FAQs

What is the Condition of the Bourne Bridge?
The Bourne Bridge is functionally obsolete and, as of 2022, was rated in "Poor" condition. The bridge is considered structurally deficient. Inspections have revealed concerns - deterioration of the concrete T-beams, deterioration of gusset plates, and broken anchor bolts at truss expansion bearings. Gusset plates are considered fracture critical members, meaning the failure of one of these elements will likely lead to catastrophic failure of an entire span.

What is the Condition of the Sagamore Bridge?
The Sagamore Bridge is functionally obsolete and, as of 2021, was rated in "Fair" condition. The bridge was considered structurally deficient as recently as 2011. Inspections have revealed concerns such as gusset plates that exhibit significant section loss and/or deformation due to pack rust.

What does "structurally deficient" mean?
The "structurally deficient" classification does not imply that the bridge is unsafe for travel. However, the classification is an indication that the bridge requires maintenance and repair and eventual rehabilitation or replacement to address existing deficiencies.

What happens if a major issue with the bridges are discovered during an inspection?
If it is determined that the safety of the public is at risk, the bridges could be closed immediately. While regular inspection and maintenance is intended to avoid this dire outcome, such occurrences are not without precedent. A similar bridge constructed in 1929, the Lake Champlain Bridge, which connects Vermont and New York, was closed without warning in 2009 when a critical structural issue was discovered. The bridge was demolished later that same year.

What happens if funding is not secured for new bridges?
Due to continued deterioration, it is anticipated that the Sagamore Bridge would require a major rehabilitation between 2025-2027 and the Bourne Bridge from 2029-2031.

If major rehabilitation were to take place, rather than complete bridge replacement, how long would construction last?
A major rehabilitation would take 3-7 years and include lane closures (Bourne 480 days, Sagamore 380 days) and full bridge closures (Bourne 180 days, Sagamore 130 days). This process would happen twice for each bridge over the next 50 years.

What are the financial impacts of major rehabilitation?
The total cost of maintenance activities and travel delays related to major rehabilitation activities over the next 50 years is projected to exceed $3 Billion. This does not account for any secondary economic impacts such as the potential for reduction in tourism.

What other options have been explored?
The alternatives analysis considered multiple options including tunnels, adding a third bridge, and filling in the canal. These and other options were eliminated based on higher costs, increased property impacts, and/or significant environmental impacts.

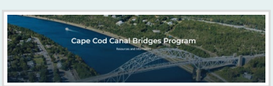
Where will the new bridges be located?
The new bridges will be built adjacent to the current bridges to allow traffic to continue to flow during construction. The exact location is still being finalized, but the current plan indicates the new bridges to the east of the Bourne Bridge and to the west of the Sagamore Bridge.

What will happen to the current bridges after the new ones are built?
The existing Bourne and Sagamore Bridges will be demolished as it has been determined that it would not be cost effective to maintain these aging structures even for lighter loads such as use as a pedestrian bridges.

Resources and Additional Info

Where to Find the Latest Information About the Canal Bridges Project

mass.gov/cape-bridges



capecodcommission.org/canal

MassDOT Cape Cod Canal Transportation Study (2019)
cccom.link/Canal-Study

MassDOT's conceptual planning study identifies existing and future multimodal transportation deficiencies and needs around the Cape Cod Canal area. The study provides recommendations for improving multimodal connectivity and reliability across the Canal.

U.S. Army Corps of Engineers Cape Cod Canal Bridges Major Rehabilitation Evaluation Study (2020)
cccom.link/Canal-Bridges-MRER

The purpose of the study was to determine whether major rehabilitation or replacement of the Bourne and/or Sagamore Highway Bridges would provide the most reliable, fiscally responsible solution for the future. The Study culminated in the Major Rehabilitation Evaluation Report (MRER).

ABOUT: This factsheet was prepared by the Cape Cod Commission with data and information from the above referenced reports, US Census, MassDOT, and Cape Cod Commission. The Cape Cod Commission is member of the Cape Bridges Program Advisory Group, a Concurring Party to the Section 106 Programmatic Agreement for the Cape Bridges Program, and staff to the Cape Cod Metropolitan Planning Organization. The information presented in this factsheet does not represent views of the Massachusetts Department of Transportation, the United States Army Corps of Engineers, or the Federal Highway Administration.

OCTOBER 2023

Cape Cod Canal Bridges

VITAL LIFELINE TO THE CAPE & ISLANDS

CAPE COD COMMISSION

THE PROBLEM WITH THE BRIDGES

Built in 1935, the Bourne and Sagamore bridges span the Cape Cod Canal and connect residents, businesses, and visitors on the Cape and Islands to the mainland. The bridges are essential for general transportation, freight, and tourism, and in an emergency are critical routes for evacuation. The bridges are the only connection to and from Cape Cod for vehicular traffic.

The nearly 90-year-old bridges are both considered "functionally obsolete" while the Bourne Bridge is rated in poor condition and the Sagamore Bridge rated in fair condition by the U.S. Army Corps of Engineers, who owns and maintains both bridges. The Army Corps 2020 Cape Cod Canal Bridges Major Rehabilitation Report (MRER) concludes that **replacement of the bridges is the most reliable, fiscally responsible solution**.

The Critical Connection for Residents, Businesses, and Millions of Visitors

The Bourne and Sagamore Bridges provide the only roadway connections for:

229,000 Year-round residents

8,600 Businesses

34,000 Daily commuters

5 Million Annual Visitors

$15 Billion
Economic activity within the region (GDP 2021)

6,600
Daily truck trips over the bridges

122
Daily school bus crossings over the bridges, splitting students and schools

Issues with the bridges impact emergency services, health care access, transportation of goods & services, commute times, school access, retail tourism, disaster management, recreation access, air quality, pedestrian access, safety, and overall perceptions of the region.

$10 Billion
Estimated traffic delay cost that would result if there was a superstructure failure on the Sagamore Bridge alone (resulting in a required 60-month bridge closure)

Bridge Replacement Is Needed

<1 Million
1935 (ESTIMATED CROSSINGS)

ANNUAL COMBINED VEHICLE CROSSINGS

38 Million
PRESENT DAY
This is nearly as much traffic as the Golden Gate Bridge.

Traffic today far surpasses the design of the bridges. The Army Corps MRER report outlines that major rehabilitation or bridge replacement is required and recommends replacement as the best path forward.

One tractor trailer load could become two box truck loads, increasing traffic and costs.

The Bourne and Sagamore Bridges are listed in poor and fair condition, respectively. If no major action is taken, weight limits could be imposed as early as 2026. This would significantly increase the cost of goods to the Cape.

Canal Bridges Timeline

Cape Cod when the bridges opened for vehicle travel...

Population: 36,650 people & 1,500 cattle
Peak summer Sunday traffic: 4,700 trips
Average daily winter trips: 1,200
Estimated annual crossings: <1 million

Cape Cod today...

Average daily trips: 105,000

Population: 230,000
Peak summer Sunday traffic: 165,400 trips
Average daily off season trips: 80,000
Estimated annual crossings: 38 million

Bridges closed — Lane closures

1928 — Federal government purchases the Canal and places under management of the U.S. Army Corps of Engineers

1935 — The current Bourne and Sagamore Bridges open to vehicle traffic, replacing older drawbridges

1950s — Construction of the Mid-Cape highway begins

1962 — Bridge traffic crosses 10 million trips per year

1971 — Mid-Cape Highway expansions completed

1979 & 1981 — Major Rehabilitation Projects completed on both bridges

1988 — Bridge traffic crosses 25 million trips per year

2006 — Sagamore Flyover project completed, replacing the Sagamore Rotary

2010-2014 — Significant steel repairs made to both bridges

2019-2020 — MassDOT and Army Corps of Engineers complete studies and enter agreement to replace the bridges

2021 — MassDOT initiates process to replace bridges (Cape Bridges Program)

Roles and Responsibilities

The **U.S. Army Corps of Engineers** owns and maintains the Cape Cod Canal, Canal Pathways, and Bourne, Sagamore, and Rail bridges. The Army Corps is responsible for ensuring safe navigation of all these federally owned assets, including all construction and maintenance activities.

The Army Corps released a Major Rehabilitation Evaluation Report (MRER) in April 2020 that recommended the replacement of the Bourne and Sagamore bridges with two entirely new structures.

In July 2020, the Army Corps signed a Memorandum of Understanding (MOU) with the **Massachusetts Department of Transportation** (MassDOT), formalizing a federal-state partnership to replace the Bourne and Sagamore bridges. MassDOT owns and maintains most of the transportation infrastructure approaching the bridges. The MOU names MassDOT as the lead project delivery agency to complete the feasibility study and alternatives analysis, preliminary design and environmental permitting process, and construct the new bridges. Once completed, ownership of the new bridges will be transferred to MassDOT and they will assume operations and maintenance responsibilities.

The federal government will continue to play a role in the bridge replacement project. In particular, the **Federal Highway Administration** (FHWA) has been designated the lead federal agency responsible for the oversight of permitting.

Regional and local involvement plays an important role in the process, including stakeholders in the public and decision-making processes. Public meetings and other outreach activities will continue to occur over the duration of the program to ensure the public is informed and has the opportunity to provide input.

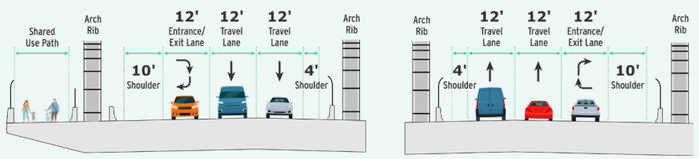
CAPE BRIDGES PROGRAM

The Cape Cod Bridges Program is overseen by MassDOT and will include the replacement of the Bourne and Sagamore bridges, provide new connections to the local roadway network and improve multimodal accommodations within the Cape Cod Canal area.

Draft sketches of the preferred design alternatives presented as part of the public outreach process. maintain the iconic curved look of the existing bridges while allowing for required modernizations and safety measures.

BRIDGES PROGRAM PHASES

Phase 1	Data collection and public outreach/involvement efforts
Phase 2	Based on public input, MassDOT develops and refines bridge and roadway options
Phase 3 *Current phase*	MassDOT identifies preferred options. Environmental documentation process begins. Design development.
Phase 4	MassDOT completes preliminary design and environmental permitting
Phase 5	Construction underway
Delivery	The Cape Cod Bridges Program is completed



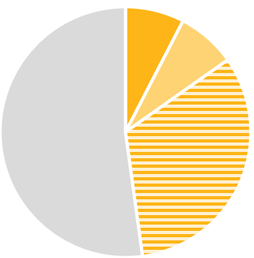
What's included in the new bridge design?
The preferred design includes two bridges at each crossing because they are more cost effective, structurally efficient structures. This approach allows for staged construction while keeping two lanes of traffic operational in both directions and allowing all existing roadway connections to be maintained. The proposed new lanes will be wider to meet current highway standards and include two travel lanes in each direction with an additional entrance/exit lane to help maintain the flow of traffic. The new bridge design also includes for a shared use path and shoulders that will allow for emergency vehicle access.

Other design details including final bridge location and connections to local roadways are still under development.

Funding and Next Steps

One of the greatest challenges regarding the canal bridges replacement is funding. The state has allocated $350 million dollars to support this project and are actively pursuing a number of federal grants to cover the bulk of project costs.

The state's latest round of federal grant applications prioritizes funding for the Sagamore Bridge replacement as Phase 1 while maintaining a commitment to replace both bridges.



Phase 1 (Sagamore Bridge – $2.1B)
- $350M state budget*
- $350M proposed federal budget*
- $1.5B federal grant applications

Phase 2 (Bourne Bridge – $2.4B)
- Funding plan under development*

*The state has indicated support totaling $700 million to the project. The President's budget proposal indicates support for $600 million in project funding (requires Congressional appropriation in fall 2023).

Total Estimated Program Costs: $4.5 Billion for replacement of both bridges including design, permitting, property acquisitions, construction, and contingencies for inflation.

Next Steps: Project design, permitting, and community outreach will continue for the replacement of both bridges. The study team submitted initial environmental permit applications in early 2023, and more detailed analysis and federal permitting documents are under development.