

4 Affected Environment, Environmental Consequences, and Mitigation

4.12 Coastal Zone Consistency

4.12.1 Introduction

This section assesses the consistency of the Build Alternative with the policies of the Massachusetts Coastal Zone Management Program (MA CZMP). Analyses presented in the following relevant sections of the [Final](#) Environmental Impact Statement guided the potential effects of the Build Alternative relative to coastal zone resources:

- **Section 4.3, Pedestrian and Bicycle Facilities**
- **Section 4.6, Land Use, Zoning, and Community Cohesion**
- **Section 4.9, Wetlands and Floodplains**
- **Section 4.10, Water Quality and Stormwater**
- **Section 4.11, Threatened, Endangered, and Protected Species and Habitats**
- **Section 4.16, Cultural Resources**
- **Section 4.17, Public Parks, Recreational Facilities, and Open Space**
- **Chapter 5, [Final](#) Section 4(f) Evaluation**

This section also assesses whether the Build Alternative could affect any “trust lands” held by the Commonwealth of Massachusetts.

4.12.1.1 Resource Definitions

The term “coastal zone resources” refers to any land or water use (including natural resources) that exist within the state’s designated coastal zone. Examples of coastal land or water uses include public access to active and passive recreation and fishing, as well as historic and cultural preservation, development, energy infrastructure and use, hazards management, marinas, floodplain management, and resource creation or restoration.

The term “coastal zone” means the coastal zone of Massachusetts established pursuant to the Coastal Zone Management Act.¹ In Massachusetts, the coastal zone includes Cape Cod and the Islands,² transitional and intertidal areas, coastal wetlands, beaches, tidal rivers and adjacent uplands, and anadromous fish³ runs, as well as their floodplains, within coastal towns.

¹ 16 United States Code Section 1451 et seq. [Chapter 33, Coastal Zone Management](https://uscode.house.gov/view.xhtml?req=(title:16%20section:1451%20edition:prelim)).
[https://uscode.house.gov/view.xhtml?req=\(title:16%20section:1451%20edition:prelim\)](https://uscode.house.gov/view.xhtml?req=(title:16%20section:1451%20edition:prelim))

² Cape Cod and the Islands include Barnstable County, Dukes County (including Martha’s Vineyard and the Elizabeth Islands), and Nantucket County.

³ Fish that enter freshwater from the ocean to spawn.

The term “trust lands” means present and former waterways in which the fee simple, any easement, or other proprietary interest is held by the Commonwealth in trust for the benefit of the public.⁴ All geographic areas subject to the jurisdiction of Massachusetts General Law Chapter 91 (MGL Chapter 91), as specified in 310 Code of Massachusetts Regulations (CMR) 9.04, are generally considered to be trust lands.

4.12.1.2 Regulatory Context

The Coastal Zone Management Act of 1972 requires federal agencies conducting activities—including development projects that directly affect a state’s coastal zone—to comply to the maximum extent practicable with an approved state coastal zone management program.⁵ The Massachusetts Office of Coastal Zone Management (MA CZM) within the Massachusetts Executive Office of Environmental Affairs administers the MA CZMP. Within this authority, the MA CZM reviews federal agency actions—including federally funded projects and federal permit activities—that affect coastal uses or resources to ensure consistency with MA CZMP policies in accordance with the MA CZM regulations.⁶ The MA CZMP policies are divided into nine categories:

- Coastal Hazards
- Energy
- Growth Management
- Habitat
- Ocean Resources
- Ports and Harbors
- Protected Areas
- Public Access
- Water Quality

MGL Chapter 91, as implemented by the Massachusetts Waterways Regulation,⁷ governs certain trust lands, subjecting them to licensing and permitting. Trust lands subject to Chapter 91 jurisdiction in Massachusetts include the following:⁸

- Flowed tidelands
- Filled tidelands (except for landlocked tidelands)

⁴ Massachusetts Department of Environmental Protection. 310 Code of Massachusetts Regulations (CMR) 9.02: [The Massachusetts Waterways Regulation](https://www.mass.gov/regulations/310-CMR-900-the-massachusetts-waterways-regulation). <https://www.mass.gov/regulations/310-CMR-900-the-massachusetts-waterways-regulation>

⁵ 16 United States Code 1456(c). [Chapter 33, Coastal Zone Management: Coordination and Cooperation](https://www.govinfo.gov/app/details/USCODE-2014-title16/USCODE-2014-title16-chap33-sec1456). <https://www.govinfo.gov/app/details/USCODE-2014-title16/USCODE-2014-title16-chap33-sec1456>

⁶ Massachusetts Department of Environmental Protection. 301 CMR 21.00: [Coastal zone management program](https://www.mass.gov/doc/301-cmr-20-coastal-zone-management-program/download). <https://www.mass.gov/doc/301-cmr-20-coastal-zone-management-program/download>

⁷ Massachusetts Department of Environmental Protection. 310 CMR 9.00: [The Massachusetts Waterways Regulation](https://www.mass.gov/regulations/310-CMR-900-the-massachusetts-waterways-regulation). <https://www.mass.gov/regulations/310-CMR-900-the-massachusetts-waterways-regulation>

⁸ Massachusetts Department of Environmental Protection. 310 CMR 9.04: [Waterways: Geographic Areas Subject to Jurisdiction](https://www.mass.gov/doc/310-cmr-900-waterways-regulations/download). <https://www.mass.gov/doc/310-cmr-900-waterways-regulations/download>

- Great Ponds
- Certain non-tidal rivers and streams

4.12.1.3 Methodology and Study Area

The Study Areas for this assessment include areas within the Build Alternative's Project Limits, plus a 500-foot buffer around the Project Limits.

Massachusetts Department of Transportation (MassDOT) used the following data sources to assess the potential effects to coastal zone resources within the Study Areas:

- Wetland field delineations conducted in summer 2020 and winter 2021⁹
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps¹⁰
- Massachusetts Office of Coastal Zone Management Act Policy Guide¹¹
- Massachusetts Department of Environmental Protection (MassDEP) and MA CZM Policy Guide for applying the Massachusetts Coastal Zone Regulations¹²
- U.S. Army Corps of Engineers (USACE) Cape Cod Canal Major Rehabilitation Evaluation Report/Environmental Assessment¹³
- MassDEP List of Great Ponds¹⁴
- U.S. Fish and Wildlife Service Information for Planning and Consultation Tool¹⁵
- Massachusetts Natural Heritage and Endangered Species Program 15th Edition Natural Heritage Atlas¹⁶

⁹ The Bourne Conservation Commission confirmed these delineations via Order of Resource Area Delineation in May 2022.

¹⁰ [FEMA Flood Map Service Center](https://msc.fema.gov/portal/home). <https://msc.fema.gov/portal/home>

¹¹ [Massachusetts Office of Coastal Zone Management. 2011. Policy Guide](https://www.mass.gov/doc/massachusetts-office-of-coastal-zone-management-policy-guide-october-2011/download). October.

<https://www.mass.gov/doc/massachusetts-office-of-coastal-zone-management-policy-guide-october-2011/download>

¹² Commonwealth of Massachusetts. 2017. [Applying the Massachusetts Coastal Wetlands Regulations: A Practical Manual for Conservation Commissions to Protect the Storm Damage Prevention and Flood Control Functions of Coastal Resource Areas](https://www.mass.gov/doc/czm-coastal-manual-applying-the-massachusetts-coastal-wetlands-regulations/download). <https://www.mass.gov/doc/czm-coastal-manual-applying-the-massachusetts-coastal-wetlands-regulations/download>

¹³ U.S. Army Corps of Engineers, New England District. 2020. [Major Rehabilitation Evaluation Report and Environmental Assessment: Cape Cod Canal Highway Bridges](https://www.nae.usace.army.mil/Portals/74/docs/Topics/Cape%20Cod%20Canal%20Bridges/Reports/FinalMRERDocument.pdf). March. <https://www.nae.usace.army.mil/Portals/74/docs/Topics/Cape%20Cod%20Canal%20Bridges/Reports/FinalMRERDocument.pdf>

¹⁴ [Massachusetts Great Ponds List](https://www.mass.gov/doc/massachusetts-great-ponds-list/download). 2017. <https://www.mass.gov/doc/massachusetts-great-ponds-list/download>

¹⁵ U.S. Fish & Wildlife Service. [IPaC Project Planning Tool](https://ipac.ecosphere.fws.gov/). <https://ipac.ecosphere.fws.gov/>

¹⁶ Massachusetts Division of Fisheries and Wildlife. 2021. [15th Edition Natural Heritage Atlas](https://www.mass.gov/news/15th-edition-natural-heritage-atlas-released-august-1). August. <https://www.mass.gov/news/15th-edition-natural-heritage-atlas-released-august-1>

4.12.2 Affected Environment

4.12.2.1 Designated Coastal Zone

The Study Areas for this assessment are entirely within the Massachusetts-designated coastal zone ([Figure 4.12-1](#)).

4.12.2.2 Coastal Zone Resources

Wetlands and Floodplain

The Study Areas feature the following state-jurisdictional coastal wetland resources:

- Land Under Ocean
- Coastal Bank
- Rocky Intertidal Shore
- Land Subject to Tidal Action
- Banks of or Land Under Ocean Underlying an Anadromous/Catadromous Fish Run
- Land Containing Shellfish
- Land Subject to Coastal Storm Flowage, as identified through FEMA mapping

No Regulatory Floodway has been designated for Cape Cod Canal based on available FEMA mapping.

The Study Areas also feature the following state-jurisdictional inland wetland resource areas:

- Land under Waterbodies or Waterways
- Bank
- Vernal Pools
- Bordering Vegetated Wetlands

Section 4.9, Wetlands and Floodplains, provides detailed information and mapping of the identified state-jurisdictional coastal and inland wetland resource areas within the Study Areas.

Federal and State-Protected Species Habitat

The Study Areas are mapped within areas designated as habitat for federal and state-protected species, including plants, fish, and wildlife. **Section 4.11, Threatened, Endangered, and Protected Species and Habitats**, provides detailed information on the protected species, including mapping of their potential habitats within the Study Areas.

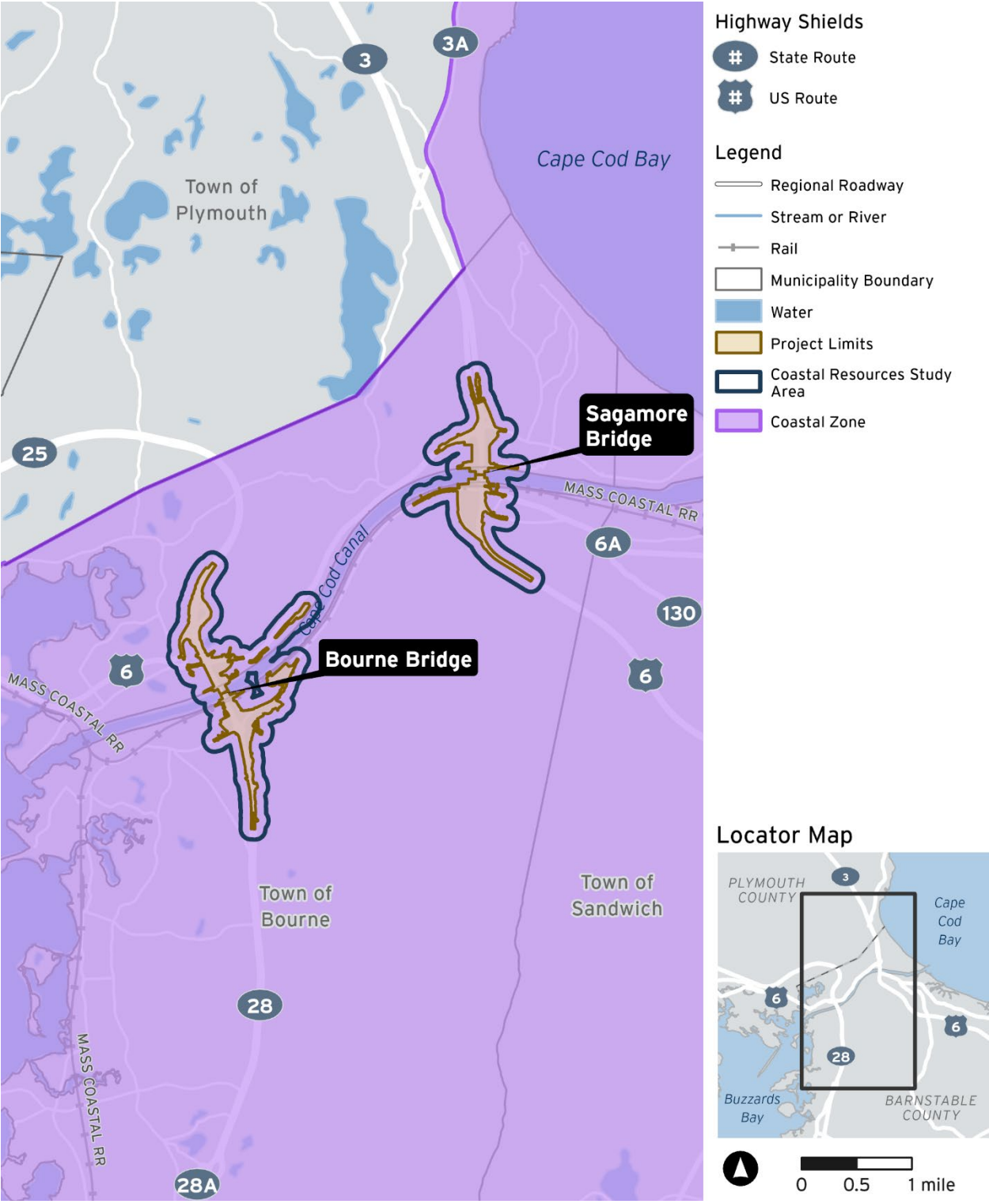
Water Supply Areas

The Study Areas are within two sole source aquifers, as designated by the U.S. Environmental Protection Agency:

- Cape Cod Sole Source Aquifer encompasses the entire Study Area south of Cape Cod Canal.
- Plymouth/Carver Sole Source Aquifer encompasses the entire Study Area north of Cape Cod Canal.

Section 4.10, Water Quality and Stormwater, provides detailed information and mapping of these aquifers.

Figure 4.12-1. Designated Massachusetts Coastal Zone Boundary



Source: Massachusetts Department of Transportation, 2026

Public Recreation Areas

The Study Areas feature publicly owned park and recreation areas owned [by the United States](#) and operated by USACE, [along with publicly owned park and recreation areas owned and operated by](#) the Town of Bourne. **Section 4.17, Public Parks, Recreational Facilities, and Open Space**, provides a list of the parks and recreational resources within the Study Areas. While the Canal Service Roads provide for public recreational use of these facilities, USACE determined that the roads' primary purpose is for navigation in support of the Cape Cod Canal Federal Navigation Project.

Other Protected Areas

Sagamore Bridge and Bourne Bridge are each eligible for individual listing in the National Register of Historic Places (NRHP) and are contributing resources to the NRHP-eligible Cape Cod Canal Historic District. MassDOT conducted field surveys within the Study Areas and did not identify any archaeological resources that were determined to be eligible for listing in the NRHP. **Section 4.16, Cultural Resources**, provides more information on historic and cultural resources within the Study Areas. The Sagamore Bridge Study Area is within the boundary of the Herring River Watershed Area of Critical Environmental Concern, as discussed in **Section 4.9, Wetlands and Floodplains**. No National Wild and Scenic Rivers are within the Study Areas.

According to the U.S. Fish and Wildlife Service's Coastal Barrier Resources System Maps for Massachusetts, there are no Coastal Barrier Resource Units¹⁷ or Otherwise Protected Areas (OPA)¹⁸ within the Study Area.¹⁹ The closest Coastal Barrier Resource Unit is Phinney's Harbor (MA-33), which is west of the Bourne Bridge South Study Area, within Buzzards Bay. The closest OPA is Scusset Beach (MA 38-P), which is east of the Sagamore Bridge Study Area, along Cape Cod Bay. The southern boundaries of the Scusset Beach OPA overlap the bayside of Cape Cod Canal.

4.12.2.3 Trust Lands

[The Sagamore and Bourne Bridges span flowed tidelands associated with Cape Cod Canal, which is operated and maintained by USACE as part of the Cape Cod Canal Federal Navigation Project.](#)²⁰

¹⁷ A Coastal Barrier Resource Unit is a designated area of land located along the U.S. coasts that is part of the Coastal Barrier Resources System. These units are identified and managed under the Coastal Barrier Resources Act, which was enacted in 1982.

¹⁸ Otherwise Protected Areas are coastal barriers within the Coastal Barrier Resource System. They are undeveloped and primarily used for wildlife refuges and sanctuaries, and recreational or natural resource conservation purposes.

¹⁹ <https://fwsprimary.wim.usgs.gov/CBRSMapper-v2/>

²⁰ [Massachusetts Department of Transportation determined that the proposed designs for the replacement Sagamore and Bourne Bridges meet the "functional equivalent" and "similar alignment" criteria under Section 24 of Chapter 79 of the Acts of 2014 \(2014 Transportation Bond Bill\), thereby granting exemption from licensing requirements pursuant to the Chapter 91 Waterways Regulations \(310 CMR 9.00\).](#)

Nightingale Pond, in the Bourne North quadrant, does not meet the criteria of a “Great Pond”²¹ subject to jurisdiction under MGL Chapter 91. No Designated Port Areas²² are within the Study Areas. To date, the Town of Bourne does not have an approved Municipal Harbor Plan.²³

4.12.3 No Build Alternative

The No Build Alternative would not include any new construction activities that would affect coastal zone resources within the Study Areas. Routine bridge maintenance activities and future dredging operations within Cape Cod Canal conducted by USACE for the No Build Alternative could have potential effects to coastal zone resources, including sedimentation. [Stormwater control measures would be implemented in compliance with permit requirements to ensure consistency with the MA CZMP policies.](#) The No Build Alternative would not improve pedestrian and bicycle accommodations to water-dependent recreational uses along the canal, which would not advance the goals of the MA CZMP’s public access policies.

4.12.4 Build Alternative

The Build Alternative would replace Sagamore Bridge and Bourne Bridge with resilient structures that meet modern design standards. The replacement highway bridges would improve pedestrian and bicycle accommodations within the Study Areas in support of public access to the water-dependent uses along the shoreline of Cape Cod Canal.

The Build Alternative would have unavoidable impacts to coastal and inland wetland resources, federal and state-protected species habitat, recreational resources, and other protected areas, as identified in [**Section 4.12.2.2**](#). Additionally, the Build Alternative proposes ground-disturbing activities during construction that could affect water quality due to erosion and sedimentation.

4.12.4.1 Coastal Zone Consistency Determination Assessment of Build Alternative

[**Table 4.12-1**](#) through [**Table 4.12-9**](#) provide an assessment of the Build Alternative’s consistency with the applicable MA CZMP policies.

²¹ Great Ponds are those which contain more than 10 acres in its natural state, as calculated based on the surface area of lands lying below the natural high-water mark.

²² Designated Port Areas are land and water areas with certain physical and operational features that have been identified to have state, regional, and national significance with respect to the promotion of water-dependent industrial uses and commercial activities that rely on marine transportation or the withdrawal or discharge of large volumes of water.

²³ A Municipal Harbor Plan establishes a community’s objectives, standards, and policies for guiding public and private use of land and water within the jurisdiction of Chapter 91.

Table 4.12-1. Coastal Hazard Policies

Policy Number	Policy Summary Statement	Consistency
Coastal Hazards Policy #1 [Enforceable]	Preserve, protect, restore, and enhance beneficial functions of storm damage prevention and flood control provided by natural coastal landforms, such as dunes, beaches, barrier beaches, coastal banks, land subject to coastal storm flowage, salt marshes, and land under ocean.	The Build Alternative was designed to minimize impacts to coastal and inland wetland resource areas. Unavoidable adverse effects will be mitigated in accordance with applicable federal and state regulations.
Coastal Hazards Policy #2 [Enforceable]	Ensure that construction in water bodies and contiguous land areas will minimize interference with water circulation and sediment transport. Flood or erosion control projects must demonstrate no significant adverse effects on the project site or adjacent downcoast areas.	<u>In-water construction would occur only along the canal shorelines, within roughly 100 feet of the mean high-water line at four discrete locations. This leaves about 500 feet of unobstructed open water between the north and south work areas, maintaining circulation in the canal. Removing the existing in-water bridge piers and constructing new piers only partially in the waterway would further improve local water circulation.</u> A Stormwater Pollution Prevention Plan will be developed and implemented during construction to minimize potential erosion and sedimentation impacts to water bodies and contiguous land areas in accordance with U.S. Environmental Protection Agency National Pollutant Discharge Elimination System permit requirements.

Policy Number	Policy Summary Statement	Consistency
Coastal Hazards Policy #3 [Enforceable]	Ensure that state and federally funded public works projects proposed for location within the coastal zone will not exacerbate existing hazards or damage natural buffers or other natural resources; be reasonably safe from flood and erosion-related damage; not promote growth and development in hazard-prone or buffer areas, especially in velocity zones and Areas of Critical Environmental Concern.	<u>The Build Alternative replaces and reconstructs existing infrastructure within an established transportation corridor and does not introduce new development or activities that would increase coastal risk. The design incorporates modern resilience standards by elevating the new bridge structures to account for projected fluctuations in sea level and conducting appropriate scour analyses to inform foundation design and protect against flood- and erosion-related impacts. The Build Alternative does not promote growth in hazard-prone areas, such as Velocity Zones or Areas of Critical Environmental Concern. The Study Areas do not include any Coastal Barrier Resource Units, and no work is proposed within areas regulated under the Coastal Barrier Resources Act.</u>
Coastal Hazards Policy #4	Prioritize acquisition of hazardous coastal areas that have high conservation and/or recreation values and relocation of structures out of coastal high-hazard areas, giving due consideration to the effects of coastal hazards at the location to the use and manageability of the area.	This policy is not applicable.

Table 4.12-2. Energy Policies

Policy Number	Policy Summary Statement	Consistency
Energy Policy #1	For coastally dependent energy facilities, consider siting in alternative coastal locations. For non-coastally dependent energy facilities, consider siting in areas outside of the coastal zone. Weigh the environmental and safety impacts of locating proposed energy facilities at alternative sites.	This policy is not applicable.
Energy Policy #2	Encourage energy conservation and the use of alternative sources, such as solar and wind power, to assist in meeting the energy needs of the Commonwealth.	The Design-Build contractor (Design-Builder) will be required to comply with Massachusetts Department of Transportation's specifications for fuel-efficient equipment use and the Massachusetts anti-idling rules to limit unnecessary energy use during construction. In addition, the Build Alternative's inclusion of improved multimodal accommodations, such as separated shared-use paths and safer pedestrian and bicycle connections, supports long-term energy conservation by promoting non-motorized travel and reducing reliance on single-occupancy vehicles for short trips.

Table 4.12-3. Growth Management Policies

Policy Number	Policy Summary Statement	Consistency
Growth Management Policy #1	Encourage sustainable development that is consistent with state, regional, and local plans and supports the quality and character of the community.	<u>The proposed bridge and roadway improvements support sustainable development consistent with local, state, and regional plans by upgrading critical infrastructure within the existing corridor and providing a safer, more connected, multimodal transportation system. These upgrades will support the quality and character of the community by incorporating context-sensitive design that respects the historic setting of the surrounding area and by improving multimodal access to strengthen local and regional connectivity.</u>
Growth Management Policy #2	Ensure that state and federally funded infrastructure projects in the coastal zone primarily serve existing developed areas, assigning highest priority projects that meet the needs of urban and community development centers.	<u>The Build Alternative primarily serves existing developed areas and will serve to meet the needs of urban and community development centers by providing safer and more reliable access for multimodal travel across Cape Cod Canal. Sagamore and Bourne Bridges provide the only vehicular connection between mainland Massachusetts and Cape Cod's 15 towns, and they also support travel to the offshore island communities of Martha's Vineyard and Nantucket via ferry terminals on the Cape's south shore. The replacement bridges are essential for emergency response and evacuation, as they will continue to serve as the sole evacuation routes for Cape Cod's residents, visitors, and workers during hurricanes, coastal storms, and other emergencies. Their modern design will improve reliability, add redundancy, and reduce the risk of closures, ensuring that critical evacuation and emergency access needs can be met safely and efficiently.</u>
Growth Management Policy #3	Encourage the revitalization and enhancement of existing development centers in the coastal zone through technical assistance and financial support for residential, commercial, and industrial development.	This policy is not applicable.

Table 4.12-4. Habitat Policies

Policy Number	Policy Summary Statement	Consistency
Habitat Policy #1 [Enforceable]	Protect coastal, estuarine, and marine habitats—including salt marshes, shellfish beds, submerged aquatic vegetation, dunes, beaches, barrier beaches, banks, salt ponds, eelgrass beds, tidal flats, rocky shores, bays, sounds, and other ocean habitats—and coastal freshwater streams, ponds, and wetlands to preserve critical wildlife habitat and other important functions and services including nutrient and sediment attenuation, wave and storm damage protection, and landform movement processes.	<u>The replacement bridges and associated roadway improvements were designed to avoid sensitive coastal and estuarine resources where possible. The relocation of the bridge piers from the in-water portion of the canal to a more landward position along the bank will minimize in-water impacts. Engineering controls, such as cofferdams and containment cells, will be implemented to isolate construction activity, limit turbidity, and prevent sediment or debris from entering the canal.</u> <u>The Design-Builder will also be required to adhere to time-of-year restrictions for in-water-related work that has the potential to generate silt and increase turbidity, ensuring such activities only occur during periods that minimize impacts on sensitive aquatic species and habitats. Any unavoidable wetland impacts will be mitigated through restoration or replication in compliance with state and federal standards.</u> <u>The Massachusetts Department of Transportation (MassDOT) is developing a plan for mitigating effects to eelgrass due to Bourne Bridge Project construction activities. To satisfy the state's mitigation requirements, the Massachusetts Department of Environmental Protection (MassDEP) has approved MassDOT's proposal to provide funding to the Massachusetts Division of Marine Fisheries (DMF) for an eelgrass research project or for DMF's eelgrass seed collection program at the Cat Cove Marine Laboratory in Salem, Massachusetts. MassDOT anticipates that mitigation to meet the U.S. Army Corps of Engineers' (USACE) requirements would be accomplished via in-lieu fee payment.</u>

Policy Number	Policy Summary Statement	Consistency
		MassDOT is continuing to coordinate with the National Oceanic and Atmospheric Administration National Marine Fisheries Service, MassDEP, and USACE to develop the appropriate mitigation for unavoidable Program-related loss of eelgrass. Refer to Section 4.11, Threatened, Endangered, and Protected Species and Habitats, for further information on mitigation measures that will be implemented to protect aquatic resources and habitats.
Habitat Policy #2 [Enforceable]	Advance the restoration of degraded or former habitats in coastal and marine areas.	Following the replacement bridge construction and existing bridge demolition, the temporary work structures will be removed. Temporary alterations to rocky intertidal shore at both bridges will be allowed to restore naturally. To the maximum extent possible, the Design-Builder will restore shoreline riprap and canal side slopes to pre-existing conditions. Refer to Section 4.9, Wetlands and Floodplains, for supporting information on potential impacts to coastal resources and restoration efforts.

Table 4.12-5. Ocean Resources

Policy Number	Policy Summary Statement	Consistency
Ocean Resources Policy #1	Support the development of sustainable aquaculture, both for commercial and enhancement (public shellfish stocking) purposes. Ensure that the review process regulating aquaculture facility sites (and access routes to those areas) protects significant ecological resources (salt marshes, dunes, beaches, barrier beaches, and salt ponds) and minimizes adverse effects on the coastal and marine environment and other water-dependent uses.	This policy is not applicable.
Ocean Resources Policy #2	Except where such activity is prohibited by the Ocean Sanctuaries Act, the Massachusetts Ocean Management Plan, or other applicable provision of law, the extraction of oil, natural gas, or marine minerals (other than sand and gravel) in or affecting the coastal zone must protect marine resources, marine water quality, fisheries, and navigational, recreational and other uses.	This policy is not applicable.
Ocean Resources Policy #3	Accommodate offshore sand and gravel mining needs in areas and in ways that will not adversely affect shoreline areas due to the alteration of wave direction and dynamics, marine resources, and navigation. Mining of sand and gravel, when and where permitted, will be primarily for the purpose of beach nourishment.	This policy is not applicable.

Table 4.12-6. Ports and Harbors

Policy Number	Policy Summary Statement	Consistency
Ports and Harbors Policy #1	Ensure that dredging and disposal of dredged material minimizes adverse effects on water quality, physical processes, marine productivity, and public health and takes full advantage of opportunities for beneficial reuse.	The excavation of dredged sediment from Cape Cod Canal will be tested, handled, and transported in accordance with state and federal requirements, with disposal limited to approved facilities or placement sites. When sediments are determined to be clean and suitable, MassDOT will evaluate opportunities for beneficial reuse.
Ports and Harbors Policy #2	Obtain the widest possible public benefit from channel dredging and ensure DPAs and developed harbors are given highest priority in the allocation of resources.	This policy is not applicable.
Ports and Harbors Policy #3	Preserve and enhance the capacity of DPAs to accommodate water-dependent industrial uses and prevent the exclusion of such uses from tidelands and any other DPA lands over which a Massachusetts Executive Office of Energy and Environmental Affairs agency exerts control by virtue of ownership or other legal authority.	The policy is not applicable.
Ports and Harbors Policy #4	For development on tidelands and other coastal waterways, preserve and enhance the immediate waterfront for vessel-related activities that require sufficient space and suitable facilities along the water's edge for operational purposes.	The Build Alternative will maintain the immediate waterfront infrastructure along Cape Cod Canal necessary to support fishing, commercial shipping, recreational boating, and other maritime activities. MassDOT developed the design of the replacement bridge in cooperation with the USACE to improve navigational safety in the canal. The location of the bridge piers and superstructure further outside of the navigation channel and within the riprap slope (within and above the intertidal zone) will effectively increase the navigational opening, thereby improving navigational safety. By locating the proposed piers along the shoreline, the Build Alternative would reduce the risk of vessel allision.

Policy Number	Policy Summary Statement	Consistency
Ports and Harbors Policy #5	Encourage, through technical and financial assistance, expansion of water-dependent uses in DPAs and developed harbors, redevelopment of urban waterfronts, and expansion of physical and visual access.	This policy is not applicable.

Table 4.12-7. Protected Areas Policies

Policy Number	Policy Summary Statement	Consistency
Protected Areas Policy #1 [Enforceable]	Preserve, restore, and enhance coastal Areas of Critical Environmental Concern (ACEC), which are complexes of natural and cultural resources of regional or statewide significance.	The Build Alternative would not affect any natural coastal resources associated with the Herring River Watershed ACEC. Work within the ACEC would be confined to previously disturbed areas of the State Highway Layout. Where feasible, Massachusetts Department of Transportation (MassDOT) will install retaining walls to minimize disturbance within the ACEC.
Protected Areas Policy #2 [Enforceable]	Protect state-designated scenic rivers in the coastal zone.	This policy is not applicable as the Build Alternative is not located within any designated scenic rivers.
Protected Areas Policy #3 [Enforceable]	Ensure that proposed developments in or near designated or registered historic places respect the preservation intent of the designation and that potential adverse effects are minimized.	A Programmatic Agreement has been executed among the Federal Highway Administration (FHWA), Massachusetts State Historic Preservation Office (SHPO), U.S. Army Corps of Engineers (USACE), with concurrence by Section 106 consulting parties, identifying measures to mitigate the adverse effects on the National Register of Historic Places (NRHP)-eligible Sagamore Bridge and Bourne Bridge in accordance with 36 Code of Federal Regulations 800.14(b). In coordination with the consulting parties and concurrence by SHPO, MassDOT has determined that the preferred bridge type would be compatible with the NRHP-eligible Cape Cod Canal Historic District and would result in No Adverse Effect to the historic district.

Table 4.12-8. Public Access Policies

Policy Number	Policy Summary Statement	Consistency
Public Access Policy #1 [Enforceable]	Ensure that development (both water-dependent or non-water dependent) of coastal sites subject to state waterways regulation will propose general public use and enjoyment of the water's edge, to an extent commensurate with the Commonwealth's interests in flowed and filled tidelands under the Public Trust Doctrine.	The Build Alternative would improve and expand upon water-dependent uses through construction of new shared-use path facilities with connections to the local roadway network and the Canal Service Roads. These upgrades would provide opportunities for the public to access Cape Cod Canal for recreation, fishing, and other water-dependent uses consistent with the Massachusetts Public Trust Doctrine.
Public Access Policy #2	Improve public access to the existing coastal recreation facilities and alleviate auto traffic and parking problems through improvements in public transportation and trail links (land- or water-based) to other nearby facilities. Increase capacity of existing recreation areas by facilitating multiple use and by improving management, maintenance, and public support facilities. Ensure that the adverse impacts of developments proposed near existing public access and recreation sites are minimized.	The Build Alternative would improve public access to the Canal Service Roads abutting Cape Cod Canal to encourage active transportation and recreational uses, including fishing, jogging, cycling, and skating. The proposed shared-use facilities would also provide critical off-road connections to other local roadways within the Study Areas. The Federal Highway Administration has issued a Section 4(f) <i>de minimis</i> determination for Sagamore Recreation Area, Keith Field Recreation Area, Bourne Scenic Park, Bourne Recreation Area, and Gallo Ice Arena. This determination was made because the transportation use of each Section 4(f) resource, together with the avoidance, minimization, and mitigation and enhancement measures incorporated, did not adversely affect the activities, features, or attributes that qualified the resources for protection under Section 4(f); the opportunity for public comment was provided in January 2026 and the official with jurisdiction has provided concurrence. Refer to Chapter 5, Final Section 4(f) Evaluation for more information.

Policy Number	Policy Summary Statement	Consistency
Public Access Policy #3	Expand existing recreation facilities and acquire and develop new public areas for coastal recreational activities, giving highest priority to regions of high need or limited site availability. Provide technical assistance to developers of both public and private recreation facilities and sites that increase public access to the shoreline to ensure that both transportation access and the recreation facilities are compatible with social and environmental characteristics of surrounding communities.	The Build Alternative would improve and expand existing recreation facilities through construction of the shared-use paths with connections to local roadways and Cape Cod Canal. These improvements would increase public access to the shoreline, which is consistent with the social and environmental characteristics of the local community.

Table 4.12-9. Water Quality Policies

Policy Number	Policy Summary Statement	Consistency
Water Quality Policy #1 [Enforceable]	Ensure that point-source discharges and withdrawals in or affecting the coastal zone do not compromise water quality standards and protect designated uses and other interests.	The Build Alternative would be designed to comply with Massachusetts Department of Environmental Protection Stormwater Management Standards, as enforced through the Massachusetts Wetlands Protection Act and the 401 Water Quality Certification Regulations.
Water Quality Policy #2 [Enforceable]	Ensure the implementation of nonpoint source pollution controls to promote the attainment of water quality standards and protect designated uses and other interests.	Construction-phase and post-construction Storm Control Measures will be implemented to protect water quality in accordance with applicable federal and state regulatory requirements.
Water Quality Policy #3 [Enforceable]	Ensure that subsurface waste discharges conform to applicable standards, including the siting, construction, and maintenance requirements for on-site wastewater disposal systems, water quality standards, established Total Maximum Daily Load limits, and prohibitions on facilities in high-hazard areas.	The Study Areas are not located within high-hazard areas; ^[1] therefore, this policy is not applicable.

^[1] “High hazard areas” are those areas mapped as Federal Emergency Management (FEMA) Zone V or VE, indicated areas with high-velocity wave action and a significant risk of damage from storm surges and flooding.

4.12.5 Mitigation

In addition to the enhancements provided by the Build Alternative through improved public access and resilient infrastructure, the Build Alternative will implement resource-specific mitigation measures that will ensure any unavoidable adverse effects to coastal zone resources are minimized in accordance with the applicable federal and state regulations. These mitigation measures, in combination with the enhancements proposed by the Build Alternative, will ensure consistency with the applicable policies of the MA CZMP.

Table 4.12-10 lists the mitigation measures MassDOT will implement to minimize and compensate for any unavoidable adverse impacts to coastal resources.

Table 4.12-10. Coastal Resources Mitigation Measures

Resource	Mitigation
Wetlands and Floodplain	• Temporary impacts to coastal and inland bank, Land Under Ocean, and vegetated wetlands will be restored in-kind. • Permanent impacts to vegetated wetlands and inland banks will be replicated at a ratio consistent with applicable federal and state regulations. • Compensatory flood storage will be provided for floodplain encroachment at Nightingale Pond.
Federal and State-Protected Species Habitat	• <u>In coordination with National Marine Fisheries Service and the Massachusetts Natural Heritage and Endangered Species program (NHESP), MassDOT will implement time of year restrictions and best management practices to minimize potential impacts to <u>terrestrial and</u> aquatic species and their habitats.</u> • <u>Massachusetts Department of Transportation (MassDOT) is consulting with the NHESP to evaluate the potential for take of protected species and implement appropriate conservation and net benefit measures if take under the Massachusetts Endangered Species Act is expected to occur.</u>
Protected Areas	• Retaining walls will be installed, where feasible, to minimize impacts to the Herring River Watershed Area of Critical Environmental Concern. <u>The Build Alternative has been designed to avoid impacts to wetland resource areas associated with two Areas of Critical Environmental Concern.</u> • <u>In coordination with the Federal Highway Administration, U.S. Army Corps of Engineers, the State Historic Preservation Officer (SHPO), and Section 106 consulting parties, MassDOT has developed a Programmatic Agreement that will mitigate the adverse effects on the National Register of Historic Places (NRHP)-eligible Sagamore Bridge and Bourne Bridge.</u> • MassDOT has determined that the preferred bridge type would be compatible with the NRHP-eligible Cape Cod Canal Historic District <u>and would not result in an adverse effect to the historic district.</u>

Resource	Mitigation
Water Supply Areas	• MassDOT will develop a Stormwater Pollution Prevention Plan, which will be implemented during construction to minimize potential erosion and sedimentation. • MassDOT will design and install post-construction Stormwater Control Measures to manage the quantity and quality of surface run-off discharged to receiving waterbodies and/or groundwater.
Public Recreation Areas	• The Federal Highway Administration has issued a Section 4(f) <i>de minimis</i> determination for Sagamore Recreation Area, Keith Field Recreation Area, Bourne Scenic Park, Bourne Recreation Area, and Gallo Ice Arena. This determination was made because the transportation use of each Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, did not adversely affect the activities, features, or attributes that qualified the resource for protection under Section 4(f). The opportunity for public comment was provided in January 2026 and the official with jurisdiction has provided concurrence. Refer to Chapter 5, Final Section 4(f) Evaluation, for more information