COMMUNITY
connectivity program

Town of Greenwich

U. S. Route 1 Road Safety Audit

West Putnam Avenue and East Putnam Avenue

May 15, 2018

CONNECTICUT DEPARTMENT OF TRANSPORTATION

AECOM

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Acknowledgements:

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CONNECTICUT DEPARTMENT OF TRANSPORTATION

With assistance from AECOM Transportation Planning Group

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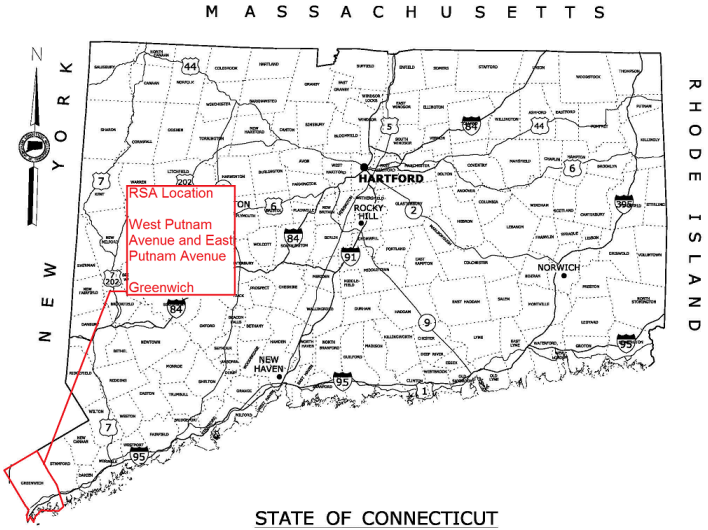
The Connecticut Department of Transportation (CTDOT) is undertaking a Community Connectivity Program that focuses on improving the state's transportation network for all users, with an emphasis on bicyclists and pedestrians. A major component of this program is conducting Road Safety Audits (RSA's) at selected locations. An RSA is a formal safety assessment of the existing conditions of walking and biking routes and is intended to identify the issues that may discourage or prevent walking and bicycling. It is a qualitative review by an independent team experienced in traffic, pedestrian, and bicycle operations and design that considers the safety of all road users and proactively assesses mitigation measures to improve the safe operation of the facility by reducing the potential crash risk frequency or severity.

The RSA team is made up of CTDOT staff, municipal officials and staff, enforcement agents, AECOM staff, and community leaders. An RSA Team is established for each municipality based on the requirements of the individual location. They assess and review factors that can promote or obstruct safe walking and bicycling routes. These factors include traffic volumes and speeds, topography, presence or absence of bicycle lanes or sidewalks, and social influences.

Each RSA was conducted using RSA protocols published by the FHWA. For details on this program, please refer to www.ctconnectivity.com. Prior to the site visit, area topography and land use characteristics are examined using available mapping and imagery. Potential sight distance issues, sidewalk locations, on-street and off-street parking, and bicycle facilities are also investigated using available resources. The site visit includes a "Pre-Audit" meeting, the "Field Audit" itself, and a "Post-Audit" meeting to discuss the field observations and formulate recommendations. This procedure is discussed in the following sections.



STATE OF CONNECTICUT

1 Introduction to West Putnam Avenue and East Putnam Avenue, Greenwich RSA

The Connecticut Department of Transportation (CTDOT) is undertaking an RSA along the U.S. Route 1 corridor between the New York State line and the Westport/Fairfield border, a total distance of 22.77 miles. This corridor encompasses five municipalities: Greenwich, Stamford, Darien, Norwalk, and Westport. Because of the length of the corridor, and the differing stakeholders in the various municipalities, it was decided to treat each town as an individual RSA corridor. This report presents the findings of the RSA conducted in the Town of Greenwich.

The Town of Greenwich corridor, approximately 5.5 miles, includes US Route 1 (West Putnam Avenue and East Putnam Avenue) from the New York State border to the City of Stamford border. The study corridor generally has sidewalks on at least one side of the street throughout the project limits, but eliminating any sporadic gaps would improve safety for pedestrians and bicyclists, and the improved connectivity would create and expand the vibrant use of the corridor.

1.1 Location

The RSA corridor includes West Putnam Avenue and East Putnam Avenue (Figure 1). Figure 2 shows the study area in a regional context. Route 1 is classified as a principal arterial and runs parallel with Interstate 95. The Average Daily Traffic (ADT) on West Putnam Avenue is 12,700 vehicles per day (vpd) and on East Putnam Avenue it is 29,800 vpd. These are considered moderate to high volumes for suburban/urban roadways. The corridor has two lanes in each direction. The quantity of intersections controlled by signals. The section of the corridor between Milbank Avenue and the Stamford border is used as a diversionary route for I-95 traffic.

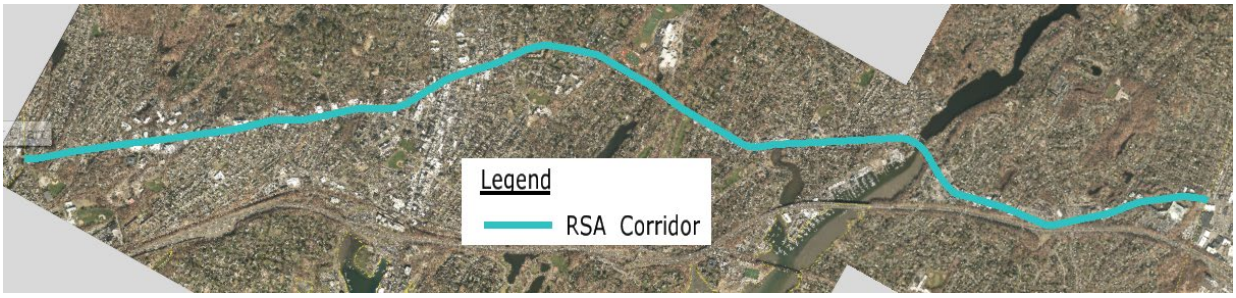


Figure 1 West Putnam Avenue and East Putnam Avenue (Route 1) Greenwich

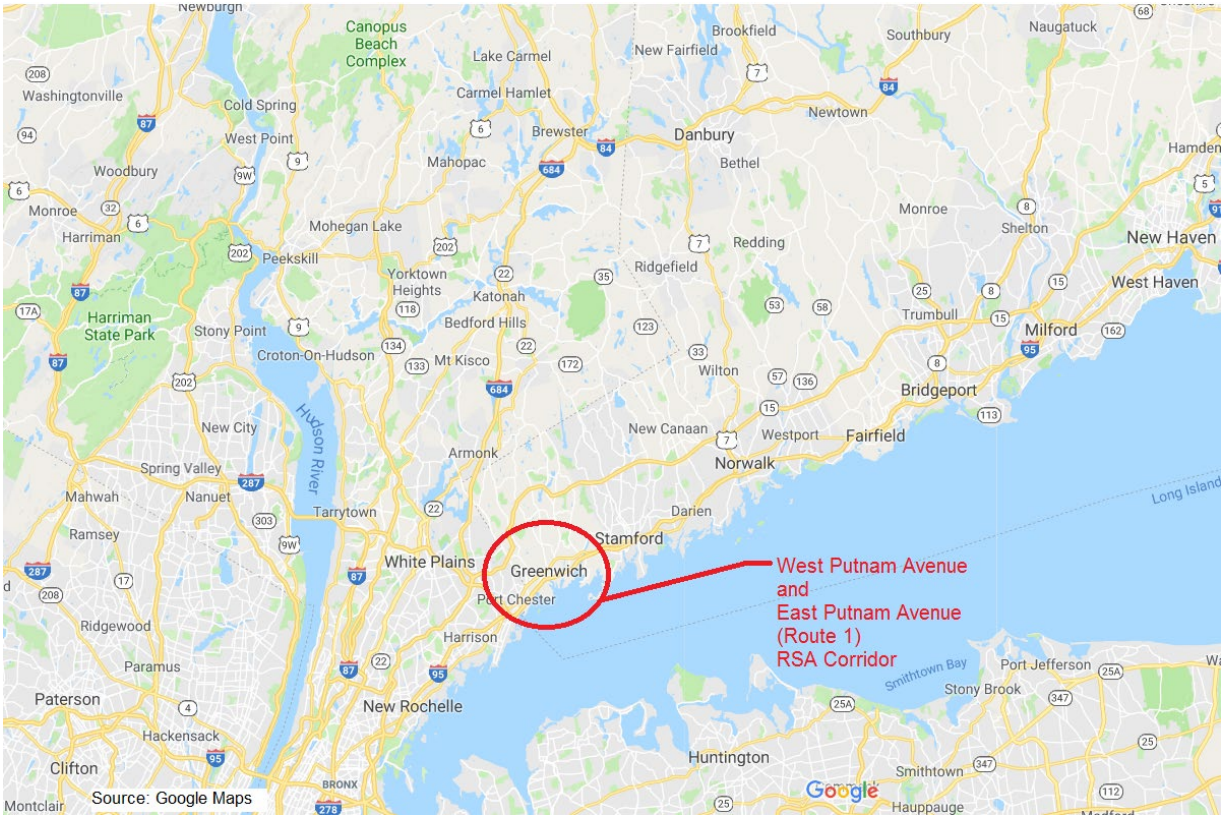


Figure 2. Study Area – Regional Context

2 Pre-audit Assessment

2.1 Pre-audit Information

As noted above, traffic volumes are moderate to high along this urbanized corridor. Between 2015 and 2017 there were 1,091 crashes throughout the RSA corridor. Nearly half of these collisions, were angle crashes, and over 90% were either angle, sideswipe same direction, or front to rear (rear-end) collisions. This is a strong indication of the nature of the operation in the corridor being substantially influenced by the high number of intersections and driveways, and by significant levels of traffic congestion.

Severity Type	Number of Crashes	
Property Damage Only	946	87%
Injury of any type (Serious, Minor, Possible)	143	13%
Fatal (Kill)	2	<1%
Total	1091	

Table 1. Crash Severity 2015-2017

Source: UConn Connecticut Crash Data Repository

Manner of Crash / Collision Impact	Number of Crashes	
Angle	444	41%
Sideswipe, same direction	214	20%
Not Applicable	52	5%
Front to rear	357	33%
Rear to side	8	1%
Other	5	<1%
Sideswipe, opposite direction	7	1%
Front to front	2	<1%
Unknown	1	<1%
Rear to rear	1	<1%
Total	1091	

Table 2. Crash Type 2015-2017

Source: UConn Connecticut Crash Data Repository

Table 1 and Table 2 provide additional information on the type of collision as well as the severity of the crash. While the great majority of crashes (87%) resulted only in property damage, injuries resulted in 13%, and two crashes, both of which involved pedestrians, resulted in fatalities.

Figure 3 and Figure 4 display crashes that occurred in this area between 2015 and 2017. Crashes are dispersed throughout the RSA corridor with clusters around intersections.

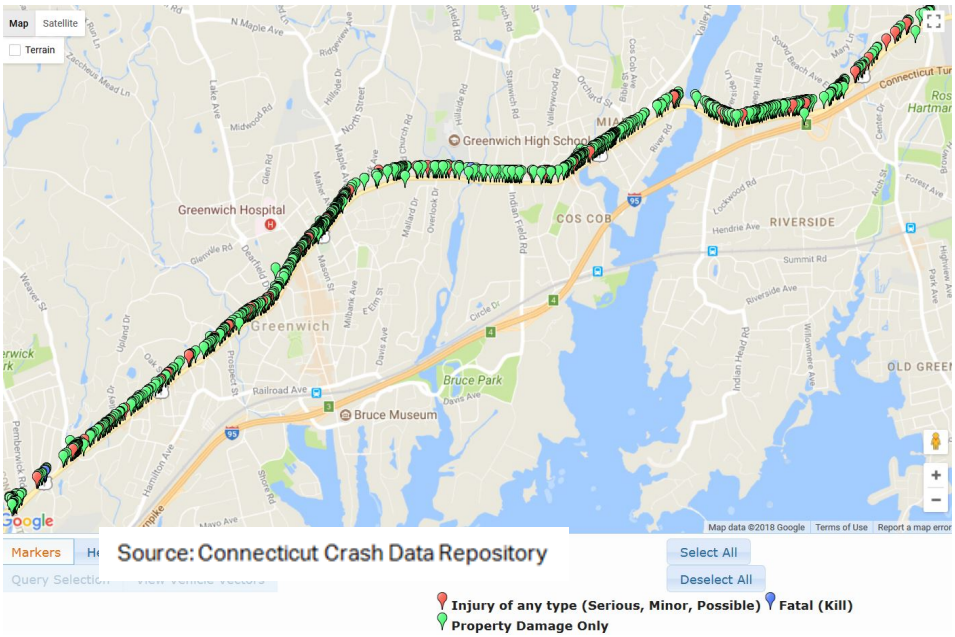


Figure 3. Crashes that Occurred in 2015 (Connecticut Crash Data Repository)

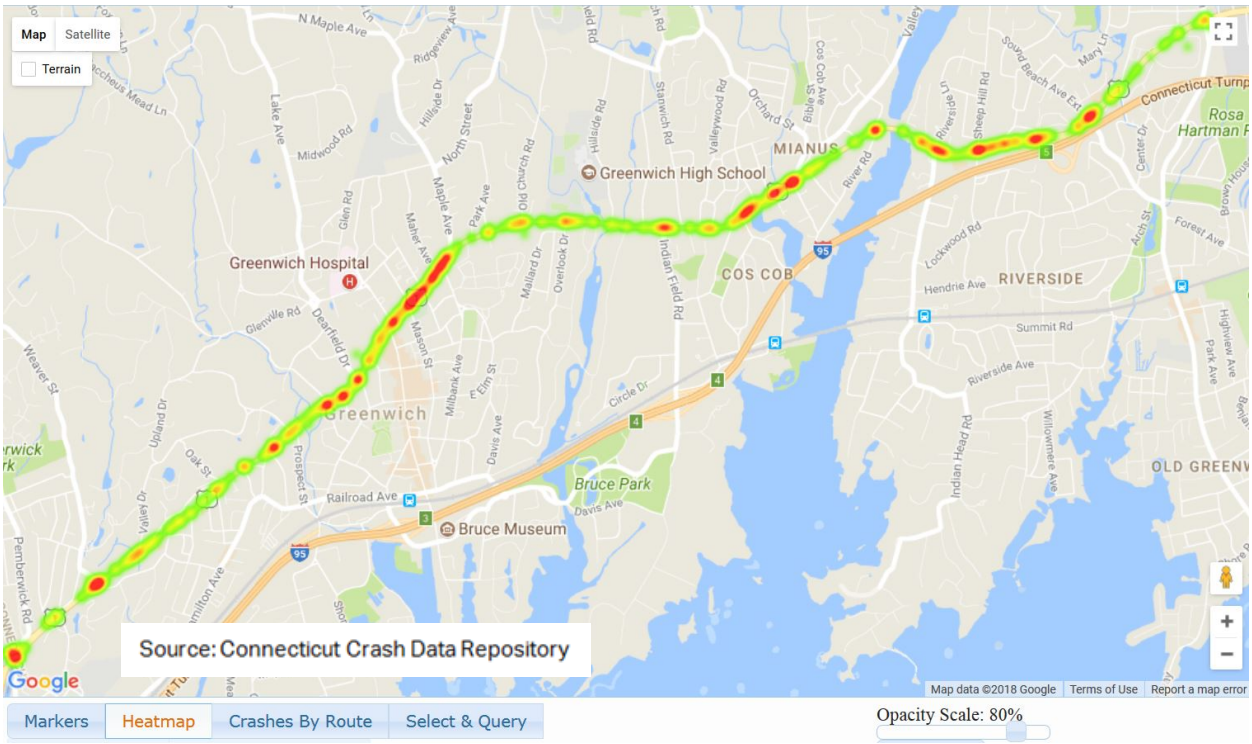


Figure 4 Crash Data Heat Map (2015-2017)

There are 27 signalized intersections within the study corridor. Many of these are closely spaced. In addition, there are many driveways to private businesses, including older sites with large curb cuts or parking adjacent to the roadway. CT Transit bus stops are also located throughout the corridor.

During the Pre-audit meeting, the RSA team decided to focus on several key areas because of the length of the corridor. The focus areas are:

- West Putnam Avenue at Pemberwick Road and Byram Road
- West Putnam Avenue at Harold Avenue
- West Putnam Avenue from Oak Street to Edgewood Drive
- East Putnam Avenue at Maple Avenue and Maher Avenue
- East Putnam Avenue from Strickland Road to Mead Avenue

Roadway geometrics for study corridor roadways and intersections are shown in Figure 5, Figure 6, Figure 7, Figure 8, and Figure 9. An inventory of existing conditions of the intersections can be found in Table 3.

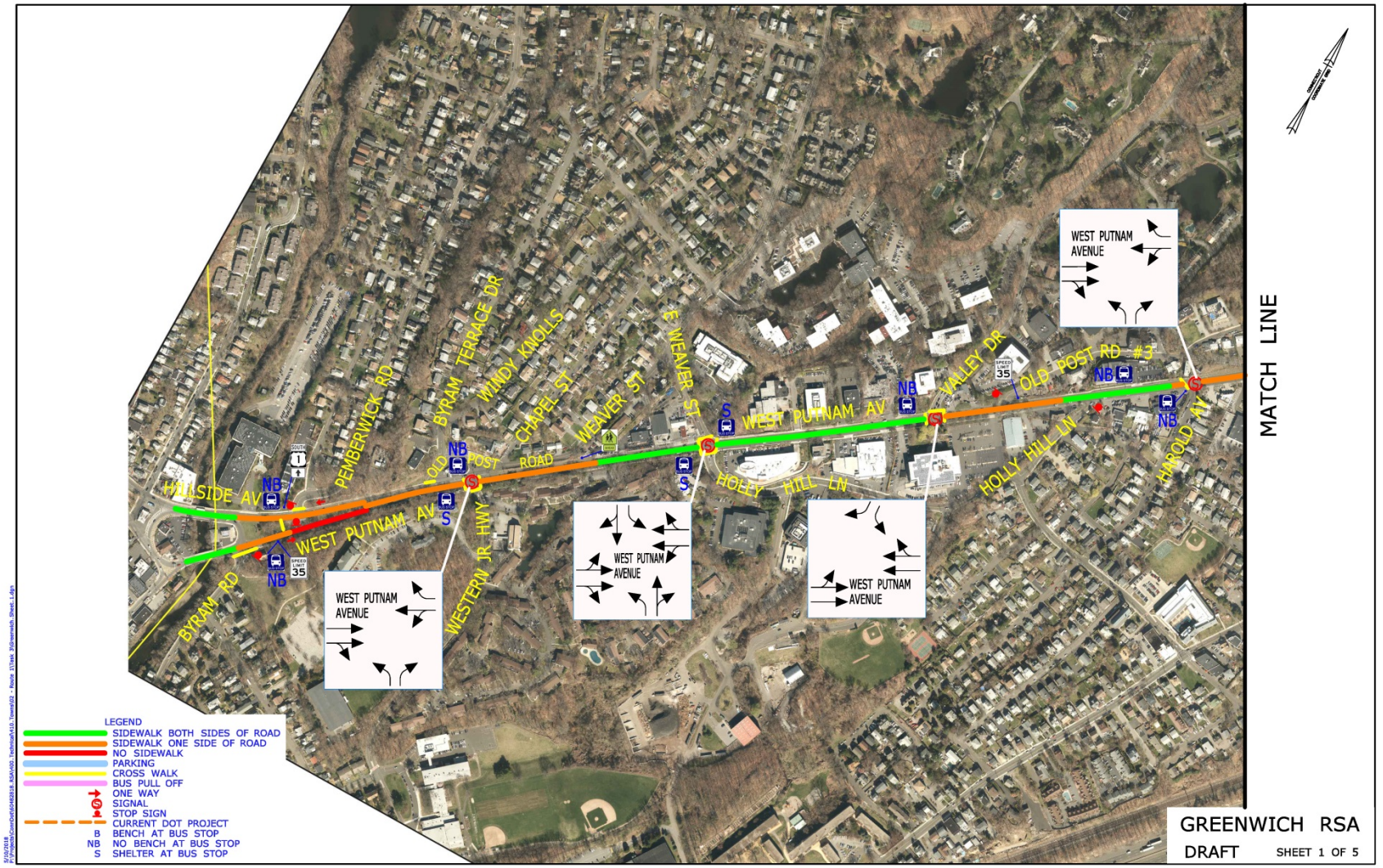


Figure 5. West Putnam Av., Greenwich Route 1 - Road Geometrics

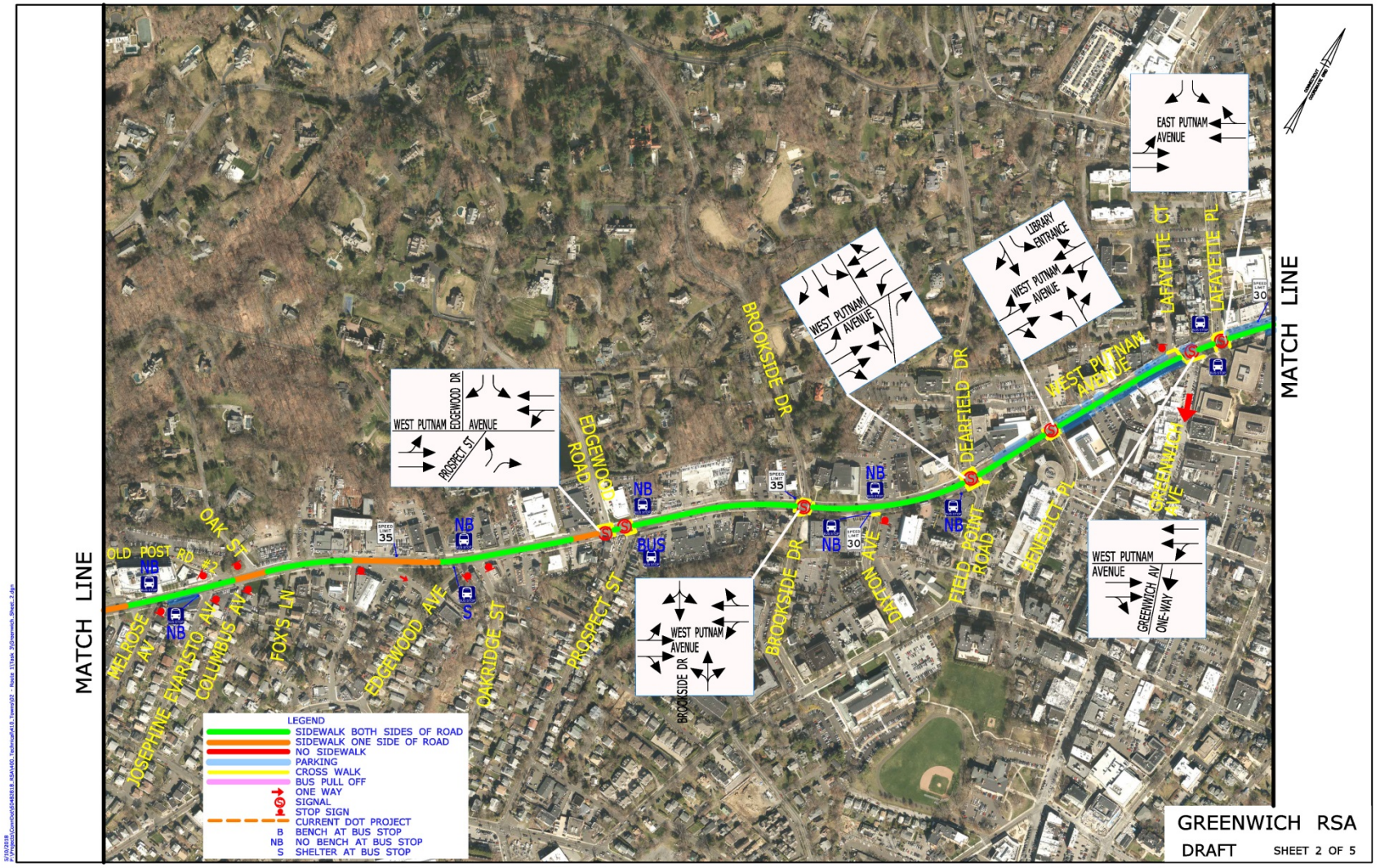


Figure 6. West Putnam Av., Greenwich Route 1 – Road Geometrics

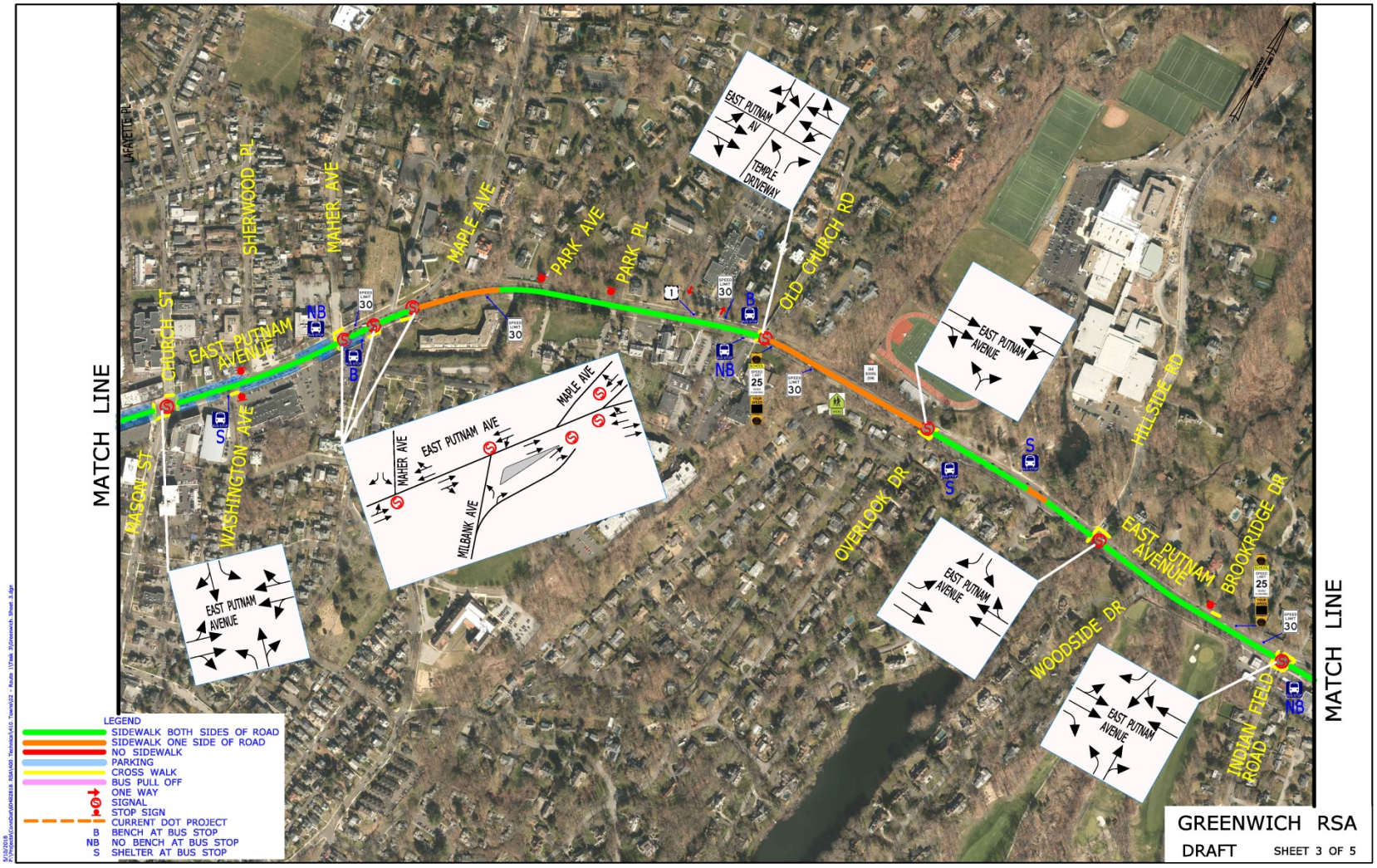


Figure 7. East Putnam Av., Greenwich Route 1 - Road Geometrics

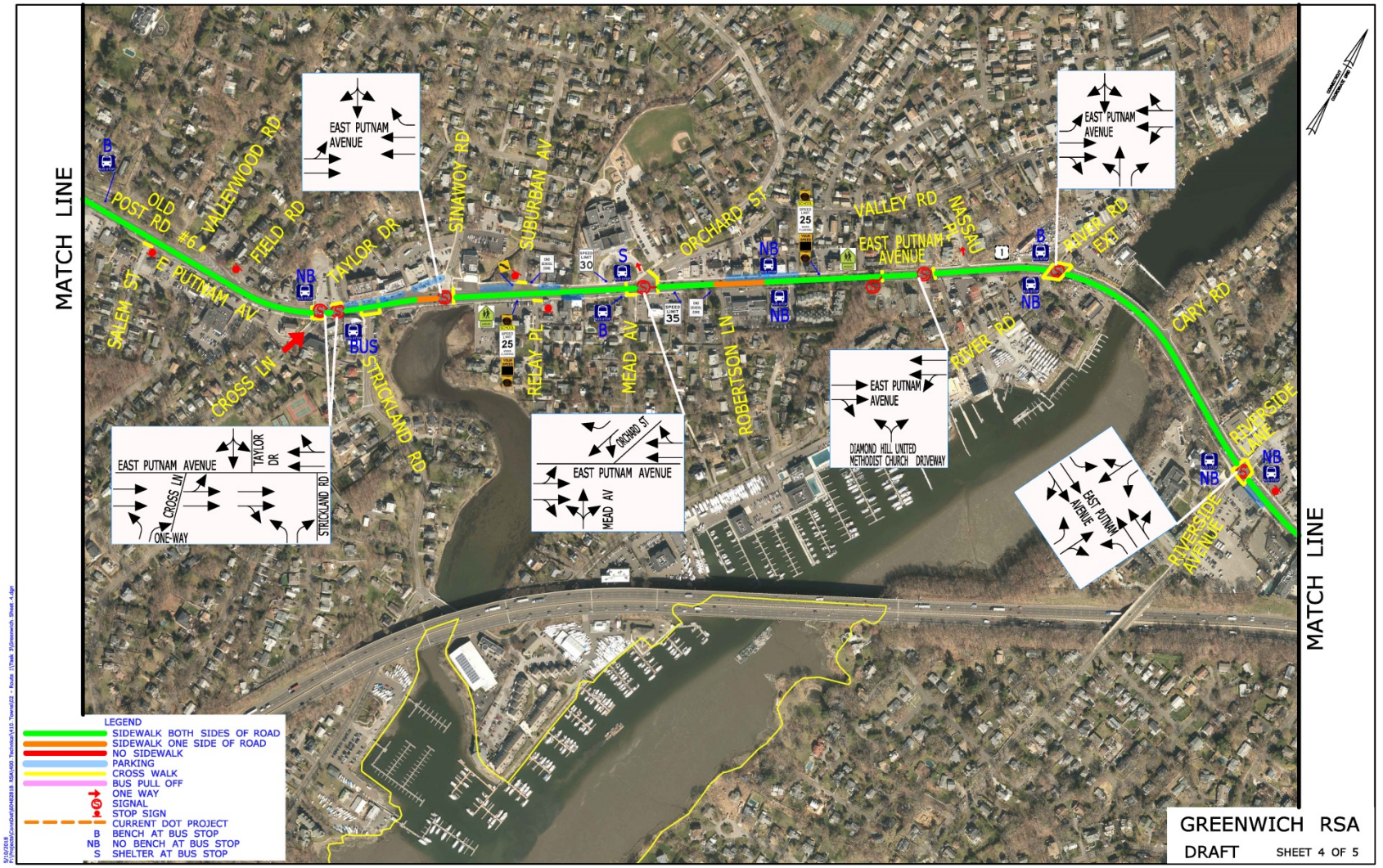


Figure 8, East Putnam Av., Greenwich Route 1 - Road Geometrics

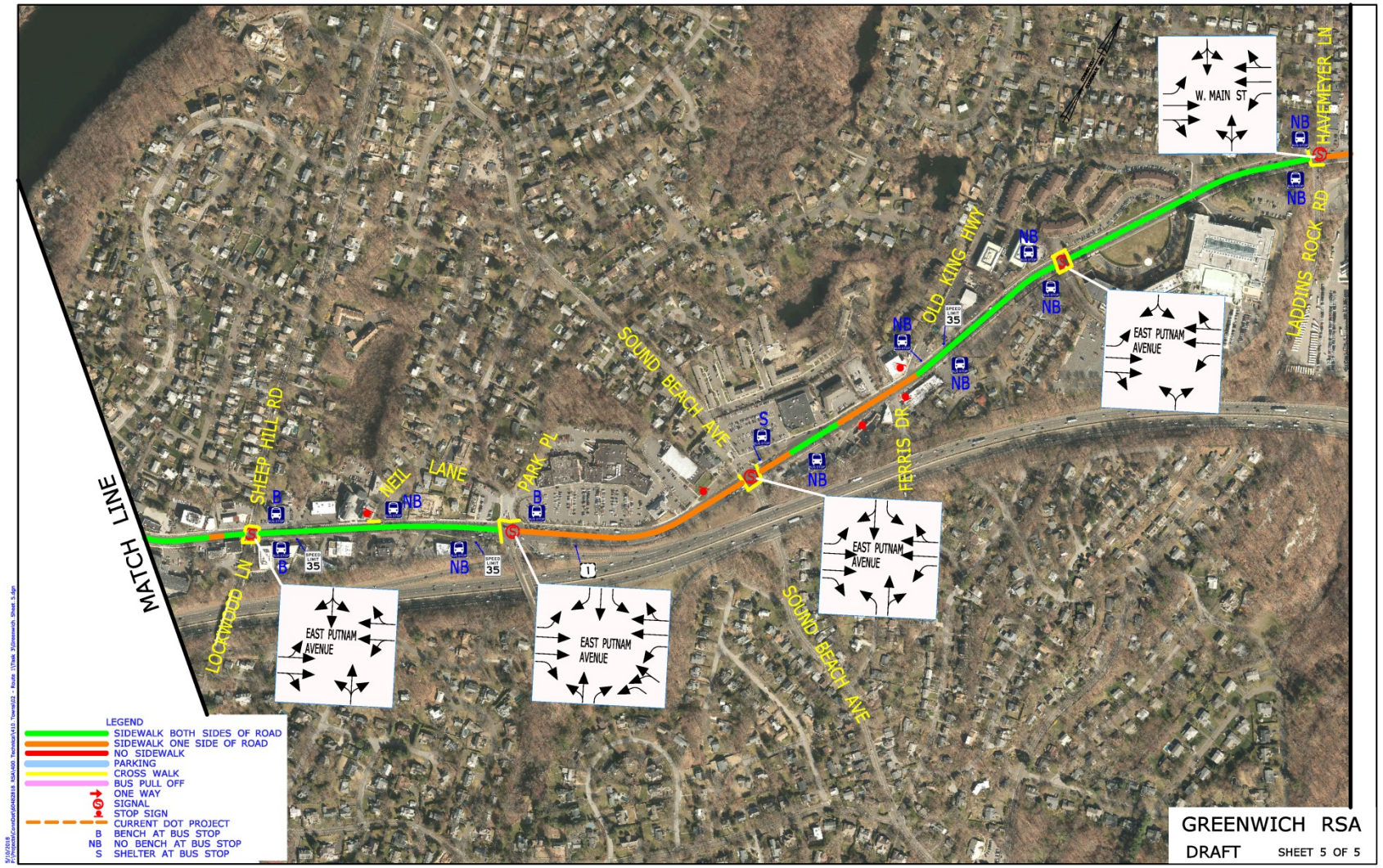


Figure 9, East Putnam Av., Greenwich Route 1 - Road Geometrics

Greenwich RSA

Street Inventory

From	To	Length	Lanes (Width)	Side	Sidewalk			Curb	Parking	Shoulder
					Type	Width	Condition			
Pemberwick Rd	Western Jr Hwy	1100 ft	2 (11')	EB	None	N/A	N/A	Concrete	No	Varies
			2 (11')	WB	Concrete	5'	Fair	Concrete	No	Varies
Western Jr Highway	E Weaver St	1130 ft	2(11')	EB	Concrete	5'	Fair	Concrete	No	Varies
			2 (11')	WB	Concrete	5'	Fair	Concrete	No	Varies
Holly Hill Lane	Valley Dr	1107 ft	2 (11')	EB	Concrete	6'	Fair	Concrete	No	Varies
			2 (11')	WB	Concrete	7'	Fair	Concrete	No	Varies
Valley Dr	Holly Hill Lane	723 ft	2 (11')	EB	Concrete	6'	Fair	Concrete	No	Varies
			2 (11')	WB	None	N/A	N/A	Concrete	No	Varies
Holly Hill Lane	Old Post Rd	1351 ft	2 (11')	EB	Concrete	6'	Fair	Concrete	No	Varies
			2 (11')	WB	Concrete	6'	Fair	Concrete	No	Varies
Old Post Rd 2	Oakridge St	1236 ft	2 (12')	EB	Concrete	6'	Fair	Concrete	No	Varies
			2 (12')	WB	None	N/A	N/A	Concrete	No	Varies
Oakridge St	Field Point Rd	2368 ft	2 (12')	EB	Concrete	6'	Fair	Concrete	No	Varies
			2 (12')	WB	Concrete	7'	Fair	Concrete	No	Varies
Field Point Rd	Maher Ave	2756 ft	2 (11')	EB	Concrete	7'	Fair	Concrete	Yes	Varies
			2 (11')	WB	Concrete	8'	Fair	Concrete	Yes	Varies
Maher Ave	Overlook Dr	2968 ft	2 (12')	EB	Concrete	6'	Fair	Concrete	No	Varies
			2 (12')	WB	Concrete	5'	Fair	Concrete	No	Varies
Overlook Dr	Indian Field Rd	2009 ft	2 (11')	EB	Concrete	8'	Fair	Concrete	No	Varies
			2 (11')	WB	Concrete	8'	Fair	Concrete	No	Varies
Indian Field Rd	Sinawoy Rd	2050 ft	2 (12')	EB	Concrete	5'	Fair	Concrete	No	Varies
			2 (12')	WB	None	N/A	N/A	Concrete	No	Varies
Sinawoy Rd	Nassau Pl	2519 ft	2 (12')	EB	Concrete	5'	Fair	Concrete	Yes	Varies
			2 (12')	WB	Concrete	6'	Fair	Concrete	Yes	Varies
Nassau Pl	Lockwood Lane	2706 ft	2 (12')	EB	Concrete	5'	Fair	Concrete	No	Varies
			2 (12')	WB	Concrete	6'	Fair	Concrete	No	Varies
Lockwood Lane	Neil Lane	1272 ft	2 (12')	EB	Concrete	7'	Fair	Concrete	No	Varies
			2 (12')	WB	Concrete	6'	Fair	Concrete	No	Varies
Neil Lane	Sound Beach Ave	1231 ft	2 (11')	EB	None	N/A	N/A	Concrete	No	Varies
			2 (11')	WB	Concrete	6'	Fair	Concrete	No	Varies
Sound Beach Ave	Ferris Dr	727 ft	2 (12')	EB	None	N/A	N/A	Concrete	No	Varies
			2 (12')	WB	Concrete	5'	Fair	Concrete	No	Varies
Ferris Dr	Havemeyer Lane	2363 ft	2 (12')	EB	Concrete	6'	Fair	Concrete	No	Varies
			2 (12')	WB	Concrete	5'	Fair	Concrete	No	Varies

Table 3. Street Inventory

2.2 Prior Successful Effort

The Town of Greenwich has completed many bicycle and pedestrian infrastructure upgrades throughout the town, such as painted curb extensions, raised pedestrian crosswalks, and designating East Coast Greenway routes. The town would like to continue to build off these efforts and others to provide safe mobility for all users.

2.3 Pre-Audit Meeting

The RSA was conducted on May 15, 2018. The Pre-Audit meeting was held at 8:30 AM in the Town Hall located at 101 Field Point Road in Greenwich.

The RSA Team was comprised of staff from AECOM, staff from CTDOT, representatives from several Greenwich departments including the Police, Highway, Traffic and the Department of Public Works. The complete list of attendees can be found in Appendix B.

Several items were presented for general information prior to conducting the Audit in the field:

- Byram Road –Western Junior Highway – no sidewalk on south side.
- Harold Avenue– Prospect – missing sidewalk (gap).
- Greenwich Avenue –Maple in downtown - many crashes on heat map.
- Motorists use Route 1 as bypass to I-95 when congested.
- Distracted drivers – police wrote 120 citations recently to drivers on cell phones.
- I-95 Exit 5–Back up on 95 causes trucks to use Rte. 1.
- Many tractor-trailers on Route 1, use as cut-thru to avoid when scales are open on I-95.
- Many over-sized trucks deliver building materials on local roads.
- Car-carriers on west end of Route 1 use Route 1 and side streets to load and unload.
- CT*Transit* runs buses on Route 1 along with private shuttles; these impact traffic when stopped in the roadway.
- Articulated buses are commonly used in the corridor.
- Town tries to get private developers to install loading zones on their property install when possible.
- No bike facilities on Route 1, only experienced cyclists ride on Route 1.
- Bikes are not allowed on sidewalk in downtown areas.
- Some sections of Route 1 are designated as East Coast Greenway.
- Route 1 study conducted by WCOG/SWRPA with the assistance of VN Engineers.
- Consider 11-foot travel lanes on Route 1.
- Many mirrors get hit on parked vehicles.
- Not as many mid-block pedestrian crossings on the east end of Route 1, more on the west end.

- All pedestrian signals are exclusive. The Town of Greenwich is considering changing several signals to concurrent pedestrian phasing.

3 RSA Assessment

3.1 Field Audit Observations

Pemberwick Road

- Existing narrow bituminous sidewalk crosses median (Figure 10). There is no crosswalk. Sidewalk on south side runs only to the west.
- Potential for 2 High-Intensity Activated Crosswalk Beacon (HAWK) signals for pedestrian connectivity.
- Option – consider full signal at Pemberwick Road.
- Change yield to stop in front of the Exxon gas station.

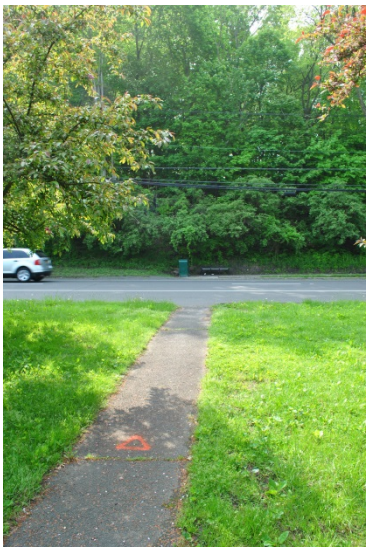


Figure 10 Sidewalk on Median

Western Junior Hwy

- Site of fatal crash.
- Town has considered changing exclusive pedestrian phase to concurrent.
- Crossing guard is present during school arrival and dismissal.
- No formal sidewalk on north side; just bituminous pavement with white stripe. No plans for new sidewalk (Figure 11).
- Concrete curb on north side.
- Could use better access management to reduce curb cuts.
- Prefer 6' concrete sidewalk, 4' grass buffer strip.
- On south side, there is no sidewalk to west beyond the bus stop. There is sidewalk east of Western Jr. Highway.
- On north side, sidewalk ends at Byram Terrace Drive, and does not continue easterly.

Figure 11 No formal sidewalk

Harold Avenue

- North side sidewalk ends before reaching the crosswalk.
- South side sidewalk is undefined asphalt pavement delineated by a white stripe. East of the intersection, south side sidewalk continues.
- Town will move crosswalk from west side to east.
- Town has considered changing exclusive pedestrian phase to concurrent.
- New pedestrian ramps.
- Will provide new crosswalk on Harold Avenue.
- No sidewalk on the north side due to constrained Right of Way (ROW) at house and grade – may need retaining wall (Figure 12).
- Remove old pedestrian head and button on north side.

Figure 12 Sidewalk constrained by slope

Route 1 between Old Post Road #2 and Oak Street

- Worn path in park area on north side (Figure 13).
- Town would like to provide new sidewalk.

Figure 13 Worn pedestrian path

Livingston Place

- Potential location for new full signal for pedestrian crossing.
- Potential future development on Iron Works site.
- Would need to improve sidewalk on north side in front of Iron Works.

Route 1 at Dunkin Donuts at McDonald's

- Many crashes due to turns in and out of driveways.
- Potential for Road Diet location, may be

Figure 14 Sightline issue at driveway

difficult to provide a safe pedestrian crossing at this location.

- Sightline issues due to roadway grade and vegetation (Figure 14).
- Discuss with property owners in the area about restricting left turns out of their driveways

Figure 15 Short storage areas at intersection

Milbank Avenue

- Complex closely-spaced multi-leg intersection with short storage areas (Figure 15).
- Crosswalks across Milbank and right-turn jug-handle do not have pedestrian signals. Consider adding.
- No Right Turn sign on Milbank northbound approach is located too far east to be beneficial.
- Consider roundabout for long-term solution?

Relay Place (Cos Cob)

- 60'+/- curb-to-curb, 4 lanes, wide shoulders
- Many pedestrian cross here, no mid-block crosswalks (Figure 16).
- Think about options such as median, pedestrian refuge island, RRFB.
- Look at providing crossing near Suburban Ave.
- The Town does not support removing the on-street parking.
- There are some curbed bulb-outs as well as painted bulb-outs.

Figure 16 High frequency of mid-block crossing pedestrians

3.2 Post Audit Workshop

Pemberwick Road

- Consider HAWK signals, would likely be town owned and maintained. Consider providing new sidewalk on median to connect with south side of Route 1.
- Providing a crosswalk without any improvements would provide a false sense of security to pedestrians; school children are present.

- Conduct pedestrian counts and turning movement count at intersection and obtain CT Transit ridership data.
- Consider signalizing Pemberwick intersection.

Western Junior Hwy

- Pursue access management improvements with deli owner. Town check with P&Z as to legal status of driveways.
- Provide sidewalk.
- Talk with CT Transit about moving bus stops closer to intersection. Obtain ridership numbers.

Harold Avenue

- Investigate providing new sidewalk on north side on the street.
- Need to consider ROW of residential property and providing a new retaining wall.

Crosswalk Consistency

- Discuss need to change current regulations to require only one type of crosswalk standard town-wide.

Route 1 between Old Post Road #2 and Oak Street

- Provide new sidewalk on north side to close gap
- Add to sidewalk master plan

Livingston Place

- New sidewalk needed.
- Potential location for full signal.
- Conduct pedestrian counts and intersection turning movement count.
- Trim trees to improve sight distance near Dunkin Donuts.
- Evaluate for signal warrants.

Milbank Avenue

- Install new pedestrian signal heads at Milbank approach and right-turn jug-handle as part of existing signal system.
- Consider extending curb on northeast corner of Millbank Ave approach to better define left –turn movement and reduce pedestrian crossing distance.
- Town to consider initiating evaluation of roundabout alternatives.

Relay Place (Cos Cob)

- Town and CTDOT to evaluate options to provide a new mid-block crosswalk to improve safety. Locations include east and west of Suburban Avenue. Options may include:
  - Reduce travel lane width to 11'.
  - Narrow shoulder width on both sides.
  - Provide minimum 6'wide median.
  - Provide pedestrian refuge island/slow point.
  - Include Bulb-outs to reduce width.
  - Provide RRFB control.

4 Recommendations

From the discussions during the Post-Audit meeting, the RSA team compiled a set of recommendations that are divided into short-term, mid-term, and long-term categories. For the purposes of the RSA, **Short-term** is understood to mean modifications that can be expected to be completed very quickly, perhaps within six months, and certainly in less than a year if funding is available. These include relatively low-cost alternatives, such as striping and signing, and items that do not require additional study, design, or investigation (such as right-of way acquisition). **Mid-term** recommendations may be more costly and require establishment of a funding source, or they may need some additional study or design in order to be accomplished. Nonetheless, they are relatively quick turn-around items, and should not require significant lengths of time before they can be implemented. Generally, they should be completed within a window of eighteen months to two years if funding is available. **Long-term** improvements are those that require substantial study and engineering, and may require significant funding mechanisms and/or right-of-way acquisition. These projects generally fall into a horizon of two or more years when funding is available.

4.1 Short Term

1. Town to conduct pedestrian counts and turning movement count at Pemberwick Road and Livingston Place intersections. Town to discuss options at this location with CTDOT.
2. Obtain CT Transit ridership data and discuss bus stop locations with CT Transit.
3. Discuss potential new locations for bus stops with CT Transit at Pemberwick Road and Western Junior Highway.
4. Town to check with P&Z as to legal status of driveways for potential access management improvements.
5. Town to discuss need to change current regulations to require only one type of crosswalk standard town-wide.
6. Town to add to sidewalk master plan.
7. Trim trees to improve sight distance near Dunkin Donuts.

8. Town to coordinate with CTDOT to relocate No Right Turn sign to signal mast arm for Milbank Avenue northbound approach.
9. Town and CTDOT to evaluate options to provide a new mid-block crosswalk to improve safety in the vicinity of Suburban Avenue.
10. Addition of right-turn only lane westbound on Route 1 at Hillside Road.

Figure 17, Figure 18, Figure 19, Figure 20, and Figure 21 depict these recommendations.

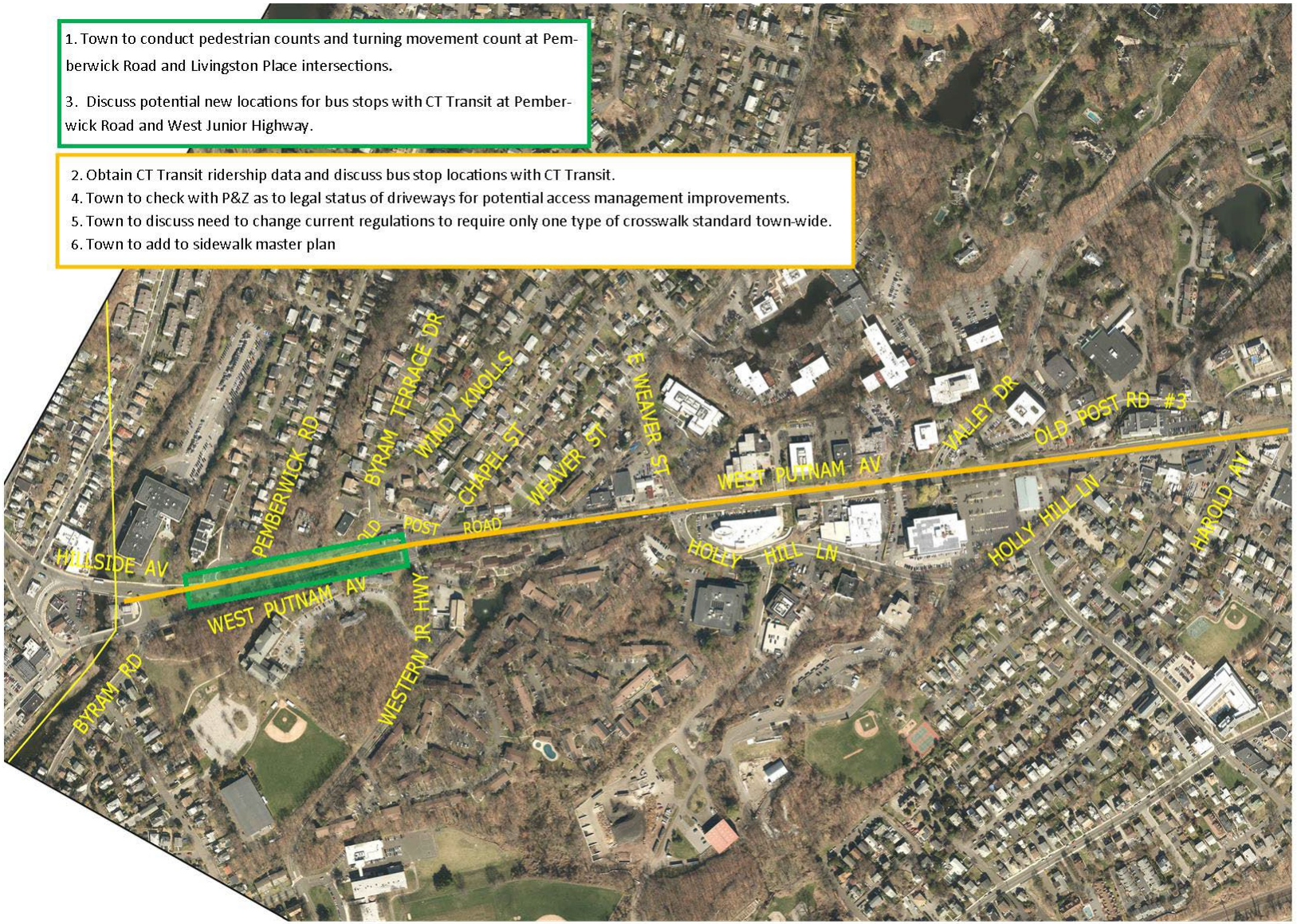


Figure 17 Short Term Recommendations Map 1

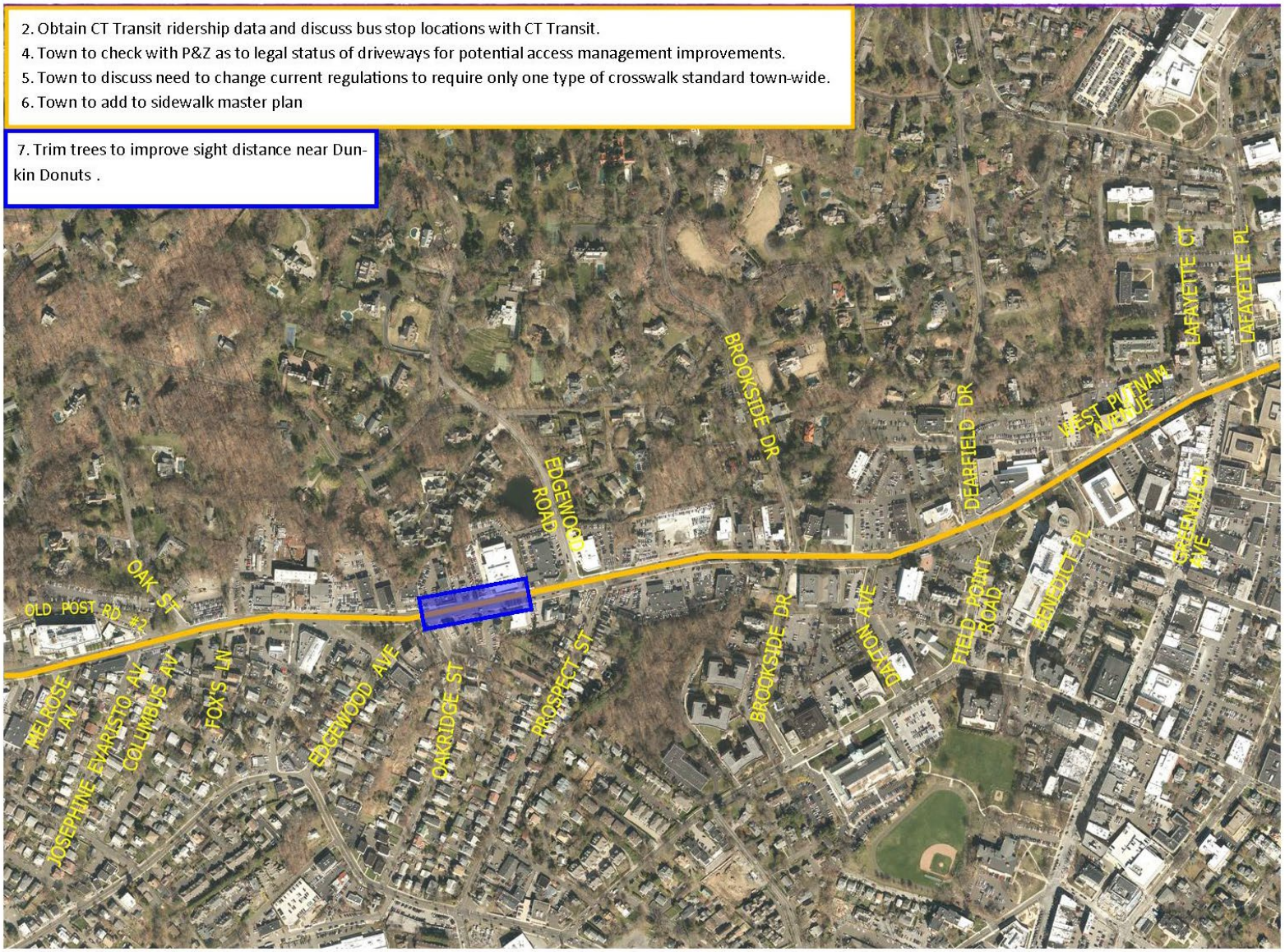


Figure 18 Short Term Recommendations Map 2

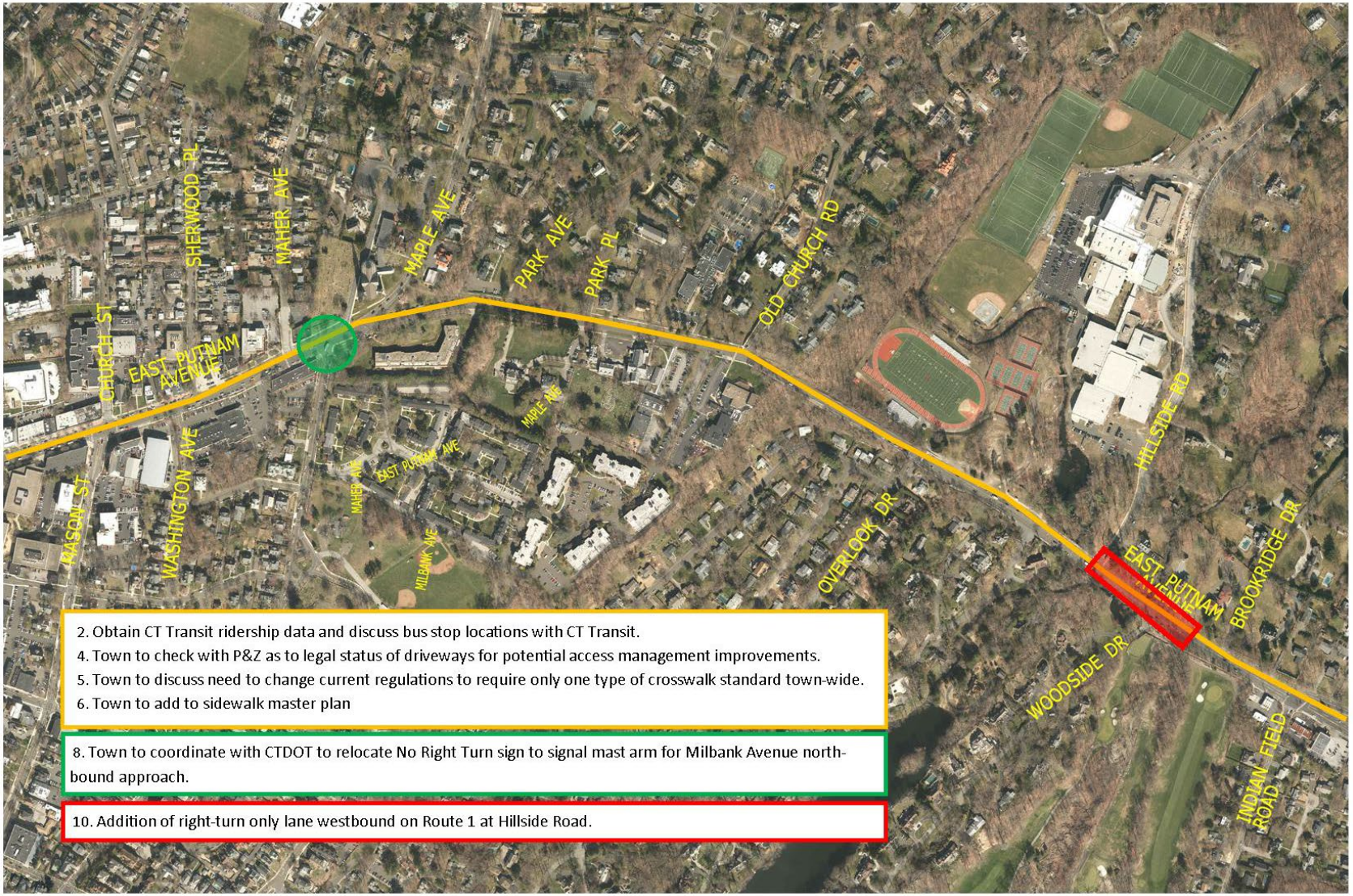


Figure 19 Short Term Recommendations Map 3

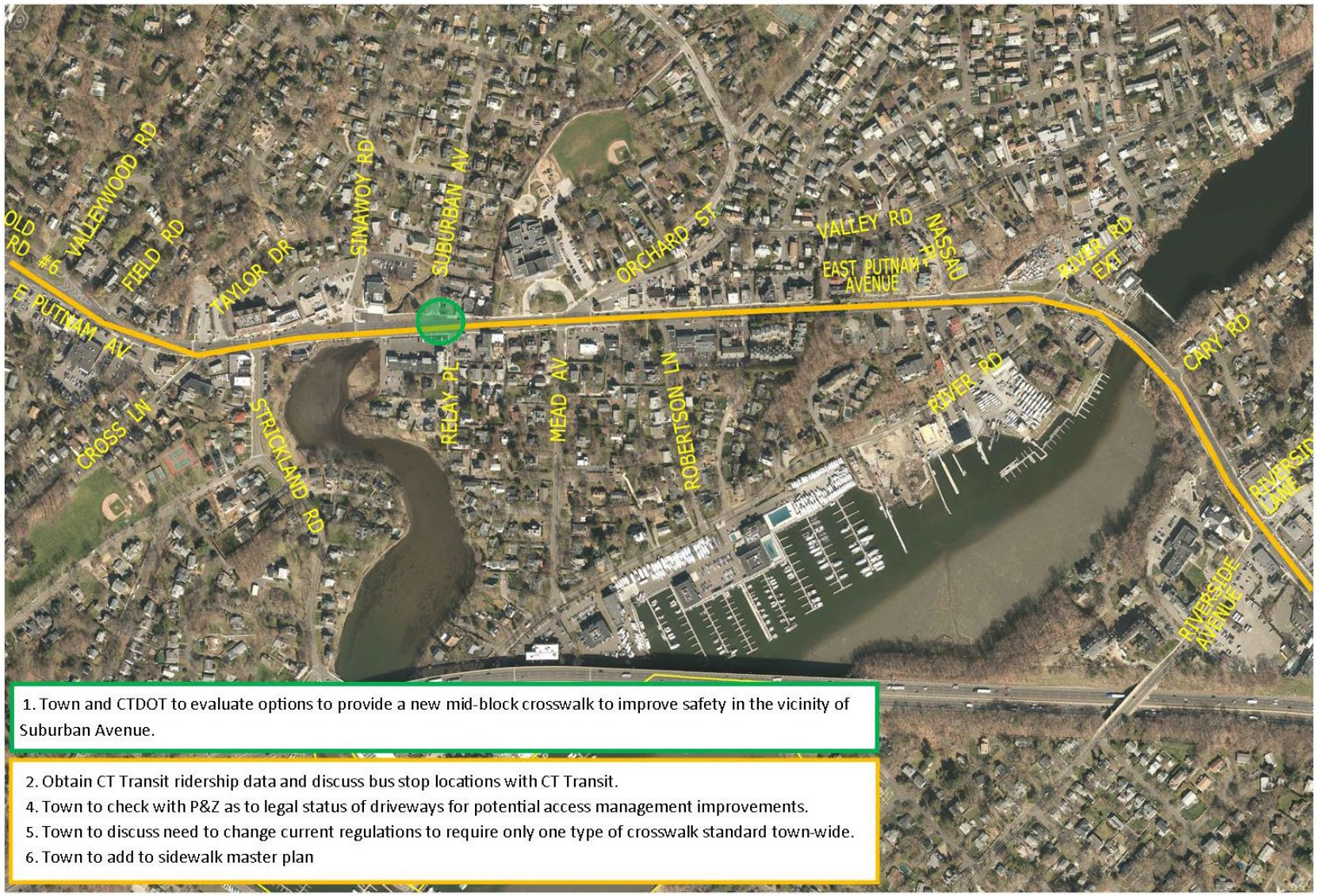


Figure 20 Short Term Recommendations Map 4

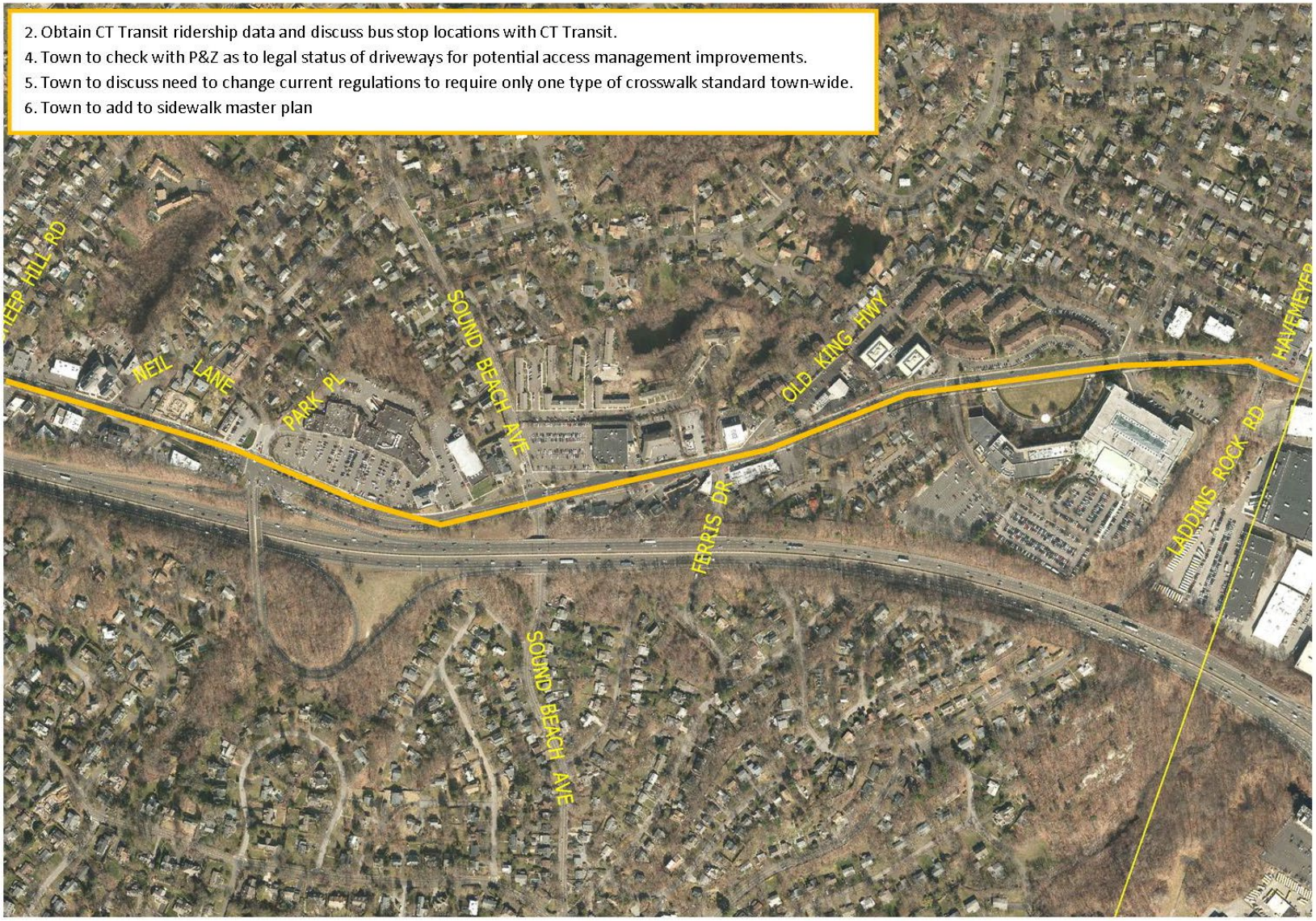


Figure 21 Short Term Recommendations Map 5

4.2 Medium Term

1. Consider HAWK signals at Pemberwick Road crossing. These would likely be town owned and maintained.
2. Consider providing new sidewalk on median to connect with south side of Route 1.
3. Town to investigate and provide new sidewalks at Pemberwick Road, western Junior Highway, Harold Avenue, between Old Post Road #2 and Oak Street, and at Livingston Place.
4. Town to install new pedestrian signal heads at Milbank approach and right-turn jug-handle as part of existing signal system.

Figure 22, Figure 23, Figure 24, Figure 25, and Figure 26 depict these recommendations.

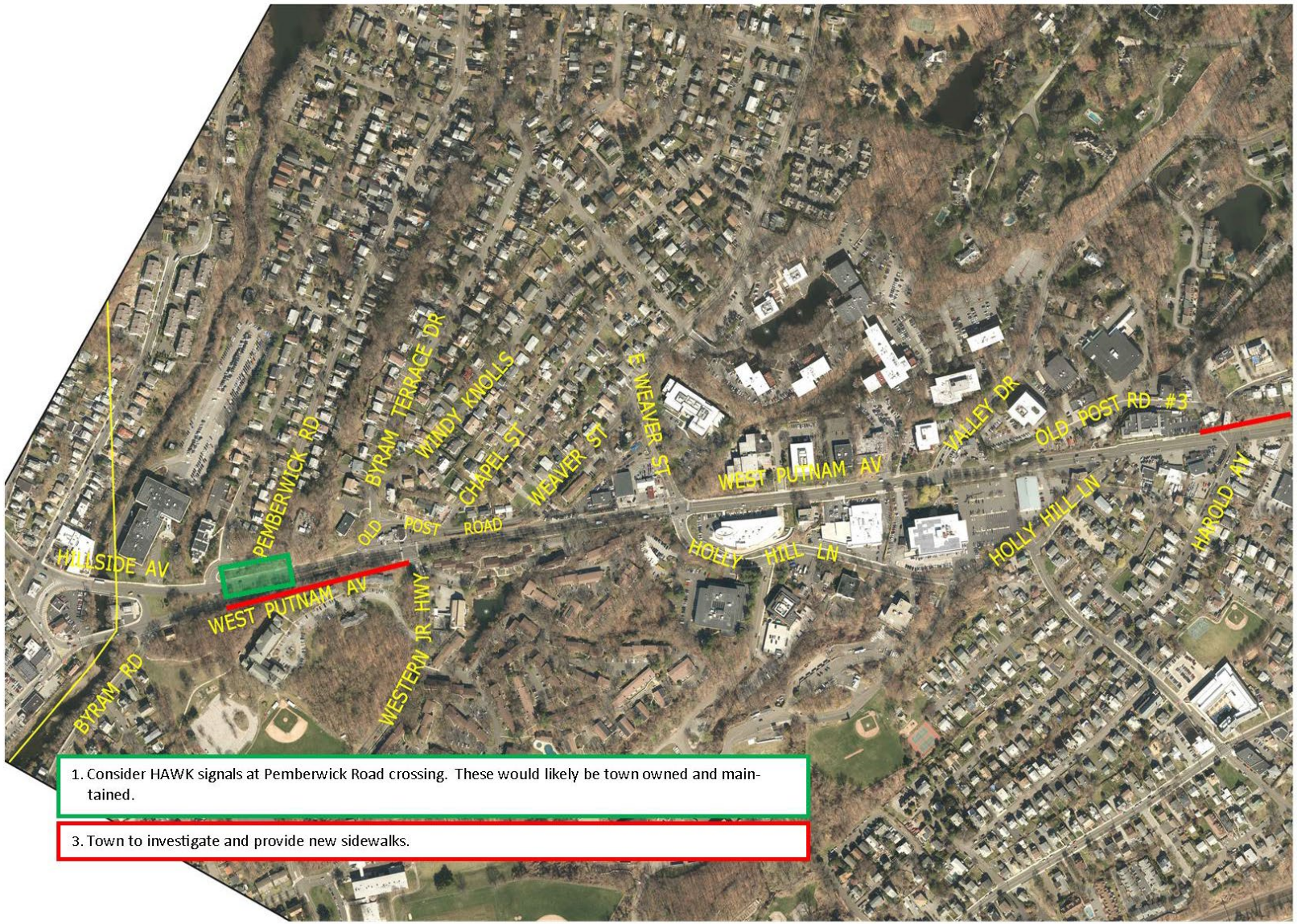


Figure 22. Medium Term Recommendations Map 1

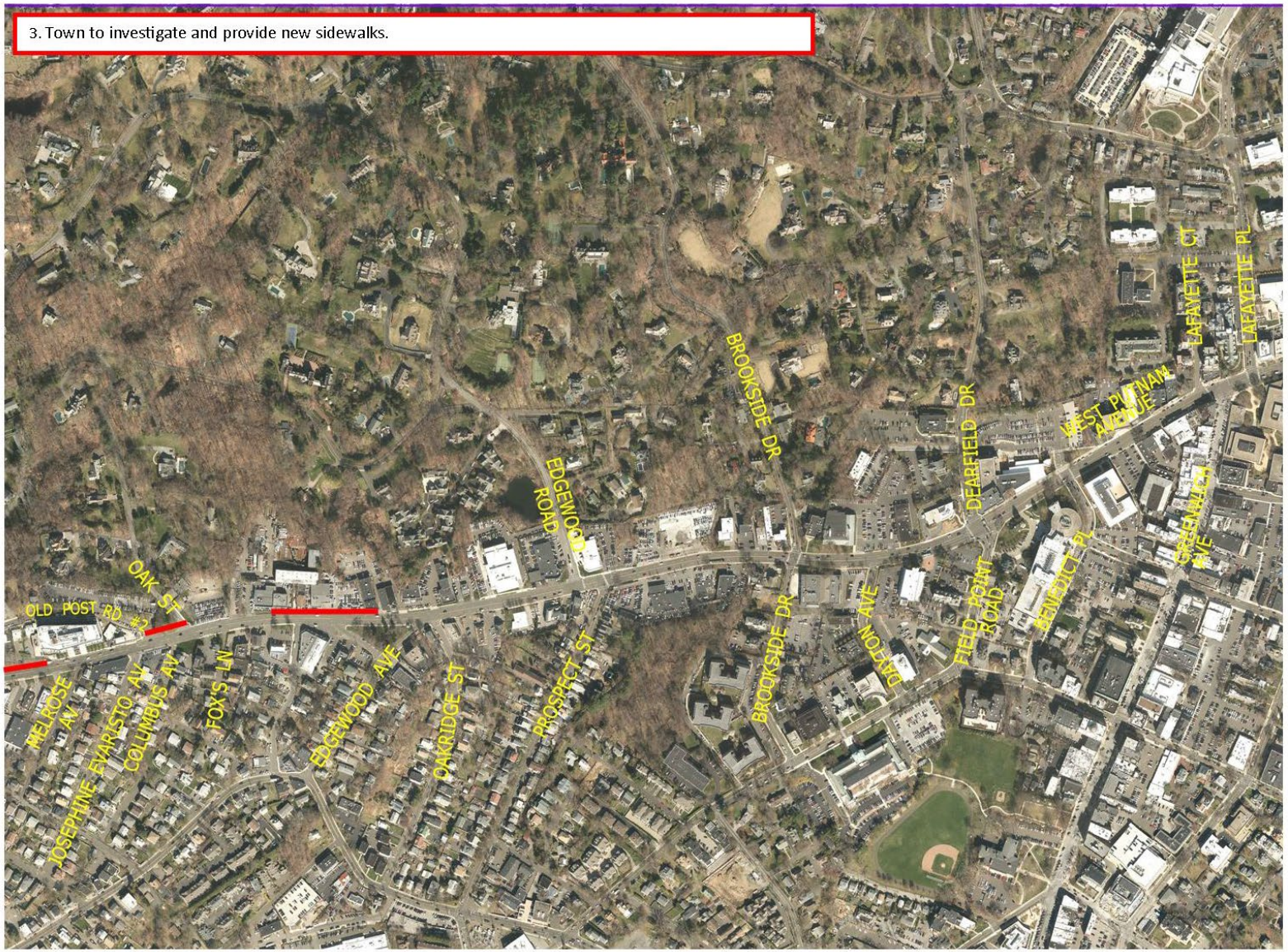


Figure 23 Medium Term Recommendations Map 2

Figure 24 Medium Term Recommendations Map 3

Figure 25 Medium Term Recommendations Map 4 (No recommendations in this section)

Figure 26 Medium Term Recommendations Map 5 (No recommendations in this section)

4.3 Long Term

1. Further evaluate and determine feasibility of implementation of Route 1 Corridor Study recommendations.
2. Study and evaluate a roundabout alternative at Millbank Avenue.

Figure 27, Figure 28, Figure 29, Figure 30, and Figure 31 depict these recommendations.

Figure 27. Long Term Recommendations Map 1

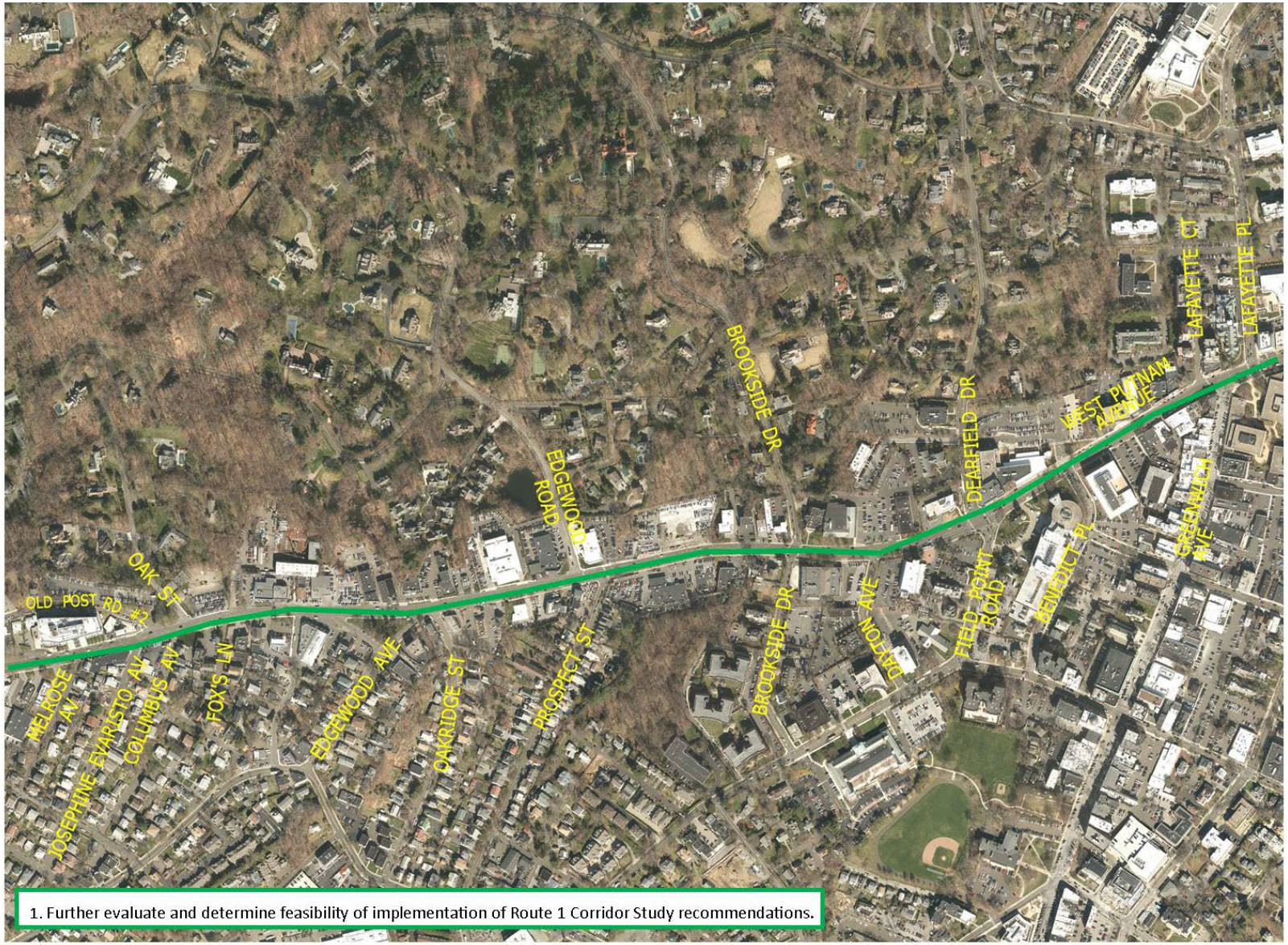


Figure 28 Long Term Recommendations Map 2

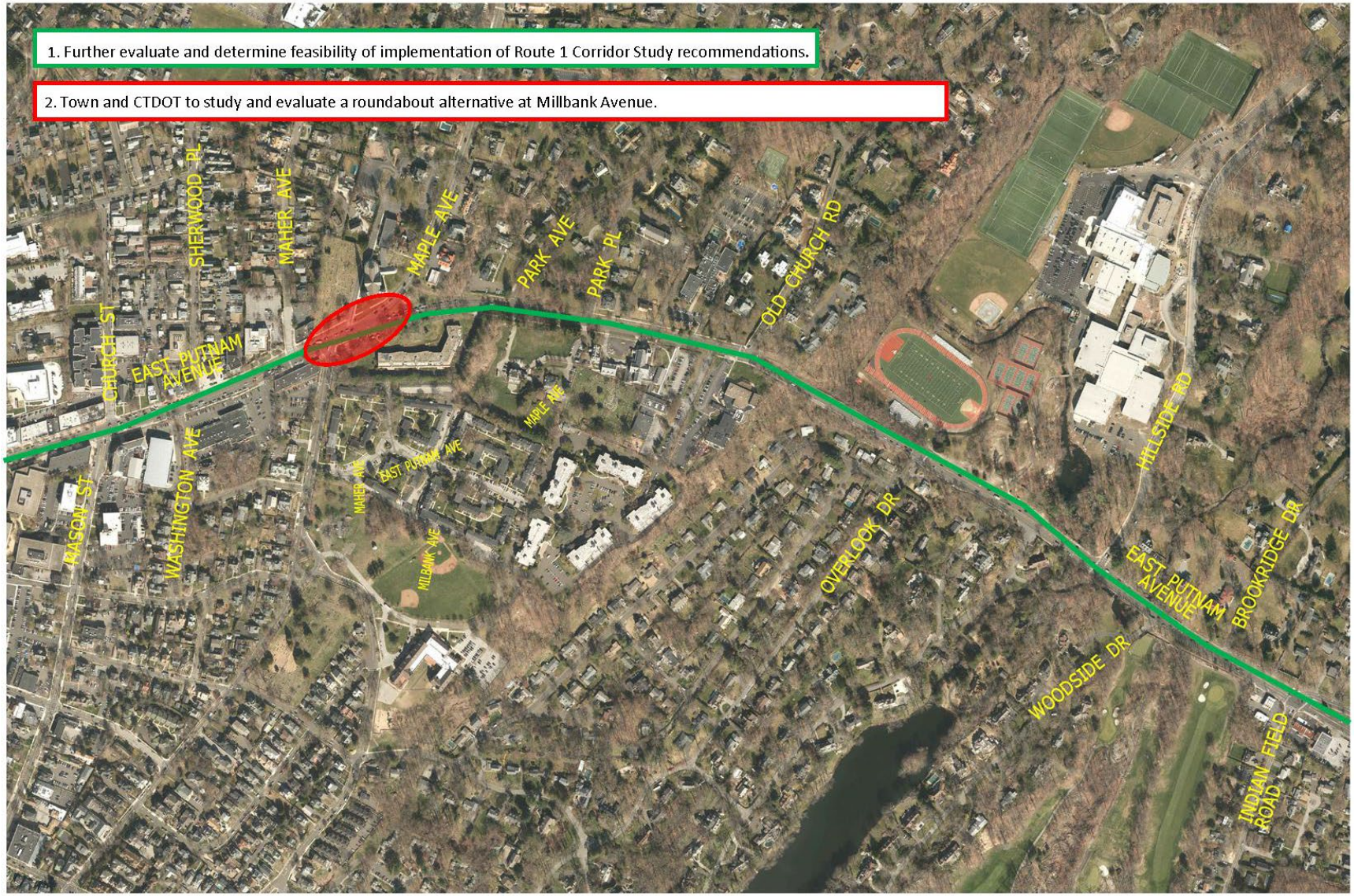


Figure 29 Long Term Recommendations Map 3

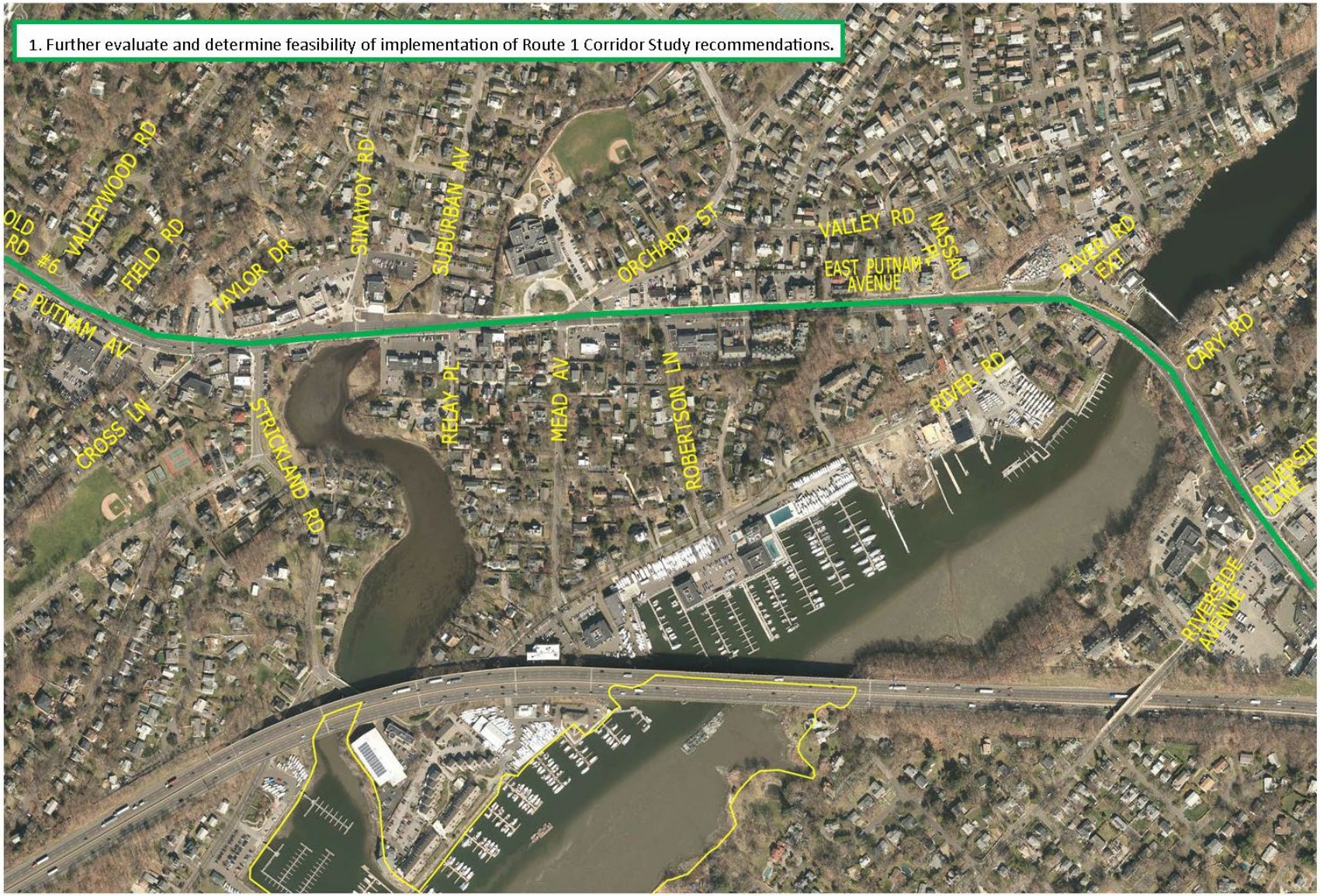


Figure 30 Long Term Recommendations Map 4

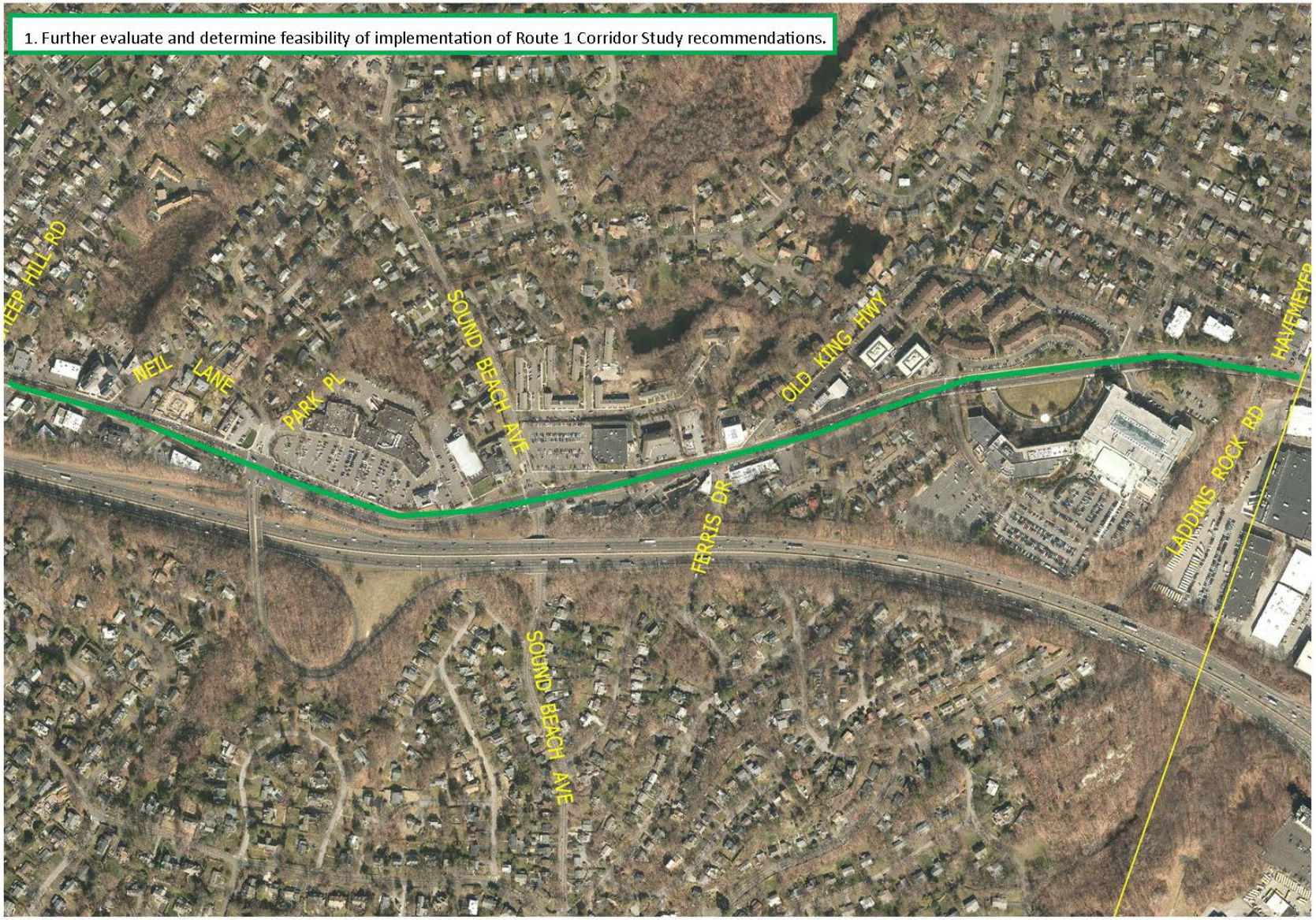


Figure 31 Long Term Recommendations Map 5

4.4 Summary

This report documents the observations, discussions and recommendations developed during the successful completion of the U.S. Route 1 RSA in the Town of Greenwich. It provides an outlined strategy to improve the transportation network for all road users on Route 1, particularly focusing on pedestrians and cyclists. Moving forward, this report may be used to prepare strategies for funding and implementing the improvements, and as a tool to plan for including these recommendations into future development on Route 1.

COMMUNITY
connectivity program

Appendix A

Built to deliver a better world

Road Safety Audit – Greenwich Route 1

Meeting Location: Greenwich Town Hall Mazza Room, 1st floor
Address: 101 Field Point Rd, Greenwich, CT 06830
Date: Tuesday, May 15, 2018
Time: 8:30 AM

Agenda

Type of Meeting: **Road Safety Audit – Pedestrian Safety**

Attendees: **Invited Participants to Comprise a Multidisciplinary Team**

Please Bring: **Thoughts and Enthusiasm!!**

8:30 AM **Welcome and Introductions**

- Purpose and Goals
- Agenda

8:45 AM **Pre-Audit**

- Definition of Study Area
- Review Site Specific Data:
  - Average Daily Traffic
  - Crash Data
  - Geometrics
- Issues
- Safety Procedures

9:10 AM **Audit**

- Visit Site
- As a group, identify areas for improvements

2:00 PM **Post-Audit Discussion / Completion of RSA**

- Discussion observations and finalize findings
- Discuss potential improvements and final recommendations
- Next Steps

4:30 PM **Adjourn for the Day – but the RSA has not ended**

Instruction for Participants:

- Before attending the RSA, participants are encouraged to observe the intersection and complete/consider elements on the RSA Prompt List with a focus on safety.
- All participants will be actively involved in the process throughout. Participants are encouraged to come with thoughts and ideas, but are reminded that the synergy that develops and respect for others' opinions are key elements to the success of the overall RSA process.
- After the RSA meeting, participants will be asked to comment and respond to the document materials to assure it is reflective of the RSA completed by the multidisciplinary team.

Audit Checklist

Pedestrians and Bicycles	Comment

Pedestrian Crossings
• Sufficient time to cross (signal)
• Signage
• Pavement Markings
• Detectable warning devices (signal)
• Adequate sight distance
• Wheelchair accessible ramps
  o Grades
  o Orientation
  o Tactile Warning Strips
• Pedestrian refuge at islands
• Other	

Pedestrian Facilities
• Sidewalk
  o Width
  o Grade
  o Materials/Condition
  o Drainage
  o Buffer
• Pedestrian lighting
• Pedestrian amenities (benches, trash receptacles)
• Other	

Bicycles • Bicycle facilities/design • Separation from traffic • Conflicts with on-street parking • Pedestrian Conflicts • Bicycle signal detection • Visibility • Roadway speed limit • Bicycle signage/markings • Shared Lane Width • Shoulder condition/width • Traffic volume • Heavy vehicles • Pavement condition • Other	

Roadway & Vehicles	
• Speed-related issues o Alignment; o Driver compliance with speed limits o Sight distance adequacy o Safe passing opportunities	
• Geometry o Road width (lanes, shoulders, medians); o Access points; o Drainage o Tapers and lane shifts o Roadside clear zone /slopes o Guide rails / protection systems	

• Intersections o Geometrics o Sight Distance o Traffic control devices o Safe storage for turning vehicles o Capacity Issues	

• Pavement
  o Pavement Condition (excessive roughness or rutting, potholes, loose material)
  o Edge drop-offs
  o Drainage issues
• Lighting Adequacy	

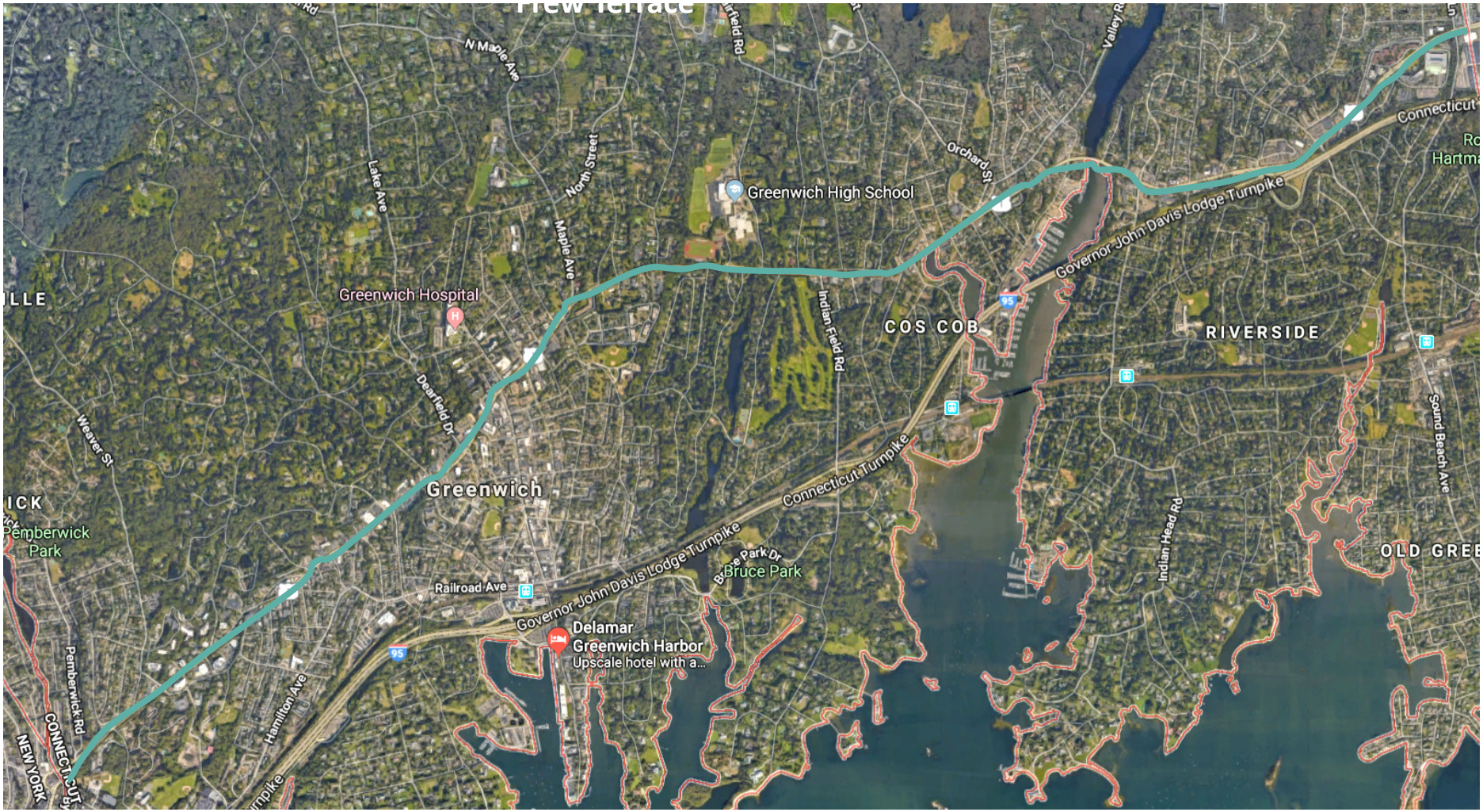
• Signing
  • Correct use of signing
  • Clear Message
  • Good placement for visibility
  • Adequate retroreflectivity
  • Proper support	

• Signals
  o Proper visibility
  o Proper operation
  o Efficient operation
  o Safe placement of equipment
  o Proper sight distance
  o Adequate capacity	

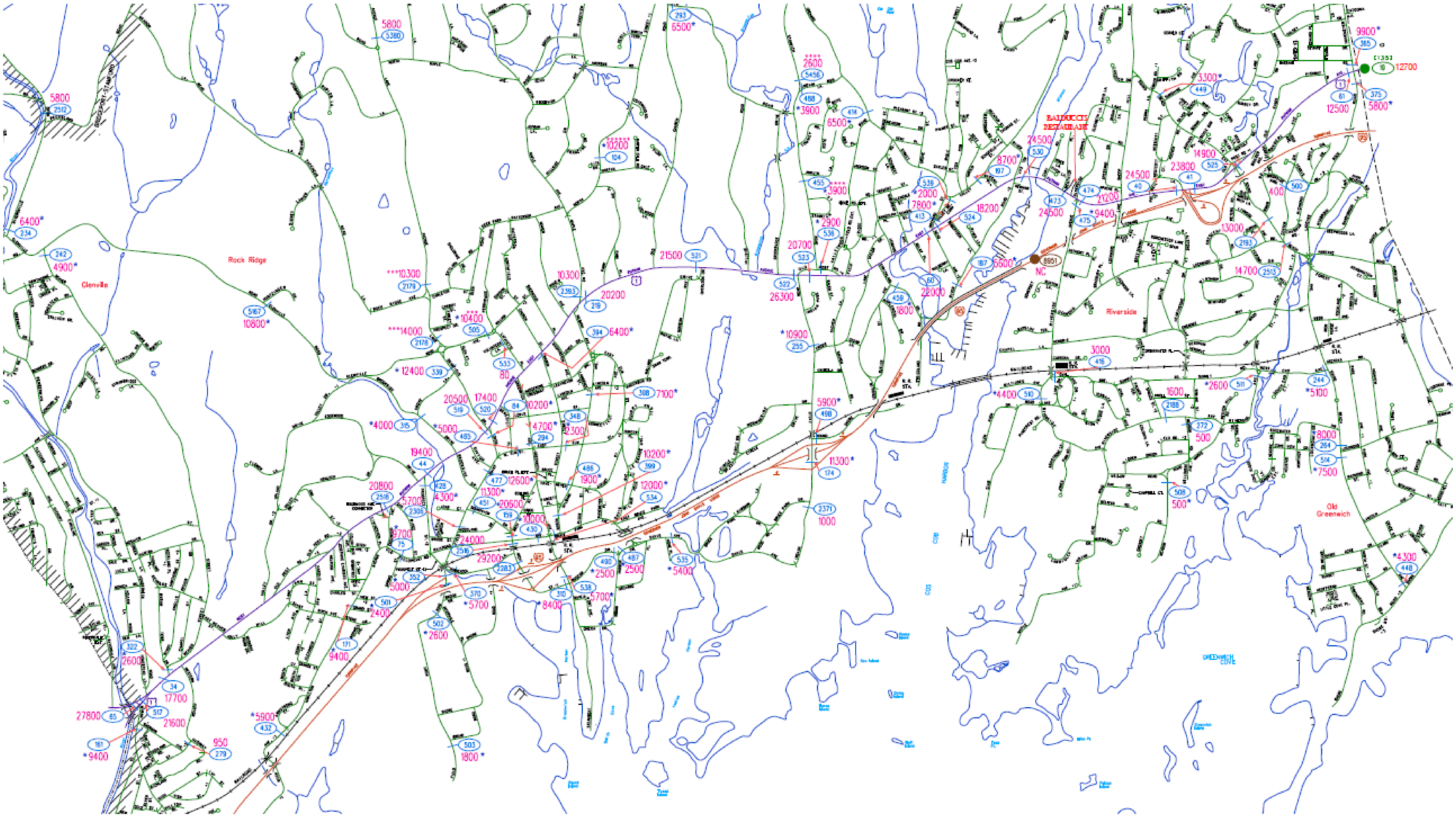
• Pavement Markings
  o Correct and consistent with MUTCD
  o Adequate visibility
  o Condition
  o Edgelines provided	

• Miscellaneous
  o Weather conditions impact on design features.
  o Snow storage	

LOCATION MAP



Greenwich



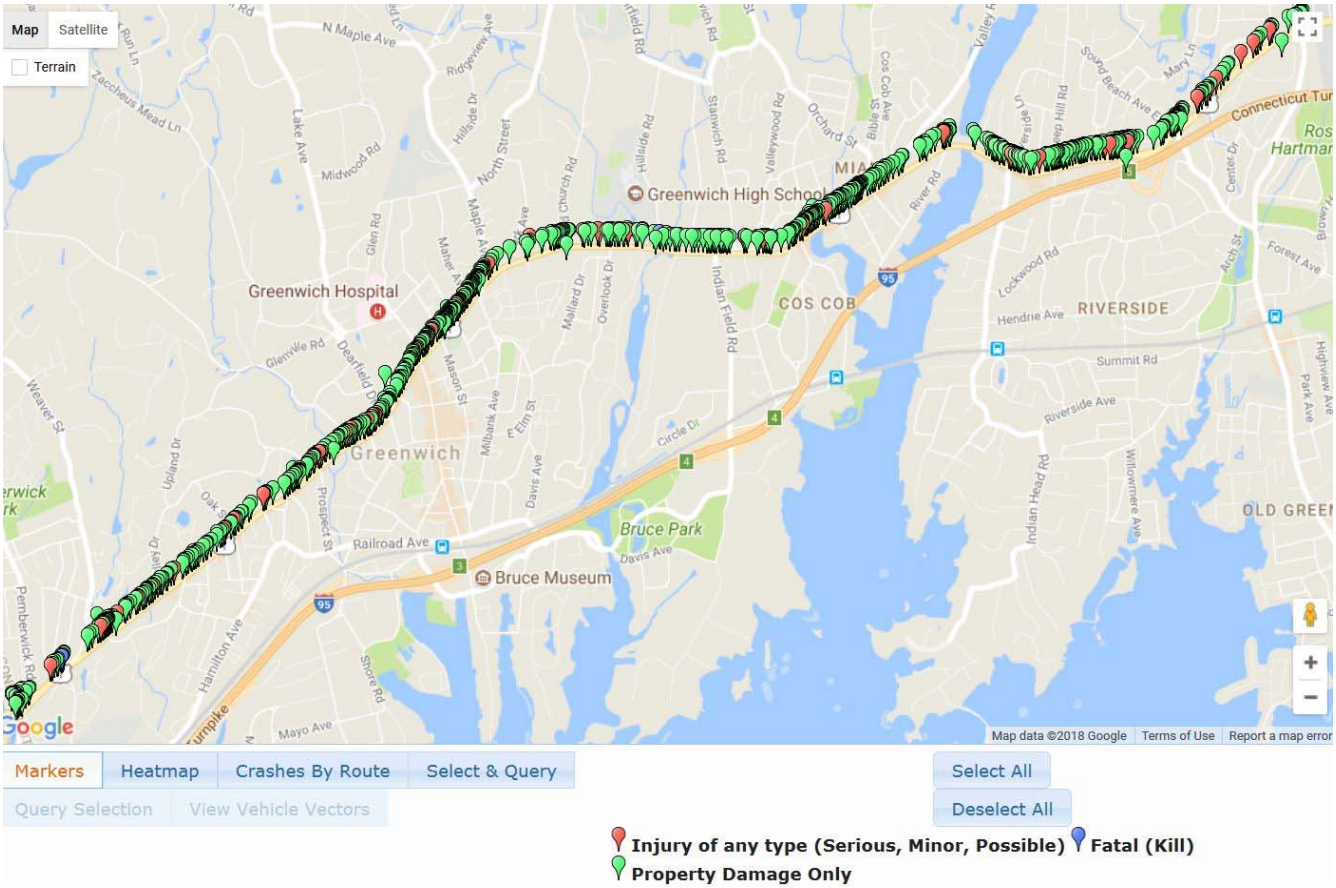
Rock Ridge
Glenville
Riverside
Old Greenwich
BALDUCCI'S RESTAURANT

Road Safety Audit – Greenwich

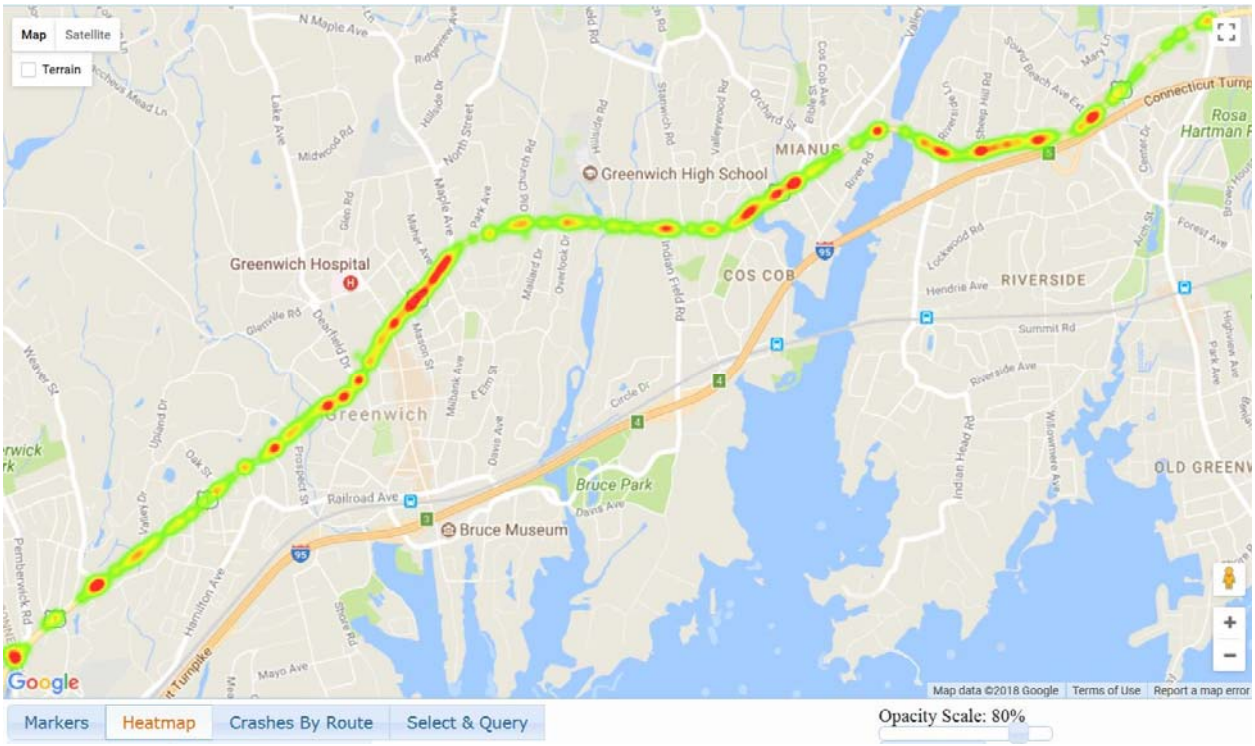
Crash Summary

There were 1091 crashes in the last 3 years (2015-2017).

There are 2 Fatal Crashes both involving Pedestrian.



Heat Map


Map
Satellite
Terrain
Greenwich High School
Greenwich Hospital
MIANUS
COS COB
RIVERSIDE
Greenwich
Bruce Park
Bruce Museum
Railroad Ave
Google
Map data ©2018 Google
Terms of Use
Report a map error
Markers
Heatmap
Crashes By Route
Select & Query
Opacity Scale: 80%

Data: 3 years (2015-2017)

Severity Type	Number of Crashes	
Property Damage Only	946	87%
Injury of any type (Serious, Minor, Possible)	143	13%
Fatal (Kill)	2	0%
Total	1091	

Manner of Crash / Collision Impact	Number of Crashes	
Angle	444	41%
Sideswipe, same direction	214	20%
Not Applicable	52	5%
Front to rear	357	33%
Rear to side	8	1%
Other	5	0%
Sideswipe, opposite direction	7	1%
Front to front	2	0%
Unknown	1	0%
Rear to rear	1	0%
Total	1091	

Weather Condition	Number of Crashes	
Clear	933	86%
Snow	18	2%
Cloudy	48	4%
Blowing Sand, Soil, Dirt	1	0%
Rain	84	8%
Fog, Smog, Smoke	2	0%
Blowing Snow	1	0%
Unknown	1	0%
Freezing Rain or Freezing Drizzle	2	0%
Severe Crosswinds	1	0%
Total	1091	

Light Condition	Number of Crashes	
Daylight	889	81%
Dark-Not Lighted	7	1%
Dark-Lighted	172	16%
Dusk	14	1%
Dawn	5	0%
Unknown	3	0%
Other	0	0%
Dark-Unknown Lighting	1	0%
Total	1091	

Road Surface Condition	Number of Crashes	
Dry	937	86%
Wet	132	12%
Snow	16	1%
Ice / Frost	1	0%
Slush	4	0%
Unknown	1	0%
Standing Water	0	0%
Total	1091	

Time		Number of Crashes	
0:00	0:59	4	0%
1:00	1:59	4	0%
2:00	2:59	2	0%
3:00	3:59	2	0%
4:00	4:59	1	0%
5:00	5:59	7	1%
6:00	6:59	11	1%
7:00	7:59	40	4%
8:00	8:59	58	5%
9:00	9:59	57	5%
10:00	10:59	79	7%
11:00	11:59	86	8%
12:00	12:59	118	11%
13:00	13:59	90	8%
14:00	14:59	99	9%
15:00	15:59	99	9%
16:00	16:59	80	7%
17:00	17:59	98	9%
18:00	18:59	68	6%
19:00	19:59	27	2%
20:00	20:59	24	2%
21:00	21:59	23	2%
22:00	22:59	10	1%
23:00	23:59	4	0%
Total		1091	

Person Type	Number
Driver	2152
Passenger	496
Bicyclist	7
Pedestrian	16

GREENWICH RSA

DRAFT SHEET 1 OF 5

5/10/2018
P:\Projects\ConnDot\60482818_RSA\400_Technical\410_Towns\02 - Route 1\Task 3\Greenwich_Sheet_1.dgn

MATCH LINE

MATCH LINE

CONNECTICUT COORDINATE GRID

EAST PUTNAM AVENUE

LIBRARY ENTRANCE

WEST PUTNAM AVENUE

WEST PUTNAM AVENUE

WEST PUTNAM AVENUE EDGEWOOD DR PROSPECT ST

WEST PUTNAM AVENUE BROOKSIDE DR

WEST PUTNAM AVENUE GREENWICH AV ONE-WAY

BROOKSIDE DR

EDGEWOOD ROAD

PROSPECT ST

OAK ST

OLD POST RD

MELROSE AV

JOSEPHINE EVARISTO AV

COLUMBUS AV

FOX'S LN

EDGEWOOD AVE

OAKRIDGE ST

DEARFIELD DR

LAFAYETTE CT

LAFAYETTE PL

DAKTON AVE

FIELD POINT ROAD

BENEDICT PL

GREENWICH AVE

SPEED LIMIT 35

SPEED LIMIT 30

SPEED LIMIT 30

NB BUS STOP

BUS BUS STOP

S BUS STOP

BUS STOP

S SIGNAL

LEGEND

- SIDEWALK BOTH SIDES OF ROAD
- SIDEWALK ONE SIDE OF ROAD
- NO SIDEWALK
- PARKING
- CROSS WALK
- BUS PULL OFF
- ONE WAY
- S SIGNAL
- STOP SIGN
- CURRENT DOT PROJECT
- B BENCH AT BUS STOP
- NB NO BENCH AT BUS STOP
- S SHELTER AT BUS STOP

GREENWICH RSA

DRAFT

SHEET 2 OF 5

5/10/2018
P:\Projects\ConnDot\60482818.RSA\400_Technical\410_Towns\02 - Route 1\Task 3\Greenwich_Sheet_2.dgn

MATCH LINE

LAFAYETTE PL
SHERWOOD PL
MAHER AVE
MAPLE AVE
PARK AVE
PARK PL
OLD CHURCH RD
CHURCH ST
EAST PUTNAM AVENUE
WASHINGTON AVE
MASON ST
MAHER AVE
MILBANK AVE
OVERLOOK DR
WOODSIDE DR
BROOKRIDGE DR
HILLSIDE RD
INDIAN FIELD ROAD

EAST PUTNAM AV
TEMPLE DRIVEWAY

EAST PUTNAM AVENUE

MAPLE AVE
EAST PUTNAM AVE
MAHER AVE
MILBANK AVE

EAST PUTNAM AVENUE

EAST PUTNAM AVENUE

EAST PUTNAM AVENUE

EAST PUTNAM AVENUE

SPEED LIMIT 30

SCHOOL SPEED LIMIT 25 WHEN FLASHING YOUR SPEED

END SCHOOL ZONE

AHEAD

NB BUS STOP

B BUS STOP

S BUS STOP

MATCH LINE

LEGEND

- SIDEWALK BOTH SIDES OF ROAD
- SIDEWALK ONE SIDE OF ROAD
- NO SIDEWALK
- PARKING
- CROSS WALK
- BUS PULL OFF
- ONE WAY
- S SIGNAL
- STOP SIGN
- CURRENT DOT PROJECT
- B BENCH AT BUS STOP
- NB NO BENCH AT BUS STOP
- S SHELTER AT BUS STOP

GREENWICH RSA

DRAFT

SHEET 3 OF 5

5/10/2018
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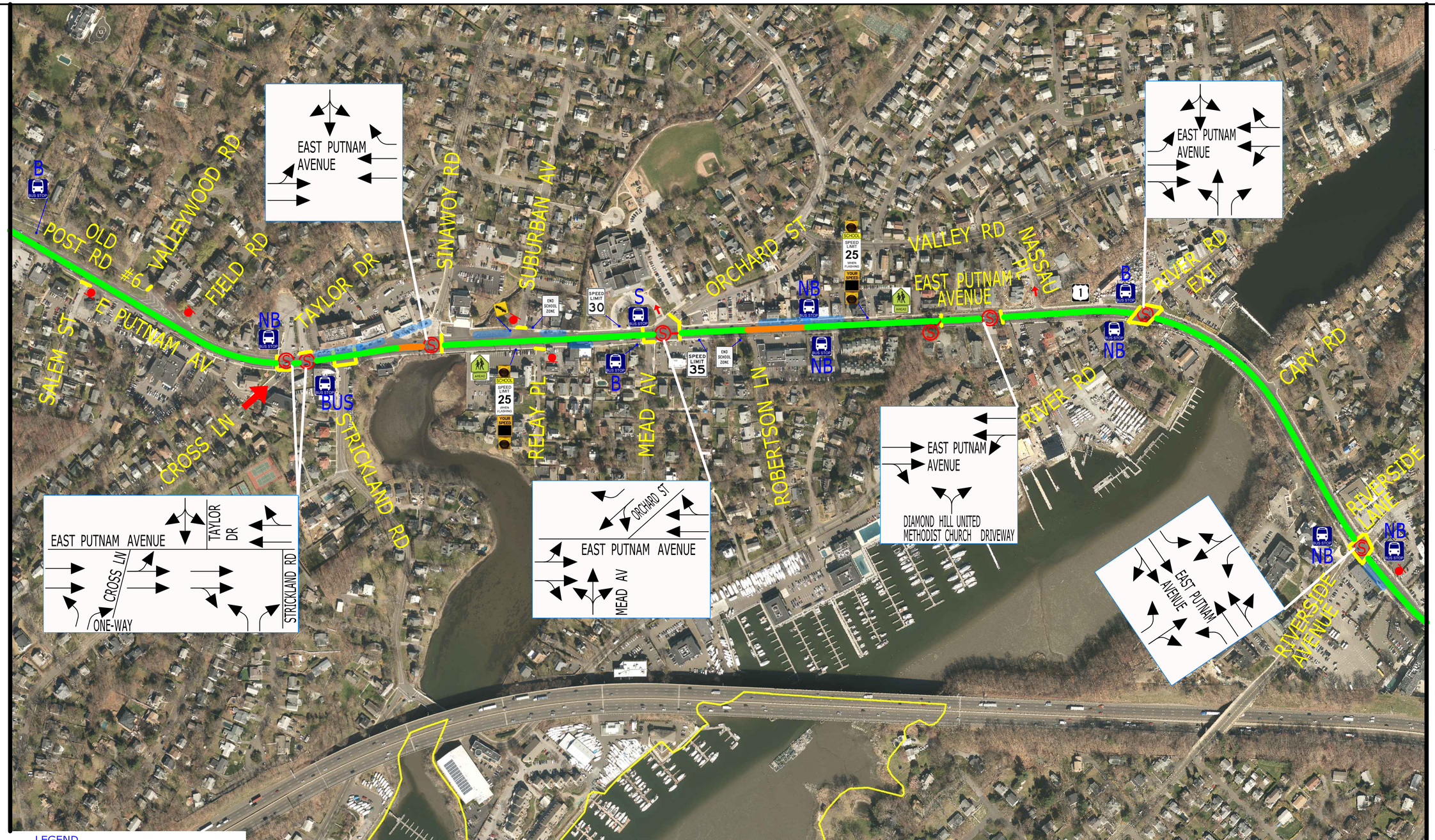
MATCH LINE



LEGEND

- SIDEWALK BOTH SIDES OF ROAD
- SIDEWALK ONE SIDE OF ROAD
- NO SIDEWALK
- PARKING
- CROSS WALK
- BUS PULL OFF
- ONE WAY
- S SIGNAL
- STOP SIGN
- CURRENT DOT PROJECT
- B BENCH AT BUS STOP
- NB NO BENCH AT BUS STOP
- S SHELTER AT BUS STOP

CONNECTICUT COORDINATE GRID

MATCH LINE

GREENWICH RSA

DRAFT SHEET 4 OF 5

5/10/2018
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MATCH LINE
LOCKWOOD LN
SHEEP HILL RD
NEIL LANE
SOUND BEACH AVE
PARK PL
OLD KING HWY
FERRIS DR
LADDINS ROCK RD
HAVEMEYER LN
W. MAIN ST
EAST PUTNAM AVENUE
EAST PUTNAM AVENUE
EAST PUTNAM AVENUE
EAST PUTNAM AVENUE
SOUND BEACH AVE
SPEED LIMIT 35
SPEED LIMIT 35
SPEED LIMIT 35
1
CONNECTICUT COORDINATE GRID
NB
B
S
LEGEND
SIDEWALK BOTH SIDES OF ROAD
SIDEWALK ONE SIDE OF ROAD
NO SIDEWALK
PARKING
CROSS WALK
BUS PULL OFF
ONE WAY
SIGNAL
STOP SIGN
CURRENT DOT PROJECT
B BENCH AT BUS STOP
NB NO BENCH AT BUS STOP
S SHELTER AT BUS STOP
GREENWICH RSA
DRAFT
SHEET 5 OF 5
5/10/2018
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Road Safety Audit – Greenwich

Fact Sheet

Functional Classification:

- Route 1 is classified as a Principal Arterial (Other)

ADT

- ADT on Route 1 is 29,400 – 12,600

Population and Employment Data (2016 US Census Bureau):

- Population: 62,434
- Employment: 35,089

Urbanized Area

- The study are of Route 1 is in the Bridgeport - Stamford Urbanized Area

Demographics

- The statewide average percentage below the poverty line is 10.5%
  The poverty level of Greenwich is 5.6%

- The statewide average percentage minority population is 23%
  The minority level of Greenwich is 16%

Air Quality

- Norwalk CIPP number 108
- Norwalk is within the NY/NJ/CT Moderate Ozone Area
  $PM_{2.5}$ Attainment/Maintenance Area
- Norwalk is within a Southwestern Region CO Attainment Area

Post-Audit Discussion Guide

Safety Issues

- Confirmation of safety issues identified during walking audit

Potential Countermeasures

- Short Term recommendations

- Medium Term recommendations

- Long Term recommendations

Next Steps

- Discussion regarding responsibilities for implementing the countermeasures (including funding)

COMMUNITY
connectivity program

Appendix B

Built to deliver a better world

Road Safety Audit

Town: Greenwich
RSA Location: Route 1
Meeting Location: Greenwich Town Hall
Address: 101 Field Point Rd Greenwich, CT
Date: May 15th, 2018
Time: 8:30am

Participating Audit Team Members

Audit Team Member	Agency/Organization
Jim Michel	Town of Greenwich DPW
Melissa Evans	Town of Greenwich DPW
Jason Kaufman	Town of Greenwich Engineering
Nick Mariani	Town of Greenwich Highway
Sgt. Pat Smyth	Town of Greenwich Police
Melanie Zimyeski	CTDOT
Kara Chandler	CTDOT
Kristen Floberg	WestCOG
Ariane Vera	WestCOG
Jay Lockaby	CTDOT Traffic
Steve Mitchell	AECOM
Kevin Tedesco	AECOM