massDOT
Massachusetts Department of Transportation
Leading the Nation in Transportation Excellence

CAPE COD BRIDGES PROGRAM

DEIR OPEN HOUSE

Thursday, September 25
3pm-7pm

Translation Services
Servicios de Traducción
Serviços de Tradução
American Sign Language

THIS EVENT IS ACCESSIBLE

STATION
Climate, Air & Noise

STATION
Transportation & Mobility

STATION
Community & Land Use

STATION
Greeting & Introduction

STATION
Proposed Action & Alternatives

STATION
Visual, Cultural & Recreational Resources

STATION
Natural Resources & Environment

STATION
Public Involvement & Administration

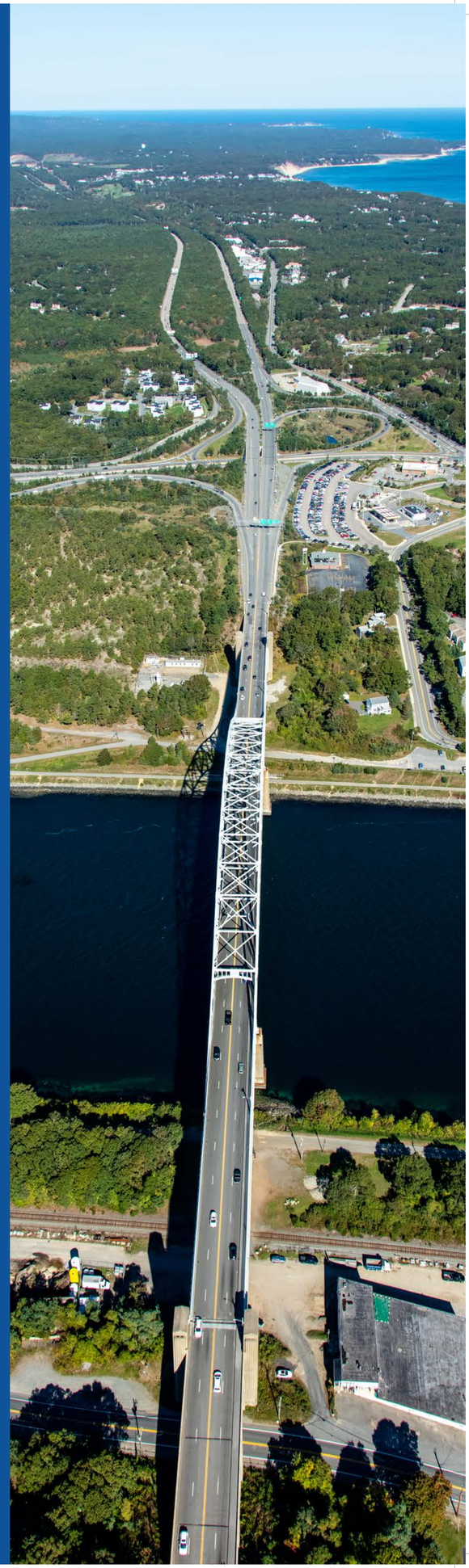
BLEACHERS

WELCOME

SIGN IN HERE

PIMA sign in registration
Link: tinyurl.com/DEIR-Open-House

This DEIR Open House includes highlights and notable impacts from many of the chapters in the document. The display boards at today's meeting are not inclusive of all chapters and content. Please see the DEIR for full detail.



CAPE COD BRIDGES PROGRAM

MEPA BACKGROUND

WHAT IS MEPA?

The Massachusetts Environmental Policy Act (MEPA) office is part of the Executive Office of Energy and Environmental Affairs (EEA), an agency of the Commonwealth of Massachusetts, led by Secretary Rebecca Tepper. MEPA requires state agencies to evaluate the environmental impacts of their actions and to take all feasible measures to avoid, minimize, and mitigate harm to the environment. The MEPA review process requires public disclosure, environmental analysis, and development of feasible mitigation for a proposed project. MEPA review occurs before permitting agencies act (and before State Agencies can issue Permits), to ensure that the permitting agencies know the environmental consequences of their actions. The process is public and encourages comments from citizens and from state, regional, and local agencies.

WHEN IS MEPA REVIEW REQUIRED?

MEPA review is required if a project meets or exceeds a MEPA review threshold (outlined at 301 CMR 11.03) and requires a State Agency Action. State Agency Actions include a project proposed by a state Agency, the granting of state Permits or licenses, provision of state Financial Assistance, or transfer of state-owned land. MEPA review is required only if both conditions are satisfied.

WHY DOES THIS PROJECT REQUIRE MEPA REVIEW?

This project requires MEPA review because it is proposed by a State Agency (MassDOT) and it exceeds the MEPA review thresholds at 301 CMR 11.03(1)(a)(1) for the direct alteration of 50 or more acres of land, and 301 CMR 11.03(1)(a)(2) for the creation of ten or more acres of impervious area. It is also located within one mile of a designated Environmental Justice population.

PURPOSE OF OPEN HOUSE

This event provides an opportunity to ask questions of the design team regarding the content and analysis provided in the Draft Environmental Impact Report (DEIR) and to learn about the project, including potential environmental impacts, and measures taken to avoid, minimize, and mitigate impacts. Please note that this is not a MEPA-sponsored public meeting, and comments must be submitted in writing to the MEPA Office to be included in the public record and considered by Secretary Tepper.

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Boston, MA 02114

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www.mass.gov

CAPE COD BRIDGES PROGRAM

DEIR OVERVIEW

The Draft Environmental Impact Report (DEIR) is a component of the Massachusetts Environmental Policy Act (MEPA) process. MassDOT has developed this comprehensive state environmental review document as directed by the MEPA scoping Certificate and as directed by 11.07(6) of the MEPA regulations.

THE DEIR PROVIDES THE FOLLOWING:

- Stand-alone description of the project
- Alternatives analysis
- Analysis of its potential environmental and public health impacts
- Measures to avoid, minimize, and mitigate identified impacts

THE DEIR IS ORGANIZED AS FOLLOWS:

- **Introduction**
- **Purpose and Need**
- **Proposed Action and Alternatives**
- **Existing Conditions, Program Impacts, and Mitigation**
- **Construction Approach**
- **Agency Coordination and Public Involvement**
- **Response to Comments**
- **Mitigation and Draft Section 61 Findings**
- **Distribution List**

Subsections under **Existing Conditions, Program Impacts, and Mitigation:**

- » *Transportation, Traffic, and Safety*
- » *Pedestrian and Bicycle Facilities*
- » *Maritime Transportation, Traffic, and Safety*
- » *Socioeconomics*
- » *Land Use, Zoning, and Community Cohesion*
- » *Community Facilities*
- » *Property Acquisition, Displacement, and Relocation*
- » *Environmental Justice*
- » *Wetlands and Floodplains*
- » *Water Quality and Stormwater*
- » *Threatened, Endangered, and Protected Species and Habitats*
- » *Coastal Zone Consistency and Chapter 91 Waterways Review*
- » *Air Quality and Greenhouse Gas Emissions*
- » *Noise and Vibration*
- » *Visual Resources*
- » *Cultural Resources*
- » *Public Parks, Recreational Facilities, and Open Space*
- » *Solid and Hazardous Waste Material Management*
- » *Public Health*
- » *Climate Change Adaptation and Resiliency*
- » *Indirect and Cumulative Impacts*
- » *Utilities and Services*

CAPE COD BRIDGES PROGRAM

MEPA SCHEDULE

2023

January 2023
Begin ENF Process

May 10, 2023
Publish ENF in Monitor

June 27, 2023
ENF Public Review/ Comment Period

MassDOT requested extended comment period

July 7, 2023
ENF Certificate Issued

Fall 2023
Begin Draft EIR

2025

WE ARE HERE

September 10, 2025
Publish DEIR in Monitor

October 24, 2025
DEIR Public Review/Comment Period

MassDOT requested an extended comment period.

After the conclusion of the public comment period, the Secretary will issue a Certificate on the DEIR which will reflect the Secretary's review of the detailed analyses presented in the DEIR, along with consideration of public comments.

October 31, 2025
DEIR Certificate Issued

The Certificate will determine whether the DEIR "adequately and properly complies" with MEPA, and, if compliant, define the scope for the FEIR.

Fall 2025
Begin FEIR Process

The FEIR will be subject to an additional review by the MEPA Office, which will provide another opportunity for public review and comment.

2026

Winter 2026 *(30 days)*
FEIR Public Review/ Comment period

Spring 2026
FEIR Certificate Issued

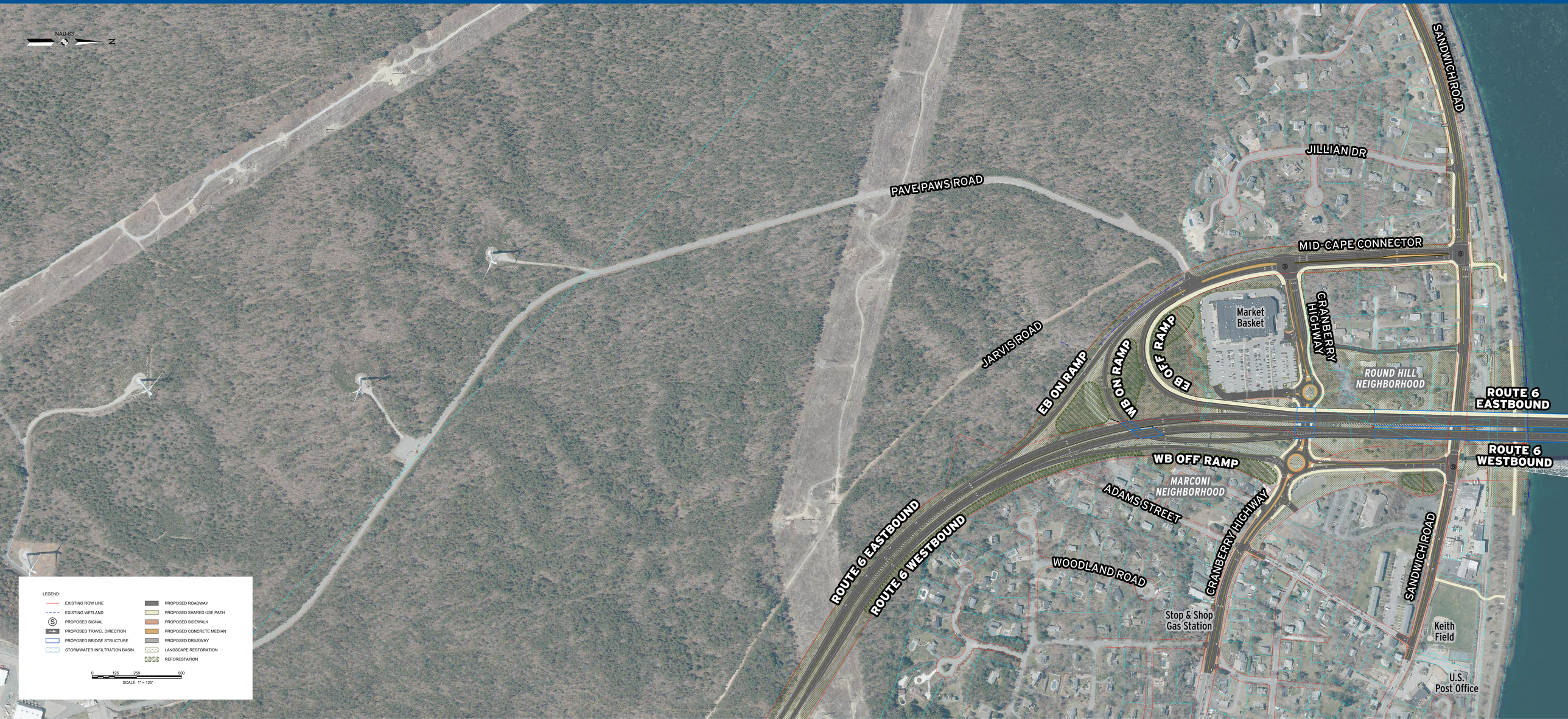
Recommended Bridge Type: Twin Arch Canal View

Recommended Bourne North Crossing

Recommended Bourne South Crossing

Recommended Sagamore North Crossing

Recommended Sagamore South Crossing



CAPE COD BRIDGES PROGRAM

VISUAL RESOURCES

Existing View of Sagamore Bridge from Cape Cod Canal Service Road

Simulated View of Sagamore Bridge from Cape Cod Canal Service Road

Recommended Bridge Type: Twin Arch Driver View

CAPE COD BRIDGES PROGRAM

PURPOSE AND NEED

Building upon the analyses and findings of the U.S. Army Corps of Engineers (USACE) and MassDOT's foundational documents, MassDOT developed the Program Purpose and Need statement in coordination with the Federal Highway Administration (FHWA), Cooperating Agencies, and the public:

Program Purpose

The purpose of the Cape Cod Bridges Program is to:

- Improve cross-canal mobility and accessibility between Cape Cod and mainland Massachusetts for all road users.
- Address the increasing maintenance needs and functional obsolescence of the aging Sagamore and Bourne Bridges.

Program Need

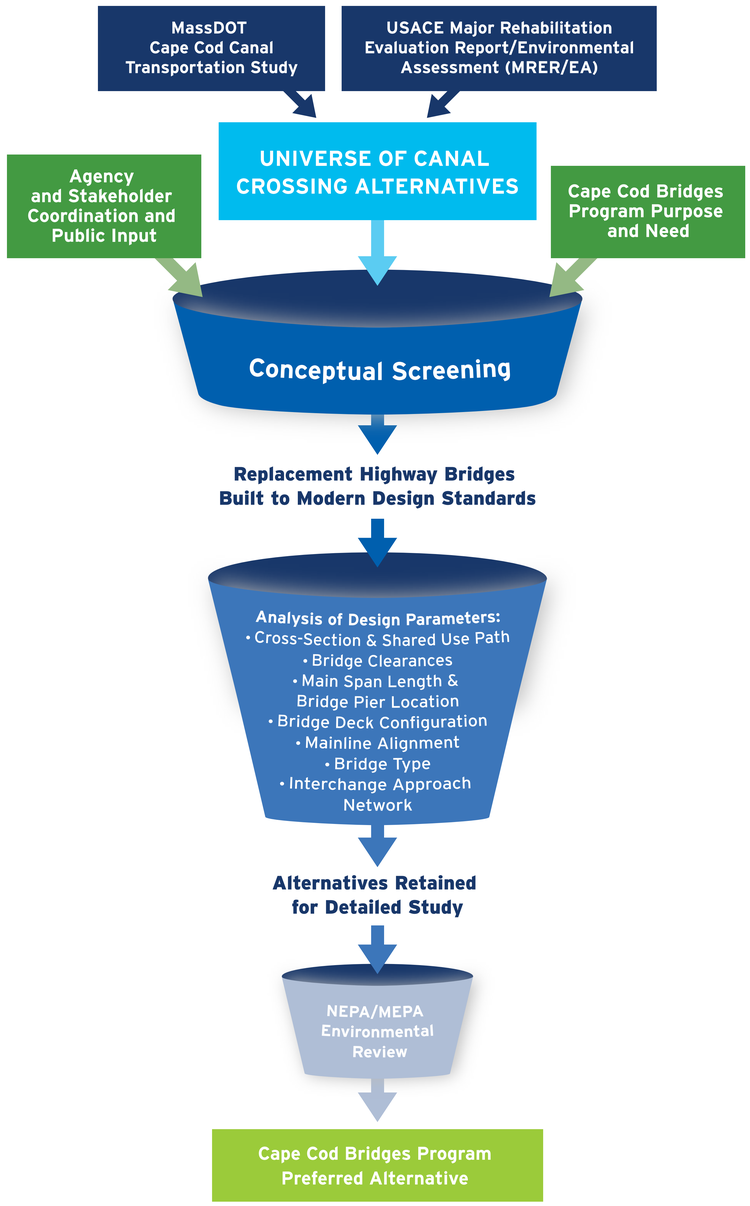
The needs for the Cape Cod Bridges Program are to:

- Address bridge conditions: Sagamore and Bourne Bridges are worn down by heavy use and exposure to saltwater. Ongoing repairs cause long lane closures and traffic delays.
- Address substandard bridge and roadway design: Travel lanes on Sagamore and Bourne Bridges are narrow with no shoulders or median. Their steep slopes (up to 6%) do not meet current highway standards.
- Improve traffic operations: Sagamore and Bourne Bridges were not built for today's traffic. Traffic backups and crashes are common and expected to get worse. Rear-end and sideswipe (same direction) collisions were the most common types of crashes on the bridges between 2017 and 2019.
- Improve options for pedestrians and bicyclists: Sagamore and Bourne Bridges each have one narrow sidewalk, but no access for bicycles. Missing connections to nearby sidewalks and shared-use pedestrian and bicycle paths also cause safety problems.

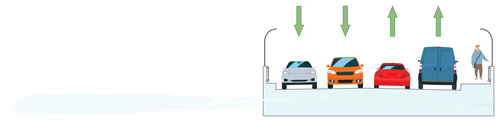
CAPE COD BRIDGES PROGRAM

PROPOSED ACTION AND ALTERNATIVES

CAPE COD BRIDGES PROGRAM PROCESS



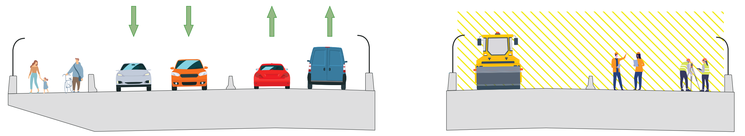
CONSTRUCTION SEQUENCING



Existing Bridge

Phase 1 - Construct First Mainline Span

Phase 2 - Shift Traffic to First Mainline Span and Demolish Existing Bridge



Phase 3 - Construct Second Mainline Span

Phase 4 - Reroute Traffic onto Two Mainline Spans in Final Configuration

CAPE COD BRIDGES PROGRAM

PROGRAM SCHEDULE

Schedule – Cape Cod Bridges

FALL 2019

MASSDOT PLANNING STUDY COMPLETE

SPRING 2020

USACE MAJOR REHABILITION EVALUATION REPORT AND EA COMPLETE

WINTER 2022/2023

FHWA IDENTIFIED AS LEAD FEDERAL AGENCY

SPRING 2023

MEPA – ENVIRONMENTAL NOTIFICATION FORM PUBLIC NOTICE

SUMMER 2023

NEPA CLASS OF ACTION DETERMINIATION - EIS

WINTER 2023/2024

NEPA NOTICE OF INTENT PUBLISHED

SUMMER 2025

MEPA – DRAFT ENVIRONMNETAL IMPACT REPORT PUBLISHED

YOU ARE HERE

FALL 2025

NEPA – DRAFT ENVIRONMENTAL IMPACT STATEMENT IS PUBLISHED

WINTER 2025/2026

NEPA RECORD OF DECISION

SUMMER 2026

MEPA CERTIFICATE

CAPE COD BRIDGES PROGRAM

PROGRAM SCHEDULE

Schedule – Sagamore Bridge

SUMMER 2026

ENVIRONMENTAL PERMITS COMPLETE

FALL 2026

DRAFT REQUEST FOR PROPOSALS ISSUED

FALL 2027

PROPERTY ACQUISITIONS COMPLETE

WINTER 2027/2028

CONSTRUCTION NOTICE TO PROCEED ISSUED

FALL 2031

SOUTHBOUND BRIDGE SPAN FLOAT IN

FALL 2033

ALL TRAFFIC ON NEW SOUTHBOUND BRIDGE

WINTER 2033/2034

EXISTING SAGAMORE BRIDGE DEMOLISHED

SPRING 2036

NORTHBOUND BRIDGE SPAN FLOAT IN

WINTER 2036/2037

ALL TRAFFIC ON NEW NORTHBOUND BRIDGE

SPRING 2037

CONSTRUCTION SUBSTANTUAL COMPLETION

CONSTRUCTION MILESTONES ARE APPROXIMATE

CAPE COD BRIDGES PROGRAM

ONGOING AND FUTURE FIELD WORK

FIELD SURVEY

- To ensure the base mapping of the existing conditions is accurate.
- Work is ongoing and will continue throughout the design process.
- Private property owners will be notified in advance the work.

BORINGS

- To provide important information about the subsurface conditions, such as the composition and strength of the soil.
- Borings are currently being conducted on State and USACE property.
- In the fall, certain borings will be conducted on private property.

FOUNDATION LOAD TESTS

- To confirm construction methods for bridge foundations.
- Work to begin Spring 2026.
- Four locations - (2) at Sagamore North of the canal and (2) at Sagamore South of the canal.

CAPE COD BRIDGES PROGRAM

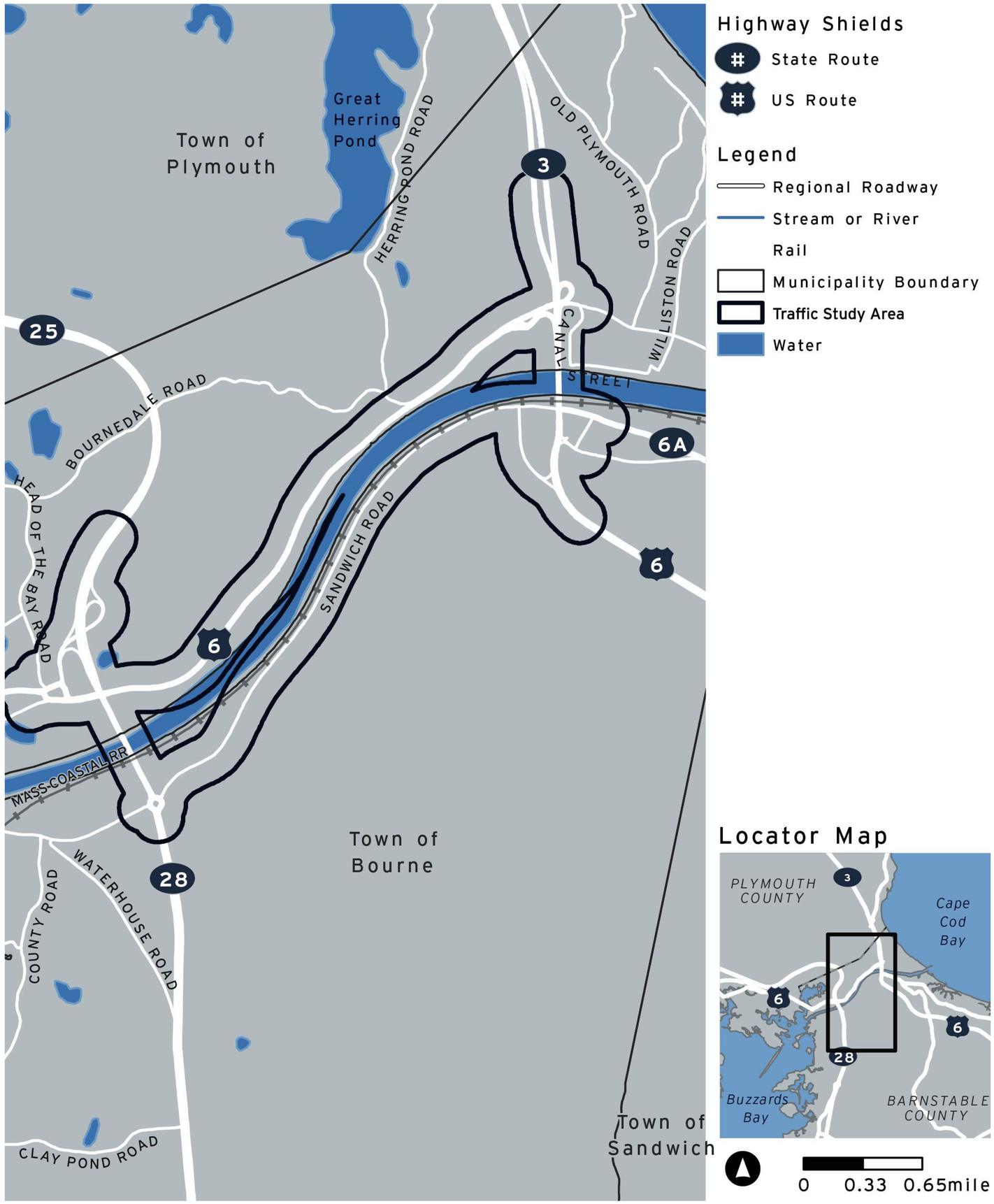
TRANSPORTATION, TRAFFIC AND SAFETY

The document looks at how the No Build and Build Alternatives could affect:

- **Highway traffic and safety**
- **Truck freight and public bus transportation**
- **Commuter parking**
- **Rail transportation**

Highway traffic studies use an "existing year" to measure current conditions, and a "design year" to predict how traffic will look in the future. The highway traffic study for the Cape Cod Bridges Program used 2019 as the "existing year" and 2050 as the "design year," with a focus on the fall weekday p.m. peak hour.

FIGURE: Transportation, Traffic, and Safety Study Area



CAPE COD BRIDGES PROGRAM

TRANSPORTATION, TRAFFIC AND SAFETY

BUILD ALTERNATIVE PROGRAM IMPACTS/ PROGRAM EFFECTS

- Expected to decrease travel times for vehicles traveling through the bridge corridors to and from Cape Cod (compared to the No Build Alternative)
- Expected to decrease travel times for the following routes:
  - » *State Route 25 eastbound to U.S. Route 6 eastbound*
  - » *State Route 25 eastbound to U.S. Route 6 eastbound*
  - » *State Route 3 southbound to State Route 28 southbound*
  - » *State Route 28 northbound to State Route 3 northbound*
  - » *U.S. Route 6 westbound to State Route 25 westbound*
- Possibly reduce crashes by 48% on Sagamore and Bourne Bridges
- About 17 parking spaces would be removed at the Bourne Park-and-Ride Lot, which is owned by the Massachusetts Department of Transportation
- Possibly relocates Bourne Station, which serves the CapeFLYER (a seasonal passenger train that runs between Boston and Hyannis on weekends during the summer)
- Schedule impacts to freight and seasonal passenger trains that run on the railroad tracks under Sagamore and Bourne Bridges
- Expected traffic delays during construction

2050 No Build Alternative and 2050 Build Alternative Diagonal Bridge Crossing Travel Times (Fall Weekday PM Peak Hour)

ROUTE		NO BUILD ALTERNATIVE *(minutes)*	BUILD ALTERNATIVE *(minutes)*
State Route 25 eastbound to U.S. Route 6 eastbound via	Scenic Highway	20.6	18.4
	Sandwich Road	24.2	14.9
State Route 28 northbound to State Route 3 northbound via	Sandwich Road	15.9	12.6
State Route 3 southbound to State Route 28 southbound via	Scenic Highway	21.5	13.0
	Sandwich Road	19.1	20.2
U.S. Route 6 westbound to State Route 25 westbound via	Scenic Highway	22.9	11.7
State Route 25 eastbound to State Route 3 northbound via	Scenic Highway	19.6	12.1

MITIGATION:

- **Managing Construction Impacts:** Construction will be done in phases to keep traffic moving within the Project Limits. Temporary signs, barriers, and traffic control measures will be used to manage traffic flow and reduce delays for drivers.
- **Parking at Bourne Park-and-Ride Lot:** The Massachusetts Department of Transportation will work with local and regional partners to decide if replacement parking is needed.
- **Rail Service:** A communication plan will be in place to manage any schedule impacts to rail service and keep stakeholders informed during construction.

CAPE COD BRIDGES PROGRAM

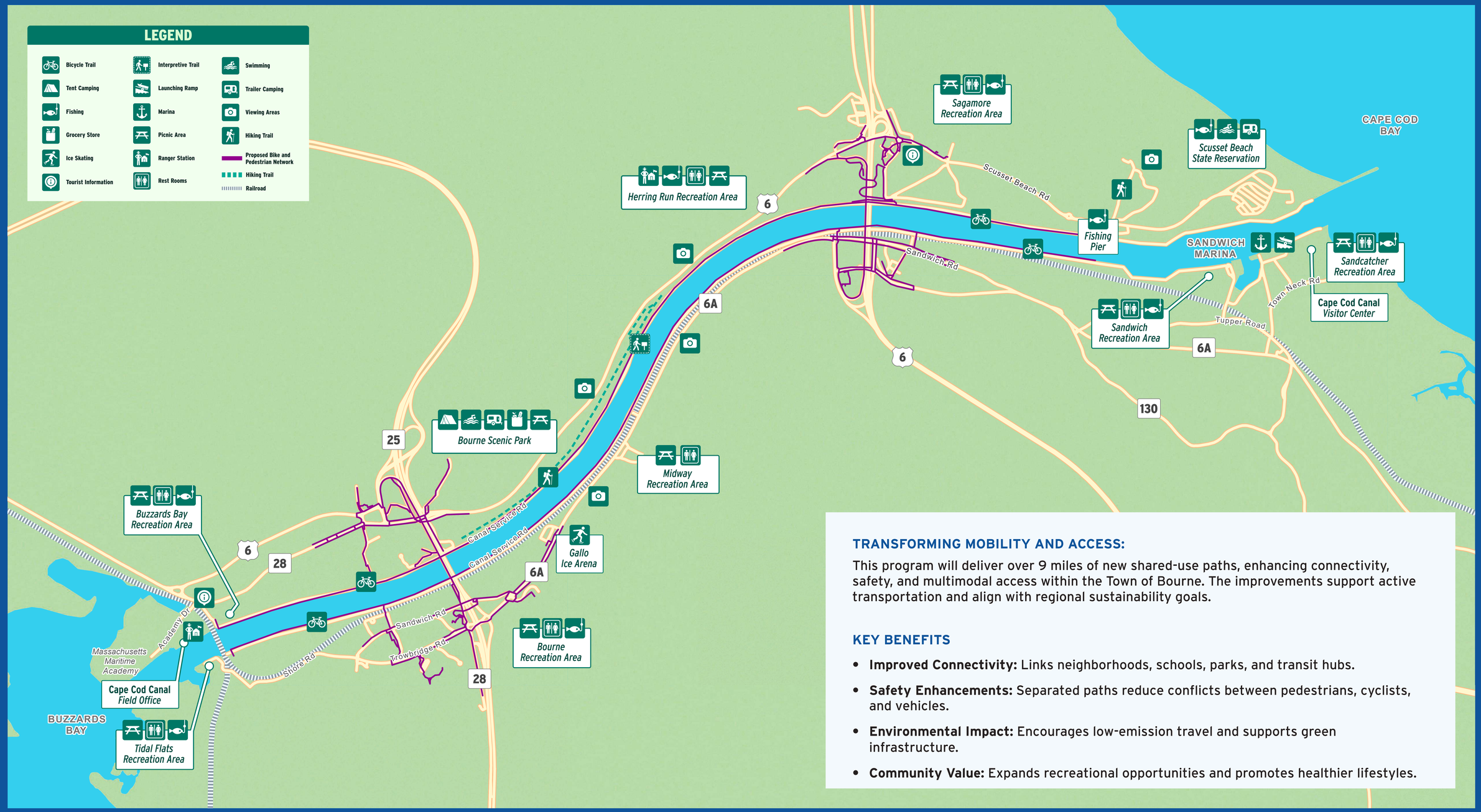
PROPOSED PEDESTRIAN AMENITIES

Simulated view of the new separated facilities over the canal

CAPE COD BRIDGES PROGRAM

PEDESTRIAN AND BICYCLE FACILITIES

The document looks at how the No Build and Build Alternatives could affect pedestrian and bicycle safety, accessibility, and connectivity.



TRANSFORMING MOBILITY AND ACCESS:

This program will deliver over 9 miles of new shared-use paths, enhancing connectivity, safety, and multimodal access within the Town of Bourne. The improvements support active transportation and align with regional sustainability goals.

KEY BENEFITS

- **Improved Connectivity:** Links neighborhoods, schools, parks, and transit hubs.
- **Safety Enhancements:** Separated paths reduce conflicts between pedestrians, cyclists, and vehicles.
- **Environmental Impact:** Encourages low-emission travel and supports green infrastructure.
- **Community Value:** Expands recreational opportunities and promotes healthier lifestyles.

CAPE COD BRIDGES PROGRAM

PEDESTRIAN AND BICYCLE FACILITIES

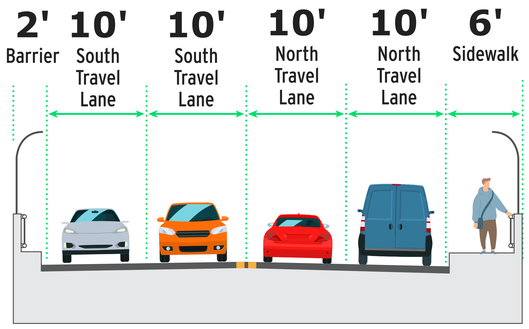
BUILD ALTERNATIVE PROGRAM IMPACTS/ PROGRAM EFFECTS

- Connections would be improved for safer pedestrian and bicycle travel.
- The replacement Sagamore and Bourne Bridges would have new shared-use pedestrian and bicycle paths that are separated from traffic by a barrier.
- These paths would be:
  - » *14 feet wide on sections of the bridges crossing Cape Cod Canal (main arch spans)*
  - » *20 feet wide on sections of the bridges leading up to the main arch spans*
  - » *10-12 feet wide adjacent to roadways that connect to the bridges*
- During construction, the Canal Service Roads would need temporary closures within the work zone.

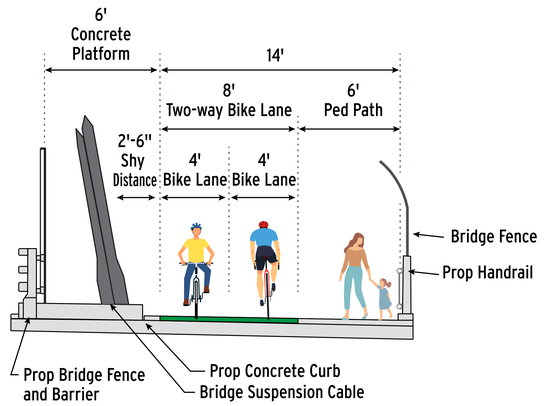
MITIGATION:

Managing Construction Impacts: Signs warning of Canal Service Road closures and the distance to the closure will be placed at all official trailheads. Detour routes will be in place to direct users around closed sections of the Canal Service Roads.

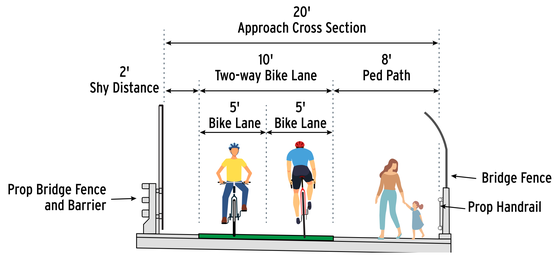
Current pedestrian infrastructure at the Sagamore and Bourne crossings



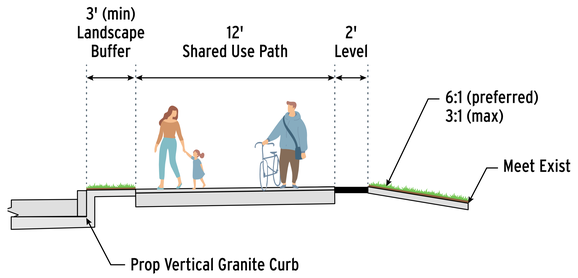
Proposed separated pedestrian and bicycle facility over the canal at the Sagamore and Bourne crossings



Proposed separated pedestrian and bicycle facility at the Sagamore Bridge and Bourne Bridge approaches

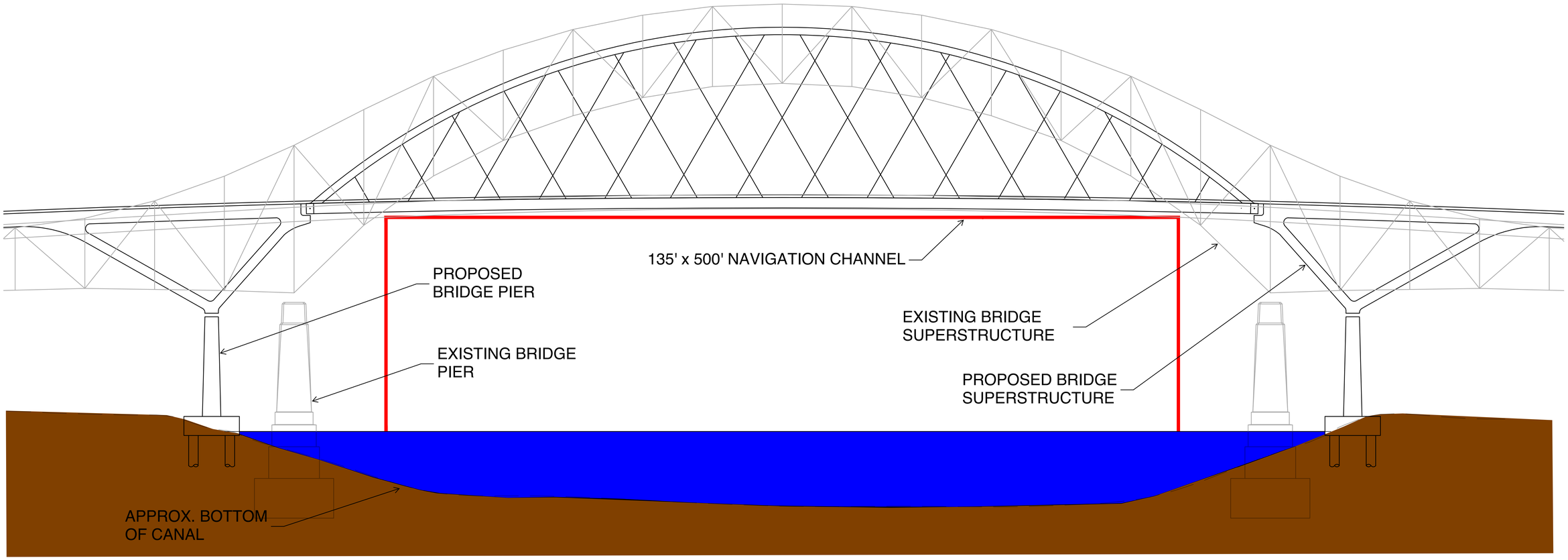


Proposed off-bridge shared-use path facility



MARITIME TRANSPORTATION, TRAFFIC AND SAFETY

Vessel Impact Risk Mitigation of the Build Alternative



CAPE COD BRIDGES PROGRAM

AIR QUALITY AND GREENHOUSE GAS EMISSIONS

The document looks at how the No Build and Build Alternatives could affect local and regional quality over the long term. It also looks at how the Build Alternative could affect air quality in nearby areas during construction.

BUILD ALTERNATIVE PROGRAM IMPACTS/ PROGRAM EFFECTS

- Not expected to cause carbon monoxide levels in the Local Study Area to exceed air quality standards because of improved traffic flow, reduced delays, and ongoing improvements in vehicle emission control technology.
- Daily emissions of volatile organic compounds, carbon monoxide, nitrogen oxides, particulate matter, and sulfur dioxide are expected to decrease in the Regional Study Area with fewer vehicle miles traveled and higher travel speeds compared to the 2050 No Build Alternative.
- Construction activities like running heavy equipment, disturbing soil, and removing existing bridges can temporarily increase air pollutant emissions, which may affect nearby communities.

Projected Annual Greenhouse Gas Emissions (tons per year)
(Mesoscale [Regional] Air Quality Study Area)

ROUTE	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE	CHANGE *(No Build to Build)*
Vehicle Miles Traveled millions of miles per year	1,268.7	1,246.9	**- 1.8**
Methane	12.49	10.81	**-1.68**
Nitrogen Oxide	7.52	7.17	**- .35**
Atmospheric Carbon Dioxide	307,957	293,536	**-1**
Carbon Dioxide Equivalent	310,383	295,817	**-14,566**
Upstream Indirect Emissions	112,356	108,261	**-4 095**
Construction and Maintenance	1,651	1,651	
Total Carbon Dioxide Equivalent Emissions	**9**	**405 9**	**-18,661**

MITIGATION MEASURES:

Construction Impacts: Methods to reduce emissions and protect nearby communities will include using cleaner diesel fuels in construction equipment, avoiding construction equipment and vehicle idling, covering trucks carrying loose materials and wetting of exposed soils and construction areas, as needed. A plan will be in place to make sure that any work involving lead paint is done safely and responsibly.

SAGAMORE NORTH QUADRANT

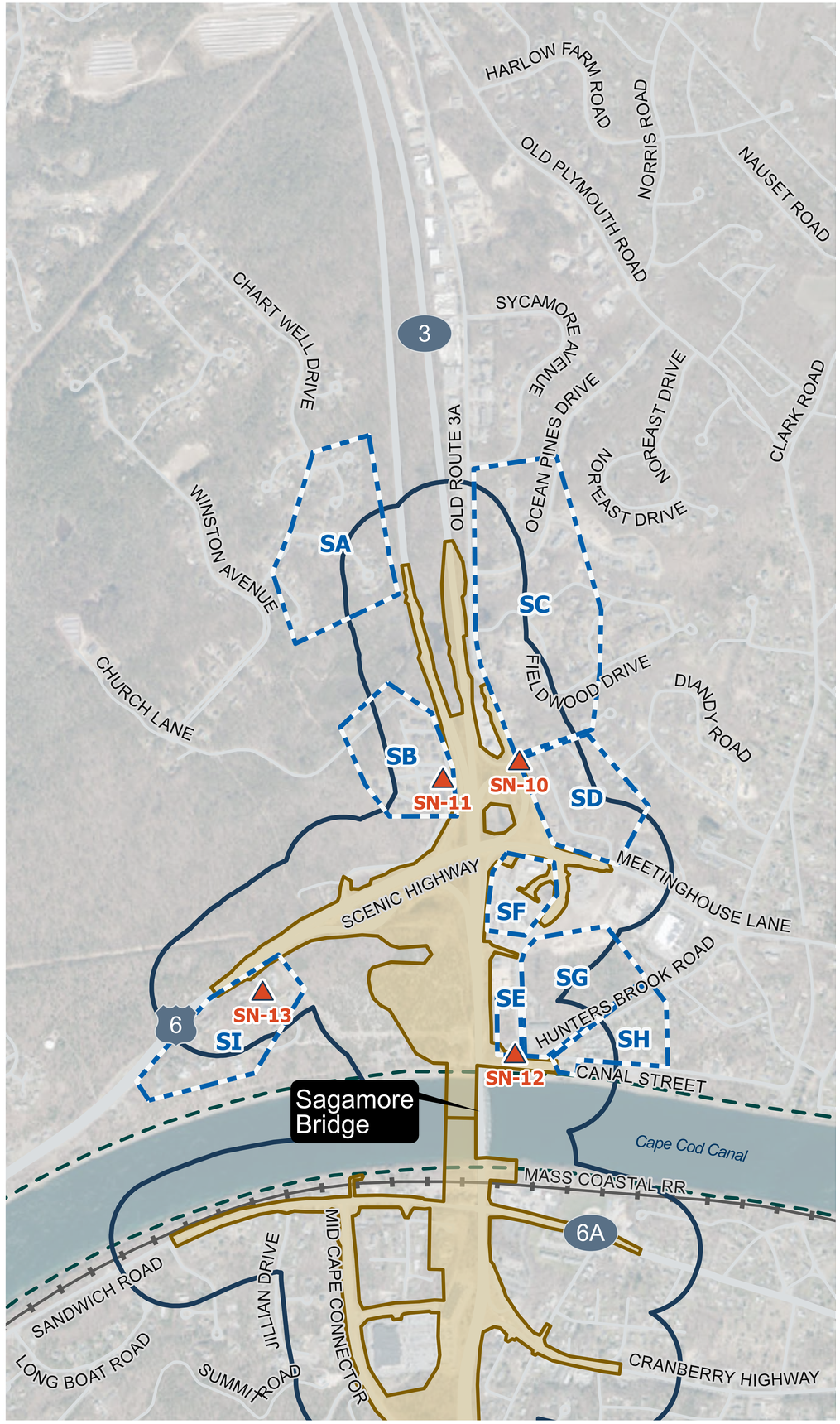
2019 Existing: Loudest Traffic Hour Noise Levels

COMMON NOISE ENVIRONMENT	ADJACENT ROADWAYS	LOUDEST TRAFFIC HOUR NOISE LEVELS *(Leq)*	2050 NO BUILD ALTERNATIVE *(Leq)*	2050 BUILD ALTERNATIVE *(Leq)*
SA	State Route 3 Southbound	44-60	45-61	46-61
SB	State Route 3 Southbound	51-65	52-67	52-66
SC	State Route 3 Northbound	49-67	51-69	51-68
SD	State Route 3 Northbound	46-68	47-69	48-66
SE	U.S. Route 6 Northbound	60-61	61-62	62-62
SF	U.S. Route 6 Northbound	61-63	61-65	58-62
SG	U.S. Route 6 Northbound and Canal Street	55-60	56-61	57-61
SH	U.S. Route 6 Northbound and Canal Street	49-60	49-61	50-62
SI	Scenic Highway	52-65	53-65	54-66

CAPE COD BRIDGES PROGRAM

NOISE

SAGAMORE NORTH QUADRANT



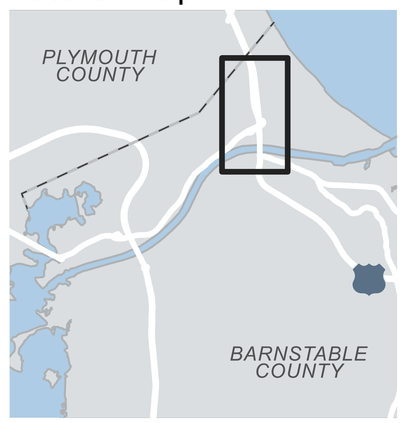
Highway Shields

- State Route
- US Route

Legend

- Noise Measurement Location
- Common Noise Environment
- Noise Study Area
- Operations Footprint
- Local or Regional Roadway
- Rail
- Canal Service Road

Locator Map



0 500 1,000 Feet

SAGAMORE SOUTH QUADRANT

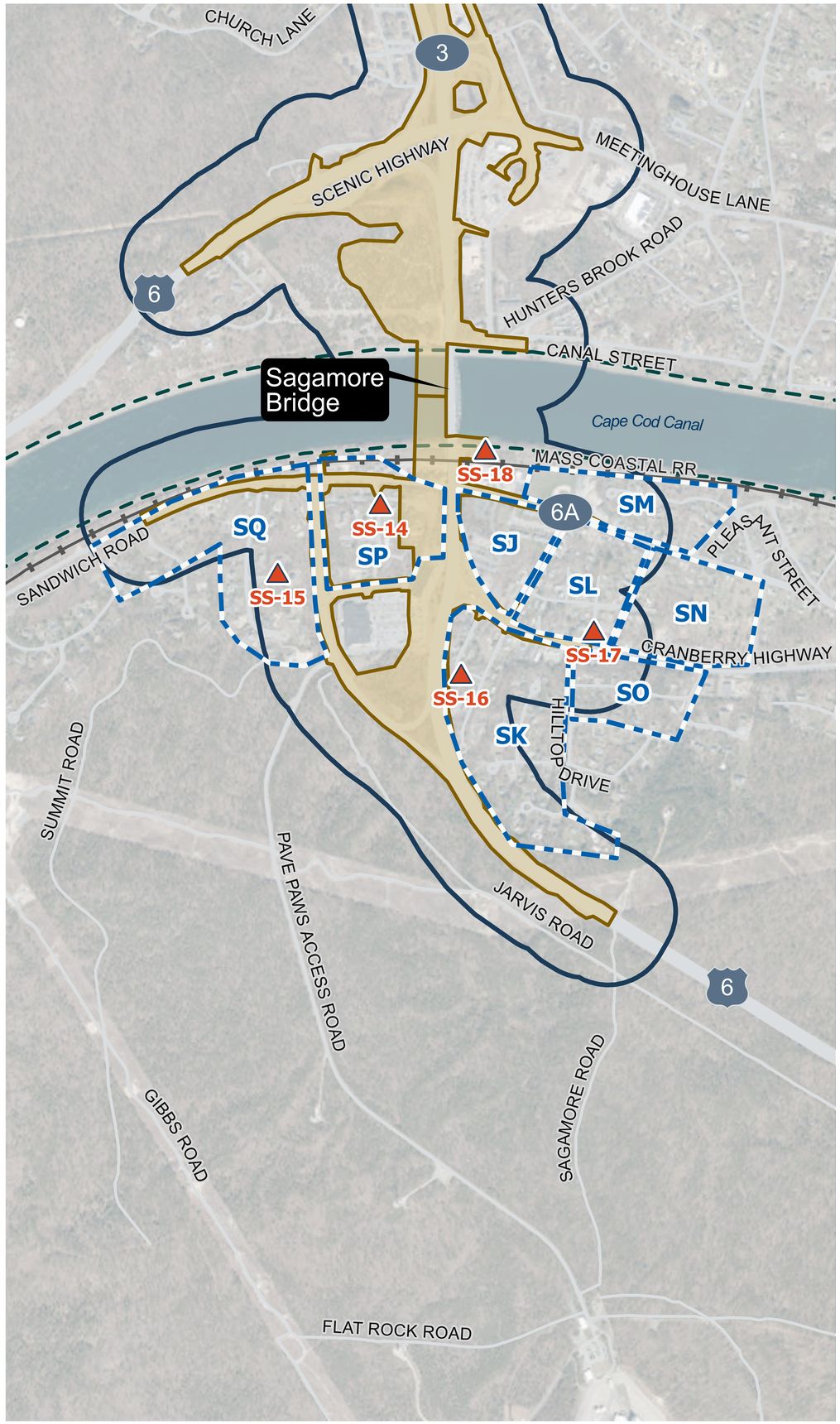
2019 Existing: Loudest Traffic Hour Noise Levels

COMMON NOISE ENVIRONMENT	ADJACENT ROADWAYS	LOUDEST TRAFFIC HOUR NOISE LEVELS *(Leq)*	2050 NO BUILD ALTERNATIVE *(Leq)*	2050 BUILD ALTERNATIVE *(Leq)*
SJ	Sandwich Road	54-68	55-69	56-67
SK	U.S. Route 6 Northbound and Sandwich Road	53-71	54-72	56-69
SL	Sandwich Road and Cranberry Highway	51-67	52-68	54-67
SM	Sandwich Road	48-67	50-69	50-66
SN	Sandwich Road and Cranberry Highway	49-65	51-67	52-66
SO	Cranberry Highway	50-64	51-65	53-69
SP	U.S. Route 6 Southbound, Mid-Cape Connector, and Sandwich Road	53-61	54-63	61-64
SQ	Mid-Cape Connector and Sandwich Road	49-69	51-70	52-71

CAPE COD BRIDGES PROGRAM

NOISE

SAGAMORE SOUTH QUADRANT



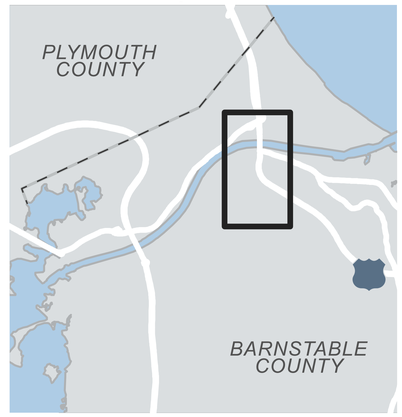
Highway Shields

- State Route
- US Route

Legend

- Noise Measurement Location
- Common Noise Environment
- Noise Study Area
- Operations Footprint
- Local or Regional Roadway
- Rail
- Canal Service Road

Locator Map



0 500 1,000 Feet

BOURNE NORTH QUADRANT

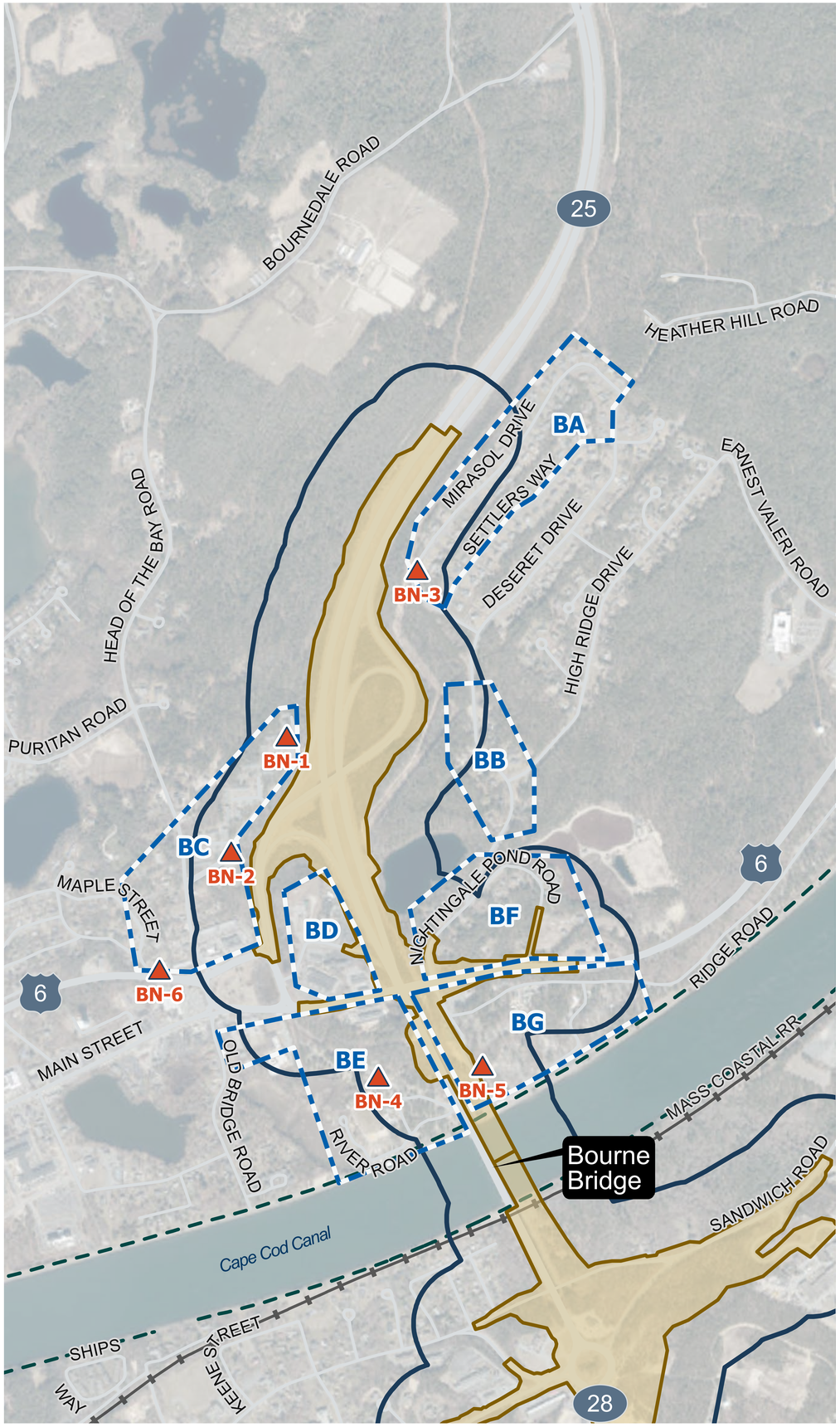
2019 Existing: Loudest Traffic Hour Noise Levels

COMMON NOISE ENVIRONMENT	ADJACENT ROADWAYS	LOUDEST TRAFFIC HOUR NOISE LEVELS *(Leq)*	2050 NO BUILD ALTERNATIVE *(Leq)*	2050 BUILD ALTERNATIVE *(Leq)*
BA	State Route 25 Northbound	45-63	46-63	46-64
BB	State Route 25 Northbound and northbound/southbound on-ramps	52-55	53-56	52-56
BC	State Route 25 Southbound	48-65	49-65	48-66
BD	State Route 25 Southbound	60-65	61-66	59-64
BE	State Route 28 Southbound	53-63	54-65	55-64
BF	State Route 28 Northbound and U.S. Route 6/Main Street	53-65	54-66	55-67
BG	State Route 28 Northbound and U.S. Route 6/Main Street	53-62	54-63	57-64

CAPE COD BRIDGES PROGRAM

NOISE

BOURNE NORTH QUADRANT



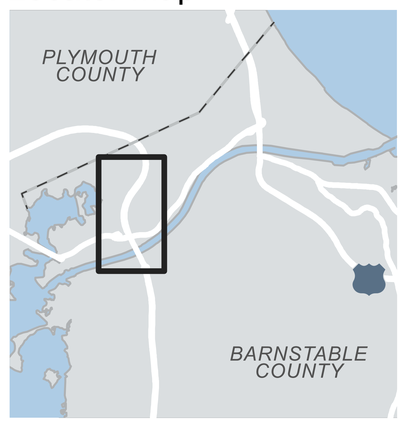
Highway Shields

- State Route
- US Route

Legend

- Noise Measurement Location
- Common Noise Environment
- Noise Study Area
- Operations Footprint
- Local or Regional Roadway
- Rail
- Canal Service Road

Locator Map



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NOISE

BOURNE SOUTH QUADRANT

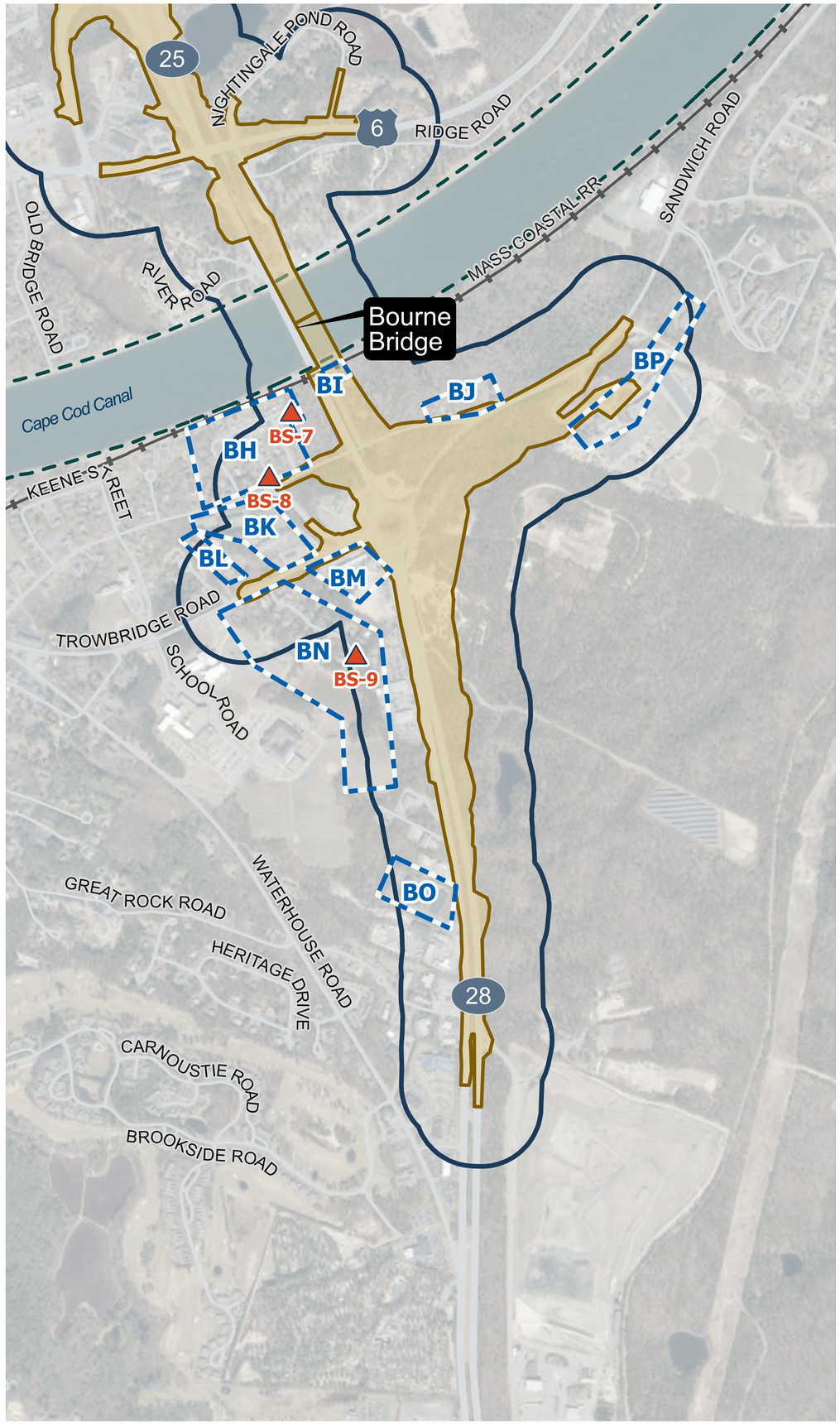
2019 Existing: Loudest Traffic Hour Noise Levels

COMMON NOISE ENVIRONMENT	ADJACENT ROADWAYS	LOUDEST TRAFFIC HOUR NOISE LEVELS *(Leq)*	2050 NO BUILD ALTERNATIVE *(Leq)*	2050 BUILD ALTERNATIVE *(Leq)*
BH	State Route 28 Southbound	52-60	53-60	53-60
BI	State Route 28 Northbound	57-58	59-60	TBD; pending park location
BJ	Sandwich Road	59-64	60-65	57-59
BK	Veterans Way, Sandwich Road, and Trowbridge Road	42-64	42-63	41-63
BL	Sandwich Road and Trowbridge Road	51-53	52-55	52-56
BM	State Route 28 Southbound and Trowbridge Road	52-64	53-65	53-61
BN	State Route 28 Southbound and Trowbridge Road	46-60	47-61	47-60
BO	State Route 28 Southbound	54-67	54-67	56-67
BP	Sandwich Road	28-55	29-55	30-58

CAPE COD BRIDGES PROGRAM

NOISE

BOURNE SOUTH QUADRANT



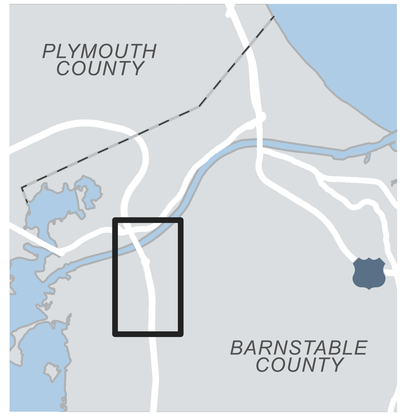
Highway Shields

- State Route
- US Route

Legend

- Noise Measurement Location
- Common Noise Environment
- Noise Study Area
- Operations Footprint
- Local or Regional Roadway
- Rail
- Canal Service Road

Locator Map



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CAPE COD BRIDGES PROGRAM

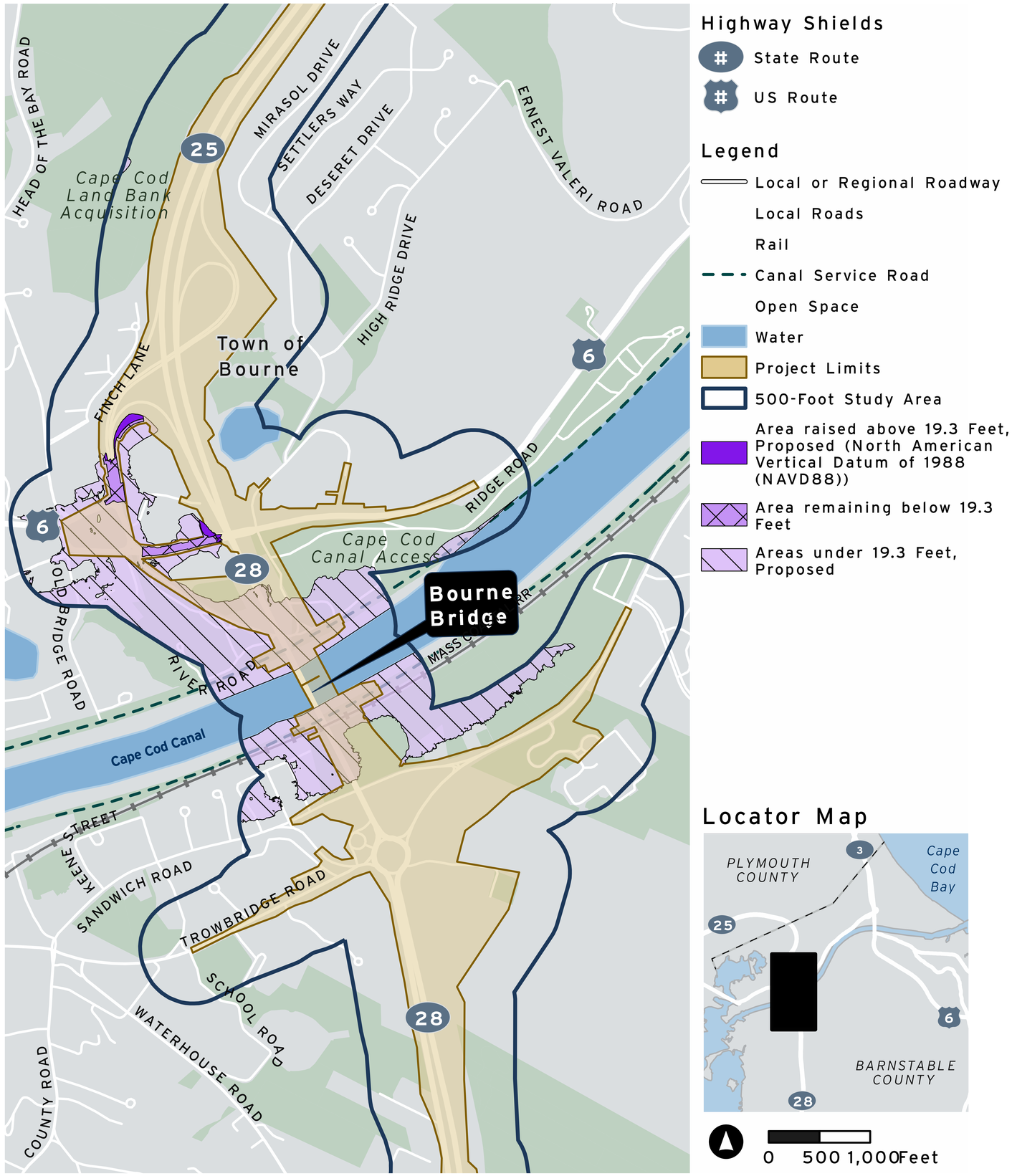
CLIMATE CHANGE ADAPTATION AND RESILIENCY

The document looks at how the No Build and Build Alternatives could face risks from extreme weather events and changing environmental conditions for the following hazards:

- **Sea Level Rise and Coastal Storms**
- **Intense Rainfall**
- **Extreme Heat**
- **Winter Weather**
- **Strong winds**

FIGURE: Bourne Bridge Study Area, Build Alternative: Coastal Surge Flood Extents – Category 2 Hurricane + 3 feet Freeboard

The figure depicts the coastal storm surge extents at the Bourne Bridge Study Area for a Category 2 Hurricane plus 3 feet Freeboard (Elevation 19.3 feet NAVD88) for the Build Alternative, including areas that are elevated above this elevation and thus will not be inundated, and areas under this elevation that would be inundated. The figure distinguishes areas that are raised but remain below this elevation.



Category 2 Hurricane + 3 feet Freeboard
This scenario was selected after reviewing sea level and flood data from historic events, FEMA, USACE, NOAA, and ResilientMass. The freeboard value accounts for uncertainty in sea levels and potential waves.

CAPE COD BRIDGES PROGRAM

CLIMATE CHANGE ADAPTATION AND RESILIENCY

Current and future climate risks were assessed for the Program affected environments, including the Cape Cod Canal, Bridges, Stormwater Control Measures, Land Cover, Transportation, and Multi-Modal Mobility.

BUILD ALTERNATIVE PROGRAM IMPACTS	PROGRAM EFFECTS AND MITIGATION MEASURES
Reduction in navigational clearance through the Cape Cod Canal due to sea level rise (SLR)	The new Sagamore and Bourne Bridges are designed to establish a vertical clearance of approximately 138 feet compared to existing high tide. This will allow for fluctuations of about 3 feet of relative sea levels, while keeping the existing 135-foot clearance for ships to pass through.
Increased scour impacts due to SLR/storm surge (SS)	The new Sagamore and Bourne Bridges' foundations are designed to remain stable during the maximum scour design and check events for existing and increased sea levels.
Increased coastal inundation due to SLR/SS	The new Bourne Bridge design directly connects State Route 25 and U.S. Route 6 (Scenic Highway), allowing drivers to bypass Belmont Circle. This will reduce travel in existing floodplain and areas of future coastal inundation and reduce the impact of flooding on evacuation routes.
Localized flooding due to extreme precipitation	The program's stormwater management systems are designed to accommodate the 2070, 100-year, 24-hour rainfall event recommended by the Resilient Massachusetts Action Team (RMAT) Tool.
Increased heat impacts due to increased impervious surface area and tree removal	A landscaping plan will be developed that seeks to prioritize green infrastructure for the stormwater management systems (mitigating both extreme precipitation and extreme heat impacts), increases plantings, and considers shading features for pedestrian areas and lighter-colored surface materials in areas where glare will not impact road user safety.
Bridge damage due to extreme wind events	The current Bridges would be replaced with network tied-arch bridges, which have better resistance against vibrations caused by strong winds and support systems designed to prevent collapse if one part fails.

MITIGATION MEASURES:

A Landscaping Plan will be developed to address possible increases in surface temperatures from adding paved areas and removing trees.

CAPE COD BRIDGES PROGRAM

LAND USE, ZONING, AND COMMUNITY COHESION

The document looks at how the No Build and Build Alternatives could affect land use oning policies and community cohesion.

BUILD ALTERNATIVE PROGRAM IMPACTS/ PROGRAM EFFECTS

- About 306 acres of land would be changed due to tree clearing and roadway improvements.
- Reduced travel delays and better connections for pedestrians and bicyclists would improve community cohesion.
- Supports local and regional plans for improving public access to parks and other recreation areas.

MITIGATION:

Managing Tree Clearing Impacts: A landscaping plan will be in place to plant new trees and vegetation on more than 200 acres of land within the Project Limits.

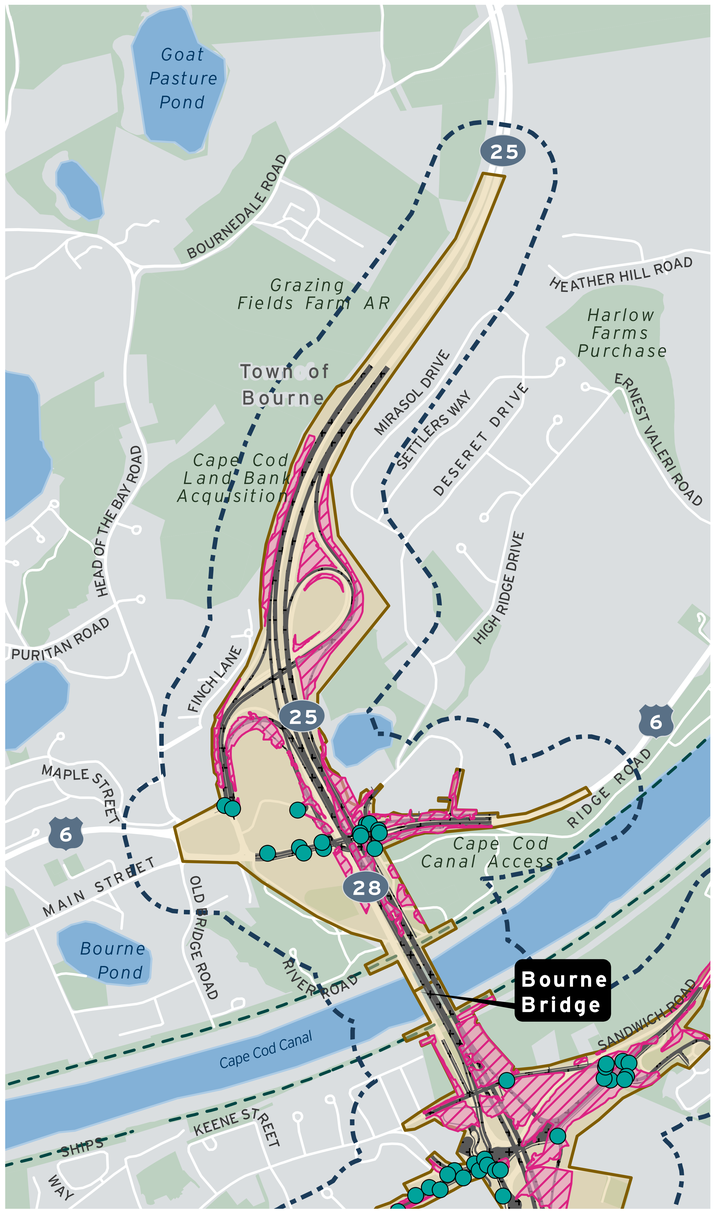
Managing Stormwater Impacts: Stormwater control measures will be in place to manage and treat runoff from new paved areas.

CAPE COD BRIDGES PROGRAM

LAND USE, ZONING, AND COMMUNITY COHESION

The document looks at how the No Build and Build Alternatives could affect land use, zoning policies, and community cohesion.

BUILD ALTERNATIVE: PROPOSED IMPERVIOUS SURFACES AND TREE CLEARING



BOURNE NORTH STUDY AREA

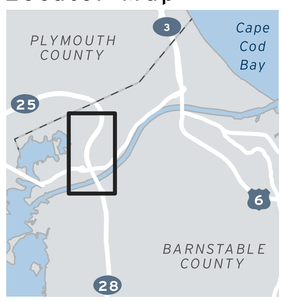
Highway Shields

- # State Route
- # US Route

Legend

- Local or Regional Roadway
- Stream or River
- Canal Service Road
- Open Space
- Water
- Project Limits
- 500-Foot Study Area
- Proposed Crosswalks
- Potential Tree Clearing
- Proposed Impervious Surface

Locator Map



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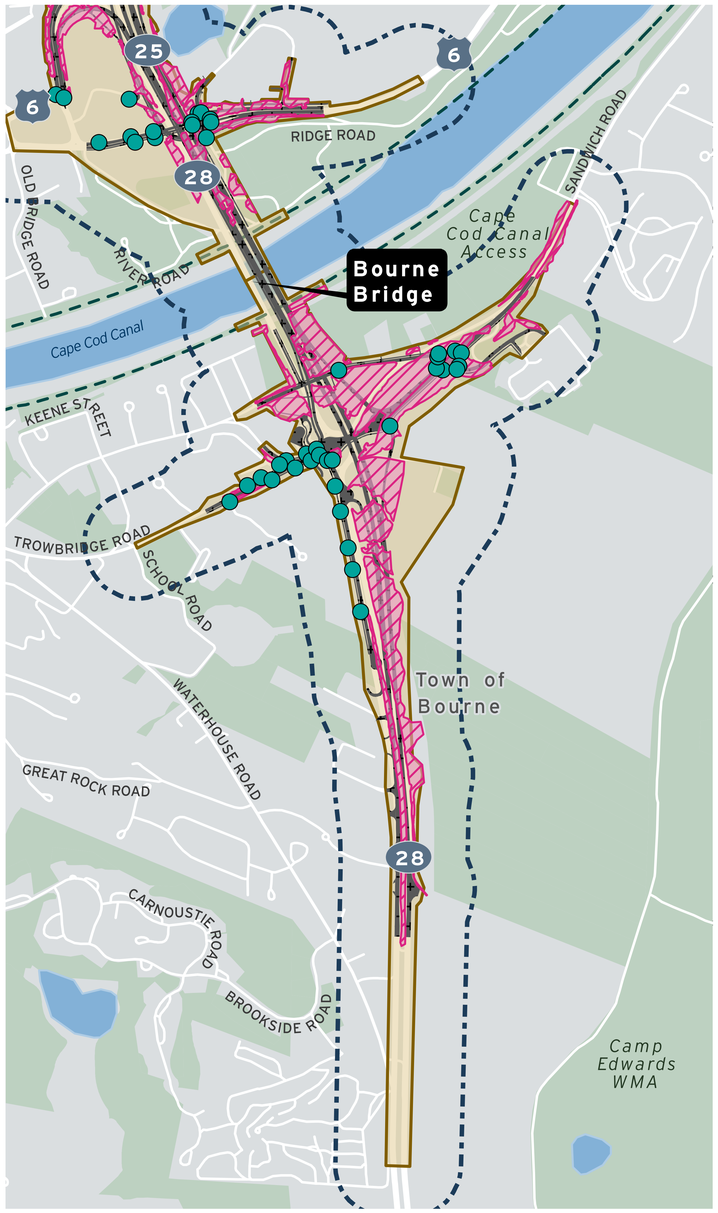


BOURNE SOUTH STUDY AREA

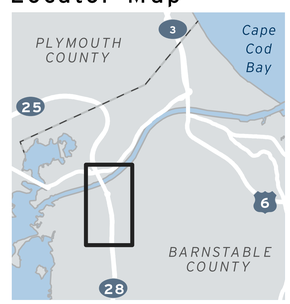
Highway Shields

- # State Route
- # US Route

Legend

- Local or Regional Roadway
- Stream or River
- Canal Service Road
- Open Space
- Water
- Project Limits
- 500-Foot Study Area
- Proposed Crosswalks
- Potential Tree Clearing
- Proposed Impervious Surface

Locator Map



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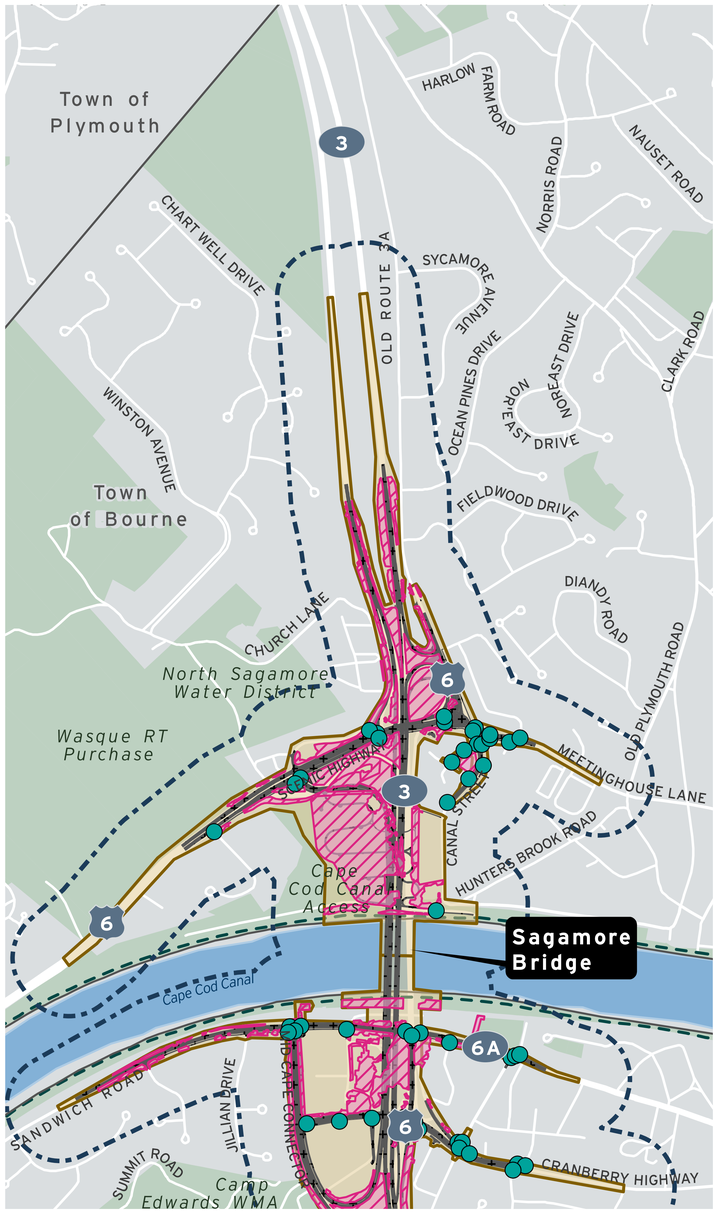
CAPE COD BRIDGES PROGRAM

LAND USE, ZONING, AND COMMUNITY COHESION

The document looks at how the No Build and Build Alternatives could affect land use, zoning policies, and community cohesion.

BUILD ALTERNATIVE: PROPOSED IMPERVIOUS SURFACES AND TREE CLEARING



SAGAMORE NORTH STUDY AREA

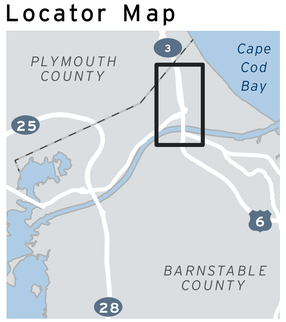
Highway Shields

- # State Route
- # US Route

Legend

- Local or Regional Roadway
- Stream or River
- Canal Service Road
- Open Space
- Municipality Boundary
- Water
- Project Limits
- 500-Foot Study Area
- Proposed Crosswalks
- Potential Tree Clearing
- Proposed Impervious Surface

Locator Map



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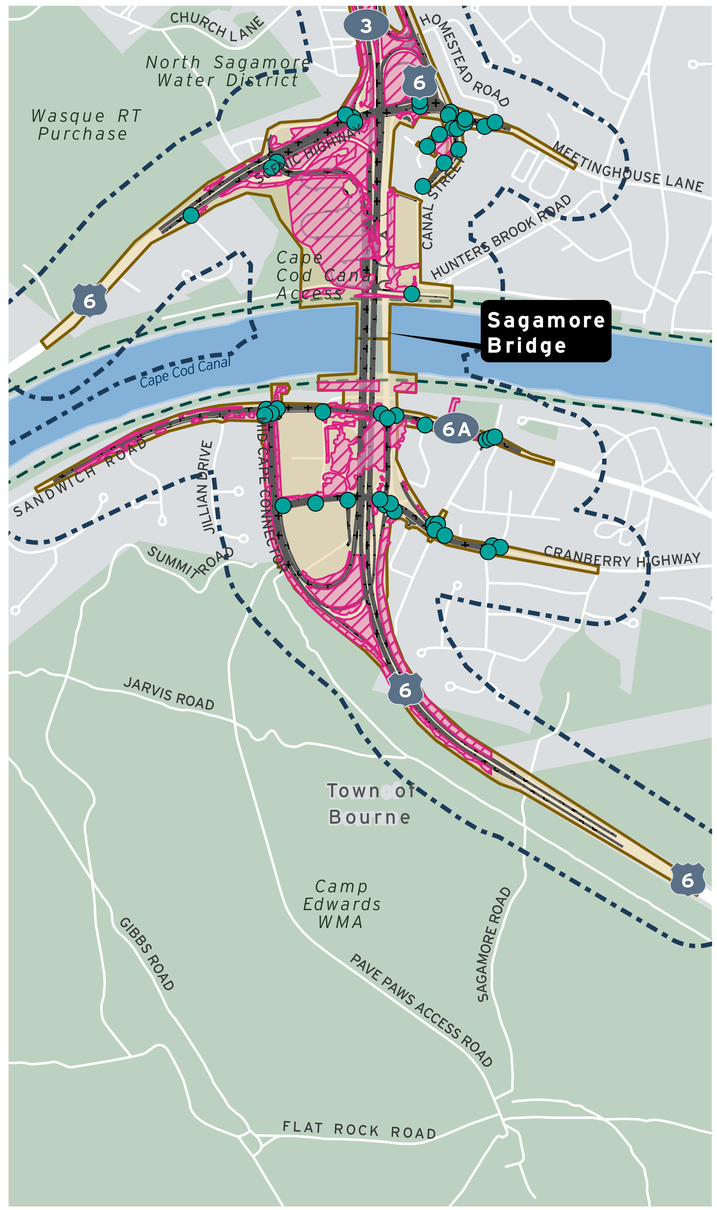


SAGAMORE SOUTH STUDY AREA

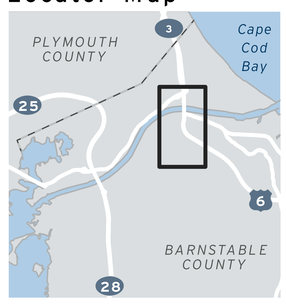
Highway Shields

- # State Route
- # US Route

Legend

- Local or Regional Roadway
- Stream or River
- Canal Service Road
- Open Space
- Water
- Project Limits
- 500-Foot Study Area
- Proposed Crosswalks
- Potential Tree Clearing
- Proposed Impervious Surface

Locator Map



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CAPE COD BRIDGES PROGRAM

PROPERTY ACQUISITION, DISPLACEMENT, AND RELOCATION

The document looks at how the No Build and Build Alternatives could affect nearby properties in terms of acquisitions, easements, and displacements.

BUILD ALTERNATIVE PROGRAM IMPACTS/PROGRAM EFFECTS

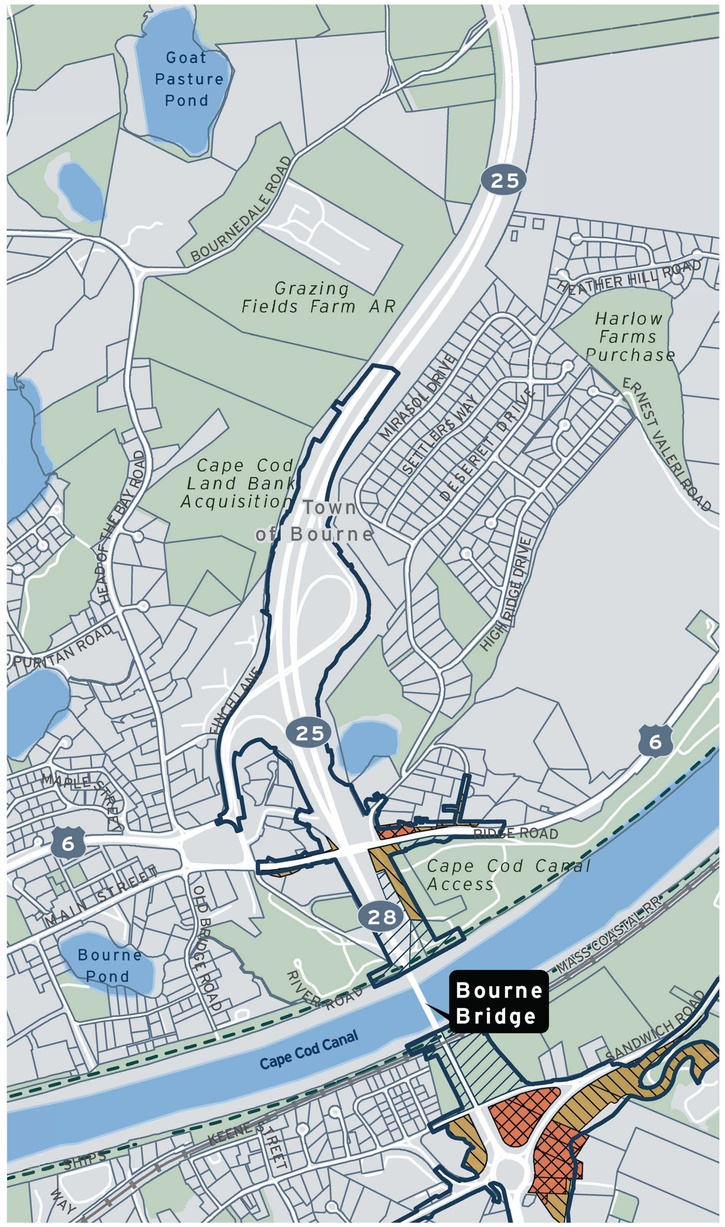
- 28 full acquisitions
  - » *Sagamore: 13 occupied residential and 7 vacant areas*
  - » *Bourne: 1 occupied residential, 1 occupied commercial, and 6 vacant areas*
- 34 partial acquisitions
  - » *Sagamore: 11 occupied residential, 2 occupied commercial, 1 post office, and 3 vacant areas*
  - » *Bourne: 6 occupied residential, 2 occupied commercial, 1 state police building, 1 school, 1 recreation, 1 animal hospital, and 5 vacant areas*
- 17 displacements
  - » *Sagamore: 13 occupied residential, 1 multi-tenant occupied commercial*
  - » *Bourne: 1 occupied residential, 1 occupied commercial*
- 114 properties only impacted by easements

The Massachusetts Department of Transportation will follow the Uniform and Relocation Assistance and Real Property Acquisitions Policies Act of 1970 and Chapter 79 of the Massachusetts General Laws. These make sure displaced individuals and businesses receive fair pay for their property and help with moving, if needed

CAPE COD BRIDGES PROGRAM

PROPERTY ACQUISITION, DISPLACEMENT, AND RELOCATION

POTENTIAL PROPERTY ACQUISITIONS - BOURNE



BOURNE NORTH STUDY AREA

Highway Shields

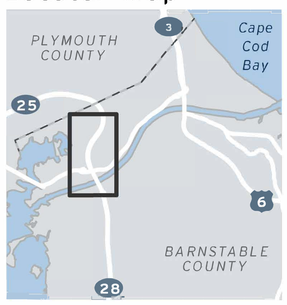
- # State Route
- # US Route

Legend

Potential Acquired Parcels

- Full Acquisition
- Partial Acquisition
- Local or Regional Road
- Stream or River
- Rail
- Canal Service Road
- Open Space
- Water

Locator Map



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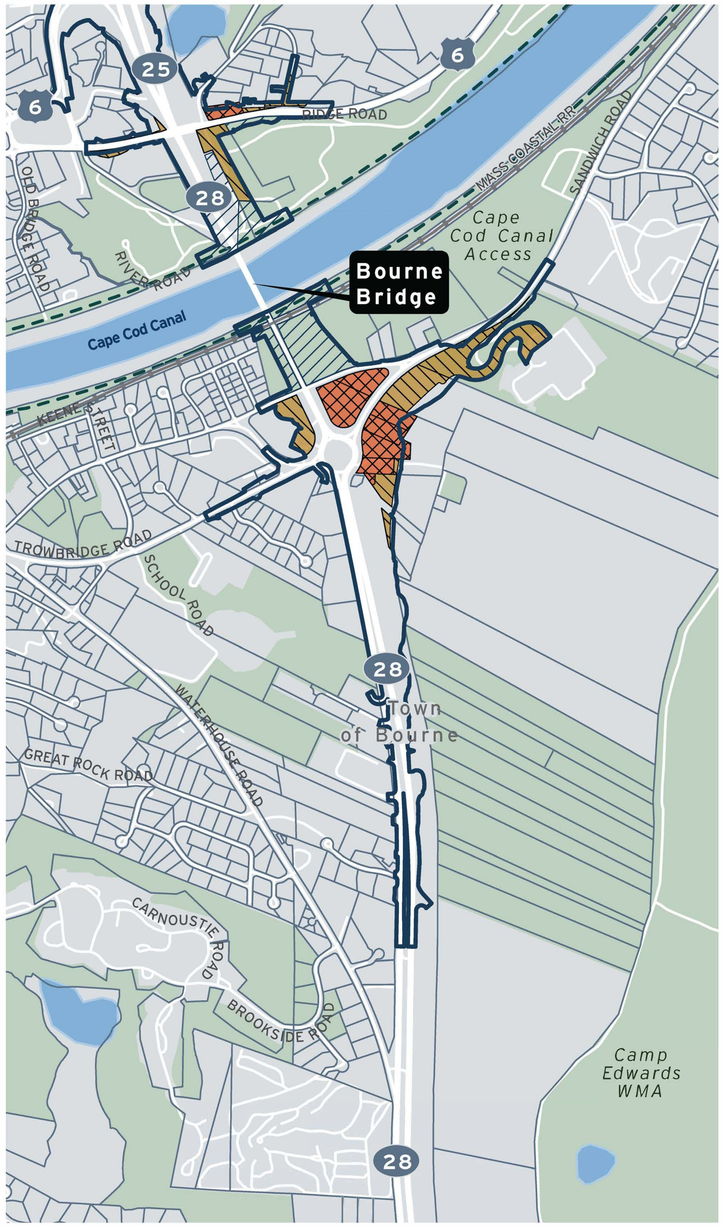


BOURNE SOUTH STUDY AREA

Highway Shields

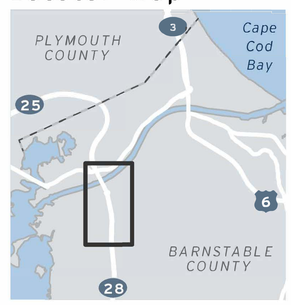
- # State Route
- # US Route

Legend

Potential Acquired Parcels

- Full Acquisition
- Partial Acquisition
- Local or Regional Road
- Stream or River
- Rail
- Canal Service Road
- Open Space
- Water

Locator Map



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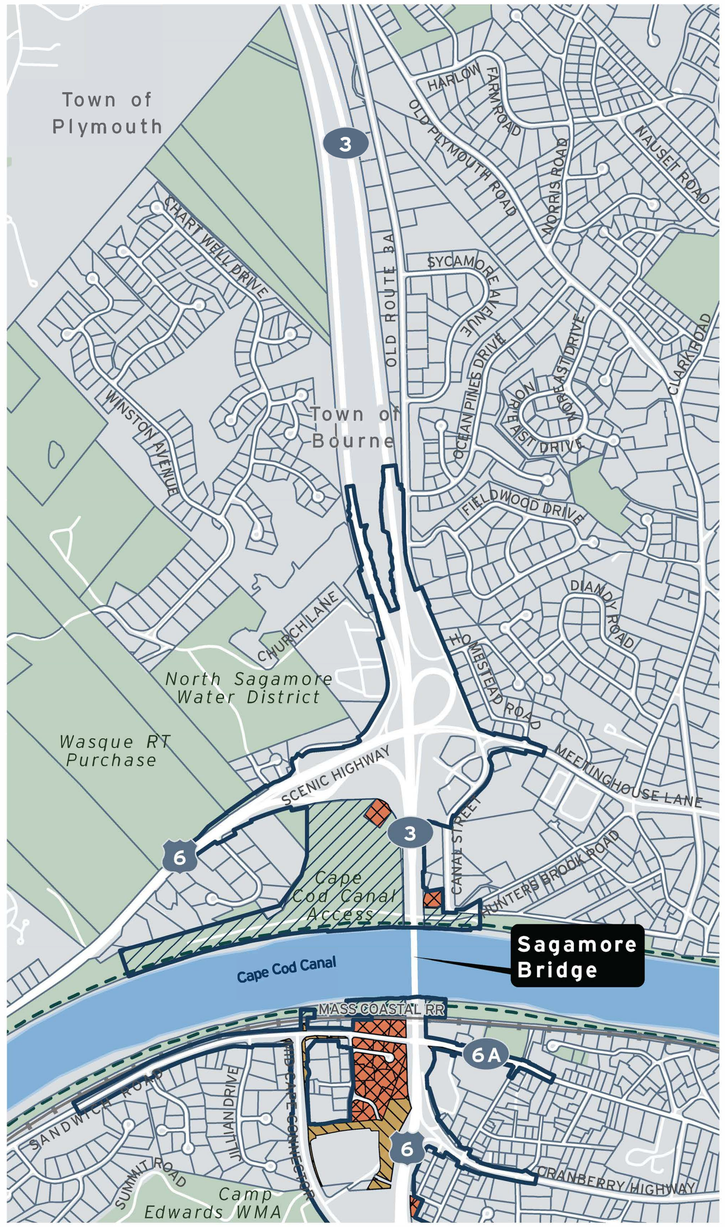
CAPE COD BRIDGES PROGRAM

PROPERTY ACQUISITION, DISPLACEMENT, AND RELOCATION

POTENTIAL PROPERTY ACQUISITIONS - SAGAMORE



SAGAMORE NORTH STUDY AREA

Highway Shields

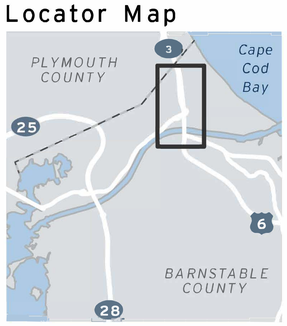
- State Route
- US Route

Legend

Potential Acquired Parcels

- Full Acquisition
- Partial Acquisition
- Local or Regional Road
- Stream or River
- Rail
- Canal Service Road
- Open Space
- Water

Locator Map



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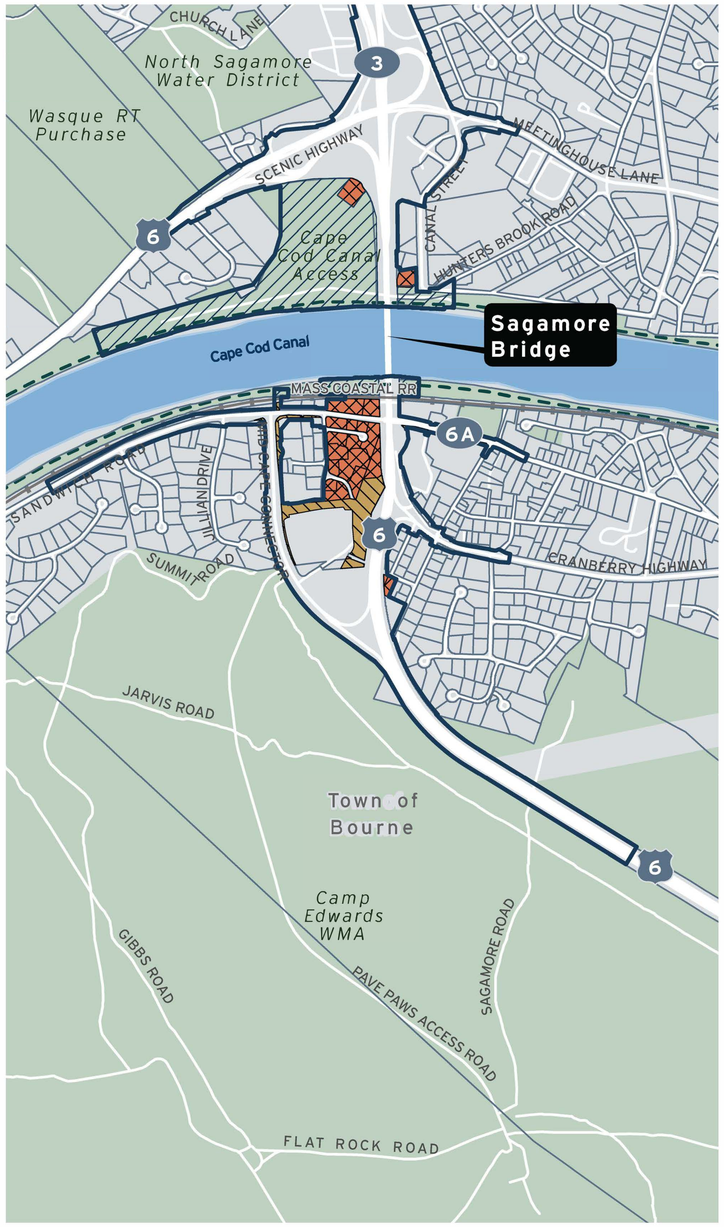


SAGAMORE SOUTH STUDY AREA

Highway Shields

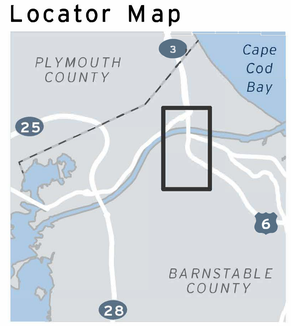
- State Route
- US Route

Legend

Potential Acquired Parcels

- Full Acquisition
- Partial Acquisition
- Local or Regional Road
- Stream or River
- Rail
- Canal Service Road
- Open Space
- Water

Locator Map



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CAPE COD BRIDGES PROGRAM

SOCIOECONOMICS

The document looks at how the No Build and Build Alternatives could affect the social and economic well-being of local and regional communities. The "design year" used to predict how socioeconomic conditions look in the future for the No Build and Build Alternatives was 2050.

BUILD ALTERNATIVE PROGRAM IMPACTS/PROGRAM EFFECTS

- Bridge and roadway improvements would improve access to jobs and businesses.
- Travel time savings would increase worker productivity and lower the cost of transporting goods and services to and from Cape Cod.
- By 2050, annual economic output would increase by $10.4 million for Cape Cod and the Islands and $21.1 million for Massachusetts overall
- By 2050, annual labor income would increase by $2.6 million for Cape Cod and the Island and $6.1 million for Massachusetts overall.
- Construction could bring in about $600 million in tax dollars

MITIGATION:

No mitigation measures are expected due to the Build Alternative's short- and long-term benefits.

Economic and Fiscal Impacts in Massachusetts of Cape Cod Bridges Replacement Conceptual Program Expenditure Estimates

DISTRIBUTION OF IMPACTS	OUTPUT (2024$)	EMPLOYMENT (JOBS)	EARNINGS (2024$)	GROSS DOMESTIC PRODUCT (2024$)
Direct Impacts	$3,242,081,600	16,000	$1,418,259,200	$1,521,945,800
Indirect Impacts	$1,268,506,000	5,154	$437,377,800	$1,521,945,800
Induced Impacts	$1,246,224,400	6,717	$417,744,600	$733,412,400
Total Impacts	$5,756,812,100	27,879	$2,273,381,700	$2,917,736,700

Source: R/ECON Input-Output Model

CAPE COD BRIDGES PROGRAM

INDIRECT AND CUMULATIVE IMPACTS

The document looks at the possible indirect effects of the Build Alternative. These effects include changes that are not directly caused by construction but may happen over time because of the Cape Cod Bridges Program. The document focuses on possible changes in land use, traffic patterns, or environmental conditions beyond the Project Limits.

INDUCED TRAVEL DEMAND

Five different components contribute to induced travel demand, including change in the number of trips, travel routes, length of trips, mode of travel, and time of travel.

NUMBER OF TRIPS

Based on the most recent 2020 census data, population growth on Cape Cod is expected to remain stagnant and, in some areas, is expected decline by the year 2050. Factors limiting visitor growth include availability and cost of seasonal rentals, occupancy limits of major attractions, and parking constraints among others.

Improvements to traffic operations are limited to the bridges and the interchanges directly north and south of the canal. Many visitor trips are long distance in nature, where visitors travel from mainland Massachusetts, New England, and beyond, and involve stays of multiple days. Changes in travel times are expected to only affect a short portion of a trip.

Therefore, it is not anticipated that there would be a significant increase in the number of trips that would otherwise not travel to Cape Cod due to congestion.

TRAVEL ROUTES / LENGTH OF TRIPS

The bridges provide the only vehicular access across Cape Cod Canal; therefore, travel route choices are limited to one bridge or the other, and trip lengths are limited to the extents of Cape Cod and the neighboring islands. For these reasons, travel demand across the canal will not increase as a result of route redistribution or increase in trip length.

MODE OF TRAVEL

Improved traffic operations would improve bus travel times and reliability, which may make public transportation a more attractive mode of travel. With improved bicycle and pedestrian facilities, there are also opportunities to convert shorter vehicular trips to alternative modes. However, impacts due to a change in mode of travel are anticipated to be minimal because vehicular traffic would still make up most trips across the canal.

TIME OF TRAVEL

Currently, a portion of the summer trip demand shifts to off-peak hours due to commuter and seasonal visitor traffic. Following construction, time of travel may return to peak-hour as travel conditions improve. The total number of daily vehicle trips are not anticipated to increase because of the project.

CAPE COD BRIDGES PROGRAM

CULTURAL RESOURCES

The document looks at how the No Build and Build Alternatives could affect historic properties, such as buildings, structures, historic districts, and archaeological sites that are either listed in or eligible for listing in the National Register of Historic Places.

BUILD ALTERNATIVE PROGRAM IMPACTS/PROGRAM EFFECTS

- Removing the existing Sagamore and Bourne Bridges would have an unavoidable adverse effect on these structures, which are eligible for listing on the National Register of Historic Places. Both bridges are part of the Cape Cod Canal Historic District, which is eligible for listing on the National Register of Historic Places.

MITIGATION MEASURES:

Managing Impacts to the Sagamore and Bourne Bridges: The Federal Highway Administration and the Massachusetts Department of Transportation are working with the Massachusetts Historic Preservation Officer and other parties to prepare a Section 106 Programmatic Agreement. This agreement will list the steps to honor and protect the history of the Sagamore and Bourne Bridges including:

» *Documenting the history of both bridges through photos, written records and public archives.*

» *Installing interpretive signage on the new bridges to share their historical importance.*

» *Preserving key design elements or materials from the original bridges.*

Bridge Design: The replacement Sagamore and Bourne Bridges are being designed with rounded arches to reflect the look and feel of the current historic bridges. By using a similar arched design, the new bridges are expected to blend in visually with the surrounding area. This approach would help avoid harmful effects on the Cape Cod Canal Historic District and any historic properties within the Visual Area of Potential Effect.

CAPE COD BRIDGES PROGRAM

VISUAL RESOURCES

Existing View of Sagamore Bridge from Cape Cod Canal Service Road

Simulated View of Sagamore Bridge from Cape Cod Canal Service Road

CAPE COD BRIDGES PROGRAM

VISUAL RESOURCES

Sagamore North: Simulated view of the new interchange looking south from Church Lane

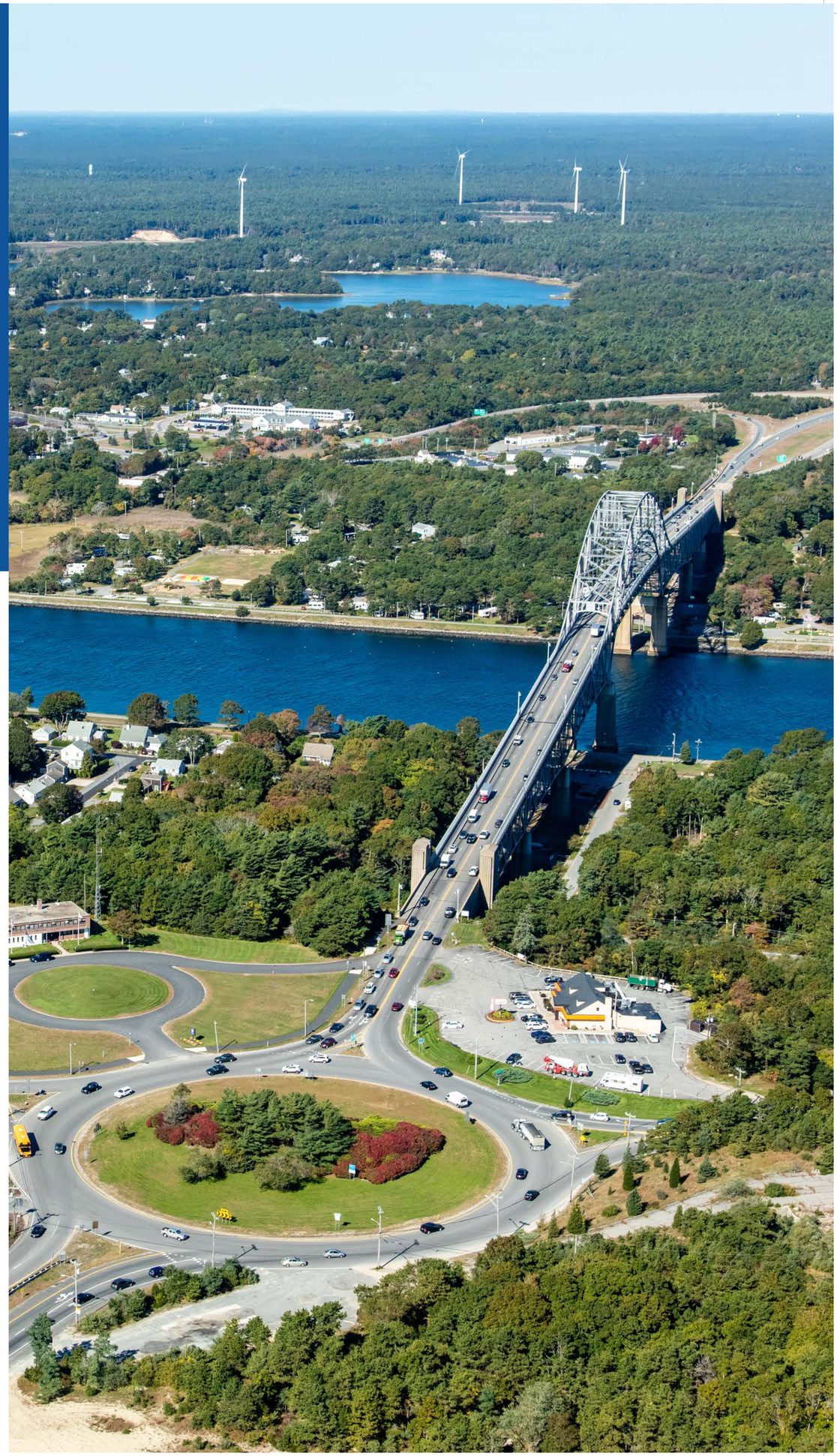
Bourne South: Simulated View of the New shared Use Path along Lower Sandwich Road looking west

Sagamore South: Simulated View of Sandwich Road Connector at Sandwich Road looking south

CAPE COD BRIDGES PROGRAM

PUBLIC PARKS, RECREATIONAL FACILITIES, AND OPEN SPACE

The document looks at how the No Build and Build Alternatives could affect public parks, recreation areas, and open spaces, which include undeveloped land that is preserved to provide public recreation activities or to protect natural resources.



BUILD ALTERNATIVE PROGRAM IMPACTS/PROGRAM EFFECTS

There would be acquisitions and easements of publicly owned parkland and recreation areas at

- Bourne Scenic Park
- Sagamore Recreation Area
- Bourne Recreation Area
- Keith Field Recreation Area (easement only)

MITIGATION MEASURES:

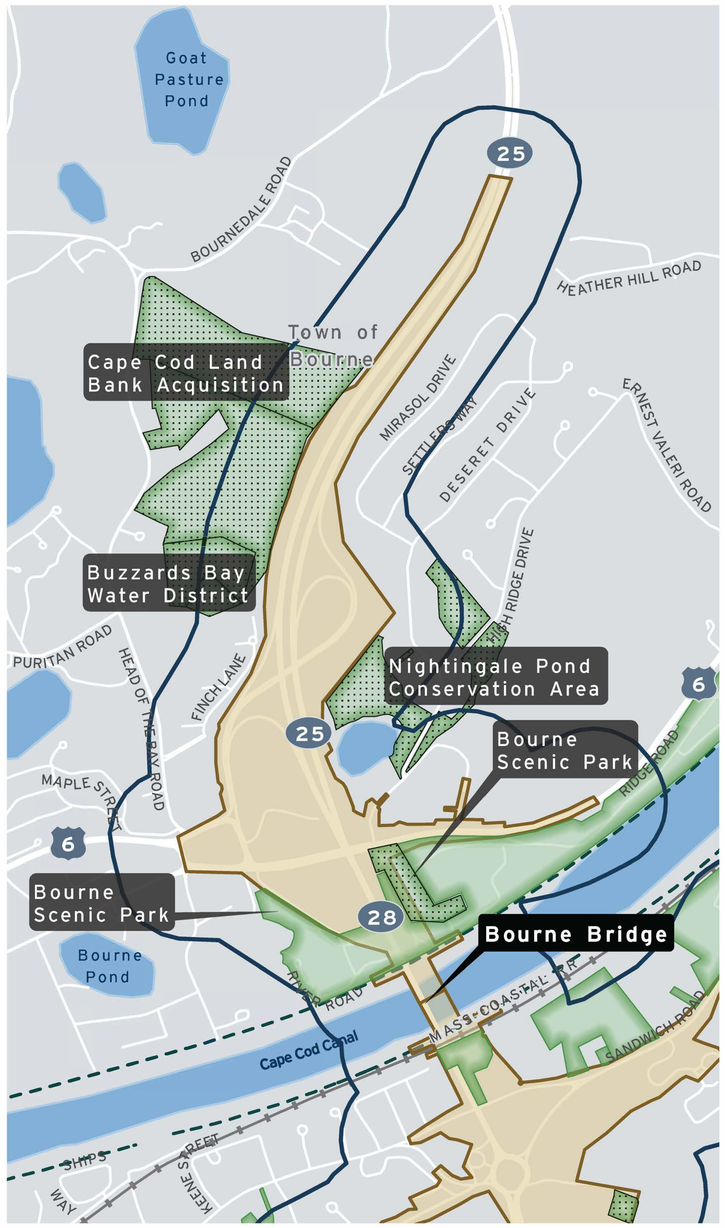
Managing Impacts to Parkland and Recreation Areas: The Federal Highway Administration and the Massachusetts Department of Transportation are working with the owners of Bourne Scenic Park, Sagamore Recreation Area, Bourne Recreation Area, and Keith Field Recreation Area on steps to reduce harm and make improvements that benefit these properties.

CAPE COD BRIDGES PROGRAM

PUBLIC PARKS, RECREATIONAL FACILITIES, AND OPEN SPACE

The document looks at how the No Build and Build Alternatives could affect land use, zoning policies, and community cohesion.

PUBLIC PARKS, RECREATIONAL FACILITIES, AND OPEN SPACE STUDY AREA



BOURNE NORTH STUDY AREA

Highway Shields

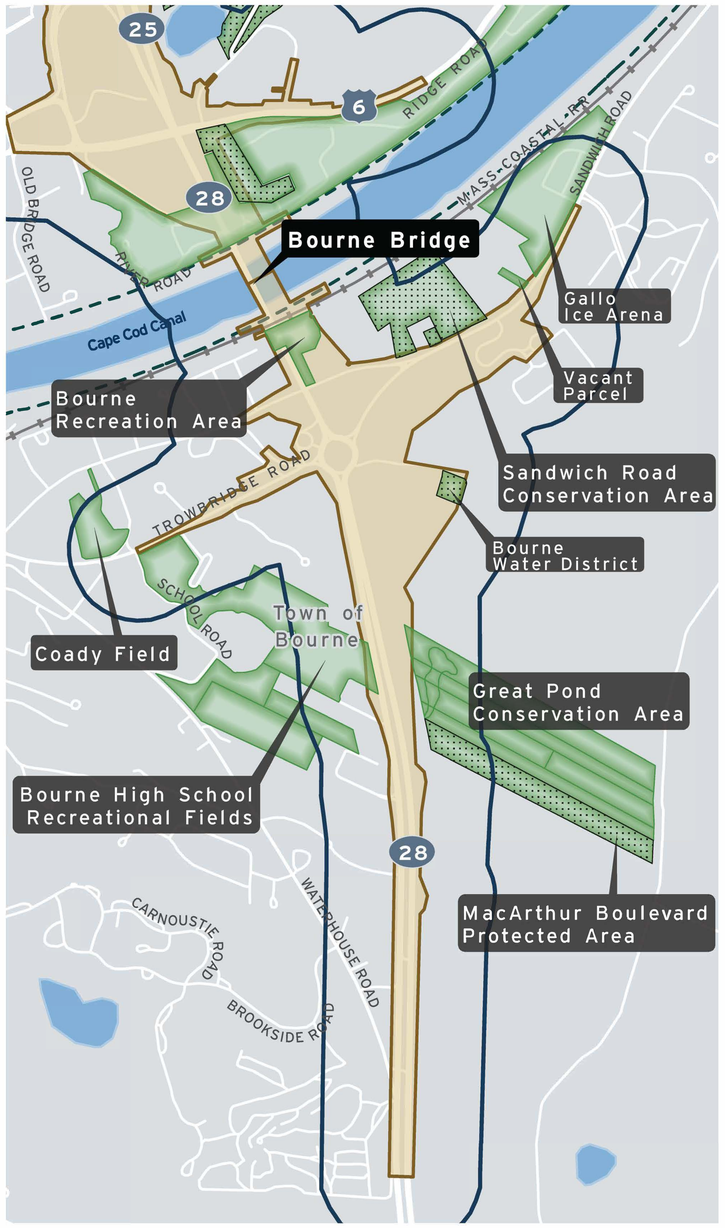
- State Route
- US Route

Legend

- Local or Regional Road
- Stream or River
- Rail
- Canal Service Road
- Water
- Park and Recreation St Area
- Project Limits
- Parks, Recreational Facilities, and Open Spa
- Article 97 Protected Op Space

Locator Map

0 500 1,000 Feet



BOURNE SOUTH STUDY AREA

Highway Shields

- State Route
- US Route

Legend

- Local or Regional Road
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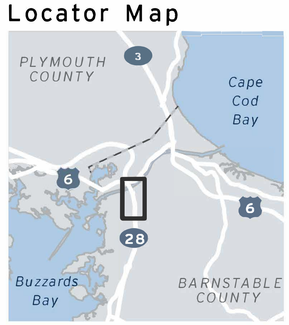
Locator Map



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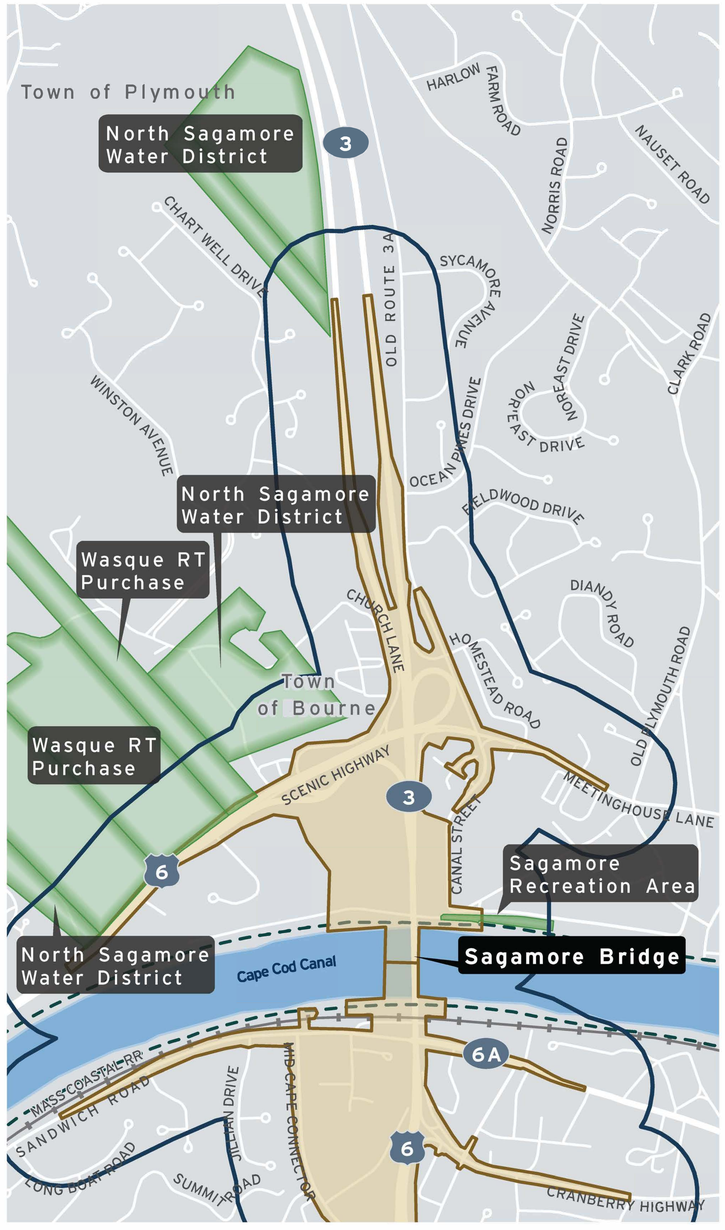
CAPE COD BRIDGES PROGRAM

PUBLIC PARKS, RECREATIONAL FACILITIES, AND OPEN SPACE

The document looks at how the No Build and Build Alternatives could affect land use, zoning policies, and community cohesion.

PUBLIC PARKS, RECREATIONAL FACILITIES, AND OPEN SPACE STUDY AREA



SAGAMORE NORTH STUDY AREA

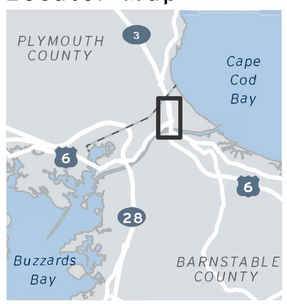
Highway Shields

- State Route
- US Route

Legend

- Local or Regional Road
- Stream or River
- Rail
- Canal Service Road
- Water
- Park and Recreation St Area
- Project Limits
- Parks, Recreational Facilities, and Open Spa
- Article 97 Protected Op Space

Locator Map



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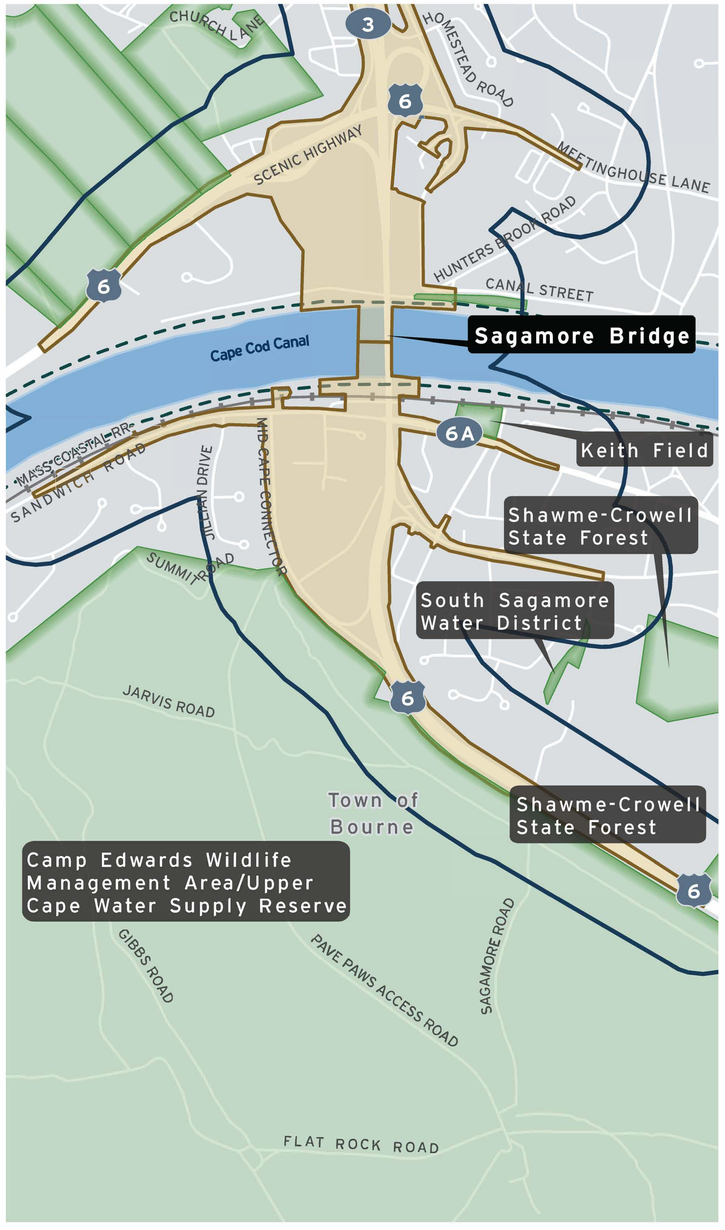


SAGAMORE SOUTH STUDY AREA

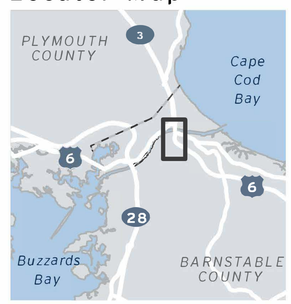
Highway Shields

- State Route
- US Route

Legend

- Local or Regional Road
- Stream or River
- Rail
- Canal Service Road
- Water
- Park and Recreation St Area
- Project Limits
- Parks, Recreational Facilities, and Open Spa
- Article 97 Protected Op Space

Locator Map



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CAPE COD BRIDGES PROGRAM

ENVIRONMENTAL JUSTICE

The document looks at how the No Build and Build Alternatives impact minority, low-income, and limited English proficiency Environmental Justice (EJ) populations.

BUILD ALTERNATIVE PROGRAM IMPACTS/PROGRAM EFFECTS

- Project limits not located within EJ populations.
- Impacts would not be disproportionately high and adverse to EJ populations compared to non-EJ populations.
- Construction may result in traffic delays due to increased construction traffic.
- Temporary closures of Canal Service Road due to Construction; these closures are not occurring within EJ populations; however, the impacts of these closures may be felt regionally.
- Drivers accessing community facilities may experience traffic delays due to influx of construction vehicles and equipment; while EJ Populations have not been identified within the proposed work limits, these impacts may be felt regionally.
- Construction activities may result in fugitive dust emissions from construction equipment and direct emissions from construction vehicles.
- While construction of the Program is not proposed within EJ populations, construction of the Sagamore South interchange would occur directly adjacent to an identified EJ population (BG 1, CT 141). Developed areas of EJ block groups are over 500 feet from construction limits.
  - » *Program would generate noise during the construction period.*
    - A Construction Noise Control Plan will be developed and implemented in compliance with MassDOT specifications for construction noise control.
    - Noise impacts related to construction activities would be temporary and cease once the Program is completed
- Overall Improvements in Public Health, Climate Resilience, and Traffic Operations.
  - » *Improved Water Quality due to implementation of stormwater control measures*
  - » *Improved air quality due to reduced greenhouse gas emissions*
  - » *Increased opportunities for active recreation through improved bicycle and pedestrian accommodations*
  - » *Reductions in traffic delays, improved traffic safety and emergency response times*

MITIGATION MEASURES:

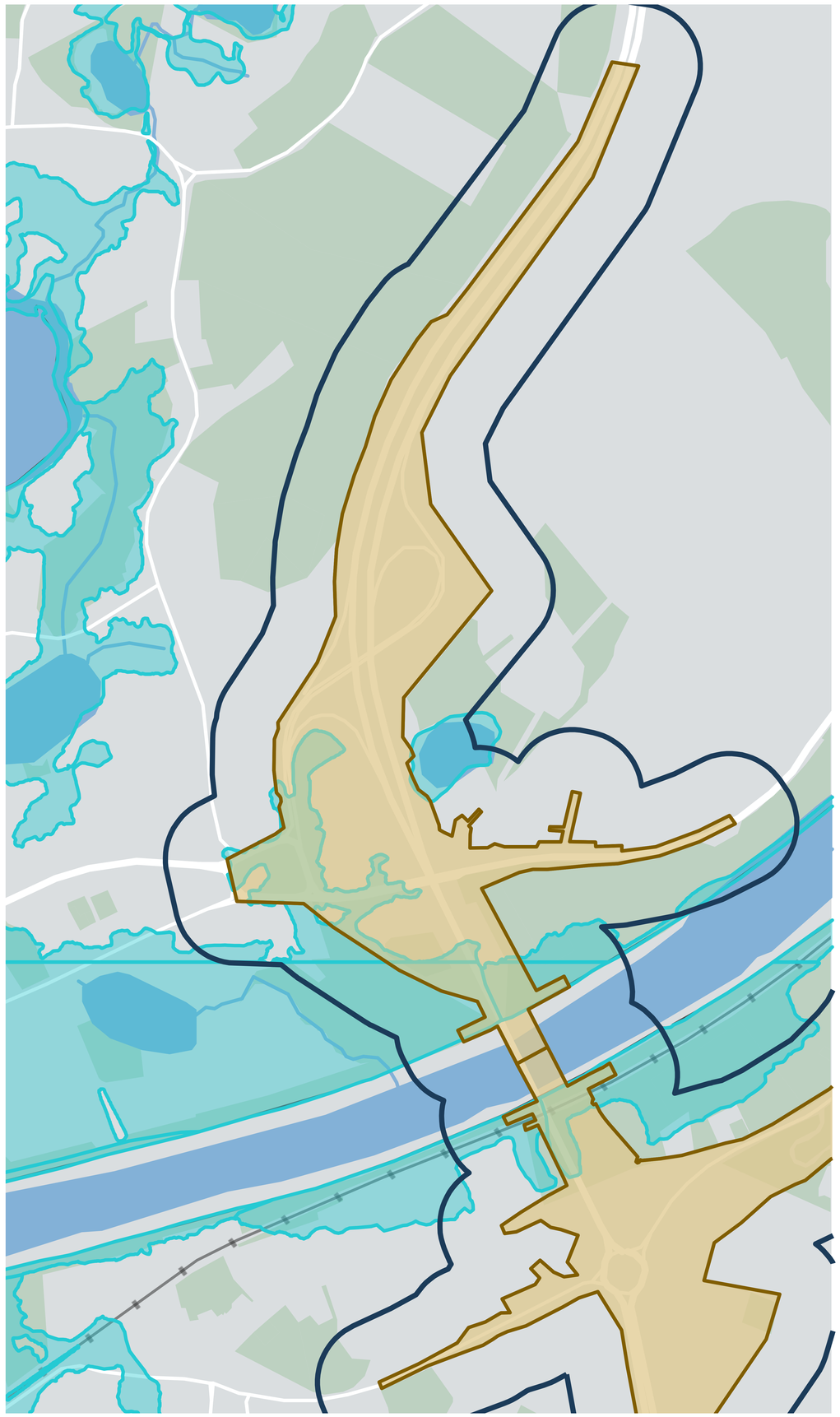
- Traffic Management Plan will be developed and implemented to ensure the safety and efficiency of roadways during construction.
- Contract specifications will be implemented to restrict parking and routing of truck traffic through residential neighborhoods.
- Temporary detours will be established for bicyclists and pedestrians to ensure safe pedestrian and bicycle travel around work zones.
- Construction Staging and sequencing will be implemented to minimize travel delays to various community facilities.
- A Dust and Emissions Control Plan will be developed and implemented to prevent the generation of fugitive dust emissions and to reduce construction vehicle emissions during construction.
- A Construction Noise Control Plan will be developed and implemented in compliance with MassDOT specifications for construction noise control.

CAPE COD BRIDGES PROGRAM

WETLANDS AND FLOODPLAINS

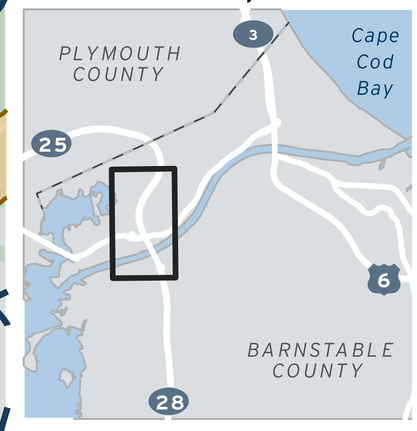
The document looks at how the No Build and Build Alternatives could affect wetlands and floodplains. Wetlands are areas where water stays at, near, or above the ground all year or for different periods during the year. Wetlands can be tidal or non-tidal. Floodplains are low, flat land areas near rivers, streams, or coasts that are likely to flood when water levels rise. Floodplains can be coastal or inland.

The document also looks at how the Build Alternative could affect wetlands in any Areas of Critical Environmental Concern. These are places in Massachusetts that receive extra protection because they have unique nature, history, or scenic beauty.



VEGETATED WETLANDS AND FLOOD ZONES (BOURNE NORTH QUADRANT)

Locator Map



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CAPE COD BRIDGES PROGRAM

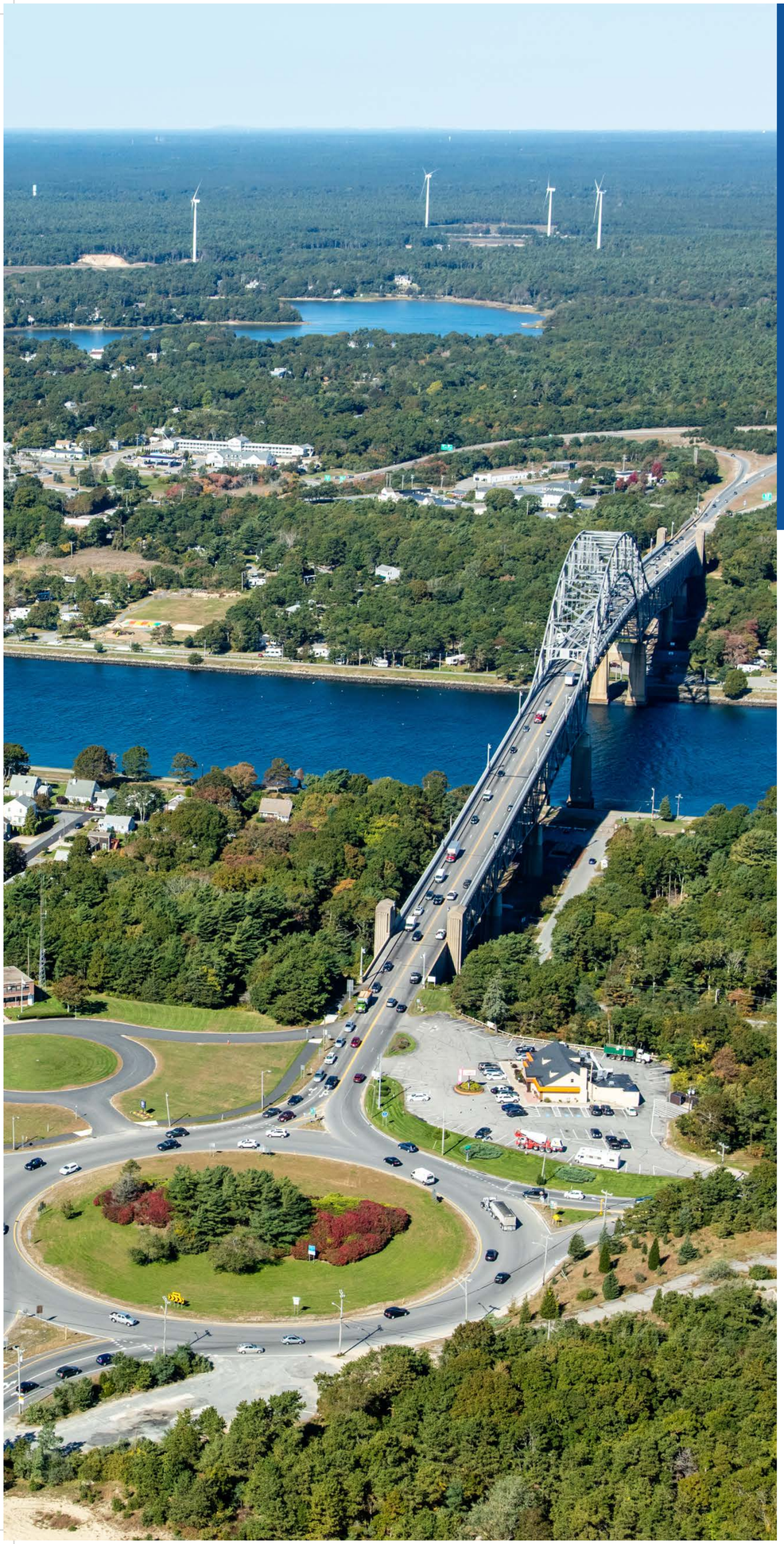
WETLANDS AND FLOODPLAINS

BUILD ALTERNATIVE PROGRAM IMPACTS/PROGRAM EFFECTS

- Piers for the new Sagamore and Bourne Bridges would be built right at the edge of Cape Cod Canal. They would be placed above where the water is at low tide, and some parts will also be above the high tide level.
- About 2.5 acres of Cape Cod Canal's tidal waters would be permanently affected by building the new bridge piers and placing riprap along the banks of the canal.
- About 0.07 acres of non-tidal vegetated wetlands would be permanently impacted.
- About 5,200 cubic feet of flood storage would be lost within the inland 100-year floodplain near Nightingale Pond.
- Dredging of more than 5,000 cubic yards of material from Cape Cod Canal would occur.
- Work would occur within two Areas of Critical Environmental Concern (Herring River Watershed and Bourne Back River), but no wetlands in these areas would be impacted.
- Soil could get loose and wash into nearby wetlands during construction.

MITIGATION:

- **Permanent Impacts to Non-Tidal Vegetated Wetlands:** Replacement wetlands will be planted to make up for the ones that are lost during construction.
- **Loss of Flood Storage near Nightingale Pond:** Extra flood storage will be added near Nightingale Pond.
- **Managing Construction Impacts:** Control methods (like planting vegetation and placing silt fences or straw bales) will be used to stop soil from washing away and getting into wetlands or waterbodies.
- **Managing Impacts from Dredging:** Material removed from the bottom of Cape Cod Canal will be safely stored and tested. Testing will help decide if it can be reused or needs to be taken to a special place for safe disposal.



CAPE COD BRIDGES PROGRAM

WATER QUALITY AND STORMWATER

The document looks at how the No Build and Build Alternatives could affect water quality and how stormwater is managed. It also looks at the effects of the alternatives on groundwater and two sole source aquifers (Cape Cod and Plymouth-Carver).

BUILD ALTERNATIVE PROGRAM IMPACTS/PROGRAM EFFECTS

About 50 acres of new paved areas would be created.

By adding more paved areas, it would:

- *Increase stormwater surface runoff.*
- *Increase the risk of flooding and water pollution.*
- *Reduce the amount of water that can soak into the ground to refill the groundwater.*

During construction, soil could become loose, and stormwater could wash it into nearby waterbodies.

MITIGATION:

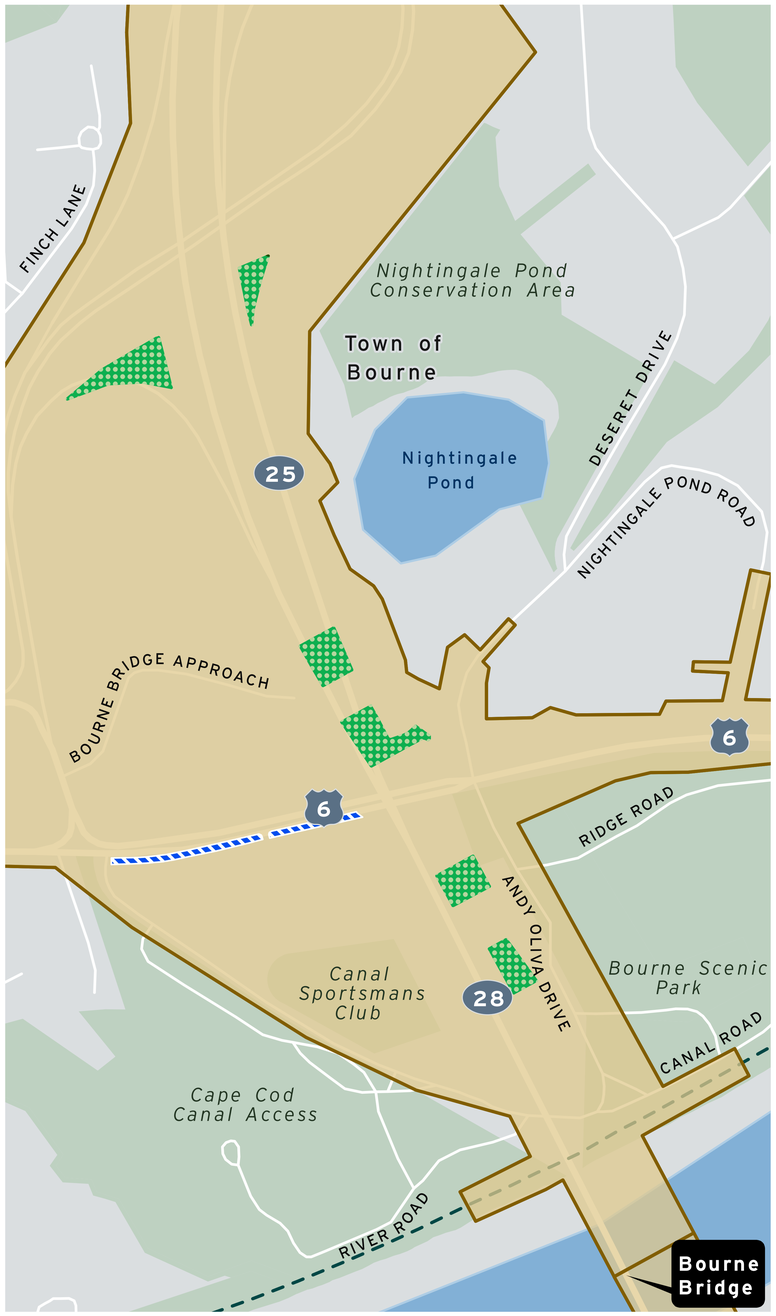
Managing Stormwater from New Paved Areas: Permanent stormwater control measures, like rain gardens, detention basins, and infiltration basins will be built. They will prevent flooding, remove pollutants from stormwater, and improve the quality of the groundwater that eventually reaches the aquifers.

Managing Construction Impacts: A Stormwater Pollution Prevention Plan will be put in place to prevent stormwater pollution during construction. It will include best practices to keep soil in place and stop it from washing into nearby waterbodies, and to make sure inspections are done.

CAPE COD BRIDGES PROGRAM

WATER QUALITY AND STORMWATER

POTENTIAL STORMWATER CONTROL MEASURES



BOURNE NORTH STUDY AREA

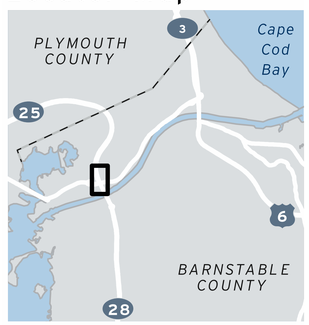
Highway Shields

- State Route
- US Route

Legend

- Local or Regional Roadway
- Canal Service Road
- Open Space
- Water
- Project Limits
- Infiltration Basin
- Rain Garden

Locator Map



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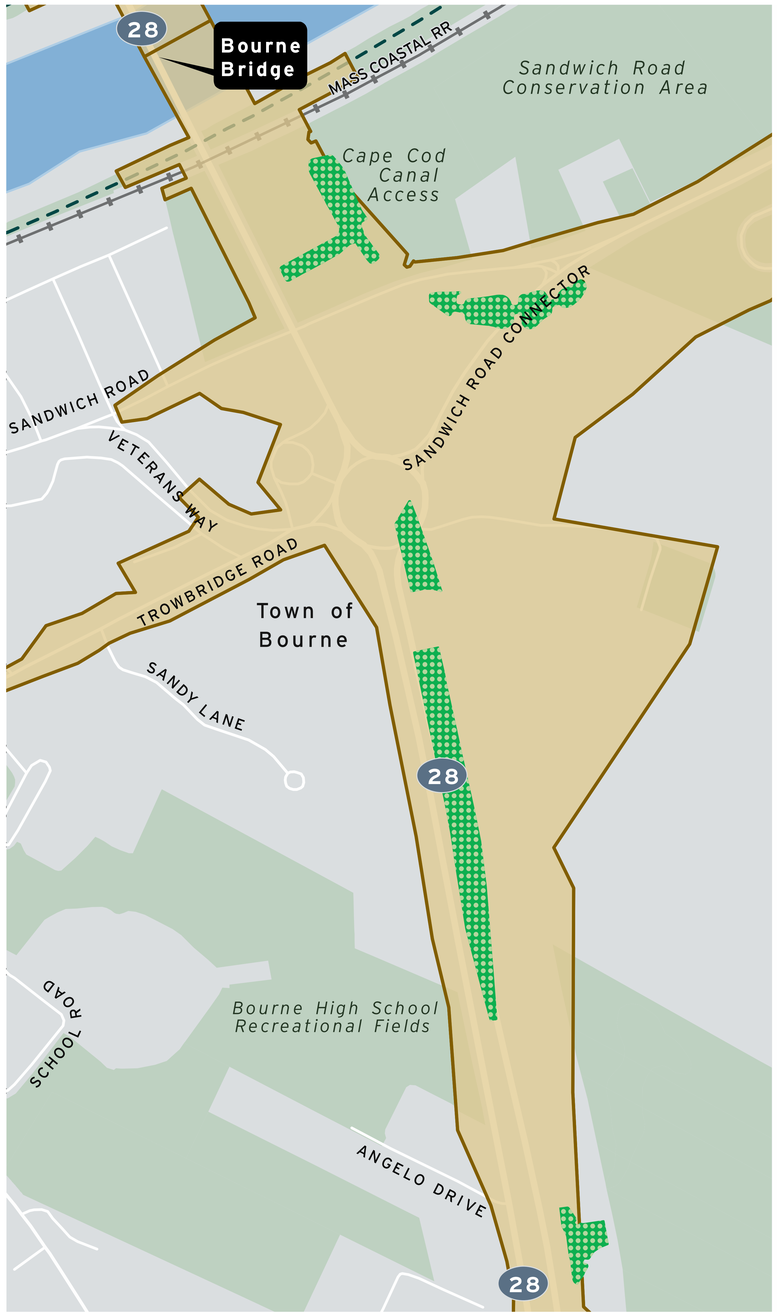


BOURNE SOUTH STUDY AREA

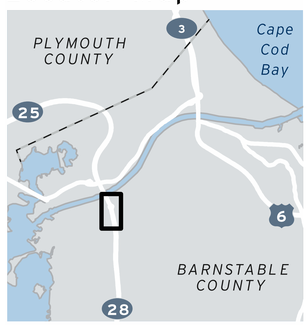
Highway Shields

- State Route
- US Route

Legend

- Local or Regional Roadway
- Rail
- Canal Service Road
- Open Space
- Water
- Project Limits
- Infiltration Basin

Locator Map



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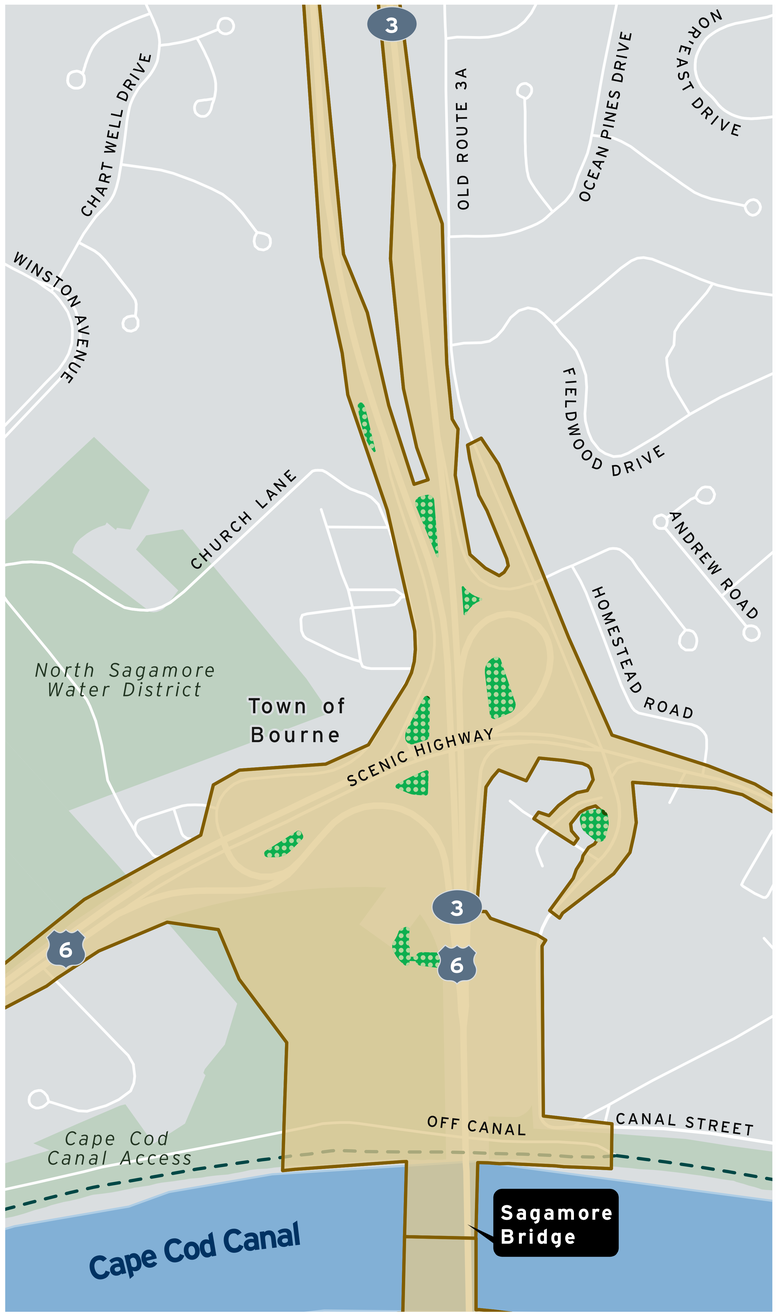
CAPE COD BRIDGES PROGRAM

WATER QUALITY AND STORMWATER

POTENTIAL STORMWATER CONTROL MEASURES



SAGAMORE NORTH STUDY AREA

Highway Shields

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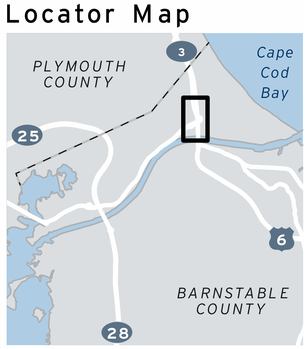
- Infiltration Basin

Locator Map



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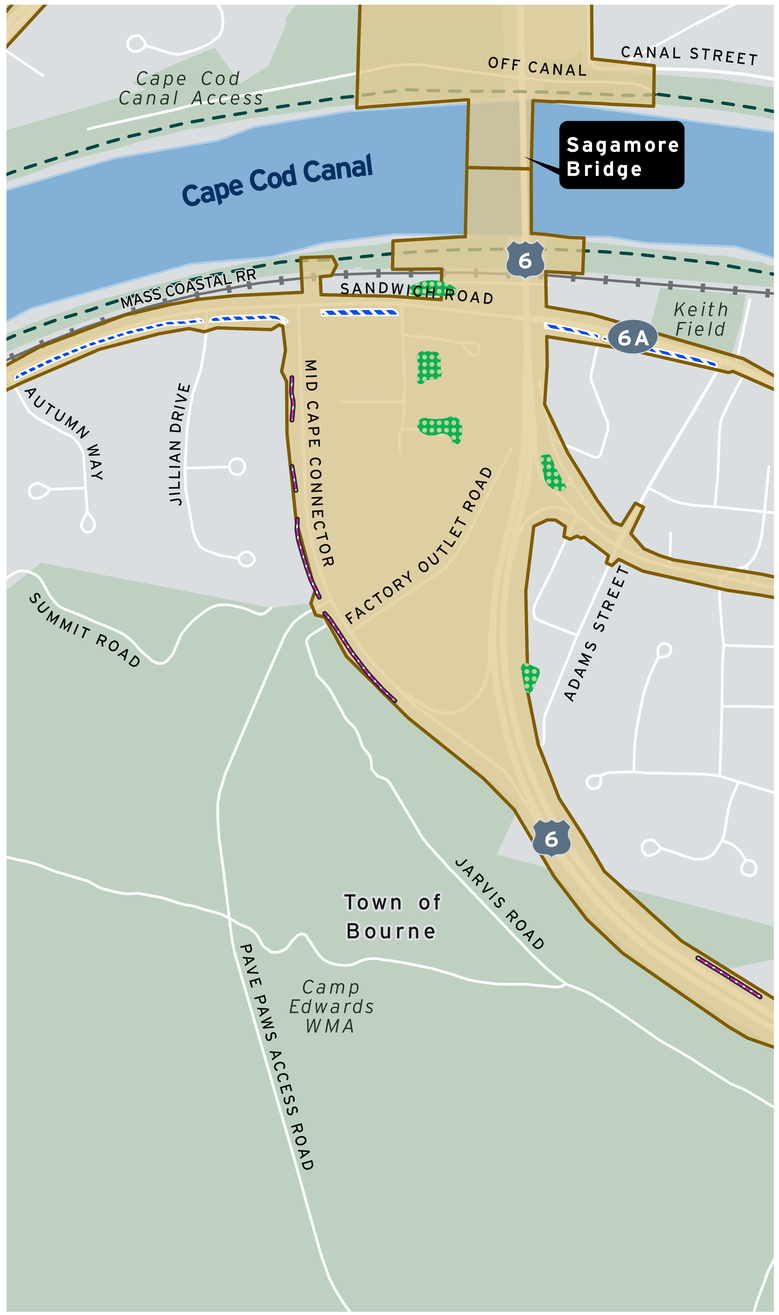

SAGAMORE SOUTH STUDY AREA

Highway Shields

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- US Route

Legend

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- Water
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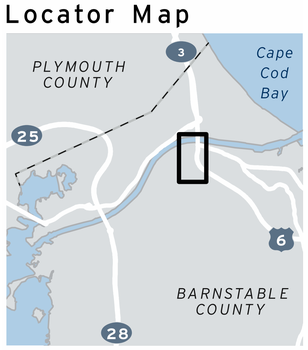
- Infiltration Basin
- Linear Infiltration
- Rain Garden

Locator Map



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CAPE COD BRIDGES PROGRAM

THREATENED, ENDANGERED, AND PROTECTED SPECIES AND HABITATS

The document looks at how the No Build and Build Alternatives could affect endangered, threatened, and protected species. It also looks at how the alternatives could affect essential fish habitat.

BUILD ALTERNATIVE PROGRAM IMPACTS/PROGRAM EFFECTS

- Loss of over 100 acres of trees where two types of bats live in the summer: northern long-eared bats (endangered) and tricolored bats (proposed endangered).
- Loss of about 0.06-acre of eelgrass beds within Cape Cod Canal at Bourne Bridge.
- Possible effects on essential fish habitat within Cape Cod Canal from underwater noise and turbidity (how cloudy or murky water is because of tiny particles floating in it) caused by tearing down the existing bridge piers and building the new bridge piers.

MITIGATION:

- **Managing Impacts from Tree Clearing:** To protect northern long-eared and tricolored bats, trees will not be cleared from:
  - » *March 15 to November 30 on the Cape side of Cape Cod Canal*
  - » *April 15 to October 31 on the mainland side of Cape Cod Canal*
  - » *Implementation of a reforestation and landscape plan*
- **Managing In-water Impacts During Construction:** Activities within Cape Cod Canal that could cause underwater noise or turbidity (how cloudy or dirty the water looks) effects would not be allowed from March 1 through August 31.
  - » *Removal and construction of bridge piers will be done in cofferdams to reduce turbidity effects within the canal.*
  - » *The Massachusetts Department of Transportation is working with the Massachusetts Department of Environmental Protection, U.S. Army Corps of Engineers, and the National Marine Fisheries Service on steps to track and offset impacts to eelgrass.*
  - » *A plan will be in place during construction to watch out for sea turtles and marine mammals, like whales, dolphins, and seals.*

CAPE COD BRIDGES PROGRAM

SOLID AND HAZARDOUS WASTE MATERIAL MANAGEMENT

The document looks at how the No Build and Build Alternatives could affect hazardous materials. These are substances, like liquids gases, or solids, that can harm people, animals, or the environment if they are not handled safely.

BUILD ALTERNATIVE PROGRAM IMPACTS/PROGRAM EFFECTS

- Workers may encounter hazardous materials, like old lead paint, asbestos, and mercury, when removing the Sagamore and Bourne Bridges and other old structures or buildings during construction.
- Workers may encounter polluted soil when doing construction in or near sites of high environmental concern around Bourne Bridge. These are areas where harmful substances, like oil or other hazardous materials, are known to be present or would likely be found in the soil or groundwater, even if the site has already been cleaned up.
- Sand, mud, or other materials that need to be removed from the bottom of Cape Cod Canal during bridge work could be polluted with harmful substances.

MITIGATION:

These steps will be followed to prevent hazardous material risks:

- All work involving hazardous materials will follow strict federal and state safety regulations to protect workers, the public, and the environment.
- Before any buildings are taken down, trained professionals will check for hazardous materials, like asbestos, lead, or chemicals, in old equipment. If hazardous materials are found, a licensed contractor will create a plan to safely handle and dispose of them.
- Safety plans will be in place to carefully handle, store, and dispose of lead-based paint or any materials containing asbestos before taking down the bridges and other old structures or utilities.
- If construction work, like digging up soil, happens in areas that are known or would likely to be polluted, it will be done under the guidance of a Licensed Site Professional.
- Before any sand, mud, or other material is removed from the bottom of Cape Cod Canal, laboratory testing will be done to see if it is safe to reuse or if it needs to be taken to a special place for safe disposal.

CAPE COD BRIDGES PROGRAM

GETTING AGENCIES AND THE PUBLIC INVOLVED

The Federal Highway Administration and The Massachusetts Department of Transportation invited 10 government agencies to be Cooperating Agencies in the environmental review process for the Program. These agencies are:

- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Environmental Protection Agency
- National Marine Fisheries Service
- U.S. Fish and Wildlife Service
- Massachusetts Historical Commission
- Massachusetts Executive Office of Energy and Environmental Affairs
- Massachusetts Department of Environmental Protection
- Massachusetts Department of Fish and Game
- Massachusetts Office of Coastal Zone Management

The Federal Highway Administration and Massachusetts Department of Transportation worked with the Cooperating Agencies to:

- Shape the Program's purpose and need
- Choose which alternatives should be studied further
- Decide how to study and measure effects
- Choose a Preferred Alternative
- Plan for ways to avoid, reduce, or make up for harmful effects on the environment

CAPE COD BRIDGES PROGRAM

HOW TO VIEW AND COMMENT ON THE DEIR

VIEW THE DEIR

The DEIR can be viewed in the **September 10 edition** of the ***Environmental Monitor***.

eeaonline.eea.state.ma.us/EEA/MEPA-eMonitor/home

DIRECTIONS:

- Users should select "September 10, 2025" from the drop-down menu under publication date and click "Go."
- Then click "Environmental Impact Reports" at the top of the table.
- Navigate to the Cape Cod Bridges Program.
- All documents can be viewed by clicking "attachments."

COMMENT ON THE DEIR

In order to be considered, public comments on the DEIR must be submitted directly to MEPA.

eeaonline.eea.state.ma.us/EEA/PublicComment/Landing

Please reference EEA# 16695 in all correspondence.

COMMENTS CAN BE SUBMITTED:

- Through the MEPA Public Comment Portal: **eeaonline.eea.state.ma.us/EEA/PublicComment/Landing**
- By email to: **Nicholas.Moreno@mass.gov**
- Via U.S. mail to:

  Secretary of Energy and Environmental Affairs
  Executive Office of Energy and Environmental Affairs (EEA)
  Attn: MEPA Office, Nicholas Moreno
  100 Cambridge Street
  Suite 900
  Boston MA 02114