property was formerly identified as a potential individually-eligible NRHP resource, but has since been modified and is no longer eligible (Photograph 48, Appendix D).

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 12.

7.12 BOURNE ROTARY ALTERNATIVE 3A

Bourne Rotary Alternative 3A involves new intersections to replace the Bourne Rotary south of the Bourne Bridge (Figure 14, Appendix A). It also includes improved ramps and roadways to access the bridge.

The Bourne Rotary Alternative 3A and its connections east of Bourne Village could have indirect adverse effects on inventoried areas and National Register-listed properties in Bourne Village to the west. The proposed realignment of Sandwich Road could have a direct or indirect adverse effect on the Arabella Parker-George Ellis House (BOU.49) at 66 Sandwich Road, which is potentially NRHP-eligible as an individual property (Photograph 42, Appendix D).

To the east on Sandwich Road, these improvements might have had a potential direct or indirect adverse effect on the Gershom Ellis/Henry S. Blackwell House at 201 Sandwich Road (BOU.50). This property was formerly identified as a potential individually-eligible NRHP resource, but has since been modified and is no longer eligible (Photograph 48, Appendix D).

The type of proposed construction will affect the total number of resources that would be adversely affected, either directly or indirectly.

Refer to Appendix E, Table 13.

8.0 EVALUATION OF POTENTIAL EFFECTS ON ARCHAEOLOGICAL AND CULTURAL/ETHNOGRAPHIC RESOURCES

AHS conducted an archaeological sensitivity assessment of the Cape Cod Canal Transportation Improvement Project Focus Area and potential new roadway alignments (Figure 1). The Project Focus Area includes the land that begins one mile west of the Bourne Bridge and extends to a point one mile east of the Sagamore Bridge. It is located almost entirely within the town of Bourne, with a small section in Plymouth. Two of the proposed alternatives (the Sagamore Twin and Relocated Exit 1 options) also extend a short distance into the town of Sandwich. Archaeological sensitivity was assessed based on a review of previously identified archaeological sites, historical maps and documentary sources, environmental characteristics, and consultation with local Native American groups regarding areas of cultural sensitivity.

Based on a review of the environment, archaeology, history, and areas of contemporary Native American cultural sensitivity, AHS assessed the sensitivity of the Project Focus Area for pre-colonial Native American and historic-period archaeological resources. In general, the proximity of the focus area to the Cape Cod Canal, which widened and joined the previously disconnected Manomet (or Monumet) and Scusset rivers, indicates that, in general terms, most of the Project Focus Area has very high archaeological potential. The Manomet River originally ran from the extant Great Herring Pond to Buzzards Bay, while the Scusset was a tidal river surrounded by a saltwater marsh system. These waterways were once a locus of extensive and intensive Native American settlement and subsistence activities and large-scale villages, as well as smaller settlements traditional burial grounds are documented along the former river channels. In the historic period, following the arrival and establishment of European communities on the Cape, these areas continued to be an important locus of settlement. As noted above, the 1825 map of the proposed canal area shows a series of farmsteads along the banks of the two rivers (Figures 3a and 3b).

Areas of cultural sensitivity were identified by the Mashpee and Gay Head (Aquinnah) Wampanoag Tribes, and by the Herring Pond Wampanoag tribe. Some of these areas overlap/coincide with recorded archaeological sites, but some do not. All of the Wampanoag tribes concur that the entire Project Focus Area is highly sensitive for buried archaeological resources related to Native American occupation of the Cape for thousands of years.

A more-detailed sensitivity assessment of the individual potential alternatives is provided below, along with a discussion of AHS's recommendations for archaeological testing and/or monitoring in sensitive areas and the areas considered to have archaeological sensitivity. Table 14 (Appendix E) presents a summary of the archaeological sensitivity and recommendations for each potential construction alternative based on proximity to documented archaeological sites and areas of identified Native American cultural sensitivity.

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8.1 MIDDLE BRIDGE 1

The Middle Bridge 1 option runs from just north of the Plymouth/Bourne town line to the canal along the path of an existing utility corridor and extends to Route 6 on the north side of the canal. The northern portion of this option traverses an area containing two known archaeological sites, 19-PL-345 and 19-BN-821 (Table 14, Appendix E; Figure 4, Appendix A). While neither site contained diagnostic artifacts, the presence of these sites indicates that this area was used by past Native people. The Middle Bridge 1 option also includes two proposed ramps, located at the juncture of the alignment with Route 6 (Scenic Highway). The proposed west ramp overlies an obviously disturbed gravel pit area, but undeveloped areas exist around the periphery of the pit, and site 19-BN-937 is located immediately to the west. The proposed east ramp lies directly adjacent to Foundry Pond, which is part of Great Herring Pond and Herring River drainage. Documented sites in the vicinity of the ramps include 19-BN-690, 19-BN-224, and 19-BN-685. This entire area may have once been part of a Late Woodland/Contact village site and is considered to have a high level of archaeological sensitivity.

Refer to Appendix E, Table 14.

8.2 MIDDLE BRIDGE 2

The Middle Bridge 2 option, which extends across the canal from the north bank to join Route 6, also follows a portion of the existing utility corridor. Documented archaeological sites in this area include 19-BN-654, which falls within the path of the proposed option, as well as sites 19-BN-656 and 19-BN-653, which are adjacent to the alignment (Table 14, Appendix E; Figure 4, Appendix A). All three sites are low density lithic findspots, but the presence of these materials indicates Native American activity in this area and suggests that there is strong potential for additional archaeological resources nearby.

Refer to Appendix E, Table 14.

8.3 SANDWICH ROAD

The Sandwich Road option runs along existing Sandwich Road, from the Bourne Rotary, along the south side of the canal. While this option only intersects with one identified site (19-BN-654) (Table 14, Appendix E; Figure 4, Appendix A) its proximity to the canal, which was built roughly along the course of the Cape's major rivers, indicates that undeveloped portions of this option should be considered highly sensitive for archaeological resources. Unlike much of the Project Focus Area, the course of the Sandwich Road has not been subjected to extensive archaeological survey, increasing the potential for as yet undiscovered archaeological resources.

Refer to Appendix E, Table 14.

8.4 RELOCATED EXIT 1C 4 LEG ROUNDABOUT EFFECTS

The Relocated Exit 1C involves a new Route 6 exit and new road to Route 6A (Figure 7-9, Appendix A). The road would be constructed within an existing power transmission line corridor, terminating in a roundabout at the intersection with Route 6 and Main Street.

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Most of this route does not directly impact any known archaeological sites, but the proposed rotary and road realignments at the junction of Route 6A, Main Street, and Tupper Road, at the eastern end of the alternative is situated in close proximity to the artifact-dense pre-contact Town Line Site and Town Line Findspots (19-BN-943, 19-BN-908, 19-BN-913, 19-BN-914, 19-BN-915) identified along the town line during a gas pipeline project (Table 14, Appendix E; Figures 4 and 7, Appendix A). The presence of these sites suggests that undeveloped portions of the eastern end of Exit 1C option have high archaeological sensitivity. Refer to Appendix E, Table 14.

8.5 ROUTE 3 TO 25

The proposed Route 3 to Route 25 option, which follows a powerline for most of its path, will require careful assessment due to the proximity of Great Herring Pond and Herring River. The roundabout located on the western end of this route is not far from Goat Pasture Pond, as well as documented pre-colonial site 19-BN-345. The proposed alignment crosses pre-colonial site 19-BN-821 and historic archaeological site BOU.2. Additionally, site historic site BOU.3 is located a short distance south of the roadway (Table 14, Appendix E; Figure 4, Appendix A). These historic sites represent Sacrifice Rock and Wishing Rock, two places on the landscape that are identified as having cultural significance to contemporary Native groups, as well as historical and archaeological significance.

Refer to Appendix E, Table 14.

8.6 SAGAMORE TWIN

The alignment for the proposed Sagamore Twin option should be carefully assessed as it is likely highly sensitive for archaeological resources in the areas immediately to the north and south of the canal, as well as along Route 6 as it extends to the southeast into Sandwich. Undeveloped areas near the canal may contain remnants of past Native American settlements or cemeteries and numerous archaeological sites are identified along Route 6 where it skirts the edge of the military base (Table 14, Appendix E; Figure 4, Appendix A).

Refer to Appendix E, Table 14.

8.7 SCENIC HIGHWAY

The Scenic Highway option, which follows the path of existing Route 6 along the north bank of the canal, crosses several documented sites (19-BN-224, 19-BN-690, and 19-BN-937), as well as long stretches of undeveloped land adjacent to the canal (Figure 4, Appendix A). The proximity of this route to the canal suggests that much of the area is highly sensitive for buried cultural resources. Any alterations to or widening of the road in the area have the potential to impact as yet undiscovered archaeological sites.

Refer to Appendix E, Table 14.

8.8 NEW ROUTE 6 EB TRAVEL LANE

The New Route 6 EB Travel Lane would extend from the Sagamore bridge to the Route 130 interchange. The new lane would be located on land currently owned by MassDOT, within the

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existing ROW (Figures 4, 10, and 11, Appendix A). Numerous archaeological sites have been identified along this stretch of Route 6 (19-BN-631, 19-BN-632, 19-BN-633, 19-BN-634, 19-BN-635, 19-BN-901, 19-BN-902, 19-BN-903, 19-BN-907, 19-BN-910, 19-BN-911, 19-BN-912, 19-BN-914, and 19-BN-987; Figure 4, Appendix A) and the expansion of the road would likely result in direct effects to several of these sites (19-BN-634, 19-BN-687, 19-BN-902, 19-BN-910, 19-BN-911, 19-BN-912, and 19-BN-987) and potential effect to sites 19-BN-631, 19-BN-632, 19-BN-633, 19-BN-901, and 19-BN-903. At the southern end of the Route 6 EB Travel Lane, near the Route 130 interchange, one additional archaeological site, 19-BN-909, is located adjacent to Route 6, and the expansion of Route 6 in this area would result in a direct effect to that site (Figures 4 and 11; Appendix A).

Refer to Appendix E, Table 14.

8.9 BOURNE BRIDGE REPLACEMENT AND IMMEDIATE APPROACHES

The Bourne Bridge portion of the project involves the replacement of the Bourne Bridge and improved ramps and roadways to access the bridge (Figures 4, Appendix A). The Bourne Bridge Replacement and Immediate Approaches option may encounter components related to historic sites BOU.1 and BOU.4 and pre-colonial site 19-BN-244 (Table 14, Appendix E; Figure 4, Appendix A). Numerous archaeological sites have been identified in the area west of this alignment. Undeveloped areas along this route are likely sensitive for archaeological resources.

Refer to Appendix E, Table 14.

8.10 BELMONT CIRCLE AND SCENIC HIGHWAY TO ROUTE 25 RAMP

Belmont Circle involves a new rotary and road alignments to replace the existing Belmont Circle in Buzzard's Bay north of the Bourne Bridge (Figures 4 and 12, Appendix A). There are no documented archaeological sites within the proposed option footprint, however, there are two documented archaeological sites (19-BN-244 and BOU.1) adjacent to areas of proposed alteration (Table 14, Appendix E; Figure 12, Appendix A). Undeveloped portions of the overall area are highly sensitive for pre-colonial archaeological resources. Two Late Woodland/Contact periods Native American sites, the Grove Field ossuary site 19-BR-612, and site 19-BR-689 were identified a short distance south of the Belmont rotary near Bourne Pond. The area around the pond is highly sensitive for archaeological resources. Two additional sites, 19-BN-986 and 19-BN-987 are identified on the west side of the pond (Figure 4, Appendix A; Table 14, Appendix E).

Refer to Appendix E, Table 14.

8.11 BOURNE ROTARY ALTERNATIVE 2

Bourne Rotary Alternative 2 involves new intersections to replace the Bourne Rotary south of the Bourne Bridge (Figures 4 and 13, Appendix A). It also includes improved ramps and roadways to access the bridge. No archaeological sites are documented within the planned road alignment areas, but undeveloped portions of the overall area are considered sensitive for archaeological resources. Numerous archaeological sites have been identified approximately one mile east of Route 28, south of the rotary within Camp Edwards. To the west of the Alternative 3A alignment, documented archaeological sites include 19-BN-218, the Aptuxet Petroglyph, and several sites associated with the Aptuxet Trading Post (BOU.5, BOU.6, BOU.7). Two pre-contact sites (19-BN-

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786 and 19-BN-787) are also identified along the present-day canal, about one mile west of the alternative 3A alignment (Table 14, Appendix E; Figure 4, Appendix A).

Refer to Appendix E, Table 14.

8.12 BOURNE ROTARY ALTERNATIVE 3A

Bourne Rotary Alternative 3A involves new intersections to replace the Bourne Rotary south of the Bourne Bridge (Figures 4 and 14, Appendix A). It also includes improved ramps and roadways to access the bridge. No archaeological sites are documented within the planned road alignment areas, but undeveloped portions of the overall area are considered sensitive for archaeological resources. Numerous archaeological sites have been identified approximately one mile east of Route 28, south of the rotary within Camp Edwards. To the west of the Alternative 3A alignment, documented archaeological sites include 19-BN-218, the Aptuxet Petroglyph, and several sites associated with the Aptuxet Trading Post (BOU.5, BOU.6, BOU.7). Two pre-contact sites (19-BN-786 and 19-BN-787) are also identified along the present-day canal, about one mile west of the alternative 3A alignment (Table 14, Appendix E; Figure 4, Appendix A).

Refer to Appendix E, Table 14.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The Project Focus Area contains a large number of historic resources, including bridges, buildings, districts and more, many of which are listed in or eligible for listing in the NRHP. Besides the Bourne and the Sagamore bridges (determined by MHC as individually eligible for the NRHP), and the Cape Cod Canal itself, relatively few resources would be directly affected by the project alternatives, with the caveat that design specifications for the alternatives have not been developed. Depending on the actual build specifications of the selected alternative, the assessment of the project effects may change.

The majority of the Project Focus Area, that is, all undeveloped or undisturbed land, including lawns, is considered to have high potential for archaeological resources. As an alternative is selected and project plans are refined, detailed walkover survey and close visual assessment of potential alignment routes by professional archaeologists would be necessary to refine the archaeological sensitivity of these areas. The archaeological potential of undisturbed ground surfaces would be assessed based on soil composition (i.e., are the soils well-drained, poorly-drained, glacial till, etc.) and the proximity of the alignment to natural resources such as fresh water. The walkover and visual inspection would also facilitate the identification of above-ground historic resources that may signal an area's archaeological potential for historic archaeological sites. In addition to the visual assessment, a series of hand-powered soil probe samples would be taken across the Project Focus Area to further assess the integrity of the soils.

Refined areas of archaeological sensitivity in the Project Focus Area should then undergo systematic subsurface testing in the form of an intensive (locational) archaeological survey. An intensive (locational) survey is defined as "a systematic and detailed archaeological field investigation for the purpose of locating and identifying the sites which exist in a given area" (950 CMR 70.04). The tasks of the intensive survey include preparation of a detailed research design and application for a permit from the Massachusetts State Archaeologist (as mandated by Massachusetts General Laws, Chapter 9, Sections 26-27c and its implementing regulations 950 CMR 70); manual subsurface testing, laboratory processing and curation of any recovered artifacts; and preparation of a technical report.

The conclusions and recommendations herein are the opinion of the historic preservation consultant. Actual determinations of National Register eligibility and further assessment of effects are properly part of the ongoing consultative process among MassDOT and MHC, and will be further developed as the project progresses.

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APPENDIX A: FIGURES

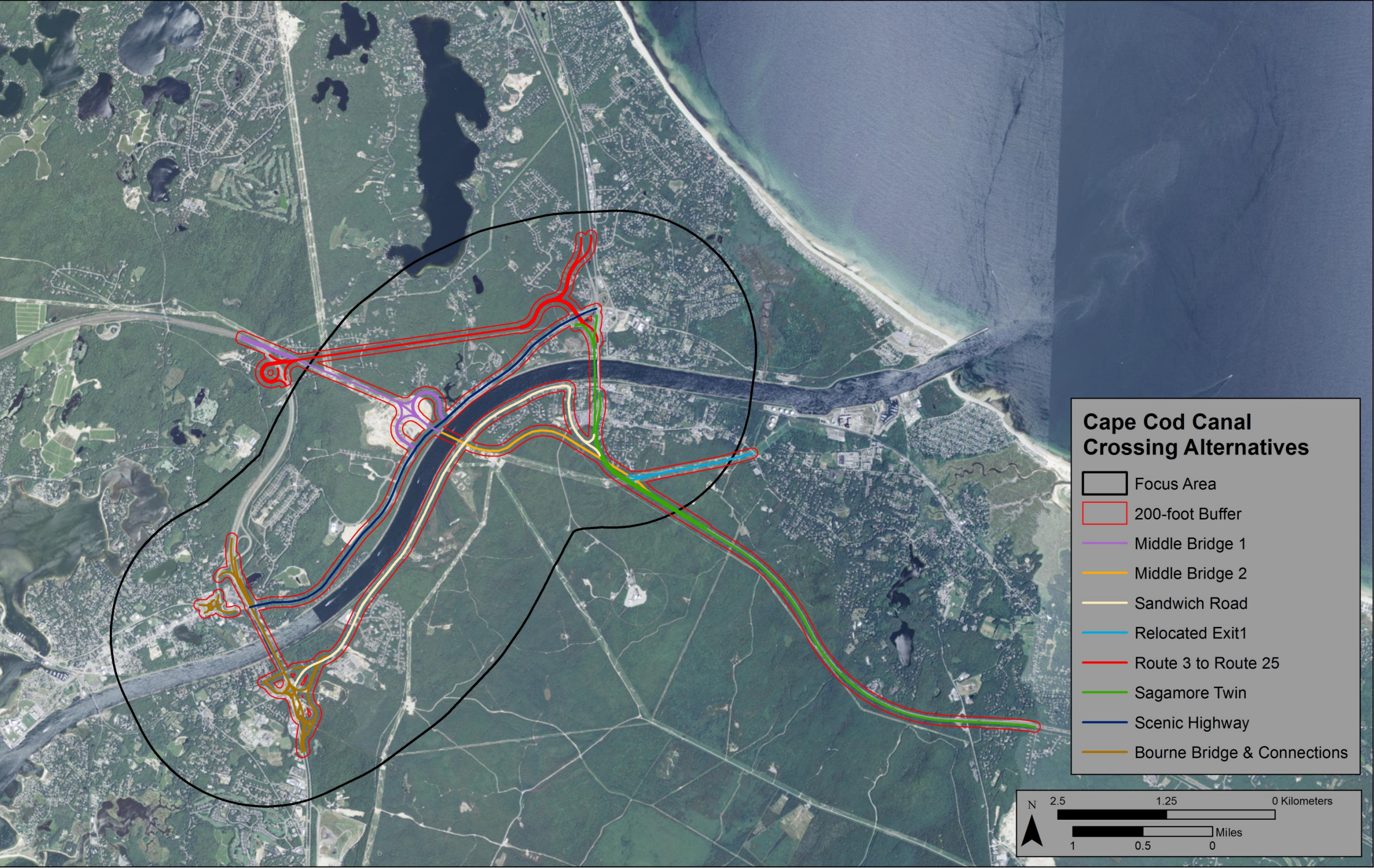


Figure 1: Cape Cod Canal improvement alternatives and study focus area.

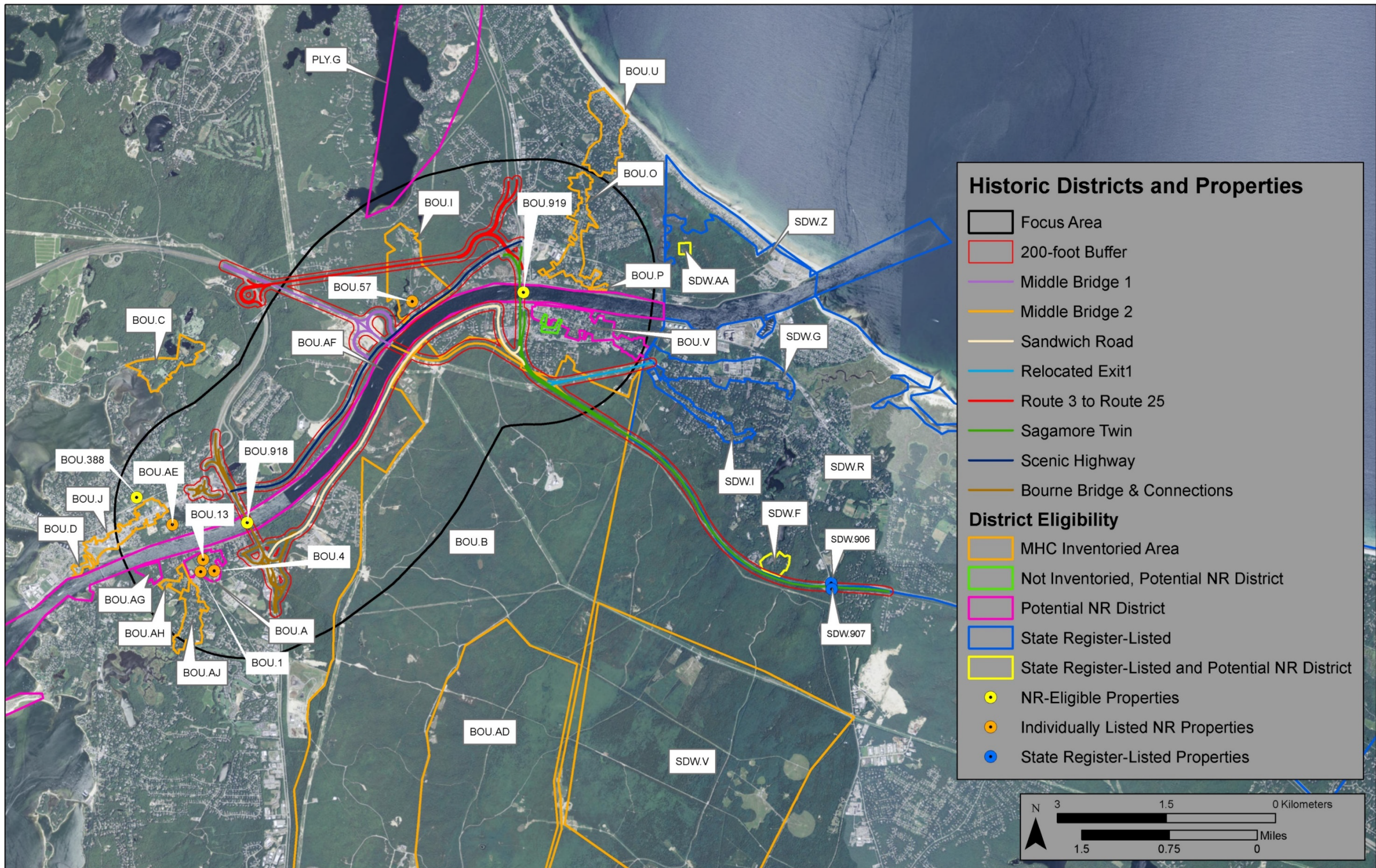


Figure 2. Historic resources in the project focus area and surrounding areas.

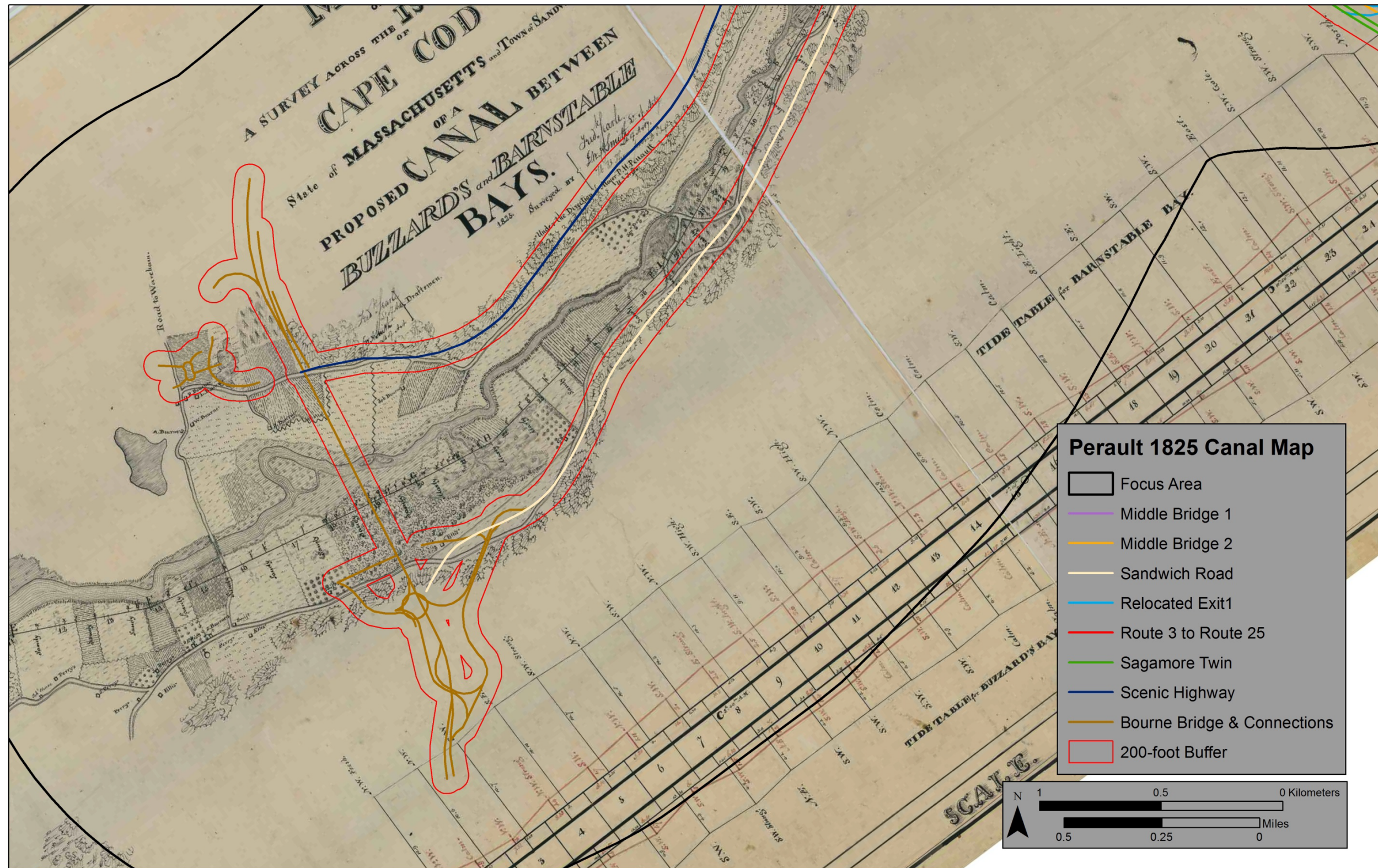


Figure 3a: West half of the 1825 Perrault map of the proposed Cape Cod Canal, showing the approximate locations of the Cape Cod Canal improvement alternatives.

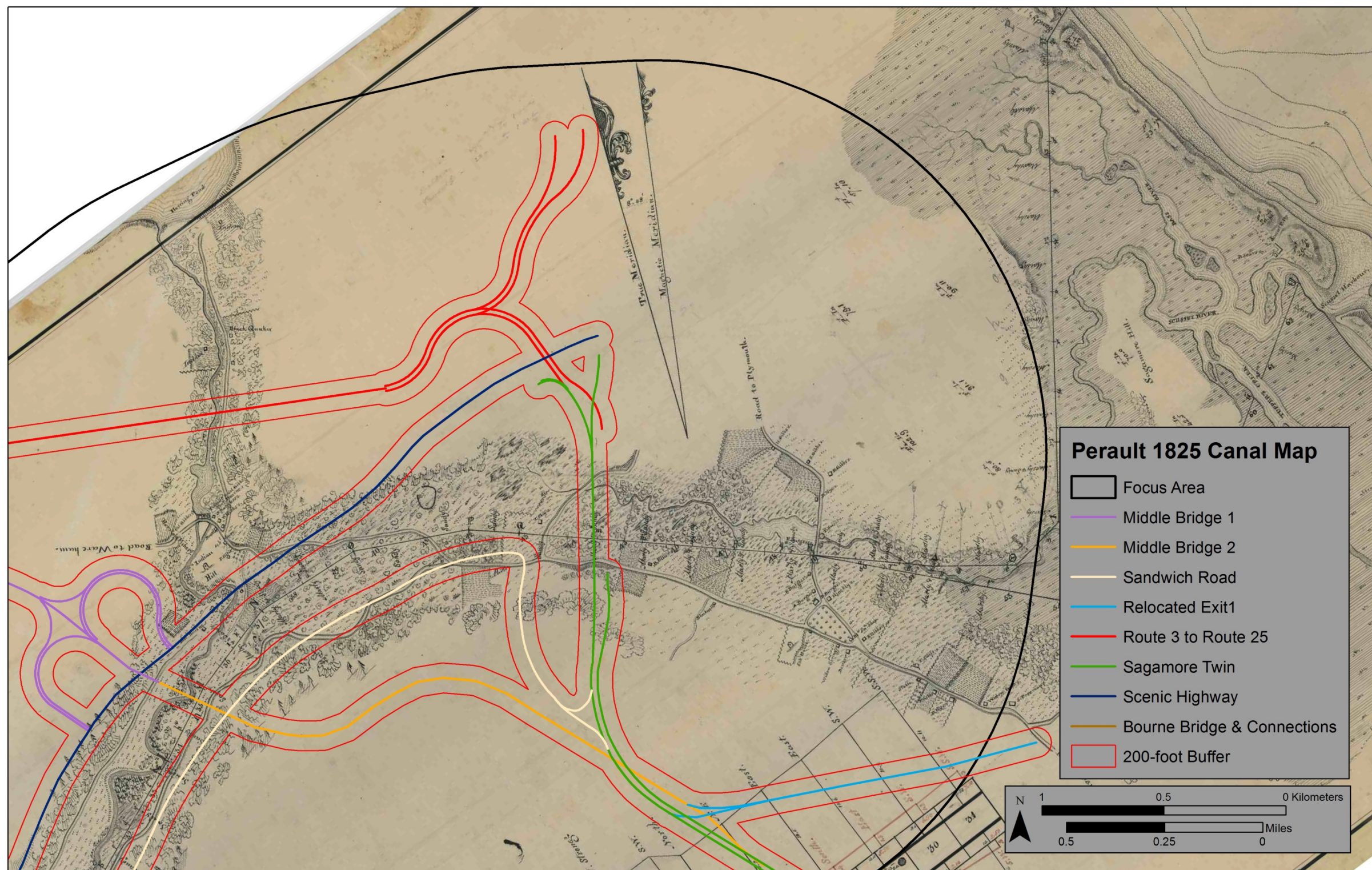
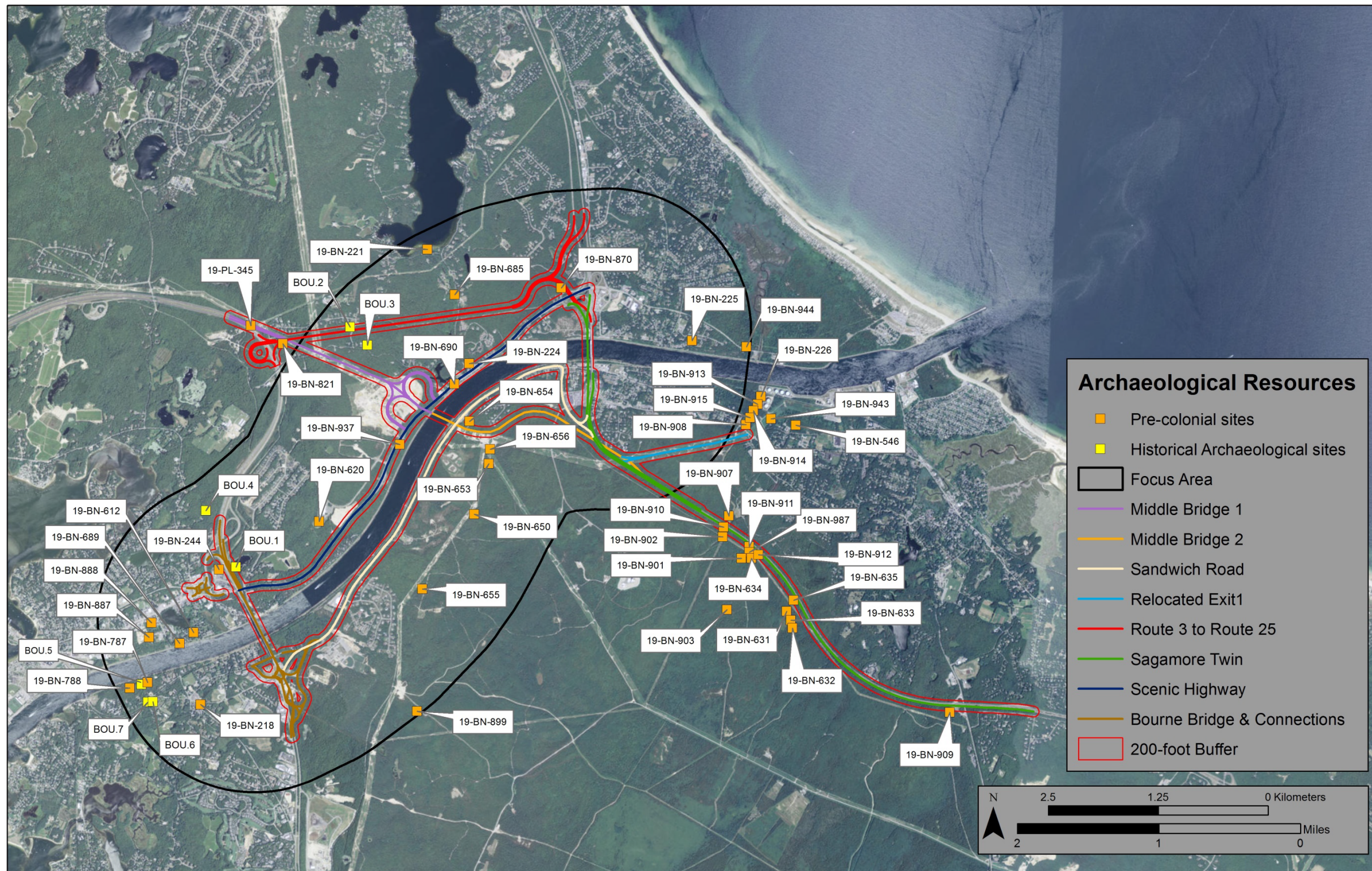


Figure 3b: East half of the 1825 Perrault map of the proposed Cape Cod Canal, showing the approximate locations of the Cape Cod Canal improvement alternatives.



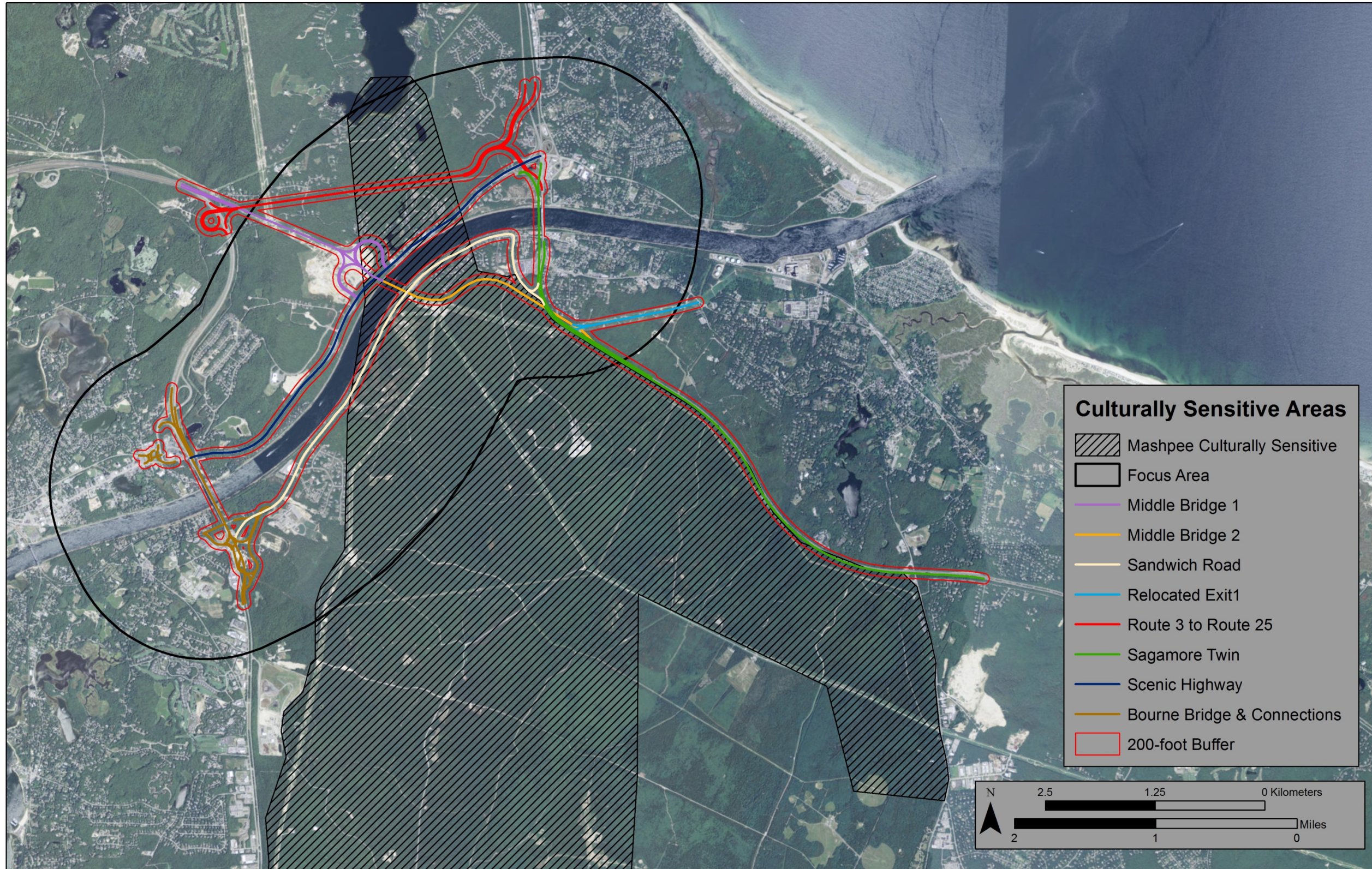
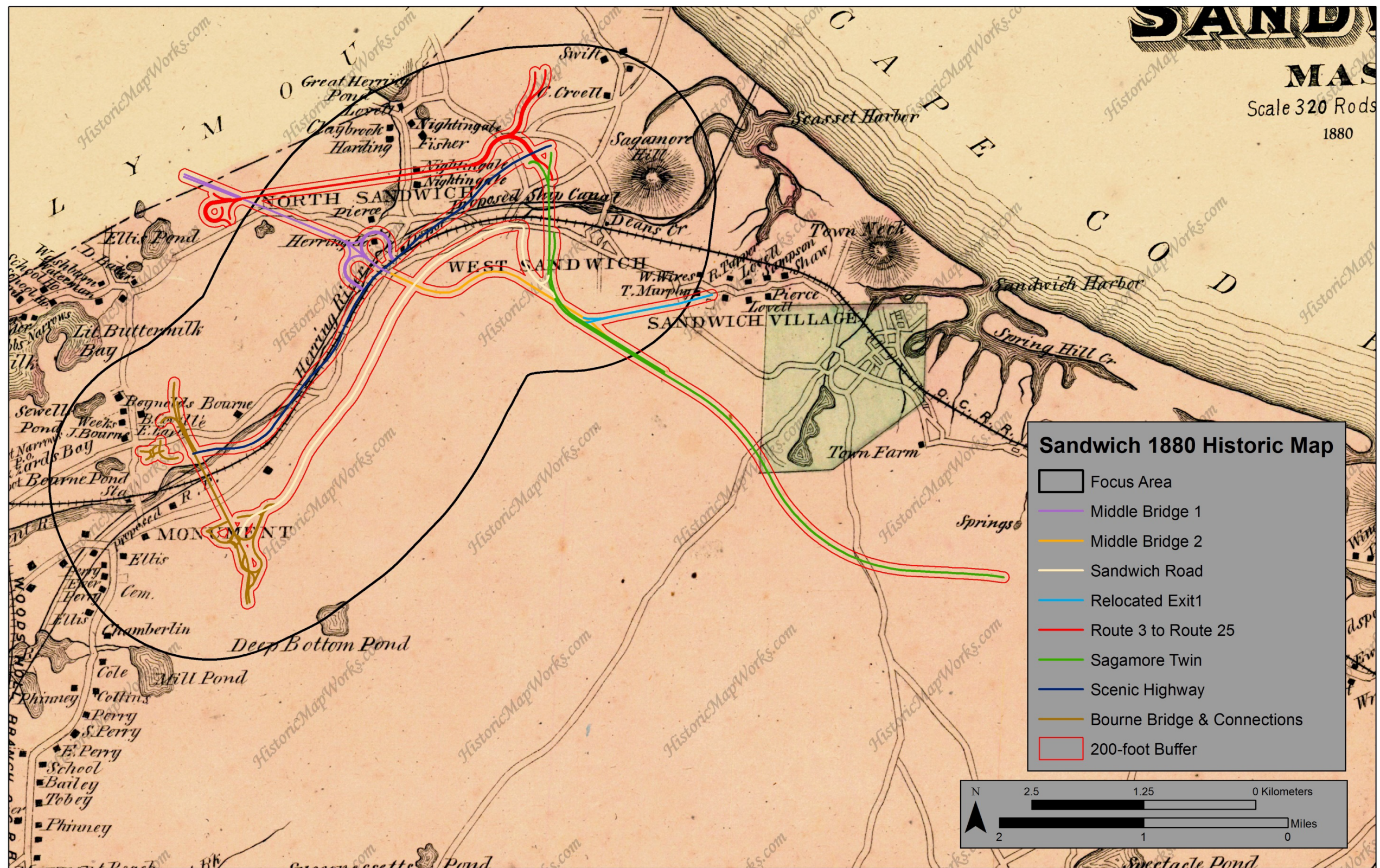


Figure 5: Aerial view of the Cape Cod Canal, showing focus area, improvement alternatives, and specific areas deemed culturally sensitive by the Mashpee Wampanoag Tribe. Note that all unbuilt land within project area is considered archaeologically and culturally sensitive by the Mashpee, Gay Head (Aquinnah), and Herring Pond Wampanoag.



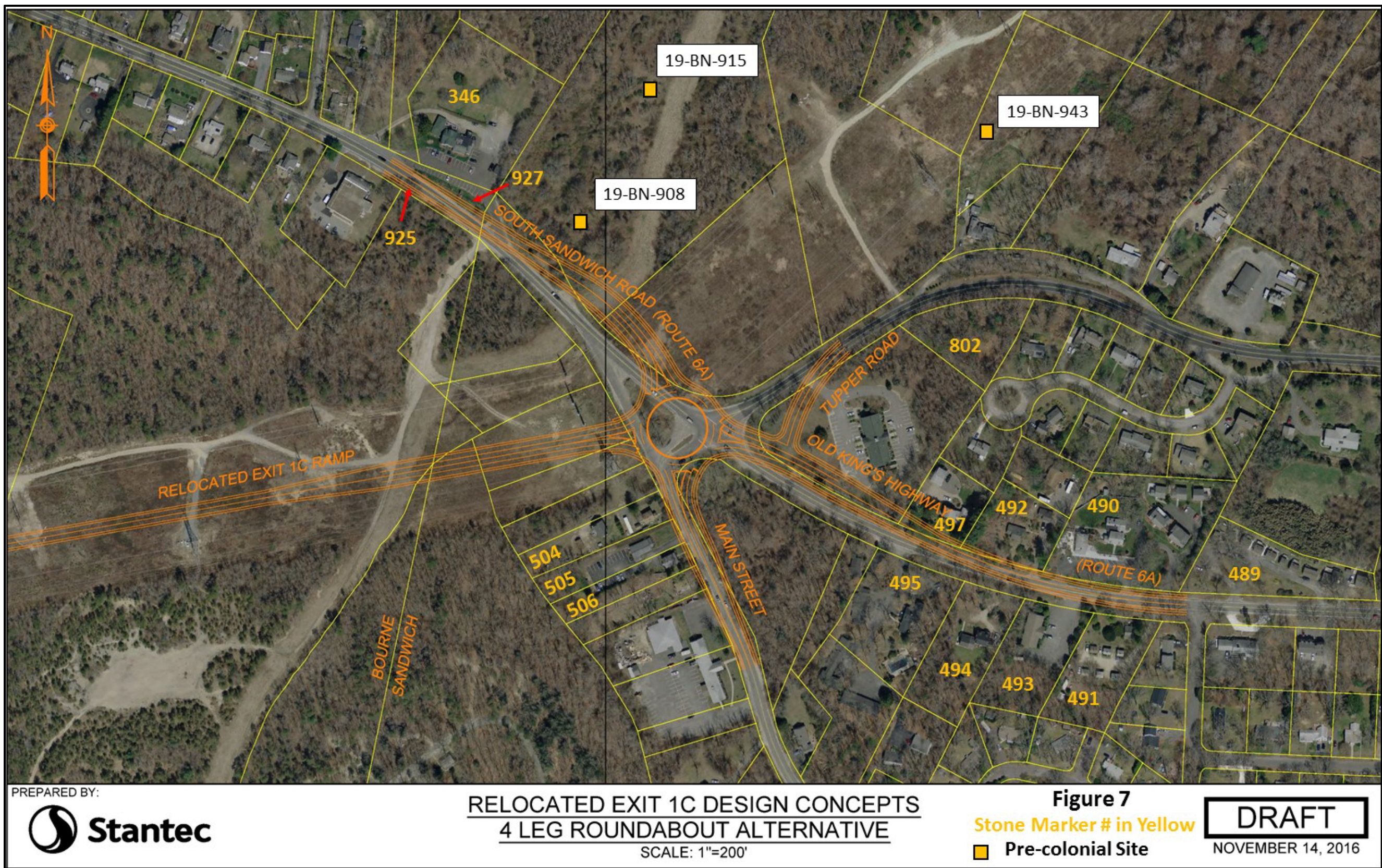


Figure 7: Relocated Exit 1C Design Concepts 4 Leg Roundabout Alternative.



Figure 8. Relocated Exit 1C Design Concept Route 6 EB On and Off Ramps.

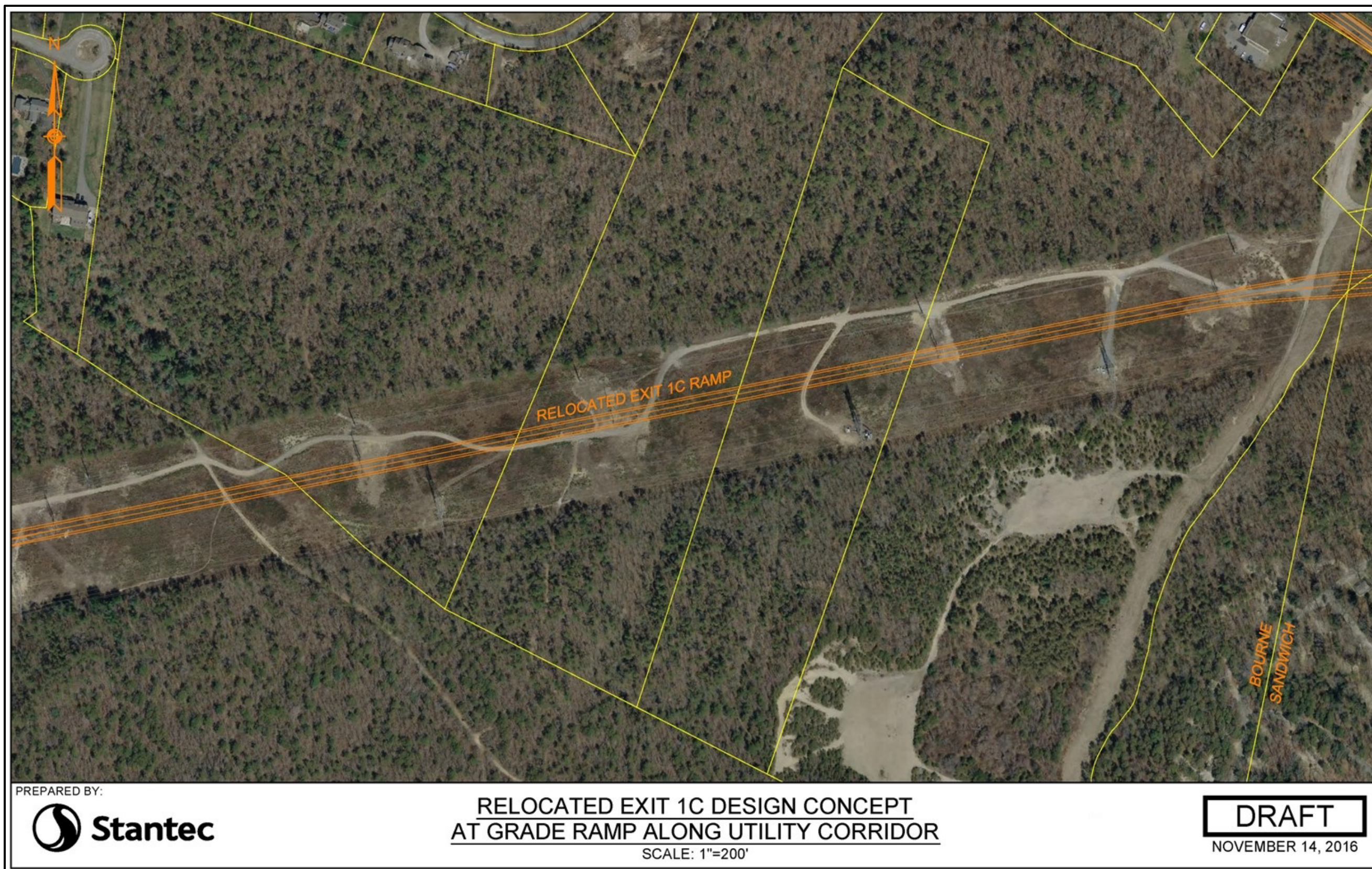


Figure 9. Relocated Exit 1C Design Concept at Grade Ramp along Utility Corridor.

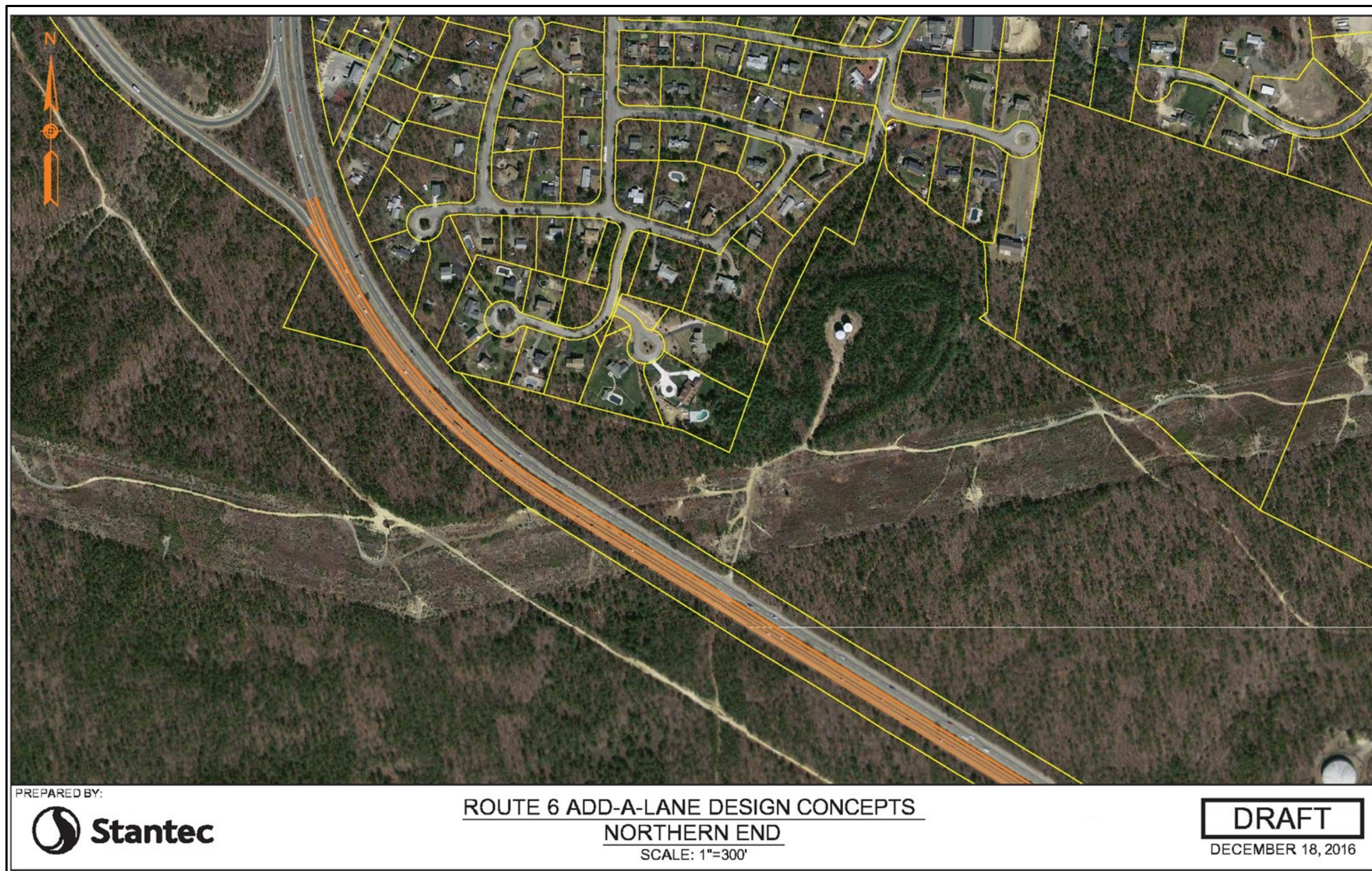


Figure 10. Route 6 Add-a-Lane Design Concepts, Northern End.

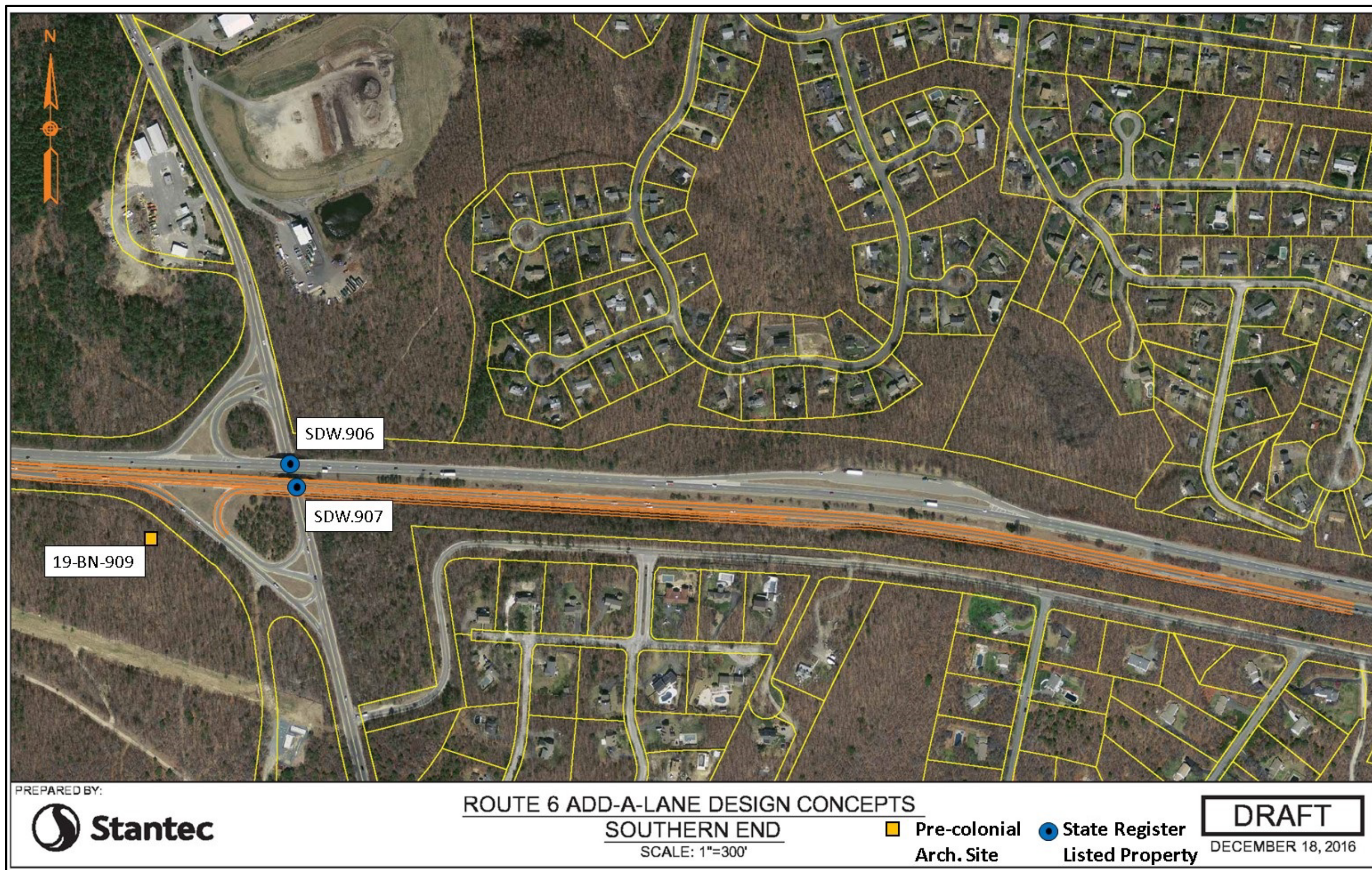


Figure 11. Route 6 Add-a-Lane Design Concepts, Southern End.

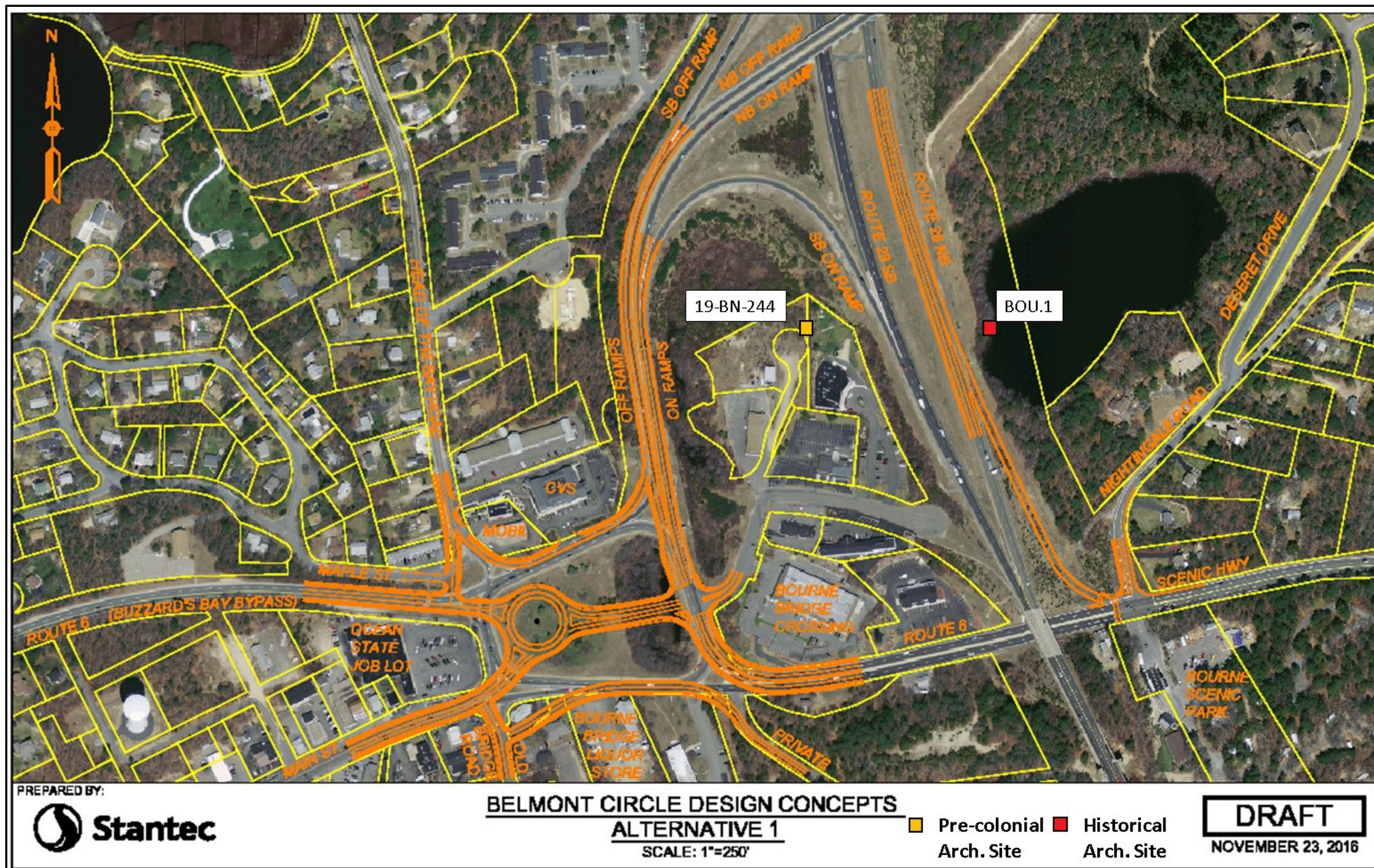


Figure 12. Belmont Circle Design Concepts, Alternative 1.

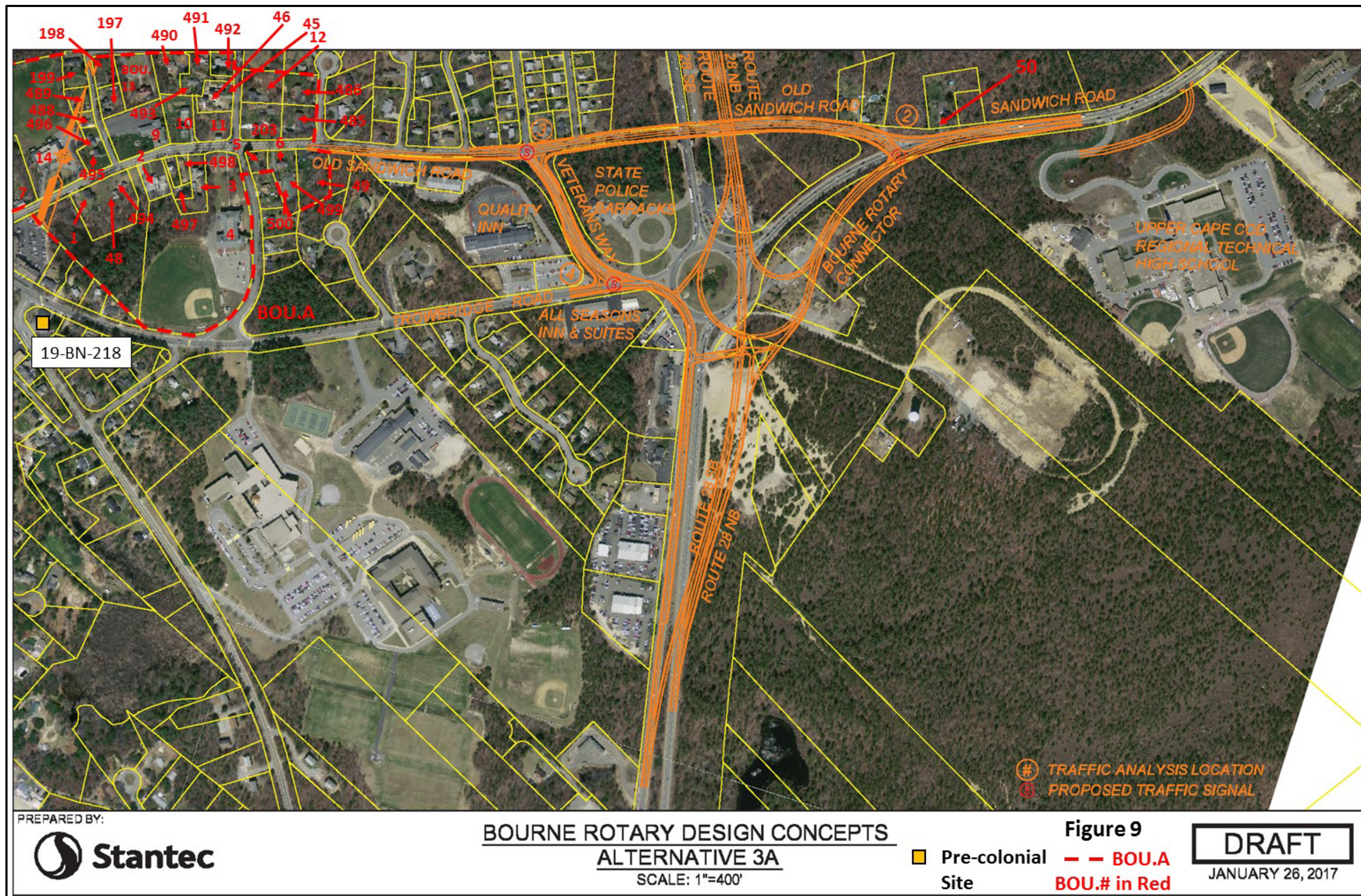
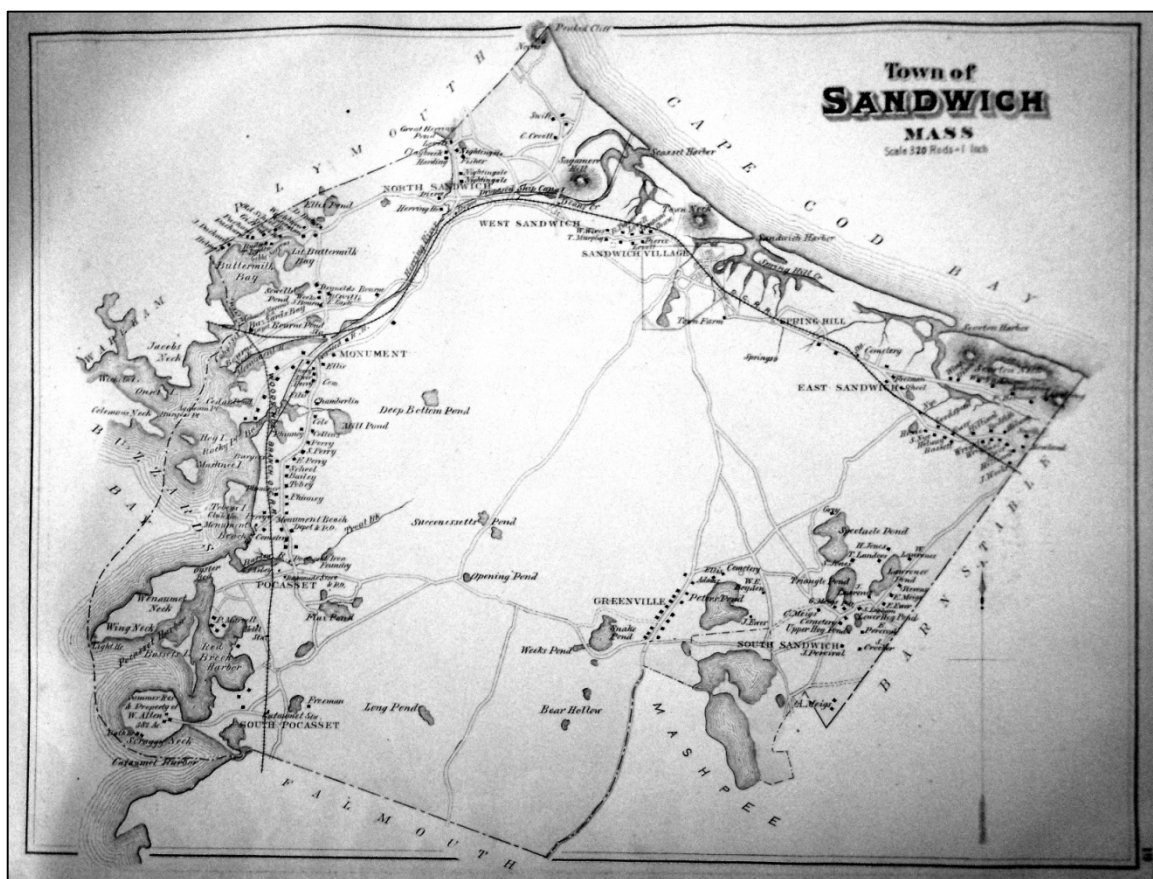


Figure 14. Bourne Rotary Design Concepts, Alternative 3A.

APPENDIX B: HISTORICAL MAPS



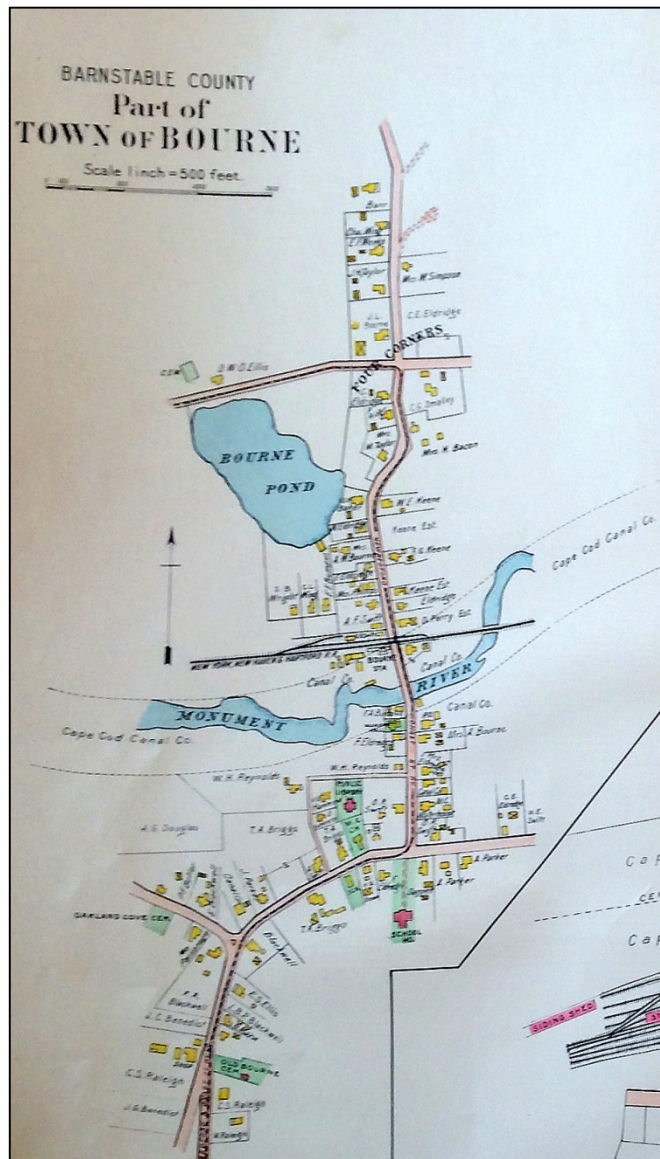
Map 1. Map of the Town of Sandwich, Barnstable County, Mass. by H. F. Walling, 1857.



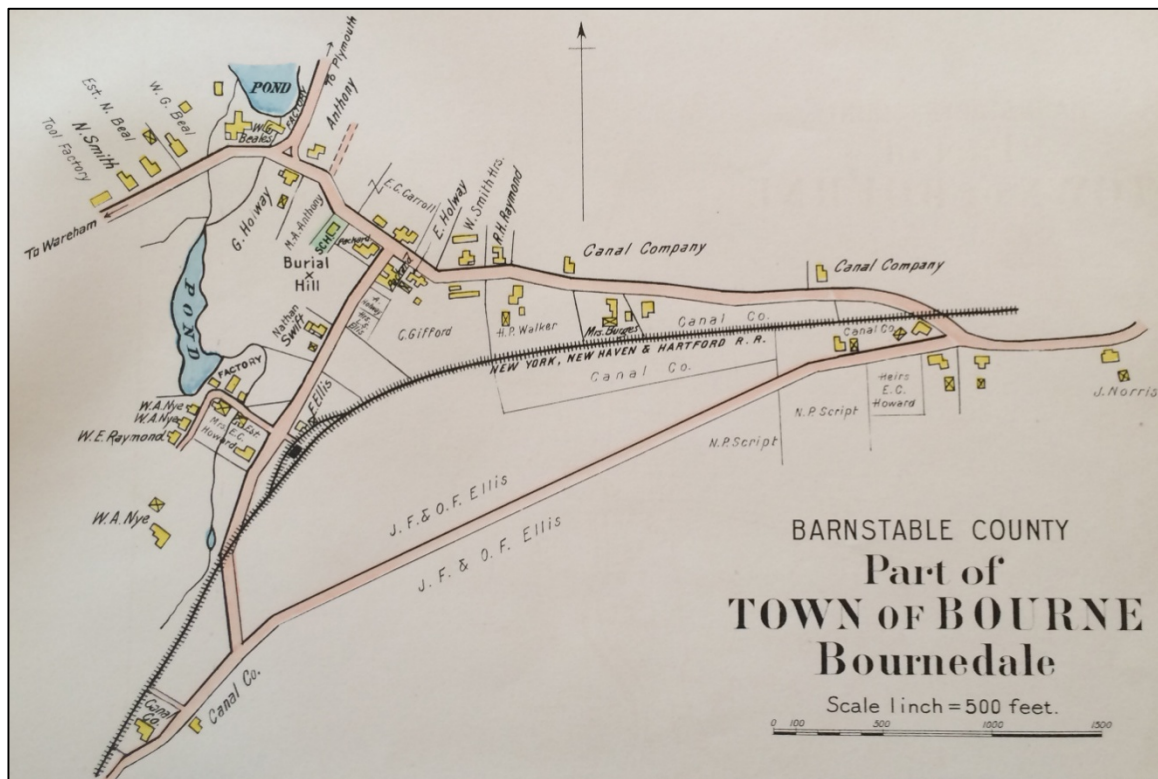
Map 2. Town of Sandwich, Mass. from Atlas of Barnstable County, Massachusetts. Boston, Mass.: Geo. H. Walker & Co., 1880.



Map 3. Barnstable County: Part of Town of Bourne: Buzzards Bay.
Atlas of Barnstable County, Massachusetts. Boston: Walker
Lithograph & Publishing, Inc., 1905, page 2.



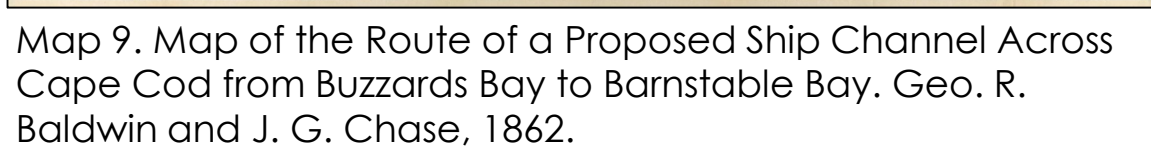
Map 4. Barnstable County: Part of Town of Bourne. Atlas of Barnstable County, Massachusetts. Boston: Walker Lithograph & Publishing, Inc., 1905, page 3.



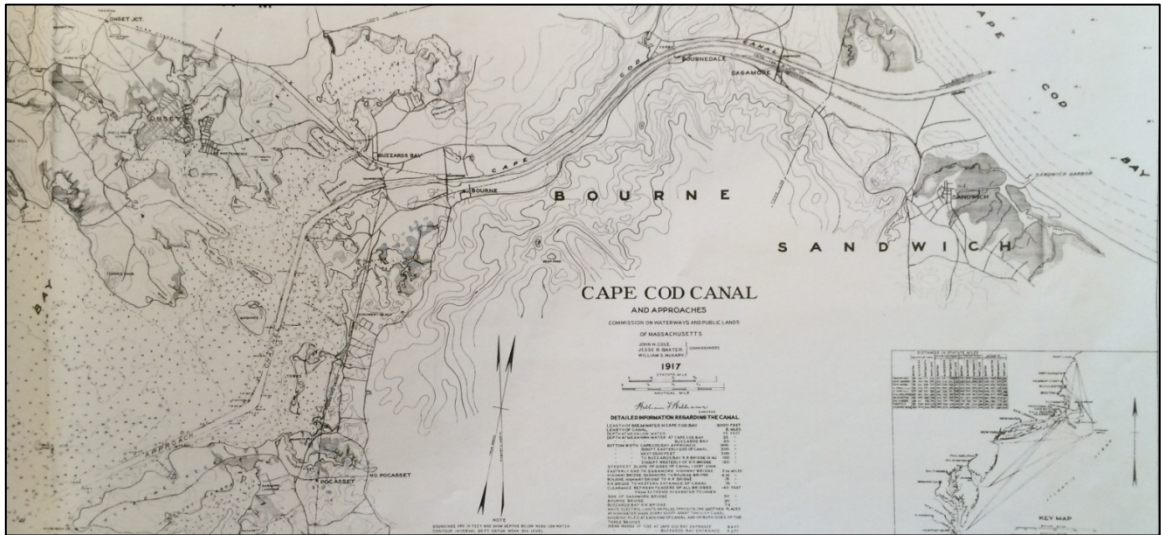
Map 6. Barnstable County: Part of Town of Bourne: Bournedale. Atlas of Barnstable County, Massachusetts. Boston: Walker Lithograph & Publishing, Inc., 1905, page 3. Collection of Bourne Archives, Bourne, Mass.



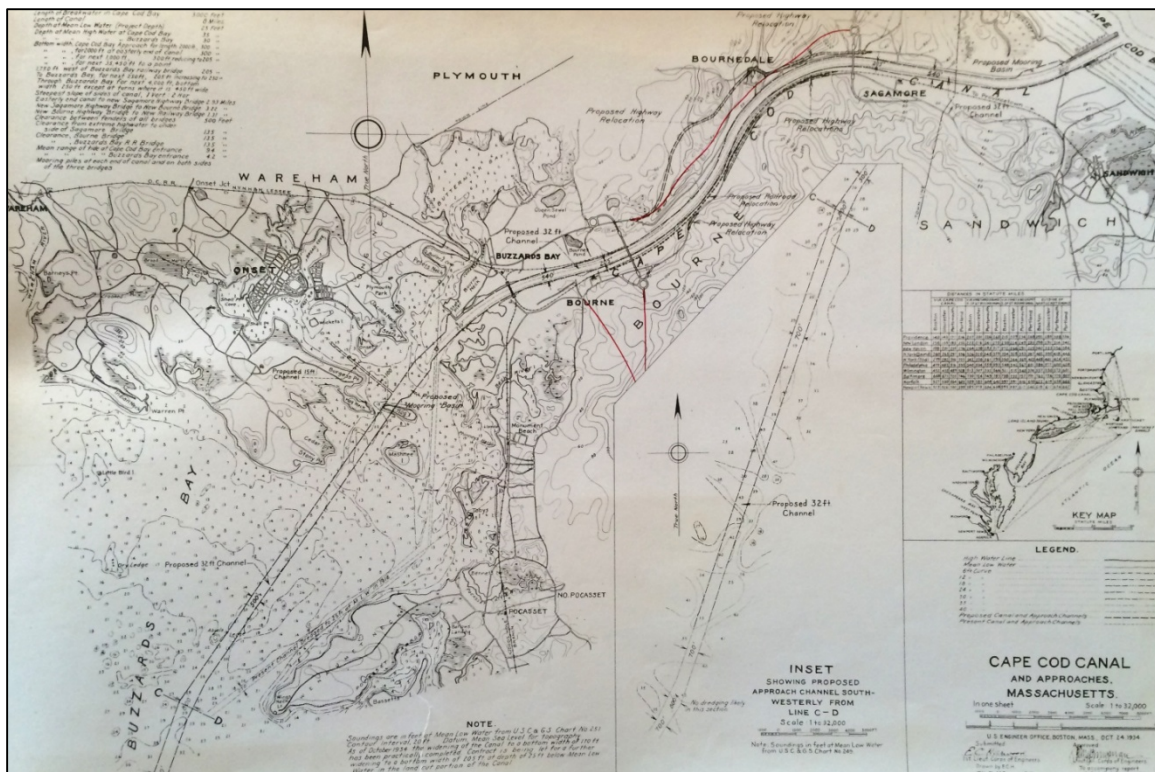
Map 8. "Machin's Map of a Canal from Barnstable Bay to Buzzard's Bay," 1776.



Map 9. Map of the Route of a Proposed Ship Channel Across Cape Cod from Buzzards Bay to Barnstable Bay. Geo. R. Baldwin and J. G. Chase, 1862.



Map 10. Cape Cod Canal and Approaches, Commission on Waterways and Public Lands, 1917.



Map 11. Cape Cod Canal and Approaches, Massachusetts, U.S. Engineer Office, Boston, 1934.

APPENDIX C: HISTORICAL IMAGES



Image 1. View of the Bourne town dock on the Monument River, late 19th century (from Dimock, Bourne, page 14).



Image 2. View of Buzzards Bay Rail Road Station (BOU.65) ca. 1912 (from Orwig, Cape Cod Canal, page 51).



Image 3. View of Buzzards Bay Village, late 1920s (from Orwig, Cape Cod Canal, page 105).



Image 4. View of Bourne Village across the Monument River, late 19th century. At left is the Bourne United Methodist Church (BOU.9), next to the Jonathan Bourne Library (BOU.13), and single-family houses (from Dimock, Bourne, page 14).



Image 5. View of Bourne Town Hall (BOU.68; BOU.AE) in Buzzards Bay (from Dimock, Bourne, page 17).



Image 6. View of Keith Car and Manufacturing Company ca. 1910, camera facing southeast. Houses on Savery Avenue are in the foreground (Bourne Historical Society).



*Kings Hi-Way Cabins
Sagamore - Cape Cod - On the Canal*

Image 7. Bird's eye view of Kings Hi-Way Cabins, a 1930s tourist camp (from Orwig, Cape Cod Canal, page 102).



Image 8. View of excavation of the Monument River at the Collins Farm House, 1912 (from Town of Bourne website historical photos).

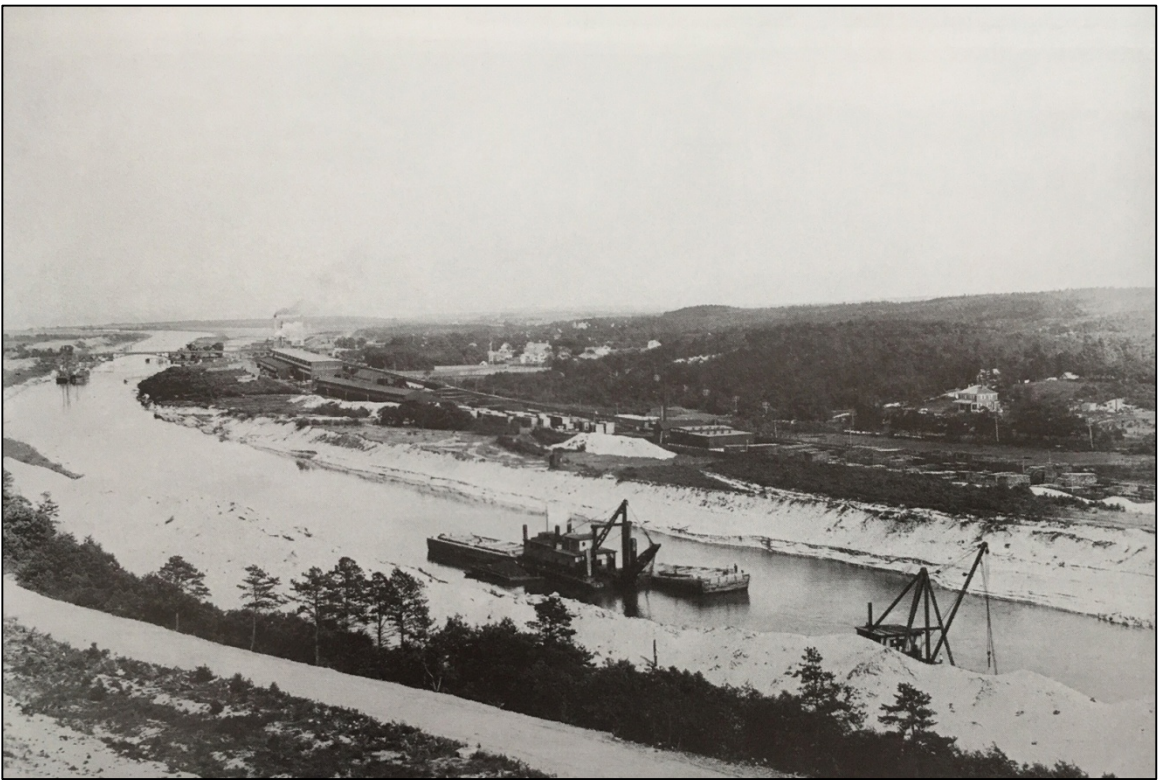


Image 9. View of canal excavation in front of the Keith Car and Manufacturing plant in South Sagamore, ca. 1913 (from Orwig, Cape Cod Canal, p. 115).



Image 10. View of excavation of the Monument River, with two dredges working toward each other, ca. 1912 (from Town of Bourne website historical photos).



Image 11. View of the waters from each end of the new canal meeting after the construction dam was broken through, ca. 1914 (from Town of Bourne website historical photos).



Image 12. View of the completed canal, ca. 1914-16 (from Town of Bourne website historical photos).



Image 13. Aerial view of the Cape Cod Canal, 1936 (from Howard, "Bourne Maps," page 20 (Bourne Historical Society)).



Image 14. Undated view of the 1911 Bourne Highway Bridge (from Orwig, Cape Cod Canal, page 55).



Image 15. Undated view of the 1913 Sagamore Highway Bridge (from Orwig, Cape Cod Canal, page 58).



Image 16. View of the Bourne Bridge under construction, ca. 1933-1934 (from Orwig, Cape Cod Canal, page 108).



Image 17. View of the Sagamore Bridge under construction ca. 1933-1934 (from Orwig, Cape Cod Canal, page 113).



Image 18. View of the Bourne Bridge at completion, 1935 (from Orwig, Cape Cod Canal, page 124).



Image 19. View of the Sagamore Bridge at completion, 1935. The canal was widened after the new bridges were completed (from Orwig, Cape Cod Canal, page 115).



Image 20. View of the Buzzards Bay Railroad Bridge at completion, 1935 (from Orwig, Cape Cod Canal, page 117).



Image 21. Swift Memorial Church (BOU.118) in North Sagamore ca. 1910 (from Dimock, Bourne, page 18).



Image 22. View of Keith Car and Manufacturing Company worker housing on Savery Avenue (BOU.P) in North Sagamore (from Orwig, Cape Cod Canal, page 15).



Image 23. View of the George I. Briggs House (BOU.1) in Bourne Village, early 20th century (from Dimock, Bourne, p. 30).

APPENDIX D: PHOTOGRAPHS



Photograph 1. Cape Cod Canal (BOU.AF; BOU.937), view from Cape-side mid canal overlook, camera facing northwest.



Photograph 2. Cape Cod Canal (BOU.AF; BOU.937), view from canal path near Bourne Village, camera facing northeast.



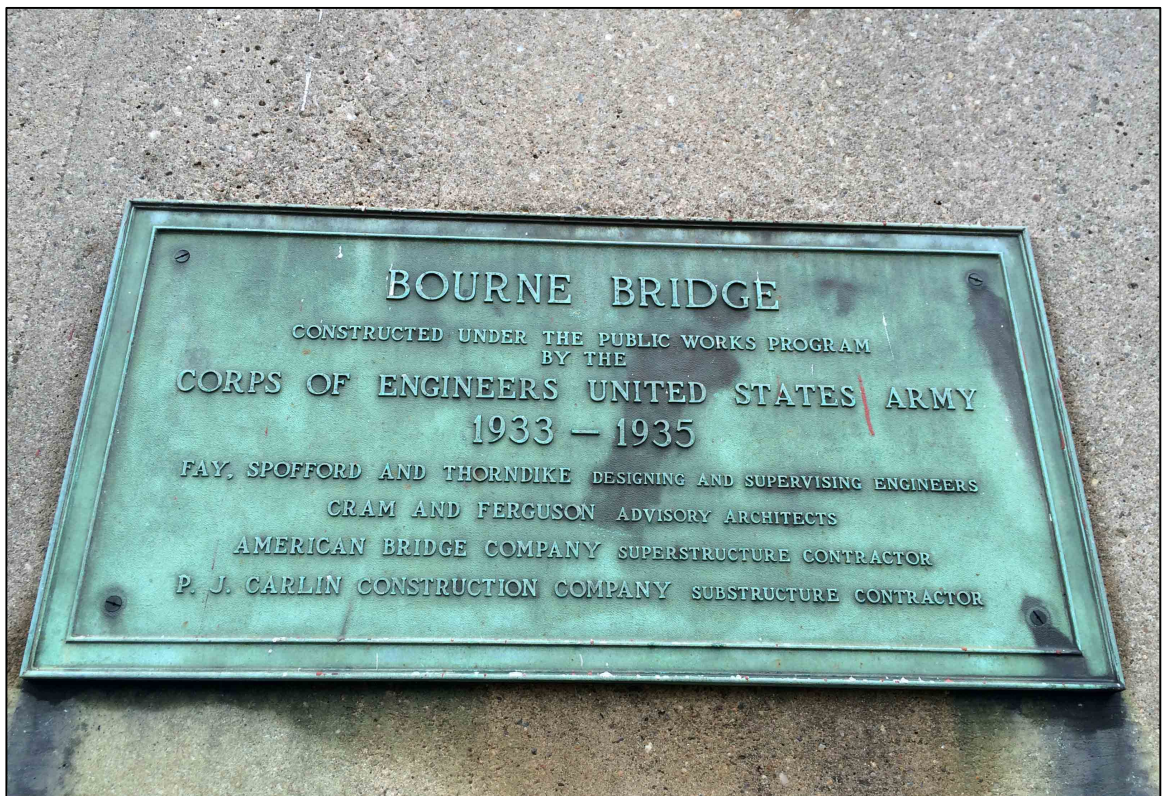
Photograph 3. Cape Cod Canal (BOU.AF; BOU.937) & Sagamore Bridge, view from the Quartz Marker (BOU.939), camera facing east.



Photograph 4. Quartz Marker (BOU.939 camera facing southeast.



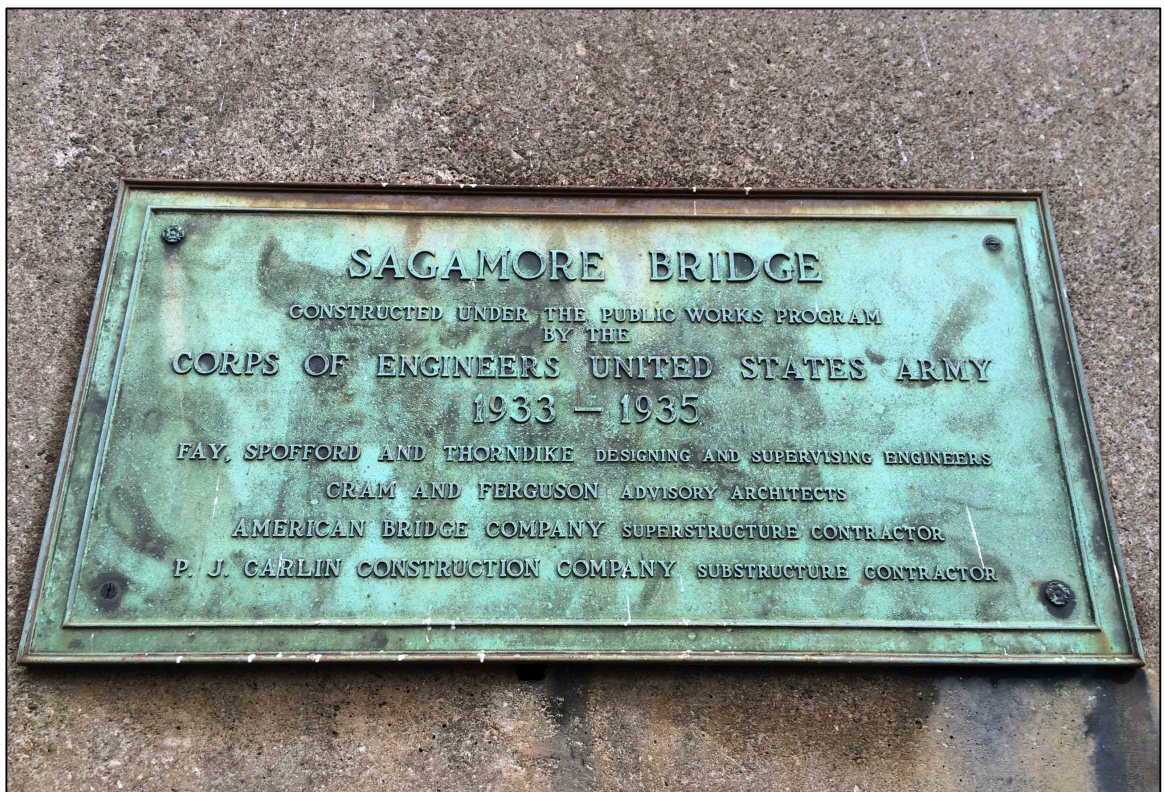
Photograph 5. Bourne Bridge (BOU.919) and Railroad Bridge (BOU.901) in background, camera facing southwest.



Photograph 6. Bourne Bridge plaque, camera facing west.



Photograph 7. Cape Cod Canal and Sagamore Bridge (BOU.918), view from the Quartz Marker(BOU.939), camera facing northeast.



Photograph 8. Sagamore Bridge plaque, camera facing east.



Photograph 9. Buzzards Bay Vertical Lift Railroad Bridge (BOU.901), camera facing southwest.



Photograph 10. Capt. Sylvanus Gibbs House (BOU.29) on Head of the Bay Road, camera facing northeast.



Photograph 11. Gibbs House (BOU.60) at 295 (formerly 291) Head of the Bay Road, camera facing southwest.



Photograph 12. Head of the Bay Cemetery (BOU.803) on Head of the Bay Road, camera facing southwest.



Photograph 13. Buzzards Bay Rail Road Station (BOU.65) on Main Street, camera facing northeast.



Photograph 14. Buzzards Bay Rail Road Station & Tower (BOU.65, 66) on Main Street, camera facing northeast.



Photograph 15. Bourne Town Hall (BOU.AE; BOU.68) at 24 Perry Avenue, camera facing northeast.



Photograph 16. Massachusetts Army National Guard Armory (BOU.388) at 10 Armory Road, camera facing northeast.



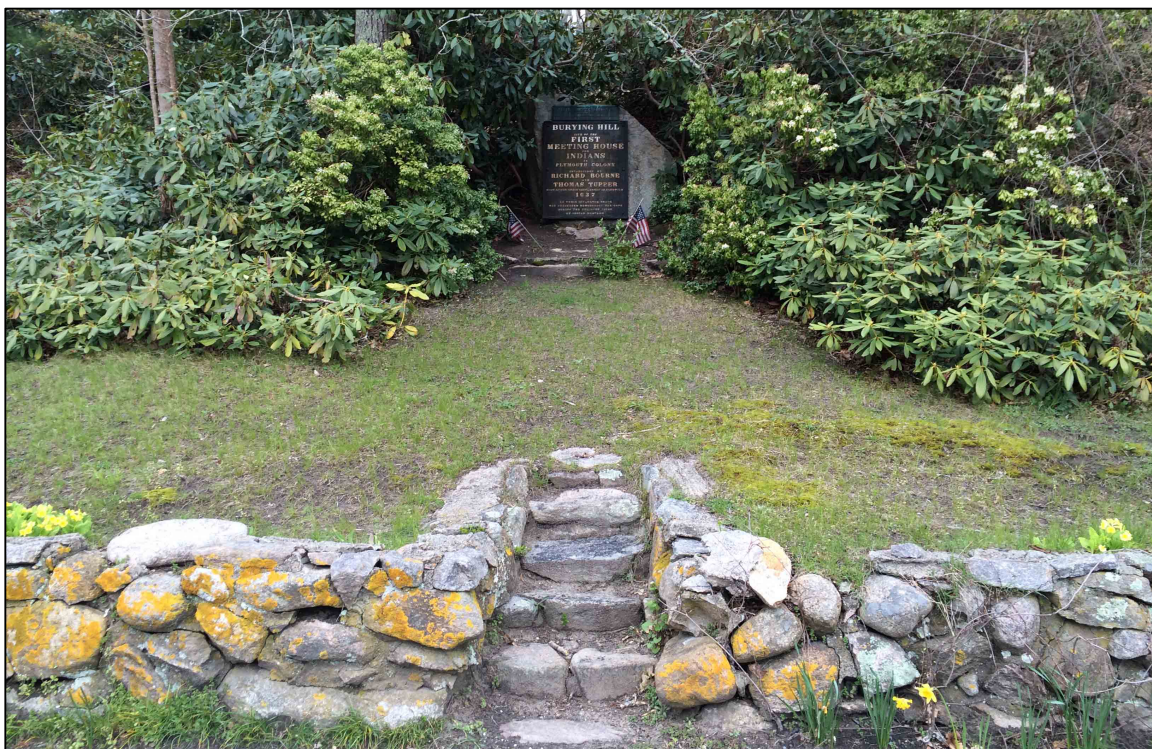
Photograph 17. Abram F. Swift House (BOU.67) at 37 Old Bridge Street, camera facing northwest.



Photograph 18. First Bourne Bridge Abutment (BOU.943), camera facing west.



Photograph 19. Cape Cod Canal Electrical Substation (BOU.389), camera facing northeast.



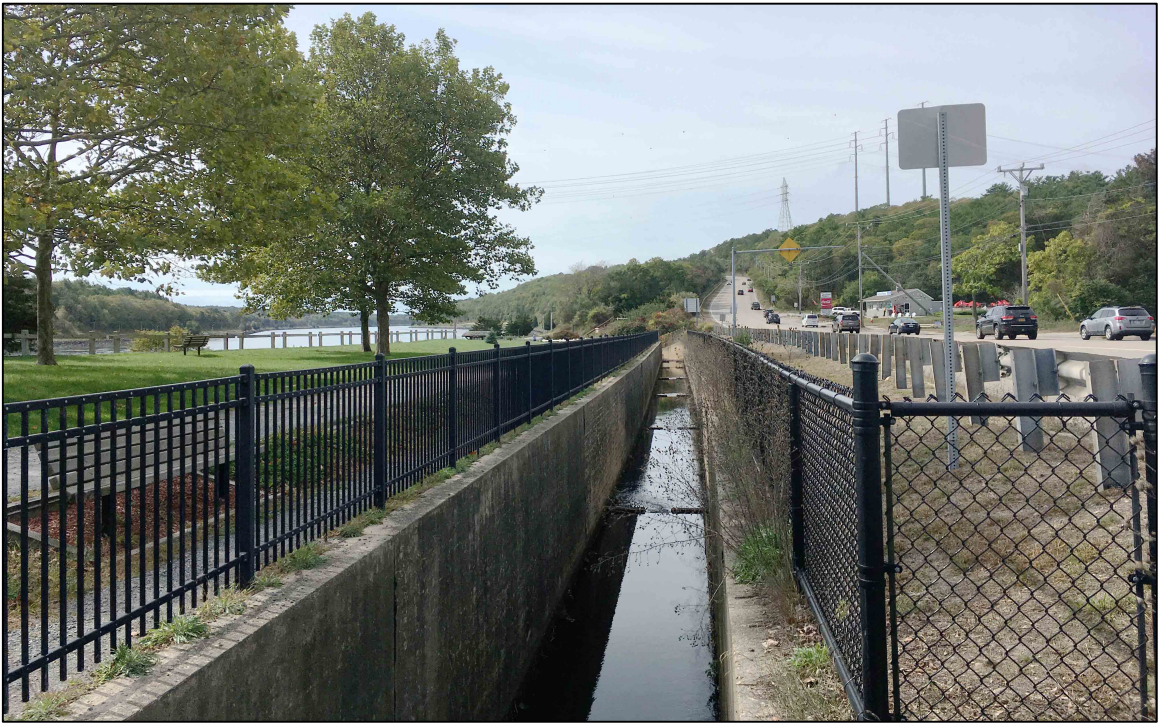
Photograph 20. Burying Hill (BOU.920) on Old Herring Pond Road, camera facing northwest.



Photograph 21. Burying Hill plaque(BOU.920) on Old Herring Pond Road, camera facing northwest.



Photograph 22. Herring Run (BOU.921) at Old Herring Pond Road, camera facing south.



Photograph 23. Herring Fish Ladder (BOU.938) at Route 6 east, camera facing southwest.



Photograph 24. Village School (BOU.57) at 29 Herring Pond Road, camera facing south.



Photograph 25. Wilson D. Bent, Sr. House (BOU.55) at 9 Bournedale Road, camera facing south.



Photograph 26. Josiah Ellis House (BOU.209, 210) at 166 Herring Pond Road, camera facing east.



Photograph 27. Nathan Bourne Ellis House/Bournedale Lodge (BOU.211) at 854 Route 6, camera facing northwest.



Photograph 28. Mason White/Battles House (BOU.54) at 6 Bournedale Road, camera facing north.



Photograph 29. Indian Cemetery (BOU.800; PLY.800) on Little Sandy Pond Road, camera facing northwest.



Photograph 30. Swift Memorial Church (BOU.118) at 10 Williston Road, camera facing northeast.



Photograph 31. Sagamore Grammar School (BOU.119) at 30 Williston Road, camera facing southeast.



Photograph 32. Capt. William Crowell Gibbs House (BOU.283, 281) on Old Plymouth Road, camera facing southeast.



Photograph 33. Keith Company houses (BOU.123, 124, 125) on Savery Avenue, camera facing northeast.



Photograph 34. Keith Company houses (BOU.130 to 134) on Savery Avenue, camera facing east.



Photograph 35. Crowell Farm (BOU.27) at 31 Crowell Road, camera facing northwest.



Photograph 36. Assembly Hall (BOU. 175) at 30 Robinson Road, camera facing southeast.



Photograph 37. Rev. William E. Wolcott House (BOU.323) at 39 Robinson Road, camera facing northwest.



Photograph 38. Sagamore Hill Gun Battery (SDW.AA) in Scusset Beach State Reservation, camera facing northeast.



Photograph 39. George I. Briggs House (BOU.1) at 22 Sandwich Road, camera facing east.



Photograph 40. Jonathan Bourne Historic Center (BOU.13) at 30 Keene Street, camera facing south.



Photograph 41. Bourne High School (BOU.4) at 85 Cotuit Road, camera facing south.



Photograph 42. Arabella Parker-George Ellis House (BOU.49) at 66 Sandwich Road (red house); Arabella Ellis Parker House (BOU.6) at 60 Sandwich Road; Moses Dagget House (BOU.5) at 56 Sandwich Road, camera facing southeast.



Photograph 43. Moses C. Waterhouse House (BOU.12) at 59 Keene Street, camera facing northeast.



Photograph 44. Ordello R. Swift House (BOU.45) at 60 Keene Street, camera facing northwest.



Photograph 45. Alonzo Booth Blacksmith Shop (BOU.48) at 22 Sandwich Road, camera facing southeast.



Photograph 46. Jonathan Bourne Public Library (old Bourne Grammar School) (BOU.14) at 19 Sandwich Road, camera facing northwest.



Photograph 47. Albert E. Eldridge House (BOU.10, 202) at 43 Sandwich Road, camera facing northwest.



Photograph 48. Deacon Gershom Ellis/Henry S. Blackwell House (BOU.50) at 201 Sandwich Road, camera facing northwest.



Photograph 49. 2 Shore Road (BOU.411, BOU.410), camera facing northeast.



Photograph 50. 10 Shore Road (BOU.412, BOU.413), camera facing northwest.



Photograph 51. 18 Shore Road (BOU.414), camera facing northwest.



Photograph 52. 19 Shore Road (BOU.415), camera facing southwest.



Photograph 53. Rev. Herman Perry House (BOU.51) at 7 Shore Road, camera facing southeast.



Photograph 54. Aptucxet Trading Post (BOU.32) at 24 Aptucxet Road, camera facing northwest.



Photograph 55. 2 County Road (BOU.450), camera facing southwest.



Photograph 56. 122 County Road (BOU.481.482), camera facing southwest.



Photograph 57. Deacon Elijah Perry House (BOU.43) at 203 County Road, camera facing southeast.



Photograph 58. Burgess Homestead (BOU.177) on 11 Burgess Street, camera facing northwest.



Photograph 59. Isaac N. Keith House (BOU.184,185) at 66 Pleasant Street, camera facing south.



Photograph 60. Samuel H. Gurney House and Variety Store (BOU.186) at 896 Sandwich Road, camera facing southeast.



Photograph 61. S. Harlow/Benjamin Harlow Pope House (BOU.188) at 941 Sandwich Road, camera facing northwest.



Photograph 62. Crowell/Hannah Rebecca Burgess House (BOU.192) at 1005 Sandwich Road, camera facing north.



Photograph 63. C.G Ellis House (BOU.344) at 1071 Sandwich Road, camera facing north.



Photograph 64. Rogers House (BOU.345) at 1085 Sandwich Road, camera facing northwest.



Photograph 65. Freeman Farm Foreman's House (BOU.194, 195) at 1101 Sandwich Road, camera facing northwest



Photograph 66. 38 and 32 Commonwealth Avenue, camera facing southeast.



Photograph 67. 5 and 9 Adams Street and Keith Car Company Apartments (BOU.328) at 860 Sandwich Street, camera facing south.



Photograph 68. 22 and 20 Westdale Park Road, camera facing northwest.



Photograph 69. 18, 16 and 10 Pleasant Street, camera facing northeast.



Photograph 70. Searle-Davis House (SDW.570) at 41 Shawme Road, camera facing south.



Photograph 71. Route 6 bridges (SDW.907 and 906) at interchange with Route 130, camera facing northwest.



Photograph 72. Motor Court (SDW.495) at 14 Sandwich Road, camera facing southwest.



Photograph 73. Motor Court (SDW.489) at 27 Sandwich Road, camera facing northwest.



Photograph 74. Saddle and Pillion Burial Ground (SDW.802) at 6 Tupper Road, camera facing northeast.



Photograph 75. 8 Main Street (SDW.504), camera facing southwest.



Photograph 76. 12 Main Street (SDW.505), camera facing south.

APPENDIX E: TABLES

HISTORIC RESOURCES EVALUATION

Appendix A
May 18, 2017

Table 1. Historic Status of MHC-Inventoried Resources

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed
CAPE COD CANAL						
BOU.918	Bourne Bridge		X			
BOU.919	Sagamore Bridge		X			
BOU.AF	Cape Cod Canal			X		
SDW.Z	Cape Cod Canal			X		X
NORTH OF CANAL						
BOU.388	Mass. Army NG Armory		X			
BOU.C	Head of the Bay				1	
BOU.I	Bournedale	1			3	
BOU.J	Main Street Commercial Area				2	
BOU.O	North Sagamore				3	
BOU.P	Savery Avenue					
BOU.U	Sagamore Beach				3	
BOU.AE	Bourne Town Hall	1				X
PLY.G	Cedarville			X		
SDW.AA	Sagamore Hill Gun Battery			X		X
SOUTH OF CANAL						
BOU.A	Keene St - Sandwich Rd Area	3		X	6	
BOU.B	Cape Cod Air Station - Otis AFB					
BOU.AG	Aptucxet Trading Post			X		
BOU.AH	Shore Road North				1	
BOU.AJ	County Road North				1	
BOU.V	South Sagamore			X	8	
SDW.906	Route 6 Bridge					X
SDW.907	Route 6 Bridge					X
SDW.F	Shawme Road			X		X
SDW.G	Route 6A West					X
SDW.I	Main Street					X
SDW.R	Old Kings Highway Regional HD					X

HISTORIC RESOURCES EVALUATION

Appendix A
May 18, 2017

Table 2. Potential Middle Bridge 1 Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			Direct/Indirect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		Indirect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptucxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

HISTORIC RESOURCES EVALUATION

Appendix A
May 18, 2017

Table 3. Potential Middle Bridge 2 Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			Direct/Indirect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						Direct/Indirect
BOU.AG	Aptuxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

HISTORIC RESOURCES EVALUATION

Appendix A
May 18, 2017

Table 4. Potential Sandwich Road Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			No adverse effect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptucxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

HISTORIC RESOURCES EVALUATION

Appendix A
May 18, 2017

Table 5. Potential Relocated Exit 1 Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			No adverse effect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptucxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		Direct/Indirect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	Indirect
SDW.I	Main Street					X	Indirect
SDW.R	Old Kings Highway Regional HD					X	Indirect

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Table 6. Potential Route 3 to Route 25 Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			No adverse effect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptucxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

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Table 7. Potential Scenic Highway Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			Indirect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		Direct/indirect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptucxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

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Table 8. Potential Sagamore Twin Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				Direct
BOU.AF	Cape Cod Canal			X			Direct/Indirect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		Indirect
BOU.P	Savery Avenue						Indirect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptucxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		Indirect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

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Table 9. Potential New Route 6 EB Travel Lane Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			No adverse effect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptuxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	Indirect
SDW.907	Route 6 Bridge					X	Direct
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

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Table 10. Potential Bourne Bridge Replacement & Immediate Approaches Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				Direct
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			Direct/Indirect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptucxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

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Table 11. Potential Belmont Circle & Scenic Highway to Route 25 Ramp Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			No adverse effect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		No adverse effect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptuxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

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Table 12. Potential Bourne Rotary Alternative 2 Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			No adverse effect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		Direct/Indirect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptucxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

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Table 13. Potential Bourne Rotary Alternative 3A Effects

MHC ID	Name	NR (# of Ind Prop)	NR Eligible per MHC	NR Pot. Eligible (District)	NR Pot. Eligible (# of Ind Prop)	SR Listed	Potential Effects
CAPE COD CANAL							
BOU.919	Bourne Bridge		X				No adverse effect
BOU.918	Sagamore Bridge		X				No adverse effect
BOU.AF	Cape Cod Canal			X			No adverse effect
SDW.Z	Cape Cod Canal			X		X	No adverse effect
NORTH OF CANAL							
BOU.388	Mass. Army NG Armory		X				No adverse effect
BOU.C	Head of the Bay				1		No adverse effect
BOU.I	Bournedale	1			3		No adverse effect
BOU.J	Main Street Commercial Area				2		No adverse effect
BOU.O	North Sagamore				3		No adverse effect
BOU.P	Savery Avenue						No adverse effect
BOU.U	Sagamore Beach				3		No adverse effect
BOU.AE	Bourne Town Hall	1				X	No adverse effect
PLY.G	Cedarville			X			No adverse effect
SDW.AA	Sagamore Hill Gun Battery			X		X	No adverse effect
SOUTH OF CANAL							
BOU.A	Keene St - Sandwich Rd Area	3		X	6		Direct/Indirect
BOU.B	Cape Cod Air Station - Otis AFB						No adverse effect
BOU.AG	Aptucxet Trading Post			X			No adverse effect
BOU.AH	Shore Road North				1		No adverse effect
BOU.AJ	County Road North				1		No adverse effect
BOU.V	South Sagamore			X	8		No adverse effect
SDW.906	Route 6 Bridge					X	No adverse effect
SDW.907	Route 6 Bridge					X	No adverse effect
SDW.F	Shawme Road			X		X	No adverse effect
SDW.G	Route 6A West					X	No adverse effect
SDW.I	Main Street					X	No adverse effect
SDW.R	Old Kings Highway Regional HD					X	No adverse effect

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Table 14. Potential Effects to Archaeological and Cultural Resources

Potential Roadway Section Options	Archaeological Sites within/adjacent to Roadway Section Alignment	Archaeological Sites in proximity to Roadway Section Alignment	Recommendations	Potential Effects
Middle Bridge 1	19-PL-345, 19-BN-821	19-BN-224, 19-BN-690, 19-BN-937	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	Direct Effect sites 19-PL-345, 19-BN-821; Potential Effect sites 19-BN-690, 19-BN-937
Middle Bridge 2	19-BN-654	19-BN-656, 19-BN-653	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	Direct Effect site 19-BN-654; Potential Effect sites 19-BN-656, 19-BN-653
Sandwich Road	19-BN-654		Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	Direct Effect site 19-BN-654
Relocated Exit 1C 4 Leg Roundabout		19-BN-908, 19-BN-913, 19-BN-914, 19-BN-915, 19-BN-943	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	Potential Effect sites 19-BN-908, 19-BN-914, 19-BN-915,
Route 3 to Route 25	19-BN-821, 19-BN-870, BOU.2	BOU.3, 19-BN-685	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	Direct Effect sites 19-BN-821, 19-BN-870, BOU.2; Potential Effect Sites BOU.3, 19-BN-685
Sagamore Twin	19-BN-635, 19-BN-909, 19-BN-910, 19-BN-911, 19-BN-912,	19-BN-634, 19-BN-901, 19-BN-902, 19-BN-903, 19-BN-987	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	Direct Effects sites 19-BN-635, 19-BN-909, 19-BN-910, 19-BN-911, 19-BN-912; Potential Effect Sites 19-BN-634, 19-BN-901, 19-BN-902, 19-BN-903, 19-BN-987
New Route 6 EB Travel Lane	19-BN-908	19-BN-631, 19-BN-632, 19-BN-633, 19-BN-634, 19-BN-635, 19-	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of	Direct Effects sites 19-BN-634, 19-BN-687, 19-BN-902, 19-BN-909, 19-BN-910,

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		BN-901, 19-BN-902, 19-BN-903, 19-BN-907, 19-BN-909, 19-BN-910, 19-BN-911, 19-BN-912, 19-BN-914, and 19-BN-987	sensitive areas	19-BN-911, 19-BN-912, 19-BN-987; Potential Effect Sites 19-BN-631, 19-BN-632, 19-BN-633, 19-BN-901, 19-BN-903
Scenic Highway	19-BN-224, 19-BN-690, 19-BN-937	19-BN-224, 19-BN-690, 19-BN-937, 19-BN-870, 19-BN-620	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	Direct Effect sites 19-BN-224, 19-BN-690, 19-BN-937; Potential Effects Sites 19-BN-870, 19-BN-620
Bourne Bridge Replacement and Immediate Approaches	BOU.1, 19-BN-244	BOU.4	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	Direct Effect Sites BOU.1, BOU.4, 19-BN-244; Potential Effect Site BOU.4
Belmont circle and Scenic Highway to Route 25 Ramp	BOU.1, 19-BN-244	BOU.4	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	Direct Effect Sites BOU.1, BOU.4, 19-BN-244; Potential Effect Site BOU.4
Bourne Rotary Alternative 2A	N/A	N/A	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	No Direct or Potential Effects on documented archaeological resources
Bourne Rotary Alternative 3A	N/A	N/A	Walkover survey and visual assessment to refine areas of sensitivity; Intensive (locational) archaeological survey of sensitive areas	No Direct or Potential Effects on documented archaeological resources