Cape Cod Canal Transportation Study, Public Informational Meeting #4.

Bourne, Plymouth, Sandwich, Wareham. Massachusetts Maritime Academy, Bourne. February 13th 2019 from 7:00 PM to 9:00 PM.
PIM #4 Agenda.

1. Goals and Objectives
2. Study Assumptions, Travel Patterns, and future (2040) No-Build Traffic Volumes
3. Roadway Improvement Alternatives
4. Summary of Travel Analysis Findings
5. Draft Study Recommendations
6. Cost Estimates Summary
7. Next Steps
Goals and Objectives.
The purpose of MassDOT’s conceptual planning study is to evaluate existing and future transportation safety and congestion deficiencies in the Cape Cod Canal Study Area.

The MassDOT study process has involved significant coordination with the US Army Corps of Engineers on its study of the Bourne and Sagamore Bridges.

This includes the development and analysis of multimodal transportation alternatives for roadways, transit, and bicycle and pedestrian facilities in order to address identified deficiencies.

A final report will include the study’s analytical findings, a recommended plan of transportation improvements, and preliminary cost estimates for these improvements.
Study Goal.

- Improve transportation mobility and accessibility in the Cape Cod Canal Area and to provide reliable year-round connectivity over the Canal and between the Sagamore and Bourne Bridges.
Study Objectives.

- Improve multimodal connectivity and mobility levels across the Canal to avoid degrading quality of life on the Cape.
- Ensure that cross-canal connectivity does not become a barrier to reliable intra-community travel within Bourne and Sandwich.
- Create a reliable multimodal connection across the Canal to assure public safety in the event of an emergency evacuation of portions of the Cape and to accommodate first responders trying to reach the Cape.
Study Area.
Conceptual Design Assumptions, Travel Patterns, and Future (2040) No-Build Traffic Volumes.
Design Assumptions.

• Focus on year-round safety and mobility problem locations.

• Design for future (2040) fall weekday PM peak period.

• Seek further improvements for summer Saturday peak, as feasible.

• New bridges to be built adjacent to existing bridges.
Access On & Off Cape Cod is a System.
Access System - Two Parts.

Part 1: Bridges spanning Cape Cod Canal linking to Network (Responsibility of the U.S. Army Corps of Engineers).
  
  • Sagamore Bridge
  
  • Bourne Bridge

Part 2: “Gateway” roads and intersections linking to bridges (Responsibility of MassDOT).

  • Sagamore Interchange (Reconstructed in 2006)
  
  • Route 6 at Exit 1C
  
  • Belmont Circle
  
  • Bourne Rotary
Summer Saturday
Daily Travel Patterns (On-Cape).

Total Volumes = 58,100

Legend
% of Total Traffic
(XX,XXX)
Total Volume
Summer Saturday
Daily Travel Patterns (Off-Cape).

Total Volumes = 56,800

Legend
% of Total Traffic
(XX,XXX)
Total Volume
Roadway System Limitations at 'Gateway' Locations.

Problem intersections are high crash locations or operate (or are forecast to operate) at Level of Service (LOS) E or F during a peak period in 2014 or 2040.
Future (2040) No-Build Traffic Conditions.
How We Forecast Future Traffic Volumes – 2014 to 2040.

Future traffic volume based on forecasted growth in:

- Commuter trips (travel to and from work);
- Non-commuter trips (shopping, school, visiting friends/relatives, recreation);
- Visitor Trips

2014 to 2040 Growth in Traffic

33.4 % Summer
22.5 % Non-Summer
2014 to 2040 Traffic Growth: Example Locations.

<table>
<thead>
<tr>
<th>ATR Counting Stations</th>
<th>Summer ADT</th>
<th></th>
<th></th>
<th>Non-Summer ADT</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bourne Bridge</td>
<td>56,500</td>
<td>61,600</td>
<td>9%</td>
<td>38,000</td>
<td>45,200</td>
<td>19%</td>
</tr>
<tr>
<td>Sagamore Bridge</td>
<td>65,900</td>
<td>93,300</td>
<td>42%</td>
<td>41,400</td>
<td>59,600</td>
<td>44%</td>
</tr>
<tr>
<td>Route 6 (Scenic Highway) East of Nightingale Road</td>
<td>33,600</td>
<td>36,200</td>
<td>8%</td>
<td>21,200</td>
<td>25,400</td>
<td>21%</td>
</tr>
<tr>
<td>Sandwich Rd East of Bourne Rotary Connector</td>
<td>20,800</td>
<td>33,400</td>
<td>8%</td>
<td>22,600</td>
<td>28,100</td>
<td>24%</td>
</tr>
</tbody>
</table>
Queues and Delay - Non-Summer Weekday PM (4:00 to 6:00 PM) Peak Period.

### Bourne Rotary 2040 No-Build

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Max Queue (feet)</th>
<th>Vehicle Delay (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Summer PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rte 25 Southbound</td>
<td>620</td>
<td>14</td>
</tr>
<tr>
<td>Trowbridge Road</td>
<td>3,465</td>
<td>394</td>
</tr>
<tr>
<td>Rte 28 Northbound</td>
<td>1,275</td>
<td>102</td>
</tr>
<tr>
<td>Sandwich Road</td>
<td>855</td>
<td>19</td>
</tr>
</tbody>
</table>

### Belmont Circle 2040 No-Build

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Max Queue (feet)</th>
<th>Vehicle Delay (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit 3 Off Ramps</td>
<td>645</td>
<td>2</td>
</tr>
<tr>
<td>Head of Bay Road</td>
<td>1,760</td>
<td>317</td>
</tr>
<tr>
<td>Buzzards Bay Bypass</td>
<td>110</td>
<td>3</td>
</tr>
<tr>
<td>Main Street</td>
<td>1,245</td>
<td>29</td>
</tr>
<tr>
<td>Scenic Highway</td>
<td>840</td>
<td>14</td>
</tr>
</tbody>
</table>
Bourne Bridge – Future (2040) No-Build Analysis

Queues and Delay - Summer Saturday
(10:00 AM to 12:00 PM) Peak Period.

**BOURNE ROTARY 2040 NO-BUILD**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Max Queue (feet)</th>
<th>Vehicle Delay (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Saturday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rte 25 Southbound</td>
<td>9,935</td>
<td>329</td>
</tr>
<tr>
<td>Trowbridge Road</td>
<td>2,225</td>
<td>265</td>
</tr>
<tr>
<td>Rte 28 Northbound</td>
<td>3,605</td>
<td>189</td>
</tr>
<tr>
<td>Sandwich Road</td>
<td>6,430</td>
<td>135</td>
</tr>
</tbody>
</table>

**BELMONT CIRCLE 2040 NO-BUILD**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Max Queue (feet)</th>
<th>Vehicle Delay (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Saturday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exit 3 Off Ramps</td>
<td>1,025</td>
<td>3</td>
</tr>
<tr>
<td>Head of Bay Road</td>
<td>2,700</td>
<td>658</td>
</tr>
<tr>
<td>Buzzards Bay Bypass</td>
<td>305</td>
<td>11</td>
</tr>
<tr>
<td>Main Street</td>
<td>6,140</td>
<td>126</td>
</tr>
<tr>
<td>Scenic Highway</td>
<td>11,610</td>
<td>161</td>
</tr>
</tbody>
</table>
Sagamore Bridge – Future (2040) No-Build Analysis
Queues and Delay - Summer and Non-Summer Peak.
Army Corps of Engineers Bridge Study.
US Army Corps of Engineers (USACE) Bridge Study.

- USACE Conducting ‘Major Rehabilitation Evaluation Study’ to determine rehabilitation or replacement of both Sagamore and Bourne Bridges.

- For the purpose of MassDOT Study’s analysis, assuming both bridges will be replaced.

- Assuming replacement bridges will be constructed adjacent to existing canal bridges.
Travel Demand Model.
Evaluation of Alternatives - Travel Demand Model.

• Improvements at key locations initially evaluated separately/stand-alone.

• Next, seven combinations of improvements (known as ‘cases’) at key locations evaluated.

• Travel analysis model identified modified travel patterns given the ‘transportation system’ alternatives.
## Total of 7 Cases Evaluated.

<table>
<thead>
<tr>
<th>Map Location</th>
<th>Improvements</th>
<th>Case 1</th>
<th>Case 1A</th>
<th>Case 1B</th>
<th>Case 2</th>
<th>Case 2B</th>
<th>Case 3</th>
<th>Case 3A</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Scenic Highway to Rte 25 Westbound On-Ramp</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>B</td>
<td>Rte 6 Exit 1C Relocation</td>
<td>⬜</td>
<td></td>
<td></td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>C</td>
<td>Rte 28 Northbound Ramp to Sandwich Road</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>D</td>
<td>Bourne Rotary (Three New Signalized Intersections)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>E</td>
<td>Belmont Circle (3 Leg Roundabout plus Signalized Intersection)</td>
<td>⬜</td>
<td></td>
<td></td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>F</td>
<td>Belmont Circle with Rte 25 Eastbound Fly-over</td>
<td></td>
<td></td>
<td></td>
<td>⬜</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Replacement Bridges (Bourne and Sagamore) - 2 travel lanes with auxiliary lane in each direction</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Additional Rte 6 Eastbound Travel Lane from Exit 1A to Exit 2 (3 total lanes)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Bourne Rotary with Highway Interchange</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>⬜</td>
</tr>
</tbody>
</table>
Elements of Cases Analyzed.

- **E** - Belmont Circle 3-Leg Roundabout plus Signalized Intersection
- **F** - Belmont Circle with Route 25 Eastbound Fly-over
- **G** - Replacement USACE Canal Bridge (2 travel lanes and auxiliary lane in each direction)
- **B** - Route 6 - Relocation of Exit 1C
- **A** - Scenic Highway Route 25 Westbound On-Ramp
- **D** - Bourne Rotary 3 New Signalized Intersections
- **I** - Bourne Rotary Highway Interchange with 3 Signalized Intersections
- **C** - Route 28 Northbound Ramp to Sandwich Road
- **H** - Additional Route 6 Eastbound Travel Lane

*X = Map Location*
Map Locations A and E: Scenic Highway to Route 25 Westbound On-Ramp, and Belmont Circle Reconstruction (3-Leg Roundabout with Signalized Intersection).
Map Location F: Belmont Circle with Route 25 Eastbound Fly-Over.
Map Locations C and D: Route 28 Northbound Ramp to Sandwich Road and Bourne Rotary Reconstruction.
Map Location I:
Bourne Rotary Highway Interchange.

Connection to new Bourne Bridge (2 travel lanes with auxiliary lane in each direction)

Bourne Rotary with Highway Interchange

New Signalized Intersection

Trowbridge Road

Veterans Way

Sandwich Road

CAPE COD CANAL
Map Location B:
Route 6 Exit 1C Relocation.
Map Location H:
Route 6 – Additional Eastbound Lane to Exit 2.
Summary of Travel Analysis
Findings Non-Summer Peak Period

(Weekday PM: 4:00PM – 6:00PM)
Traffic Analysis Findings
Bourne Bridge Area, Non-Summer.

Belmont Circle and Bourne Rotary Overall Average Delays (minutes).

Case 3 and Case 3A analysis assumes construction of replacement Canal bridges by USACE (envisioned as 2 travel lanes with 1 auxiliary lane in each direction, for a total of 6 lanes).
Traffic Analysis Findings

Bourne Bridge Area, Non-Summer.

Cases 1B, 2, 2B, and 3A would provide progressively greater reductions in delay during the non-summer time periods at Belmont Circle and Bourne Rotary.

New ramps would reduce traffic in rotaries.
- Scenic Highway westbound to Route 25 on-ramp (Element/Map Location A).
- Route 28 north to Sandwich Road eastbound ramp (Element/Map Location C).

New signal and roundabout at Belmont Circle (Element E) would improve traffic flow.
- New traffic signal and roundabout at circle would reduce congestion by controlling traffic flow from Route 25, Main Street, Buzzards Bay Bypass, and Scenic Highway.
Bourne Rotary Interchange (Element/Map Location I) would reduce vehicular conflict.

- Bourne Rotary Interchange would separate local and regional traffic.
- Regional traffic (with destinations on Route 28 and beyond) would avoid conflict with local Bourne area traffic which would use Sandwich Road for east-west travel.
Traffic Analysis Findings
Sagamore Bridge Non-Summer.

Non-Summer PM Operations for
Sagamore Bridge - Average Delay (mins).

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Delay (mins)</th>
<th>Delay (mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUTURE (2040) NO-BUILD</td>
<td>7.7</td>
<td>3.0</td>
</tr>
<tr>
<td>CASE 1</td>
<td>7.6</td>
<td>0.0</td>
</tr>
<tr>
<td>CASE 1A</td>
<td>7.6</td>
<td>4.8</td>
</tr>
<tr>
<td>CASE 1B</td>
<td>7.5</td>
<td>5.4</td>
</tr>
<tr>
<td>CASE 2</td>
<td>7.7</td>
<td>0.0</td>
</tr>
<tr>
<td>CASE 2B</td>
<td>7.8</td>
<td>0.0</td>
</tr>
<tr>
<td>CASE 3</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>CASE 3A</td>
<td>0.2</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Cases 1A and 1B do not include relocation of Route 6 Exit 1C.

Legend:
- Route 3 Southbound
- Route 6 Westbound
Traffic Analysis Findings
Sagamore Bridge Area, Non-Summer.

- Relocation of Route 6 Exit 1C (Element/Map Location B):
  - Would result in substantial delay reduction for Route 6 westbound (off-Cape) from elimination of conflict at south end of Sagamore Bridge.
  - Would provide sufficient acceleration and deceleration distances at relocated Exit 1C on and off-ramps.

- Cases 1A and 1B do not include Exit 1C relocation (Element/Map Location B) and would not see Route 6 westbound improvements.

- Case 3A - Delay reduction on Route 3 southbound would occur with replacement of the Sagamore Bridge (Element/Map Location G) and additional Route 6 eastbound travel lane to Exit 2 (Element/Map Location H).
Summary of Traffic Analysis Findings

Summer Peak Period

(Saturday: 10:00AM-12:00PM).
Traffic Analysis Findings
Bourne Bridge Area - Summer.

Belmont Circle and Bourne Rotary Overall Average Delays (mins).

<table>
<thead>
<tr>
<th></th>
<th>Belmont Circle</th>
<th>Bourne Rotary</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUTURE (2040) NO-BUILD</td>
<td>3.2</td>
<td>3.6</td>
</tr>
<tr>
<td>CASE 1</td>
<td>2.7</td>
<td>3.8</td>
</tr>
<tr>
<td>CASE 1A</td>
<td>2.3</td>
<td>3.1</td>
</tr>
<tr>
<td>CASE 1B</td>
<td>2.3</td>
<td>2.8</td>
</tr>
<tr>
<td>CASE 2</td>
<td>2.8</td>
<td>1.5</td>
</tr>
<tr>
<td>CASE 2B</td>
<td>5.6</td>
<td>1.1</td>
</tr>
<tr>
<td>CASE 3</td>
<td>4.2</td>
<td>3.7</td>
</tr>
<tr>
<td>CASE 3A</td>
<td>3.7</td>
<td>3.7</td>
</tr>
</tbody>
</table>

- **Belmont Circle**
- **Bourne Rotary**
Belmont Circle:

- During summer peak period, more modest delay reductions could be achieved at Belmont Circle for Cases 1, 1A, 1B, and 2.

- Under Cases 2B, 3, and 3A, more freely-flowing traffic entering roundabout from Route 25 would result in fewer gaps for vehicles attempting to enter Belmont Circle from Main Street, Scenic Highway, and Head of Bay Road. This would cause additional overall delay under these cases.
Traffic Analysis Findings
Bourne Bridge Area - Summer.

**BENEFITS:**

- Up to 300 additional vehicles would be processed through Belmont Circle during summer Saturday peak hour (10:00 AM - 12:00 PM) for Cases 1B, 2, 2B, 3, and 3A.

- **Regionally,** there would be a reduction in travel times.

Example: Future summer travel time from Route 25 Exit 2 (Glen Charlie Road) to Route 6 Exit 2 (Route 130) would be reduced by 12.1 minutes (via Sandwich Road) under Case 3.
Traffic Analysis Findings

Bourne Rotary - Summer.

Bourne Rotary

- Steadily decreasing delays could be achieved during summer peak period at Bourne Rotary under Cases 1B, 2, 2B, and 3A.

- Case 3 would be less effective because a reconstructed Bourne Rotary (Three New Signalized Intersections – Element/Map Location D) could not effectively process the additional 700 vehicles that would be attracted to a replacement Bourne Bridge (Element/Map Location G), which would be diverted from the Sagamore Bridge.

- Case 3A - Construction of highway interchange (Element I) at Bourne Rotary (with replacement Bourne Bridge - Element/Map Location G) would be necessary to reduce summer delay.

- Case 3A – Auxiliary lanes on replacement Bourne Bridge (Element/Map Location G) would also be effective at reducing delay and conflict by providing acceleration and deceleration lanes.
Traffic Analysis Findings
Changes in Travel Patterns.

WHY?:

- Currently, congested operations at Bourne Rotary discourage use of Bourne Bridge. Instead, vehicles exit Route 25 at Belmont Circle to travel east on Scenic Hwy and cross the Cape Cod Canal via Sagamore Bridge.

- Under Cases 3 and 3A, traffic operations would improve with replacement of the canal bridges (Element/Map Location G), Exit 1C Relocation (Element/Map Location B), Route 6 eastbound travel lane (Element/Map Location H), reconstruction of Belmont Circle (Element/Map Location E), and a Bourne Rotary Interchange (Element/Map Location I).

- As a result, some Route 6-bound traffic would shift to more direct route to Bourne Bridge (via Sandwich Road) rather than Sagamore Bridge (via Scenic Hwy).
Travel Patterns for Trips to Cape Cod – Summer Saturday (10:00AM – 12:00 PM) Peak Period.
Travel Patterns for Trips to Cape Cod – Summer Peak Period.

Using Bourne Bridge Southbound

Using Sagamore Bridge Southbound

Using Sandwich Rd Eastbound

Note: Change in volumes from Case 2 – Case 3

Using Scenic Hwy EB
Traffic Analysis Findings
Belmont Circle - Summer.

RESULT:

- Case 3A would result in a better balanced split of traffic using replacement Sagamore and Bourne Bridges (Element/Map Location G).

<table>
<thead>
<tr>
<th>TRAVEL ANALYSIS LOCATIONS</th>
<th>PEAK HOUR TRAFFIC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO BUILD</td>
</tr>
<tr>
<td>Sagamore Bridge SB</td>
<td>3,975</td>
</tr>
<tr>
<td>Bourne Bridge SB</td>
<td>2,825</td>
</tr>
</tbody>
</table>
Travel Analysis Findings
Sagamore Bridge - Summer.

Summer Saturday Operations for Sagamore Bridge - Average Delay (mins)

<table>
<thead>
<tr>
<th></th>
<th>Route 3 Southbound</th>
<th>Route 6 Westbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUTURE (2040) NO-BUILD</td>
<td>14.8</td>
<td>13.5</td>
</tr>
<tr>
<td>CASE 1</td>
<td>14.9</td>
<td>3.5</td>
</tr>
<tr>
<td>CASE 1A</td>
<td>14.9</td>
<td>13.9</td>
</tr>
<tr>
<td>CASE 1B</td>
<td>14.8</td>
<td>14.2</td>
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<tr>
<td>CASE 2</td>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td>CASE 2B</td>
<td></td>
<td>2.9</td>
</tr>
<tr>
<td>CASE 3</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>CASE 3A</td>
<td>0.3</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Cases 1A and 1B do not include relocation of Route 6 Exit 1C.
Traffic Analysis Findings
Sagamore Bridge Area, Summer.

- Relocation of Route 6 Exit 1C (Element/Map Location B) would result in substantial delay reduction for Route 6 westbound (off-cape) for Cases 1, 2, 2B, 3, & 3A.

- Delay reduction on Route 3 southbound would occur under Cases 3 and 3A, with construction of replacement Sagamore Bridge (including two travel lanes and one auxiliary lane in each direction), and additional Route 6 eastbound lane.
Draft Study Recommendations.
Range of Draft Recommended Transportation Improvements.

- Multimodal:
  - Bicycle/Pedestrian.
  - Park & Ride Facilities.

- Roadway Improvements:
  - Local Intersections.
  - “Gateway” Locations.
Bicycle/Pedestrian Improvements include the following:

- Accessible sidewalks & trails, crosswalks, pedestrian phases at intersections, bicycle accommodation in roadway shoulder.
Draft Study Recommendations – Multimodal.

Bicycle/Pedestrian Improvements -

- Provide three new additional accessible connections to Cape Cod Canal Bikeway.
- Improve bicycle/pedestrian facilities along Cape Cod Regional Transit Authority (CCRTA) bus routes.
- Provide accessible connections along roadway approaches to Sagamore and Bourne Bridges (including ‘Complete Street’ design of Adams Street)

WHY? – More accessible connections provide more multimodal options for residents and visitors.
Draft Study Recommendations – Canal Trail Connections.
Draft Study Recommendations – Bike-Ped Facilities along Bus Routes.
Bicycle/Pedestrian Access:
Sagamore Bridge Approaches & Adams Street
Complete Street Improvements.
Bicycle/Pedestrian Access: Bourne Bridge (North of Canal).

- RECONSTRUCT AND WIDEN SIDEWALK.
- ADD LANE STRIPING AND SIGNAGE.

NOTE: SIDEWALK IMPROVEMENTS SOUTH OF CANAL WERE COMPLETED BY MASSDOT IN 2017.
Draft Study Recommendations – Multimodal.

Park & Ride Facilities:

- Construct new Park & Ride lot at Route 6 Exit 2.
- Potential new Plymouth & Brockton commuter bus stop.
- Provide connection to new Service Road bike path.
- Provide bicycle storage facilities.

**WHY?** – Encourages use of alternate modes of transportation.
Park & Ride Facility/Lot
Route 6 at Route 130.

POTENTIAL LOCATION FOR A 100-SPACE PARK AND RIDE LOT.

SECURE BIKE STORAGE AREA.

CONNECTION TO FUTURE SERVICE ROAD BIKE PATH AND BUS ROUTE.
(MassDOT #608422, Transportation Improvement Program Funding Year 2022).
Intersection/Signal Improvements –

- Signal Timing / Adaptive Signal Improvements:
  - Scenic Highway at Meetinghouse Road.
  - Scenic Highway at Nightingale Road.

- Route 6A at Cranberry Highway/Sandwich Road:
  - New turning lane.

- Route 130 at Cotuit Road:
  - Install traffic signal.

- Sandwich Road at Bourne Rotary Connector:
  - New traffic signal and through lane.
Route 6A at Cranberry Highway/
Sandwich Road, Bourne.

Proposed: Add exclusive left-turn lanes on westbound approach. ADA-compliant sidewalks and crosswalk on all approaches.
Route 130 at Cotuit Road, Sandwich.

Proposed: Signalized Intersection. ADA-compliant sidewalks and crosswalk on all approaches.
Sandwich Rd/Bourne Rotary Connector, Bourne ‘Florida T’ Intersection.

Proposed: Signalized Intersection. Includes through-lane from Bourne Rotary Connector to Sandwich Road and ADA-compliant sidewalks and crosswalks.
Case 3A Elements/Improvements Satisfy the Study Goals and Objectives:

- Improvements analyzed under Case 3A would provide the greatest long-term benefits in accessibility and mobility for Cape Cod residents, employers, and visitors.

- Public Safety: Case 3A would provide a reliable multimodal transportation system in the event of an emergency evacuation of Cape Cod.

- Case 3A improvements focused on improving existing infrastructure, thereby minimizing anticipated impacts.
Elements/Map Locations of Case 3A Include:

A. Scenic Highway westbound to Route 25 westbound on-ramp.

B. Route 6 – Relocation of Exit 1C on Route 6 westbound.

E. Belmont Circle reconstruction as a 3-leg roundabout with signalized intersection.

H. Construct Route 6 eastbound travel lane to Exit 2.

I. Reconstruct Bourne Rotary as an interchange.
The US Army Corps of Engineers (USACE) is currently conducting a study to determine the long-term disposition (Major Rehabilitation or Replacement) of the Bourne and Sagamore Bridges.

MassDOT’s Draft Study Recommendations of improvements included in Case 3A assumes that USACE will be recommending replacement of both the Bourne and Sagamore Bridges (with 2 travel lanes and 1 auxiliary lane in each direction).
Travel Model Case 3A.

- **E** - Belmont Circle 3-Leg Roundabout plus Signalized Intersection
- **G** - Replacement USACE Canal Bridge (2 travel lanes and auxiliary lane in each direction)
- **B** - Route 6 - Relocation of Exit 1C
- **A** - Scenic Highway Route 25 Westbound On-Ramp
- **I** - Bourne Rotary Highway Interchange with 3 Signalized Intersections
- **H** - Additional Route 6 Eastbound Travel Lane

X = Map Location
Map Locations A and E: Scenic Highway to Route 25 Westbound On-Ramp, and Belmont Circle Reconstruction (3-Leg Roundabout with Signalized Intersection).
Map Location B: Route 6 Exit 1C Relocation.
Map Location H:
Route 6 – Additional Eastbound Lane to Exit 2.
Map Location 1:
Bourne Rotary Highway Interchange.
### Summary of Conceptual Cost Estimates by Case.

<table>
<thead>
<tr>
<th>Cases</th>
<th>2030</th>
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<tbody>
<tr>
<td>Case 1</td>
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<td>Case 1A</td>
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<td>Case 1B</td>
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<td>Case 2</td>
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<tr>
<td>Case 3A*</td>
<td>$370</td>
<td>$540</td>
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</table>

*Includes cost of Sagamore and Bourne Bridge approaches.
## Conceptual Cost Estimates by Location for Case 3A.

<table>
<thead>
<tr>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Scenic Highway to Route 25 WB Ramp</td>
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<tr>
<td>Route 6 Exit 1C Relocation</td>
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<td>Belmont Circle Reconstruction</td>
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<tr>
<td>Route 6 EB Travel Lane</td>
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<tr>
<td>Bourne Rotary Interchange (including 3 signalized intersections at Bourne Rotary)</td>
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<td>$127</td>
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<tr>
<td>Sagamore Bridge Approach</td>
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<tr>
<td>Bourne Bridge Approach</td>
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</table>
The Draft Study Report will be released soon and will include a 30-day public comment period. When the report is available, it will be posted to https://www.mass.gov/cape-cod-canal-transportation-study.

MassDOT will continue to coordinate with the USACE on its study of the Bourne and Sagamore Bridges.

Once the USACE has decided on its long-term plan for the bridges, MassDOT will initiate and prioritize the project development process for the capital projects recommended in the Cape Cod Canal Transportation Study’s Final Report.