

Cape Cod Rail Trail Phase IV

ALTERNATIVES ANALYSIS PRESENTATION

BARNSTABLE, MA

DECEMBER 1ST 2020



HOUSEKEEPING

- PRESENTATION
 - POSTED AT PROJECT WEBPAGE
 - [HTTPS://WWW.TOWNOFBARNSTABLE.US/DEPARTMENTS/PUBLICWORKS/PROJECTS_AND_UPDATES/CAPE-COD-RAIL-TRAIL-PHASE-4.ASP](https://www.townofbarnstable.us/departments/publicworks/projects_and_updates/cape-cod-rail-trail-phase-4.asp)
 - RECORDING OF THIS MEETING WILL BE POSTED
 - PLEASE MUTE YOUR MICROPHONE TO AVOID AUDIO INTERFERENCE
- QUESTIONS/COMMENTS
 - MODERATOR WILL CALL ON EACH ATTENDEE IN ALPHABETICAL ORDER AT END OF PRESENTATION
 - EMAIL QUESTIONS/COMMENTS TO PAUL.GRAVES@TOWN.BARNSTABLE.MA.US BY JANUARY 15, 2021
- INTRODUCTIONS



PROJECT BACKGROUND

- CCRT PHASE III SET TO BEGIN CONSTRUCTION IN 2023
- TERMINATES AT MARY DUNN ROAD
- CCRT PHASE IV TO CONNECT PHASE III TO SANDWICH TOWN LINE



PHOTO SOURCE: WIKIMEDIA COMMONS
https://commons.wikimedia.org/wiki/File:Cape_Cod_Rail_Trail_Sign_at_Nickerson_Park.JPG

PROJECT INFORMATION

- RUNNING THROUGH BARNSTABLE FROM MARY DUNN ROAD TO SANDWICH TOWN LINE
- 10-12 FOOT-WIDE SHARED-USE PATH WITH EITHER 20 OR 25-FOOT-WIDE FOOTPRINT
- MULTIPLE ROUTES CONSIDERED, BROKEN UP INTO SEGMENTS



PHOTO SOURCE: AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES 2012 FOURTH EDITION

TYPES OF MULTI USE/BIKE FACILITIES



Shared Lane Bikeway



Paved Shoulder



Bike Lane



Shared Use Path



Rail with Trail



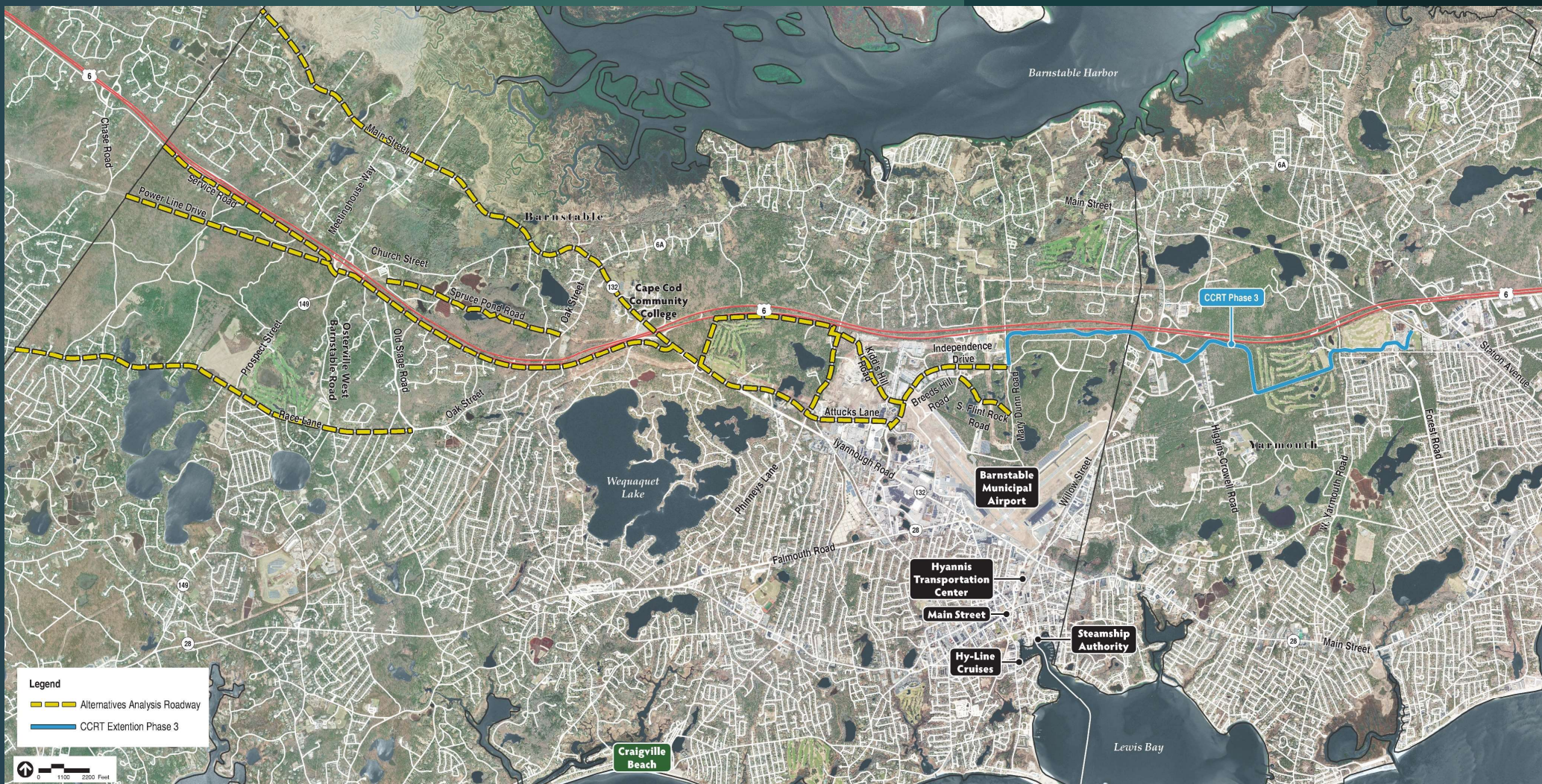
TYPES OF MULTI USE/BIKE FACILITIES



Shared Use Path



CAPE COD LOCATION MAP



STUDY AREA ROADWAYS

- INDEPENDENCE DRIVE
- SOUTH FLINT ROCK ROAD*
- KIDD'S HILL ROAD
- THROUGH HYANNIS GOLF COURSE
- PHINNEY'S LANE
- ATTUCKS LANE
- IYANNOUGH ROAD (ROUTE 132)
- ROUTE 6A*
- RACE LANE*
- SPRUCE POND ROAD*
- US-6 SERVICE ROAD EAST
- SHOOTFLYING HILL ROAD
- MEETINGHOUSE WAY (ROUTE 149)*

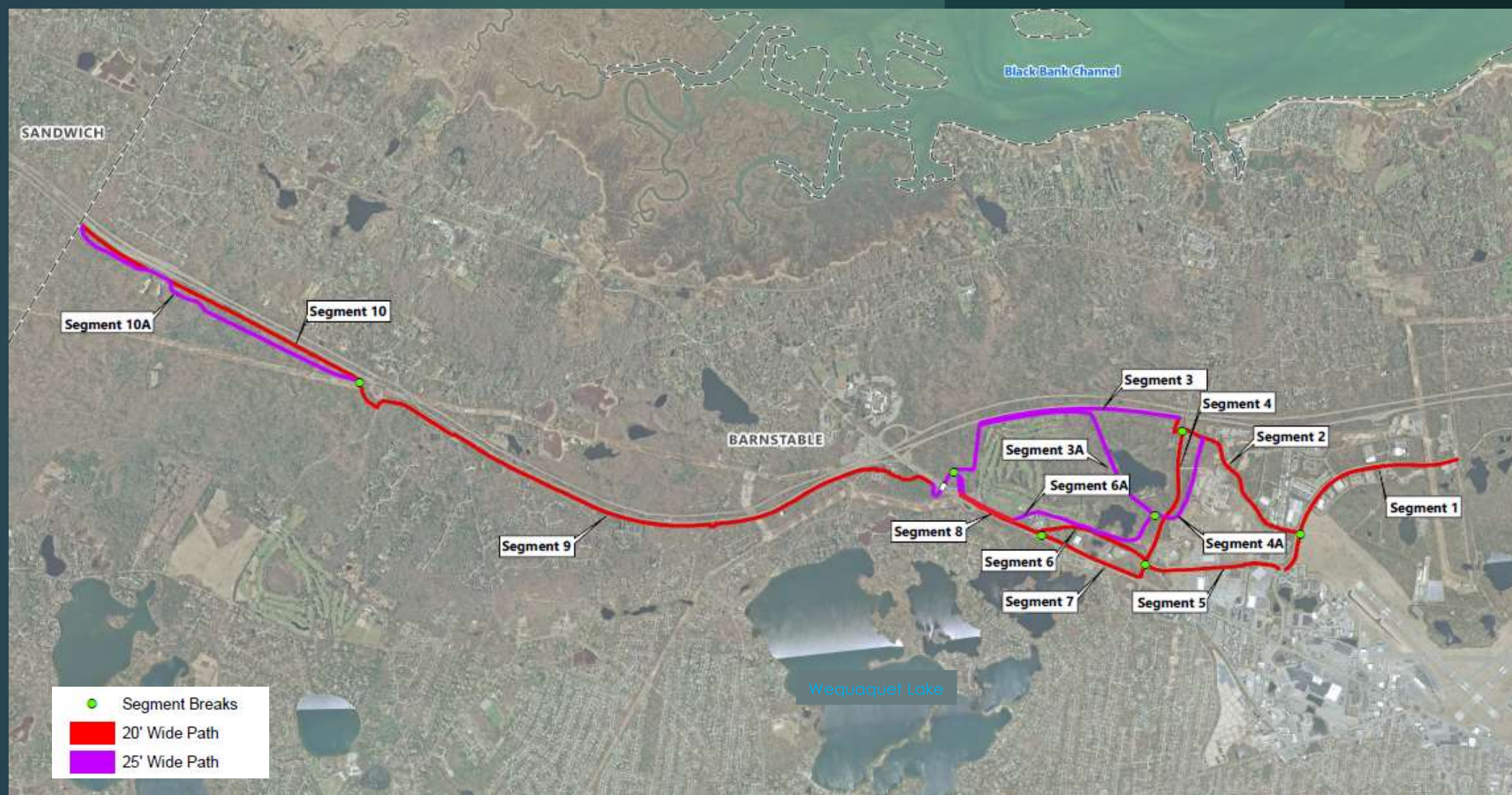
* ROADWAY ELIMINATED
FROM CONSIDERATION
DURING STUDY

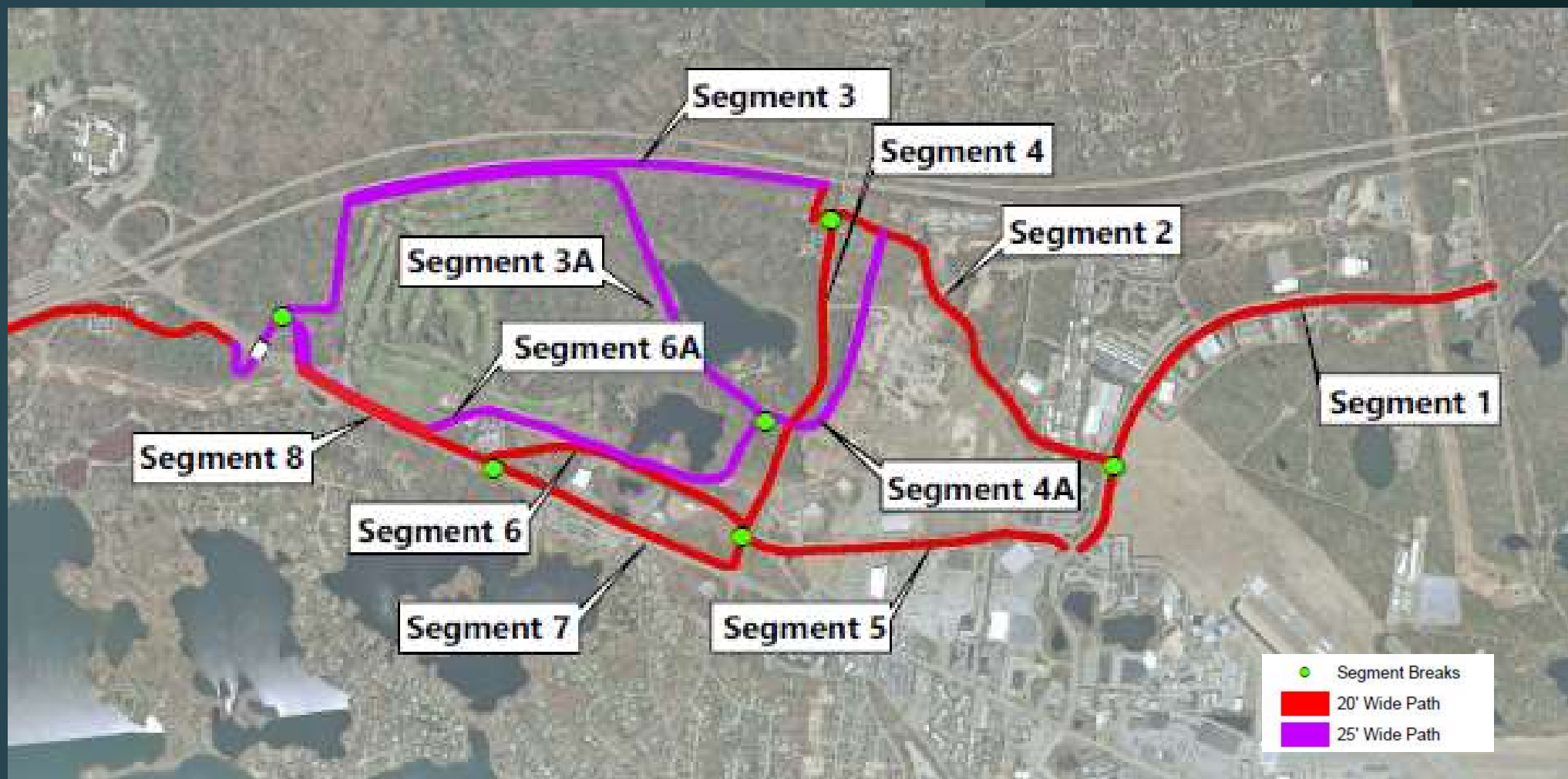


SEGMENTS

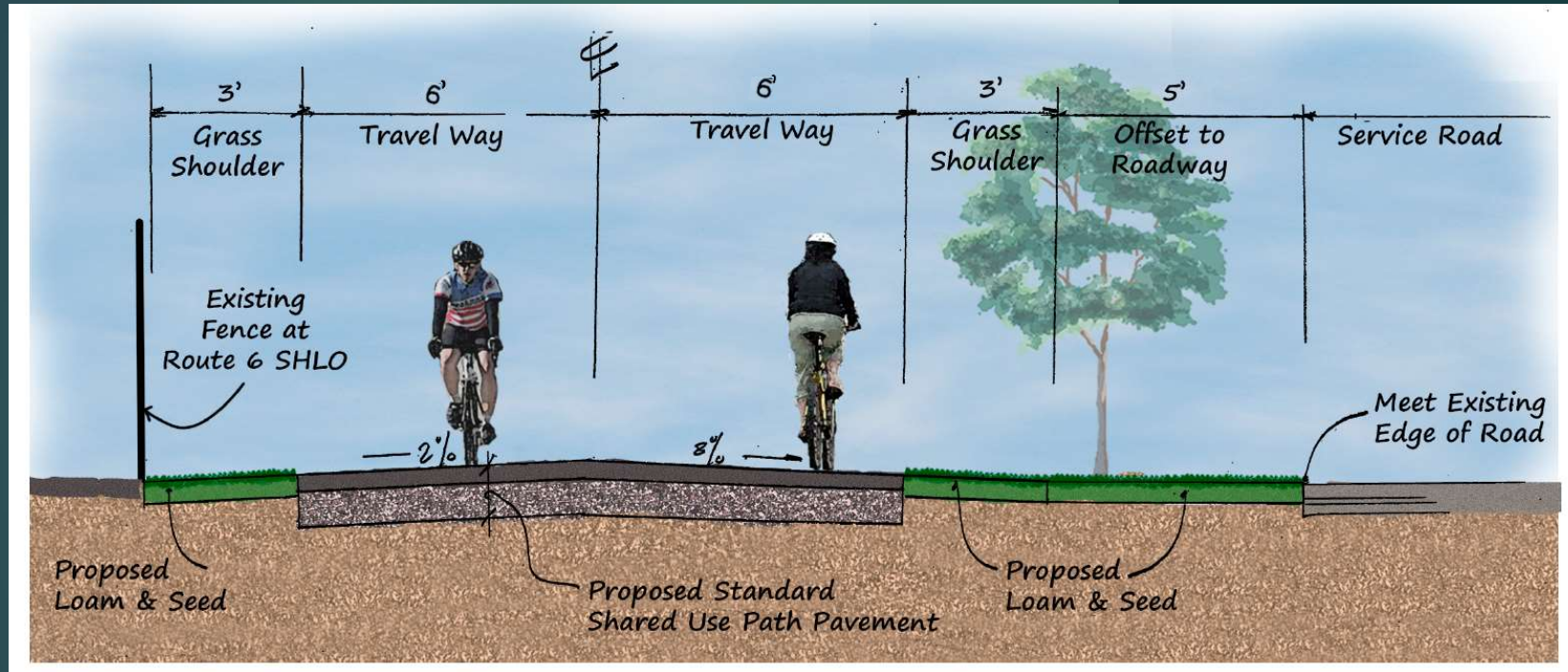
- SEGMENT 1: INDEPENDENCE DRIVE
- SEGMENT 2: KIDD'S HILL ROAD
- SEGMENT 3: HYANNIS GOLF COURSE, NORTH OF HATHAWAYS POND (NORTH)
- SEGMENT 3A: HYANNIS GOLF COURSE, SOUTH OF HATHAWAYS POND (NORTH)
- SEGMENT 4: PHINNEY'S LANE
- SEGMENT 4A: PHINNEY'S LANE ALTERNATE
- SEGMENT 5: ATTUCKS LANE EAST
- SEGMENT 6: ATTUCKS LANE WEST
- SEGMENT 6A: ATTUCKS LANE WEST ALTERNATE
- SEGMENT 7: IYANNOUGH ROAD EAST
- SEGMENT 8: IYANNOUGH ROAD WEST
- SEGMENT 9: SERVICE ROAD EAST/SHOOTFLYING HILL ROAD
- SEGMENT 10: SERVICE ROAD WEST
- SEGMENT 10A: SERVICE ROAD WEST OFF-ROAD OPTION







EXAMPLE CROSS-SECTION



- PARALLEL TO ROAD OR OFF-ROAD
- 10-12' SHARED USE PATH WITHIN A 20' OR 25' FOOTPRINT

ANALYSIS CRITERIA AND METHODOLOGY

- EACH SEGMENT EVALUATED BASED ON NUMBER OF FACTORS INCLUDING:
 - COST
 - ENVIRONMENTAL CONCERNS/IMPACTS
 - ROW IMPACTS
 - LAND USE AND LOCAL IMPACTS
 - USER EXPERIENCE AND SAFETY
- EACH SECTION GIVEN A SCORE FROM 1-5 (LOW-HIGH) FOR EACH FACTOR
- SCORES WEIGHTED AND AVERAGED IN MATRIX TO RANK EACH ALTERNATIVE



PHOTO SOURCE: VHB FIELD VISIT ON 1/23/2019

Segment Number	Segment / Street	From	To	ROW Impact		Environmental Resource Area Impact										Impact to Route 6 Highways	Land Use Impacts	User Experience	Utility Pole Impacts	Roadway Crossings	Retaining Wall Needs	Total Average Weighted Score (Out of 5)	Ranking
				Private Property	Public Property	NHESP	ACEC	Wetlands	FEMA Floodplain	Water Supply Protection Areas	ORW	Historic	Open Space [Article 97, Section	OHM (Hazardous Materials)	Hunting Areas								
WEIGHTING (1-100)				100	50	20	20	20	20	20	20	20	20	20	20	60	30	50	50	50	50		
1.	Independence Drive	Mary Dunn Road	Kidd's Hill Road	1	4	5	5	5	5	3	5	5	5	3	4	5	3	3	4	4	3	3.58	12
2.	Kidd's Hill Road	Independence Drive	Phinney's Lane	1	4	5	5	5	5	3	5	5	5	5	5	5	4	4	2	3	4	3.64	10
3.	Between Route 6 and Hyannis Golf Course	Phinney's Lane	Iyannough Road	4	4	5	5	5	5	3	5	5	3	5	4	4	4	5	5	5	2	4.23	3
3A.	Between Route 6 and Hyannis Golf Course Alt.	Phinney's Lane Alt.	Iyannough Road	5	1	5	5	5	5	3	5	5	1	5	1	4	4	5	5	5	3	4.08	4
4.	Phinney's Lane	Attucks Lane (East)	Kidd's Hill Road	3	4	5	5	5	5	3	5	4	4	5	3	5	4	4	3	4	4	3.98	8
4A.	Phinney's Lane Alt.	Kidd's Hill Road	Attucks Lane (West) Alt.	5	3	5	5	5	5	3	5	4	3	5	4	5	3	4	4	4	5	4.33	2
5.	Attucks Lane (East)	Independence Drive@Kidd's Hill Road	Phinney's Lane	2	4	5	5	5	5	3	5	5	5	3	5	5	2	2	4	2	3	3.48	13
6.	Attucks Lane (West)	Phinney's Lane	Iyannough Road	4	4	4	5	5	5	3	5	5	4	3	3	5	2	3	3	4	4	3.91	9
6A.	Attucks Lane (West) Alt.	Phinney's Lane Alt.	Iyannough Road	1	1	4	5	3	5	3	5	5	1	3	2	5	4	4	3	5	4	3.27	14
7.	Iyannough Road (Route 132) (East)	Phinney's Lane@Attucks Lane	Attucks Lane	5	4	5	5	5	5	3	5	5	5	5	5	5	2	2	2	3	4	4.02	7
8.	Iyannough Road (Route 132) (West)	Attucks Lane (West)	Bridge Over Iyannough	5	4	5	5	5	5	3	5	5	4	5	5	5	4	3	2	3	3	4.08	4
9.	Service Road East/ Shootflying Hill Road	Bridge over Iyannough	Power Station west of Meetinghouse Way	2	4	4	5	5	5	4	5	3	4	5	4	5	4	4	3	4	1	3.59	11
10.	Service Road West	Power Station west of Meetinghouse Way	Sandwich Town Line	5	5	2	5	5	5	5	5	3	5	5	3	5	5	4	4	4	4	4.47	1
10A.	Service Road West - Off-Road Option	Power Station west of Meetinghouse Way	Sandwich Town Line	5	1	1	5	5	5	5	5	3	1	5	2	5	5	5	4	5	3	4.05	6

MATRIX AND COST SUMMARY

Number	Roadway Name	Score	Preliminary Cost
1	Independence Drive	3.58	\$1,420,000.00
2	Kidd's Hill Road	3.64	\$910,000.00
3	Between Route 6 and Golf Course	4.23	\$2,630,000.00
3A	Between Route 6 and Golf Course Alt	4.08	\$2,630,000.00
4	Phinney's Lane	3.98	\$780,000.00
4A	Phinney's Lane Alt	4.33	\$660,000.00
5	Attucks Lane East	3.48	\$1,220,000.00
6	Attucks Lane West	3.91	\$910,000.00
6A	Attucks Lane West Alt	3.27	\$1,690,000.00
7	Iyannough Road East	4.02	\$910,000.00
8	Iyannough Road West	4.08	\$1,220,000.00
9	US-6 Service Road East/Shootflying Hill Road	3.59	\$11,030,000.00
	<i>Bridge Over Iyannough Rd (Only)</i>	-	<i>\$7,000,000.00</i>
10	US-6 Service Road West	4.47	\$1,500,000.00
10A	US-6 Service Road West Off-Road	4.05	\$2,470,000.00

ROUTE ALTERNATIVES TOTAL COST/SCORE

Number	Path	Avg. Score	Preliminary Cost	Score Rank	Cost Rank
1	1-2-3-9-10	3.90	\$17,490,000.00	3	4
2	1-2-3-9-10A	3.82	\$18,460,000.00	12	11
3	1-2-4-6-8-9-10	3.89	\$17,770,000.00	4	5
4	1-2-4-6-8-9-10A	3.83	\$18,740,000.00	10	13
5	1-2-4-7-8-9-10	3.91	\$17,770,000.00	2	5
6	1-2-4-7-8-9-10A	3.85	\$18,740,000.00	9	13
7	1-2-4A-3A-9-10	3.95	\$18,150,000.00	1	7
8	1-2-4A-3A-9-10A	3.88	\$19,120,000.00	6	15
9	1-2-4A-6A-9-10	3.81	\$17,210,000.00	13	1
10	1-2-4A-6A-9-10A	3.74	\$18,180,000.00	16	8
11	1-5-6-8-9-10	3.85	\$17,300,000.00	8	2
12	1-5-6-8-9-10A	3.78	\$18,270,000.00	15	9
13	1-5-7-8-9-10	3.87	\$17,300,000.00	7	2
14	1-5-7-8-9-10A	3.80	\$18,270,000.00	14	9
15	1-5-4-3-9-10	3.89	\$18,580,000.00	5	12
16	1-5-4-3-9-10A	3.82	\$19,550,000.00	11	16

ROUTE ALTERNATIVES TOTAL COST/SCORE

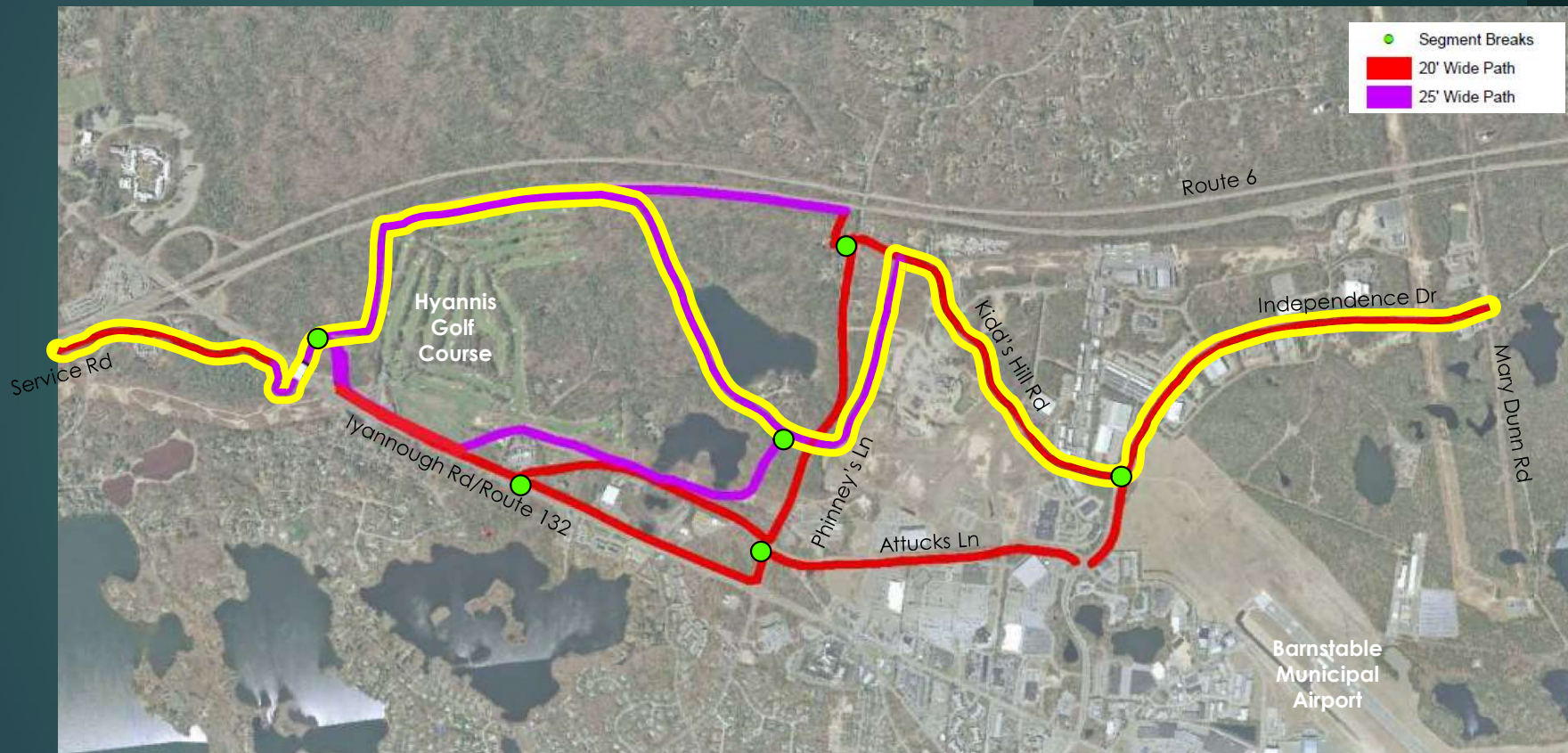
EASTERN SECTION (WITHOUT SEGMENTS 9, 10 AND/OR 10A)

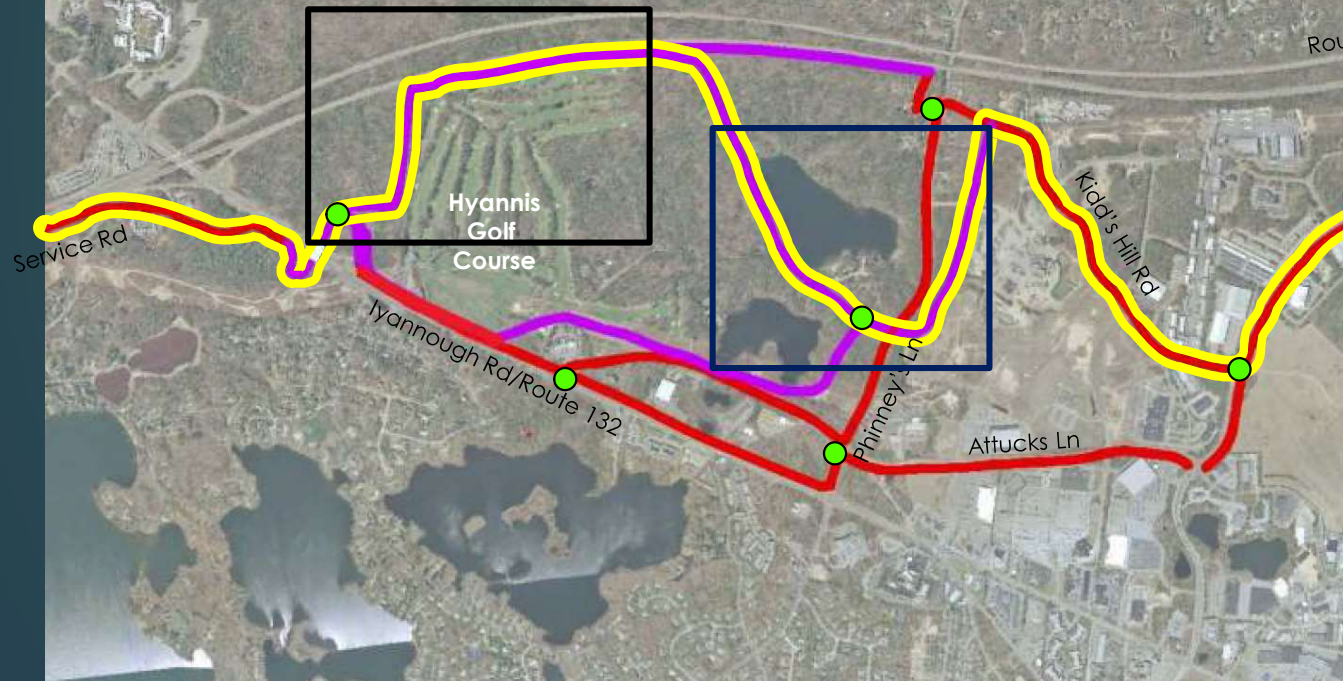
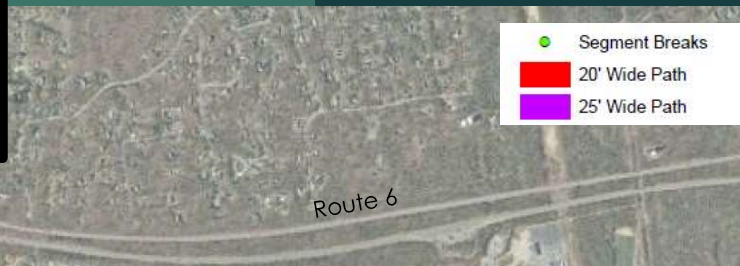
Number	Path	Avg. Score	Preliminary Cost	Score Rank	Cost Rank
1	1-2-3	3.82	\$4,960,000.00	5	4
2	1-2-4-6-8	3.84	\$5,240,000.00	3	5
3	1-2-4-7-8	3.86	\$5,240,000.00	2	5
4	1-2-4A-3A	3.91	\$5,620,000.00	1	7
5	1-2-4A-6A	3.70	\$4,680,000.00	8	1
6	1-5-6-8	3.76	\$4,770,000.00	7	2
7	1-5-7-8	3.79	\$4,770,000.00	6	2
8	1-5-4-3	3.82	\$6,050,000.00	4	8

- ROUTE NUMBERS 4, 3 AND 2 IDENTIFIED AS HAVING HIGHEST AVERAGE SCORES
- ROUTE NUMBERS 5, 6 AND 7 IDENTIFIED AS HAVING LOWEST AVERAGE SCORES

HIGHEST SCORE - ROUTE OPTION #4

NORTH OF GOLF COURSE, PHINNEY'S LANE ALTERNATIVE, KIDD'S HILL ROAD, INDEPENDENCE DRIVE





SECOND HIGHEST SCORE - ROUTE OPTION #3

IYANNOUGH ROAD, PHINNEY'S LANE, KIDD'S HILL ROAD, INDEPENDENCE DRIVE

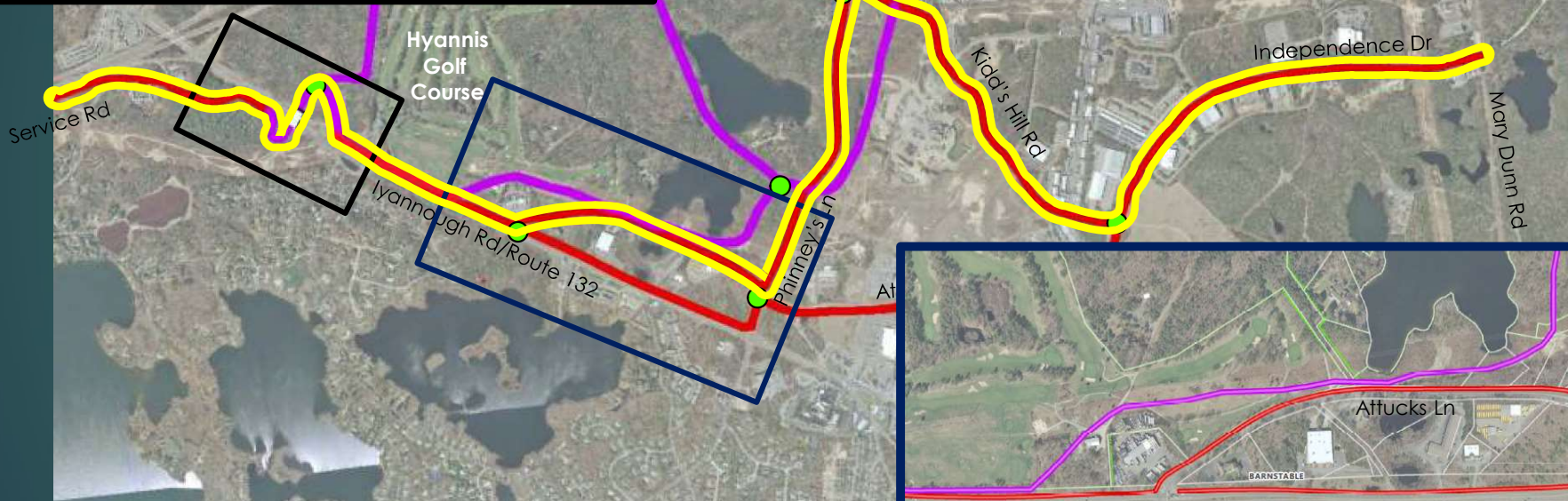




THIRD HIGHEST SCORE - ROUTE OPTION #2

IYANNOUGH ROAD, ATTUCKS LANE, PHINNEY'S LANE, KIDD'S HILL ROAD, INDEPENDENCE DRIVE





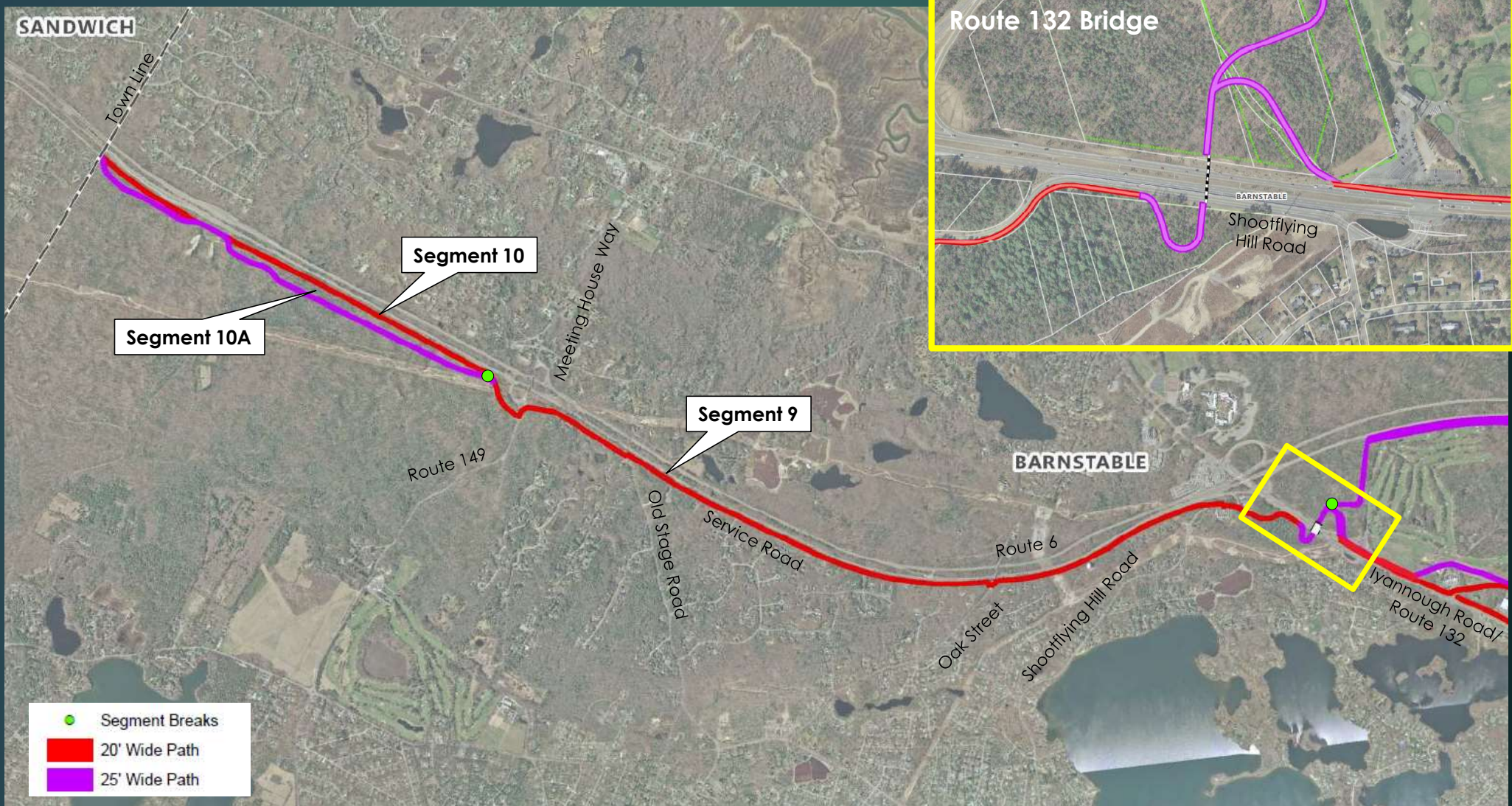
ROUTE ALTERNATIVES

WESTERN SECTION

- BRIDGE OVER ROUTE 132 & SHOOTFLYING HILL ROAD
- EARLY ROUTE ELIMINATION RESULTED IN LESS CHOICES FOR WESTERN SECTION
- SEGMENT 10 COSTS LESS AND HAS HIGHER RATING THAN SEGMENT 10A

BRIDGE OVER STATION AVENUE - YARMOUTH





ACCESS TO LOCAL DESTINATIONS

- TOWN REQUESTED ANALYSIS OF POTENTIAL ACCESS TO FOLLOWING DESTINATIONS FROM CCRT:
 - HYANNIS TRANSPORTATION CENTER
 - BARNSTABLE MUNICIPAL AIRPORT
 - CAPE COD COMMUNITY COLLEGE/YMCA
 - SANDY NECK BEACH
 - CRAIGVILLE BEACH
 - MAIN STREET IN HYANNIS
 - STEAMSHIP AUTHORITY/HY-LINE TERMINAL
- WILL BE CONSIDERED IN MAIN PHASE IV ROUTE DECISION
- ANY CONNECTIONS WILL BE CONSTRUCTED SEPARATELY FROM PHASE IV



PHOTO SOURCE: VHB FIELD VISIT ON 12/20/2018

NEXT STEPS

- ROUTE FOR PHASE IV CHOSEN BY TOWN BASED ON INFORMATION FROM ANALYSIS AND PUBLIC INPUT
- SUBMIT PROJECT NEED FORM FOR MASSDOT REVIEW
- DETERMINE LIMITS FOR PART 1 OF PHASE 4 AND PREPARE FOR DESIGN STAGE



Questions

ALTERNATIVES ANALYSIS PRESENTATION

BARNSTABLE, MA

DECEMBER 1ST, 2020



Contacts for Project

Comments & questions for this stage of project due
January 15, 2021



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