TOWN OF PROVINCETOWN

SHANK PAINTER ROAD / ROUTE 6

Environmental Partners GROUP

A partnership for engineering solutions.

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Project Goals

- Improve safety and accessibility for *all* users…
  - Motorists
  - Pedestrians
  - Bicyclists
- Improve pedestrian and bicycle connectivity
- Promote Shank Painter Road as a primary access to Provincetown

Project Chronology

Conceptual Design

Engineered Design

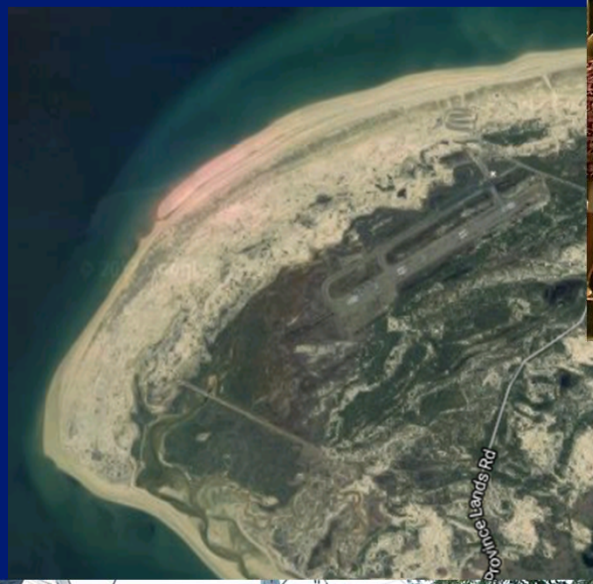
- 25% Design
- 75% Design
- 100% Design
- Final Design

Construction

Connectivity

Connectivity

Points of Interest



Connectivity

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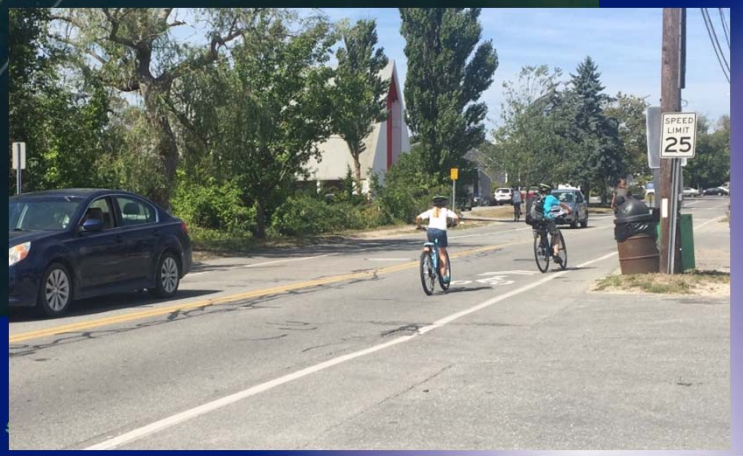

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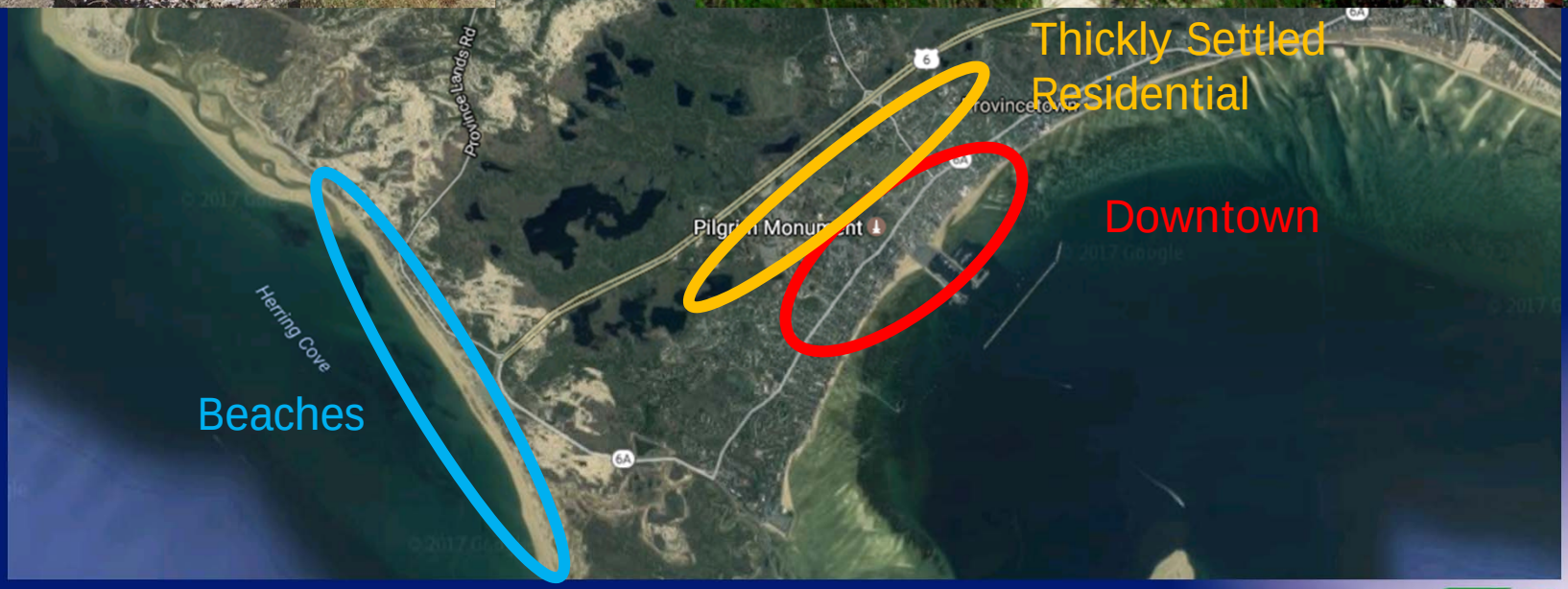
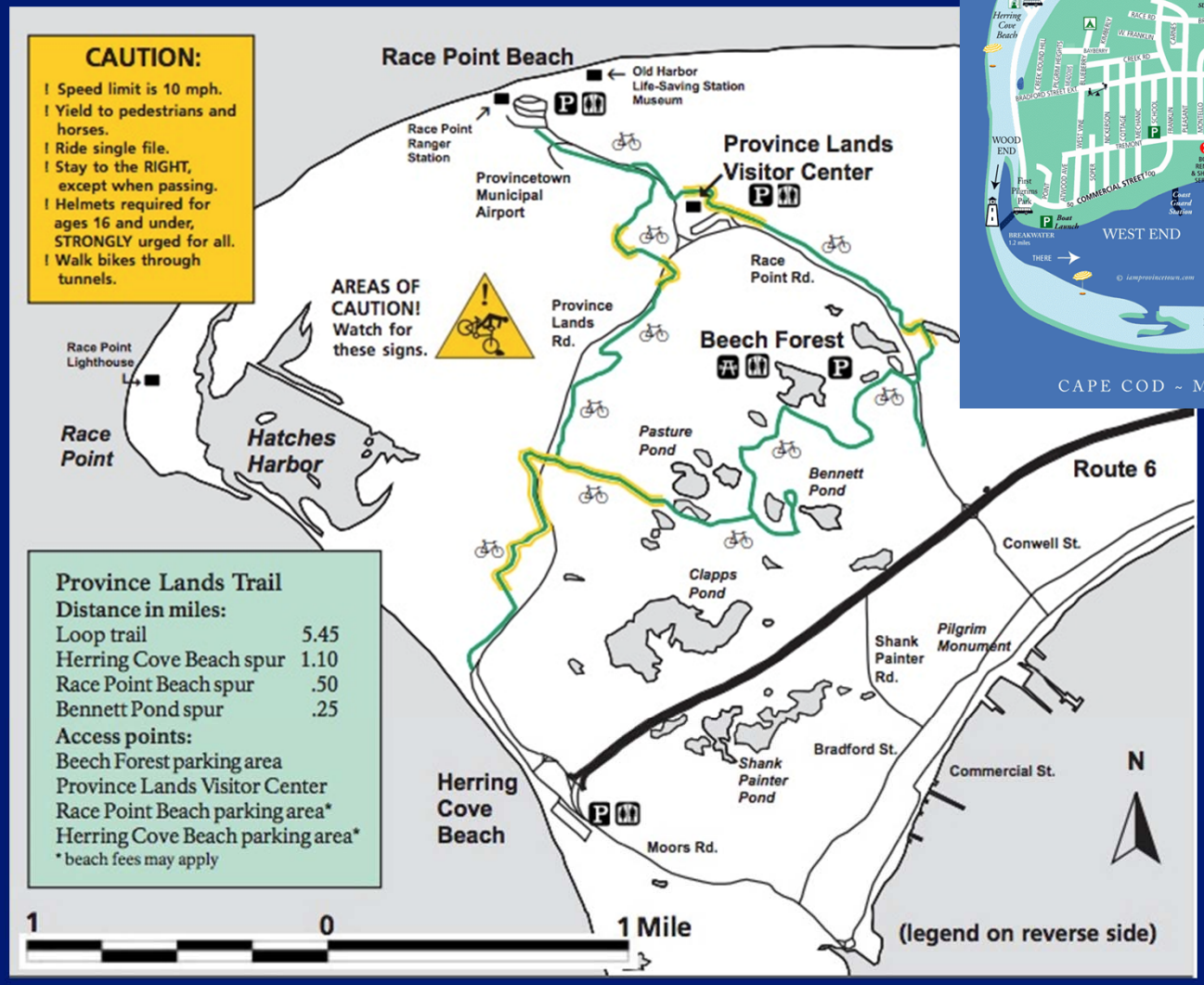


Connectivity

Points of Interest

Connectivity

Existing Multi-Modal Network

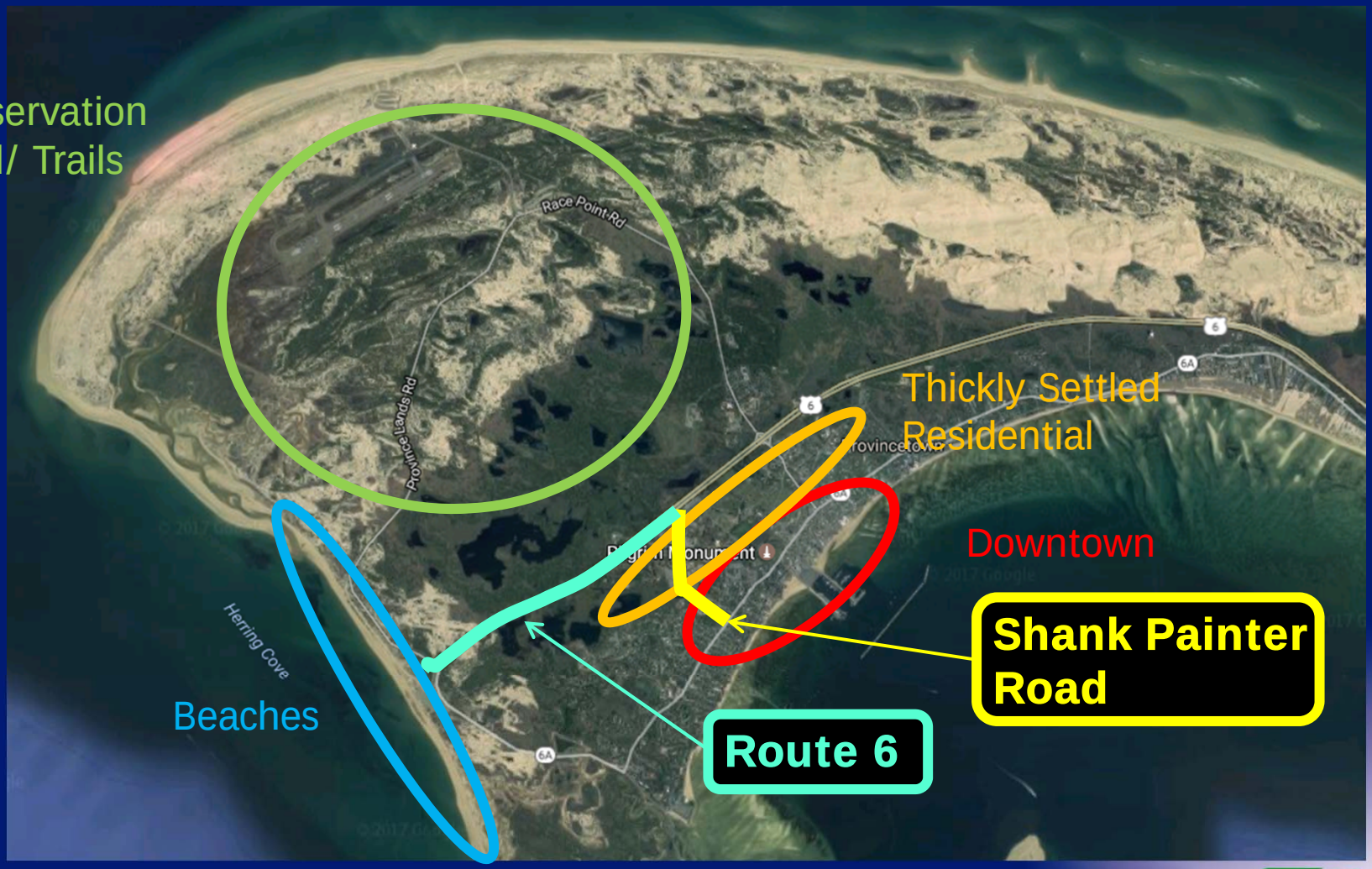


Connectivity

Multi-Modal Access

Connectivity

Multi-Modal Access

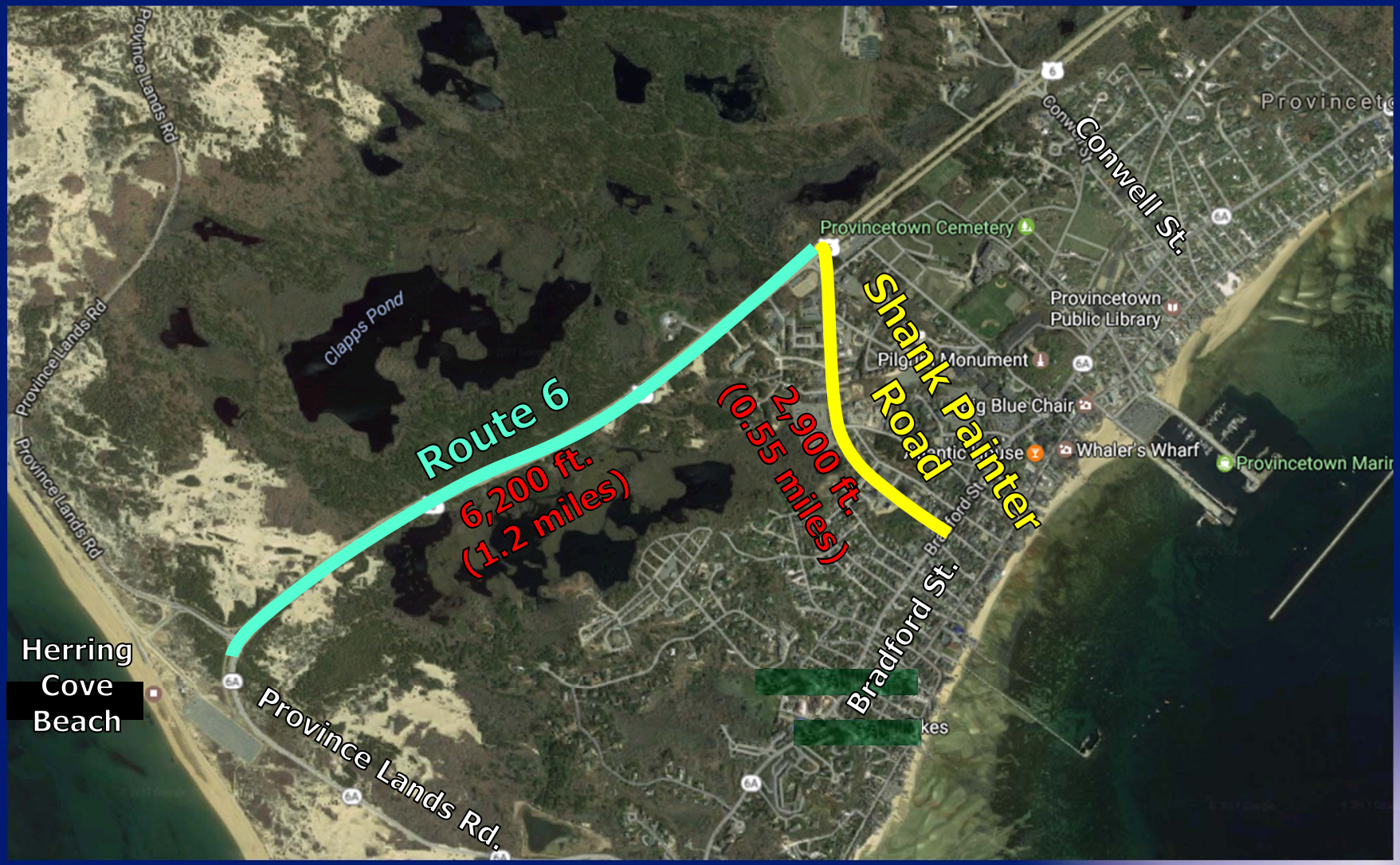


Town Access

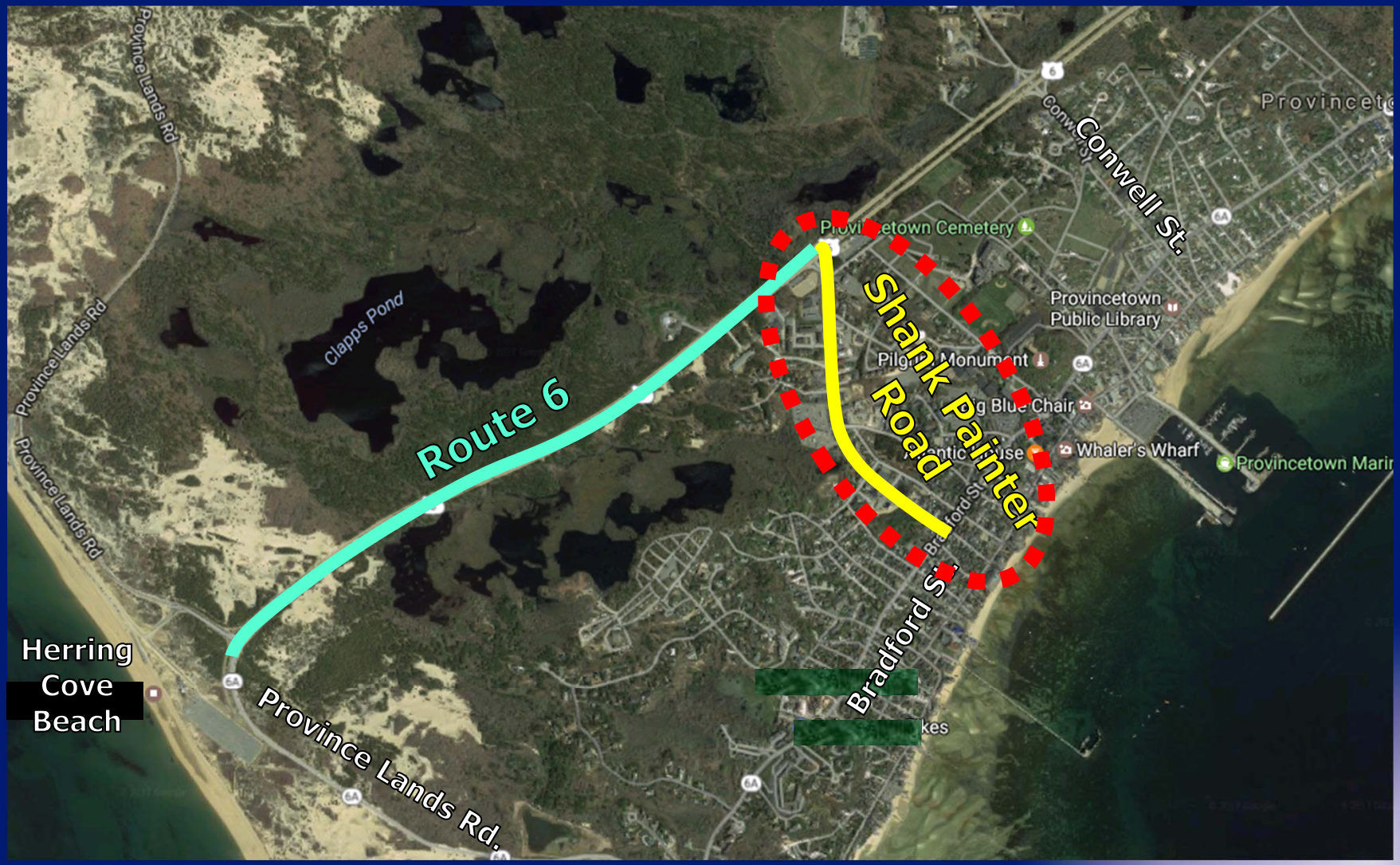
Town Access

VS

Project Limits



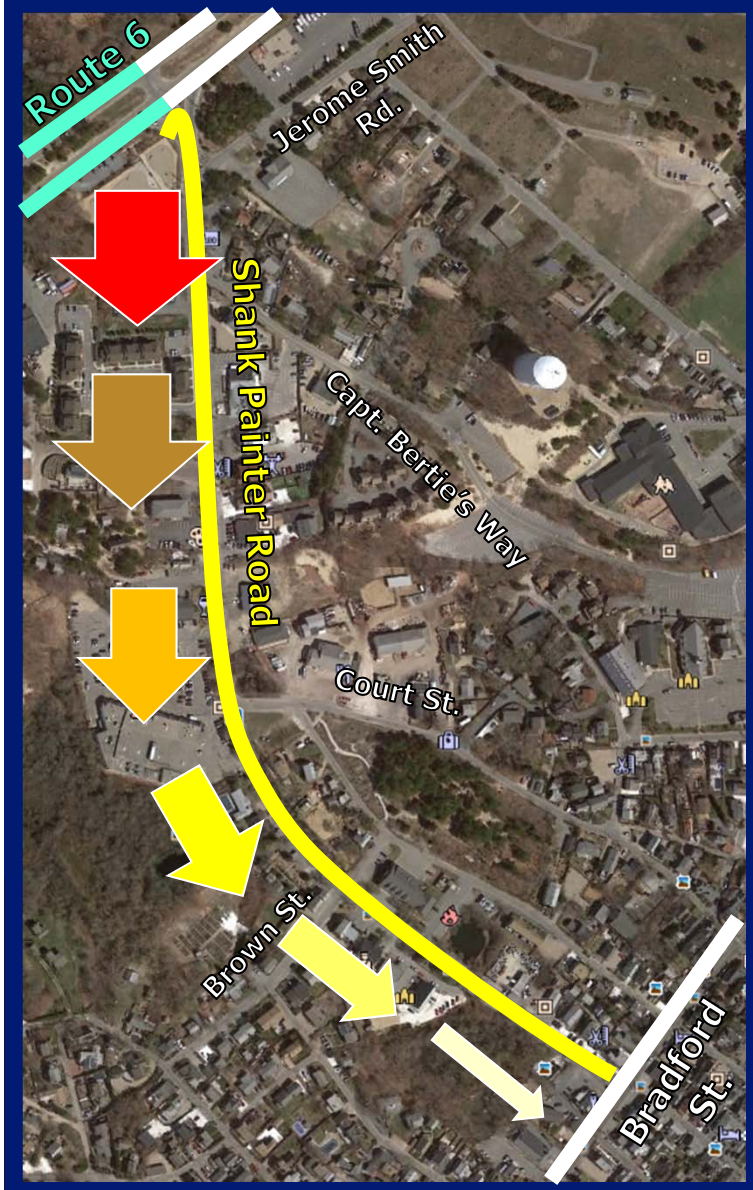
Existing Conditions



Shank Painter Road: Overview

- Access between fast moving Route 6 and Center
- No sidewalk and limited bicycle accommodations; bicycles and pedestrians mix with vehicles
- Heavy bike and pedestrian volumes (especially during the summer) to access destinations

Shank Painter Road: Overview



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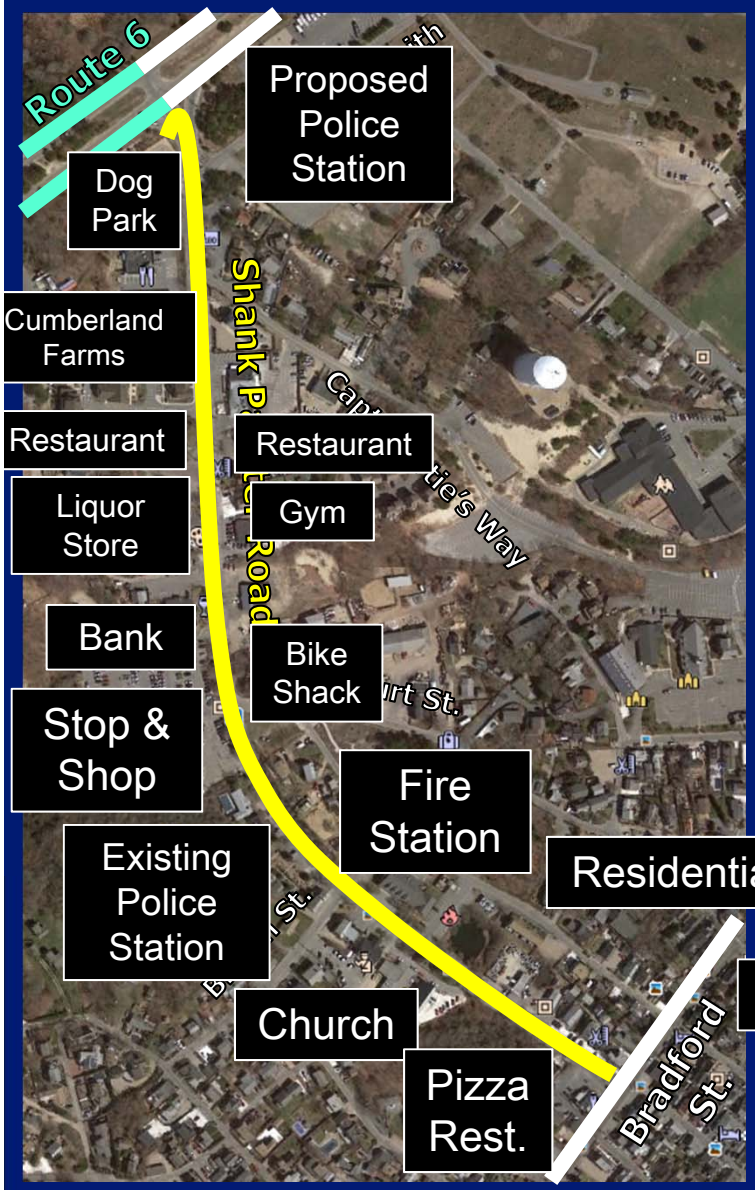

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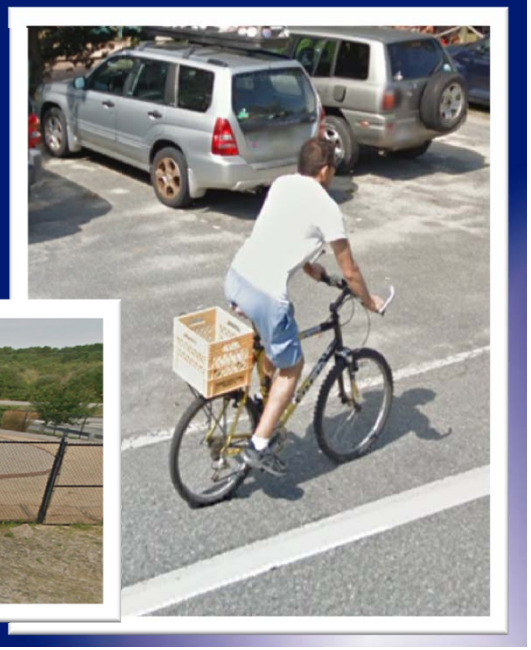
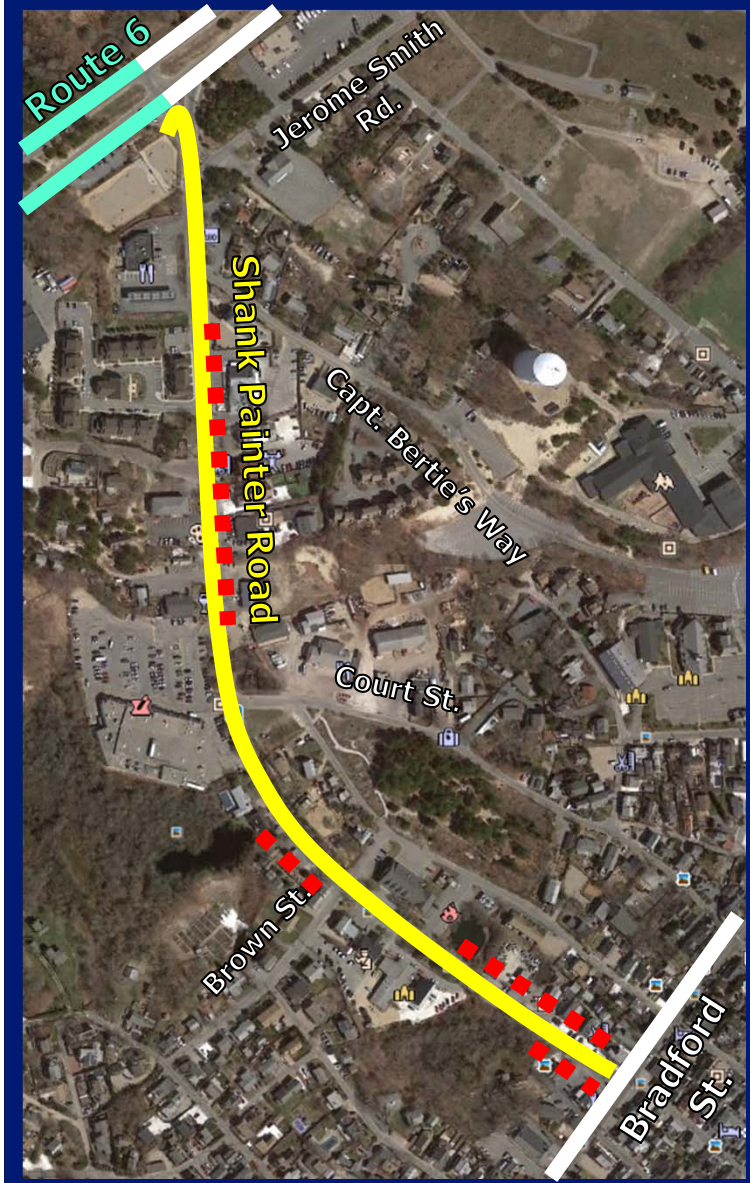


Shank Painter Road: Width Variations

Shank Painter Road: Large Curb Cuts / Parking



Shank Painter Road: Wetlands & Drainage

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Shank Painter Road: Bradford St. Intersection

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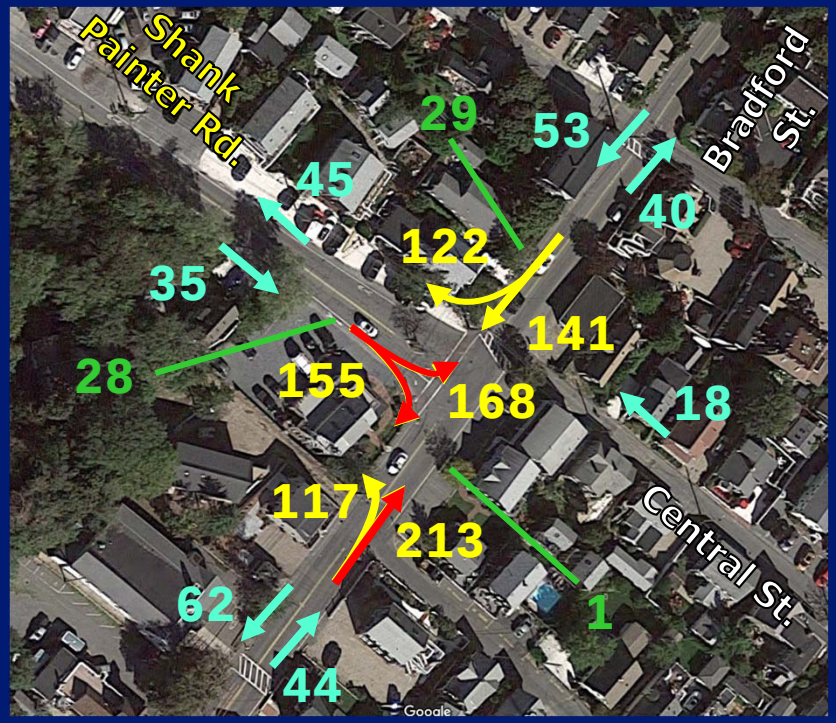

Weekday Peak Hour Traffic Volumes (summer)

Vehicles (916 vph)

Bicycles (150 bph)

Crossing Pedestrians (58 pph)

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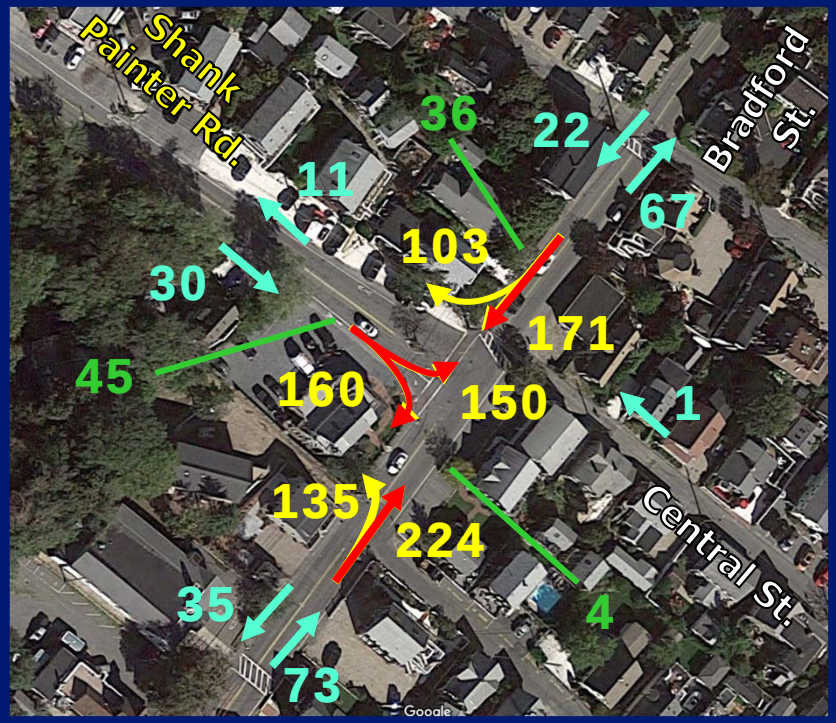
Shank Painter Road: Bradford St. Intersection



Weekend Peak Hour Traffic Volumes (summer)

Vehicles (943 vph)

Bicycles (126 bph)

Crossing Pedestrians (85 pph)

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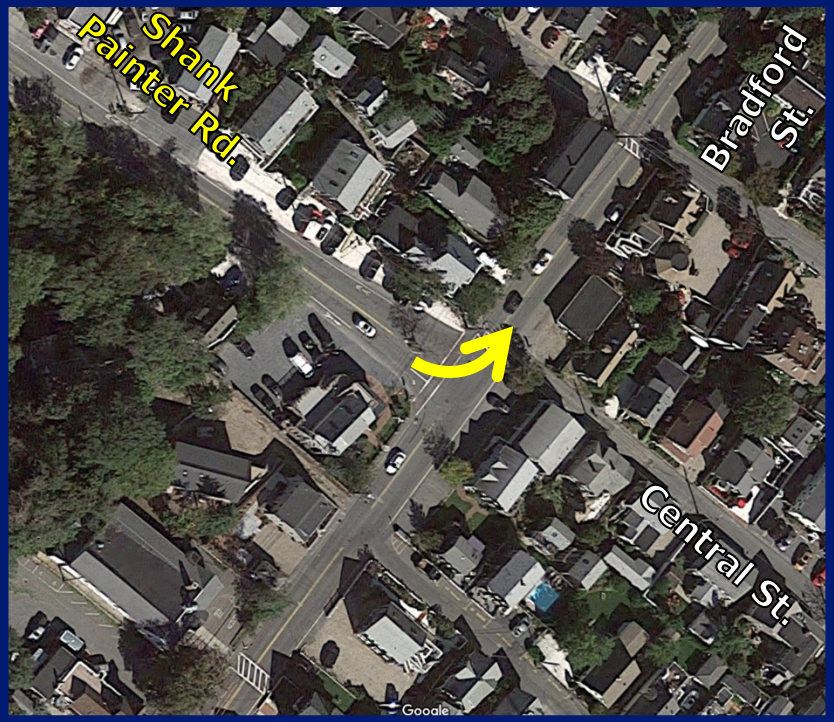
Shank Painter Road: Bradford St. Intersection



Operations (summer)

Shank Painter Road: Route 6 Intersection

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Shank Painter Road: Route 6 Intersection

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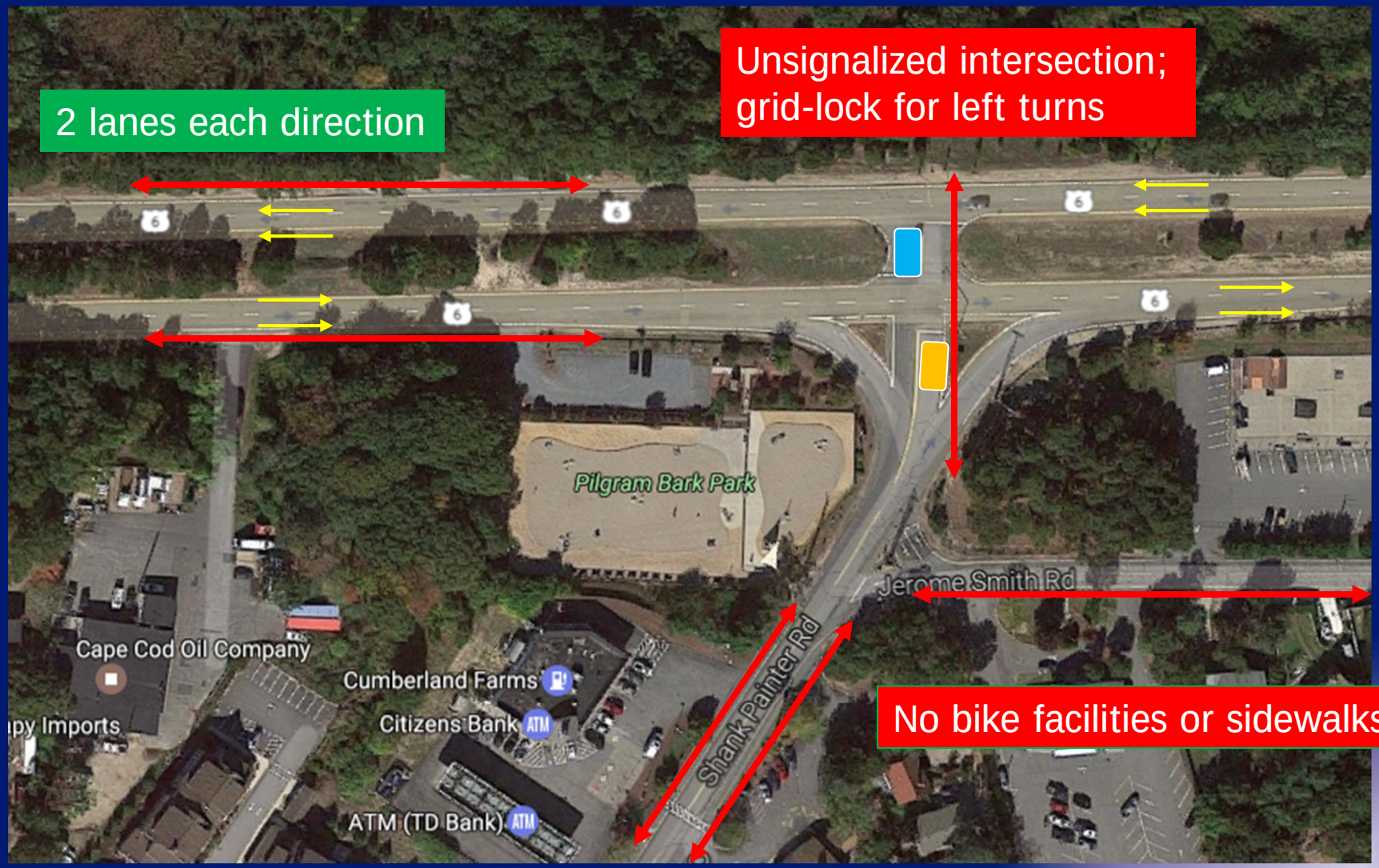
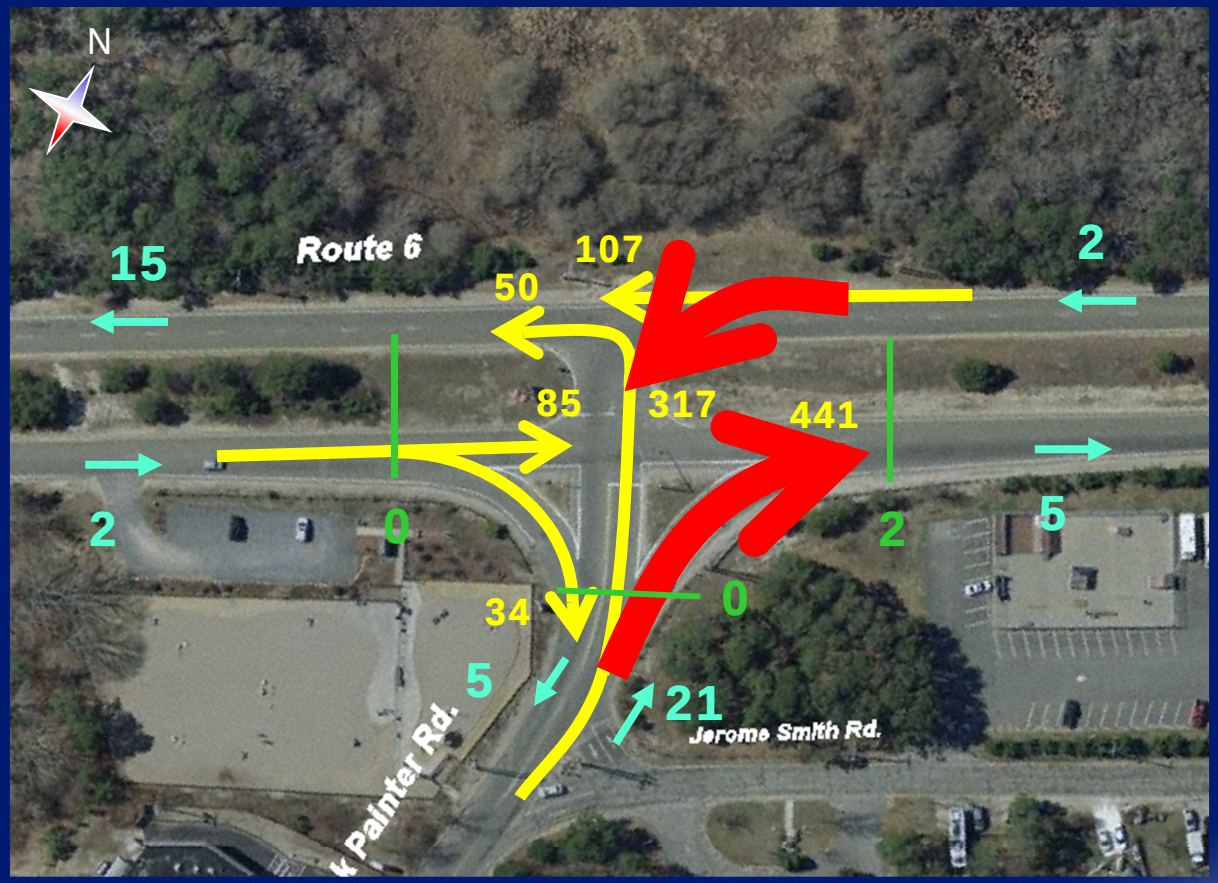


Shank Painter Road: Route 6 Intersection



Weekday Peak Hour Traffic Volumes (summer)

Vehicles (1,034 vph)

Bicycles (25 bph)

Crossing Pedestrians (2 pph)

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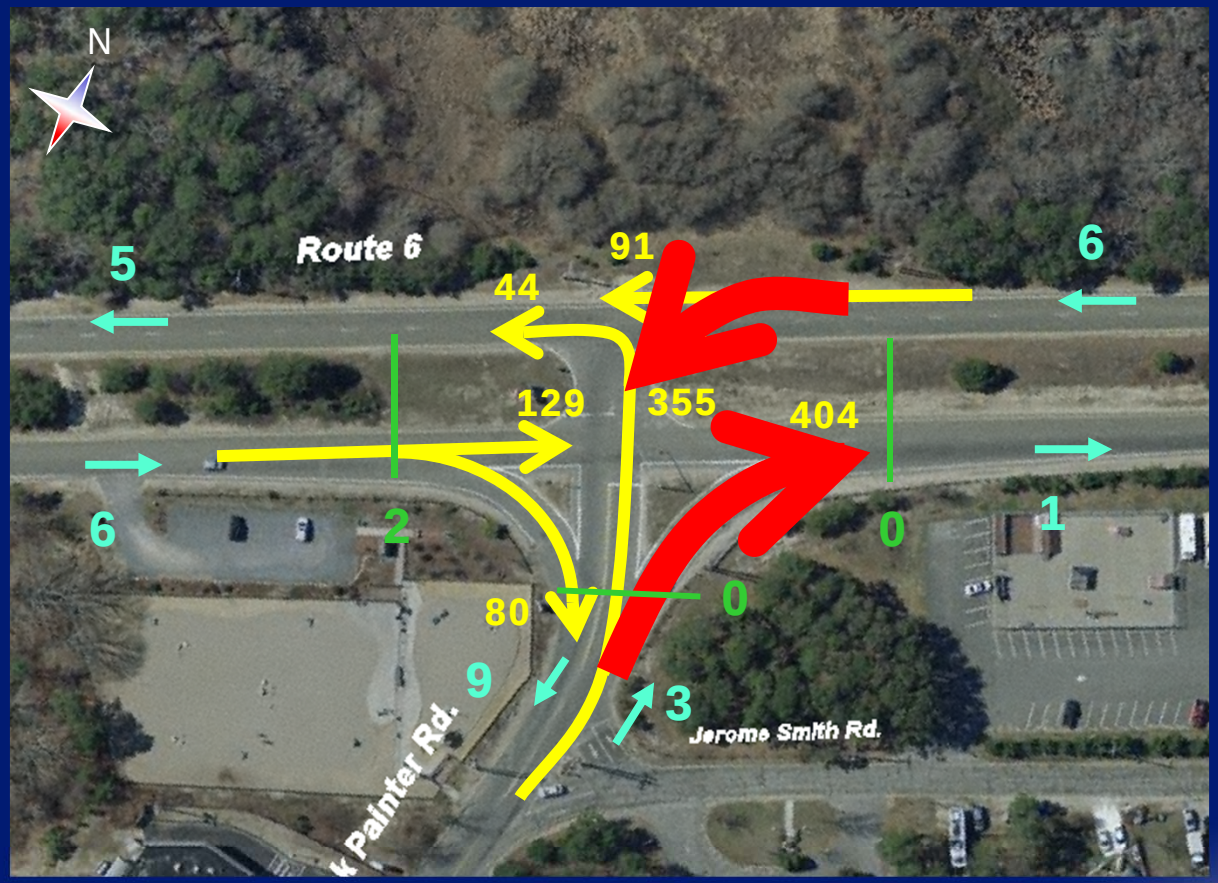
Shank Painter Road: Route 6 Intersection



Weekend Peak Hour Traffic Volumes (summer)

Vehicles (1,103 vph)

Bicycles (15 bph)

Crossing Pedestrians (2 pph)

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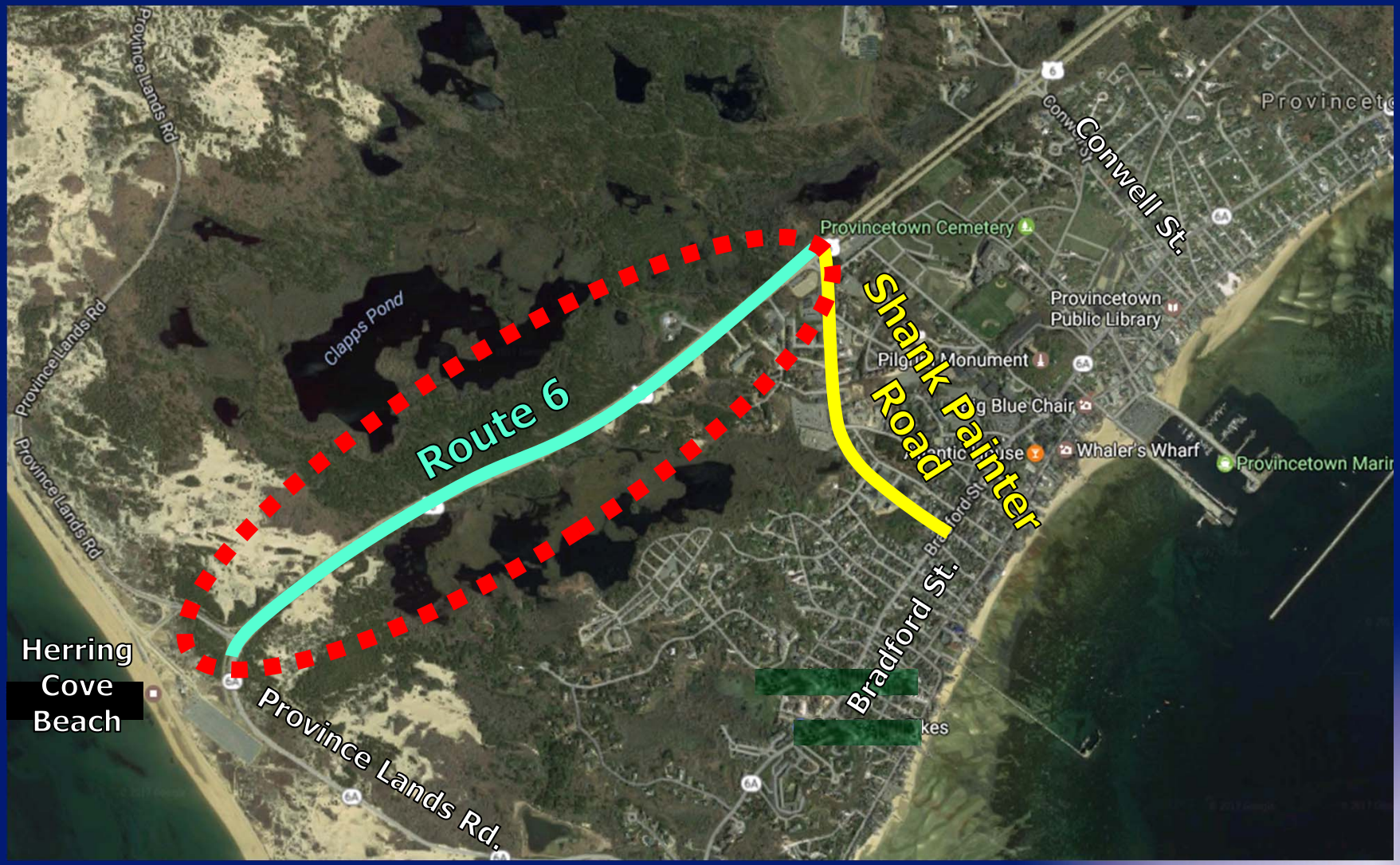
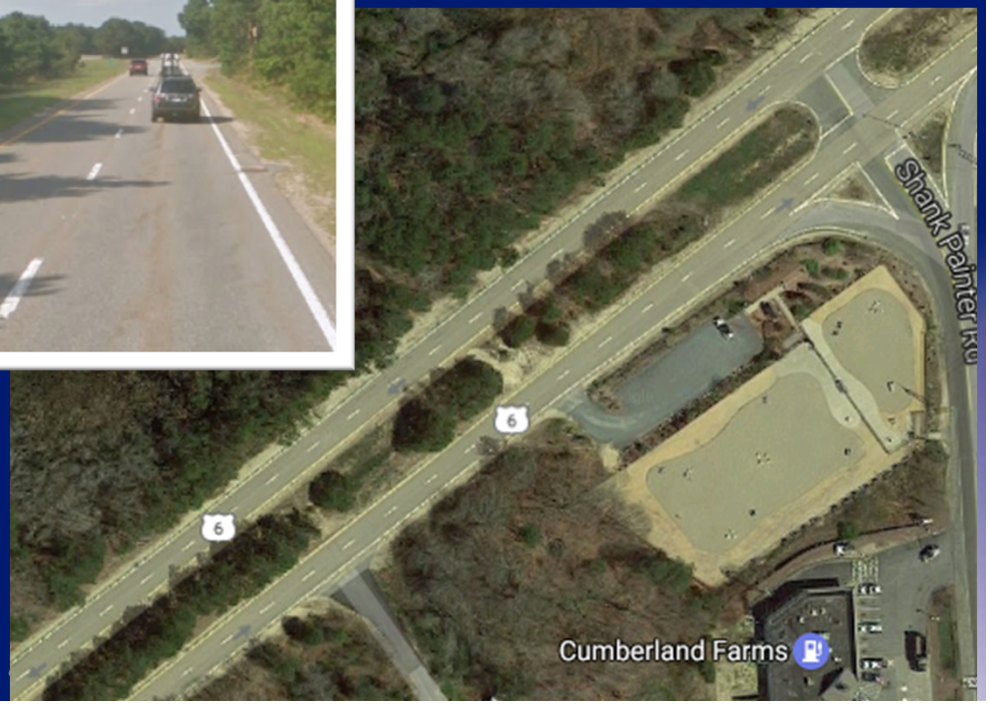
Route 6: Overview



Route 6: Existing Conditions

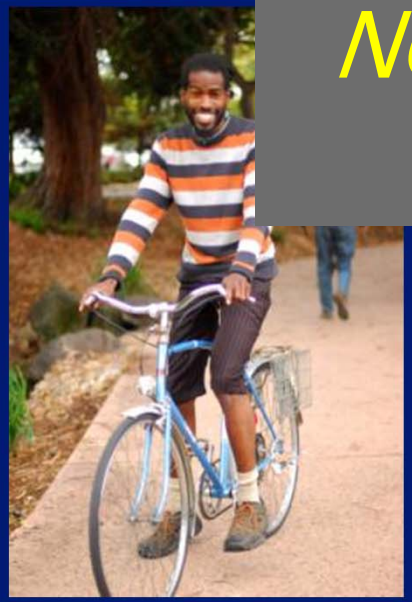
- Fast-moving 4-lane highway (2 lanes each direction)
- Town jurisdiction
- No sidewalks or bicycle accommodations
- End of Route 6 = light traffic (135vph westbound; 209vph eastbound)

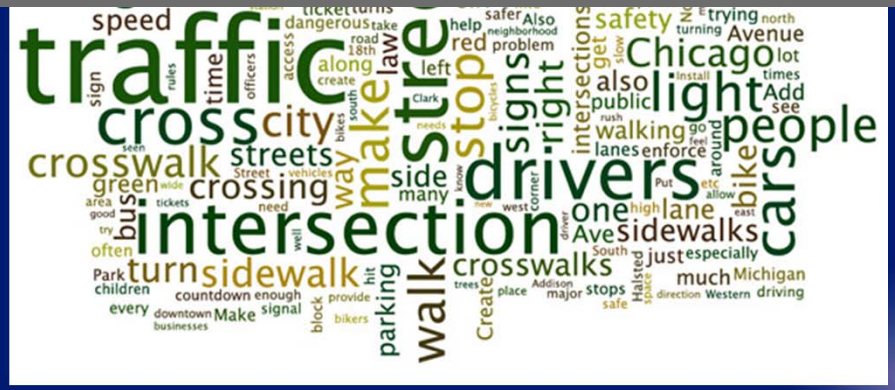


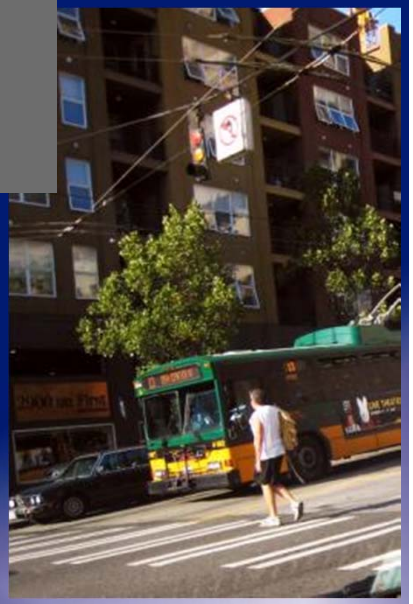
Concepts for Consideration

Approach to Roadway Design

Focus on the COMMUNITY,
NOT just on COMMUTER
or VISITOR







Approach to Roadway Design

BALANCE

Proper Vehicular Speeds/Behavior

Safe Bicycle Accommodations

Adequate Parking

Identifying the right treatments in the right locations...

Streetscaping/ Maintain Character

Vehicular Mobility

Proper Pedestrian Accommodations

Regional Circulation

Alternatives

Address:

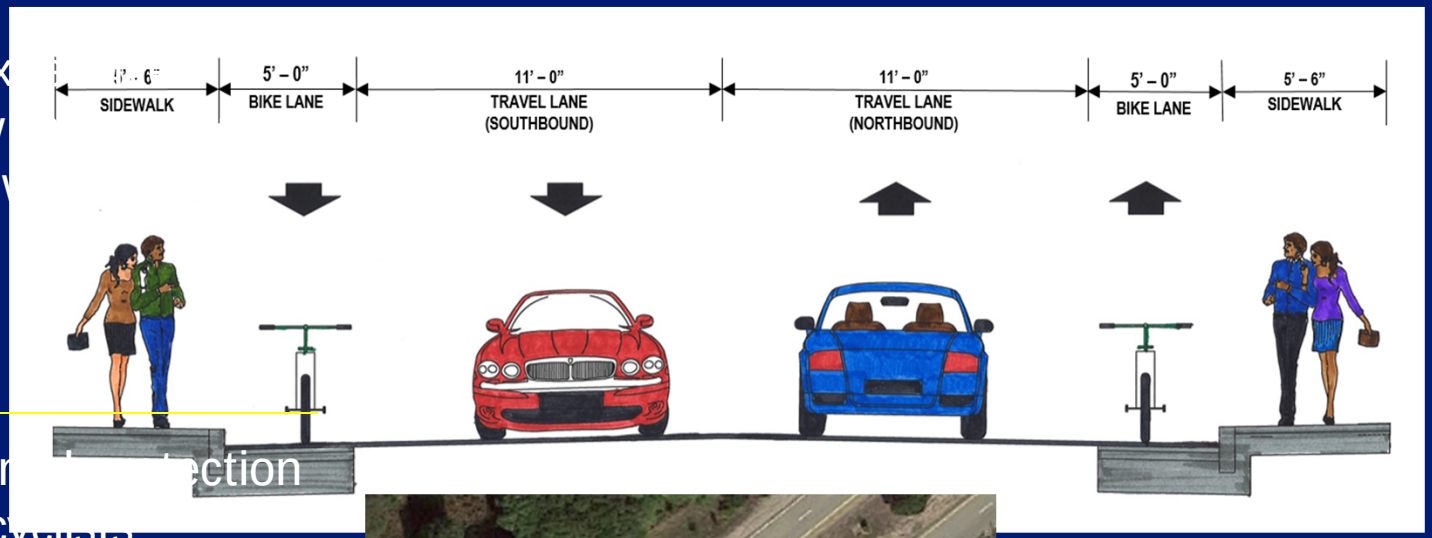
- Lack of pedestrian/bike accommodations along corridor
- Lack of bike/pedestrian connections to Route 6
- Maintain vehicular circulation & emergency access
- Promote usage of Shank Painter as the major gateway to Provincetown
- Reduce expansive openings along edge of road while maintaining adequate openings for businesses
- Improve aesthetics of roadway

Shank Painter Road

Alternative 1: Conventional Bike Lanes

Pros

- Inex
- Low
  (plo



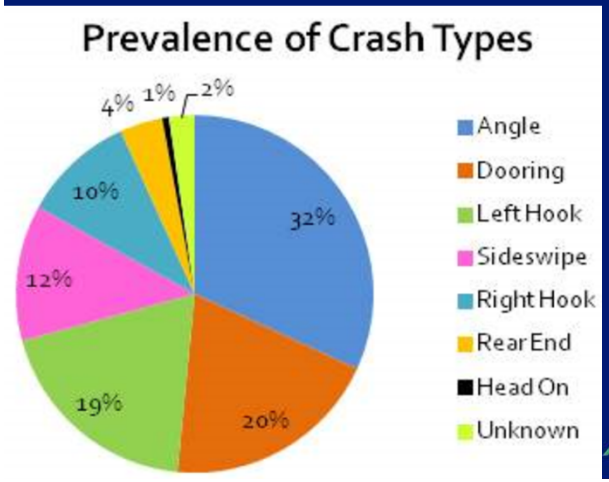
Cons

- Mini ection
  for cyclists
- Not a low-stress bicycle network that encourages riders
- Not a continuous bike connection (at Route 6)

Safety Trends

According to the National Highway Traffic Safety Administration, ***743 cyclists were killed*** in the US in 2013 and an additional ***48,000 were injured*** in collisions with motor vehicles.

This is an ***increase of 1.2%*** from the previous year, while motor vehicle crashes ***decreased by 3.1%***



Consider Alternative Treatments...

Ridership

- Provide *more comfortable experience* for less-skilled riders…a ***"low-stress network"***
- *Appeal to a broad range of people*; increases bicycling volumes and rates
- Provides a *safer feeling* to attract new riders (96% for separated bike lanes)
- Provide a *linkage between regional trail systems*

Alternative 2: Separated Bike Lanes

Overview

An exclusive bike facility separated from pedestrian traffic and physical separation from vehicles

FHWA: Separate Bicycle Guidelines (May 2015)

75% reduction in bike related intersection injuries compared to locations without treatments

(Statistics Library/Protected Bike Lane Statistics, People for Bikes)

10% of current riders *switched from other modes*

25% are *biking more in general*

(Lessons from the Green Lanes: Evaluating Protected Bike Lanes in the U.S.", National Institute for Transportation and Communities 2014 report)

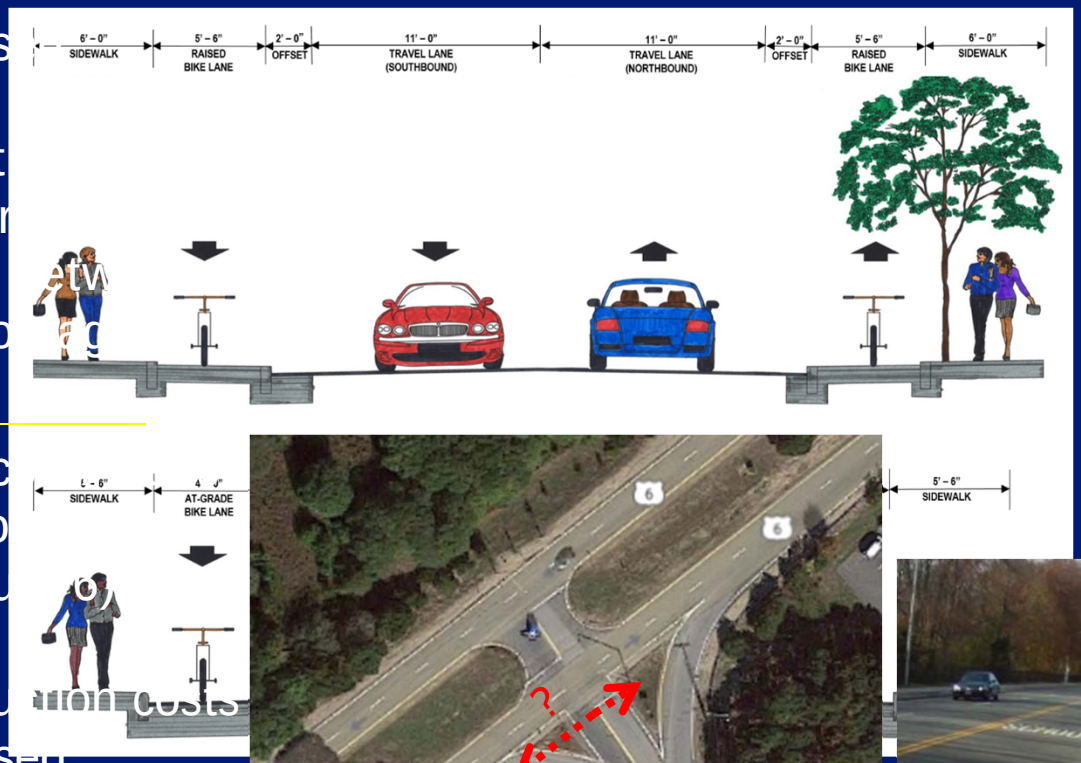
Alternative 2: Separated Bike Lanes

Pros

- Increas
  cyclist
  protect
- Low-str
  bicycle
  to enco
  riders

Cons

- Not a c
  bike co
  (at Rou
- Higher
  constru
- Increased
  maintenance
  efforts



Alternative 3: Separated Two-Way Bike Lanes

Pros

- Increase
  protecti
- Low-str
  (to enco
- Provides
  connect

Cons

- Northbo
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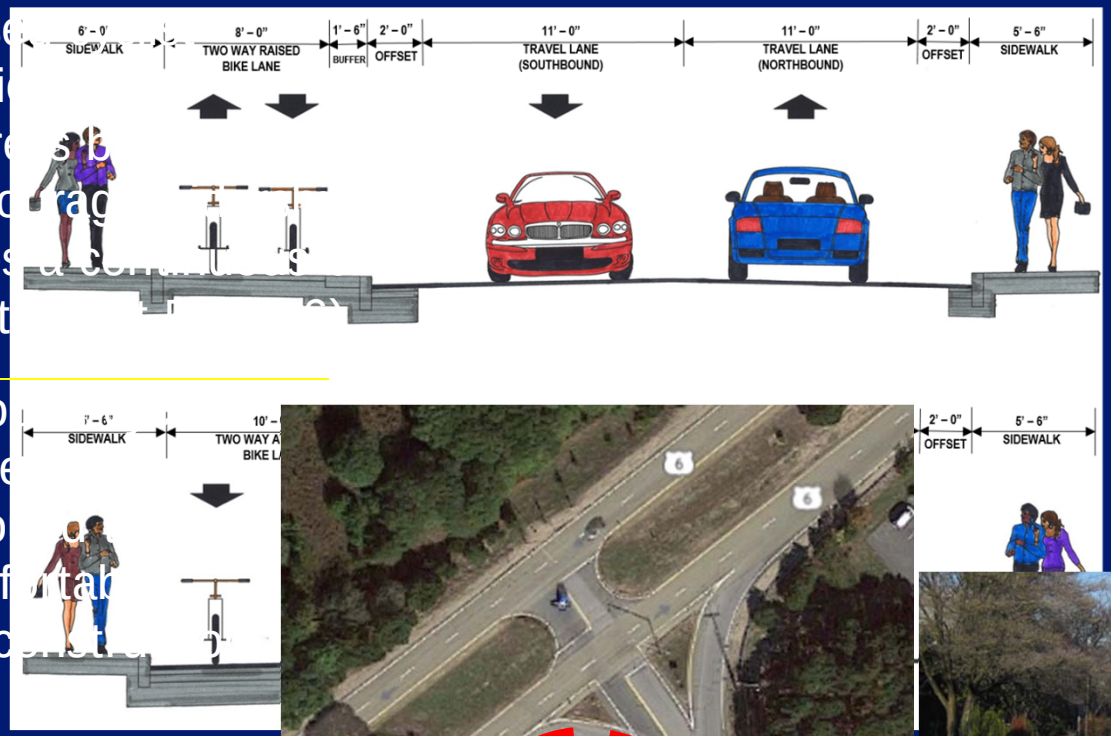
  (uncomf
- Higher c
  costs
- Increased maintenance efforts



Alternative 3: Separated Two-Way Bike Lanes

Alternative 4: Separated Two-Way Bike Lanes

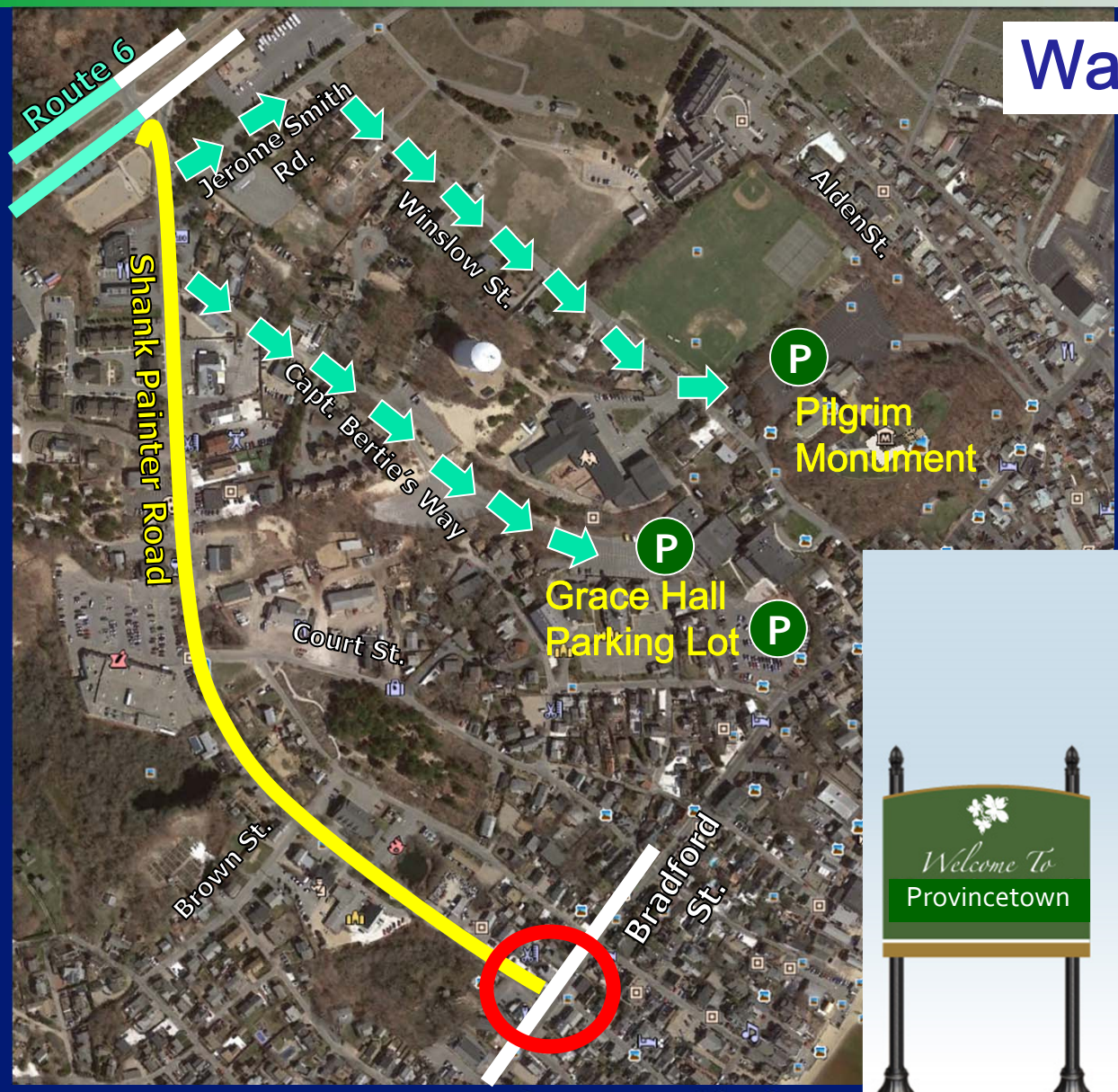
Pros

Cons

Shank Painter Road at Bradford Street Intersection

Shank Painter Road: Bradford St. Intersection

Wayfinding Signage



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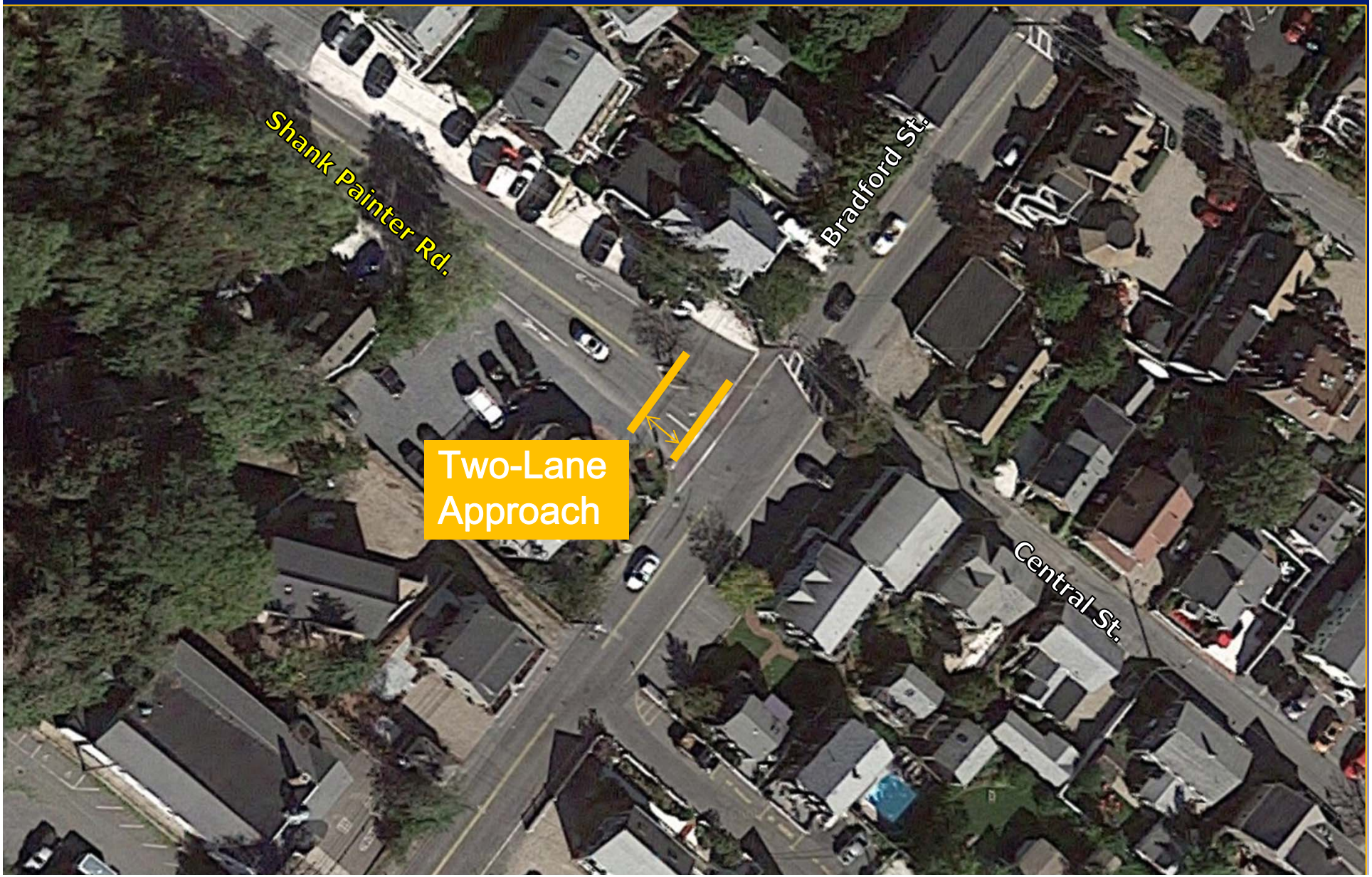
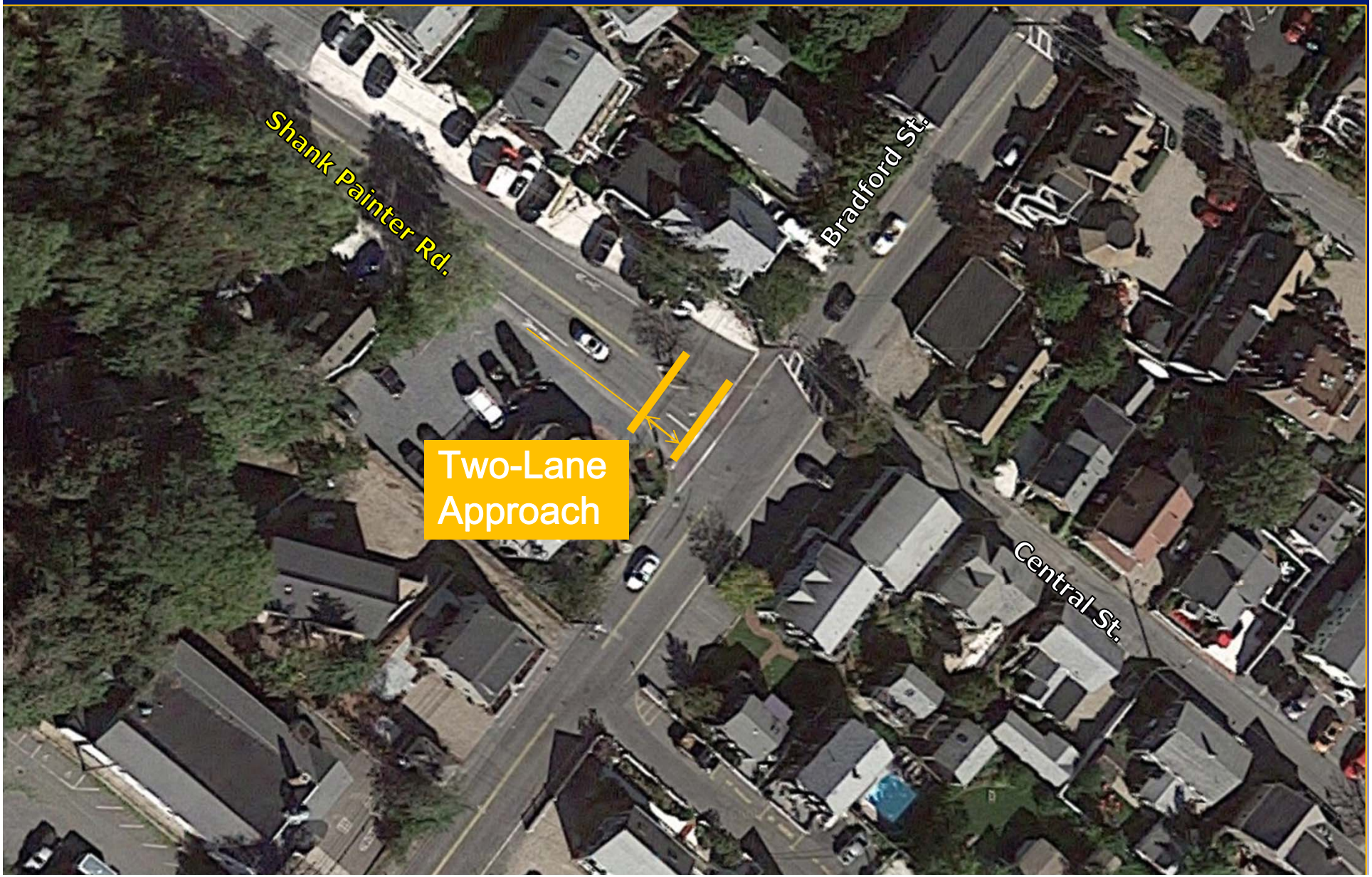
Shank Painter Road: Bradford St. Intersection



Shank Painter Road: Bradford St. Intersection



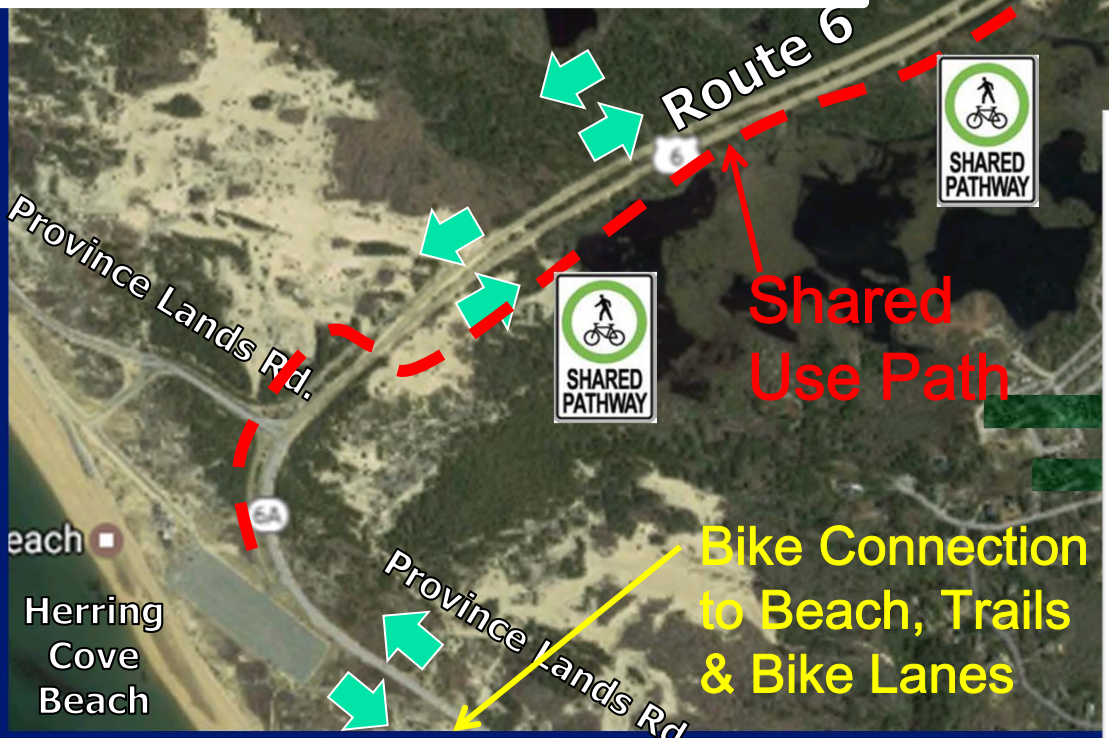
Route 6

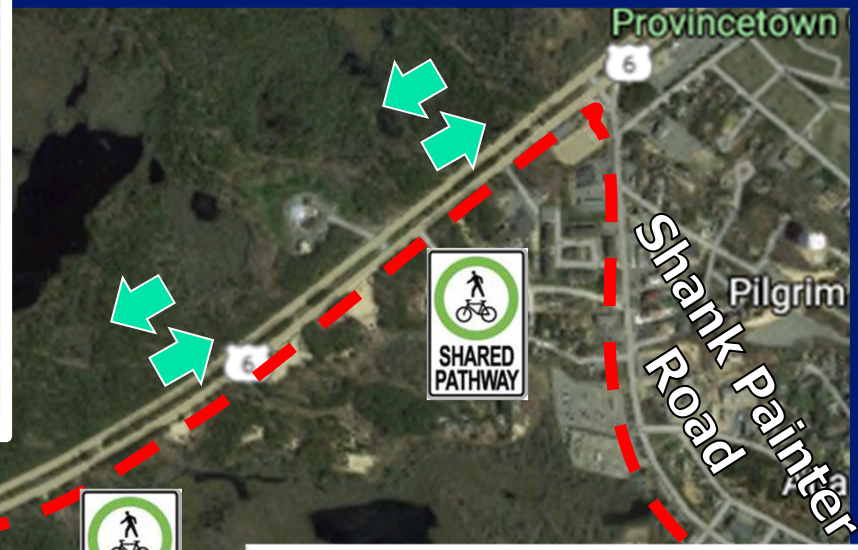
Route 6 Alternative

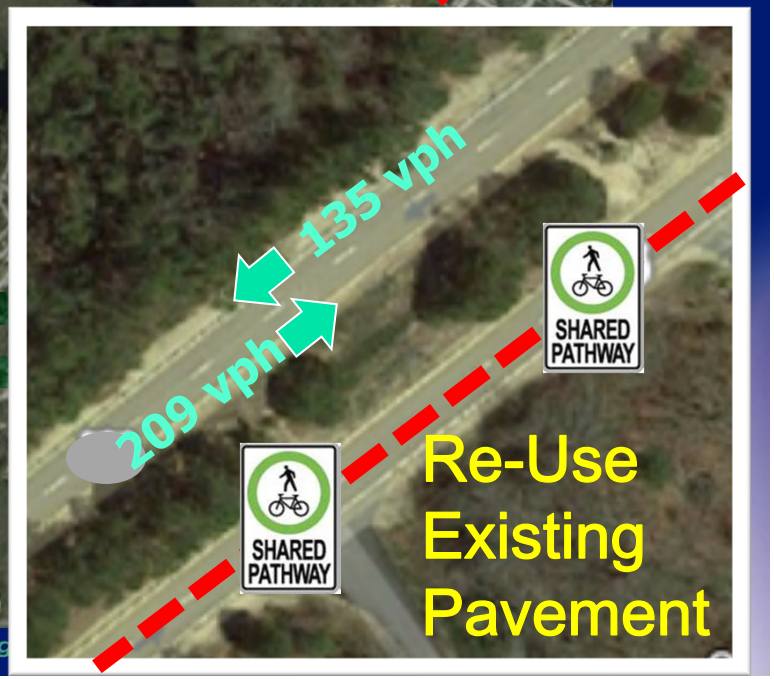
Route 6
Province Lands Rd.
Province Lands Rd.
Herring
Cove
Beach

Provincetown
Shank Painter
Road
Pilgrim

135 vph
209 vph
SHARED PATHWAY
SHARED PATHWAY
Re-Use
Existing
Pavement







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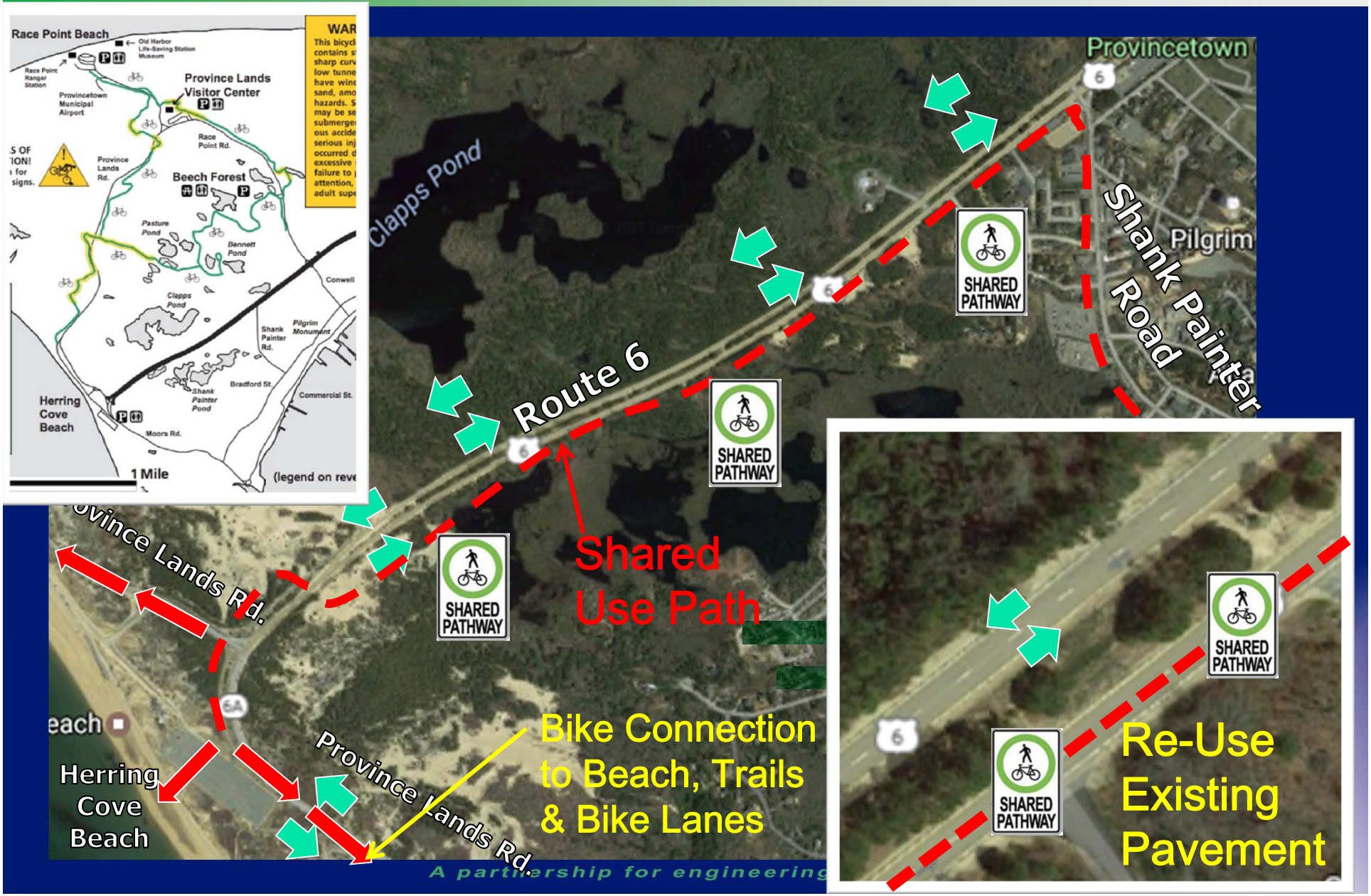
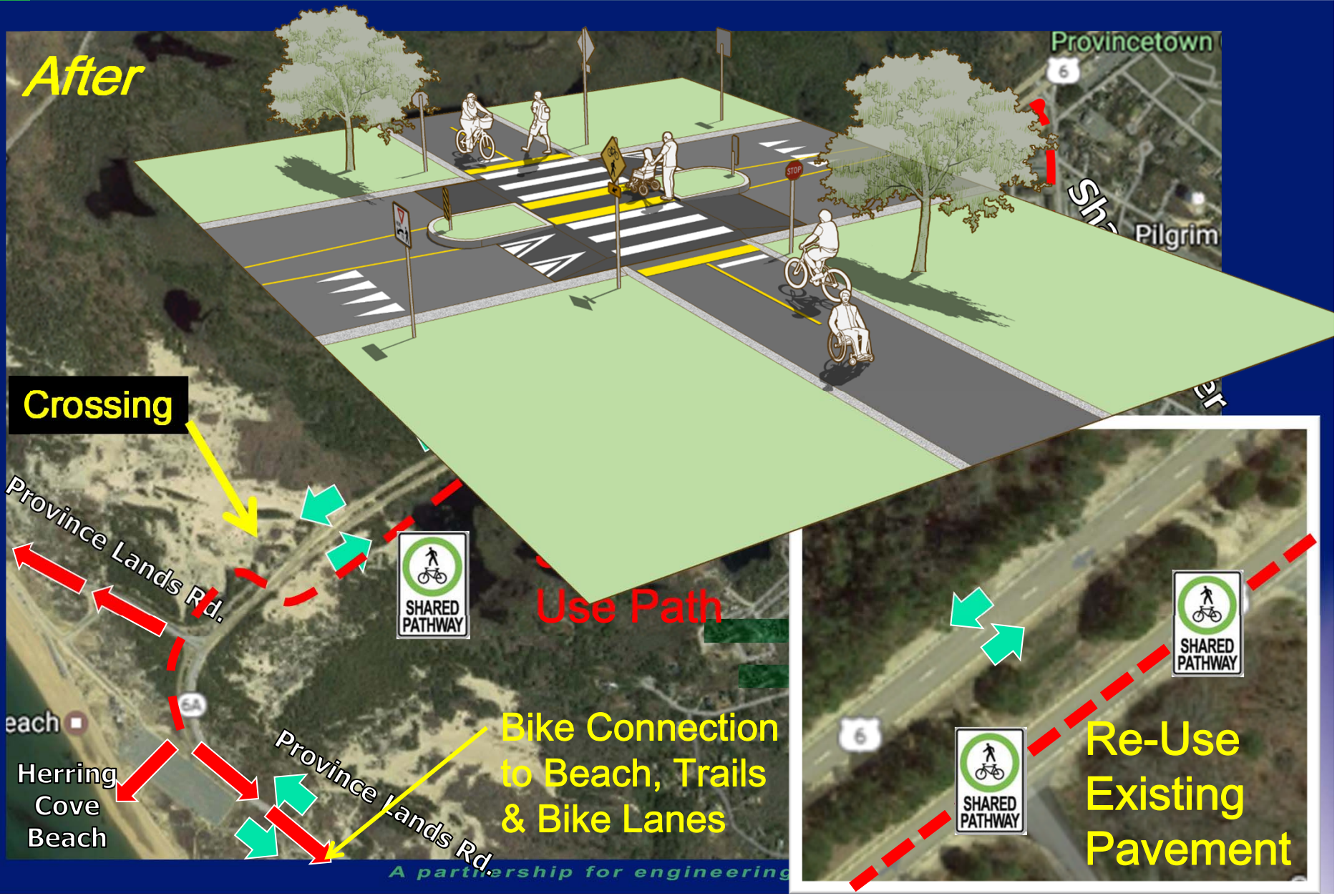
Route 6 Alternative

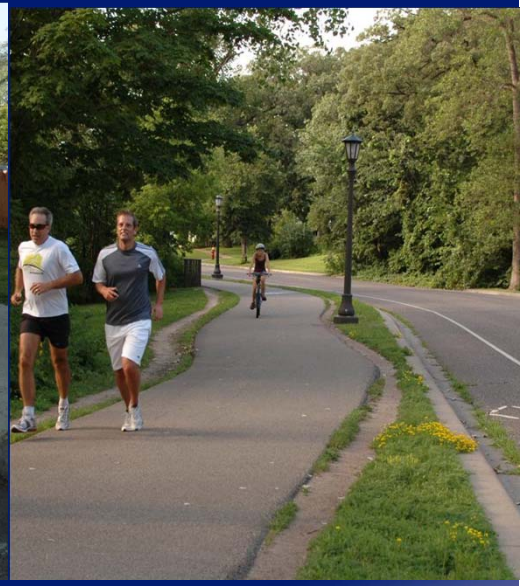


Route 6 Alternative



Comparison of Treatment Options

Bike Lane	Buffered Bike Lane	Separated Bike Lane	Sidepath/ Shared Use Path



Level of comfort:

10%-13%	22%	31%-70%	55%-90%

Statistic Library/Protected Bike Lane Statistics, People for Bikes

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Route 6 / Shank Painter Road Intersection

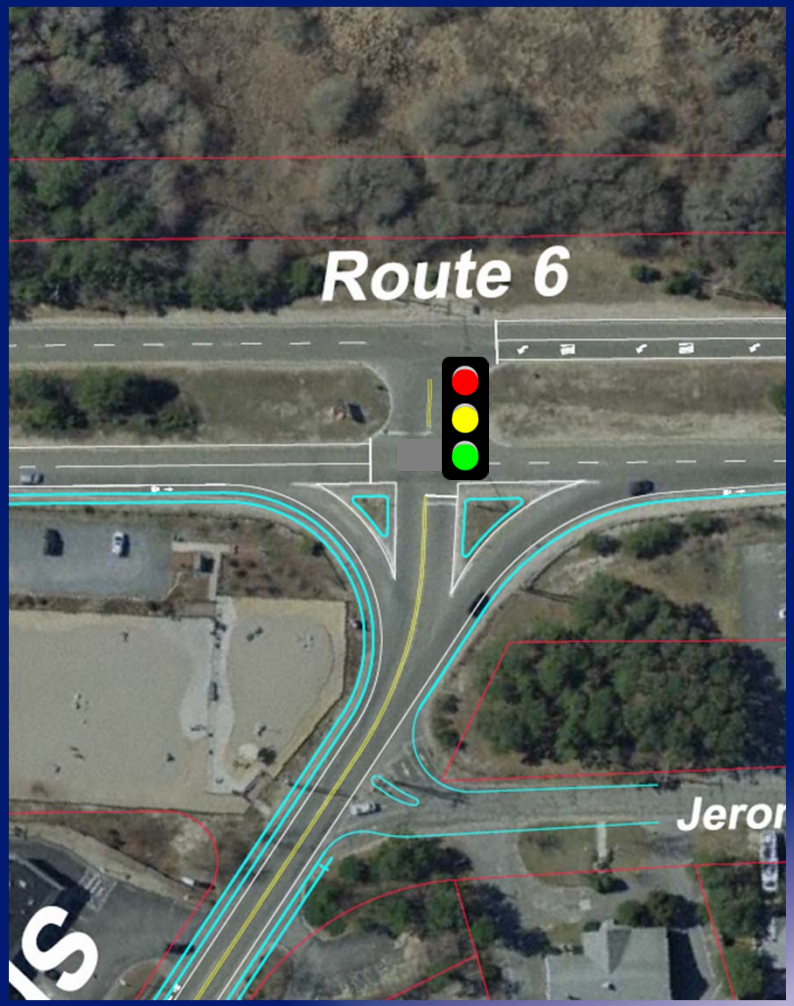
Alternative 1: Traffic Signal

Pros

- Improved operations (phasing to avoid grid lock)

Cons

- Objective of encouraging access via Shank Painter Road not met
- Gateway not provided
- Aesthetically unappealing



Alternative 2: Roundabout

What is a Modern Roundabout?

- A compact *Circular Intersection* where traffic travels counter-clockwise around a center island.
- Entering traffic yields vehicle traveling on roundabout.
- Approaches are channelized to deflect traffic into a proper entry path.
- Design for traffic calming, resulting in **reduced speeds.**
- **Processes traffic efficiently**.
- Provide additional opportunities for landscaping.

Alternative 2: Roundabout

Pros

- Improved operation to avoid grid lock
- Highlight as primary access to town
- Gateway treatments for aesthetic enhancements
- Efficiently processes traffic
- Traffic calming feature

Cons

- Increased construction costs

Alternative 2: Roundabout

Alternative 2: Roundabout

Little Bluestem Grass

Sweet Fern

Switchgrass

Native plants are ideal because they...

- Are resistant to pests
- Require little maintenance
- Save water (no irrigation necessary)
- Provide food and shelter for local animals

Alternative 2: Roundabout

Milkweed

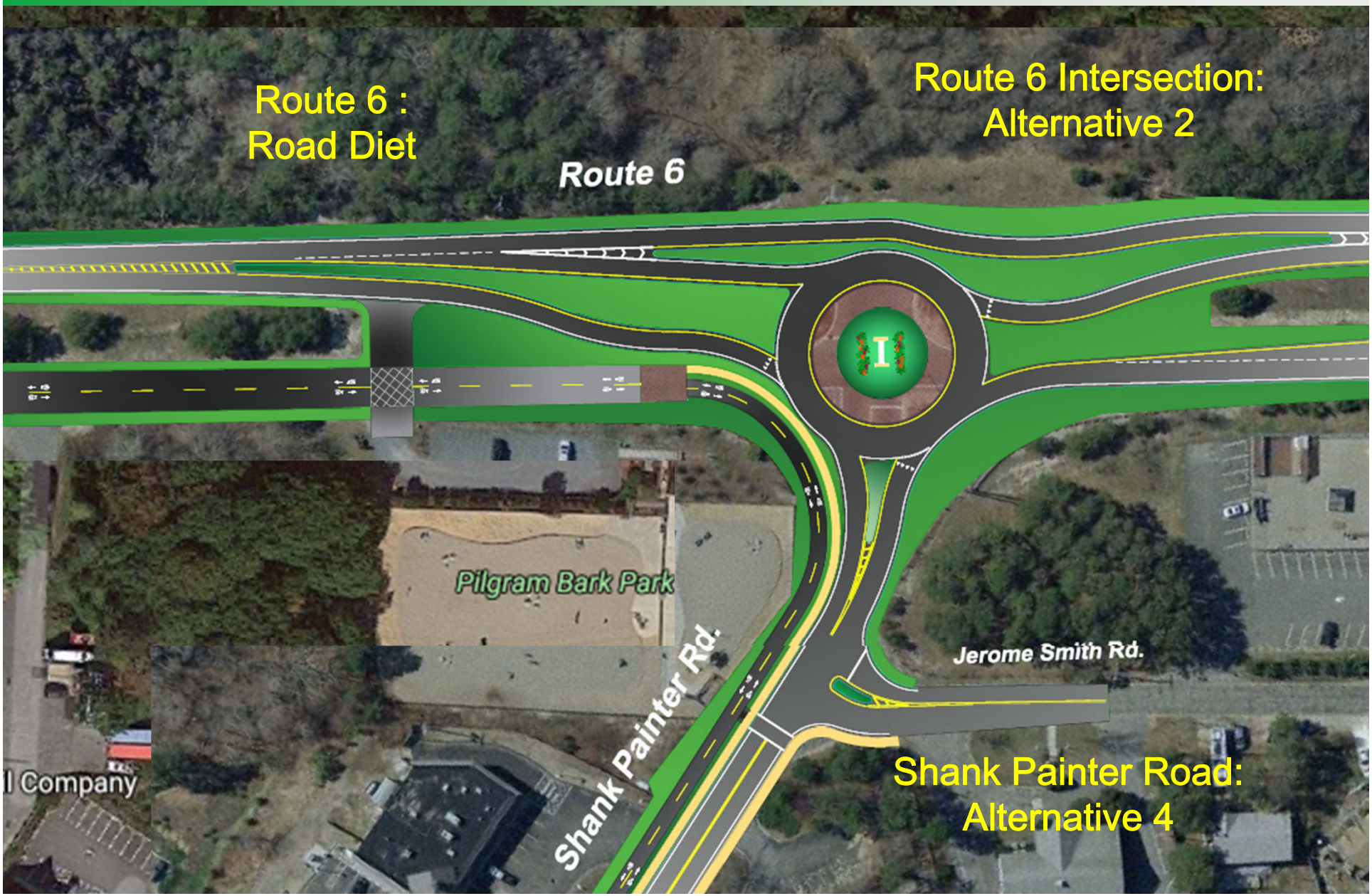
False Indigo

Amsonia

Golden Star

Potential Combination of Alternatives

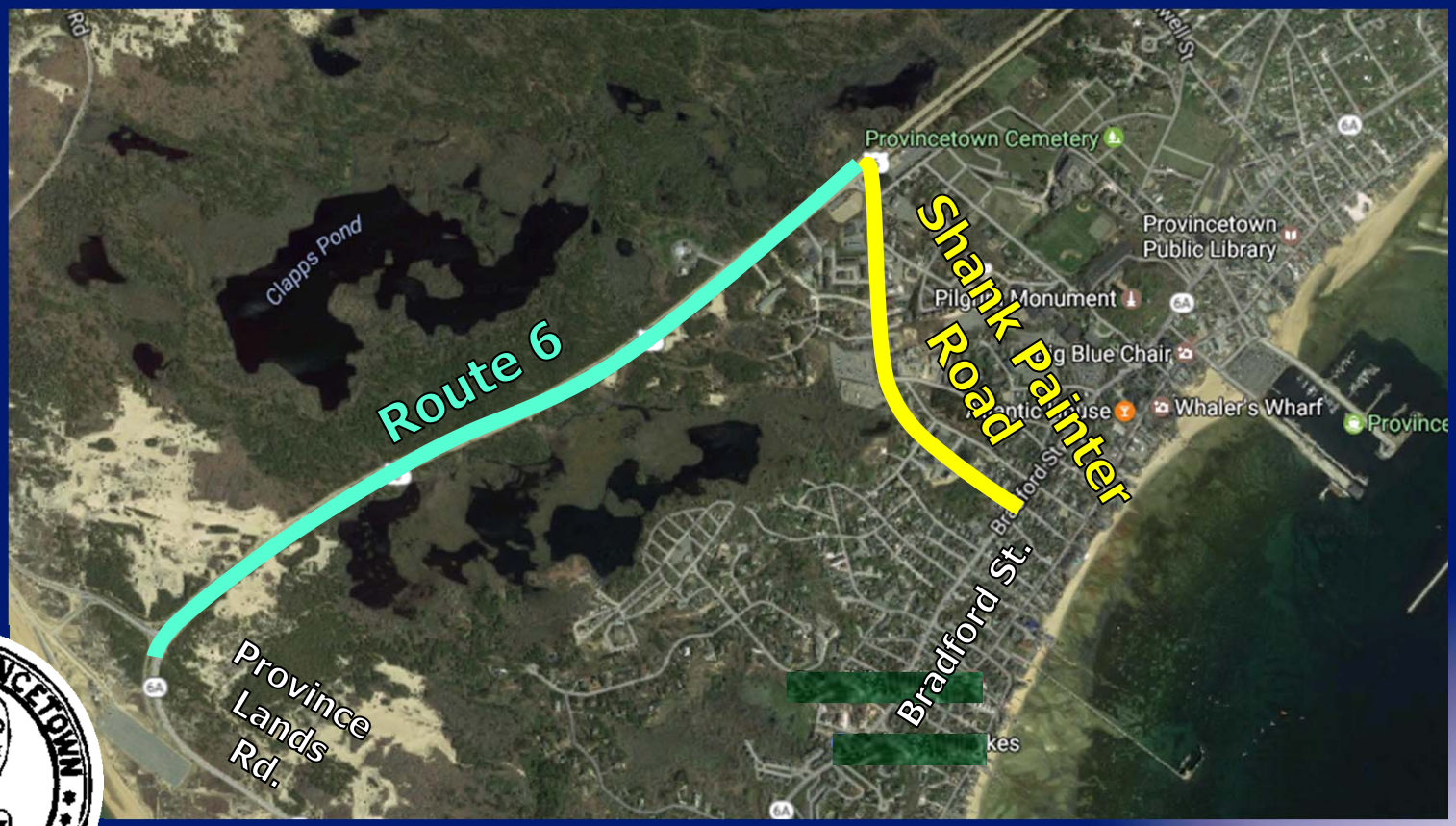
Potential Combination of Alternatives



Thank you!

Public Input:

Questions? Thoughts? Opinions?



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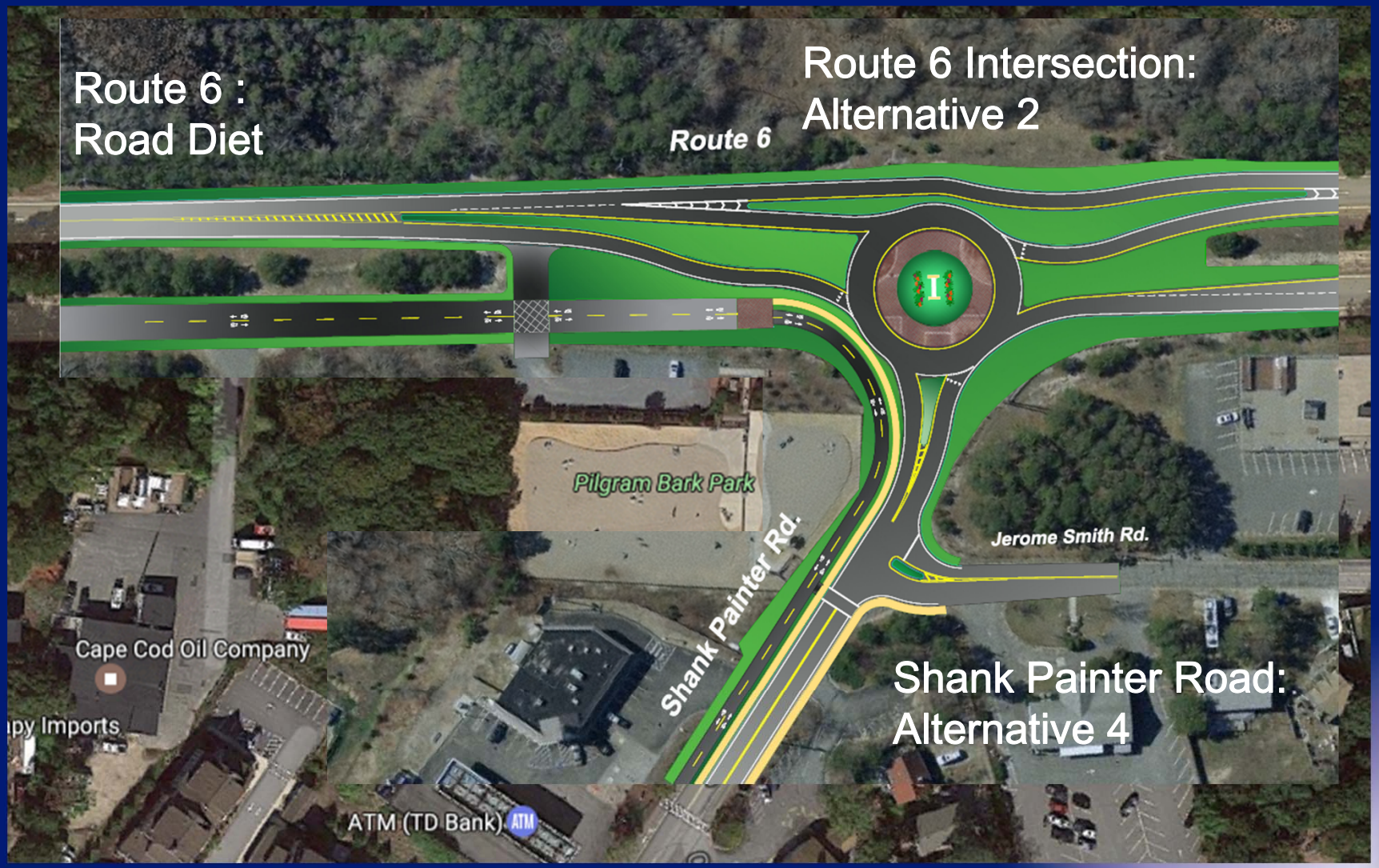
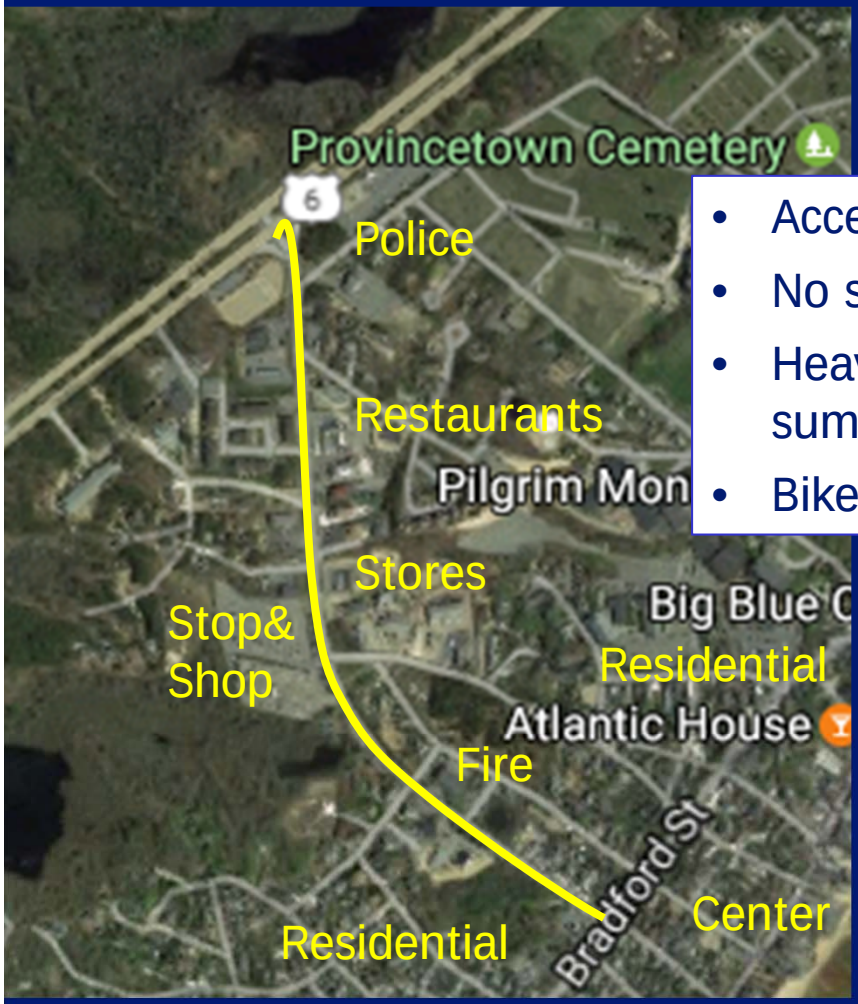
Potential Combination of Alternatives



SHANK PAINTER ROAD

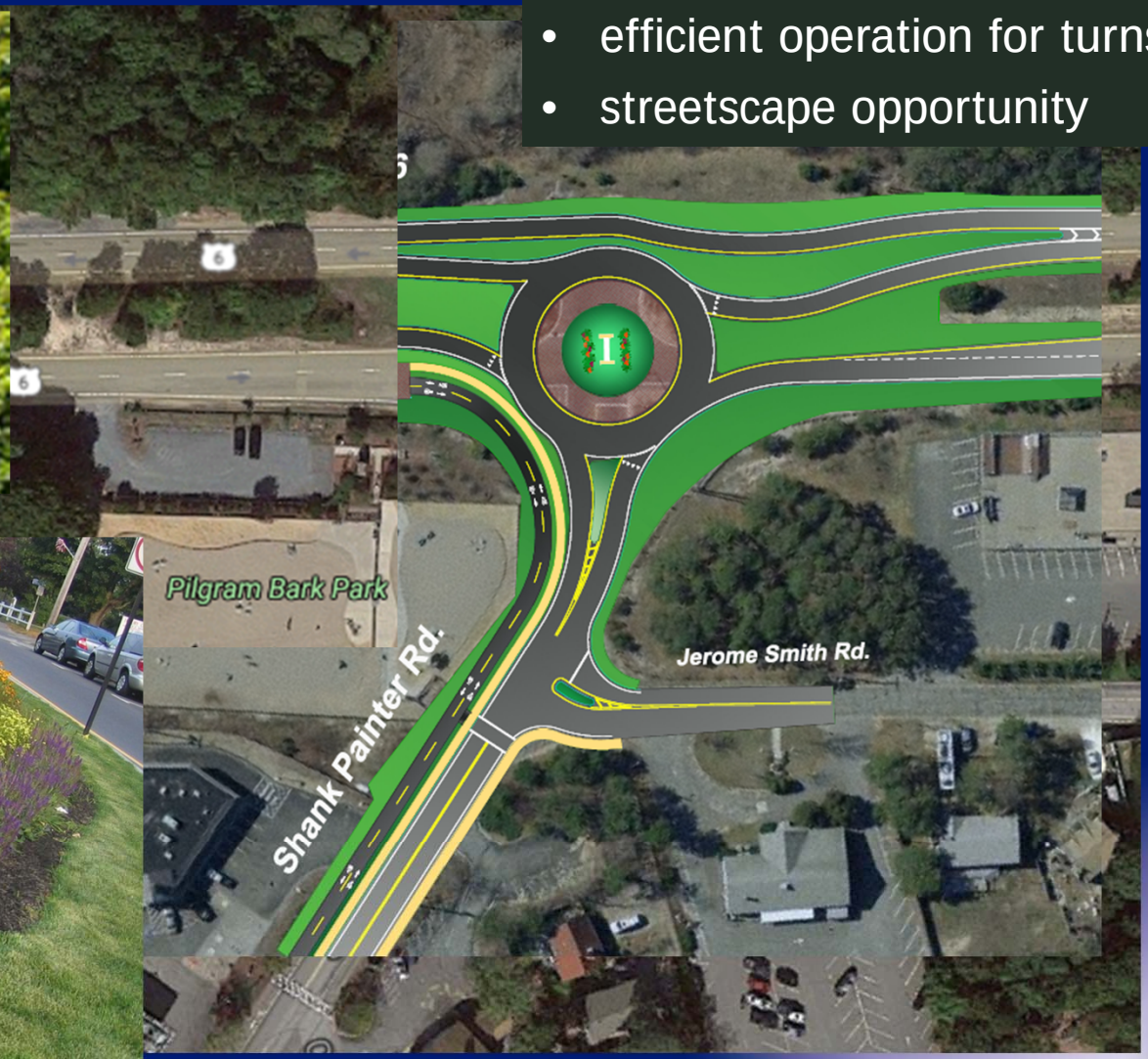


- Access between fast-moving Route 6 and center
- No sidewalks or bicycle accommodations
- Heavy bike & pedestrian volumes during summer to access destinations along road
- Bikes & pedestrians mix with vehicles

Proposed Conditions

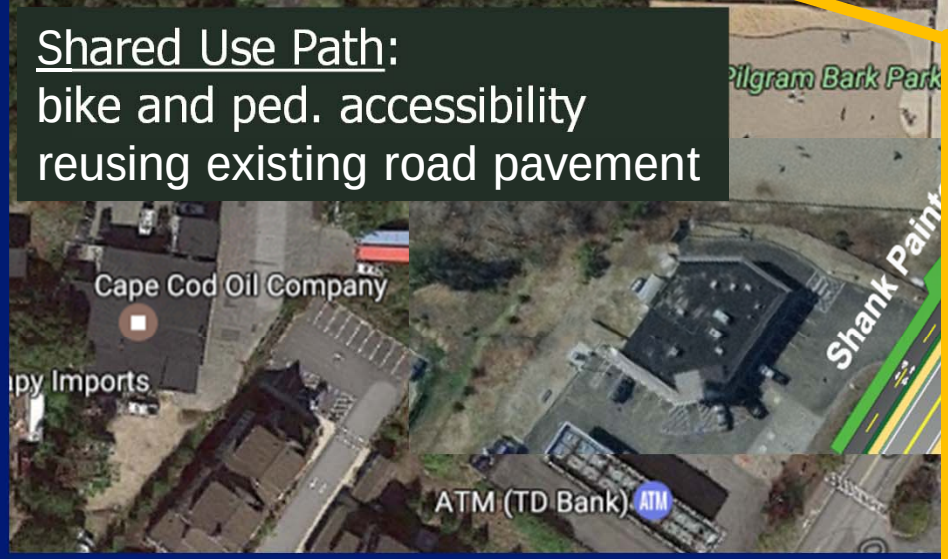
Roundabout:

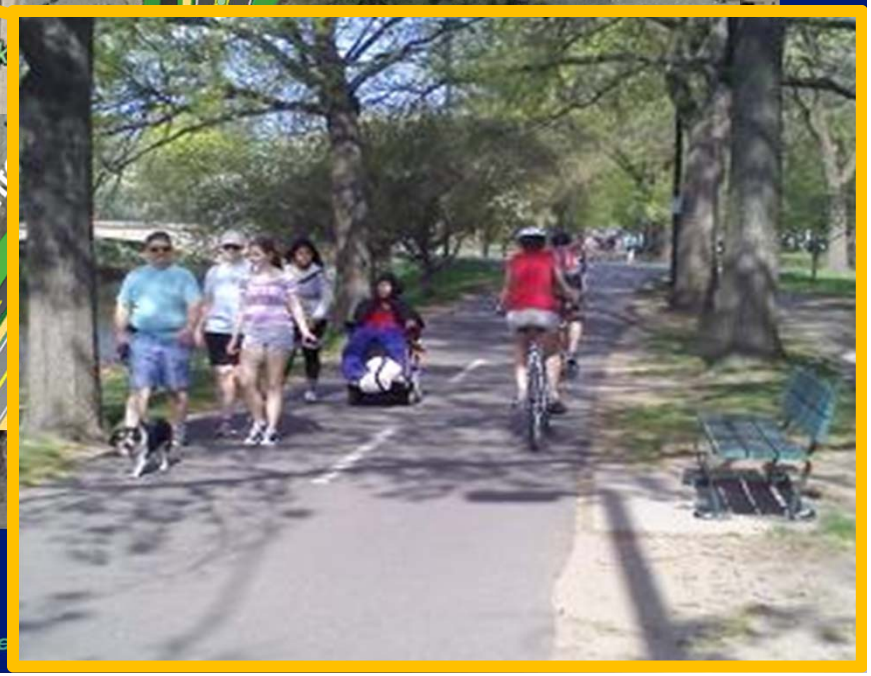
- gateway to highlight primary town access
- efficient operation for turns
- streetscape opportunity



Proposed Conditions

Proposed Conditions: Route 6





Options for Roundabout Center Feature

Prescott Park, Portsmouth, NH

Hingham Shipyard, Hingham, MA

Alternative 1 – Western End of Route 6

Alternative 2 – Western End of Route 6

Alternative 1 – Shank Painter Road at Jerome Smith Road

Alternative 1 – Shank Painter Road at Bradford Street

Proposed Alternatives – Bicycle Accommodations

Design Guidance

Two-Way Cycle Track

Required Features

1. Bicycle lane word, symbol, and/or arrow markings (MUTCD Figure 9C-3) shall be placed at the beginning of a cycle track and at periodic intervals along the facility to define the bike lane direction and designate that portion of the street for preferential use by bicyclists.

2. If configured on a one-way street, a "ONE WAY" sign (MUTCD R6-1, R6-2) with "Except Bikes" plaque shall be posted along the facility and at intersecting streets, alleys, and driveways informing motorists to expect two-way traffic.

3. A "DO NOT ENTER" sign (MUTCD R5-1) with "EXCEPT BIKES" plaque shall be posted along the facility to only permit use by bicycles.

4. Intersection traffic controls along the street (e.g., stop signs and traffic signals) shall also be installed and oriented toward bicyclists traveling in the contra-flow direction.

Recommended Features

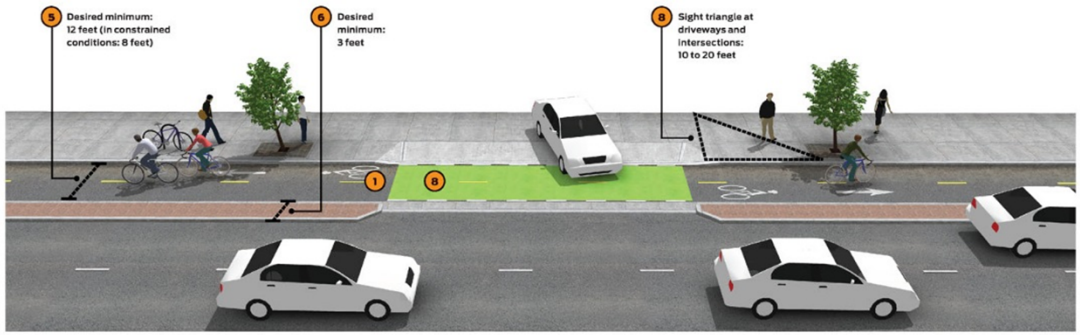
5. The desirable two-way cycle track width is 12 feet. Minimum width in constrained locations is 8 feet.[42]

6. When protected by a parking lane, 3 feet is the desired width for a parking buffer to allow for passenger loading and to prevent dooring collisions.[43]

7. A dashed yellow centerline should be used to separate two-way bicycle traffic and to help distinguish the cycle track from any adjacent pedestrian area.

8. Driveways and minor street crossings are a unique challenge to cycle track design. A review of existing facilities and design practice has shown that the following guidance may improve safety at crossings of driveways and minor intersections:

- If the cycle track is parking protected, parking should be prohibited near the intersection to improve visibility. The desirable no-parking area is 30 feet from each side of the crossing.[44]
- For motor vehicles attempting to cross the cycle track from the side street or driveway, street and sidewalk furnishings and/or other features should accommodate a sight triangle of 20 feet to the cycle track from minor street crossings, and 10 feet from driveway crossing.
- Color, yield lines, and "Yield to Bikes" signage should be used to identify the conflict area and make it clear that the cycle track has priority over entering and exiting traffic.[45]



- Motor vehicle traffic crossing the cycle track should be constrained or channelized to make turns at sharp angles to reduce travel speed prior to the crossing.
- If configured as a raised cycle track, the crossing should be raised, in which the sidewalk and cycle track maintain their elevation through the crossing. Sharp inclines on either side from road to sidewalk level serve as a speed hump for motor vehicles.[46]

9. Two-stage turn queue boxes should be provided to assist in making turns from the cycle track facility.

Optional Features

10. Tubular markers may be used to protect the cycle track from the adjacent travel lane. The color of the tubular markers shall be the same color as the pavement marking they supplement.[47]

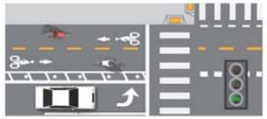
11. Cycle tracks may be shifted more closely to the travel lanes on minor intersection approaches to put bicyclists clearly in the field of view of motorists.[48]

12. A raised median, bus bulb or curb extension may be configured in the cycle track buffer area to accommodate transit stops. Cyclists should yield to pedestrians crossing the roadway at these points to reach the bus stop. A two-way cycle tracks may be configured on the left side of a one-way street to avoid conflicts at transit stops.

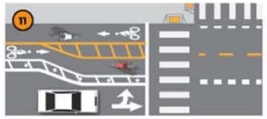
13. May be configured as a raised cycle track.

Intersection Configuration Alternatives

See the Cycle Track Intersection Approach and Bicycle Signals sections for details on design strategies at intersections.



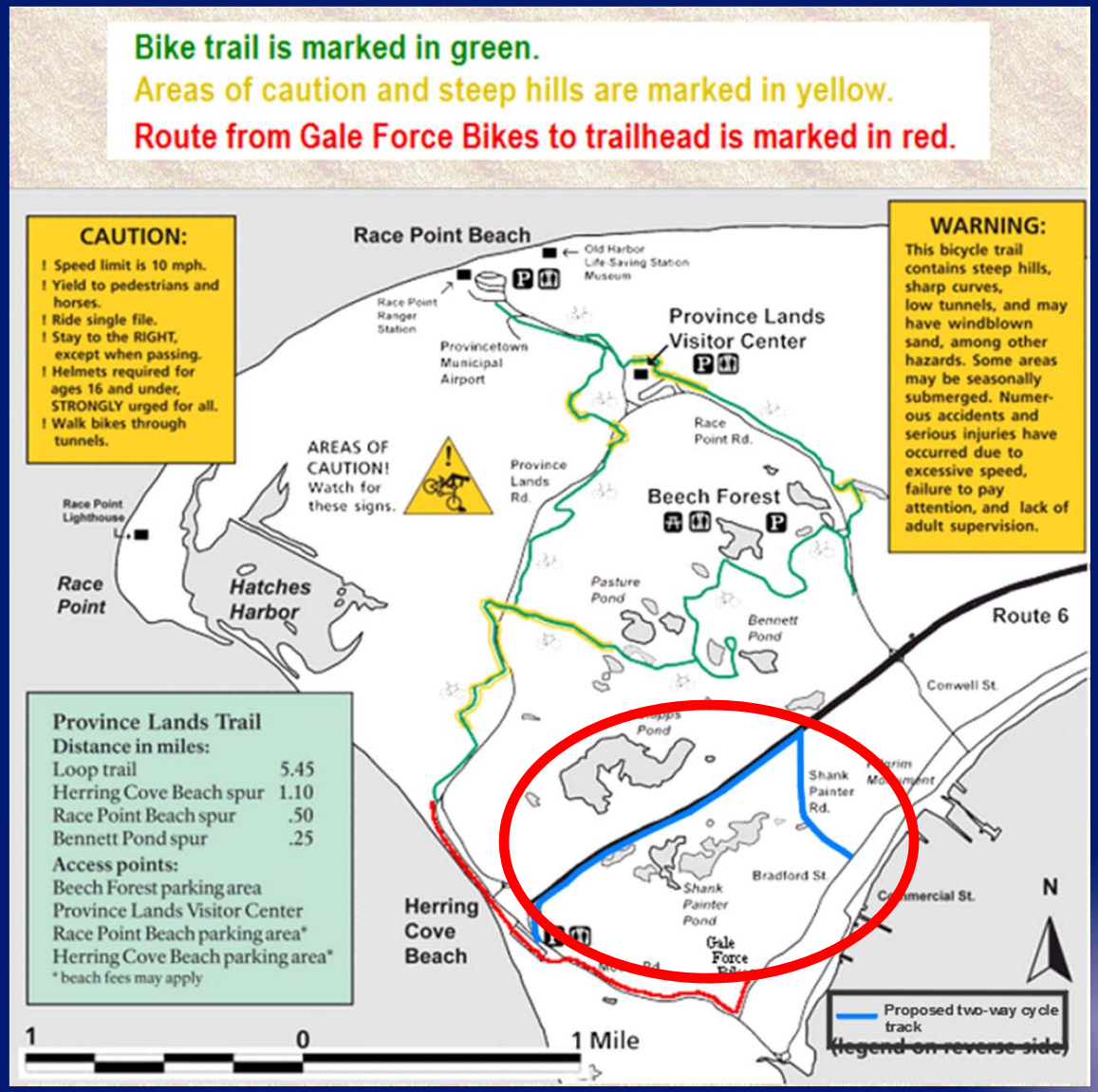
Bicycle Signal Phase
A dedicated bicycle signal phase can eliminate conflict between turning automobiles and bicyclists.



"Bend In" Crossing
Using a curb extension or painted buffer, the cycle track may be bent-in to promote visibility of bicyclists in advance of the intersection.

Project Location

Proposed Alternatives – Bicycle Accommodations



Existing Conditions – Shank Painter Road at Route 6

- **Deficiency 1: Heavy Right from Shank Painter Road**

Existing Conditions – Shank Painter Road at Route 6

- **Deficiency 2: Heavy Left from Route 6 that backs up during summer months**

Alternative 1 – Shank Painter Road at Route 6

Existing Conditions – Shank Painter Road

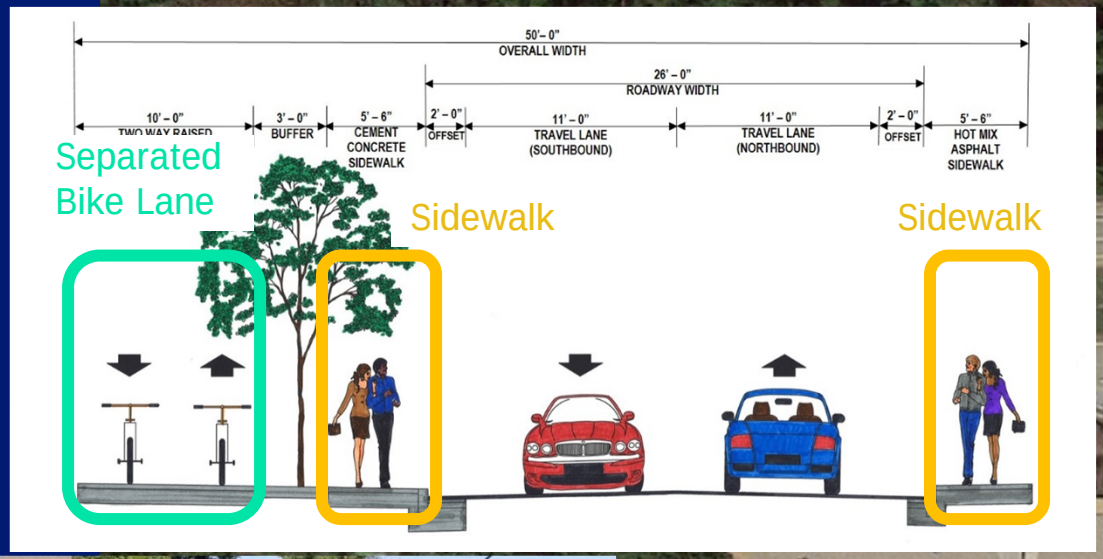
- **Deficiency 1: No Pedestrian Accomodations**

Alternative 2 – Shank Painter Road at Route 6

A partnership for engineering solutions.

Existing Conditions – Bicycle Accommodations

Proposed Conditions: Shank Painter Road

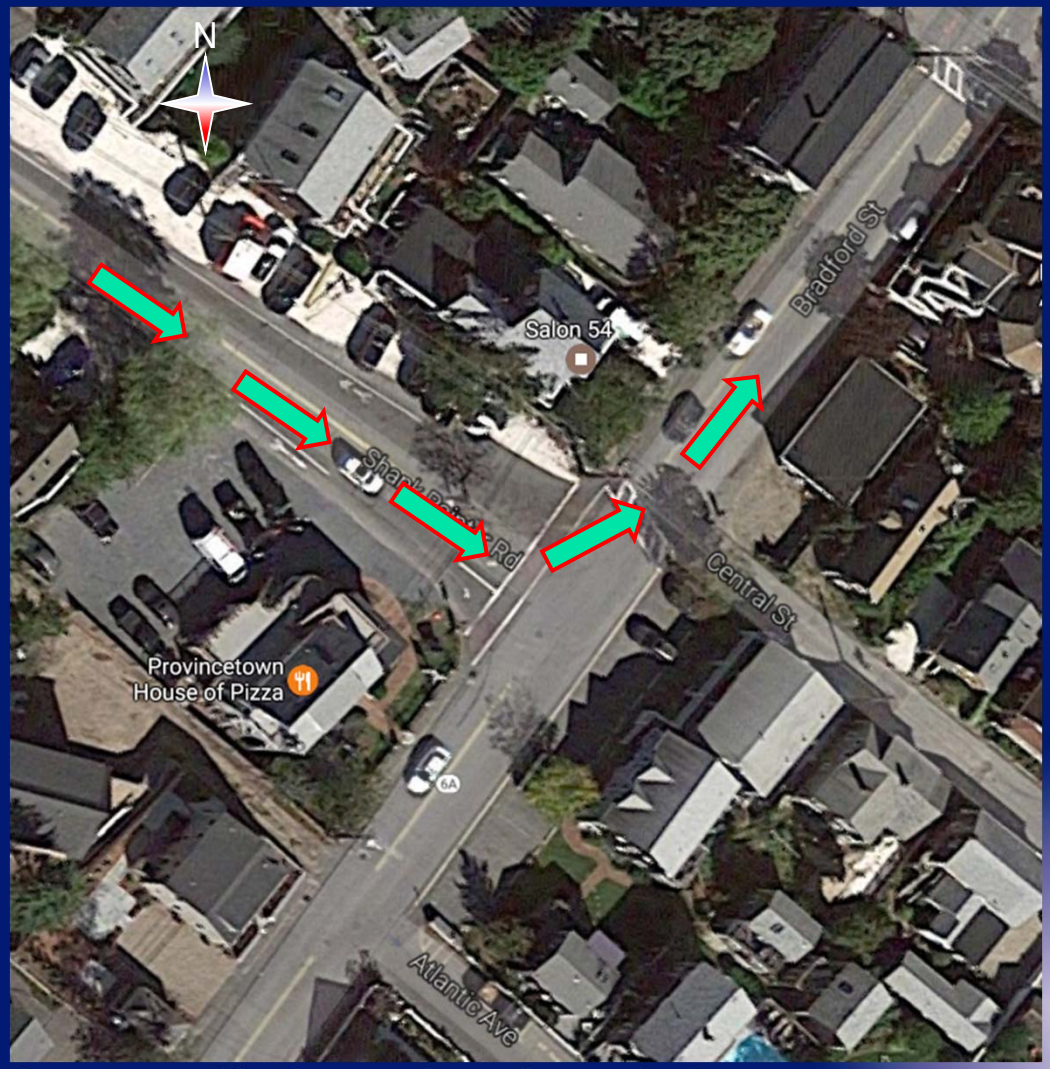


- Sidewalks both sides of Shank Painter Rd.
- Two-way (Raised) Separated Bike Lane

Existing Conditions – Shank Painter Road

- **Deficiency 1: Level of Service 'F' for Left Turns from Shank Painter Road**

The two turning lanes from Shank Painter Road onto Bradford Street are only for a short distance. As a result traffic that has difficulty turning onto Bradford Street will cause back ups along Shank Painter Road.

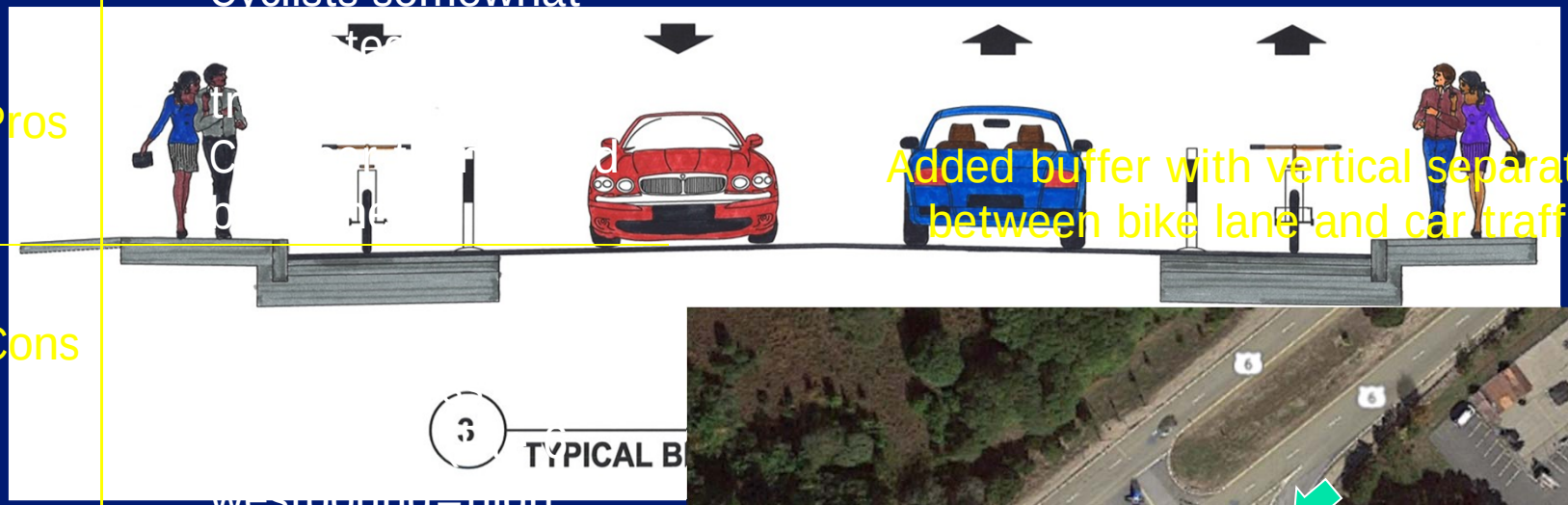


Alternative Cross Sections

Pros

Cons

- Cyclists somewhat

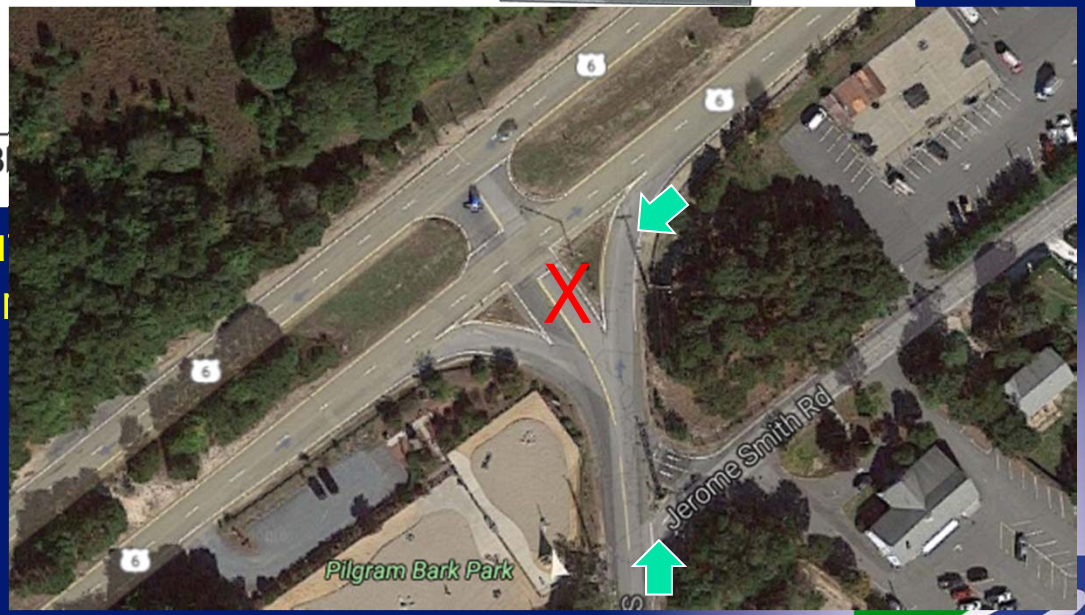


Added buffer with vertical separation between bike lane and car traffic

westbound=high demand)

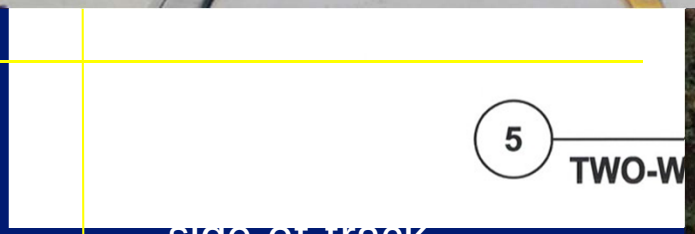
Added bu
between

- Harder to maintain (plowing)



Alternative Cross Sections

Two way raised bike lane added, reversed travel directions



Cons

- side of track
- Northbound bikes need to cross street to turn right (low demand)

Two w
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