



Cape Cod Bridges Program

Bourne, Massachusetts

Appendix 4.19
Solid and Hazardous Waste Material Management Technical Report

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AUL	Activity and Use Limitations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMR	Code of Massachusetts Regulations
DEIR	Draft Environmental Impact Report
EDR	Environmental Data Resources Report
ESA	Environmental Site Assessment
FHWA	Federal Highway Administration
MassDEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
MCP	Massachusetts Contingency Plan
MEPA	Massachusetts Environmental Policy Act
MRER/EA	Major Rehabilitation Evaluation Report/Environmental Assessment
NPL	National Priorities List
OHM	oils and/or hazardous materials
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PFAS	per- and polyfluoroalkyl substances
RCRA	Resource Conservation and Recovery Act
RTN	Release Tracking Number
SQG	Small Quantity Generator
SVOC	semi-volatile organic compounds
USACE	U.S. Army Corps of Engineers
USC	United States Code
UST	underground storage tank
VOC	volatile organic compounds
VSQG	Very Small Quantity Generator
WQC	Water Quality Certification

1 Introduction

This Solid and Hazardous Waste Material Management Technical Report (Technical Report) has been prepared in support of the Draft Environmental Impact Report (DEIR) for the Cape Cod Bridges Program, in accordance with the following:

- Certificate of the Secretary of the Office of Energy and Environmental Affairs on the Environmental Notification Form for the Cape Cod Bridges Program (July 7, 2023)
- Massachusetts Environmental Policy Act (MEPA) regulations, 301 Code of Massachusetts Regulation (CMR) 11.00 (as amended, January 6, 2023)

2 Summary of Findings

The Massachusetts Department of Transportation (MassDOT) performed due-diligence review to identify potential sources of solid and hazardous waste materials that may be encountered within the construction limits of the Build Alternative for the Cape Cod Bridges Program in the town of Bourne, Barnstable County, Massachusetts. The Study Areas for this impact assessment include the construction limits of disturbance at the Sagamore and Bourne Bridges, including a buffered distance of up to one-quarter mile around the disturbance limits at each bridge crossing.

A review of state and federal databases identified potential sources of contamination within and/or near the Study Areas from a variety of sources:

- Historical land use activities, including railroad usage, gasoline service stations, manufacturing facilities and the Massachusetts Military Reservation/Joint Base Cape Cod, that likely released oil and hazardous materials (OHM) into the environment. Historical industrial, commercial and railway uses contribute to residual impacts to soil and groundwater including metals, coal and ash-containing lead and arsenic, railroad ties treated with creosote and other chemicals, spilled or leaked petroleum products, and other OHM. In addition, historical fill materials placed within the bridges' approaches likely contain contaminants.
- There is one active and one inactive landfill within the Bourne South Quadrant. Historical landfilling did not have well-defined boundaries, so there is the potential to find buried trash material just beyond the main landfill limits from poor management practices. In addition, historical landfills were not lined at the bottom, presenting an opportunity for contamination to leach into the groundwater.
- Storage of OHM in underground storage tanks (UST) occurs at all gasoline service stations and at many large commercial and municipal properties. Several USTs were found within and near the Study Areas, which present potential sources of contamination that could affect soil and/or groundwater from an unknown or unreported release.

- Based on the anticipated right-of-way takings and with respect to the bridge structures themselves, there is a need to perform a hazardous materials building survey to determine if lead-based paint, asbestos-containing materials, polychlorinated biphenyl (PCB) containing materials, mercury containing equipment, and/or other hazardous building materials are present. If hazardous building materials are confirmed, proper abatement in accordance with all state and federal regulations must occur before demolition. Demolition materials that test negative for OHM would be considered solid waste.
- Numerous sites within each Study Area have documented release of contamination to the environment. These sites typically involve current and historical gasoline stations where releases of petroleum products to soil and/or groundwater have occurred. The known releases have, or are currently undergoing, assessment or remediation consistent with the requirements of the Massachusetts Contingency Plan (MCP). The Massachusetts Department of Environmental Protection (MassDEP) has requirements for the handling and management of soil, soil reuse, or off-site disposal at approved receiving facilities for sites regulated under the MCP. To the extent that dewatering is planned within regulated areas, proper management, treatment and/or disposal of pumped groundwater will be necessary.
- As reported in the USACE Major Rehabilitation Evaluation Report/Environmental Assessment for the Cape Cod Canal Highway Bridges, the existing paint system on Sagamore and Bourne Bridges still contains lead paint.[1]
- One release site within the Sagamore Bridge Study Area was closed with an Activity and Use Limitation (AUL) deed restriction.

3 Regulatory Framework

Solid and hazardous waste management in Massachusetts is regulated under the federal Resource Conservation and Recovery Act (RCRA) [42 U.S.C. Section 6901 et seq] and through state regulations codified as 310 Code of Massachusetts Regulations (CMR) 19.00 for solid waste and 310 CMR 30.00 for hazardous waste. The cleanup and assessment of hazardous waste sites is regulated under the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, commonly referred to as "Superfund") [42 USC Section 9601 et seq.] and Massachusetts General Law Chapter 21E (M.G.L 21E), which is implemented by MassDEP through the MCP [310 CMR 40.0000]. The management of dredged sediment in Massachusetts is regulated by Section 401 of the Clean Water Act and implemented through 314 CMR 9.00: 401 Water Quality Certification (WQC) Regulations.

The term "solid waste" includes both hazardous and non-hazardous wastes and is defined as any garbage, refuse, sludge for a wastewater treatment plant, water supply treatment plant, or air pollution control facility, and other discarded material, including solid, liquid, semi-solid, or contained

[1] https://www.nae.usace.army.mil/Portals/74/docs/Topics/Cape%20Cod%20Canal%20Bridges/Reports/FinalMRERDocument.pdf

gaseous material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities.[2] Hazardous wastes are a type of solid waste that requires additional regulation because they are dangerous or known to be harmful to human health and/or the environment. Solid waste anticipated for the Program includes construction debris and excavated soils and sediment. The term "hazardous materials" is a broader term collectively used to describe the following:

- Hazardous wastes (as defined by RCRA).
- Hazardous substances (as defined by CERCLA [Section 101[14]] and listed at 40 CFR 302 to include listed hazardous wastes or unlisted solid wastes that exhibit specific characteristics such as ignitability, corrosivity, reactivity, or toxicity characteristic).
- Asbestos (referring to the naturally occurring fibrous minerals used in many commercial and industrial applications, also defined under 40 CFR 302 as a hazardous substance).
- Petroleum products (materials derived from crude oil such as fuel oil and gasoline).
- Any item or chemical that, when being transported or moved in commerce, is a risk to public safety of the environment and is regulated as such under the United States Pipeline and Hazardous Materials Safety Administration Regulations.
- Any substance or chemical that is a "health hazard" or "physical hazard" as defined by the Occupational Safety and Health Administration (OSHA).

Other regulations and guidance documents that provided framework for this analysis include the following:

- 310 CMR 7.15, MassDEP Asbestos Regulations
- 40 CFR 312, Standards and Practices for All Appropriate Inquiries under CERCLA
- American Society for Testing and Materials E1527-21, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process," November 2021
- MassDEP, Similar Soils Provision Guidance (WSC#-13-500)
- OSHA Standard 29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response
- 29 CFR 1926.62, OSHA Lead Standard for the Construction Industry
- St. 1998 c.206 – Brownfields Act
- MassDEP, Construction of Buildings in Contaminated Areas (Policy WSC#-00-425).
- MassDEP, Similar Soils Provision Guidance (WSC#-13-500)
- MassDEP, Reuse and Disposal of Contaminated Soil at Massachusetts Landfills (Policy #COMM-97-001)

[2] 42 U.S. Code Section 6903(27)

4 Methodology

4.1 Data Resources

MassDOT performed a desktop review to identify the presence, or likely presence, of OHM within the Sagamore and Bourne Bridge Study Areas through review of the following:

- MassDEP's Waste Site & Reportable Releases Data Portal
  - This database provides information on known contaminants released to soil and groundwater throughout the Commonwealth of Massachusetts. **Attachment 1 through Attachment 5** provide a list of these sites.
- Federal, state and Tribal environmental databases prepared by Environmental Data Resources, Inc.
  - Environmental Data Resources (EDR) reports dated September 18, 2024, available upon request[3]
  - Based upon a review utilizing state and federal databases, known or potential sources of contamination are identified within the Study Areas. To evaluate the information available, the locations of concern were categorized using a grading system of high, moderate, or low environmental concern.
    - Sites identified as high environmental concern include locations where OHM impacts are known to exist, or it is highly likely to encounter OHM in environmental media (soil, sediment, groundwater, and/or surface water) irrespective of regulatory closure status. These sites are most likely associated with soil or groundwater contamination within the construction limits.
    - Sites identified as moderate environmental concern include locations within the construction limits where OHM may exist in environmental media, but due to the age, type, and the extent of the release, and/or regulatory status as closed, are not expected to present significant contaminant management concerns.
    - Sites identified as low environmental concern include locations where no known releases have occurred, or where the databases listings do not indicate potential for environmental impacts (i.e., registered RCRA generators, locations that have permitted aboveground storage tanks or USTs, locations where asbestos removal occurred, etc.).

[3] The Environmental Data Resources (EDR) report was designed to assist parties seeking to meet the search requirements of the U.S. Environmental Protection Agency's Standards and Practices, for All Appropriate Inquiries (40 Code of Federal Regulations Part 312) and applicable American Society for Testing and Materials Standard Practices associated with real estate due diligence. The EDR reports were prepared on September 18, 2024. The search radii included information from databases up to 1 mile beyond the construction limits for the replacement Sagamore and Bourne Bridges.

- Historical Sanborn® Fire Insurance Rate Maps (provided by EDR)
  - Sanborn® fire insurance rate maps were developed for use by insurance companies to depict facilities, properties, and their uses for many locations throughout the United States. These maps provide information on the history of prior land use and are useful in assessing whether there may be potential environmental contamination from historical property uses.
  - EDR provided the Sanborn® maps for the two bridge alignments. Summaries of the findings are presented as **Attachment 6** for Sagamore Bridge and **Attachment 7** for Bourne Bridge.
- Historical U.S. Geological Survey Topographical Maps (provided by EDR)
  - These topographic maps for the two bridge alignments provide information on the history of land development and are useful in assessing the potential for environmental contamination from historical property uses such as urbanization, existence of railways, placement of fill, etc. Summaries of the topographic map findings are presented as **Attachment 8** for Sagamore Bridge and **Attachment 9** for Bourne Bridge.
- Historical aerial photographs (provided by EDR)
  - These historical aerial photographs for the two bridge alignments provide information on the history of prior land use and are useful in assessing the potential for environmental contamination. Summaries of the aerial photographs are presented as **Attachment 10** for Sagamore Bridge and **Attachment 11** for Bourne Bridge.
- Massachusetts Geographic Information Systems (GIS) Maps
  - GIS mapping provides information on past and present landfills, sensitive receptors, underground storage tank locations, deed restrictions, etc.
- Google Maps
  - Google maps can be used to inform current land uses.

4.2 Primary Contaminants of Concern

Within the Study Areas, several contaminants of concern are expected to be present based historical land uses. Several of the most common ones are summarized in the following:

- **Metals** – Likely metals include arsenic, cadmium, chromium, cobalt, lead, mercury, selenium, and silver. They are used in smelting, foundries, and metal works, and can be present in paint, ink, petroleum products, coal ash, and mechanical waste fluids. Some metals are naturally occurring in soil and include iron, manganese, copper, zinc, nickel, chromium, arsenic, lead, cobalt, and vanadium. Certain metals like lead, mercury, arsenic, and cadmium are considered “heavy metals” and can be particularly toxic to living organisms even at low concentrations. Metals are persistent in the environment and can accumulate in sediment. Exposure to metals, particularly heavy metals, can lead to a range of health impacts including neurological damage, kidney dysfunction, liver damage, gastrointestinal issues, reproductive problems, increased cancer risk, and in severe cases, even death.

- **Volatile Organic Compounds (VOC)** – VOCs are compounds that have a high vapor pressure and low water solubility. Many VOCs are human-made chemicals that are used and produced to manufacture of paints, pharmaceuticals, and refrigerants. VOCs also include such aromatic compounds as benzene, toluene, ethylbenzene, and xylenes (commonly found in petroleum products), and chlorinated compounds like trichloroethene and tetrachloroethene, which are common ingredients in solvents and commercial cleansers. VOCs can be harmful to human health, and some can cause cancer. Exposure to VOCs can cause a variety of health impacts, including upper and lower respiratory symptoms and worsening of asthma.
- **Semi-Volatile Organic Compounds (SVOC)** – SVOCs are more likely to be liquids or solids at lower temperatures than VOCs. Products that include SVOCs include pesticides, oil-based products, and fire retardants. SVOCs include polycyclic aromatic hydrocarbons (PAH), which are common constituents of partially combusted coal or petroleum derived products, such as waste oils, creosote, coal and coal ash, wood ash, and asphalt. Like metals, some PAHs are also persistent in the environment. SVOCs have been associated with adverse health impacts in animals and humans, including endocrine and thyroid disruption, immunotoxicity, reproductive toxicity, cancer, and adverse impacts on fetal and child development and neurologic function.
- **Polychlorinated Biphenyls (PCB)** – PCBs belong to a broad family of human-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until manufacturing was banned in 1979. Due to their non-flammability, chemical stability, high boiling point and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including paints, the dielectric fluid found in electrical transformers and feeder cables and are often associated with electrical generation stations/substations and train yards. PCBs do not readily break down once in the environment and can be carried long distances. They have been demonstrated to cause a variety of adverse health impacts including skin conditions, liver damage, reproductive impacts and are a probable human carcinogen.
- **Asbestos-containing materials (ACM)** – Asbestos is a group of six naturally occurring minerals that are fibrous and have many commercial uses. Asbestos is resistant to heat, fire, and chemicals, and does not conduct electricity. It has been used in many products including roofing shingles, ceiling and floor tiles, asbestos cement products, automobile break and transmission parts, heat-resistant fabrics, and coatings. Asbestos fibers are potentially harmful if they become airborne and are inhaled. Non-friable ACMs that are typically stable could be damaged during the construction process and would be considered friable asbestos-containing materials thereafter. Breathing in asbestos fibers can cause serious health problems including lung cancer, mesothelioma, and asbestosis.
- **Anthropogenic contamination** – This type of contamination is commonly found in urban settings, resulting from historical land use and/or filling activities. Historical industrial, commercial and railway uses may contribute to residual impacts to soil and groundwater including metals, coal and ash-containing lead and arsenic, railroad ties treated with chemicals such as creosote, spilled or leaked petroleum products, and other OHM. Some contaminants, like petroleum products, may have been released during a surface spill or from leaking USTs. Others, such as polycyclic aromatic

hydrocarbons (PAH), metals, and/or PCBs, may have resulted from manufacturing operations and former coal storage.

Contamination may be found in environmental media within the Study Areas. OHM can also be found in roadway and bridge building materials, as well as other buried utilities throughout the Study Areas. Some of these building materials and utilities would likely be disturbed during construction.

Historical land uses present some likely contaminants of concern. Fill material of unknown origin associated with bridge construction or other shoreline changes may be present within the upland site limits. MassDOT owns the Cape Cod Central Railway, and Mass Coastal Rail operates the Cape Flyer. Rail corridors commonly contain railroad ties treated with chemicals such as creosote, spilled or leaked liquids such as oil, gasoline, cleaning solvents, herbicides use, fossil fuel combustion products (PAHs), asbestos, transformers, and capacitors. The railway was reported to have historically been utilized for transporting coal ash waste from the Canal Generating Power Plant located approximately one mile east of Sagamore Bridge. Coal ash may be a source of environmental contaminants including metals and PAHs. **Section 5** (Sagamore Bridge) and **Section 6** (Bourne Bridge) present areas of concern specific to each Study Area in more detail.

4.3 Study Area

The Study Areas for assessment of potential impacts of the Build Alternative on OHM include areas within the construction limits of disturbance for the Build Alternative, with an additional buffered distance of up to one-quarter mile around the disturbance limits at each bridge crossing. This distance was selected because it is generally considered highly unlikely for contaminated media to migrate greater than one-quarter mile.

For documentation of historical land use and existing conditions relative to this assessment, the Study Areas are divided into four different quadrants:

- Sagamore North
- Sagamore South
- Bourne North
- Bourne South

This approach uses Cape Cod Canal as the dividing line between north and south.

5 Sagamore Bridge Study Area

5.1 Land Use

5.1.1 Current Land Use

Current land uses within the Sagamore Bridge Study Area consist of Sagamore Bridge, the associated roadways, and a mix of wooded, residential, and commercial uses.

5.1.1.1 Sagamore North Quadrant

To the north of Sagamore Bridge is the interchange connecting State Route 3, U.S. Route 6, and Meetinghouse Lane. A MassDOT maintenance facility is within the ramp from State Road onto State Route 3 north, and Sagamore Recreation Area is along the northern bank of the canal. A large undeveloped parcel is on the north side of the canal to the west of the alignment.

Three registered federal RCRA generator sites are known to generate hazardous waste: Nouria at 1 Canal Street and the Pepsi Bottling Group at 103 State Road are both registered as a Very Small Quantity Generators (VSQG) and the United Parcel Service at 58 Meetinghouse Lane is registered as a Small Quantity Generator. VSQGs generate 100 kilograms or less per month of hazardous waste or 1 kilogram or less per month of acutely hazardous waste. SQGs generate more than 100 kilograms, but less than 1,000 kilograms of hazardous waste per month.

Several waste products are not considered to be federal RCRA hazardous wastes but are regulated as hazardous waste on the state level. In Massachusetts, waste oil is the most common example. Six sites are known to generate Massachusetts regulated hazardous waste.

5.1.1.2 Sagamore South Quadrant

The Cape Cod Air Force Station owns a large portion of the land to the south of Sagamore Bridge. The remaining parcels in and near the Sagamore South quadrant include residential or commercial properties that include a large grocery store (Market Basket), school, gasoline stations, auto repair businesses, convenience stores, coffee shops, retail stores, and a landscape supply store.

One registered RCRA generator site is known to generate hazardous waste: an auto and truck repair shop at 100 Cranberry Highway is registered as a VSQG. One site within the Sagamore South quadrant is known to generate a Massachusetts regulated hazardous waste.

5.1.2 Historical Land Use

MassDOT reviewed historical Sanborn® maps, topographic maps, and aerial photographs to identify historical land use activities that could be potential sources of contamination within the Sagamore Bridge Study Area.

5.1.2.1 Sagamore North Quadrant

Historical Sanborn® Maps are not available for the Sagamore North quadrant.

Available topographic maps date back to 1889 and identify an unnamed river running along the approximate location of the present-day Cape Cod Canal. **Attachment 8** provides detailed findings.

The earliest aerial photograph is from 1951, which depicts the alignment of Sagamore Bridge and Sagamore Rotary. **Attachment 10** provides detailed findings.

5.1.2.2 Sagamore South Quadrant

The area to the south of Cape Cod Canal has a longer history of development and use than the northern side of the canal due to the presence of the railroad. Within the Sagamore South quadrant, the Otis Air National Guard Base/Camp Edwards has gone by several different names and refers to the large parcel of land to the south of the bridge that has been used by the military since 1935. The use of this land for various military training activities has resulted in significant soil and groundwater contamination, the nature of which is discussed in **Section 1.1**.

Railroad tracks run along the south side of Cape Cod Canal and have been in operation for decades. The Old Colony Railroad was constructed in the mid-1800s and first appeared on available mapping in 1889. The railroad was historically used to transport coal/fly ash waste, which contained high levels of arsenic, from the Cape Cod Power Plant approximately 1 mile away to a nearby disposal facility. Approximately 1,000 tons of coal/fly ash waste were transported along the rail line per day.

EDR provided Sanborn® maps for the years 1913, 1924, 1941, and 1962. The 1913 and 1924 maps depict the Keith Electric Car Company, located on the south side of the canal to the east of the bridge, which manufactured horse-drawn carriages, stagecoaches, prairie schooners for the Gold Rush, and later freight/box cars for the railroad system. Structure labels include fire department, hospital, woodworking, painting, coal storage, mechanical, assembling facilities, and a network of rail lines and spurs. The plant reportedly was 1 mile in length that stretched westerly from Freight House Road past Sagamore Bridge. Sanborn® maps show an entrance point into the plant at Plymouth and Pleasant Streets. An inset map indicates tenement housing was at the intersection of Main Street / County Road and Adams Street with a baseball field across (north side) Main Street. In 1928, the company closed after 82 years in business, and the plant was stripped for materials. The buildings were demolished in the 1930s following the second expansion of the canal. Much of the northern portion of the property the plant occupied may now be within the Cape Cod Canal.

The 1924 maps identify a “Steel Viaduct Across Canal” at the location of the existing Sagamore Bridge. To the west of the bridge approach was the site of a forge shop with a large coal pile storage area (identified in 1913 and 1924 map), a filling station (1941 and 1962 maps), and the Coca Cola bottling company (1941 and 1962 maps). The Coca Cola Bottling Co. is depicted on the west side of the approach to Sagamore Bridge along with a filling station with gas tanks to the north of the Coca Cola facility. Additional filling stations historically existed on Sandwich Street opposite the Adams Street intersection and on the north and south sides of U.S. Route 6 near the intersection with Vermont Street.

Available topographic maps date back to 1889 and identify an unnamed river running along the approximate location of the present-day Cape Cod Canal. The canal is first depicted on the 1915 topographic map. **Attachment 8** identifies detailed findings.

The earliest aerial photograph is from 1951, which depicts the alignment of the Sagamore Bridge and Sagamore Rotary. **Attachment 10** provides detailed findings.

5.2 Solid Waste Landfills

No active or inactive solid waste landfills are within or near the Sagamore Bridge Study Area.

5.3 Underground Storage of Oils and/or Hazardous Materials

Storage of OHM in USTs occurs at all gasoline service stations and at many large commercial and municipal properties. Modern tanks that are registered and adequately monitored likely do not pose a risk to the environment. However, these storage vessels represent potential sources of contamination that could impact soil and/or groundwater from an unknown or unreported release.

5.3.1 Sagamore North Quadrant

Two sites are identified within the Sagamore North quadrant that housed USTs. Both are along Meetinghouse Lane and have had the tanks removed. **Attachments 1 and 2** provide additional details on USTs.

5.3.2 Sagamore South Quadrant

Five known sites identified within the Sagamore South quadrant either currently or have historically contained USTs:

- 847 Sandwich Road
- 896 Sandwich Road
- Canal Fuel Company at 70 Cranberry Highway (There is a record of a release from the tank at 70 Cranberry Highway.)
- Stop & Shop at 80 Cranberry Highway
- Sagamore Service Station at 100 Cranberry Highway

Attachments 1 and 2 provide additional details on USTs.

5.4 Locations of Known or Potential Contamination

Several MCP release sites are within the Sagamore Bridge Study Area; however, most sites are related to small fuel and oil spills that were cleaned up and closed with no restrictions. **Figure 5.4-1** and **Figure 5.4-2**, respectively, illustrate the locations of impact and the associated level of environmental concern for the identified MCP release sites relative to the Sagamore North and Sagamore South quadrants. Refer to **Sections 5.4.1** and **5.4.2**, respectively, for summary descriptions of MCP release sites within the Sagamore North and Sagamore South quadrants.

5.4.1 Sagamore North Quadrant

No Federal National Priority List (NPL - Superfund) sites are within the Sagamore North quadrant.

No database site locations are considered to be of high environmental concern as defined in **Section 4.2.** Four database listings within the Sagamore North quadrant are of moderate environmental concern—all of which are associated with MassDEP Release Tracking Numbers (RTN). **Attachment 1** provides details on each site. The remaining 22 sites within the Sagamore North quadrant are of low environmental concern, 8 of which are associated with closed RTNs. **Attachment 2** details information concerning these listings.

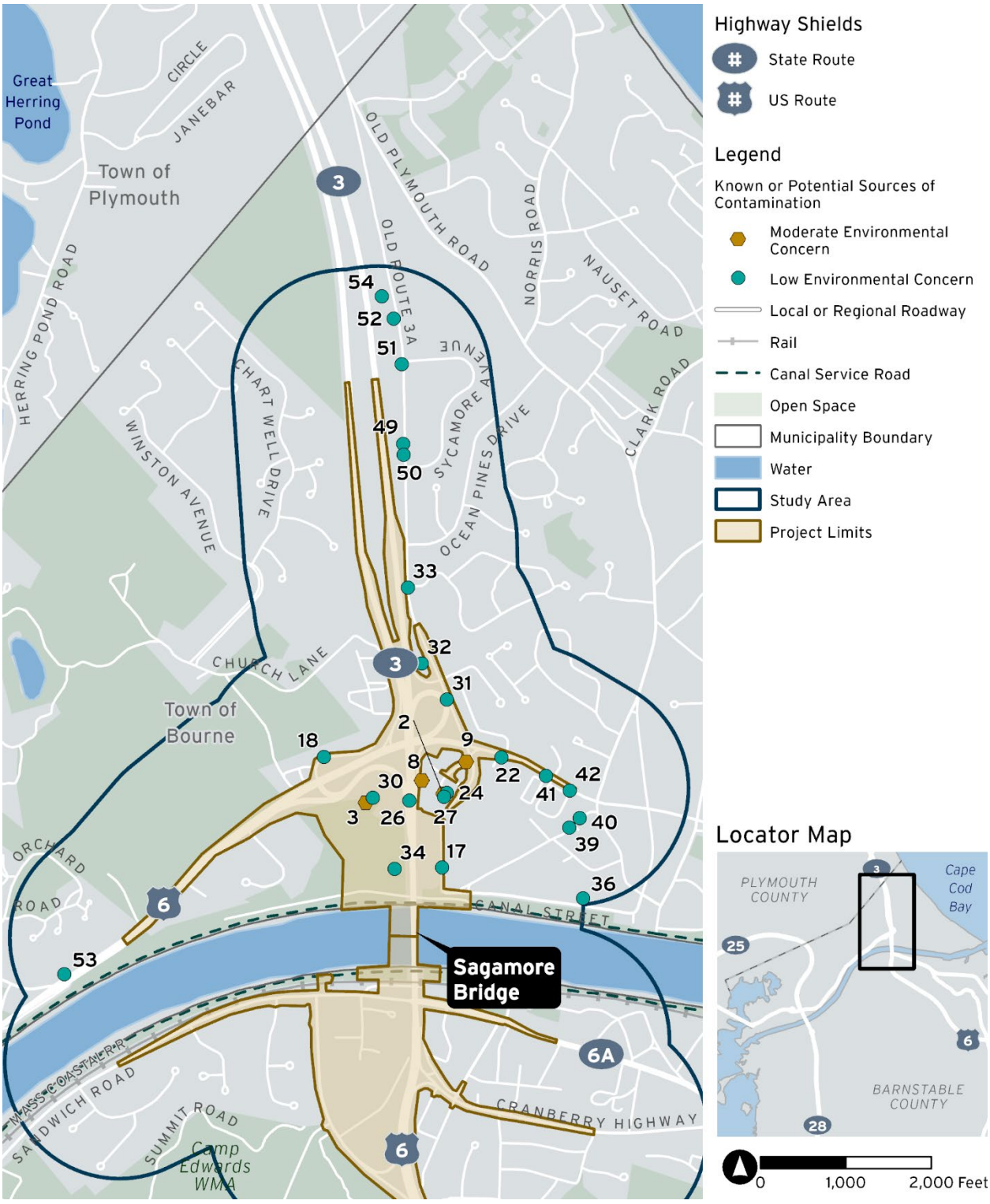
One open Downgradient Property Status remains within the northern end of the Sagamore Bridge Study Area, which is related to residual contamination within groundwater tied to the abutting Sorenti Texaco Station.

5.4.2 Sagamore South Quadrant

One site is listed on the federal NPL as a Superfund site within the Sagamore South quadrant. The Otis Air National Guard Base/Camp Edwards, discussed in **Section 5.1.2.2**, has gone by several different names and refers to the large parcel of land to the south of the bridge that has been used by the military since 1935. This site contains multiple areas of hazardous material contamination found in both the soil and groundwater. The closest plume is approximately 2 miles southeast of the Sagamore Bridge Study Area. The release occurred at a training range, situated over the peak of the Cape Cod aquifer, where groundwater infiltrates and flows in all directions. The ammunition used on the training range contain a lead core in a metal ally jack, usually composed of lead, copper, iron, antimony, and nickel. The military also used various explosives that contributed to on-site contamination. In addition, per- and polyfluoroalkyl substances (PFAS) have been identified at this location. PFAS contamination is primarily due to the historical use of firefighting foam during training exercises.

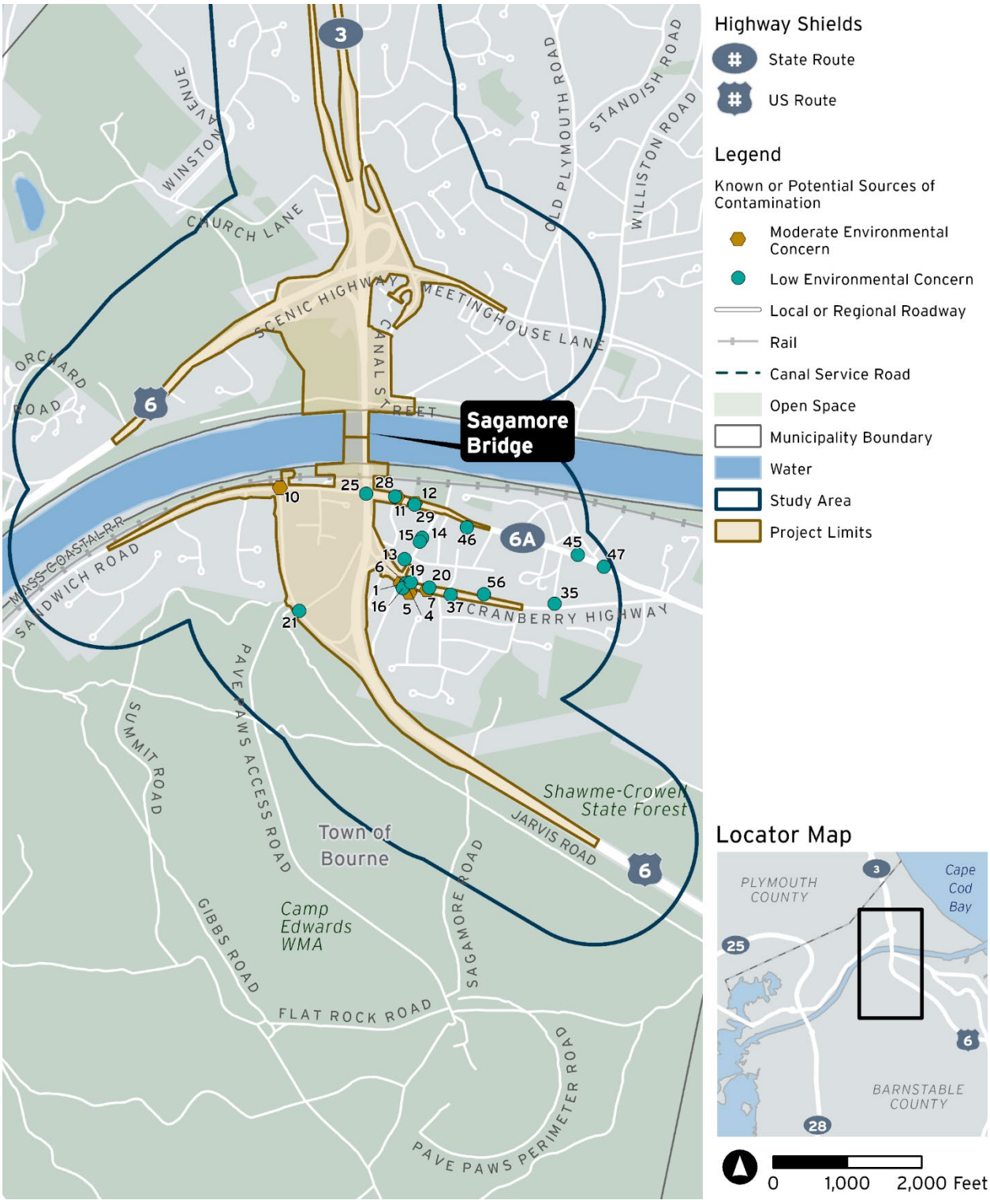
No database site locations are considered to be of high environmental concern, which is a category defined in **Section 4.1**. Seven database listings are within the Sagamore South quadrant that are of moderate environmental concern, of which two are associated with a MassDEP RTN. **Attachment 1** provides details on each site. The remaining 22 sites within the Sagamore South quadrant are of low environmental concern, of which eight are associated with a closed RTN. **Attachment 2** includes information concerning these listings.

Figure 5.4-1. Massachusetts Contingency Plan Release Sites (Sagamore North Quadrant)



Source: Massachusetts Department of Transportation, 2024

Figure 5.4-2. Massachusetts Contingency Plan Release Sites (Sagamore South Quadrant)



Source: Massachusetts Department of Transportation, 2024

5.5 Deed Restrictions

AULs are deed restrictions that are implemented under the MCP following response actions at a release site. AULs require oversight and regulatory coordination for any excavation or disturbance within the boundaries of the AUL area.

One release site within the Sagamore Bridge Study Area was closed with an AUL. Pairpoint Manufacturing Company, Inc., is a glass manufacturing company located at 851 Sandwich Road and is located within the Sagamore South quadrant construction limits (**Attachment 1**). It has been determined to be a site of moderate environmental concern (**Attachment 1**) considering it was the location of a historical release of lead and arsenic (RTN:4-0023279 and 4-0028274) from glass manufacturing (1960—1990). The release achieved Permanent Solution with Conditions regulatory status in 2021. An AUL was implemented to restrict certain activities that may compromise the structural integrity of the basement slab and building floor or affected soil behind the building. The area of the AUL includes the northern half of the building and the area of the parcel behind the building on the north side. This AUL immediately abuts the identified construction limits and any disturbance of the AUL area must be performed in accordance with the requirements of the AUL and MCP.

5.6 Demolition Waste and Material Management

Table 5.6-1 presents estimated demolition waste quantities that are expected to be generated for the Build Alternative. **Table 5.6-2** presents estimated quantities of excavated and fill material that would be generated for the Build Alternative.

Table 5.6-1. Demolition Waste Quantity Estimates (Sagamore Bridge)

Location	Waste Type	Estimated Quantity
Sagamore Bridge Canal Span/Approaches	Steel	4,600 tons
	Rebar (steel)	1,500 tons
	Concrete	63,200 tons
Sagamore Bridge North Quadrant, U.S. Route 6 over Scenic Highway	Steel	0 tons
	Rebar (steel)	230 tons
	Concrete	6,300 tons

Source: Massachusetts Department of Transportation, 2024

Table 5.6-2. Material Quantity Estimates (Sagamore Bridge)

Location	Type	Estimated Quantity
Sagamore Bridge North Quadrant	Excavated Material	460,000 cubic yards
	Fill Material	215,000 cubic yards
Sagamore Bridge South Quadrant	Excavated Material	689,000 cubic yards
	Fill Material	161,000 cubic yards

Source: Massachusetts Department of Transportation, 2025

6 Bourne Bridge Study Area

6.1 Land Use

6.1.1 Current Land Use

The main land uses within the Bourne Bridge Study Area are the Bourne Bridge, associated roadways, and the Bourne Rotary. The remaining parcels are residential or commercial in nature. Commercial uses include gasoline / auto repair stations, printing services, convenience stores, motels, coffee shops, dry cleaning, schools, state police barracks, auto dealerships, pharmacy, and ice skating. In addition, Bourne Scenic Park is on the north side of Cape Cod Canal to the east of the bridge. A large undeveloped and wooded area exists on the south side of the canal to the east of the bridge.

6.1.1.1 Bourne North Quadrant

To the north of Bourne Bridge is the interchange connecting State Route 25, State Route 28, and U.S. Route 6. Land uses in this area consist of a mix of commercial and residential uses with conservation and wooded space.

Four registered federal RCRA generator sites are known to generate hazardous waste: Bourne Petroleum at 2 Head of the Bay Road, Petsmart at 2 Bourne Bridge Approach (2 listings), and Bourne Scenic Park at 370 Scenic Highway are each registered as VSQGs.

Several waste products are not considered to be federal RCRA hazardous wastes but are regulated as hazardous waste on the state level. In Massachusetts, waste oil is the most common example. Three sites within the Bourne North quadrant are known to generate Massachusetts-regulated hazardous wastes.

6.1.1.2 Bourne South Quadrant

The Cape Cod Air Force Station owns a large portion of the land south of Bourne Bridge. The remaining parcels in and near the alignment are residential or commercial properties that include a large grocery store (Market Basket), school, gasoline stations, auto repair businesses, convenience stores, coffee shops, retail stores, and a landscape supply store. The Bourne Integrated Solid Waste Management Facility (Bourne Landfill) is to the south-west of the roadway approach.

Five registered RCRA generator sites are known to generate hazardous waste. The Upper Cape Cod Regional Technical School, a Cumberland Farms, Battles Buick GMC, and Battles Nissan are registered as VSQGs. Angels Touch of Bourne, at 148 MacArthur Boulevard, is registered as a Small Quantity Generator. There are 11 sites that are known to generate a Massachusetts-regulated hazardous waste.

6.1.2 Historical Land Use

Historical Sanborn® maps, topographic maps, and aerial photographs were reviewed to identify land use activities that could be potential sources of contamination within the Bourne Bridge Study Area. Available mapping and historical information were minimal at this location.

6.1.2.1 Bourne North Quadrant

EDR provided Sanborn® maps for the years 1941 and 1962. One of the 1941 maps focuses around the Bourne Pond area on the north side of Cape Cod Canal and west of Bourne Bridge. Property uses include residential and buildings labeled Town Hall, Police Station, and Highway Department. The maps depict a gasoline tank to the southwest of the Highway Department building. Several properties along Main Street are identified as filling stations with associated gasoline tanks. These locations are all outside of the construction limits of disturbance.

Available topographic maps date back to 1889 and identify an unnamed river running along the approximate location of the present-day Cape Cod Canal, and the canal is first depicted on the 1915 topo. **Attachment 9** identifies detailed findings.

The earliest aerial photograph is from 1951, which depicts Bourne Bridge and Bourne Rotary. **Attachment 11** provides detailed findings.

6.1.2.2 Bourne South Quadrant

To the south of Bourne Traffic Circle along State Route 28, there was a filling station and the Cape Cod Stone Company, where concrete mix and cement was stored on-site in the early 1940s. A building labeled General Storage appears on the southeast side of Bourne Traffic Circle. By the 1960s, another filling station was added to the southwest of the rotary and the Cape Cod Stone Company became the site of an auto body repair shop. The 1962 map is an update of the same areas as the 1941 map. Additional property uses of interest include a print shop on Perry Avenue, a drycleaner on Main Street, a filling station on the southwest side of Bourne Traffic Circle, a restaurant on the northwest side, and an auto body repair shop on the southeast side. **Attachment 7** summarizes the Sanborn maps applicable to the Bourne Bridge alignment.

Available topographic maps date back to 1889 and identify an un-named river running along the approximate location of the present-day Cape Cod Canal, and the canal is first depicted on the 1915 topographic map. A railroad is shown running along the south side of the unnamed river, crossing over the river and running northwest. **Attachment 9** identifies detailed findings.

The earliest aerial photograph is from 1951, which depicts Bourne Bridge and Bourne Rotary. The Upper Cape Cod Regional Technical High School is first depicted on the 1970 aerial photograph. Aerial

photographs show the large, wooded parcel south of Cape Cod Canal, to the east of the bridge, being partially cleared in the 1950s and 1960s. **Attachment 11** provides detailed findings.

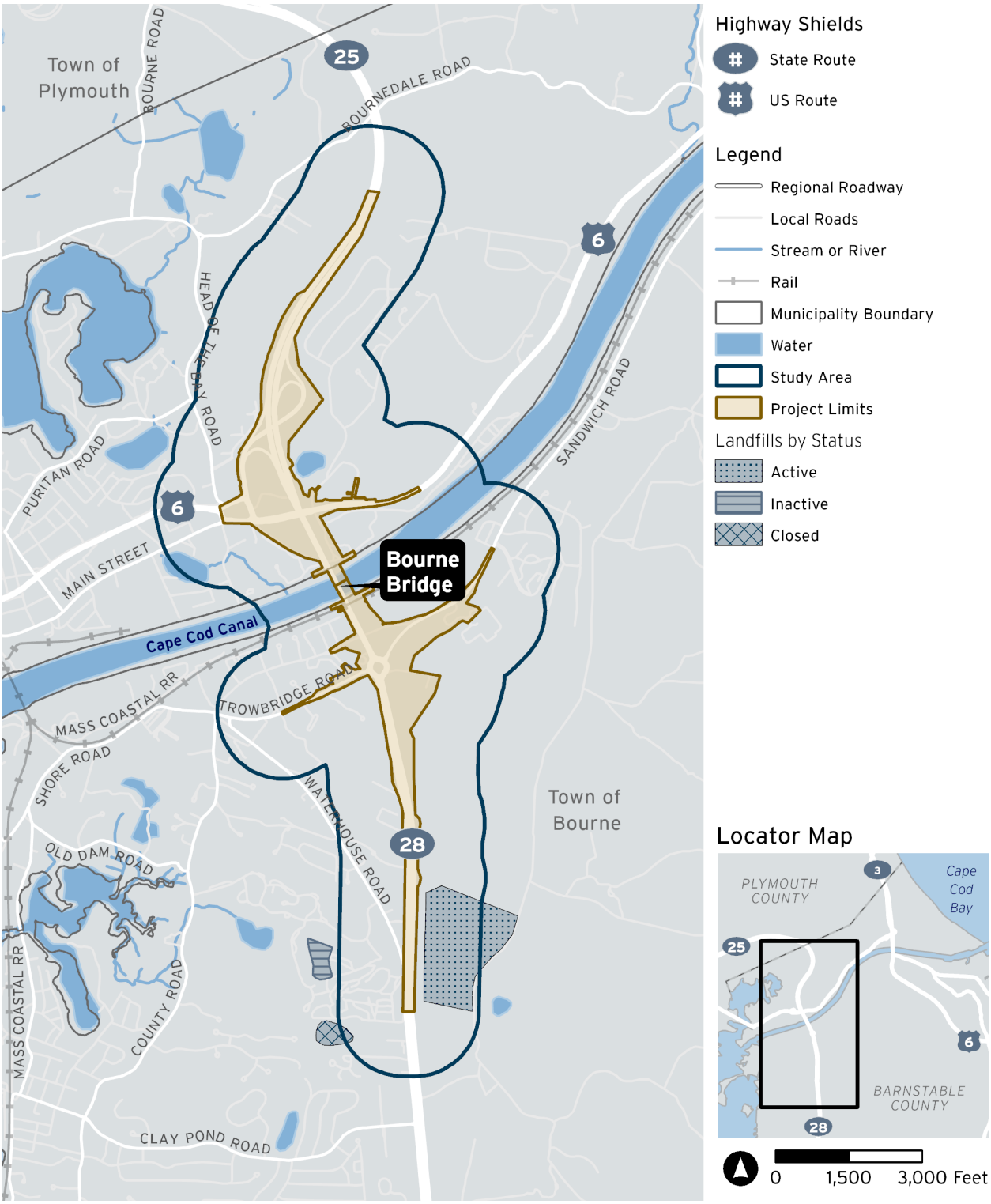
6.2 Solid Waste Landfills

One active solid waste facility, the Bourne Landfill, was identified within the Bourne South quadrant. This facility is on Dump Road to the east of State Route 28. The landfill is not within the construction limits but is within the quarter-mile buffer used for the review area. Several smaller, inactive landfills were identified near, but not within the Study Areas:

- Brookside Development Corp Landfill, on MacArthur Boulevard, was an unlined sludge landfill that was closed between 1950 and 1968 and capped in 1996. This past landfill is within the current Brookside Golf Club property, east of Bourne Landfill.
- Brookside Residential LLC, at Amberwood Court, was a municipal solid waste facility that was capped in 2013. This landfill is within the current Brookside Golf Club property east of Bourne Landfill.
- Nightingale Stump Landfill, within the Brookside Golf Club property, was an unlined, wood waste landfill that was closed by 1989 without a cap.
- Otis Air Force Base Landfill, which was an unlined, municipal solid waste facility, was active in the 1940s and closed with a cap in 1991.

Figure 6.3-1 identifies active and inactive solid waste landfills relative to the Bourne Bridge Study Area.

Figure 6.3-1. Solid Waste Landfills (Bourne Bridge Study Area)



Source: Massachusetts Department of Transportation, 2024

6.3 Underground Storage of Oils and/or Hazardous Materials

6.3.1 Bourne North Quadrant

Four identified sites contain USTs. Three of the four sites have had their tanks removed. One site, the Speedway at 343 Scenic Highway, still maintains USTs. **Attachment 3** and **Attachment 4** provide additional details on USTs.

6.3.2 Bourne South Quadrant

The following seven known sites historically contained USTs:

- Sorenti Petro on Canal Road
- Upper Cape Cod Regional Technical School on Sandwich Road
- Bourne State Police at the Bourne Rotary
- Bourne Rotary Texaco and Cumberland Farms at 4 MacArthur Boulevard
- Frank Battles Inc. at 48 MacArthur Boulevard
- Battles Pontiac at 50 Mac Arthur Boulevard
- Showcase Nissan Suzu at 60 MacArthur Boulevard

These tanks are reported as being removed and there is a documented release from the Bourne Rotary Texaco property.

Attachments 3 and 4 provide additional details on USTs.

6.4 Locations of Known or Potential Contamination

Several MCP release sites are within the Bourne Bridge Study Area; however, most sites are related to small fuel and oil spills that were cleaned up and closed with no restrictions. **Figure 6.4-1** and **Figure 6.4-2**, respectively, show the locations of impact and the associated level of environmental concern for the identified MCP release sites relative to the Bourne North and Bourne South quadrants. Refer to **Sections 6.4.1** and **6.4.2**, respectively, for summary descriptions of MCP release sites within the Bourne North and Bourne South quadrants.

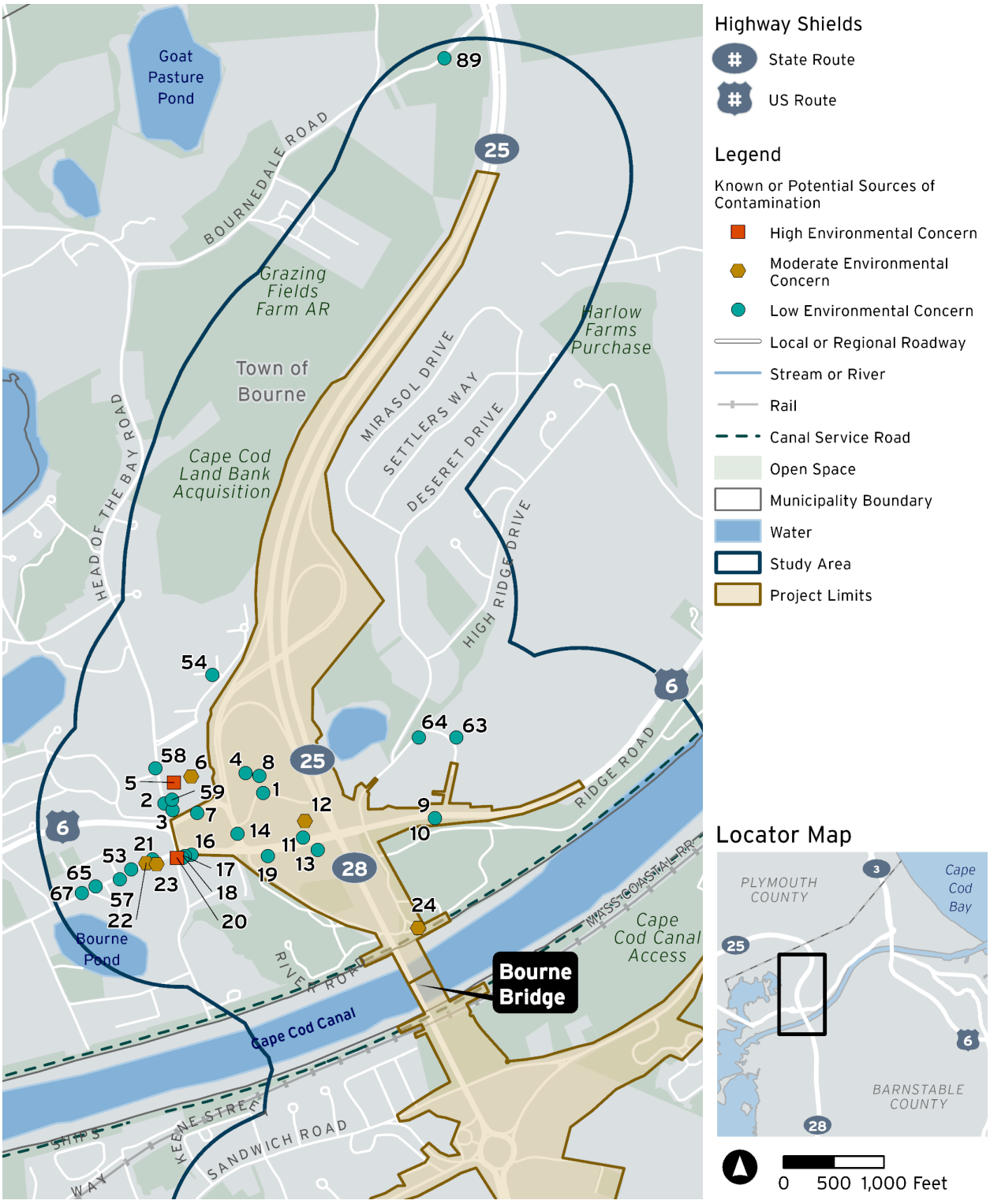
6.4.1 Bourne North Quadrant

No federal NPL - Superfund sites are within the Bourne North quadrant.

Two database site locations are of high environmental concern. One is linked to an Exxon Station, where there was a release of gasoline that affected soil and groundwater (RTN 4-000335) and the other is linked to the Bourne Sunoco Service Station on Main Street, which was identified as having a leaking UST. **Table 6.4-1** and **Attachment 3** provide additional details.

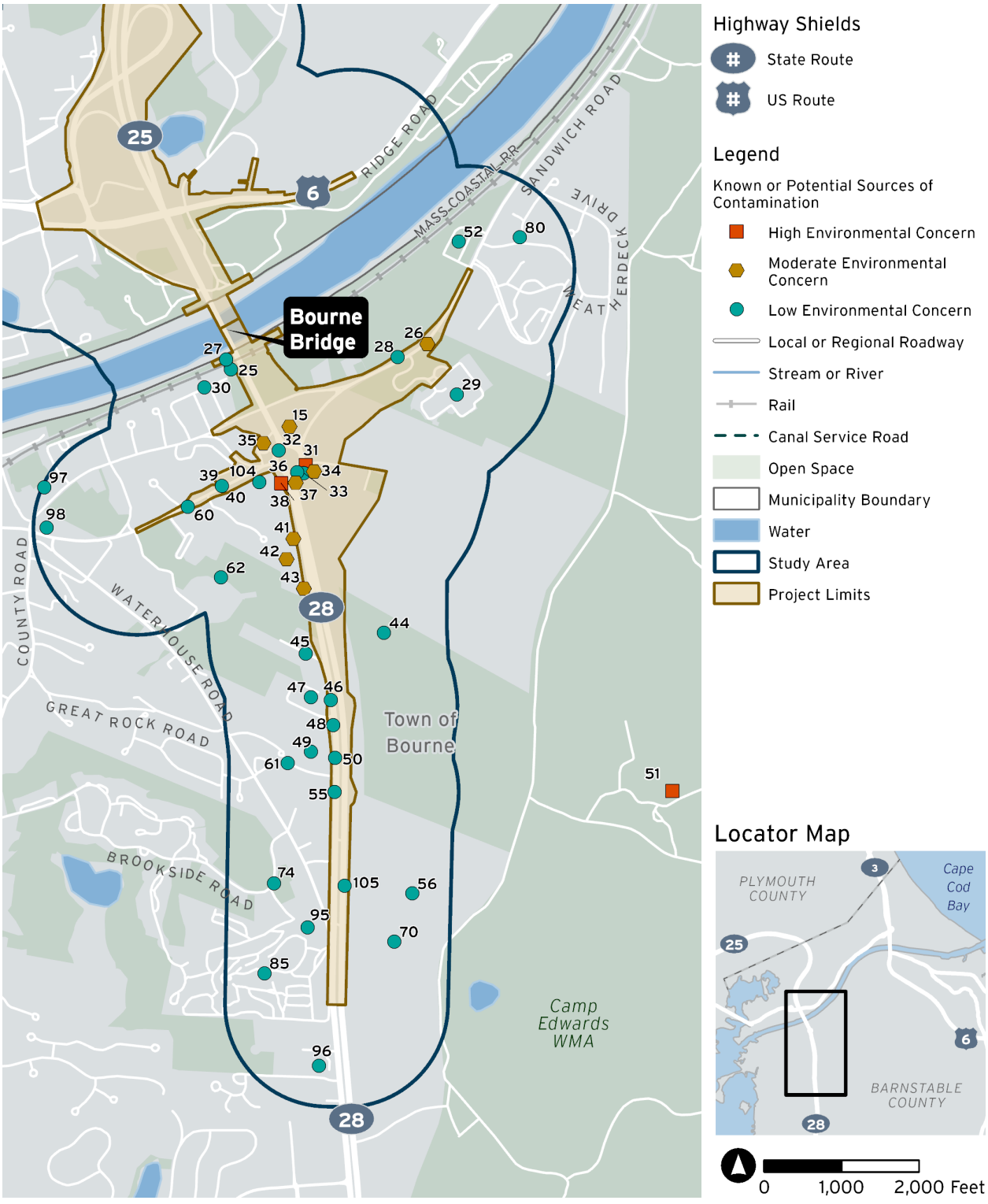
Six database listings are of moderate environmental concern of which four are associated with an RTN. **Attachment 4** provides details on each site. The remaining 44 sites within Bourne North quadrant are of low environmental concern of which 25 are associated with a closed RTN. **Attachments 4 and 5** include information concerning these listings.

Figure 6.4-1. Massachusetts Contingency Plan Release Sites (Bourne North Quadrant)



Source: Massachusetts Department of Transportation, 2024

Figure 6.4-2. Massachusetts Contingency Plan Release Sites (Bourne South Quadrant)



Source: Massachusetts Department of Transportation, 2024

Table 6.4-1. High Environmental Concern Sites (Bourne Bridge Study Area)

Attachment/ Site ID	Location	Address	Location (Quadrant)	Status/Comments
3/51	Otis Air National Guard Base/Camp Edwards (aka Massachusetts Military Reservation/Joint Base Cape Cod)	Otis Air Force Base Herbert Road	Bourne South	A small portion of the Massachusetts Military Reservation/Joint Base Cape Cod (the Base) Superfund Site is located within 1 mile of the Bourne Bridge alignment on the south side of the canal. While no portion of the Base is within the alignment itself, this is still considered a high environmental risk concern based upon the site's Superfund status. Historical mapping of the Northwest Corner groundwater plume indicates perchlorate-affected groundwater migrated northerly, discharging into Cape Cod Canal. The location of the historic plume crossed through a portion of the current roadway alignment, within a couple thousand feet east-northeast of the Bourne Rotary through the parcels occupied by the Upper Cape Cod Regional Technical High School, the residential neighborhood east of the school, and the Gallo Ice Arena property. Plume maps updated in an April 2023 report indicate the plume has receded south and no longer affects these properties.

Attachment/ Site ID	Location	Address	Location (Quadrant)	Status/Comments
3/5	Exxon Station #35693	Bourne Rotary	Bourne North	Release Tracking Number (RTN): 4-335: Release of gasoline from USTs that affected soil and groundwater. Volatile Petroleum Hydrocarbon impacts still present in groundwater. Permanent Solution Statement with no Conditions submitted in May 2024. Groundwater at depths greater than 15 feet.
3/20	Bourne Sunoco Inc. Sunoco Service Station	298 Main Street	Bourne North	Listed on the Leaking Underground Storage Tank database under the name Sunoco Service Station from 1992 to 2012.
3/31	Texaco Station, Gulf Gas Station, Exxon Company USA	Bourne Rotary	Bourne South	RTN: 4-10835.Site is listed as closed.
3/38	Cumberland Farms Inc. 2186 Bourne Rotary Texaco	4 Macarthur Boulevard	Bourne South	RTN: 4-10834: Release of gasoline (Volatile Petroleum Hydrocarbon) to soil and groundwater. Achieved regulatory closure with a Class A-2 Response Action Outcome Statement submitted to the Massachusetts Department of Environmental Protection on November 24, 2006. Report figures indicate that petroleum impacts are under the rotary. The Cumberland Farms site at 4 MacArthur Boulevard is being renovated. The renovations include an 8,153-square-foot building on 164,000 square feet of land adjacent to Bourne Rotary. In addition to the Cumberland Farms convenience store, a Burger King restaurant and drive-thru, gasoline service with 20 fuel pumps, four electric vehicle charging stations, and 102 parking spaces are planned.

6.4.2 Bourne South Quadrant

The Otis Air National Guard Base/Camp Edwards Superfund site abuts the Bourne Bridge Study Area to the southeast and has been identified as a site of high environmental concern. Two additional sites are flagged as having high environmental concern:

- Gas station at Bourne Rotary has been remediated under an RTN related to a release of gasoline to soil and groundwater.
- Cumberland Farms site at 4 General MacArthur Boulevard is still undergoing remedial action related to a release of gasoline to soil and groundwater.

Any work that needs to occur within the boundaries of an open RTN must be performed under the oversight of a Licensed Site Professional. **Table 6.4-1** includes information concerning these listings.

At locations where work may be conducted within the boundaries of a release site, coordination with MassDEP may be required. Locations where dewatering of contaminated groundwater may be conducted will require coordination with state and federal agencies for potential dewatering and discharge permits (Dewatering and Remediation General Permit).

6.5 Deed Restrictions

No AULs or other deed restrictions are within the Bourne Bridge Study Area.

6.6 Demolition Waste and Soil Management

Table 6.6-1 presents estimated demolition waste quantities that are expected to be generated for the Build Alternative. **Table 6.6-2** presents estimated quantities of excavated and fill material that would be generated for the Build Alternative.

Table 6.6-1. Demolition Waste Quantity Estimates (Bourne Bridge)

Location	Waste Type	Estimated Quantity
Bourne Bridge Canal Span/Approaches	Steel	7,750 tons
	Rebar (steel)	2,100 tons
	Concrete	85,300 tons
Bourne Bridge North Quadrant, State Route 28 over Scenic Highway	Steel	255 tons
	Rebar (steel)	130 tons
	Concrete	3,600 tons
Bourne Bridge North Quadrant, State Route 25 On-/Off-Ramp over State Route 25	Steel	285 tons
	Rebar (steel)	135 tons
	Concrete	3,700 tons

Source: Massachusetts Department of Transportation, 2024

Table 6.6-2. Material Quantity Estimates (Bourne Bridge)

Location	Type	Estimated Quantity
Bourne Bridge North Quadrant	Excavated Material	498,000 cubic yards
	Fill Material	267,000 cubic yards
Bourne Bridge South Quadrant	Excavated Material	553,000 cubic yards
	Fill Material	328,000 cubic yards

7 References

Cape and Islands NPR. 2018. Keith Car Works - An Early Manufacturing Powerhouse On Cape Cod. https://www.capeandislands.org/in-this-place/2018-05-07/keith-car-works-an-early-manufacturing-powerhouse-on-cape-cod. Accessed on November 7, 2024.

Environmental Data Resources, Inc., Report Bourne Bridge Project Study Area, September 18, 2024.

Environmental Data Resources, Inc., Report Sagamore Bridge Project Study Area, September 18, 2024.

Massachusetts Department of Environmental Protection (MassDEP) Policy WSC-97-701, 1997, Determining Non-Potential Drinking Water Source Areas.

Massachusetts Department of Environmental Protection's online Searchable Sites website. https://eeaonline.eea.state.ma.us/portal/dep/wastesite. Accessed October 2024.

Massachusetts Department of Environmental Protection (MassDEP) Similar Soils Provision Guidance document Policy WSC#-13-500, September 4, 2014.

Attachment 1 - Sagamore Bridge EDR Listed Sites with Moderate Environmental Concern

Figure ID	Site Name	Address	Database	Environmental Concern	Status/Comments
1	RESIDENCE	59 ADAMS STREET	LUST, RELEASE	Moderate	Release (RTN:4-0023559) of 10 gallons of #2 fuel oil in 2011. While contamination was not reduced to background, the release achieved a Class A-2 RAO in 2012.
			RGA LUST	Moderate	Record consists of the address and the year 2012.
2	NOURIA ENERGY	1 CANAL RD	AST	Moderate	Underground storge tank.
			ECHO	Low	Gasoline station since 2020 with no violations on record.
			FINDS	Low	Gasoline station with very small quantity generator status and no violations on record.
			HW GEN	Low	Very small quantity generator.
			HW GEN	Low	Very small quantity generator.
			RCRA-VSQG	Low	Very small quantity generator. Ignitable waste and benzene.
	SORENTI BROS SHELL STA	1 CANAL RD	SHWS, RELEASE	Moderate	Two releases, linked to a tier classification and closed. RTN:4-0015592 25 gallons of #2 fuel oil released in 2000, RTN:4-0019318 4 inches of diesel and 4 inches of gasoline observed in a monitoring well in 2005.
			EDR HIST AUTO	Moderate	Listed as a liquor store from 1994-2004, and a Gasoline service station from 2005-2006.
			RGA HWS	Low	Record consists of the address each year from 2006 to 2012.
			RGA HWS	Low	Record consists of the address each year from 2002 to 2012.
			RGA HWS	Low	Record consists of the address and the year 2005.
3	SCENIC HWY	CHURCH LN	SHWS, RELEASE	Moderate	A release (RTN:4-0017593) from a vehicle onto the road and roadside of 20 gallons of diesel in January of 2003. A Class A-2 RAO was submitted in April of 2003. Contamination was not reduced to background.

Figure ID	Site Name	Address	Database	Environmental Concern	Status/Comments
4	CANAL FUEL COMPANY	70 CRANBERRY HIGHWAY	UST	Moderate	Five tanks are listed including two 8,000gal heating oil tanks in use since 1990, a 20,000gal heating oil tank in use since 1993, a 3,000gal diesel tank in use since 1993, and a 17,000gal heating oil tank in use since 1993.
5	CANAL FUEL COMPANY-SAGAMORE	147 CRANBERRY HIGHWAY	HW GEN,TIER 2	Moderate	Very small quantity generator. Underground storage tank containing diesel on site.
7	STOP & SHOP GAS 12	80 CRANBERRY HWY	AST	Moderate	Class STG1 underground storage tank. Completed an annual test in 2023.
	STOP & SHOP GAS 12	80 CRANBERRY HWY	FINDS	Low	Alternative name: stop and shop gas 12. Facility is on record since 2013.
	STOP & SHOP GAS 12	80 CRANBERRY HWY	HW GEN	Low	Very small quantity generator.
9	FORMER MOBIL GASOLINE SERVICE STATION	19 MEETINGH OUSE LN	UIC	Moderate	A motor vehicle waste disposal well (UIC ID: MAS41A036301-5K) with a maximum depth of 6 feet.
	MOBIL	19 MEETINGH OUSE LN	FINDS	Low	The property is listed for the year 2011.
	SAGAMORE MOBIL INC	19 MEETINGH OUSE LN	EDR HIST AUTO	Moderate	Listed as a general automotive repair shop from 2000-2004 under the name "Little red tow truck" and from 2004-2013 under the name "Scusset Garage." Listed as a gasoline service station from 1998-2011 under the name "Sagamore Mobil inc."
	SAGAMORE MOBIL INC	19 MEETINGH OUSE LN	UST	Low	Six tank removal operations, T1 1973-1989 4000gal gasoline, T2 1989-2011 4000gal diesel, T3-6 1989-2011 5000gal gasoline. File closed in 2012.
10	CLEANN BRIGHT MOBIL	783 SANDWICH RD	EDR HIST AUTO	Moderate	Listed as a gasoline service station from 2001-2010 under the name "Clean bright mobile."
11	PLUMMER ROY	847 SANDWICH RD	EDR HIST AUTO	Moderate	Listed as an auto and home supply store from 2002-2008 under the name "Plummer Roy."
	SANTUIT TWO		UST	Moderate	Underground storge tank.

Figure ID	Site Name	Address	Database	Environmental Concern	Status/Comments
12	PAIRPOINT MANUFACTU -RING CO. INC.	851 SANDWICH ROAD	SHWS, RELEASE	Moderate	Historic release of lead and arsenic (RTN:4-0023279) from glass manufacturing (1960 - 1990). The release achieved Permanent Solution w/Conditions regulatory status in 2021. Soil impacts appear to be limited to the north side of the building. An AUL was implemented for this release.
8	FACILITY NO 88 Note: This location was reworked during highway construction in 2006.	MEETING HOUSE RD	LUST, RELEASE	Moderate	A release (RTN:4-0014339) of diesel fuel at 100ppm was discovered in 1998. The release was closed with an RAO A-2 in 1999.
			LUST, RELEASE	Moderate	Reportable release (RTN:4-0012710) of 18 inches of BTEX was discovered in a monitoring well down gradient of the Sorenti Texaco Station, where response actions have culminated in a Class A-2 RAO closure in 2008 (see Map ID 2, above). Response actions include installation of additional monitoring wells and a groundwater sampling schedule to characterize and monitor plume migration, and removal of leaking USTs at the Sorenti Texaco Station. The release RTN:4-0012710 achieved regulatory closure with down gradient status on March 17, 1997.
			SHWS, RELEASE	Moderate	Reportable release (RTN:4-0012144) of M-xylene(0.644ppm), 1,3,5-Trimethyl benzene(105ppm), Toluene(90ppm), Hydraulic oil(250ppm), O-xylene(0.272ppm), Naphthalene(18.2ppm), Toluene(1.02ppm) in 1996. DPS status as of 1997.
		SAGAMORE ROTARY	LUST, RELEASE	Low	An unknown quantity of gasoline (RTN:4-0010201) released from a leaking UST in 1994. The case has been in RAO class A1 since 1995.
37	AUTO &TRUCK REPAIR SPECIALIST	100 CRANBERRY HWY	RCRA-VSQG, MANIFEST	Low	Conditionally Exempt Small Quantity Generator. Ignitable waste. Manifests for 2003-2005.
	SAGAMORE SERVICE STATION		UST	Low	Four tank removal operations. T1 1976-1991 3,000gal gasoline, T2 1976-1991 3,000gal gasoline, T3 1976-1991 4,000gal gasoline, T4 1976-1991 4,000gal gasoline.

Figure ID	Site Name	Address	Database	Environmental Concern	Status/Comments
			UST FINDER		same information as above.
			SPILLS	Moderate	An unknown quantity of petroleum spilled in 1991 because of a UST overfill. Spill ID: S91-0783

Notes: Low Environmental Concern
Moderate Environmental Concern
High Environmental Concern
Source: Environmental Data Resources, Inc.

Attachment 2 - Sagamore Bridge EDR Listed Sites with Low Environmental Concern

z	Site Name	Address	Databases	Environmental Concern	Status/Comments
13	SANDRA RYAN	38 ADAMS ST	ASBESTOS	Low	Asbestos removed in 2003.
14	RESIDENTIAL	38-42 ADAMS STREET	ASBESTOS	Low	Asbestos removed in 2022.
15	RESIDENTIAL	44-48 ADAMS STREET	ASBESTOS	Low	Asbestos removed in 2022.
17	ROTARY COLLISION CENTERS INC	22 CANEL ST	FINDS	Low	The property is listed each year since 2006.
18	CANALSIDE MOTEL AT SAGAMORE ROTARY	5 CHURCH ST	RGA HWS	Low	Record consists of the address each year from 2004 to 2012.
	CANALSIDE MOTEL AT SAGAMORE ROTARY	5 CHURCH ST	SHWS, RELEASE	Low	Reportable release (RTN:4-0017961) of Methyl Tert-butyl Ether (0.49 ppm). Reduced to background and closed in 2003 with a Class A-1 RAO.
19	FORMER ANTIQUE STORE	73 CRANBERRY HIGHWAY	ASBESTOS	Low	Asbestos removed in 2014.
			ASBESTOS	Low	Asbestos removed in 2014.
			ASBESTOS	Low	Asbestos removed in 2014.
20	RESIDENTIAL	83 CRANBERRY HWY	ASBESTOS	Low	Asbestos removed in 2023.
21	MARKET BASKET	1 FACTORY OUTLET WAY	FINDS	Low	Supplementary environmental interests listed as 'AIR STATIONARY POINT SOURCE'
		7 LOUIS AVE	ASBESTOS	Low	Lead found during an inspection in 2016 and asbestos removed in 2023.
22	UNITED PARCEL SERVICE MASAG	34 MEETINGHOUSE LN	FINDS, ECHO	Low	A "small quantity generator." No violations on record.

z	Site Name	Address	Databases	Environmental Concern	Status/Comments
23	OTIS AIR NATIONAL GUARD BASE/CAMP EDWARDS	OTIS AFB HERBERT RD	NPL, SEMS, US ENG CONTROLS,US INST CONTROLS,ROD,RAATS,PRP,PFAS NPL,MANIFEST	Low	This land has been used by the military since 1935 and contains multiple areas with hazardous materials present in the soil and groundwater. The closest plume is located approximately 2 miles southeast of the Sagamore Program study area. The release occurred at a training range, situated over the peak of the Cape Cod aquifer, where groundwater infiltrates and flows in all directions. The ammunition used on the training range contain a lead core in a metal alloy jacket, usually composed of lead, copper, iron, antimony, and nickel; the explosives used were TNT and RDX.
	CAPE COD AIR FORCE STATION		DOD	Low	Active air force station.
	NG MTA CAMP EDWARDS		DOD	Low	Active national guard station.
24	SORENTI BROS GULF	RTE 3A & MEETING HOUSE RD	SPILLS	Low	Unknown quantity of Gasoline spilled (spill ID :S90-0521) in 1989, case is closed.
25	COMM OF MASS DPW	SAGAMORE ROTARY	FINDS, ECHO	Low	Facility with no violations on record.
26	NO LOCATION AID	SAGAMORE ROTARY	SHWS, RELEASE	Low	A release (RTN:4-0012235) from a vehicle onto the roadway of 25 gallons of diesel in 1996. Contamination reduced to background and the case closed with a Class-A1 ROA in 1996.
27	SORENTI BROS	SAGAMORE ROTARY	LUST, RELEASE	Low	36 inches of gasoline (RTN:4-0015612) discovered in a monitoring well in 2000. The case was closed with a Class A-2 RAO in 2004.
28	GALLO CONSTRUCTION CO INC	845 SANDWICH RD	RCRA NONGEN / NLR, FINDS, ECHO	Low	Non-generator yet ignitable waste was on the facilities record from 1990-1991.
29	CANALVIEW APARTMENTS	860 SANDWICH RD	ASBESTOS	Low	Asbestos removed in 2017.
			ASBESTOS	Low	Asbestos removed in 2017.
30	ROADWAY	SCENIC HWY/CHURCH LN	SHWS, RELEASE	Low	A release (RTN:4-0019599) from a vehicle onto the roadway of 40 gallons of gasoline in 2006. The site was closed with a Class A-1 RAO in 2006.

z	Site Name	Address	Databases	Environmental Concern	Status/Comments
31	MA DOT HIGHWAY DIVISION	45 STATE RD	FINDS	Low	Massachusetts Environmental Protection Integrated Computer System (MA-EPICS) housed at this address.
34	SANDWICH SUR CRA RAD		FUDS	Low	Former army use (1945), current Coast Guard use.
41	UNITED PARCEL SERVICE - MASAG	48 MEETINGHOUSE LN	UST	Low	Two tank removal operations, one tank still in use. T1 1966-1988 4,000gal gasoline. T2 1980-1988 500gal waste oil. T3 4,000gal diesel in use since 1988.
	UPS-SAGAMORE	48 MEETINGHOUSE LANE	ECHO	Low	No violations noted.
16	NO LOCATION AID	123 BRIDGE ST	SHWS, LUST, RELEASE	Low	Release (RTN:4-0013114) of 100 gallons of diesel from a pipe and underground storage tank in 1997. Contamination was reduced to background in 1997.
32	MASS DOT FACILITY	45 STATE ROAD	SHWS, RELEASE, HW GEN	Low	Reportable release (RTN:4-0025707) of unknown substance. A permanent solution with no conditions was achieved in 2015.
33	SAGAMORE BRIDGE MARINE INC	127 STATE RD	RCRA NONGEN / NLR	Low	Facility handles "ignitable waste.' No violations on record.
6	PROPERTY	70 CRANBERRY HWY	SPILLS	Low	Spill (ID:S90-0363) of gasoline occurred during an underground tank removal in 1990.
35	CRANBERRY HIGHWAY	IFO 26 BEN ABBEY ROAD	SHWS, RELEASE	Low	Release (RTN:4-0027198) of 20-30 gallons of polyurethane onto a roadway in 2018. A pallet of floor sealants (polyurethane) spilled off of a flatbed truck. Permanent solution with no conditions was achieved in 2018.
36	SORENTI BROTHERS INC	89 CANAL ST	HW GEN	Low	Very small quantity generator.
39	RESIDENCE	81 HUNTER'S BROOK ROAD	SHWS, LAST, RELEASE	Low	Release (RTN:4-0026181) of 20 gallons of #2 fuel oil from a 275gal AST in 2016. Permanent solution with no conditions was achieved in 2016.
40	RESIDENCE	89 HUNTER'S BROOK ROAD	LAST, RELEASE	Low	Release (RTN:4-0023238) of 10 gallons of #2 fuel oil from an AST in 2011. A Class A-2 RAO was achieved in 2012 where the contamination was not reduced to background.

z	Site Name	Address	Databases	Environmental Concern	Status/Comments
42	UNITED PARCEL SERVICE MASAG	58 MEETINGHOUSE LN	RCRA-SQG, MANIFEST	Low	Small quantity generator. Waste codes D001-D043, F001-F012, F019-F028, F032-F035, F037-F039, P001-P024, P026-P031, P033-P034, P036-P051, P054-P060, P062-P078, P081, P082, P084, P085, P087-P089, P092-P099, P101-P124, P127, P128, P185, P188-P192, P194, P196-P199, P201-P205, U001-U012, U014-U039, U041-U053, U055-U064, U066-U099, U101-U138, U140-U197, U200, U201, U203-U223, U225-U228, U234-U240, U243, U244, U246-U249, U271, U278-U280, U328, U353, U359, U364, U367, U372, U373, U378, U387, U389, U394, U395, U404, U409-U411, U480. No violations on record. Manifest for D001(ignitable waste) from 1991.
	UPS - SAGAMORE	58 MEETINGHOUSE LN	HW GEN, TIER 2	Low	Small quantity generator. Underground storage tank containing diesel on site.
45	CANAL BP SERVICE STATION	RTE 6A PO BOX 311	LUST, RELEASE	Low	RTN:4-0000547. Free product was observed in monitoring wells in 1988. Remediation occurred at the site between 2001-2003. A Class A-2 RAO was achieved in 2003 where the contamination was not reduced to background.
46	GURNEY'S STORE	896 SANDWICH RD	UST, FINANCIAL ASSURANCE	Low	Two tank removal operations. T1 1959-1993 1,000gal gasoline. T2 1959-1993 1,500gal gasoline.
49	PEPSI BOTTLING GROUP	103 STATE RD	HW GEN	Low	Very small quantity generator.
			RCRA-VSQG	Low	Conditionally Exempt Small Quantity Generator. Ignitable waste. One violation on record from 1988, return to compliance occurred in 1993.
50	PEPSI BOTTLING GROUP	103 STATE RD	UST, FINANCIAL ASSURANCE	Low	Tank removal operation. T1 1979-1992 diesel. Tank capacity not reported.
51	EAGLE MARINE	127 STATE RD RTE 31	SHWS, RELEASE	Low	RTN:4-0001302. Removal of a 5,000gal concrete pit, a 2,000gal gasoline UST, a 500gal and a 275gal waste oil AST, and impacted '"dump" material (soil and concrete)' in 1993. The case achieved a compliance status of DEPNFA (no further action) in 1993.
			SPILLS	Low	Unknown quantity of Gasoline spilled (spill ID :S91-0025) during an underground tank removal in 1991.

z	Site Name	Address	Databases	Environmental Concern	Status/Comments
			UST FINDER RELEASE	Low	Same information as above.
52	SORENTI BROTHERS INC	114 STATE RD	EDR HIST AUTO	Low	Gasoline service station listed from 1999 - 2014
53	BATSTONE LLC	871 SCENIC HIGHWAY	RCRA NONGEN / NLR, E MANIFEST	Low	Verified non-generator. 300 lbs. of non-DOT regulated oily debris transported off site in 2021. Manifest Tracking Number: 015519599FLE
	BATSTONE LLC	871 SCENIC HWY	ASBESTOS, HW GEN	Low	670 square feet of asbestos removed during a basement renovation in 2021.
	CAPE COD AGGREGATES CORP		US MINES	Low	Mine ID: 1901058. Permanently Abandoned as of 2020.
54	SOUTHEAST TRUCK CENTER INC	147 STATE RD	HW GEN	Low	Very small quantity generator
	SOUTHEAST TRUCK CENTER, INC.	147 STATE ROAD	RCRA NONGEN / NLR, E MANIFEST	Low	Verified non-generator. 220 gallons of Na1993 Combustible Liquid transported off site in 2021. Manifest Tracking Number: 007026606SKS
56	CHRISTMAS TREE SHOPS 7008	CRANBERRY HWY	FINDS, ECHO	Low	Very small quantity generator.

Notes: Low Environmental Concern
Moderate Environmental Concern
High Environmental Concern
Source: Environmental Data Resources, Inc.

Attachment 3 - Bourne Bridge EDR Listed Sites with High Environmental Concern

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
5	EXXON STATION #35693	BOURNE ROTARY	LUST, RELEASE	High	RTN:4-335: Release of gasoline from USTs that impacted soil and groundwater. VPH impacts still present in groundwater. Permanent Solution Statement w/no Conditions submitted in May 2024. Groundwater at depths greater than 15 feet.
20	BOURNE SUNOCO INC SUNOCO SERVICE STATION	298 MAIN ST	RGA LUST	High	Listed on the LUST database under the name Sunoco Service Station from 1992 to 2012.
31	TEXACO STATION, GULF GAS STATION, EXXON COMPANY USA	BOURNE ROTARY	SHWS, RELEASE	High	RTN: 4-10835 RTN is listed as closed.
			SHWS, RELEASE, SPILLS	High	RTN: 4-10834: Release of gasoline to soil and groundwater. Achieved regulatory closure with a Class A-2 RAO submitted to the MassDEP on November 24, 2006. Report figures indicate that petroleum impacts are under the rotary.
38	CUMBERLAND FARMS INC 2186 BOURNE ROTARY TEXACO	4 GEN MACARTHUR BLVD	SHWS, LUST, RELEASE	High	RTN: 4-29098 Release of gasoline to soil and groundwater. Remedial activities are ongoing. Last regulatory submittal was a Phase I – Initial Site Investigation Report, Tier Classification, and Phase II – Scope of Work submitted to the MassDEP on November 11, 2022.

51	OTIS AIR NATIONAL GUARD BASE/CAMP EDWARDS	Otis AFB Herbert Road	NPL, SEMS, US ENG CONTROLS, US INST CONTROLS,ROD,RAATS,PRP,PFAS NPL,MANIFEST, DOD	High	Listed on the NPL database under Site ID:100960 and EPA ID: MA2570024487 NPL Status = Currently on the Final NPL. Contaminants include among others, Tetrachloroethylene, Trichloroethylene (TCE), Trans 1,2-Dichloroethylene, and Formaldehyde in groundwater. A review of past and present operations and waste disposal practices identified several potentially contaminated areas, including eight locations covering 3,900 acres on the southern portion of MMR. Six are within Otis ANGB: Former Fire Training Area, Current Fire Training Area, Base Landfill, Nondestructive Testing Laboratory Leach Pit, Fly Ash Disposal Area, and a plume of contaminated ground water from a sewage treatment plant. The materials associated with the eight areas are fly ash, bottom ash, waste solvents, waste fuels, herbicides, and transformer oil. While the Nondestructive Testing Laboratory operated 1970-78), waste solvents, emulsifiers, penetrants, and photographic developers were deposited in the sanitary sewer system. Effluent from the sewage treatment plant was discharged into sandbeds, where it seeped into ground water. In 1984, the U.S. Geological Survey detected trichloroethane, tetrachloroethylene, and trans-1,2-dichloroethylene in monitoring wells downgradient of the plant. The plume of contaminated ground water extends 2 miles to the south. In 1983 and 1984, the Air Force detected volatile organic compounds (VOCs) in on-site monitoring wells near the Base Landfill and Current Fire Training Area. The Air National Guard and the MassDEP have detected VOCs in more than 200	

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
					private wells. EPA has designated the Cape Cod aquifer underlying MMR as a Sole Source Aquifer under the Safe Drinking Water Act. The municipalities of Bourne and Sandwich, as well as the Air Force, have drinking water wells within 3 miles of hazardous substances at the site. To date, they are not contaminated. The drinking water of 36,000 people is potentially threatened. The Air Force is participating in the Installation Restoration Program (IRP), established in 1978. Under this program, the Department of Defense seeks to identify, investigate, and clean up contamination from hazardous materials. A committee that represents all service branches on MMR is coordinating a second investigation that addresses the entire facility. Approximately 40 operable units are in various stages of evaluation, the majority in the remedial investigation phase. The site is listed on the PFAS NPL database. The database indicates that groundwater, surface water, drinking water, and soil are all impacted.

Notes: Low Environmental Concern
Moderate Environmental Concern
High Environmental Concern
Source: Environmental Data Resources, Inc.

Attachment 4 - Bourne Bridge EDR Listed Sites with Moderate Environmental Concern

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
6	BOURNE PETROLEUM BOURNE BRIDGE MOBIL MOBIL GAS STATION BOURNE BRIDGE EXXON - BZ BY	2 HEAD OF THE BAY ROAD	RCRA-VSQG	Low	EPA ID: MAR000608513: Property generates ignitable waste and benzene. No violations or evaluations have been reported.
			FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing on the NPDES database (Permit ID: MAR1002V9). The NPDES permit was associated with construction stormwater and is currently listed as 'Terminated'
			UST	Moderate	Two 12,000gal gasoline USTs, One 8,000gal diesel UST, and one 7,000gal diesel UST are currently in use at the property. One 4,000, 6,000, and 10,000gal gasoline USTs were removed from the property in March of 1992.
			ECHO	Low	Listed on the ECHO database due to its listing as a RCRA-VSQG.
			SHWS, RELEASE	Low	RTN: 4-29170: Release of gasoline from a fuel tank of a vehicle. Achieved regulatory closure with a Permanent Solution Statement with No Conditions submitted to MassDEP on March 11, 2022
			HW GEN	Low	EPA ID: MAR000608513 listed as a RCRA-VSQG. Property generates ignitable waste and benzene.
			AST	Low	No details of the AST are provided.
			EDR HIST AUTO	Moderate	Listed as a gasoline service station from 1994 to 2014 under the names Bourne Petroleum Limited and Bourne Bridge Exxon - BZ
			FINDS	Low	Listed on the FINDS database due to its listing as a RCRA-VSQG.

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
12	SPEEDWAY STORE #2447	343 SCENIC HIGHWAY	SHWS, RELEASE, ASBESTOS	Low	RTN: 4-27350: Release of 10-15 gallons of gasoline to asphalt from overfilling. Achieved regulatory closure with a Permanent Solution with No Conditions submitted to MassDEP on August 31, 2018. Listed on the asbestos database due to the removal of asbestos in February of 2007.
			AST	Low	No details of the AST are provided
			UST	Moderate	One 8,000-gallon, 12,000-gallon and 20,000-gallon gasoline USTs are currently in use at the property.
			FINDS	Low	Listed on the FINDS database due to its listing on the Massachusetts hazardous waste program.
15	IHOP RESTAURANT	2 BOURNE ROTARY	SHWS, LUST, RELEASE	Moderate	RTN: 4-10698: Release of gasoline related compounds from an upgradient property. Granted Downgradient Property Status on June 17, 1998.
22	KING CLEANERS	279 MAIN ST	EDR HIST CLEANER	Moderate	Listed a historical cleaner under the name Garment Pressing and Cleaners' Agents from 1986 to 1993.
24	SORENTI PETRO INC	CANAL RD	UST	Moderate	Three 10,000-gallon gasoline USTs, one 15,000-gallon gasoline UST, two 10,000-gallon diesel USTs, one 15,000-gallon bulk heating oil UST, one 10,000-gallon bulk heating oil UST, and one 6,800-gallon bulk heating oil UST was removed in April of 1991.
26	UPPER CAPE COD REG TECH SCHOOL	220 SANDWICH RD	AST	Low	No details of the AST are provided
			SPILLS	Low	Spill ID: S88-0172 unknown quantity of waste oil spilled from drum in April of 1988. Listed as CLOSED
			RCRA-VSQG	Low	EPA ID: MAR000549584 Property generates ignitable waste. No violations or evaluations have been reported.

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
			SPILLS, AIRS, ASBESTOS, GWDP, NPDES	Low	Spill ID: S89-0339 unknown quantity of petroleum spilled from tank in October of 1989. Listed as CLOSED Listed on the Asbestos database due to the removal of asbestos from the property in April 2003, June 2003, June 2007 and April 2010. Listed on the GWDP and NPDES database under Site ID: 939 for a sanitary discharge permit. The permit was issued on March 6, 2019 and expires on June 11, 2025.
			HW GEN	Low	EPA ID: MAR000549584 listed as a RCRA-VSQG. Property generates ignitable waste.
			MANIFEST	Low	EPA ID: MAP000008168 No further information provided in EDR Report
			UST, FINANCIAL ASSURANCE	Moderate	Two 15,000-gallon bulk heating oil tanks were removed from the property in August of 2004. One 6,000-gallon gasoline tank and one 6,000-gallon diesel tank are currently in use on the property.
			FTTS, HIST FTTS	Low	The property was inspected on March 18, 1998, for cause/ a private citizen complaint. The inspection found that no violation has occurred.
			US AIRS, FINDS, ECHO	Low	Facility Registry ID: 110021603291: No violations have been reported and the air permit is still active.
			ASBESTOS	Low	Listed on the asbestos database for the removal of asbestos in August of 2014
			ASBESTOS, TIER 2	Low	Listed on the asbestos database for the removal of asbestos in June 2014 and August 2014 Tier 2: Facility ID FATR2018000000041139. Storage of gasoline, diesel fuel, and sulfuric acid, and vehicle/boat batteries on the property.
34	BOURNE ROTARY TEXACO	5 BOURNE ROTARY	SHWS, RELEASE	Moderate	RTN: 4-14330 Release of gasoline to soil and groundwater. Achieved regulatory closure with a Class A-2 RAO submitted to the MassDEP on November 3, 2010.
35	BOURNE STATE POLICE BARRACKS	BOURNE BRIDGE ROTARY	UST, FINANCIAL ASSURANCE	Moderate	Two 5,000 gallon and one 1,000 gasoline tank were removed from the property in April of 1999.

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
37	BOURNE ROTARY TEXACO, TEXACO FMR	5 MACARTHUR BLVD	EDR HIST AUTO	Moderate	Listed as a gasoline service station from 1992 to 1996 under the name Bourne Rotary Texaco and in 1997 under the name MPG Corporation.
			RGA LUST	Moderate	Listed on the LUST database under the name Texaco Former 5 Macarthur Blvd from 2004 to 2012.
			LUST, RELEASE	Moderate	RTN: 4-14822: RTN is listed as closed. No documents were available for review on the MassDEP database.
38	CUMBERLAND FARMS INC 2186 BOURNE ROTARY TEXACO	4 GEN MACARTHUR BLVD	UST	Moderate	Four 10,000-gallon gasoline USTs were removed from the property in March of 2011. Currently one 20,000-gallon gasoline UST, one 12,000-gallon gasoline UST and one 8,000 gallon diesel UST are currently in use at the property.
			UST	Moderate	Three 4,000-gallon gasoline USTs, one 4,000-gallon diesel UST, one 8,000-gallon gasoline UST and two 1,000-gallon gasoline USTs were removed from the property in June of 1999.
41	SANTUIT FRANK BATTLES INC	48 MACARTHUR BLVD	EDR HIST AUTO	Moderate	Listed as a gasoline service station from 2012 to 2014 under the name Santuit.
			UST	Moderate	One 15,000-gallon gasoline UST and one 10,000-gallon gasoline UST were removed from the property in January of 2014. The facility is listed as CLOSED.
42	BATTLES BUICK GMC	50 MACARTHUR BLVD	RCRA-VSQG, MANIFEST	Low	EPA ID: MAD985269018 Property generates ignitable waste. No violations or evaluations have been reported.
			HW GEN	Low	EPA ID: MAD985269018 Listed as a RCRA-VSQG
			UST	Moderate	One 4000-gallon gasoline UST was removed from the property in August of 1996. the facility is listed as CLOSED.
			FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing as a RCRA-VSQG.
43	RUSS GULF SHOWCASE NISSAN SUZUKI INC	60 MACARTHUR BLVD	RCRA-VSQG, FINDS, ECHO, HW GEN, MANIFEST	Low	EPA ID: MAD985290592: Property generates ignitable waste. No violations or evaluations found. Listed on the FINDS and ECHO database due to its listing as a RCRA-VSQG.
			UST	Moderate	Two 4,000-gallon gasoline USTs were removed from the property in March of 1995. The facility is listed as CLOSED.

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
70	RECYCLING CENTER BOUNRE LANDFILL FMR DPW FACILITY	201 MACARTHUR BLVD RT 28N 210 MACARTHUR BLVD	MERCURY	Low	Listed on the Mercury database as the facility receives button batteries, fluorescent lamps, thermostats, electronics, and blood pressure cuffs.
			FINDS, ECHO, PFAS ECHO	Low	Listed on the FINDS and ECHO database due to its listing as a Greenhouse Gas Reporter and a Landfill. Reporting Year 2021: Discontinued reporting with a valid reason. Emissions last reported in 2015.
			SHWS, SWF/LF, RELEASE, AIRS, ASBESTOS, FINANCIAL ASSURANCE	Moderate	RTN: 4-22390: Release of MODF to soil. The release achieved regulatory closure with a Class A-1 RAO submitted to the MassDEP on February 11. 2010. Listed as a Municipal Solid Waste Landfill which was opened in 1968. The landfill is currently active and is approximately 33 acres in size. Listed on the Asbestos database for the removal of asbestos from the property in November 2018, April 2021, and August 2021.
			SHWS, RELEASE	Moderate	RTN: 4-14181: Release of extractable and volatile petroleum hydrocarbons to soil and groundwater. Release achieved regulatory closure with a Class A-2 RAO which was submitted to the MassDEP on December 16, 1999.
			SHWS, RELEASE	Moderate	RTN: 4-18507: Release of 45 gallons of hydraulic oil from a garbage truck. The release achieved regulatory closure with a Class B-1 RAO which was submitted to the MassDEP on August 25, 2004.
			ASBESTOS	Low	Listed on the asbestos database for the removal of asbestos in April 18. 2018.
			TIER 2	Low	No information available.
			US AIRS	Low	Compliance monitoring for State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
			ASBESTOS	Low	Listed on the asbestos database for the removal of asbestos in November 5, 2021.
			ASBESTOS	Low	Listed on the asbestos database for the removal of asbestos in November 12, 2021.

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
			ASBESTOS	Low	Listed on the asbestos database for the removal of asbestos in November 19, 2021.
99	NO ID NEW ENGLAND FARMS	360 MACARTHUR BLVD	UST FINDER RELEASE	Moderate	Five 12,000-gallon and six 6,000- gallon gasoline, six 6,000-gallon diesel fuel
			LUST, UST		RTN: 4-0000980. MCP Transition Site. LSP No Further Action 1996.
100	TEXACO SERVICE STATION	360A MACARTHUR BLVD	UST FINDER RELEASE	Moderate	RTN: 4-0000980. MCP Transition Site. LSP No Further Action 1996.

Notes: Low Environmental Concern
Moderate Environmental Concern
High Environmental Concern
Source: Environmental Data Resources, Inc.

Attachment 5 - Bourne Bridge EDR Listed Sites with Low Environmental Concern

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
1	MASTER MILLWORK INCORPORATED	9 BOURNE BRIDGE APPROACH	FINDS	Low	Listed on the FINDS database due to its listing on the OSHA Information System. The listing was last updated on September 12, 2018.
2	BOURNE BRIDGE EXXON	2 HEAD OF THE BAY ROAD	FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing on the NPDES database (Permit ID: MAR100310). The NPDES permit was associated with construction stormwater and is currently listed as 'Terminated' Additionally the property is listed as a hazardous waste generator under EPA ID:MAD985297175 and MAD985268465. The property reportedly generates ignitable waste and benzene.
3	CVS PHARMACY 1576	6 HEAD OF THE BAY ROAD	FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing as a RCRA-SQG and as a Hazardous Waste Biennial Reporter
			ASBESTOS, HW GEN	Low	Listed on the Asbestos database due to the removal of asbestos from the property in June of 2006. EPA ID: MAC300007804 Listed as a RCRA-SQG.
			RCRA-SQG, MANIFEST	Low	EPA ID: MAC300007804: Property generates ignitable waste, corrosive waste, chromium, mercury, selenium, silver, m-cresol, formaldehyde, naphthalene, and other pharmaceutical wastes. No violations or evaluations have been reported.
4	TOMMY'S OIL SERVICE	BOURNE BRIDGE APPROACH	UST	Low	Six unregulated USTs with unknown contents were removed from the property in June of 1986.
5	EXXON STATION #35693	BOURNE ROTARY	SPILLS	Low	Spill ID: 91-0566: Unknown quantity of gasoline spilled in October of 1991. Listed as CLOSED
			SPILLS	Low	Spill ID: 90-0192: 51-100 gallons of gasoline spilled in March of 1990. Listed as CLOSED
			SPILLS	Low	Spill ID: 91-0647 51-100 gallons of gasoline spilled in March of 1990. Listed as CLOSED

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
7	EXXON CO U S A	BELMONT CIR AND HEAD OF BAY RD	RCRA NONGEN / NLR	Low	EPA ID: MAD985268465 listed as not being an active hazardous waste generator (Not a generator, verified). Property historically generated ignitable waste. No violations or evaluations have been reported.
8	PETSMART 2724	2 BOURNE BRIDGE APPROACH ST	HW GEN	Low	EPA ID: MAR000546770 and MAR000525097 listed as a RCRA-VSQG.
			RCRA-VSQG	Low	EPA ID: MAR000546770 Property generates ignitable waste, corrosive waste, and Mercury. No violations or evaluations have been reported.
			RCRA-VSQG	Low	EPA ID: MAR000525097 Property generates ignitable waste and corrosive waste. No violations or evaluations have been reported.
			FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing as a RCRA-VSQG.
9	TRANSFORMER RELEASE	370 SCENIC HWY	SHWS, RELEASE	Low	RTN:4-27170: Release of non-PCB mineral oil dielectric fluid (MODF) to soil. Achieved regulatory closure with a Permanent Solution with No Conditions submitted to MassDEP on May 21, 2018.
10	BOURNE SCENIC PARK	370 SCENIC HWY	HW GEN	Low	EPA ID: MAR000577569 listed as a RCRA-VSQG. Property generates corrosive waste.
			FINDS	Low	Listed on the FINDS database due to its listing as a RCRA-VSQG.
			RCRA-VSQG	Low	EPA ID: MAR000577569 Property generates corrosive waste. No violations or evaluations have been reported.
			ECHO	Low	Listed on the ECHO database due to its listing as a RCRA-VSQG.
11	IN FRONT OF SPEEDWAY GAS STATION	343 SCENIC HIGHWAY (RTE 6 EAST)	SHWS, RELEASE	Low	RTN: 4-27597: Release of 25-40 gallons of diesel fuel to asphalt from a saddle tank. Achieved regulatory closure with a Permanent Solution with No Conditions submitted to MassDEP on January 9, 2019.
13	SUNOCO SERV STA	RTE 6 @ RTE 28	SPILLS	Low	Spill ID:S92-0140 unknown quantity of petroleum spilled in March of 1992. Listed as CLOSED
14	AGT - M&R 00018, MP 25.79 BOURNE	ROUTE 6 AT BOURNE BRIDGE	FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing as a RCRA-VSQG.

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
16	COMMERCIAL BUILDING SAVON BOURNE	340 MAIN STREET	ASBESTOS	Low	Listed on the Asbestos database due to the removal of asbestos from the property in May of 2020.
			RCRA-VSQG		EPA ID: MAR000631051. Property generates ignitable waste. No violations or evaluations have been reported.
			UST, FINANCIAL ASSURANCE, HW GEN		Two 5,000-gallon diesel, three 10,000-gallon gasoline, one 5,000 gallon gasoline are currently in use at the property. Private commercial insurance.
17	PAD MOUNTED TRANSFORMER	320 MAIN STREET	SHWS, RELEASE, ASBESTOS, HW GEN	Low	RTN: 4-27021: Release of non-PCB MODF to soil from a transformer. Achieved regulatory closure with a Permanent Solution with No Conditions submitted to MassDEP on January 3, 2019. Listed on the Asbestos database due to the removal of asbestos from the property in October 2020, December 2020, and January 2021. EPA ID: MAD001067479 listed as a RCRA-VSQG.
19	NO LOCATION AID	SCENIC HWY	SHWS, RELEASE	Low	RTN: 4-12165: Release of diesel fuel to soil due to a traffic accident on May 10, 1996. Release granted No Further Action by MassDEP on August 26, 2008.
21	COMMERCIAL BUILDING	285 MAIN ST.	ASBESTOS	Low	Listed on the Asbestos database due to the removal of asbestos from the property in July of 2022.
			ASBESTOS	Low	Listed on the Asbestos database due to the removal of asbestos from the property in July of 2022.
25	INDUSTRIAL ENTERPRISES INC	S SIDE OF BOURNE BRIDGE	SPILLS	Low	Spill ID: S93-0469 11-50 gallons of diesel fuel spilled due to overfill in July of 1993. Listed as CLOSED
27	UNDER BOURNE BRIDGE	NO ADDRESS LISTED	SPILLS 90	Low	This spill report was retracted. No further information is available but is listed as CASE CLOSED.
28	PROPERTY	211 SANDWICH RD	SPILLS	Low	Spill ID: S90-0599 unknown quantity of waste oil spilled from drum in April of 1988. Listed as CLOSED.
29	UPPER CAPE COD REG VOC TECH	200 SANDWICH ROAD	FTTS, HIST FTTS	Low	The property was inspected on April 30, 1992. The inspection found that no violation has occurred.
30	PROVOST DON	7 EMERSON AVE	FINDS	Low	Listed on the FINDS database due to its listing on the integrated compliance information system.

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
31	TEXACO STATION, GULF GAS STATION, EXXON COMPANY USA	BOURNE ROTARY	FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing on the Massachusetts hazardous waste program.
32	MA STATE POLICE BARRACKS	BOURNE ROTARY RTE 28	FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing as a RCRA-VSQG and SQG.
			RCRA-VSQG	Low	EPA ID: MAD981210974 Property generates ignitable waste. One evaluation was conducted on August 1, 1995; however, no violation was found.
33	FACILITY NO 134	GEN MACARTHUR BLVD	SHWS, RELEASE	Low	RTN: 4-10727: Release of 5 gallons of diesel fuel while fueling. The release impacted the concrete pump island. Achieved regulatory closure with a Class A-1 RAO submitted to the MassDEP on November 11, 1994.
36	COMCAST OF CT/GA/MA/NH/NY/NC/VA/VT, LLC-BOURNE	1 MACARTHUR BLVD	FINDS	Low	No further information provided in EDR Report
			TIER 2	Low	Facility ID: FATR2016000000026472 The property stores lead acid batteries onsite.
			TIER 2	Low	Facility ID: FATR2018000000038491 The property stores lead acid batteries and ultra-low sulfur diesel onsite.
38	CUMBERLAND FARMS INC 2186 BOURNE ROTARY TEXACO	4 GEN MACARTHUR BLVD	RCRA-VSQG, MANIFEST	Low	EPA ID: MAC300003803 listed as a RCRA-VSQG. Property generates ignitable waste. No violations or evaluations have been reported.
			MANIFEST	Low	EPA ID: MAC300003803 Listed on the Manifest database for the disposal of paint solids.
			SHWS, RELEASE	Low	RTN: 4-29501: Release of 13 gallons of gasoline to a concrete dispenser pad. Release achieved regulatory closure with a Permanent Solution with No Conditions submitted to the MassDEP on December 29, 2022.
			UIC	Low	Listed on the UIC database for a UIC closure dated July 6, 1995.
			SPILLS 90, HW GEN	Low	RTN: 4-11290: Release of diesel, the release is listed as retracted in the EDR database EPA ID: MAC300003803 listed as a RCRA-VSQG. Property generates ignitable waste

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
			FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing as a RCRA-VSQG and for an air permit which was last updated on February 26, 2014.
			RCRA NONGEN / NLR	Low	EPA ID: MAC300003605 listed as not being an active hazardous waste generator (Not a generator, verified). Property historically generated ignitable waste. No violations or evaluations have been reported.
			RGA HWS	Low	Listed on the RGA HWS database from 1996 to 2001 under the name Cumberland Farms 4 Macarthur Blvd.
			AST	Low	No releases reported. No further information regarding the AST is provided.
39	BOURNE LAUNDROMAT	105 TROWBRIDGE	GWDP, NPDES	Low	Listed on the GWDP and NPDES database under Site ID: 164. The permit was issued on August 15, 1994 and expired on August 15, 1999.
40	TEDESCHI FOOD SHOPS INC	105 TROWBRIDGE RD	EDR HIST AUTO	Low	Listed as a convenience store from 2002 to 2007 under the name Tedeschi Food Shops Inc.
44	MY GENERATION ENERGY	53 MACARTHUR BLVD	FINDS	Low	Listed on the FINDS database due to its listing in the Massachusetts hazardous waste program.
45	CAPE MARINE	140 MACARTHUR BLVD	HW GEN	Low	EPA ID: MV5087594455 Listed as a RCRA-SQG
			FINDS	Low	Listed on the FINDS database due to its listing in the Massachusetts hazardous waste program.
46	BOURNE MANOR EXTENDED CARE FACILITY	146 MACARTHUR BOULEVARD	GWDP, NPDES	Low	Listed on the GWDP and NPDES database under Site ID: 848 for a sanitary discharge permit. The permit was issued on May 25, 2017 and expired on August 30, 2023.
47	ANGELS TOUCH OF BOURNE	148 MACARTHUR BLVD	HW GEN	Low	EPA ID: MAR000537860: Listed as a RCRA-SQG
			RCRA-SQG	Low	EPA ID: MAR000537860: Property generates ignitable waste, corrosive waste, and reactive waste. No violations or evaluations have been reported.
			FINDS, ECHO	Low	Listed on the FINDS and ECHO database due to its listing as a RCRA-VSQG.
48	MAJORS RV SERVICE CENTER		HW GEN	Low	EPA ID: MV5087592833: Listed as a RCRA-SQG

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
		150 MACARTHUR BLVD	FINDS	Low	Listed on the FINDS database due to its listing as a RCRA-SQG.
49	BOURNE VETERINARY	160 MACARTHUR BOULEVARD ROUTE 28 5B	FINDS	Low	Listed on the FINDS database due to its listing in the Massachusetts hazardous waste program.
50	ENVIRONMENTAL OPERATING SOLUTIONS INC	160 MACARTHUR BLVD	HW GEN	Low	EPA ID: MV5087438440: Listed as a RCRA-VSQG
			FINDS	Low	Listed on the FINDS and ECHO database due to its listing as a RCRA-VSQG.
52	JOHN GALLO ICE ARENA	231 SANDWICH RD	SHWS, RELEASE, HW GEN	Low	RTN: 4-17814: RTN is listed as closed. No documents were available for review on the MassDEP database.
53	DOUGLAS MACHINE SHOP	273 MAIN ST	HW GEN	Low	EPA ID: MAD985291004: Listed as a RCRA-SQG
			RCRA-SQG	Low	EPA ID: MAD985291004: Property generates ignitable waste, cresol, and tetrachloroethylene. No violations or evaluations have been reported.
55	BOBCAT OF CAPE COD BAYSTATE EQUIPMENT LLC DBA BOBCAT OF CAPE COD	170 MACARTHUR BLVD	HW GEN	Low	EPA ID: MAR000598755: Listed as a RCRA-SQG
			RCRA NONGEN / NLR	Low	EPA ID: MAR000598755 listed as not being an active hazardous waste generator (Not a generator, verified). No information about waste generated is available. No violations or evaluations have been reported.
			ECHO	Low	No information available.
			FINDS	Low	No information available.
			FINDS	Low	No information available.
56	BOURNE LANDFILL & TRANSFER STATION	NO ADDRESS LISTED	PFAS ECHO	Low	Listed on the ECHO database due to its listing as a RCRA-SQG and for an air permit which was lasted updated on June 20, 2014.
60	ANIMAL HEALTH CLINIC	82 TROWBRIDGE RD	HW GEN	Low	EPA ID: MV5087595810: Listed as a RCRA-VSQG
61	SEL FOREIGN AUTO LTD	7 COLONEL DR	HW GEN	Low	EPA ID: MV5087594044: Listed as a RCRA-SQG
62	PEEBLES SCHOOL	TROW BRIDGE RD	SHWS, RELEASE	Low	RTN: 4-15411: Release of 17 gallons of diesel fuel from the saddle tank of a motor vehicle carrier. Release achieved regulatory closure with a Class A-1 RAO submitted to the MassDEP on April 7, 2000

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
			SWF/LF	Low	Reg Obj Acct: 324096. Listed as inactive since 1999 and incomplete. Used for the disposal of construction and demolition debris.
63	BOBS TRUCKING & EQUIPMENT SVC	61 NIGHTINGALE POND RD	EDR HIST AUTO	Low	Listed as a towing service from 1994 to 2014 under the name Bobs Trucking & Equipment Services and as a Gasoline Service Station from 1994 to 2014 under the name Buzzards Bay Auto Sales Inc.
64	BUZZARDS BAY AUTO SALES INC	60 NIGHTINGALE POND RD	EDR HIST AUTO	Low	Listed as a Gasoline Service Station from 2001 to 2003 under the name Buzzards Bay Auto Sales Inc.
67	BUZZARDS BAY XTRA MART XTRA MART MAIN STREET CITGO	261 MAIN ST	AST	Low	No details of the AST are provided
			LUST, RELEASE	Low	RTN: 4-12010: Release of gasoline (VPH) to soil and groundwater from a UST. Release achieved regulatory closure with a Class A-2 RAO which was submitted to the MassDEP on 4-12010.
			UST	Low	One 8,000-gallon gasoline UST and two 10,000 gallon gasoline USTs were removed from the property in February of 1996. Two 8,000-gallon gasoline USTs are still in use on the property.
			EDR HIST AUTO	Low	Listed as a Gasoline Service Station from 1969 to 1977 under the name Whitehead Walter, from 1996 to 2003 under the name Kenyon Oil Company Inc, and from 2004 to 2014 under the name Drake Petroleum Company Inc.
74	TEE #7	15 BROOKSIDE RD	LAST, RELEASE	Low	RTN: 4-18417: Release of 25-30 gallons of diesel fuel from a 275-gallon AST. The release achieved regulatory closure with a Class A-1 RAO which was submitted to the MassDEP on June 23, 2014.
80	NO LOCATION AID	5 FORETOP RD	SHWS, RELEASE	Low	RTN: 4-17811 RTN is listed as CLOSED
85	NIGHTINGALE STUMP LANDFILL	260 GEN MACARTHUR BLVD	SWF/LF	Low	Listed as a Woodwaste landfill which was opened in 1971. The landfill is currently inactive and has been inactive since 1989.

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
89	SE WILDLIFE DISTRICT	195 BOURNEDALE RD	SHWS, LUST, RELEASE, HW GEN	Low	RTN: 4-408 Release of chloroform. No further information was available on the MassDEP database. The status of the release is MassDEP No Further Action. EPA ID: MAD981213309 Listed as a RCRA-VSQG.
93	TEXACO SERVICE STATION	360A MACARTHUR BLVD	SHWS, LUST, RELEASE, SPILLS	Low	RTN 4-980: According to a LSP Evaluation Opinion Report, it was determined that this property is not a disposal site where a release occurred which must be reported to the MassDEP according to the new MCP.
94	CREATIVE STONE SYSTEMS	169 CLAY POND RD	SHWS, RELEASE	Low	RTN: 4-24870: Release of water-soluble epoxy resin from a 55-gallon drum that impacted soil. The release achieved regulatory closure with a Class A-2 RAO which was submitted to the MassDEP on January 7, 2014.
95	ATLANTIC SUBARU	124 WATERHOUSE RD	HW GEN	Low	EPA ID: MAC300001344: Listed as a RCRA-VSQG storing ignitable waste and tetrachloroethylene. No violations found.
			RCRA-VSQG, E MANIFEST	Low	
96	FALMOUTH TOYOTA TF MURPHY ENTERPRISES	290 MACARTHUR BLVD	RCRA-VSQG, FINDS, ECHO, E MANIFEST, MANIFEST	Low	EPA ID: MAD985277375: Listed as a RCRA-VSQG storing ignitable waste, tetrachloroethylene and other VOCs. No violations found.
			HW GEN		
			UST, FINANCIAL ASSURANCE		Two 750 gallon and one 1,000 gallon virgin motor oil, one 1,500 gallon waste oil in use.
97	JONATHAN BOURNE PUBLIC LIBRARY	19 SANDWICH RD	RCRA NONGEN / NLR	Low	EPA ID: MAR000634014. Not a hazardous waste generator.
			HW GEN		
98	FALMOUTH HOSPITAL WOUND CARE BOURNE HEALTH CENTER STOP & SHOP SUPER	1 TROWBRIDGE PL	E MANIFEST	Low	No information
			RCRA NONGEN / NLR, FINDS, ECHO		EPA ID: MAR000509356. Not a hazardous waste generator.
			HW GEN, NPDES, TIER 2		NPDES industrial wastewater permit. No other information
			E MANIFEST		No information
104	MULTI-FAMILY	114 TROWBRIDGE ROAD	ASBESTOS	Low	Listed on the asbestos database for the removal of asbestos in February 8, 2024

Figure ID	Site Name	Address	Databases	Environmental Concern	Status/Comments
105	NO ID	201 GENERAL MACARTHUR BOULEVARD	UIC	Low	New injection well install 2007

Notes: Low Environmental Concern
Moderate Environmental Concern
High Environmental Concern
Source: Environmental Data Resources, Inc.

Attachment 6 - Sagamore Bridge EDR Sanborn Fire Insurance Rate Maps Summary Table

Year	Sanborn Address	Observations of Property
1913	No identifiable address (Keith Car and Manufacturing Company, south of the Cape Cod Canal, off of Pleasant St)	The property is developed with eight large single-story structures, 23 smaller single story structures, and 33 small 'hose houses'. The various purposes of the structures are, from east to west: painting cars and pattern and machine shop, storage house, stencil house, paint storage and mixing, erecting cars and woodworking, oil house, tin shed, hospital, pump house, forge shop, die shop, machine shop, riveting, wood working with machine work and assembling and the axle department, oil house, storage, siding storage, and dry kilns. Two 9000-gallon galena oil tanks are present north of the axel department structure. A coal pile is present just south of the forge shop. The forge shop houses the engine room and what appears to be 6 ASTs. There are 2, 9000-gallon USTs containing crude oil just west of the forge shop. Furthermore, a steel viaduct crosses the canal east of the forge shop and appears to be attached to the pump house.
1924	110 Pleasant St. (Keith Car and Manufacturing Company)	Much of the property appears unchanged compared to the 1913 map. The structure labeled 'riveting' is not present, a structure labeled ' switch house' is present, and the axel department structure is expanded to the south.
1941	142 Route 6	The property is developed with a single structure identified as a filling station. Additionally, there are three gasoline tanks southeast of the structure.
	145 Route 6	The property is developed with two structures, a concrete and brick construction identified as Coca Cola Bottling Company, with a gasoline tank on the southwest side and an automobile garage to the south.
	112 Route 6	The property is developed with a single-story concrete structure identified a filling station. Additionally, there are two gasoline tanks south of the structure.
	160 Route 6	The property is developed with three single story structures identified as a three-car garage, a filling station, and one without a use identifier. Additionally, two gasoline tanks are present west of the filling station.
	162 Route 6	The property is developed with one large gasoline tank.
	126 Route 6	The property is developed with a small single-story structure identified as a filling station. Additionally, three gasoline tanks are present east of structure.
	Other Properties	The rest of the properties are either undeveloped, developed with single story residential structures, usually with a detached automobile garage, or single-story store fronts or restaurants.
	171 Route 6	The property is developed with a single-story structure identified as a filling station and four gasoline tanks west of the structure.
	137-138 Route 6	The property is developed with a single-story structure identified as a filling station. Additionally, two gasoline tanks are present west of the structure.
	203 Sandwich Rd.	The property is developed with a structure identified as a filling station and three gasoline tanks west of the structure.
	249 Sandwich Rd.	The property is developed with a 2 1/2 story structure identified as a store and two gasoline tanks northwest of the structure.
	261 Sandwich Rd.	The property is developed with a single-story structure identified as a filling station and two gasoline tanks on the west side of the structure.

Year	Sanborn Address	Observations of Property
	Other Properties	The rest of the properties are either undeveloped, developed with single to 2 1/2 story residential structures, usually with a detached automobile garage, or single to 2 1/2 story store fronts or restaurants. Property uses include the G. Marconi Club, a hall, storage, St. Teresa R.C. church, Jonathon Bourne Public Service, a passenger station next to the railway, post office, plumbing retail, I.R. oven, an upholstery shop, U.S. government offices, and Sagamore Lumber & Coal company.
1962	No identifiable address	The highway is expanded compared to the 1941 map with an access onto Route 6 labeled Mid-Cape Highway.
	142 Route 6	The property is developed with a single structure identified as a filling station. Additionally, there are three gasoline tanks southeast of the structure.
	145 Route 6	The property is developed with one large structure, a concrete and brick construction identified as Coca Cola Bottling Company.
	72 Route 6	The property is developed with a single-story concrete structure identified a filling station.
	Other Properties	The rest of the properties are either undeveloped, developed with single story residential structures, usually with a detached automobile garage, or single-story store fronts or restaurants.
	100 Route 6	The property is developed with a single-story structure identified as a filling station and four gasoline tanks west of the structure.
	No identifiable address (Sagamore Lumber & Coal company)	The property is developed with three 2-story structures used for lumber storage and an office, two single story structure used for lumber storage and as a gasoline tank plant. Additionally, there is a large gasoline tank located west of the office building.
	Other Properties	The rest of the properties are either undeveloped, developed with single to 2 1/2 story residential structures, usually with a detached automobile garage, or single to 2 1/2 story store fronts or restaurants. Property uses include the G. Marconi Club, a hall, post office, a motel, furniture retail, St. Teresa R.C. church, Jonathon Bourne Public Service, plumbing retail, an upholstery shop, and lumber storage.

Attachment 7 - Bourne Bridge EDR Sanborn Fire Insurance Rate Maps Summary Table

Year	Sanborn Address	Observations of Property
1941	423-426 Perry Avenue (County Road)	The property to the southwest of Bourne Pond is developed with a 2-story structure identified as the Town Hall with two attached 1-story structures, one of which is identified as the Police Station. Additionally, a 1-story structure identified as the Highway Department with an attached shop are located on the eastern portion of the property. A gasoline tank is located to the southwest of the shop.
	237 Main Street	The property is developed with a 1 1/2 story structure identified as a filling station and an attached 1-story structure. Eight gasoline tanks are located to the west of the filling station.
	268-270 Main Street	The property is a 1 1/2 story structure identified as a filling station. Two gasoline tanks are located on the corner of the property near the intersection of Main Street and Perry Avenue.
	317-318 Main Street	The property is developed with a 1-story structure identified as a filling station. Two gasoline tanks are located on the corner of the property near the intersection of Main Street and Perry Avenue.
	No Identifiable Address (Southeast side of Bourne Traffic Circle)	The property is developed with a 1-story structure identified as a filling station and a 1 1/2 story detached structure identified as general storage. Three gasoline tanks are located to the south of the filling station. A 1-story structure identified as the Cape Cod Stone Company Ornamental Cast Stone is located to the south of the filling station.
	Other properties	A majority of the properties shown on the Sanborn map are either undeveloped or developed with residential dwellings and detached automobile garages. Other property structures include a Public School, Bowling Alley, Storefronts, Furniture Storage, a Dance Hall, Cape & Vineyard Electric Company, Novak Cape Cod Terrace (Historic Restaurant) and a lumberyard identified as Eldridge Lumber Company.
	280 Main Street	The property is developed with a 1 story structure identified as a filling station. Three gasoline tanks are located to the northeast of the filling station.
	277-278 Main Street	The property is developed with a 1 1/12-story structure identified as a Auto Repair Shop with four attached 1-story structures, who of which are identified as storefronts. Three gasoline tanks are located to the north of the autobody shop on the property. The property adjoining to the south with no identifiable address is developed with a 1 story warehouse and a 1-story automobile garage with an attached structure. To the south of these buildings are three aboveground fuel oil tanks which are stored on cradles.
	215 Main Street	The property is developed with a 1-story structure identified as a filling station and a detached 1-story structure. Two gasoline tanks are located to the south of the filling station on the property along Main Street.
1962	423-426 Perry Avenue (County Road)	The property to the southwest of Bourne Pond is developed with a 2-story structure identified as the Town Hall with two attached 1-story structures, one of which is identified as the Police Station. Additionally, a 1-story structure identified as the Highway Department with an attached shop are located on the eastern portion of the property. A gasoline tank is located to the southwest of the shop.

Year	Sanborn Address	Observations of Property
	7 Perry Avenue (County Road)	The property is developed with a 2-story structure identified as a Printing Shop and a 1-story automobile garage
	246 Main Street	The property is developed with a 1-story structure identified as a filling station.
	229-237 Main Street	The property is developed with a 1-1/2 story structure identified as a filling station and two attached 1 story structures.
	254-256 Main Street	The property is developed with a 1 1/2 story structure identified as a filling station and two attached 1 story structures.
	269 Main Street	The property is developed with a 2-story structure identified as a drycleaner. The structure features two attached 1 story structures.
	274 Main Street	The property is developed with a 1 story structure identified as a filling station.
	No Identifiable Address (Southeast side of Bourne Traffic Circle)	The property is developed with a 1-story structure identified as a filling station and a 1-1/2 story detached structure identified as general storage. Three gasoline tanks are located to the south of the filling station. A 1-story structure identified as the Cape Cod Stone Company Ornamental Cast Stone is located to the south of the filling station.
	No Identifiable Address (Southwest side of Bourne Traffic Circle)	The property is developed with a 1-story structure identified as a filling station. A 1-story detached office is located to the south of the filling station while a 1-story information office is located to the north of the filling station.
	No Identifiable Address (Northeast side of Bourne Traffic Circle)	The property is developed with a 1-story structure identified as a restaurant with a 1-story detached structure.
	Other properties	A majority of the properties shown on the Sanborn map are either undeveloped or developed with residential dwellings and detached automobile garages. Other property structures include a Public School, Bowling Alley, Storefronts, Furniture Storage, a Dance Hall, Cape & Vineyard Electric Company, Novak Cape Cod Terrace (Historic Restaurant) and a lumberyard identified as Eldridge Lumber Company.
	174 Main Street	The property is developed with a 2-story structure identified as a n auto repair shop.
	156 Main Street	The property is developed with a 1-story structure identified as a filling station and one detached 1-story structure.
	150-152 Main Street	The property is developed with a 1 1/2 story structure identified as a Auto Repair Shop with four attached 1 story structures, two of which are identified as storefronts. Three gasoline tanks are located to the north of the autobody shop on the property. The property adjoining to the south with no identifiable address is developed with a 1-story warehouse and 1-story automobile garage with an attached structure. To the south of these buildings are three aboveground fuel oil tanks which are stored on cradles.
	173 Main Street	The property is developed with a 1-story structure. Two gasoline tanks are located to the south of the filling station on the property along Main Street.
	8 Harrison Avenue	The property is developed with a 2-story residential dwelling with a 1-story attached structure. A 1-story structure identified as a Lawn Mower Repair Shop is located on the eastern portion of the site.

Attachment 8 - Sagamore Bridge EDR Historical Topographical Maps Summary Table

Year	Scale	Observations of Sagamore Program Study Area
1989	1:62500	The SPSA is developed with a network of unidentified roads, the Old Colony Railroad oriented roughly east to west, and several buildings labeled as "West Sandwich" south of the railroad. An unidentified waterway, with headwaters approximately 0.75 miles west of the SPSA is present just north of the railroad and is surrounded by marshlands in the east. The topography of the area is flat around the waterway but increases gradually to the north, to an area labeled as "Sagamore Hill," and sharply to the south, just south of West Sandwich. A water body labeled 'Great Herring Pond' is located approximately 2 miles northwest of the SPSA, and the Cape Cod Bay shoreline is approximately 1.25 miles northeast of the study site. The area south of the SPSA appears undeveloped while the area north of the SPSA is developed with a network of unidentified roads and to the west is developed with the railroad, two roadways oriented north to south and east to west, and cluster of buildings labeled "North Sandwich." East of SPSA is sparsely developed with roads, in between marshes, and the railroad.
1894	1:62500	The SPSA and surrounding area appear unchanged compared to the 1889 map et that West Sandwich is labeled as 'Sagamore' and North Sandwich is labeled as 'Bournedale.'
1915	1:62500	The surrounding areas are developed with additional unidentified roads and buildings on the coast and near Great Herring Pond. The unidentified waterway north of the railroad is replaced with Cape Cod Canal. The canal approximately parallels the railroad.
1921	1:62500	No material change is apparent compared to the 1915 map
1933	1:24000	The SPSA is developed with what appears to be a rail yard north of Sagamore and south of the canal. The roads just north and south of the SPSA have a different configuration compared to the 1921 map. The population centers northwest and northeast of the SPSA are labeled 'Pondville' and 'Sagamore Beach' respectively. A water body south of Great Herring Pond is labeled 'Black Pond,' and a marshland to the northwest of the SPSA is labeled 'Long Swamp.' South of the SPSA, a large portion of the undeveloped land is demarcated as 'Shawmee State Forest.'
1940	1:31680	The Sagamore Bridge on Route 6 is present approximately 1 mile west of the location of the unidentified bridge in the 1933 map. Additionally, a rotary at the intersection of Route 6 and Hunter Brook Road is present north of the canal. The surrounding areas are developed with additional buildings. The southern half of Long Swamp is characterized as land.
1941	1:62500	A rotary is present at the intersection of Route 6 and Route 130 in the southern portion of the SPSA
1943	1:25000	As indicated by the orientation of roadways, this map appears to be a republished map from a date earlier than 1933.
1948	1:24000	The SPSA and surrounding areas are developed with additional buildings. Cranberry bogs are present in Long Swamp, and in the marshlands south of Sagamore Beach. Finally, the land that was the Shawmee State Forest is labeled 'Shawmee Crowell State Forest' east of Route 130 and 'Camp Edwards Military Reservation' (CEMR) west of Route 130. Otherwise, this map appears to be like the 1943 map.
1951	1:24000	The intersection of Route 6 and Route 130 in the southern portion of the SPSA is reconfigured, and additional buildings are present around the intersection. The surrounding areas are developed with additional roads and buildings.

Year	Scale	Observations of Sagamore Program Study Area
1967	1:24000	The highway system is expanded with an additional access road west of the Route 6 to Route 130 interchange, two additional roadways semi-parallel to Route 6 north of SPSA, and a reconfigured rotary in the northern portion of the SPSA. Furthermore, there is a pipeline that intersects the SPSA along the Sagamore Bridge. The surrounding areas are developed with additional roads, buildings, electric powerlines, and the pipeline. The CEMR is labeled 'Otis Air Force Base' (OAFB) and the cranberry bods south of the Sagamore beach are marshlands and ponds.
1977	1:25000	This is an aerial photo. The SPSA appears to be in a similar configuration compared to the 1967 map. IT appears there are additional developments of roads and buildings east of the highway system.
1979	1:25000	The infrastructure appears similar compared to the 1977 aerial photo.
2012	1:24000	The rotary interchange in the northern portion of the SPSA is reconfigured and the area north of the SPSA is developed with additional roads.
2015	1:24000	The OAFB is relabeled 'MTA Camp Edwards' otherwise there are no material changes compared to the 2012 map.
2018	1:24000	There are no material changes compared to the 2015 map.

Attachment 9 - Bourne Bridge EDR Historical Topographical Maps Summary Table

Year	Scale	Observations of Bourne Program Study Area
1888 & 1889	1:62500	A waterbody identified as Monument River bisects the BPSA running east to west. Wetlands surround the banks of this river. One unidentified bridge crosses the Monument River. The area to the north of the Monument River is relatively flat while the area to the south slopes north towards the Monument River. Structures are depicted along present-day Route 28 and an unidentified road running east to west to the south Monument River. An unidentified railroad track runs east to west to the north of the Monument River. An unidentified water body is depicted on the northern portion of the BPSA.
1893	1:62500	No material change to the BPSA is apparent from the previous topographic map, except the area to the south of the Monument River is identified as Bourne, while the area to the north is identified as Buzzards Bay. A small area in the northern portion of the BPSA is unmapped.
1894	1:62500	The BPSA is unmapped.
1915	1:62500	Two bridges now cross the Monument River. Wetlands now adjoin the water body to the south. An unidentified railroad track now runs east to west to the south of the Monument River. More structures and cemetery are now developed along present-day Route 28 and surrounding streets in the southern portion of the BPSA. The area to the north of the Monument River is relatively flat while the area to the south slopes north towards to the monument River or to the west towards an unidentified river.
1921	1:62500	The BPSA is unmapped.
1933	1:24000	A majority of the BPSA is unmapped, however, a water body identified as Nightingale Pond is located on the northeast portion of the BPSA. An area identified as Bottomless Pond is located to the south of Nightingale Pond.
1935	1:20000	The waterbody which bisects the BPSA is now identified as the Cape Cod Canal. State Route 28 runs parallel with the Cape Cod Canal to the north. Railroad tracks depicted on the topographic map are identified as NY NH and H Railroad. The railroad tracks split prior to crossing the Cape Cod Canal and it appears the tracks run parallel to the north and south of the Cape Cod Canal. The waterbody on the northern portion of the BPSA is identified as Bourne Pond. Bourne Pond is adjoined to the east by an area of wetlands. Structures are depicted along State Route 28 and side streets in the area to the north of the Canal. The bridge which crosses the Cape Cod Canal is identified as the Bourne Bridge. State Route 28 runs north to the south of the southern portion of the BPSA. Structures are depicted along State Route 28 and side streets in this area. A rotary has been constructed on the southern portion of the BPSA. The topography varies dramatically in the southern portion of the BPSA, it appears there are many areas of depression and peaks.
1940	1:31680	The southern portion of the BPSA is unmapped. A rotary has been constructed on the northern portion of the BPSA. The area to the west of the rotary is identified as Bourne Corners. A transmission line running north to south passes through the northern portion of the BPSA to the west of Nightingale Pond.
1941	1:31680	No material change to the BPSA is apparent from the previous topographic maps, except more roads and structures have been developed in the BPSA.
1943	1:31680	A majority of the northern portion of the BPSA is unmapped. No material change to the BPSA is apparent from the previous topographic map.
1946	1:25000	A majority of the northern portion of the BPSA is unmapped. No material change to the BPSA is apparent from the previous topographic map.

Year	Scale	Observations of Bourne Program Study Area
1948	1:25000	Several areas of depression are located along the southern edge of the Cape Cod Canal and in areas surrounding Route 28 on the southern portion of the BPSA. It appears the topography varies dramatically in the northern and southern portions of the BPSA. Most of the land in the northern portion of the BPSA slopes south towards the Cape Cod Canal. It appears there are many areas of depressions and peaks on the southern portion of the BPSA, however, most of the area slopes to the north towards Cape Cod Canal. According to the topographic map the Cape Cod Canal was dredged to 30-feet in December of 1947. Multiple areas of pilings are depicted along the banks of the Cape Cod Canal. Structures depicted on present day Route 6 and Route 28 as well as side streets in the BPSA. The NY NH and H railroad tracks cross the canal to the west of the BPSA boundary. It appears the railroad tracks which run parallel to the north of the canal end in an area to the southwest of Bourne Pond. The second set of railroad tracks run east to west to the south of the canal. Fuel with 6 fuel tanks is depicted to the west of the BPSA.
1951, 1953	1:24000	No material change to the BPSA is apparent from the previous topographic map, except more structures have been constructed in the BPSA. An area to the west of the BPSA is identified as Gasoline with 7 fuel tanks depicted.
1967	1:24000	Some development has occurred in the wetlands areas to the east of Bourne Pond. An area to the south of Nightingale Pond is now identified as a Recreation Area. The railroad tracks running east to west to the south of the canal are identified as Penn Central. A gravel pit and Peebles School are now located in the southern portion of the BPSA near the Bourne South Rotary. Tidal Flats are depicted along the banks of the canal in the BPSA. The transmission line first depicted in the 1940 topographic map is now identified as a pipeline. The pipeline appears to run north to south and ends where Route 28 and Route 6 cross to the north of the Recreation Area
1977	1:25000	Note: the 1977 topographic map was presented as an aerial photographic
1979	1:25000	No major material change to the BPSA is apparent from the previous topographic map, except more structures have been constructed in the BPSA. Additionally, the railroad track running parallel to the south of the Cape cod Canal is identified as Conrail.
2012	1:24000	No major material change to the BPSA is apparent from the previous topographic map, except Route 28/25 has now been constructed on the northern portion of the BPSA. No structures are depicted on this topographic map.
2015	1:24000	No new roads have been constructed in the BPSA. The Cape Cod Canal is now identified as an intracoastal waterway and the road to the south of the Bourne South Rotary is identified as General MaCarthur Blvd. No Structures are depicted on this topographic map.
2018	1:24000	No material change to the BPSA is apparent from the previous topographic map, except new roads have been constructed on the northern and southern portions of the BPSA. Wetlands are not depicted along the canal on the southern portion of the BPSA.

Attachment 10 - Sagamore Bridge EDR Historical Aerial Photographs Summary Table

Year	Scale	Observations of Sagamore Program Study Area
1951	1"=1250'	The SPSA appears to be developed with a bridge identified as the present day Sagamore and roadway interchanges on the north and south sides of the bridge. The properties surrounding the interchanges appear to be undeveloped woodlands or developed with residential, commercial, or industrial use structures. The northern interchange is a rotary with four access roads whereas the southern interchange is V shaped with a four-way intersection between access roads. Compared to the surrounding woodlands, the land around the southern interchange and southwest of the northern rotary interchange appears cleared of most vegetation. A straight-sided waterway oriented approximately west to east, with a consistent width, identified as the Cape cod Canal, is present in the center of the SPSA. Furthermore, what appears to be a railway is present just south of the canal. The area surrounding the SPSA appears to be mostly woodlands or, east of the SPSA, developed with roadways and residential and commercial use structures. Linear clearings identified as electric line corridors are present southwest of the SPSA. Two water bodies identified as Black Pond and Great Herring Pond are present northwest of the SPSA.
1960	1"=1250'	The northern rotary interchange has six access roads and the highway north of the SPSA is expanded with two additional roadways, otherwise the SPSA and surrounding area appear unchanged compared to the 1951 photograph.
1966	1"=1250'	A linear piece of cleared land, identified as a pipeline, is present west of the northern interchange, and approximately parallel to and south of the southern interchange. Furthermore, an additional access road is present south of the V shaped interchange. Otherwise, no material change is apparent compared to the 1960 photograph.
1970	1"=1250'	A property west of the southern interchange appears clear of vegetation, land along roadways northeast of the SPSA appear developed with residential structures, additional roadways are present southeast of the SPSA, and an additional electric line corridor is present south of the SPSA. Otherwise, no material change is apparent compared to the 1966 photograph.
1977	1"=1250'	The land northeast of the rotary appears to be developed as a parking lot. The areas around the SPSA appear developed with additional residential use structures and roadways. Otherwise, no material change is apparent, compared to the 1970 photograph.
1980	1"=1250'	The land southeast of the rotary appears to be developed with commercial use structures and the areas around the SPSA appear developed with additional residential use structures and roadways. Otherwise, no material change is apparent, compared to the 1977 photograph.
1985	1"=1250'	The properties east of the northern rotary appear developed with expanded parking areas, a property east of the southern interchange is developed with a large structure and parking area, and land around roadways west of the SPSA appear developed with additional residential use structures. Otherwise, no material change is apparent, compared to the 1980 photograph.
1991	1"=1250'	A property west of the southern interchange is developed with a large structure and parking lot. Furthermore, the areas around the SPSA appear developed with additional residential use structures and roadways compared to the 1985 photograph.
1995	1"=1250'	Land adjacent to roadways in the area surrounding the SPSA appear developed with additional residential use structures. Otherwise, no material change is apparent, compared to the 1991 photograph.

Year	Scale	Observations of Sagamore Program Study Area
2003	1"=1250'	The areas around the SPSA appear developed with additional residential use structures and roadways compared to the 1995 photograph.
2010	1"=1250'	The interchange north of the canal is redeveloped and land adjacent to roadways in the area surrounding the SPSA appear developed with additional residential use structures. Otherwise, no material changes are apparent compared to the 2003 photograph.
2014	1"=1250'	The property west of the southern interchange appears redeveloped with a large structure and parking lot. Land adjacent to roadways in the area surrounding the SPSA appear developed with additional residential use structures. Otherwise, no material change is apparent, compared to the 2010 photograph.
2018	1"=1250'	Land adjacent to roadways in the area surrounding the SPSA appear developed with additional residential use structures. Otherwise, no material change is apparent, compared to the 2014 photograph.

Attachment 11 - Bourne Bridge EDR Historical Aerial Photographs Summary Table

Year	Scale	Observations of Bourne Program Study Area
1951	1"=1250'	It appears the northern portion of the BPSA is woodlands or developed with residential and commercial structures. The Bourne North Rotary and two ponds identified as present day Bourne Pond and Nightingale Pond are depicted in this area. Nightingale Pond is surrounded by woodlands while Bourne Pond is surrounded by some woodlands and residential/commercial structures. It appears a cleared area of the land is located to the west of Bourne Pond and wetlands are located to the east of Bourne Pond which extended to the Cape Cod Canal. A bridge identified as present day Bourne Bridge crosses the Cape Cod Canal. The southern portion of the BPSA is woodlands or developed with residential and commercial structures. Cleared areas of land are depicted around the Bourne South Rotary and to the immediate South of the Cape Cod Canal.
1960	1"=1250'	It appears tot eh west and east of the Bourne North Rotary and an area to the east of the bridge in the northern portion off the BPSA has been developed. In the southern portion, areas of cleared land are now depicted to the southwest of the Bourne South Rotary and in areas surrounding the Bourne South Rotary. No other material change to the BPSA is apparent from the previous aerial photograph.
1966	1"=1250'	On the north portion of the BPSA it appears a few areas around the Bourne North Rotary and an area to the southeast of the wetlands have been developed. In the southern portion it appears areas around the Bourne South Rotary have been developed. This includes an oval development on the adjoining property to the southeast which is part of the Massachusetts Military Reservation (Joint Base Cape Cod)
1970	1"=1250'	Areas in the northern and southern portions of the BPSA continue to be developed. No other major material change to the BPSA is apparent from the previous aerial photograph. A large building and athletic fields has been developed on the adjoining property to the southeast.
1977	1"=1250'	On the north portion of the BPSA it appears more properties have been developed around Bourne Pond. In the southern portion it appears an area to the west of the Bourne South Rotary has been developed. No other major material change to the BPSA is apparent from the previous aerial photograph.
1980	1"=1250'	Areas in the northern and southern portions of the BPSA continue to be developed. No major material change to the BPSA is apparent from the previous aerial photograph.
1985	1"=1250'	Areas in the northern and southern portions of the BPSA continue to be developed. No major material change to the BPSA is apparent from the previous aerial photograph.
1991	1"=1250'	Areas in the northern and southern portions of the BPSA continue to be developed. Additionally, present-day Route 25/28 has been constructed on the northern portion of the BPSA.
1995	1"=1250'	Areas in the northern and southern portions of the BPSA continue to be developed. No major material change to the BPSA is apparent from the previous aerial photograph.
2003	1"=1250'	Areas in the northern and southern portions of the BPSA continue to be developed. No major material change to the BPSA is apparent from the previous aerial photograph.
2010	1"=1250'	Areas in the northern and southern portions of the BPSA continue to be developed. No major material change to the BPSA is apparent from the previous aerial photograph.
2014	1"=1250'	Areas in the northern and southern portions of the BPSA continue to be developed. No major material change to the BPSA is apparent from the previous aerial photograph.
2018	1"=1250'	Areas in the northern and southern portions of the BPSA continue to be developed. No major material change to the BPSA is apparent from the previous aerial photograph.