Cape Cod Canal Transportation Study, Third Public Informational Meeting.

Bourne, Plymouth, Sandwich, Wareham.

Massachusetts Maritime Academy

December 1, 2016 7:00 PM to 9:00 PM

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Agenda.

Welcome and Introductions.

- Study Process & Framework.
- Study Framework: Goals and Objectives.
- Alternatives Development.
  - Potential Short-, Mid-, and Long-Term.
- Schedule/Next Steps.

Welcome and Introductions.

- MassDOT:
  - Ethan Britland – Project Manager.
- US Army Corps of Engineers.
  - Craig Martin, Project Manager.
- Study Team:
  - Bill Reed, P.E., Principal in Charge (Stantec).
  - Mike Paiewonsky, AICP- Team Project Manager (Stantec).
  - Fred Moseley, P.E. –Transportation Engineer (Stantec).
  - Jennifer Siciliano, AICP – Public Engagement (Harriman).
  - Sudhir Murthy, P.E., PTOE –Trans. Modeler (TrafInfo).
  - Frank Mahady – Socio-Economic (FXM Associates).

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Study Process & Framework.

- **Step 1:** Goals and Objectives, Evaluation Criteria, and Public Involvement Plan.
- **Step 2:** Existing Conditions, Future Conditions, and Issues Evaluation.
- **Step 3:** Alternatives Development.
- **Step 4:** Alternatives Analysis.
- **Step 5:** Recommendations.

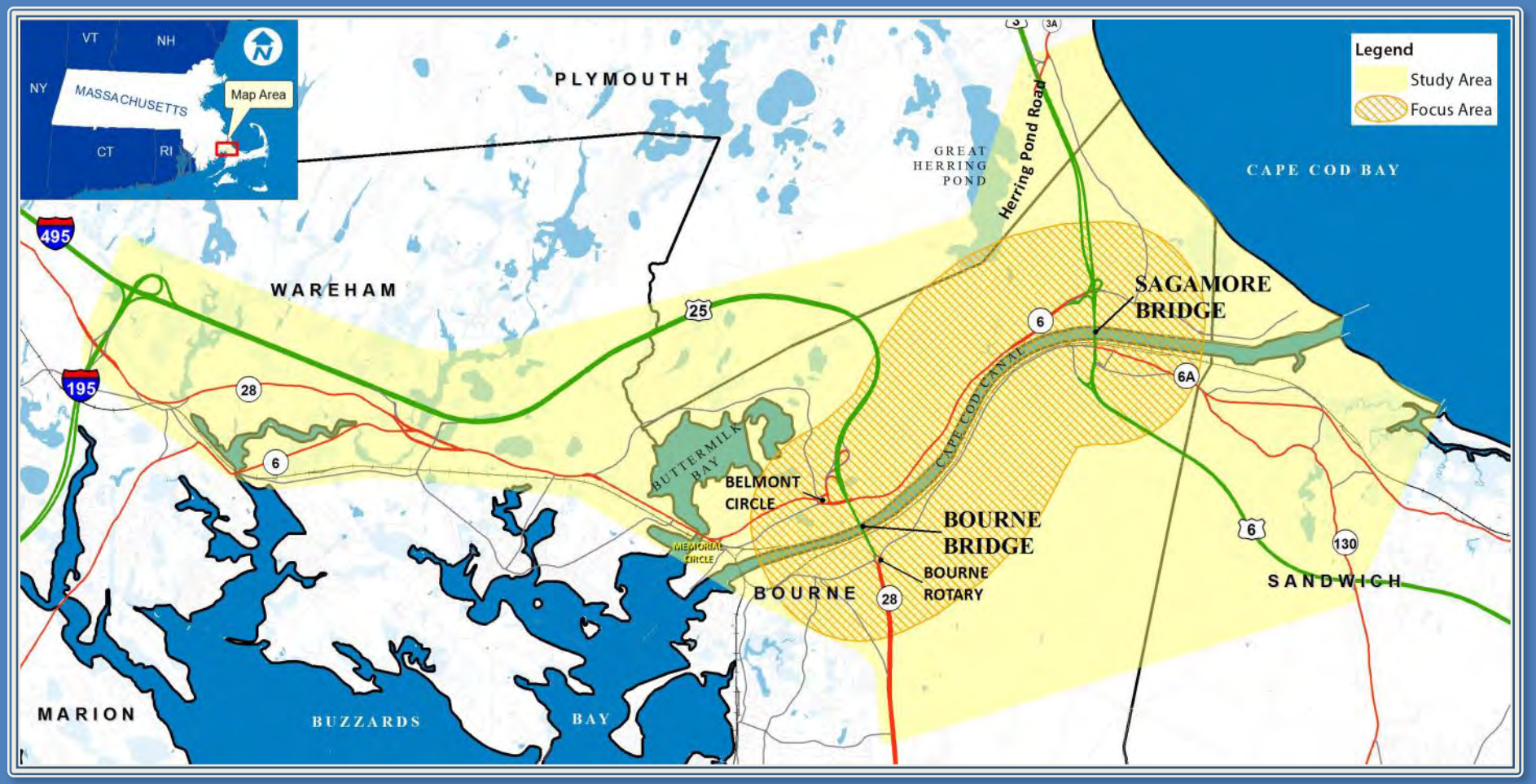
Study Framework: Goals.

- 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.
- To create/improve multi-modal mobility in the Cape Cod Canal area

Study Framework: Objectives.

- Create reliable multimodal connectivity and mobility levels such that the quality of life on Cape Cod is not diminished by unreliable connectivity across the Cape Cod Canal.
- Create a reliable multimodal connection across the Cape Cod Canal to maintain/enhance public safety in the event of the need for an emergency evacuation of portions of Cape Cod and to accommodate first responders accessing Cape Cod.
- Ensure that cross canal connectivity does not become a barrier to reliable intra-community connectivity for the Towns of Bourne and Sandwich.

Study Area.



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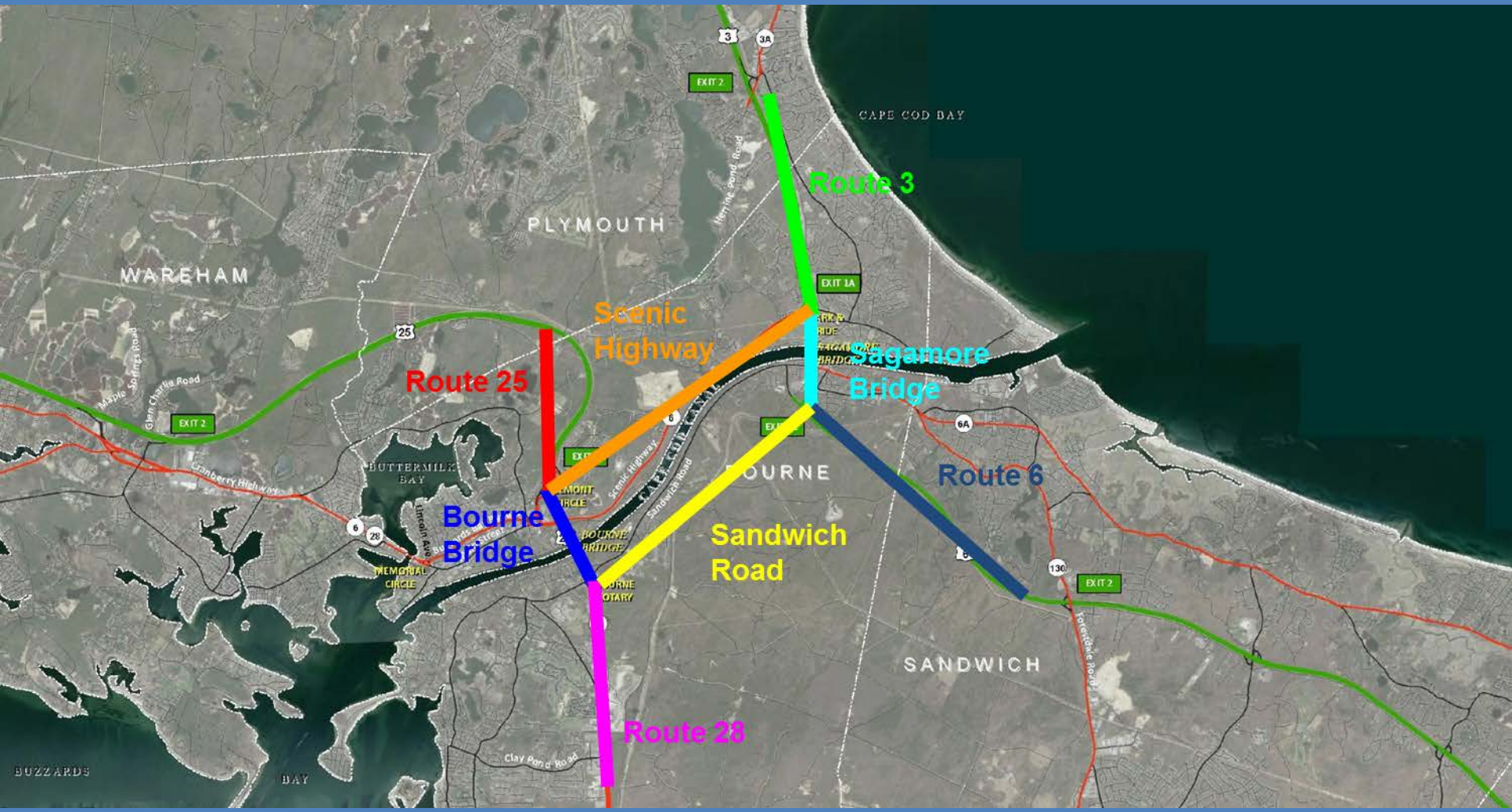
Travel Corridors.



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Cape Cod’s Summer vs.
Non-Summer Seasons.
Carmencitta Magazine

2014 Summer and Non Summer Daily Traffic Volumes

Scenic Highway	
Summer	38,664
Non-Summer	22,908
Change (%)	51%

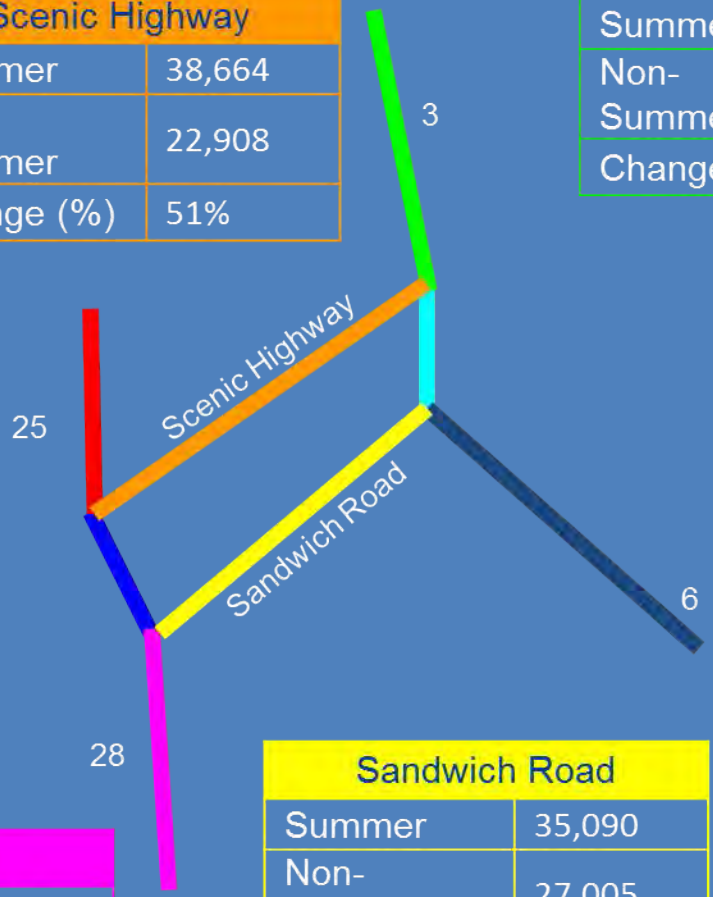
Route 3	
Summer	51,613
Non-Summer	38,848
Change (%)	28%

Route 25	
Summer	67,734
Non-Summer	42,648
Change (%)	45%

Sagamore Bridge	
Summer	73,371
Non-Summer	49,837
Change (%)	38%

Bourne Bridge	
Summer	62,655
Non-Summer	44,794
Change (%)	33%

Route 6	
Summer	78,709
Non-Summer	41,114
Change (%)	63%



Route 28	
Summer	52,145
Non-Summer	30,000
Change (%)	54%

Sandwich Road	
Summer	35,090
Non-Summer	27,005
Change (%)	26%

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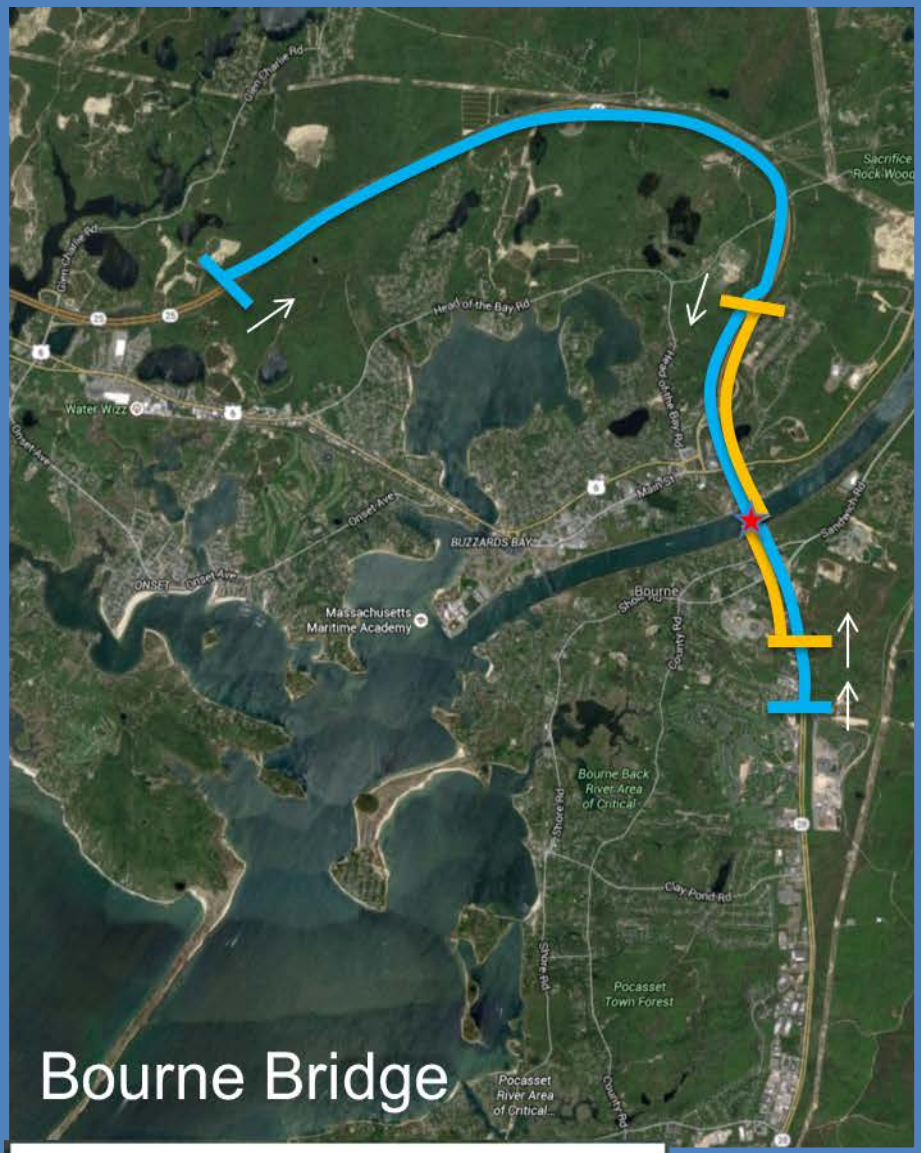
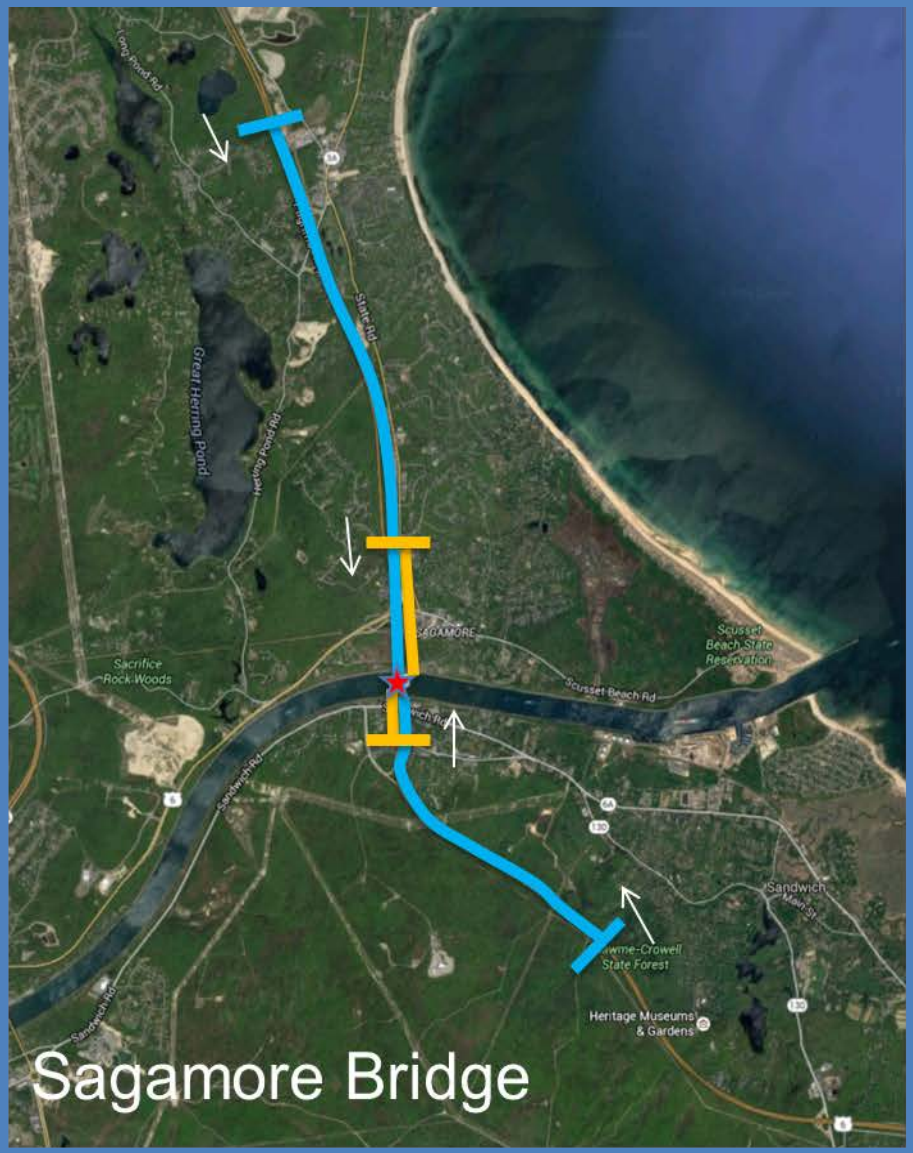
What are some of the Implications of those Traffic Volumes?

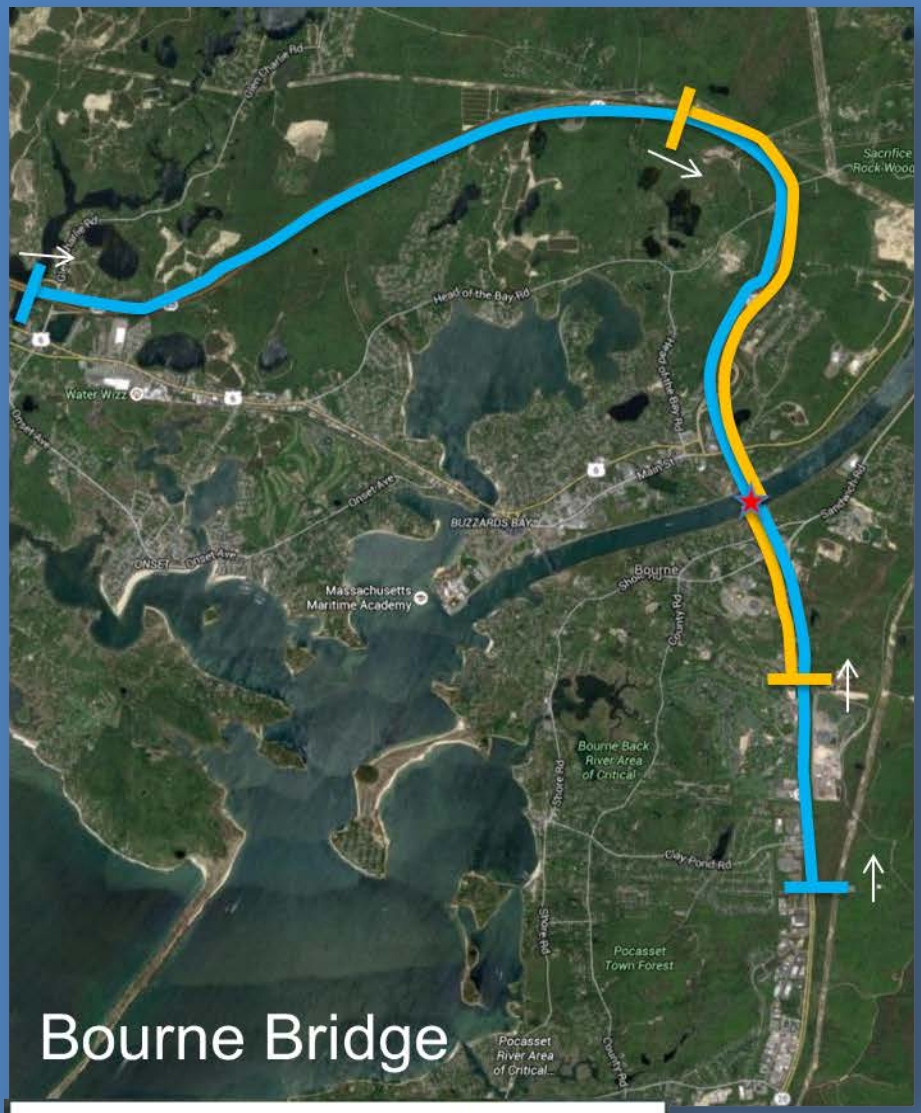
2014 Saturday Peak Hour (10 – 11 AM)
Typical (95th percentile) Queues from Bridges.

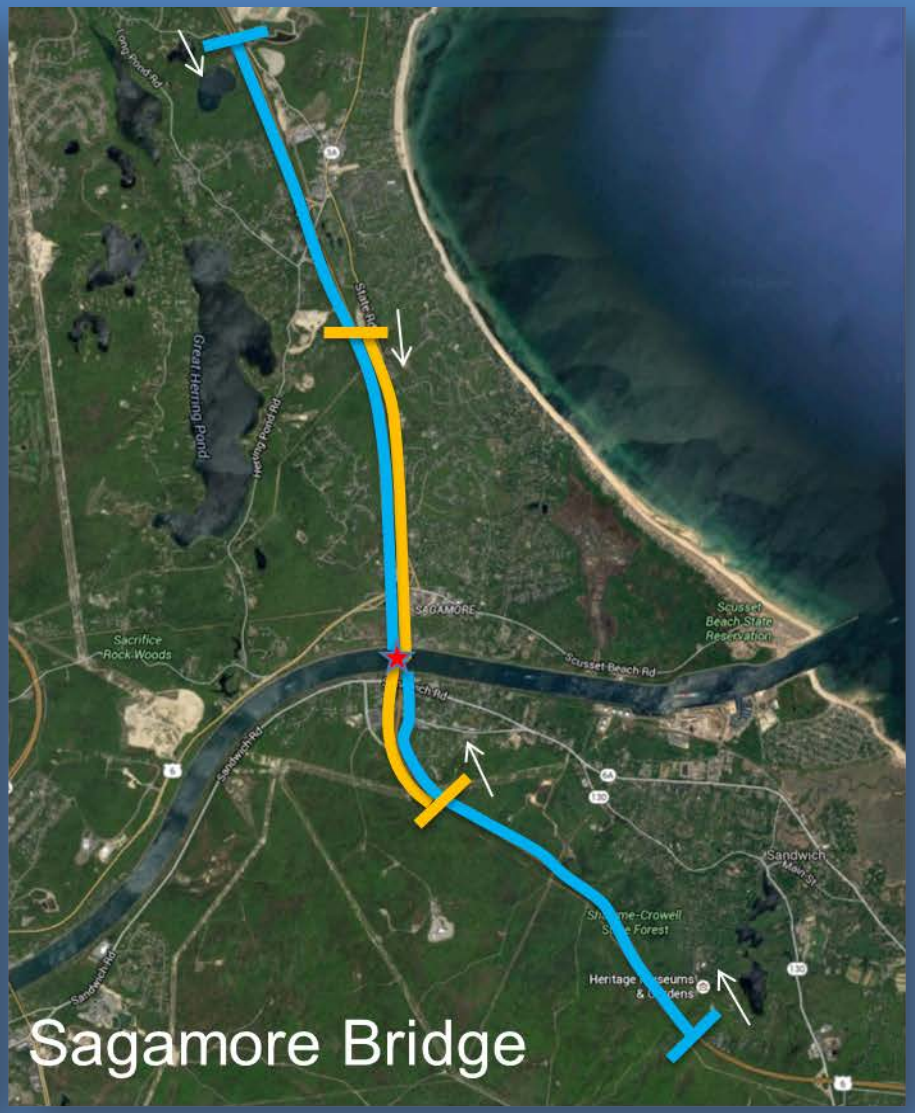




Back of Peak Queue (Summer)
Back of Peak Queue (Fall)

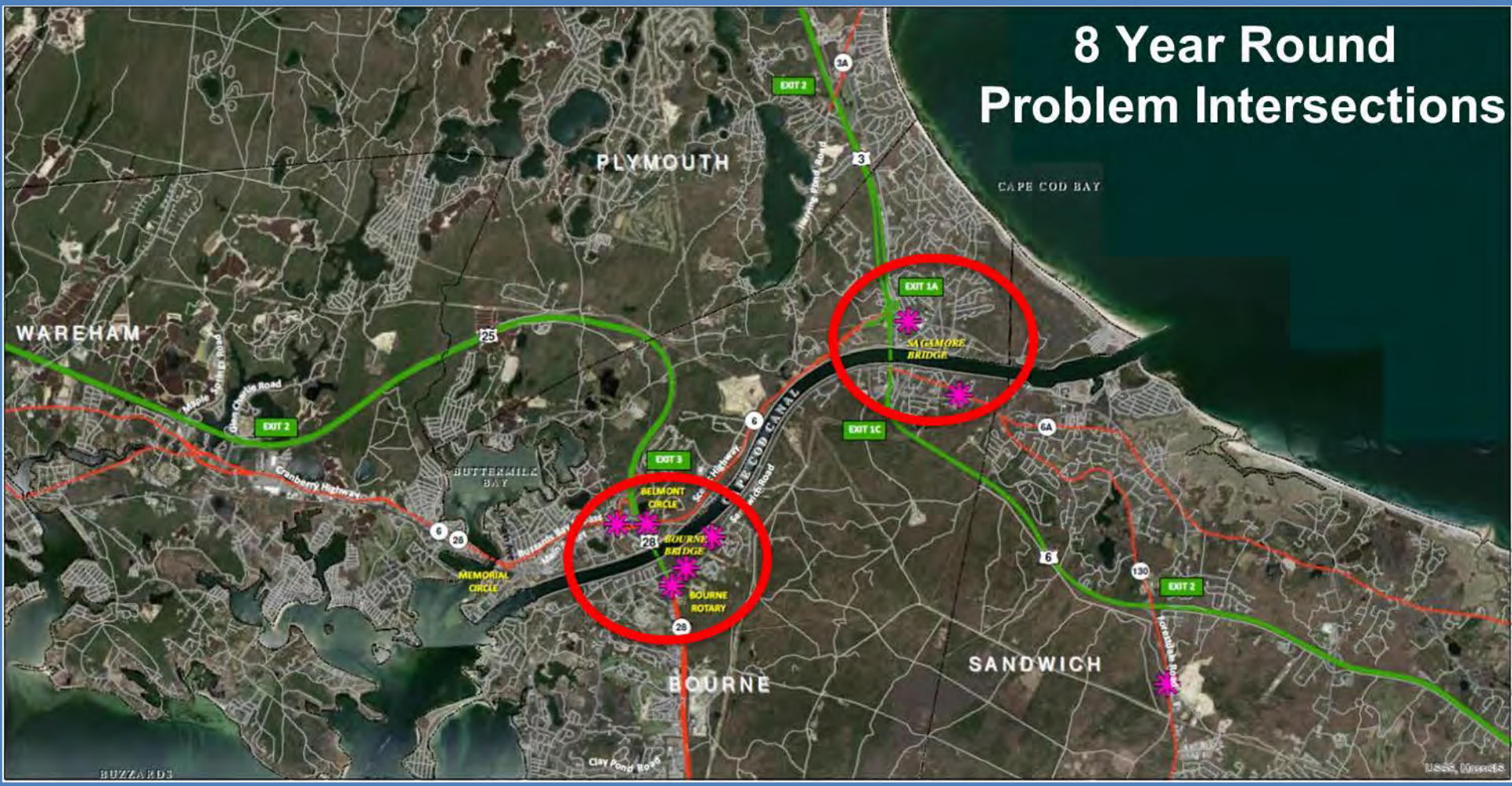
2040 Saturday Peak Hour (10 – 11 AM)
Typical (95th percentile) Queues from Bridges.





Year-Round Problem Intersections.

2014 Year Round Problem Intersections.



Legend

----- Town Boundary

✱ Year Round Problem Intersections

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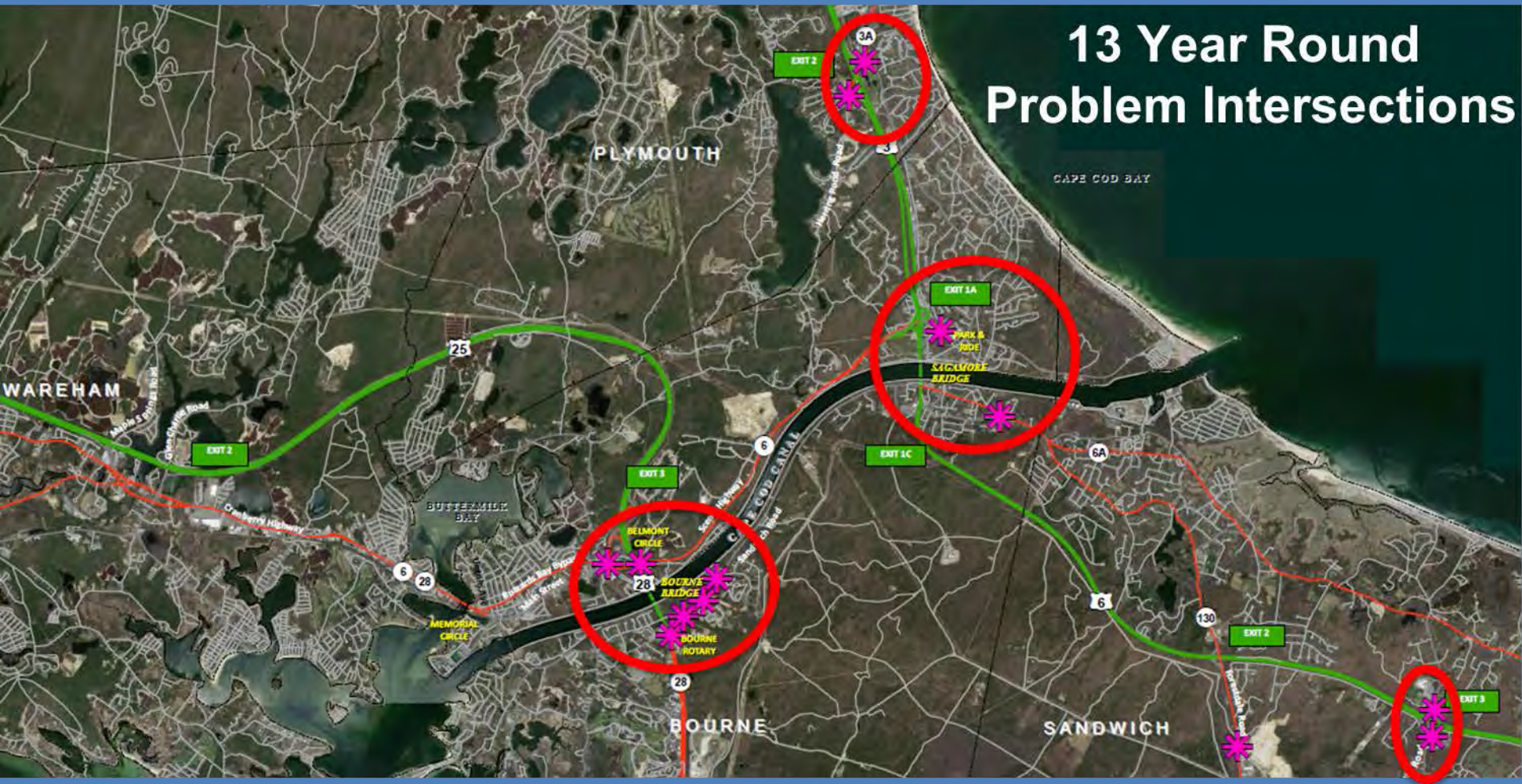
2040 Year Round Problem Intersections



Legend

----- Town Boundary

✱ Year Round Problem Intersections

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2014 Year Round Problem Intersections by LOS and Crashes.

Location	High Crash	LOS E or F?	Town
Bourne Rotary	Yes	Yes	Bourne
Sandwich Road at Bourne Rotary Connector	No	Yes	Bourne
Sandwich Road at Harbor Lights Road	No	Yes	Bourne
Belmont Circle	Yes	Yes	Bourne
Scenic Highway at Nightingale Pond Road	Yes	No	Bourne
Scenic Highway at Canal Road/ State Road	Yes	No	Bourne
Route 6A at Cranberry Hwy/ Sandwich Road	No	Yes	Bourne
Route 130 at Cotuit Road	Yes	Yes	Sandwich

2040 Year Round Problem Intersections by LOS and Crashes

Location	High Crash	LOS E or F?	Town
Bourne Rotary	Yes	Yes	Bourne
Sandwich Road at Bourne Rotary Connector	No	Yes	Bourne
Sandwich Road at Harbor Lights Road	No	Yes	Bourne
Belmont Circle	Yes	Yes	Bourne
Scenic Highway at Nightingale Pond Road	Yes	No	Bourne
Scenic Highway at Canal Road/ State Road	Yes	No	Bourne
Route 6A at Cranberry Hwy/ Sandwich Road	No	Yes	Bourne
Route 130 at Cotuit Road	Yes	Yes	Sandwich
Herring Pond Road at Exit 2 Southbound	Yes	Yes	Plymouth
Herring Pond Road at Exit 2 Northbound	No	Yes	Plymouth
Quaker Meetinghouse Road at Exit 3 Eastbound	Yes	Yes	Sandwich
Quaker Meetinghouse Road at Exit 3 Westbound	No	No	Sandwich

Summary of Completed Task 2.

- Existing Traffic Conditions;
- Environmental Conditions;
- Bicycle, Pedestrian, Transit Facilities;
- Travel Demand Model;
- Future (2040) No-Build Traffic; and
- Engagement with Army Corps.

Major Task 2 Findings.

- Problems include:
  - Sagamore and Bourne Bridges,
  - Areas clustered north and south of bridges;
- 2040 traffic conditions will worsen;
- Lack of bicycle, pedestrian, and other multimodal connections;
- Many environmental constraints.

Issues, Constraints, Opportunities.

Issues:

- Severe congestion at bridge approaches and intersections.
- Balancing visitor and resident needs.
- Lack of bicycles and pedestrian accommodation.

Constraints:

- Extensive areas of sensitive environmental resources.
- Developed residential and commercial areas.
- Joint Base Cape Cod.

Opportunities:

- MassDOT and Army Corps collaboration.
- Enhance multimodal accommodation.
- Additional infrastructure.

Task 3: Preliminary Alternatives Development.

Standard Approach to Preliminary Alternatives Development.

Seeking alternatives that:

1. Satisfy Study Goals and Objectives from Task 1.
2. Based on Identified Issues, Constraints, and Opportunities from Task 2.
3. Minimize Property, Community, and Environmental Impact.
4. Modify or expand existing infrastructure and, if necessary, construct new infrastructure.

Additional Considerations for Preliminary Alternatives Development.

- US Army Corps of Engineers (USACE) plan for bridges.
- Examination of Prior Alternatives Developed for the Public Private Partnership (P3) Process.
- Review of Outside Submissions
- Development of New Alternatives (Short, Medium and Long-Term).


Army Corps of Engineers.

Continued Coordination with USACE.

- USACE Conducting ‘Major Rehabilitation Evaluation Study’ to Determine Rehabilitation or Replacement of both Sagamore and Bourne Bridges.
- For the Purpose of Analysis in MassDOT’s Study, we are assuming both bridges will be Replaced and Toll Free.


Consideration of Prior
P3 Alternatives.
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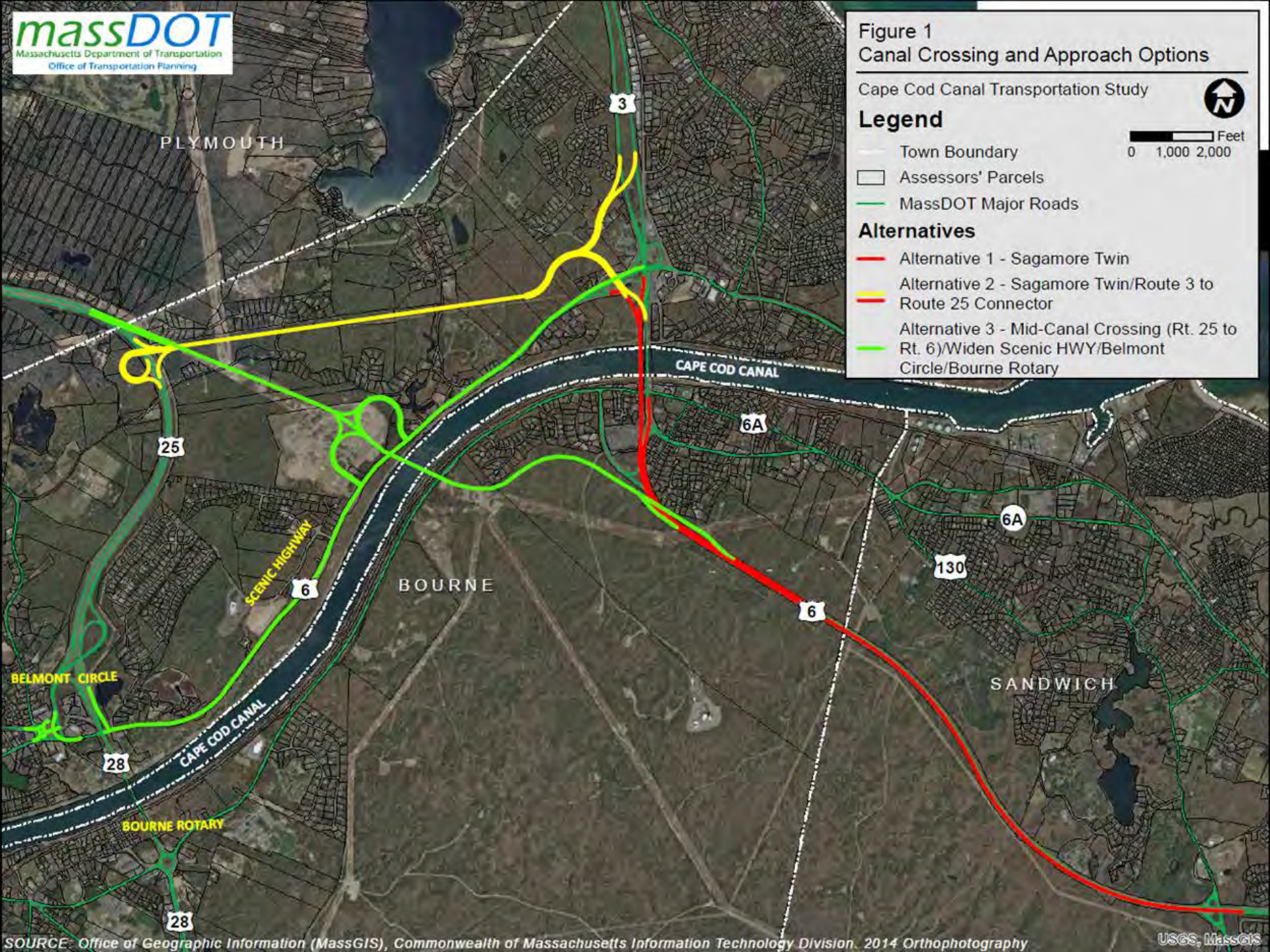
Examination of Preliminary P3 Concepts.

- P3 Concepts were developed in response to increasing USACE maintenance of the Canal bridges and intended to compliment aging infrastructure.

- Examine prior concepts and also new P3 opportunities, if necessary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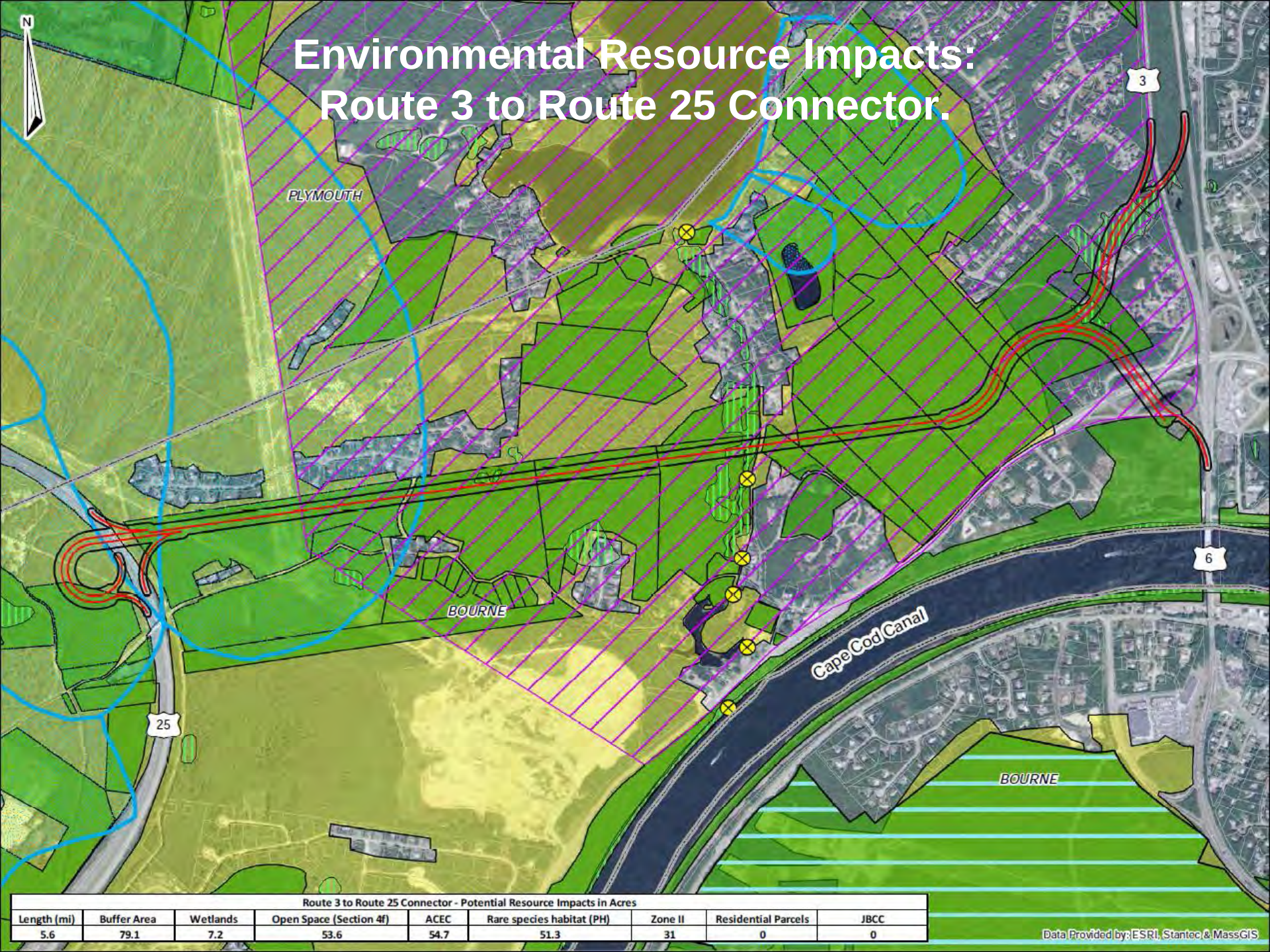
Office of Transportation Planning
Figure 1
Canal Crossing and Approach Options
Cape Cod Canal Transportation Study
Legend
Feet
0 1,000 2,000
Town Boundary
Assessors' Parcels
MassDOT Major Roads
Alternatives
Alternative 1 - Sagamore Twin
Alternative 2 - Sagamore Twin/Route 3 to Route 25 Connector
Alternative 3 - Mid-Canal Crossing (Rt. 25 to Rt. 6)/Widen Scenic HWY/Belmont Circle/Bourne Rotary
PLYMOUTH
BOURNE
SANDWICH
CAPE COD CANAL
CAPE COD CANAL
SCENIC HIGHWAY
BELMONT CIRCLE
BOURNE ROTARY
3
25
6
6A
6A
130
6
28
28
SOURCE: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts Information Technology Division. 2014 Orthophotography
USGS, MassGIS

Environmental Resource Impacts: Route 3 to Route 25 Connector.



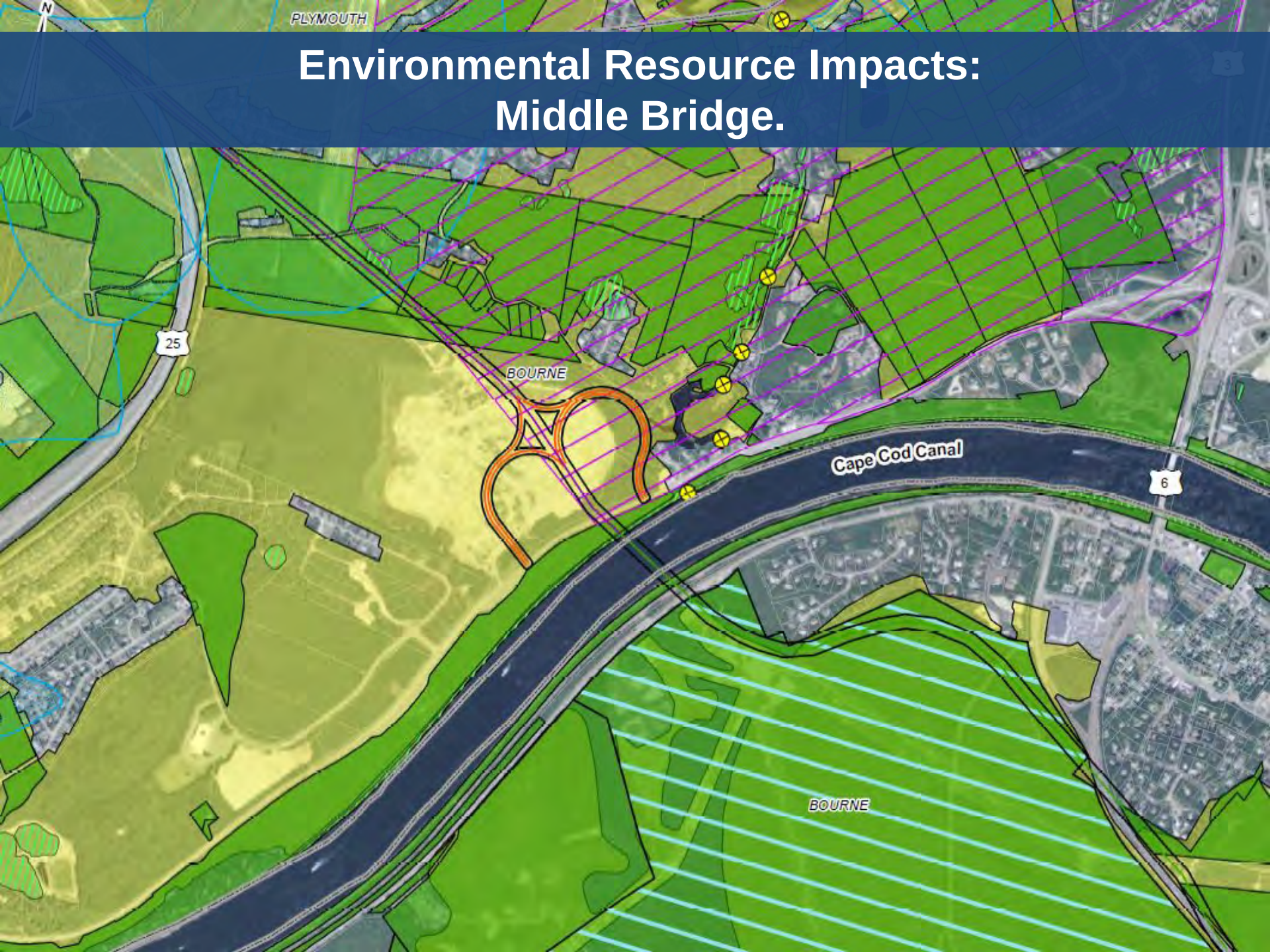
Route 3 to Route 25 Connector - Potential Resource Impacts in Acres								
Length (mi)	Buffer Area	Wetlands	Open Space (Section 4f)	ACEC	Rare species habitat (PH)	Zone II	Residential Parcels	JBCC
5.6	79.1	7.2	53.6	54.7	51.3	31	0	0

Data Provided by: ESRI, Stantec & MassGIS

Environmental Resource Impacts: Route 3 to Route 25 Connector.

Route 3 to Route 25 Connector Impacts (acres)						
Wetlands	Open Space (Section 4(f)	ACEC	Rare Species Habitat	Zone II	Residential Parcels	JBCC
7.2	53.6	54.7	51.3	31	0	0

Environmental Resource Impacts: Middle Bridge.



Environmental Resource Impacts: Middle Bridge.

Middle Bridge Impacts (acres)						
Wetlands	Open Space (Section 4(f)	ACEC	Rare Species Habitat	Zone II	Residential Parcels	JBCC
1.24	37.8	19.2	63.1	19.7	17	19.9

Analysis of Preliminary P3 Concepts.

Federal Environmental Regulations (NEPA and Clean Water Act) Requires Comprehensive Alternatives Analysis and Selection of the Alternative that:

A. Meets the Project Purpose and Need.
B. Results in the Least Overall Impact to Social and Environmental Resources.

Conclusion of Preliminary P3 Concepts.

Route 3 to Route 25 Connector and
Mid-Canal Bridge Alternatives.

Dismissed from Further Consideration
in this Study Due To:

- Significant Environmental Impact, and
- Inability to Meet Federal Environmental Requirements.

Short-, Mid-, and Long-Term Alternatives.

- Roadways/Intersections.
- Bridges.
- Bicycles.
- Pedestrians.
- Transit.

Photo: capenightphotograpghy.com

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Assumptions for Alternatives Development Process.

- Focus on year-round safety and mobility problem locations.
- Short- and Mid-Term Alternatives do not preclude new Corps' bridge construction.
- New bridges to be built adjacent to existing bridges. Toll-Free.

Design Understanding.

- Focus on improvements to existing infrastructure.
- Design for future (2040) fall weekday PM peak period.
- Seek further improvements for summer peak period.
- Not trying to resolve all peak-season traffic problems. This would have significant impacts.


Short-Term Alternatives
(1-3 Years)
Few environmental or property impacts.
Photo: Boston.com

Short-Term TSM/TDM Improvements.

- Signal Timing/ Adaptive Signals.
- Turning Lanes.
- Improved Stripping and Signage.
- ITS Improvements
- Improved Bicycle, Pedestrian, Transit Facilities.

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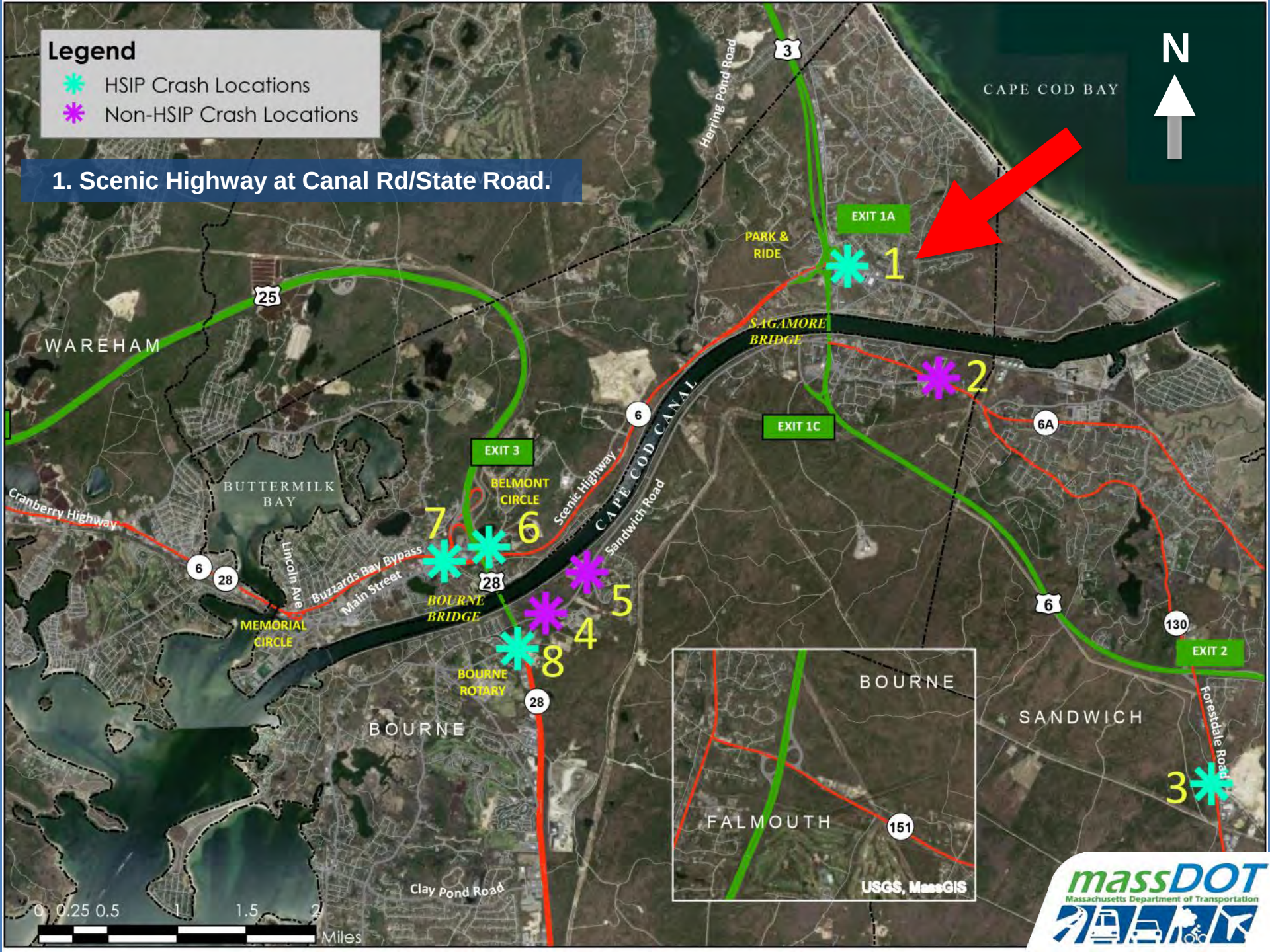
2014 Year-Round Problem Intersections.

Location.	High Crash	LOS E or F	Town
1. Scenic Hwy at Canal Road/State Road.	Yes	No	Bourne
2. Route 6A at Cranberry Hwy/Sandwich Road.	No	Yes	Bourne
3. Route 130 at Cotuit Road.	Yes	Yes	Sandwich
4. Sandwich Road at Bourne Rotary Connector.	No	Yes	Bourne
5. Sandwich Road at Harbor Lights Road.	No	No	Bourne
6. Scenic Highway at Nightingale Pond Road.	Yes	Yes	Bourne
7. Belmont Circle.	Yes	Yes	Bourne
8. Bourne Rotary.	Yes	Yes	Bourne


Legend
HSIP Crash Locations
Non-HSIP Crash Locations
1. Scenic Highway at Canal Rd/State Road.
N
CAPE COD BAY
Herring Pond Road
3
EXIT 1A
PARK & RIDE
1
SAGAMORE BRIDGE
2
EXIT 1C
6A
25
WAREHAM
6
EXIT 3
BELMONT CIRCLE
Scenic Highway
CAPE COD CANAL
Sandwich Road
BUTTERMILK BAY
Cranberry Highway
7
6
Lincoln Ave
Buzzards Bay Bypass
Main Street
28
BOURNE BRIDGE
5
4
MEMORIAL CIRCLE
8
BOURNE ROTARY
BOURNE
SANDWICH
130
EXIT 2
Forestdale Road
3
FALMOUTH
151
USGS, MassGIS
Clay Pond Road
0 0.25 0.5 1 1.5 2
Miles
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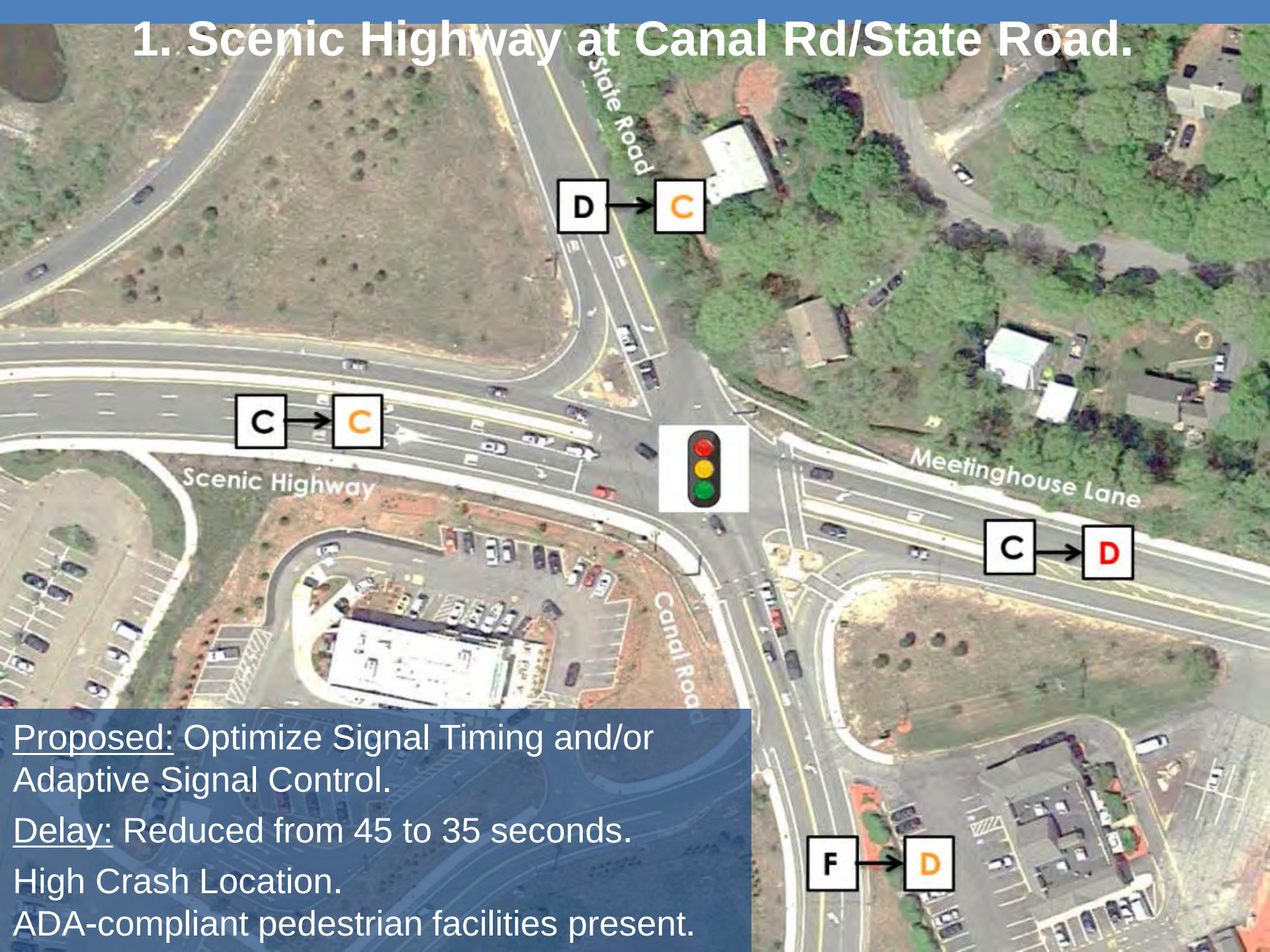
1. Scenic Highway at Canal Rd/State Road.

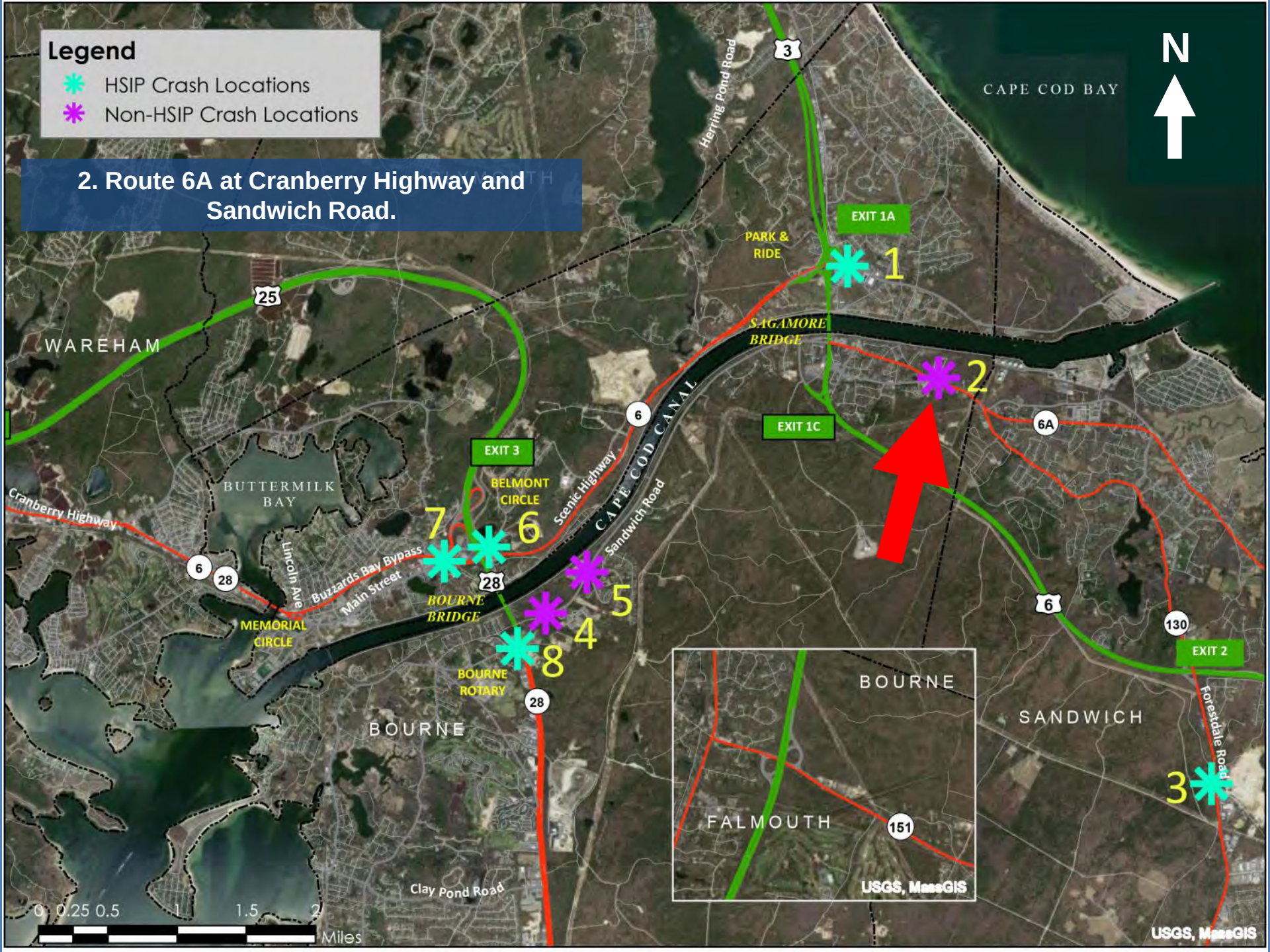


Proposed: Optimize Signal Timing and/or Adaptive Signal Control.

Delay: Reduced from 45 to 35 seconds.

High Crash Location.

ADA-compliant pedestrian facilities present.


Legend
HSIP Crash Locations
Non-HSIP Crash Locations
2. Route 6A at Cranberry Highway and Sandwich Road.
N
CAPE COD BAY
Herring Pond Road
3
EXIT 1A
PARK & RIDE
1
SAGAMORE BRIDGE
2
EXIT 1C
6A
25
WAREHAM
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EXIT 2
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FALMOUTH
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USGS, MassGIS
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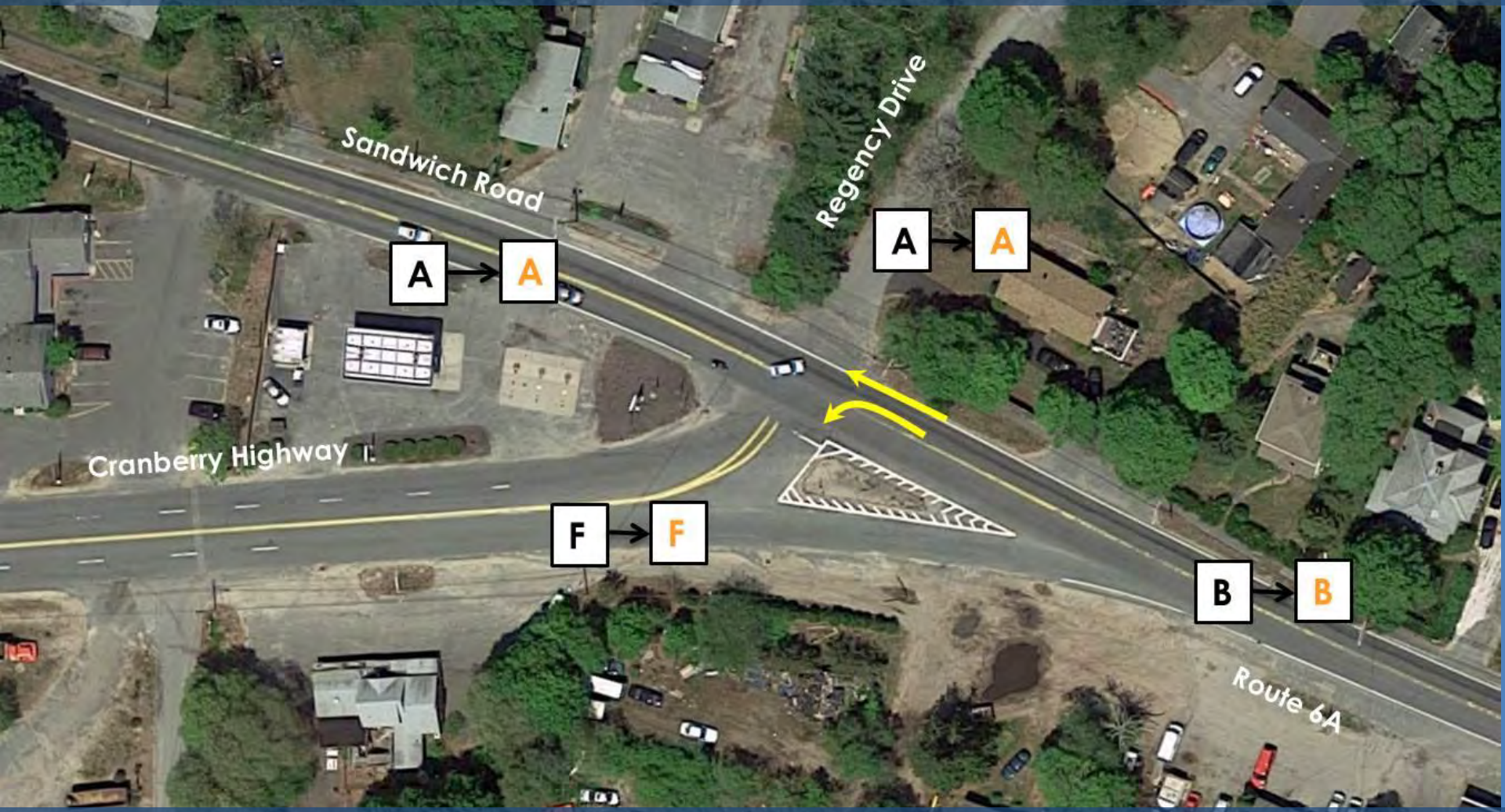
Miles
USGS, MassGIS

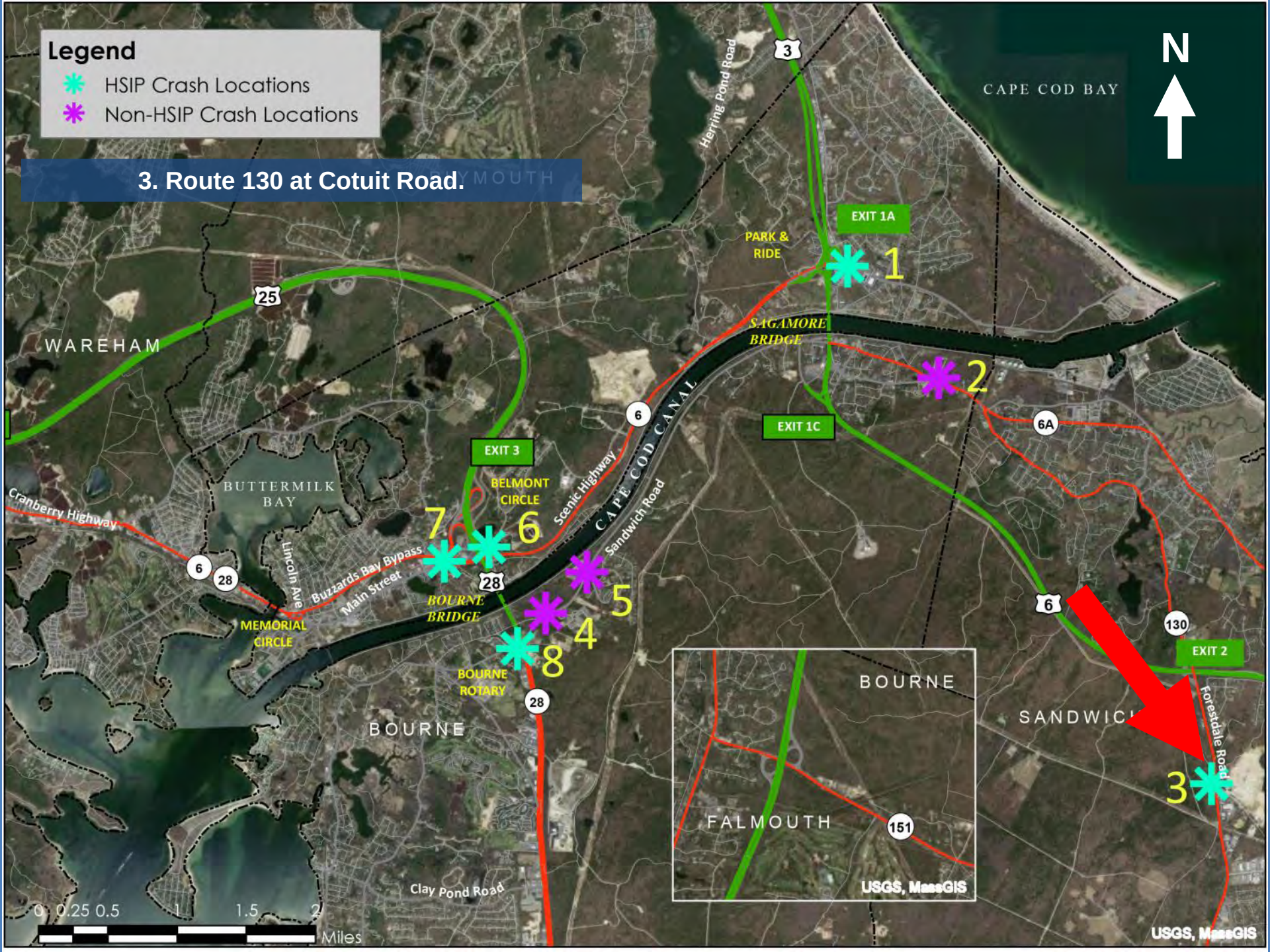
2. Route 6A at Cranberry Highway and Sandwich Road.



Proposed: Add exclusive left-turn lanes on westbound approach.

Delay: Overall delay reduced from 74 to 30 Seconds.

Sidewalk on Sandwich Rd. No sidewalk on Cranberry Hwy.


Legend
HSIP Crash Locations
Non-HSIP Crash Locations
3. Route 130 at Cotuit Road.
N
CAPE COD BAY
Herring Pond Road
3
EXIT 1A
PARK & RIDE
1
SAGAMORE BRIDGE
2
EXIT 1C
6A
25
WAREHAM
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SANDWICH
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USGS, MassGIS
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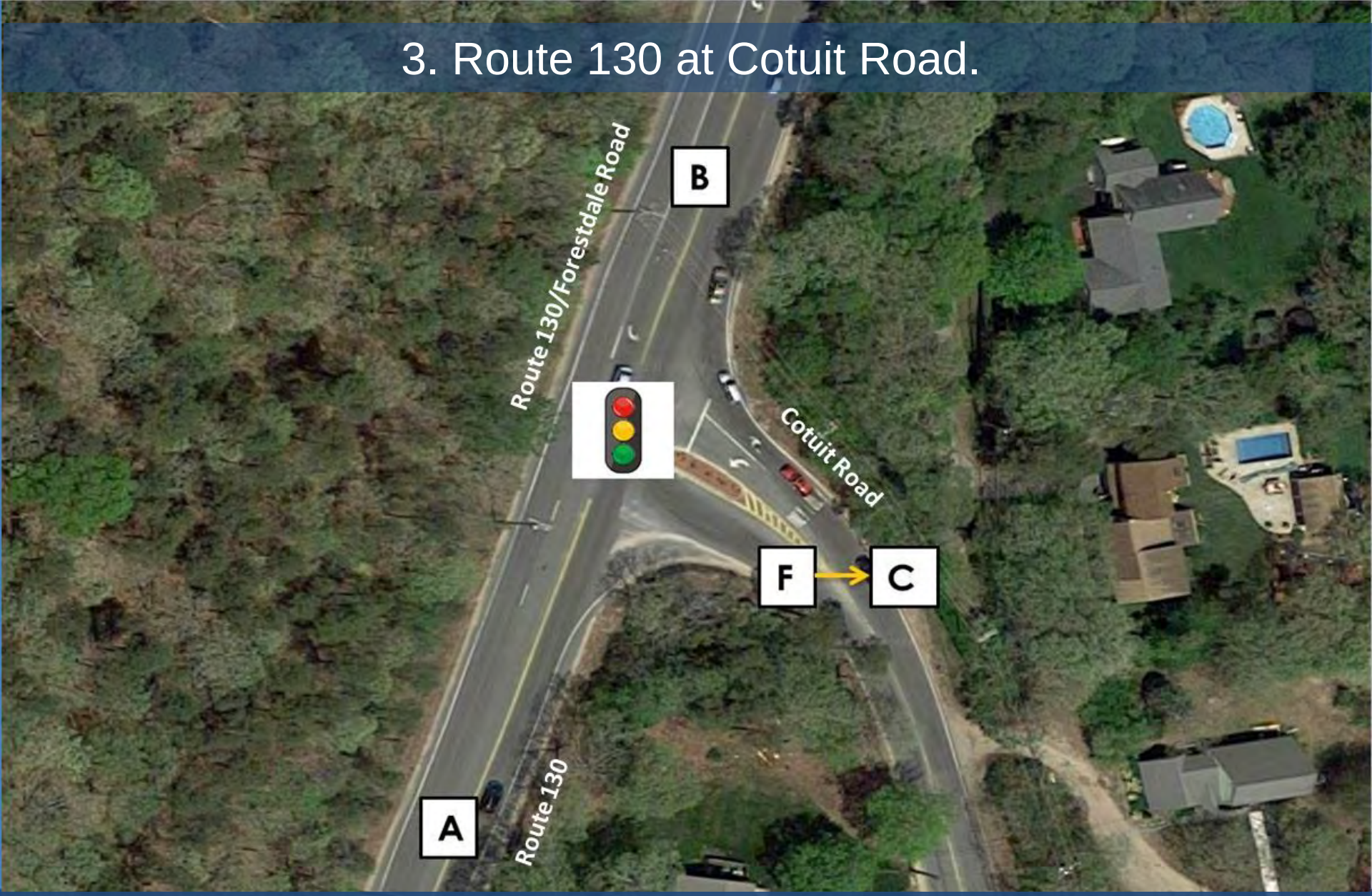
Miles
USGS, MassGIS

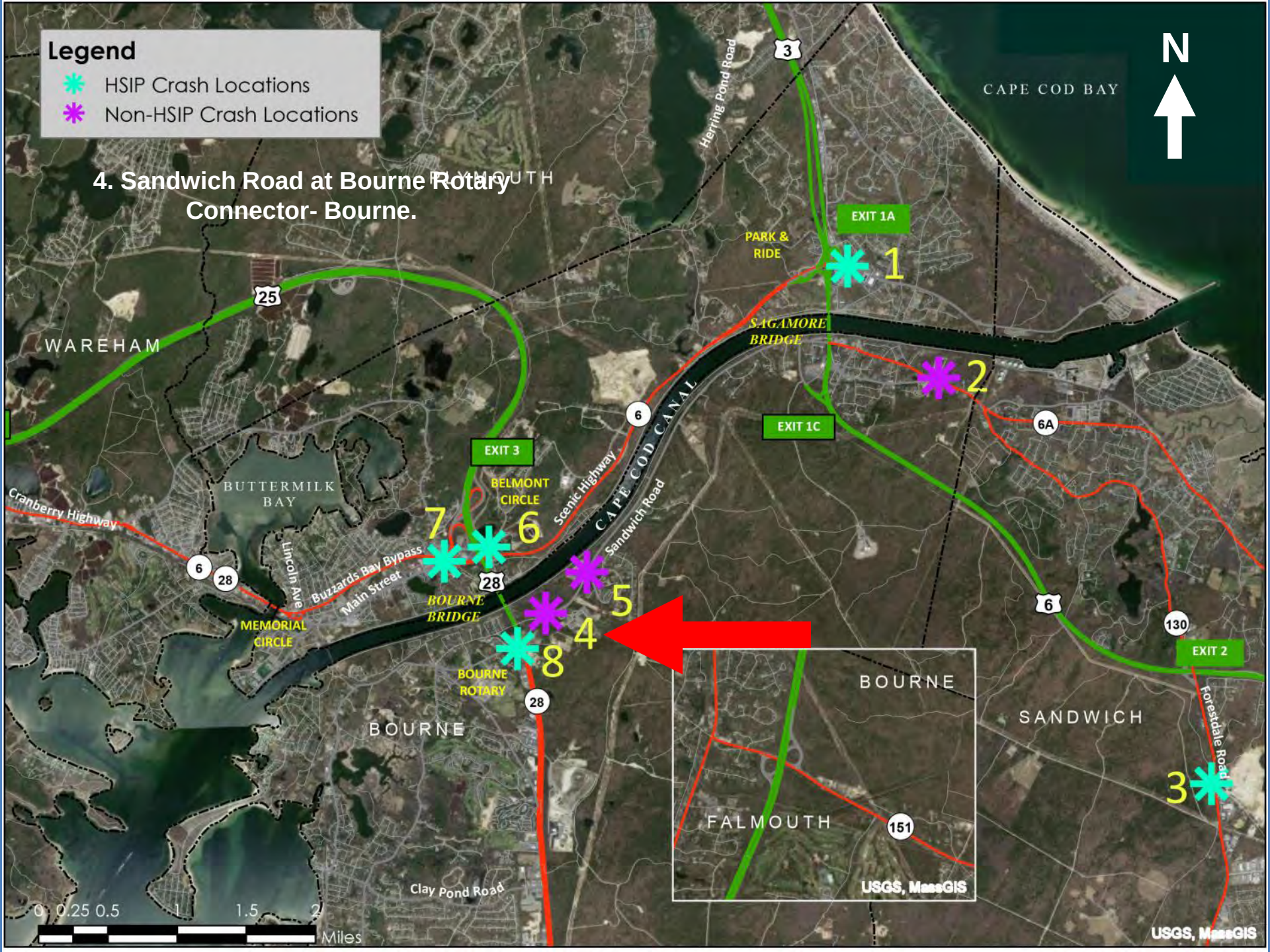
3. Route 130 at Cotuit Road.



Proposed: Signalize Intersection.

Delay (for Cotuit Rd): Reduced from 242 to 32 Seconds.

High Crash Location. No sidewalks present .


Legend
HSIP Crash Locations
Non-HSIP Crash Locations
4. Sandwich Road at Bourne Rotary Connector- Bourne.
N
CAPE COD BAY
PLYMOUTH
Herring Pond Road
3
EXIT 1A
PARK & RIDE
1
25
WAREHAM
SAGAMORE BRIDGE
2
6
EXIT 1C
6A
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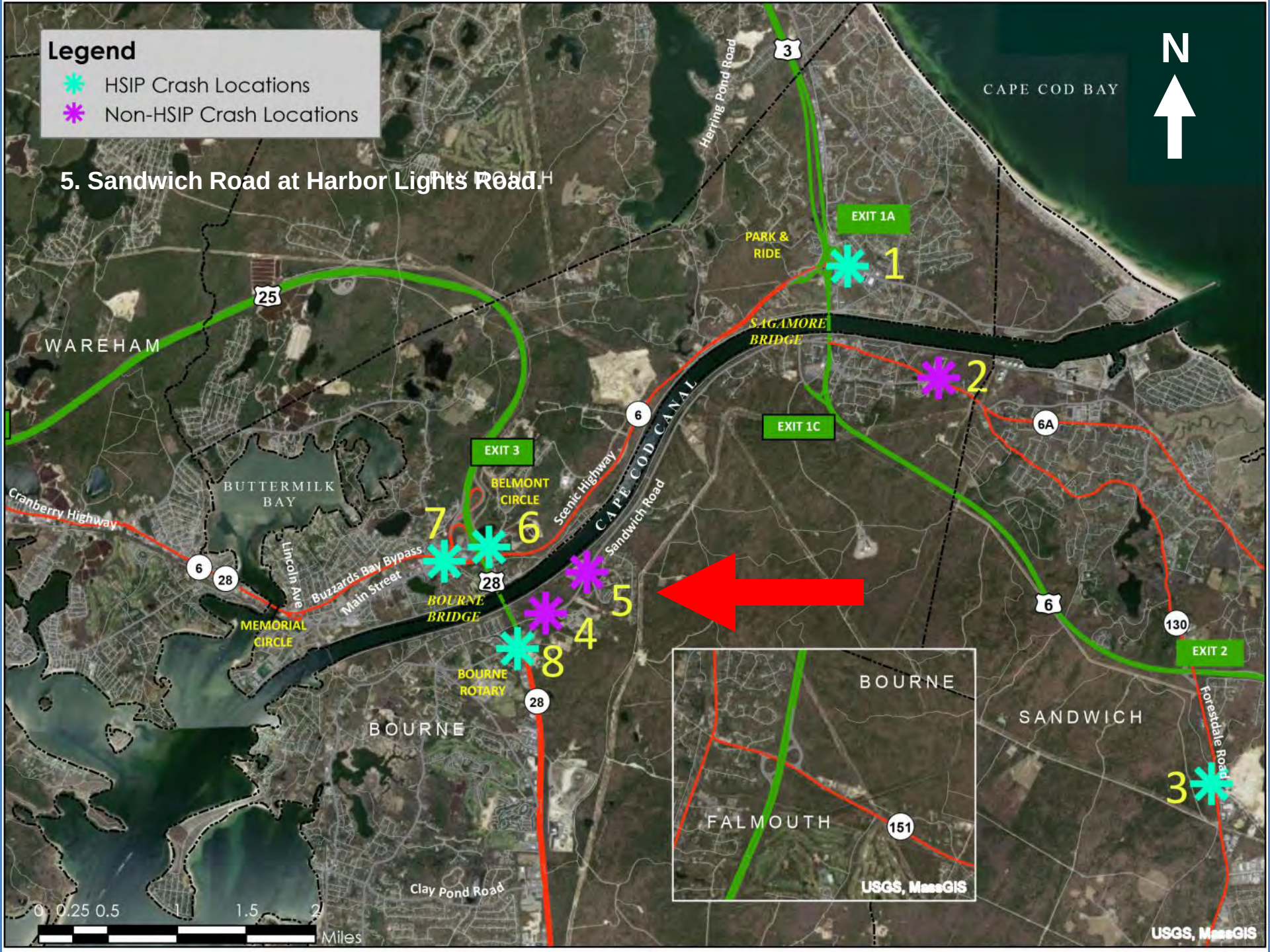
USGS, MassGIS
Clay Pond Road
0 0.25 0.5 1 1.5 2
Miles
USGS, MassGIS

4. Sandwich Road at Bourne Rotary Connector – Bourne.

Proposed: Meets Signal Warrants but signalization not proposed at this time (may worsen queues).

Will be incorporated in Bourne Rotary Improvements.

No sidewalks present (High School nearby).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Non-HSIP Crash Locations
5. Sandwich Road at Harbor Lights Road.
N
CAPE COD BAY
Herring Pond Road
3
EXIT 1A
PARK &
RIDE
1
SAGAMORE
BRIDGE
2
EXIT 1C
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WAREHAM
6
EXIT 3
BELMONT
CIRCLE
Scenic Highway
CAPE COD CANAL
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SANDWICH
Forestdale Road
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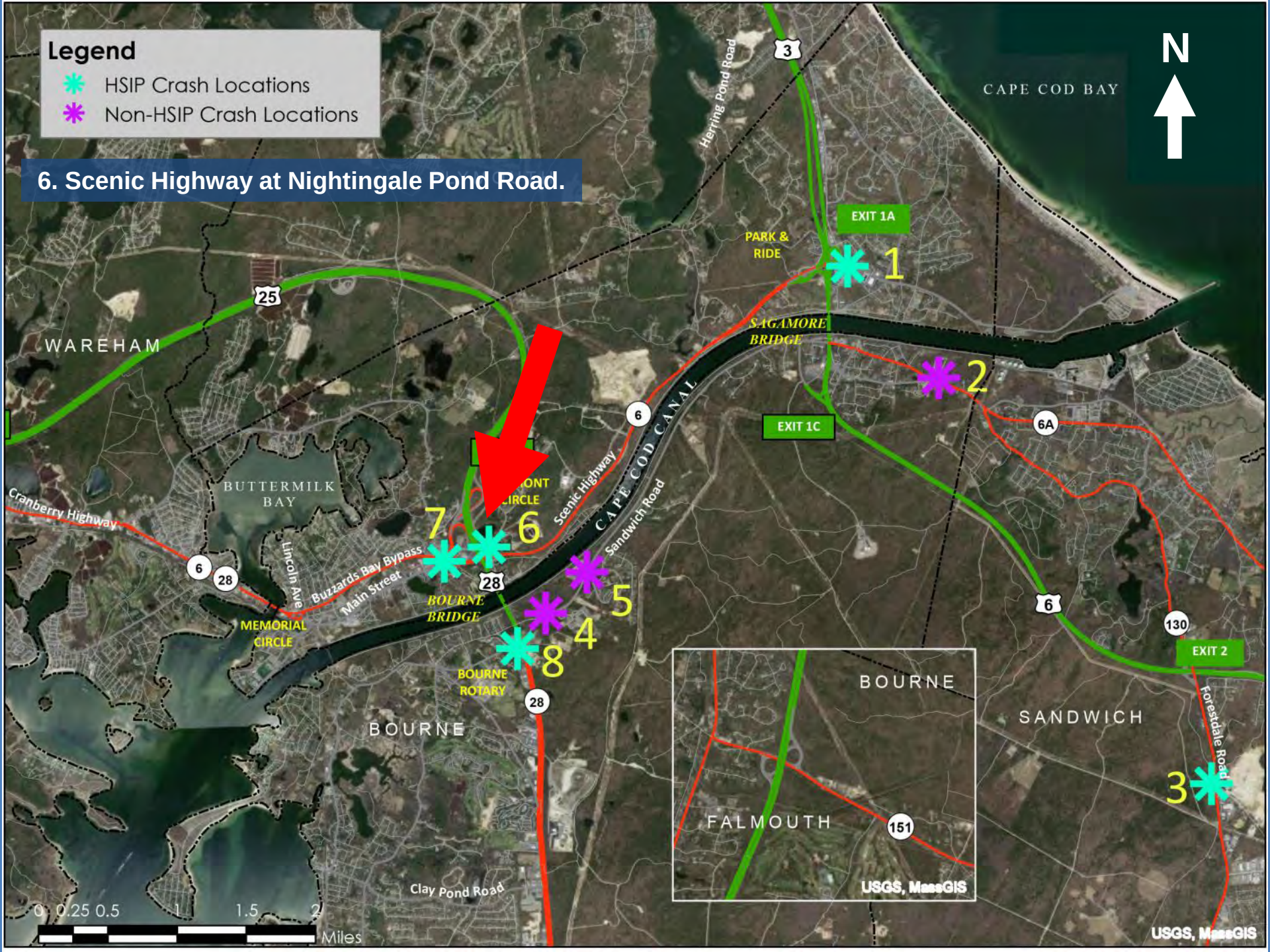
BOURNE
FALMOUTH
151
USGS, MassGIS
0 0.25 0.5 1 1.5 2
Miles
USGS, MassGIS

5 ich Road at Harbor Lights Road.

Proposed: No work proposed. Does Not Meet Signal Warrants.
Delay is on Minor Approach. Major Approaches Operate Acceptably.
No sidewalks present (ice arena nearby).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HSIP Crash Locations
Non-HSIP Crash Locations
6. Scenic Highway at Nightingale Pond Road.
N
CAPE COD BAY
Herring Pond Road
3
EXIT 1A
PARK & RIDE
1
SAGAMORE BRIDGE
2
EXIT 1C
6A
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WAREHAM
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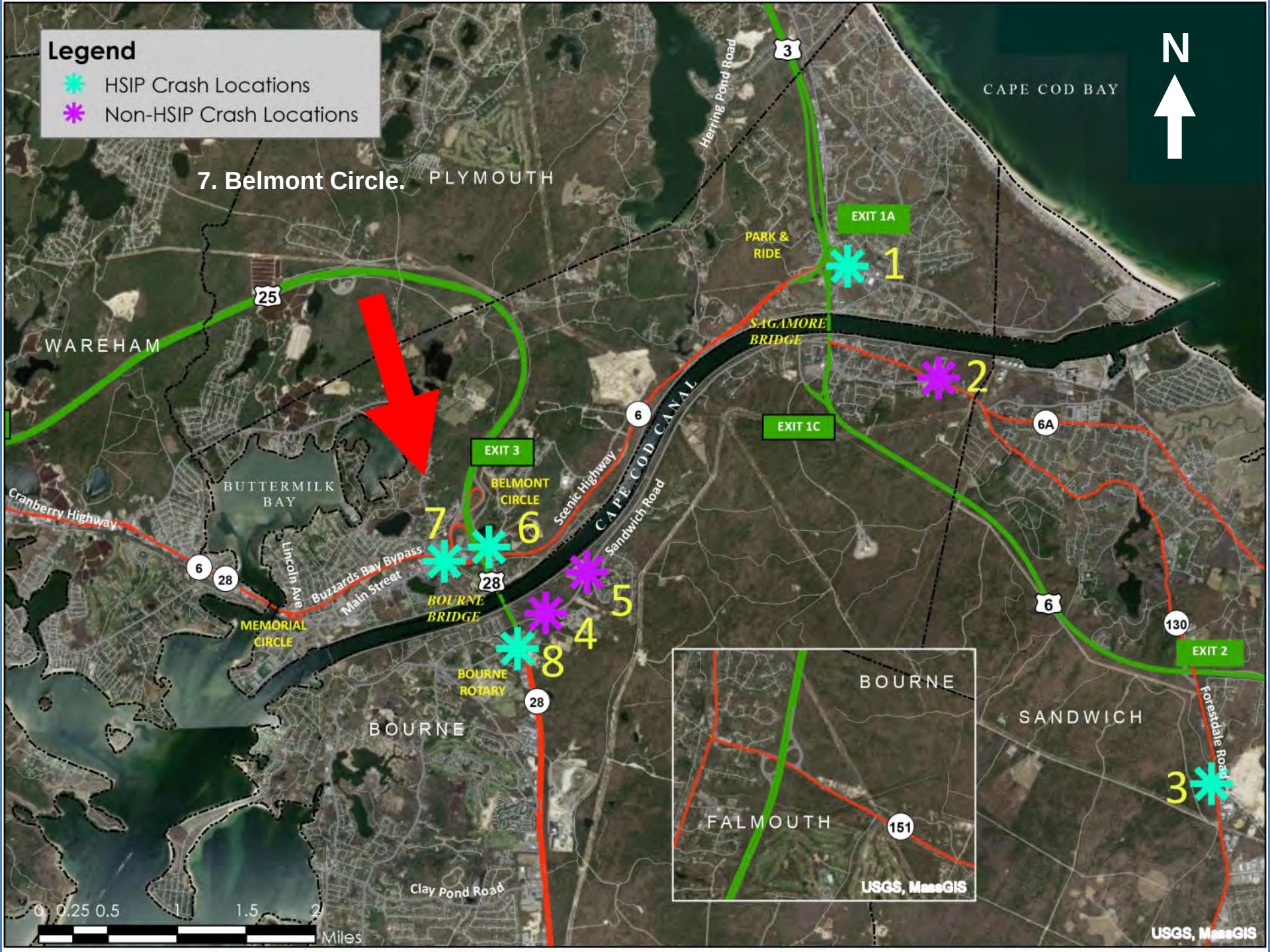
3
FALMOUTH
151
Clay Pond Road
0 0.25 0.5 1 1.5 2
Miles
USGS, MassGIS
USGS, MassGIS

Scenic Highway at Nighingale Pond Road

Proposed: Optimize Signal Timing. Delay is Reduced from 60 to 29 seconds.
Candidate for Adaptive Signal Control. High Crash location.
ADA-compliant sidewalks on Scenic Hwy. None on Nightingale Pond Rd.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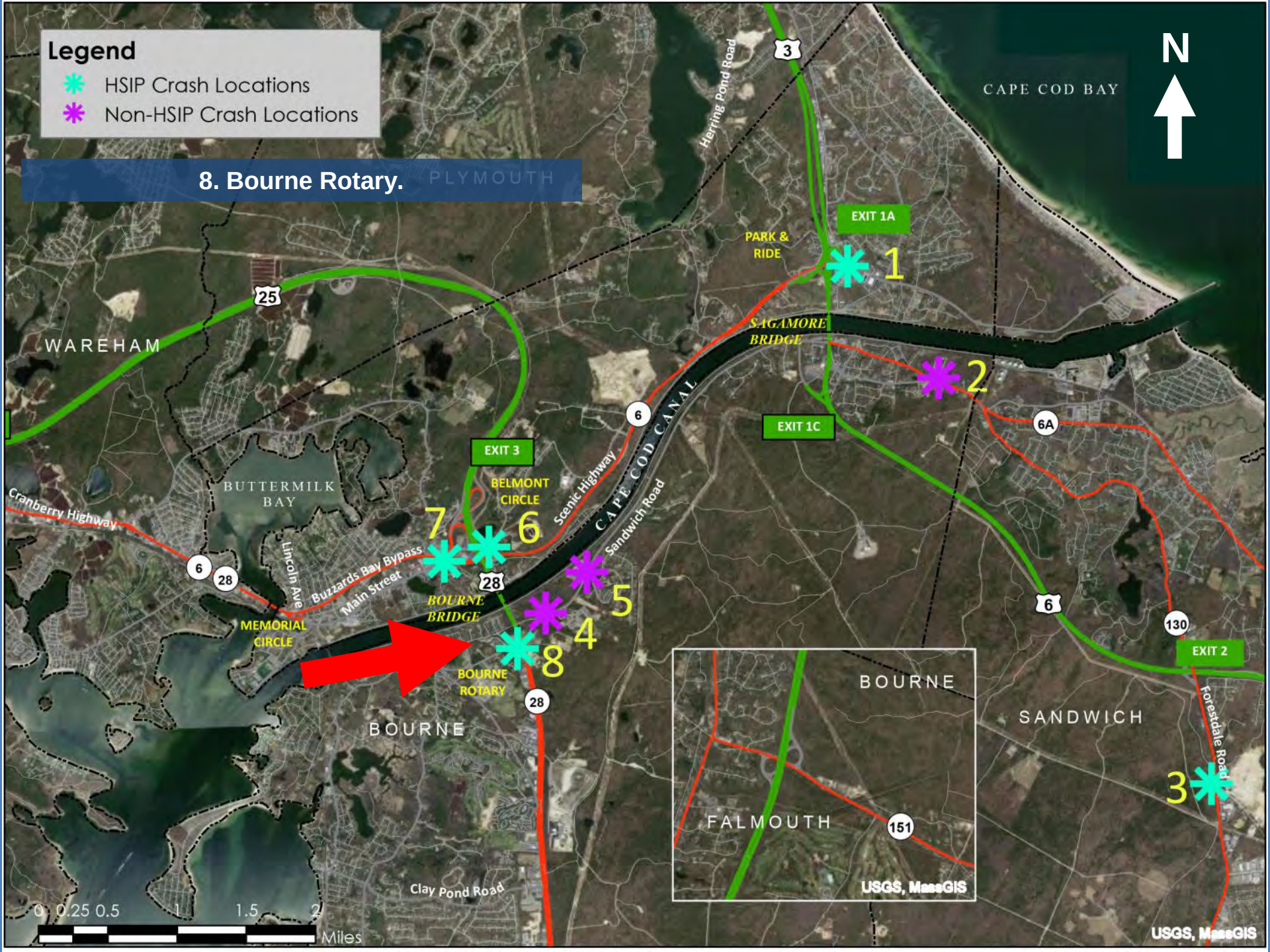
HSIP Crash Locations
Non-HSIP Crash Locations
7. Belmont Circle.
N
CAPE COD BAY
PLYMOUTH
Herring Pond Road
3
EXIT 1A
PARK & RIDE
1
SAGAMORE BRIDGE
2
25
WAREHAM
6
EXIT 1C
6A
EXIT 3
BELMONT CIRCLE
Scenic Highway
CAPE COD CANAL
Sandwich Road
BUTTERMILK BAY
Cranberry Highway
7
6
28
Lincoln Ave
Buzzards Bay Bypass
Main Street
28
BOURNE BRIDGE
5
4
MEMORIAL CIRCLE
8
BOURNE ROTARY
28
BOURNE
6
130
EXIT 2
SANDWICH
Forestdale Road
3
BOURNE
FALMOUTH
151
USGS, MassGIS
Clay Pond Road
0 0.25 0.5 1 1.5 2
Miles
USGS, MassGIS

7. Belmont Circle.

Proposed Improvements: Multimodal Improvements for Improved Bicycle and Pedestrian accommodation. Lane striping, shared-use path, lighting, pedestrian-activated crossing. On Cape Cod Commission's Draft 2017 – 2021 Transportation Improvement Program (TIP #606900 - 2020).

High crash location. Sidewalks present on Main St. Lacks sidewalks elsewhere.


Legend
HSIP Crash Locations
Non-HSIP Crash Locations
8. Bourne Rotary.
N
CAPE COD BAY
PLYMOUTH
Herring Pond Road
3
EXIT 1A
PARK & RIDE
1
SAGAMORE BRIDGE
2
EXIT 1C
6A
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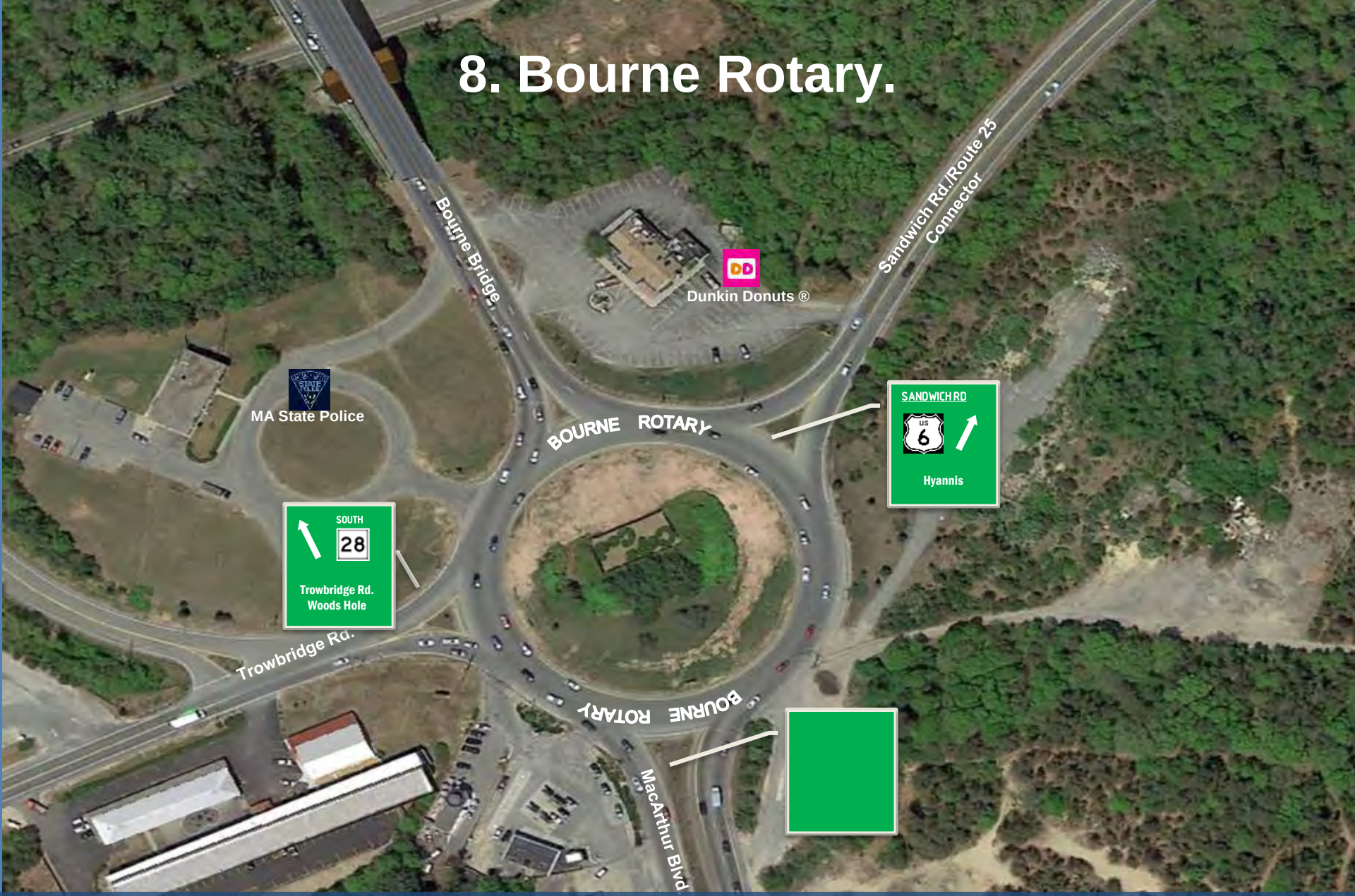
Clay Pond Road
0 0.25 0.5 1 1.5 2
Miles
USGS, MassGIS

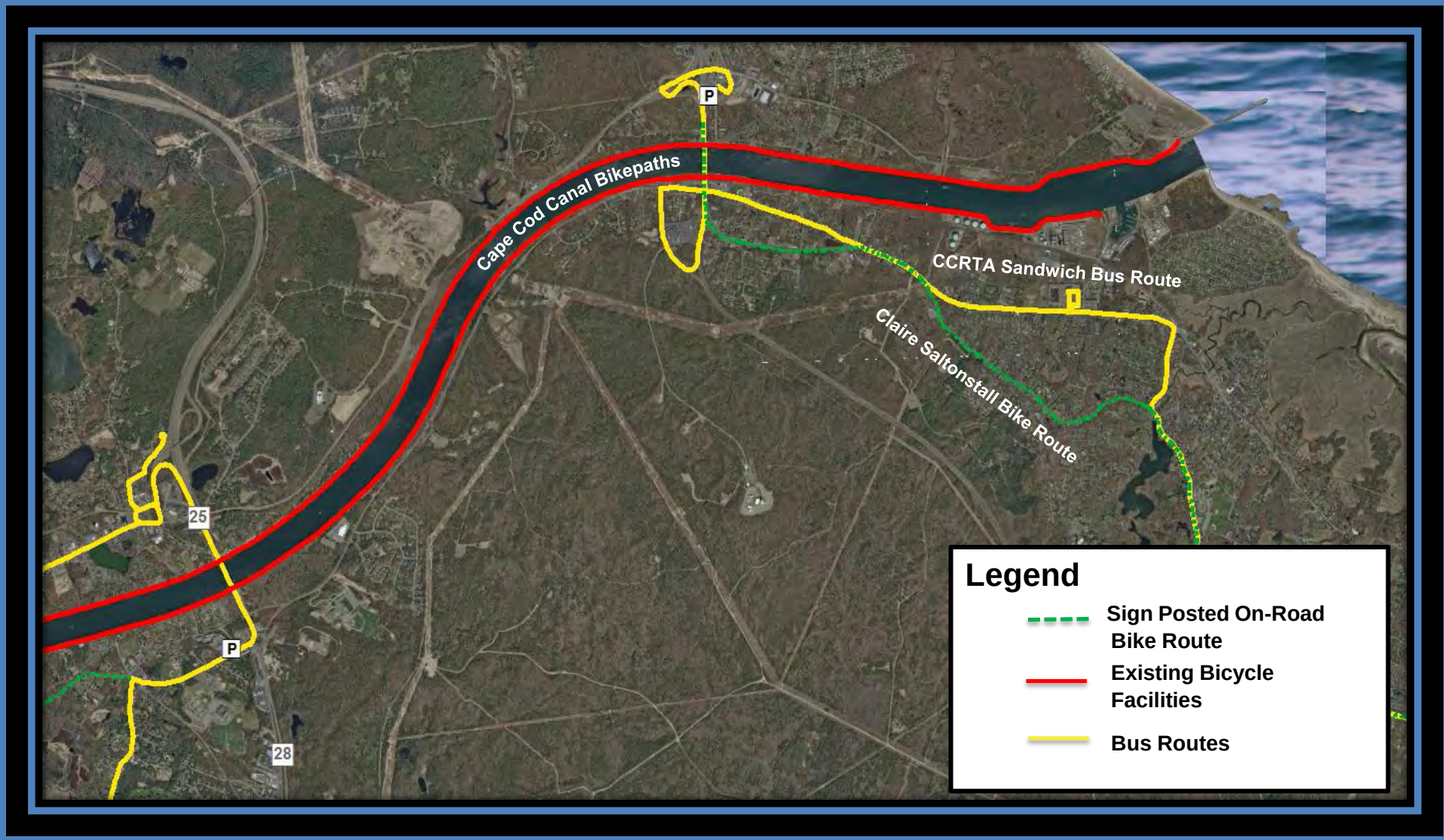
8. Bourne Rotary.



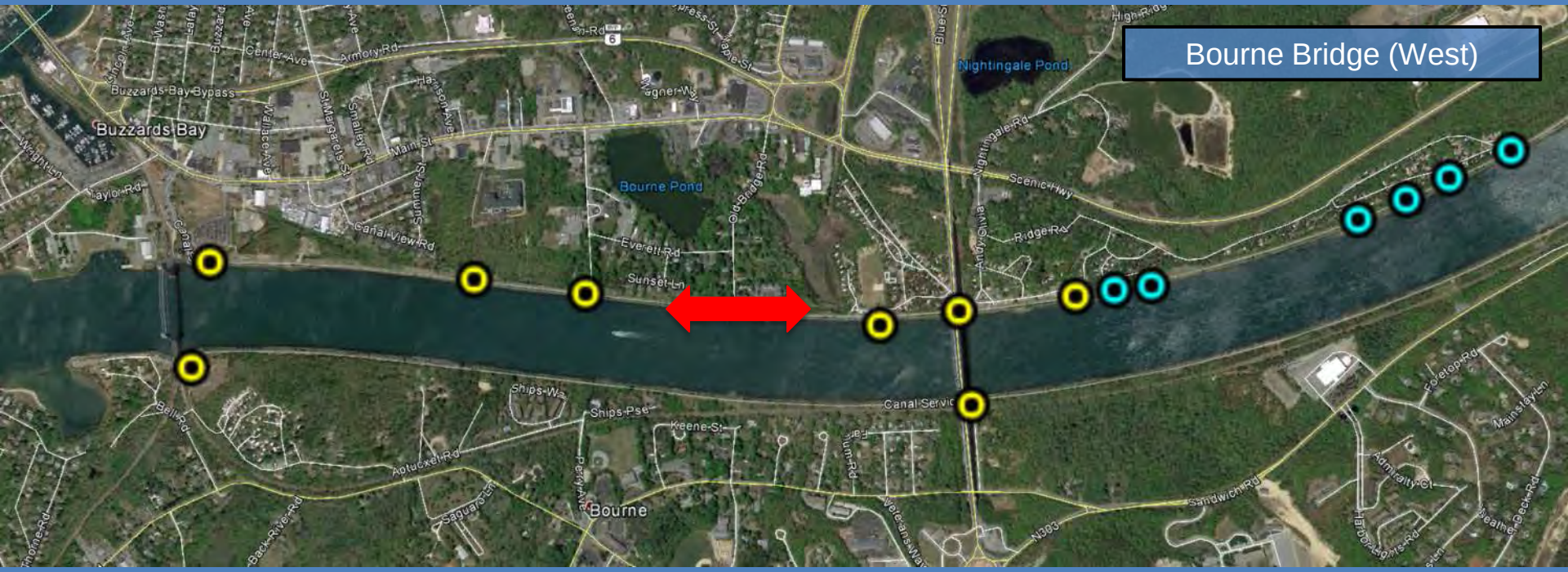
Proposed: Interim Improvements. Guide Signs and Pavement Markings for approaches. HSIP High Crash Location. No existing pedestrian accommodation


Short-Term Alternatives
Bicycles and Pedestrians.

Existing Bicycle/Bus Facilities



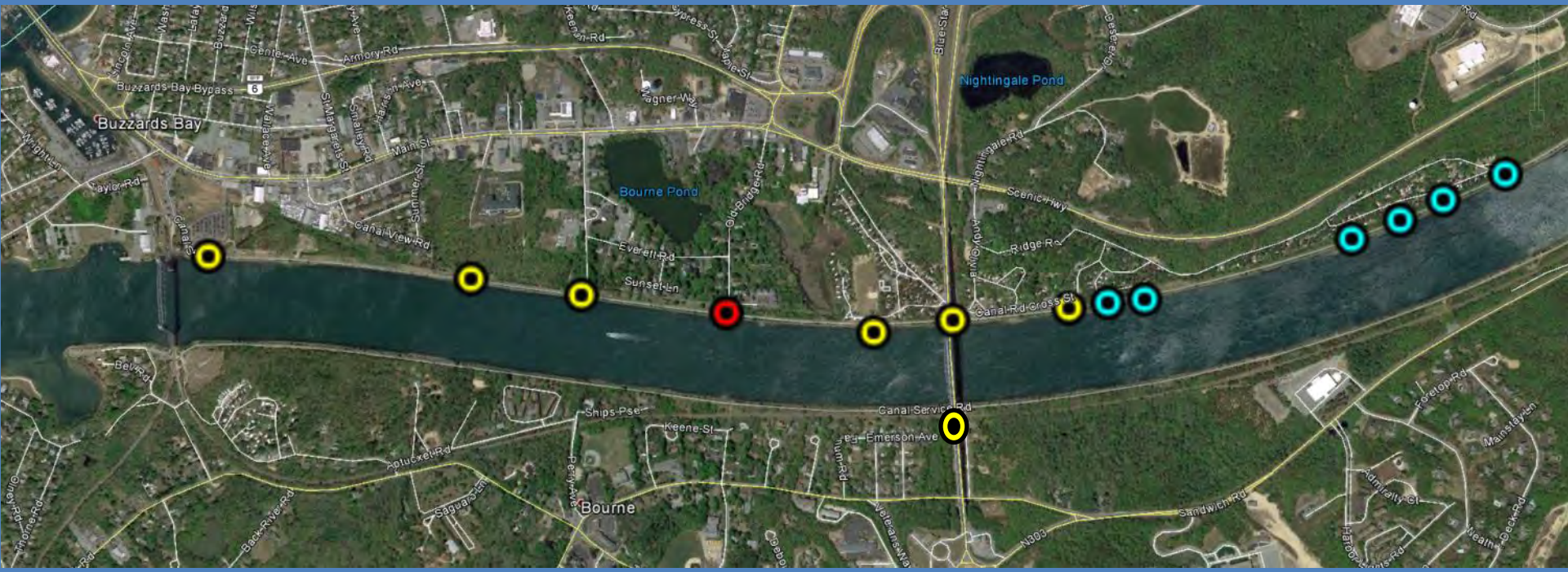
Gaps in Bicycle/Ped Connections to Canal Bikeway- West.



Legend

- Existing Bikeway Access
- Existing Pedestrian Only Access

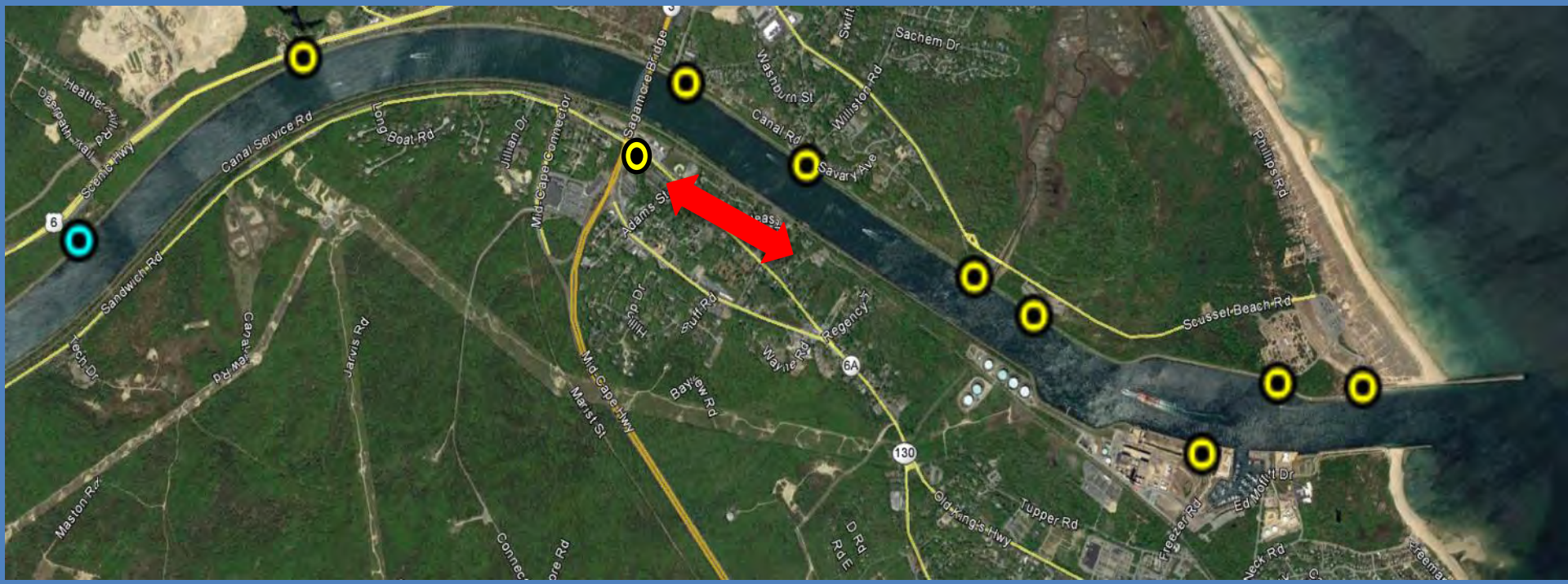
Potential Bicycle/Ped Connections to Canal Bikeway- West.



Legend

- Existing Bikeway Access
- Existing Pedestrian Only Access
- Potential Bikeway Access

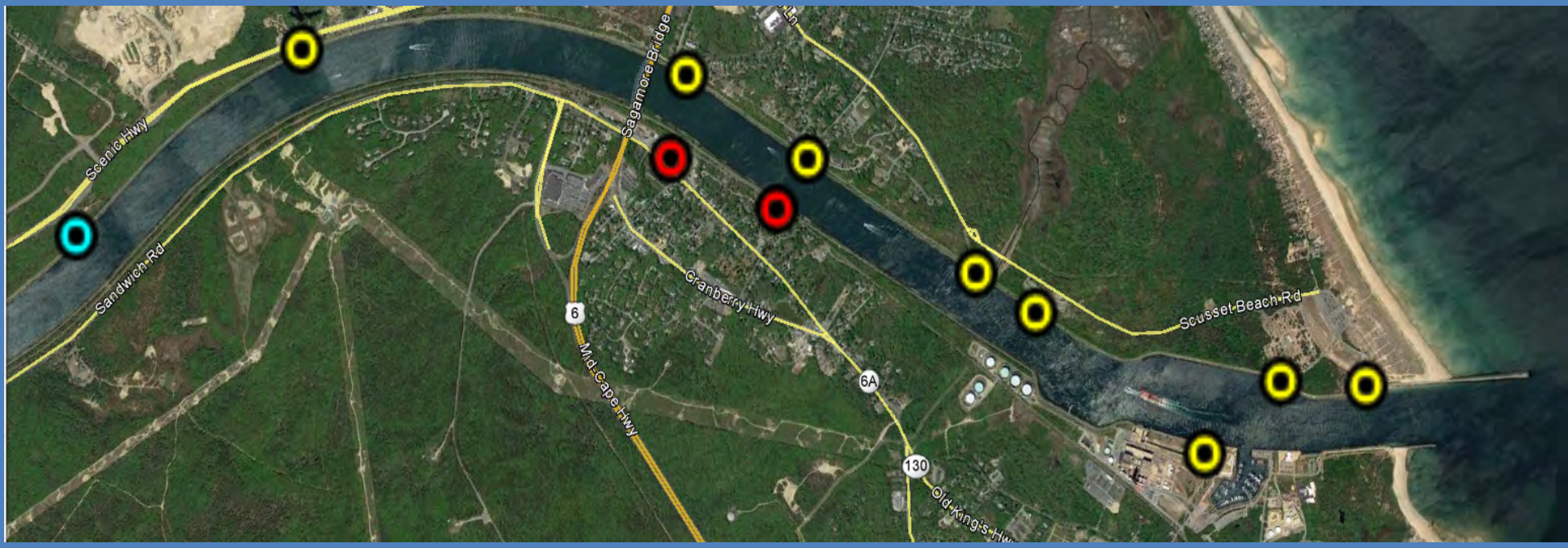
Gaps in Bicycle/Ped Connections to Canal Bikeway-East.



Legend

- Existing Bikeway Access
- Existing Pedestrian Only Access

Potential Bicycle/Ped Connections to Canal Bikeway-East.



LEGEND

- Existing Bikeway Access
- Existing Pedestrian Only Access
- Potential Bikeway Access

Potential Bicycle/Ped Connections to Canal Bikeway.

Informal Path

Constructed Crossing

Potential Sidewalk and ADA-Accessibility Improvements.

Sandwich:

- Route 130, bus route (BR).
- Route 6A (BR).
- Cotuit Road.
- Tupper Road.

Bourne

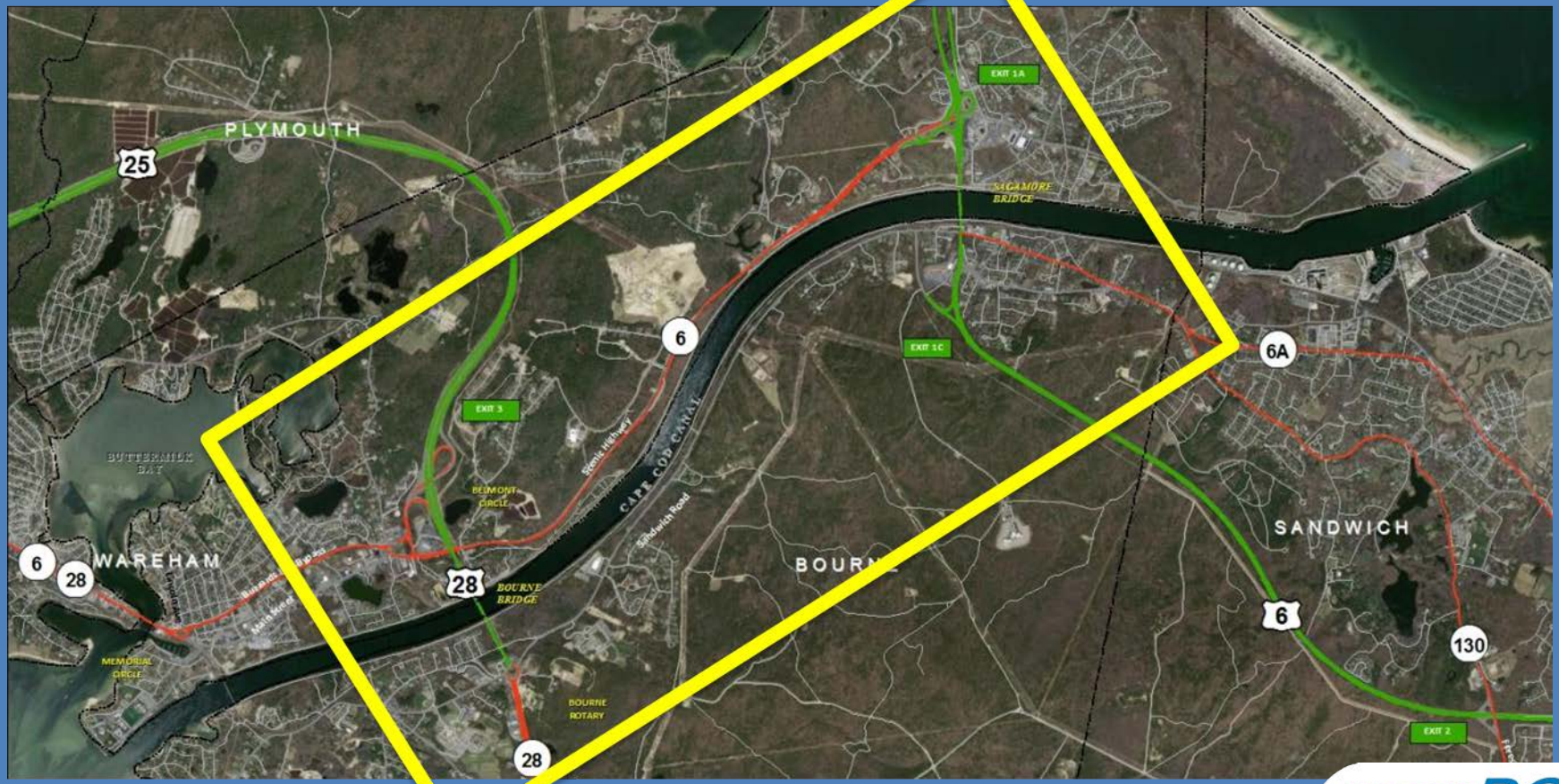
- County Road (BR).
- Shore Road


Potential Mid-Term Alternatives.
(3-8 Years)
Higher cost and greater potential for environmental and property impacts.
Photo: capecodchamberofcommerce.com

Potential Mid-Term Alternatives. (3-8 Years)

Higher cost and greater potential for environmental and property impacts.

Goal is to Improve the Transportation System's Mobility, Reliability, and Safety.



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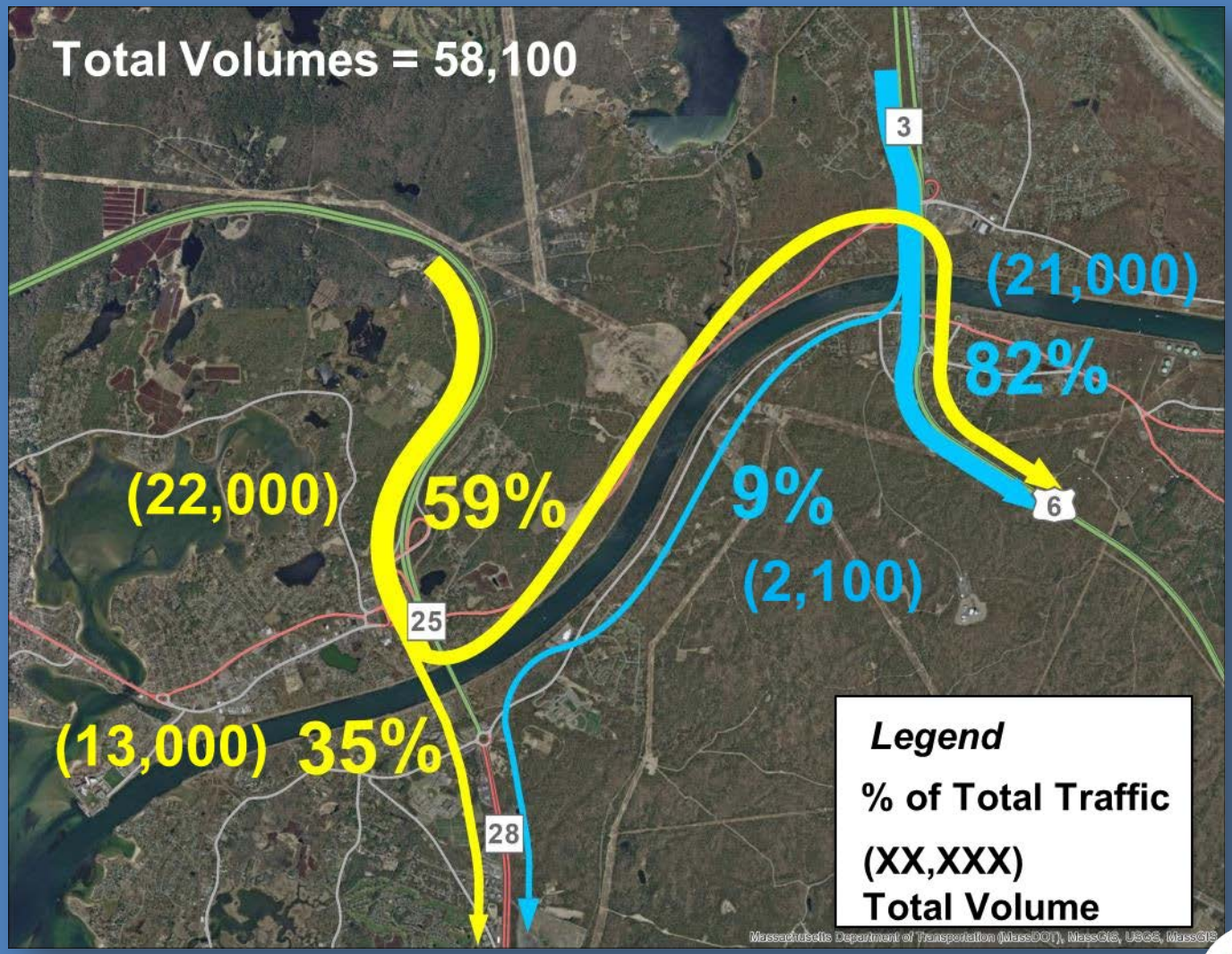
Travel Patterns within the Study Area Strongly Influence Preliminary Alternatives Development.

2014 Summer Saturday (10 – 11AM) Cape-Bound Routing.



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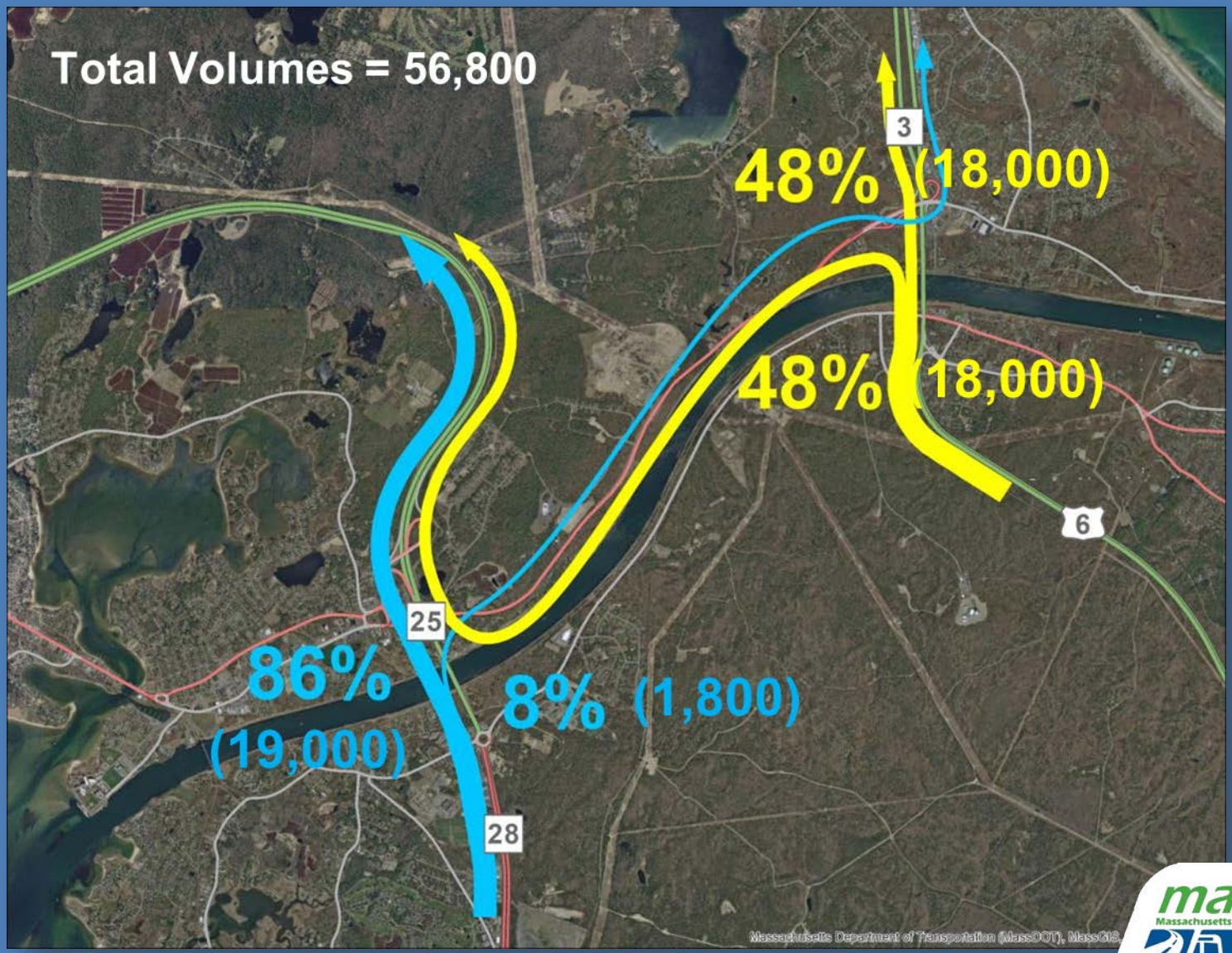
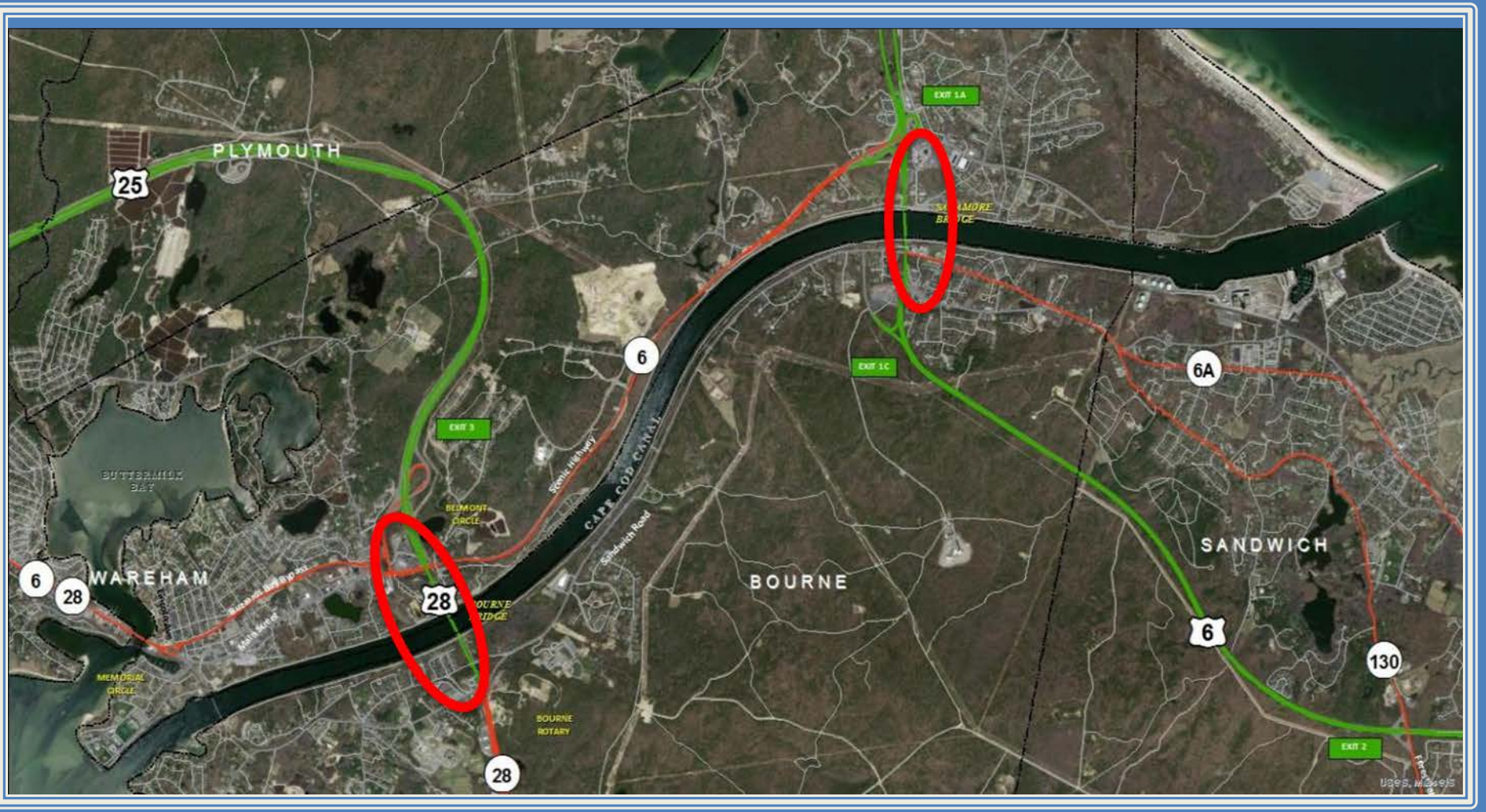
2014 Summer Sunday (12 -1PM) Off-Cape Routing.

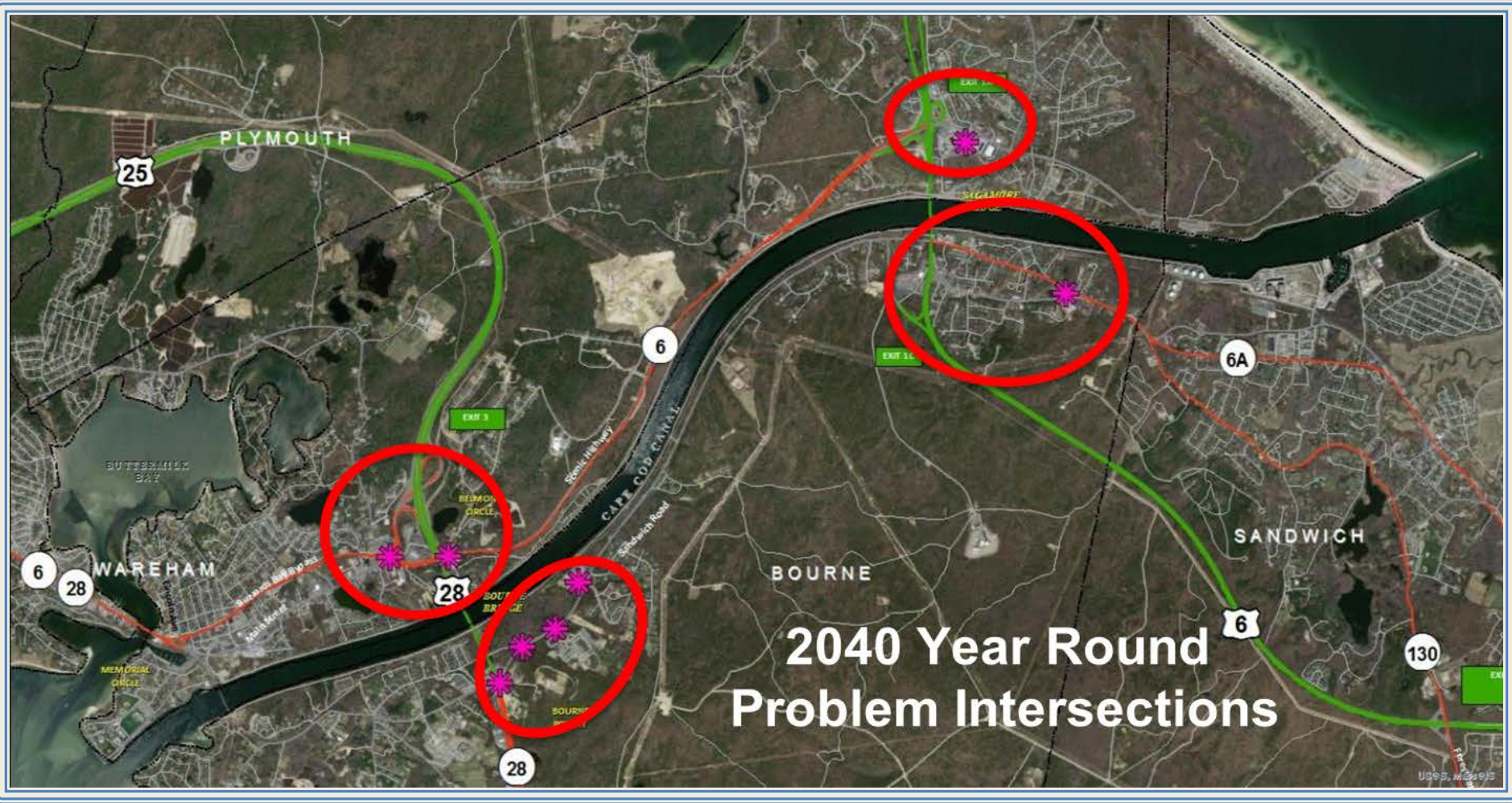


Focus Areas – Canal Bridges.



December 1, 2016

Focus Area - Canal Area Intersections.

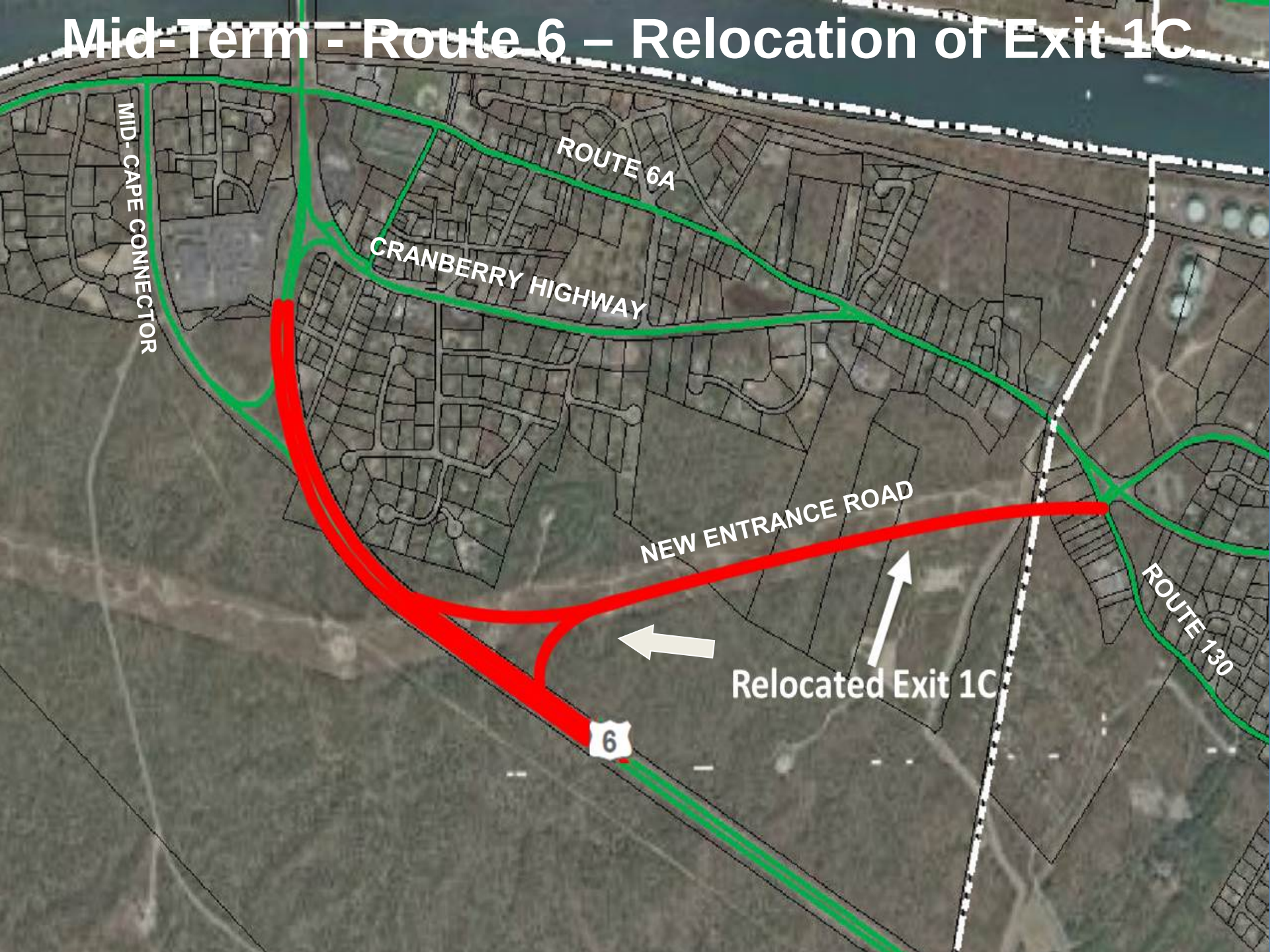


December 1, 2016

Potential Mid-Term Relocated Route 6 Exit 1C.

- Existing Exit 1C causes congestion on Route 6 westbound due to short acceleration lane immediately before Bourne Bridge.
- New Exit 1C at utility corridor (3,400 feet east).
- New roadway to Route 130 at Route 6A.
- Potentially reduces congestion and improves safety with longer acceleration lanes on Route 6.
- Maintains westbound exit/entrance only.

Mid-Term - Route 6 – Relocation of Exit 1C



Potential Mid-Term Route 6 Additional Travel Lane.

- Potential new travel lanes in both direction from Sagamore Bridge to Exit 2 (Route 130).
- Potentially reduces congestion and improves safety on Route 6 by allowing smoother merging of traffic entering or exiting Sagamore bridge.
- Limited environmental impact.

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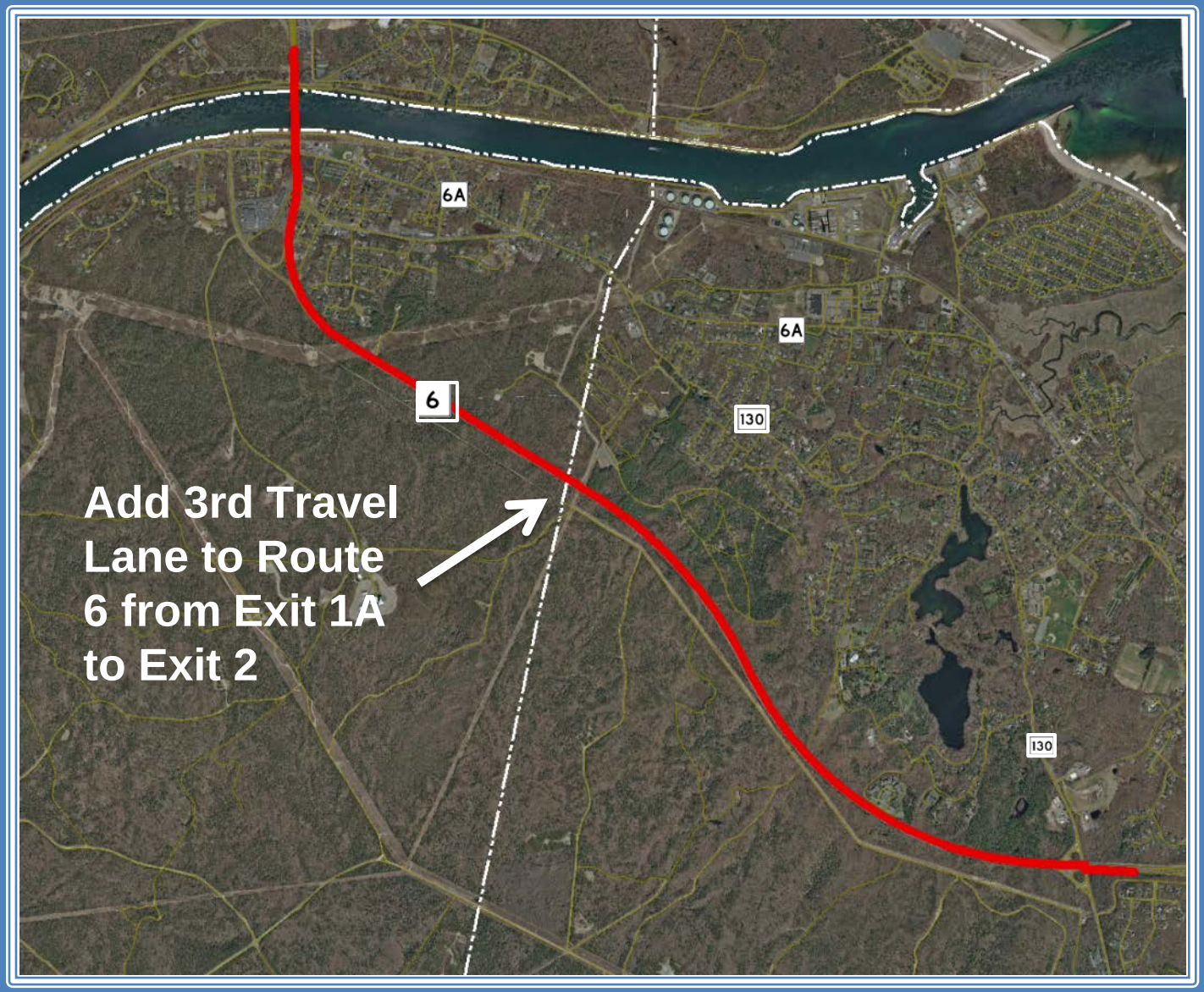
Route 6 Additional Travel Lane.

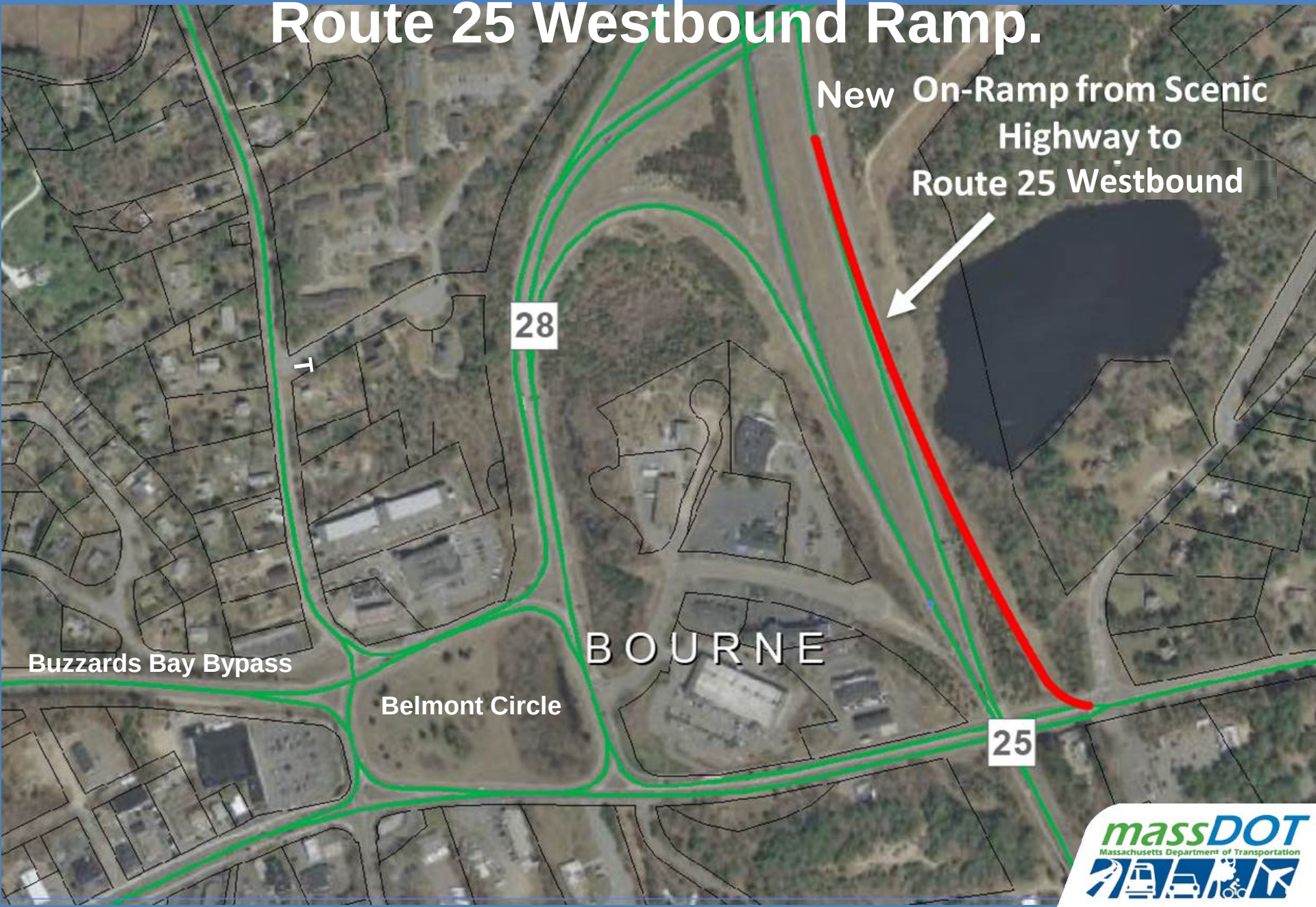


Belmont Circle.

Potential Mid-Term - Scenic Hwy to Route 25 Westbound Ramp.

- New Ramp from Scenic Highway to Route 25 Westbound.
- Begins at Scenic Hwy/Nightingale Pond Road Intersection.
- Diverts traffic from Belmont Circle. (780 cars in summer Saturday noontime peak period).
- Access from Scenic Hwy westbound only.
- Potentially improves traffic operations and safety in Belmont Circle (high crash location).

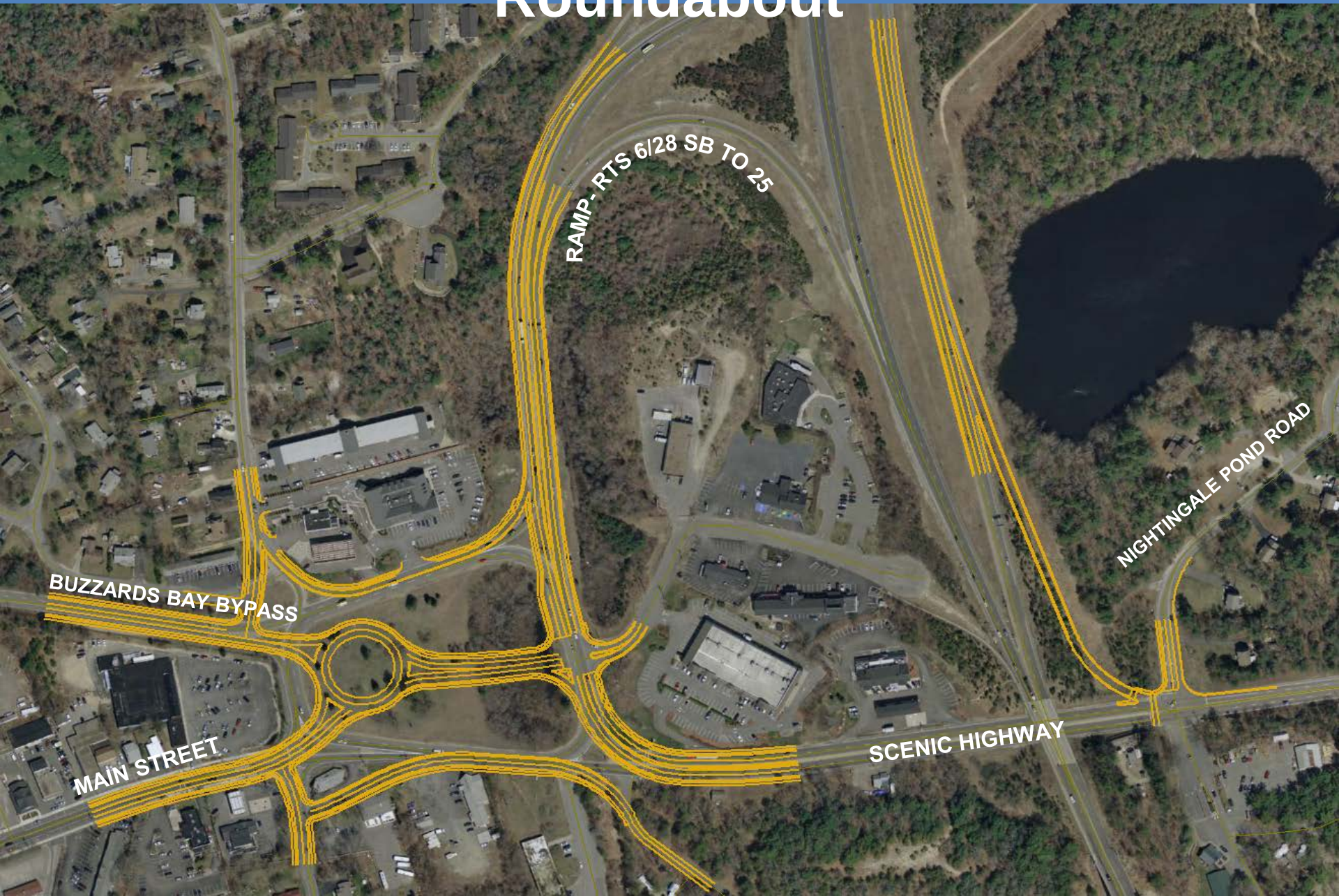
Potential Mid-Term - Scenic Hwy to Route 25 Westbound Ramp.



Potential Mid-Term – Belmont Circle Roundabout.

- Reconstruction of Belmont Circle as a modern roundabout.
- Improves traffic operations and safety in Belmont Circle (high crash location).
- Maintains access to all abutting properties.
- Anticipated to include Scenic Hwy to Route 25 westbound ramp.

Potential Mid-Term - Belmont Circle Roundabout



Potential Mid-Term – Belmont Circle Roundabout with Fly-over Ramp.

- New Ramp from Route 25 eastbound to Scenic Highway eastbound.
- Reconstruction of Belmont Circle as a modern roundabout.
- Improves traffic operations and safety in Belmont Circle (high crash location).
- Maintains access to all abutting properties.
- Anticipated to include Scenic Hwy to Route 25 westbound ramp.

Potential Mid-Term - Belmont Circle Roundabout with Fly-over Ramp.

Bourne Rotary.

December 1, 2016

Potential Mid-Term – Bourne Rotary Reconstruction.

- New Route 28 northbound ramp directly to Bourne Rotary Connector (removes 950 Summer Saturday peak hour vehicles).
- Enhanced southbound access to Sandwich Road (removes 1,175 vehicles from rotary during peak hour Saturday)
- Use of Veterans Way to Sandwich Road
- New bridge under Bourne Rotary Connector. Eliminates need for signalized intersection.

Potential Mid-Term Bourne Rotary Reconstruction

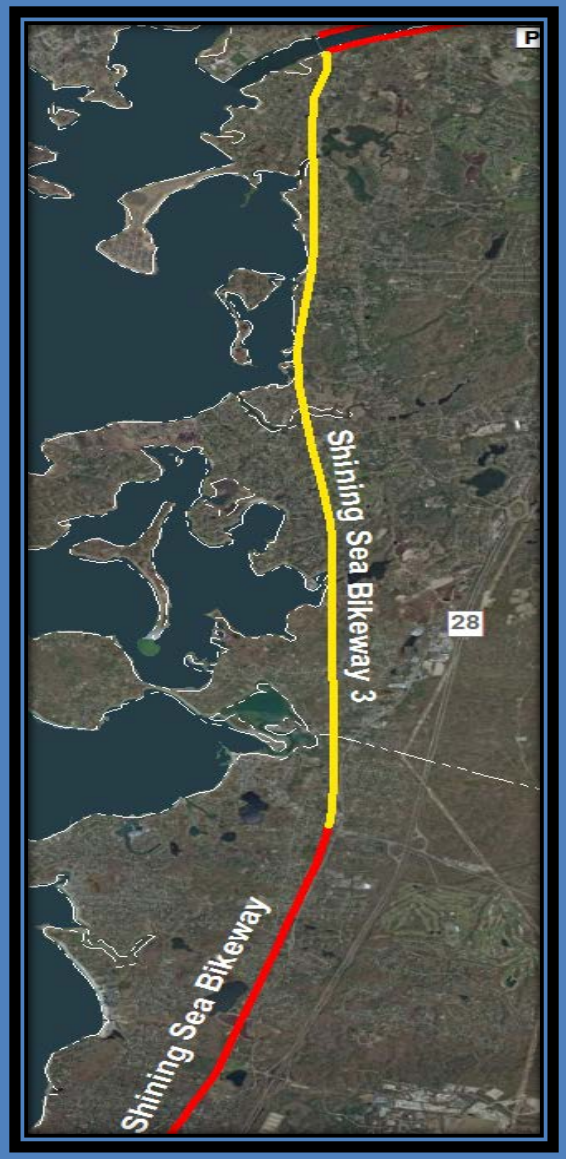
Based on 2006 MassDOT Study.
Re-examined with current traffic volumes

December 1, 2016

Potential Mid-Term Bicycle/ Pedestrian/Freight Improvements.

- Bourne Rail Trail (Connecting Shining Sea Bikeway to Canal Bikeway).
- Wareham Community Path.

Potential Mid-Term Bicycle/Pedestrian Improvements. – Bourne Rail Trail



Potential Mid-Term Bicycle/Pedestrian Improvements – Wareham Community Pathway.

Park and Ride Lots.

- Existing Park and Ride Lots on Route 6 in Barnstable (Route 132 - Exit 6) and Bourne (Route 3 at Meetinghouse Lane – Exit 1)
- Lots on Route 6 at 90% to 100% capacity.
- Served by bus lines (P&B/CCRTA).
- Route 130 (Exit 2) would provide a P&R lot between the two existing lots.

Park and Ride Lots.

Potential Mid-Term – Multi-Modal Center Route 6 at Route 130 Park & Ride Lot.

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Potential Freight Ferry Access between New Bedford and Martha's Vineyard.

- Steamship Authority draft report completed in April 2016
- Desire to reduce truck traffic on local streets in Falmouth

Potential Freight Ferry Access between New Bedford and Martha's Vineyard.

- Study found challenges related to:
  - Cost of initiating service (buying or chartering an additional vessel.
  - Cost would be higher than Woods Hole ($579 v. $260 for one-way trip).
  - SSA subsidizing cost is not desirable. Would need state or other funding.


(8+ Years)
• Highest cost
• Lengthy environmental review and design period.
©-CAPE NIGHT PHOTOGRAPHY-

Bourne Bridge.

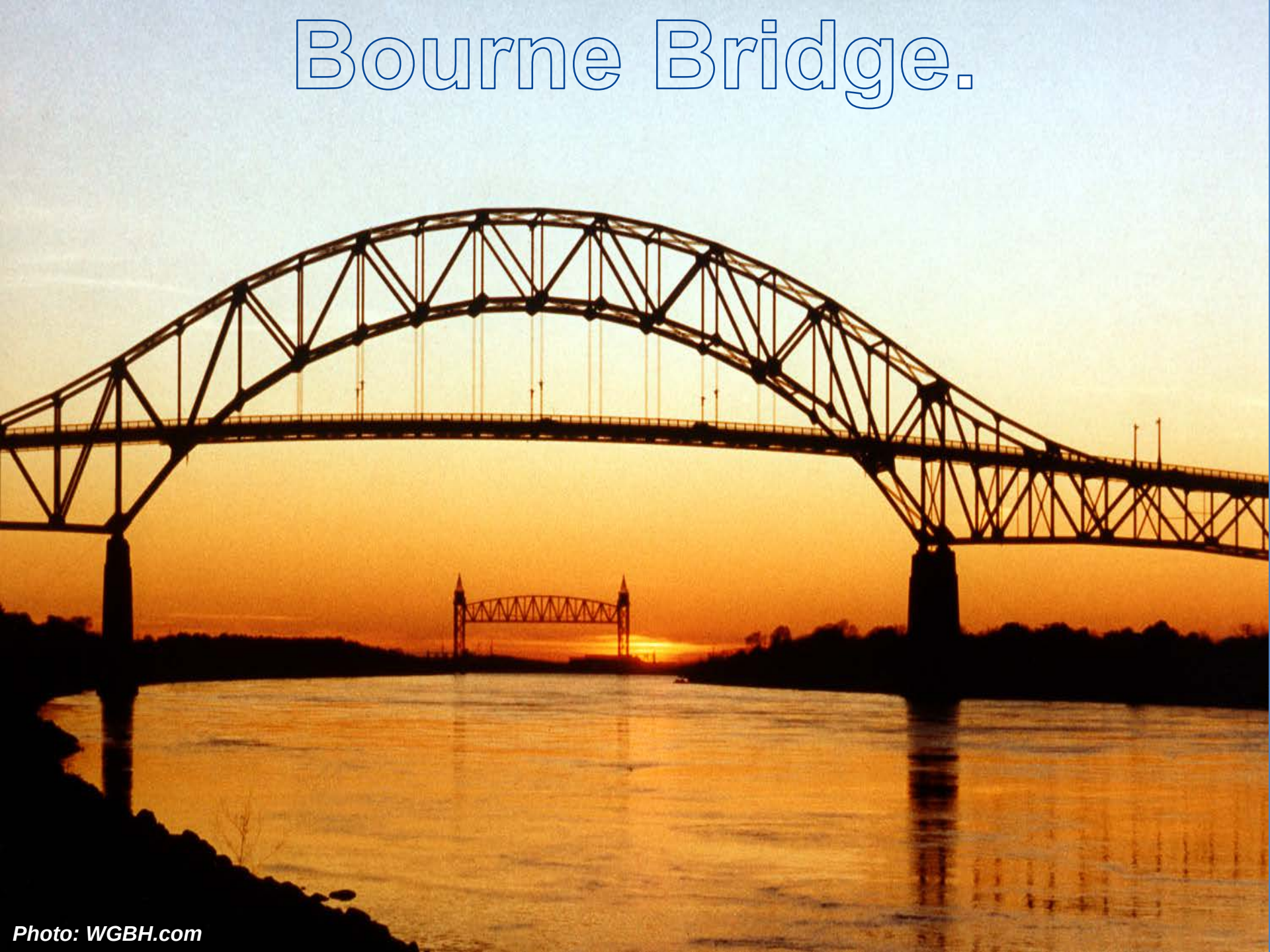
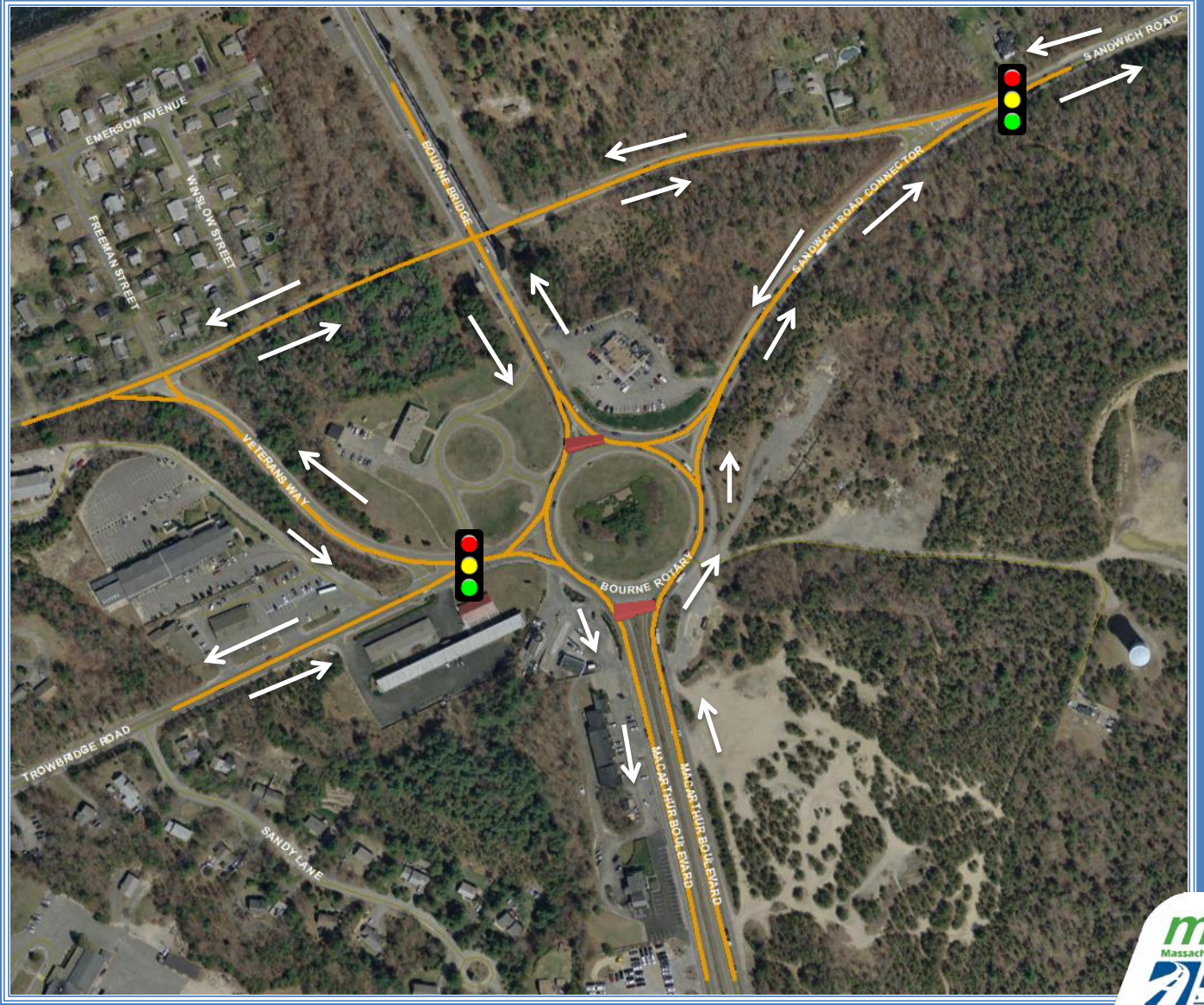


Photo: WGBH.com

Preliminary Concepts Provided by Members of the Public.

Tom Baron, South Yarmouth
Burton Pearlstein, North Falmouth
David Oakley, Chatham
Steve Voluckas, Barnstable

Bourne Rotary Reconstruction.
Burton Pearlstein, North Falmouth



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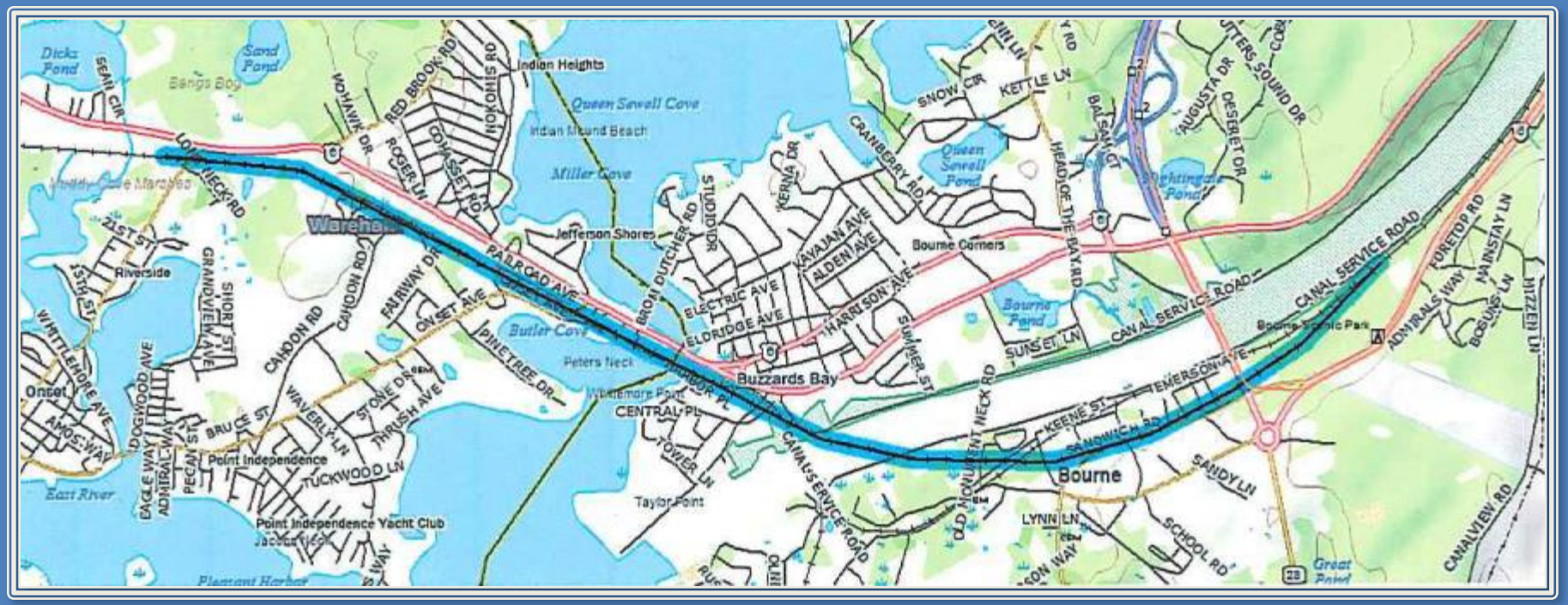
Canal Tunnels.



Challenges Related to Canal Tunnel.

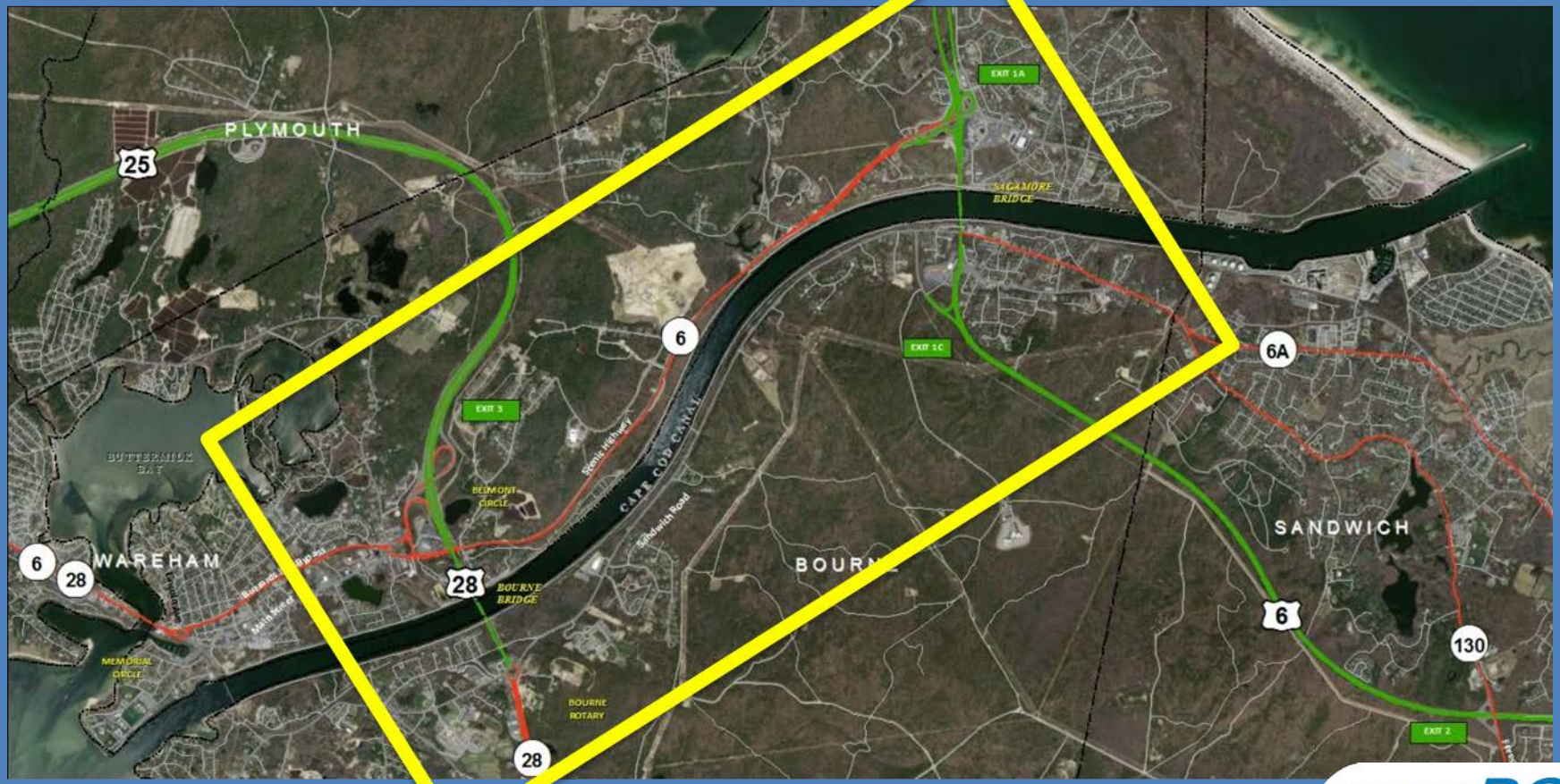
- Topography requires much longer tunnel than bridge.
- Requires substantial ventilation equipment and structures.
- Would require major environmental Study (EIS).
- Difficult to accommodate bicycles or pedestrians.
- Construction cost double or more compared to a bridge.

Conclusion of Transportation Concepts from Members of the Public.

- Modifications to Bourne Rotary – Additional Evaluation on-going
- Mid-Canal Bridge Crossing - Dismissed due to significant environmental impact.
- Roadway/Rail Tunnels – Dismissed due to impact & cost.
- Facilities on JBCC – Right-of-way impacts.

Long Term Alternatives.

Long-Term Alternatives - Goal is to Improve the Transportation System's Mobility, Reliability, and Safety.



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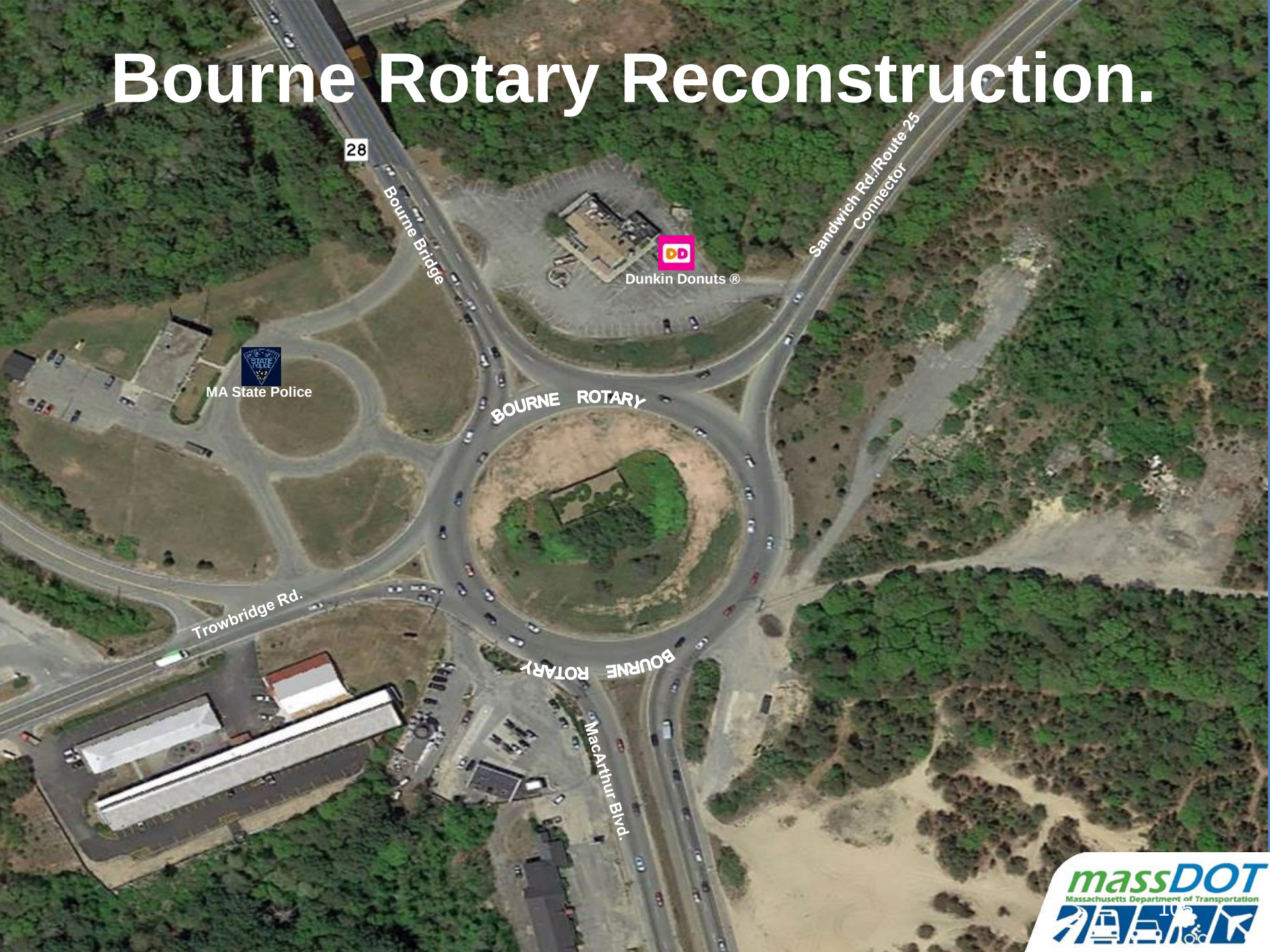
Connecting Roadways Key to Solution.

Bourne Rotary Reconstruction.



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Potential Long-Term Bourne Rotary Reconstruction Concepts.

Alternative 1 - Route 28 Fly-Over.

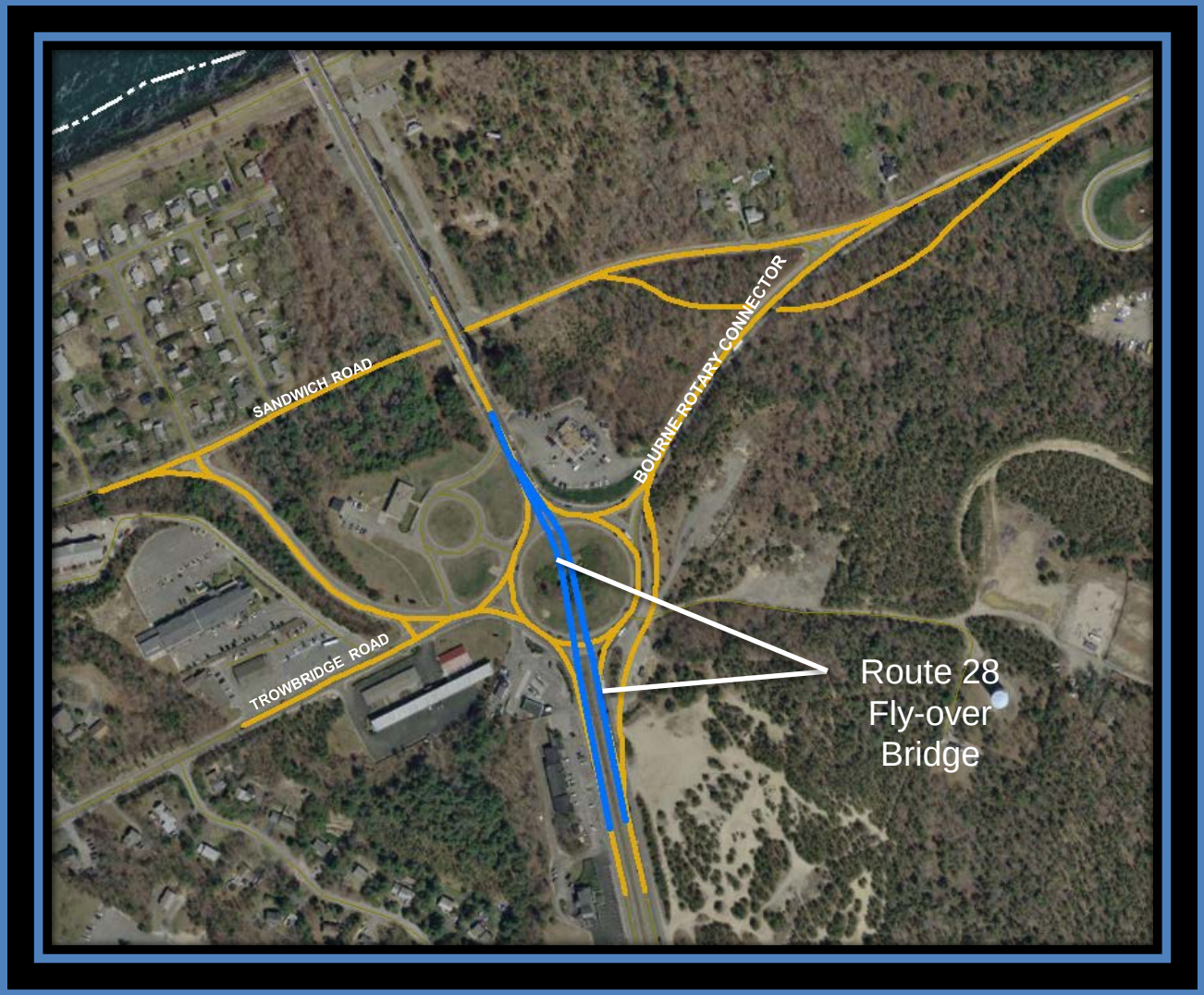
Alternative 2 - MassDOT/USACE Interchange.

Alternative 3 – Modified Interchange.

Alternative 1 - Bourne Rotary Fly-Over Concept.

1. Construction of Fly-over bridge for Route 28 through-traffic (removes 2,160 vehicles from rotary during summer Saturday peak period).
2. Must be compatible with future bridge
3. All other traffic uses rotary.
4. Minimal environmental or property impact.

Alternative 1 - Bourne Rotary Fly-Over



Alternative 2 - Bourne Rotary MassDOT/USACE Interchange Concept.

1. Replacement of Bourne Rotary with highway interchange.
2. Compatible with new bridge alignment to the east.
3. Direct access to and from all approaches.
4. Land impacts to the east.

Alternative 2 - Bourne Rotary MassDOT/Corps Interchange Concept.

Alternative 3 Bourne Rotary Modified Interchange Concept.

1. Replacement of Bourne Rotary with highway interchange.
2. Modified Access to Trowbridge Road.
3. No Direct Access from Bourn Rotary Connector or Trowbridge Road.
4. Limits impact to adjacent commercial properties.

Alternative 3 Bourne Rotary Modified Interchange Concept

Potential Additional Infrastructure.

- New roadway connections to reduce congestion, especially in peak periods.
- Lanes in each direction or reversible lane.
- Considering various concepts which may be combined into a single concept.
- May be an alternative facility type; Toll, High Occupancy Vehicle (HOV), High Occupancy Toll (HOT) or other types.

Potential Additional Infrastructure Concept 1.

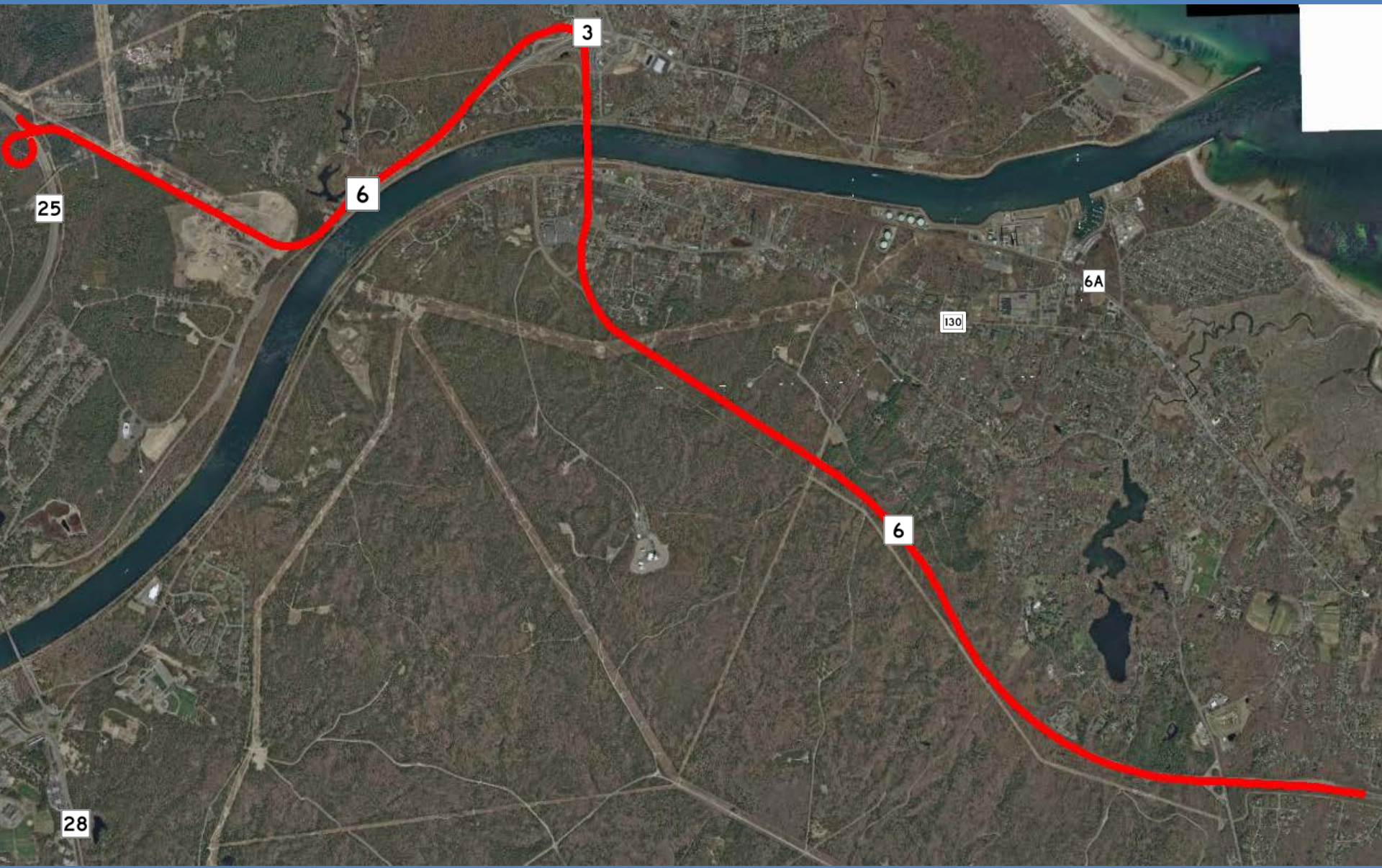
- Potential additional travel lane on Route 3 and Route 6 corridor.
- Limits may extend from Route 3 at Herring Pond Road (Exit 2), over Sagamore Bridge, to Route 6 at Route 130 (Exit 2).
- Lanes or each direction in reversible center lane.

Potential Additional Infrastructure.

Potential Additional Infrastructure Concept 2.

- Potential new roadway connecting Route 25 to Route 6 via Scenic Highway.
- Continue south over Sagamore Bridge on Route 6 to Route 130 (Exit 2).
- Addresses high Route 25 to Route 6 travel volumes

Potential Additional Infrastructure.



Schedule and Next Steps.

Photo: Sagamore Bridge; BobBernier.com

Selection of Package of Alternatives.

- Overall improvements will be best combination of short-, mid-, and long-term improvements.
- Project sub-areas (Bourne Rotary, Belmont Circle, Sagamore area) to be evaluated using traffic modeling (VISSIM, Synchro)
- Travel demand model will then ensure that the ‘transportation system’ works as desired.

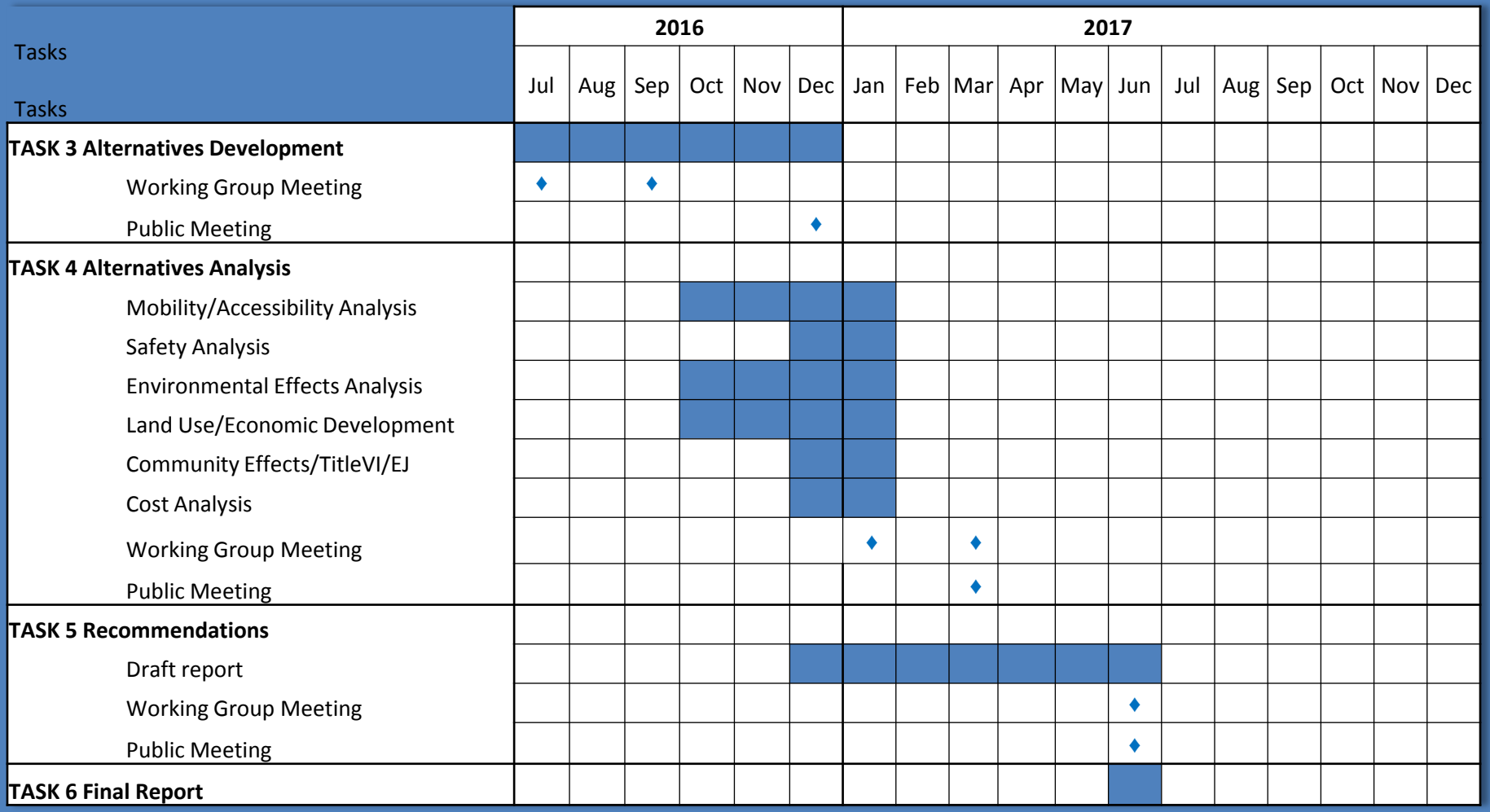
Selection of Package of Alternatives.

- Transportation Improvements will layered upon one another until they result in acceptable forecast future traffic conditions.
- Selected Improvements will also be evaluated based on:
  - Effectiveness.
  - Environmental Impact.
  - Community Disruption.
  - Property Impacts.
  - Cost.

Next Steps.

- Further Evaluation of Short-, Mid-, & Long-Term Improvement Alternatives.
- Evaluation Matrix.
- Working Group Feedback.

Study Schedule.



Questions?

Comments and feedback can be emailed to:
Ethan Britland- ethan.britland@state.ma.us.

December 1, 2016