



COMMUNITY
connectivity program

Town of Westport

U.S. Route 1 – Road Safety Audit

Post Road West, Post Road East, and State Street East

September 12, 2018



AECOM

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Acknowledgements:

OFFICE OF INTERMODAL PLANNING
BUREAU OF POLICY AND PLANNING
CONNECTICUT DEPARTMENT OF TRANSPORTATION

With assistance from AECOM Transportation Planning Group

Contents

1	Introduction to Post Road West, Post Road East and State Street East, Westport RSA	6
1.1	Location.....	6
2	Pre-audit Assessment.....	7
2.1	Pre-audit Information.....	7
2.2	Prior Successful Effort	17
2.3	Pre-Audit Meeting	17
3	RSA Assessment.....	18
3.1	Field Audit Observations	18
3.2	Post Audit Workshop - Key Issues.....	22
4	Recommendations.....	22
4.1	Short Term.....	23
4.2	Medium Term	28
4.3	Long Term	33
4.4	Summary	40

Figures

Figure 1.	Post Road West, Post Road East, and State Street East (Route 1) Westport.....	6
Figure 2.	Study Area – Regional Context	7
Figure 3.	Crashes that Occurred in 2015 (Connecticut Crash Data Repository)	9
Figure 4	Crash Data Heat Map (2015-2017)	9
Figure 5.	Post Road West, Westport Route 1 - Road Geometrics.....	11
Figure 6.	Post Road East, Westport Route 1 - Road Geometrics.....	12
Figure 7.	Post Road East, Westport Route 1 - Road Geometrics.....	13
Figure 8.	Post Road East, Westport Route 1 - Road Geometrics.....	14
Figure 9.	Aerial of Wilton Intersection.....	18
Figure 10	Skewed four-way intersection.....	18
Figure 11.	Crosswalk Missing ADA Ramp.....	19
Figure 12.	Skewed Stop-controlled T-Intersection	19
Figure 13.	Nose in Parking	20
Figure 14.	Uneven Cracked Pavement.....	21
Figure 15.	Vehicle Mid-Intersection When signal Turns Red.....	21
Figure 16	Left turn must turn left sign.....	23
Figure 17.	Short Term Recommendations Map 1	24

Figure 18. Short Term Recommendations Map 2.....	25
Figure 19. Short Term Recommendations Map 3.....	26
Figure 20. Short Term Recommendations Map 4.....	27
Figure 21. ADA Compliant Ramp.....	28
Figure 22. Pedestrian Signal Head	28
Figure 23. Rapid Rectangular Flashing Beacon	28
Figure 24. Medium Term Recommendations -1	29
Figure 25. Medium Term Recommendations -2.....	30
Figure 26. Medium Term Recommendations -3.....	31
Figure 27. Medium Term Recommendations -4.....	32
Figure 28. Driveway Consolidation.....	35
Figure 29. Curb Radii Diagram.....	35
Figure 30. Long Term Recommendations -1	36
Figure 31. Long Term Recommendations -2	37
Figure 32. Long Term Recommendations -3	38
Figure 33. Long Term Recommendations -4.....	39

Tables

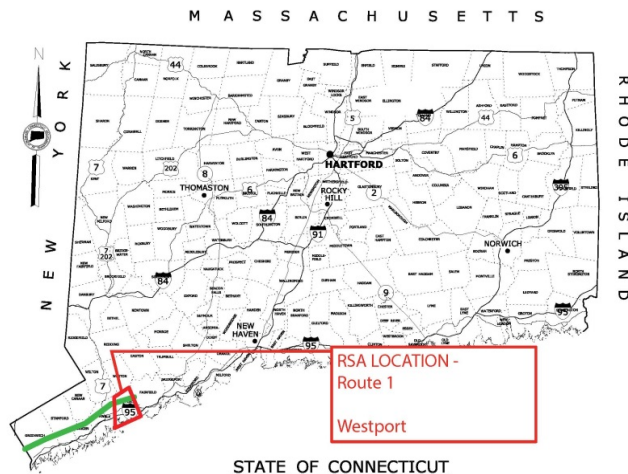
Table 1. Crash Severity 2015-2017	7
Table 2. Crash Type 2015-2017	8
Table 3. Street Inventory-1	15
Table 4. Street Inventory-2.....	16



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.



1 Introduction to Post Road West, Post Road East and State Street East, Westport 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 Westport.

The Town of Westport corridor includes US Route 1 (Post Road West, Post Road East, and State Street East) from the City of Norwalk border to the Town of Fairfield border, a distance of 4.8 miles. 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 Post Road West, Post Road East, and State Street East (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 Post Road West is between 13,200 and 23,400 vehicles per day (vpd), Post Road East is between 21,700 and 24,500 vpd, and State Street East is 22,900 vpd. These are considered moderate to high volumes for suburban/urban roadways. The corridor has two lanes in each direction. All major intersections throughout the study area are controlled by traffic signals.

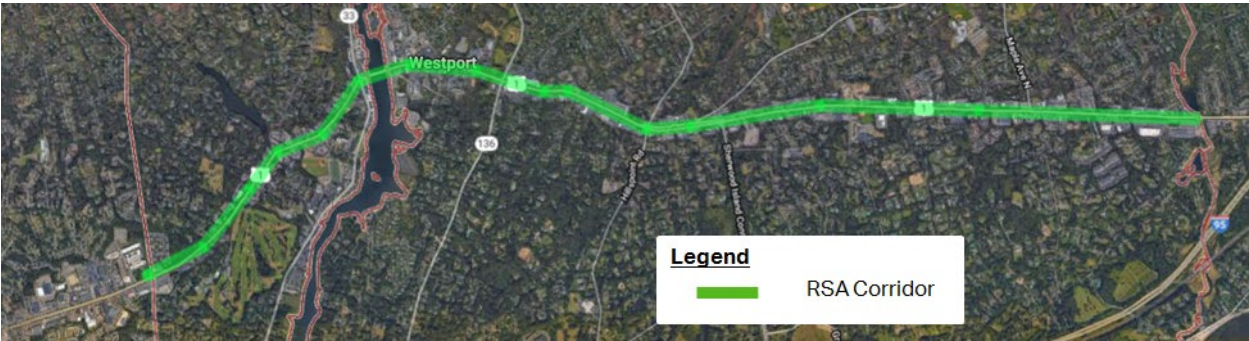


Figure 1. Post Road West, Post Road East, and State Street East (Route 1) Westport



Figure 2. Study Area – Regional Context

2 Pre-audit Assessment

2.1 Pre-audit Information

Between 2015 and 2017 there were 536 crashes throughout the RSA corridor. Over 90% of these collisions were angle, sideswipe same direction, or front to rear (rear-end) collisions, with rear end collisions representing nearly half of all collisions. This is a strong indication 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	of
Property Damage Only	443	83%
Injury of any type (Serious, Minor, Possible)	92	17%
Fatal (Kill)	1	0%
Total	536	

Table 1. Crash Severity 2015-2017

Manner of Crash / Collision Impact	Number of Crashes	
Rear to rear	2	0%
Front to rear	255	48%
Angle	158	29%
Not Applicable	13	2%
Sideswipe, same direction	86	16%
Other	13	2%
Sideswipe, opposite direction	4	1%
Rear to side	2	0%
Unknown	2	0%
Front to front	1	0%
Total	536	

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. The great majority of crashes (83%) resulted only in property damage, although injuries occurred in 17%. One crash resulted in a fatality. This was a head-on vehicular collision that did not involve a pedestrian or bicycle.

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 seen to occur around intersections.

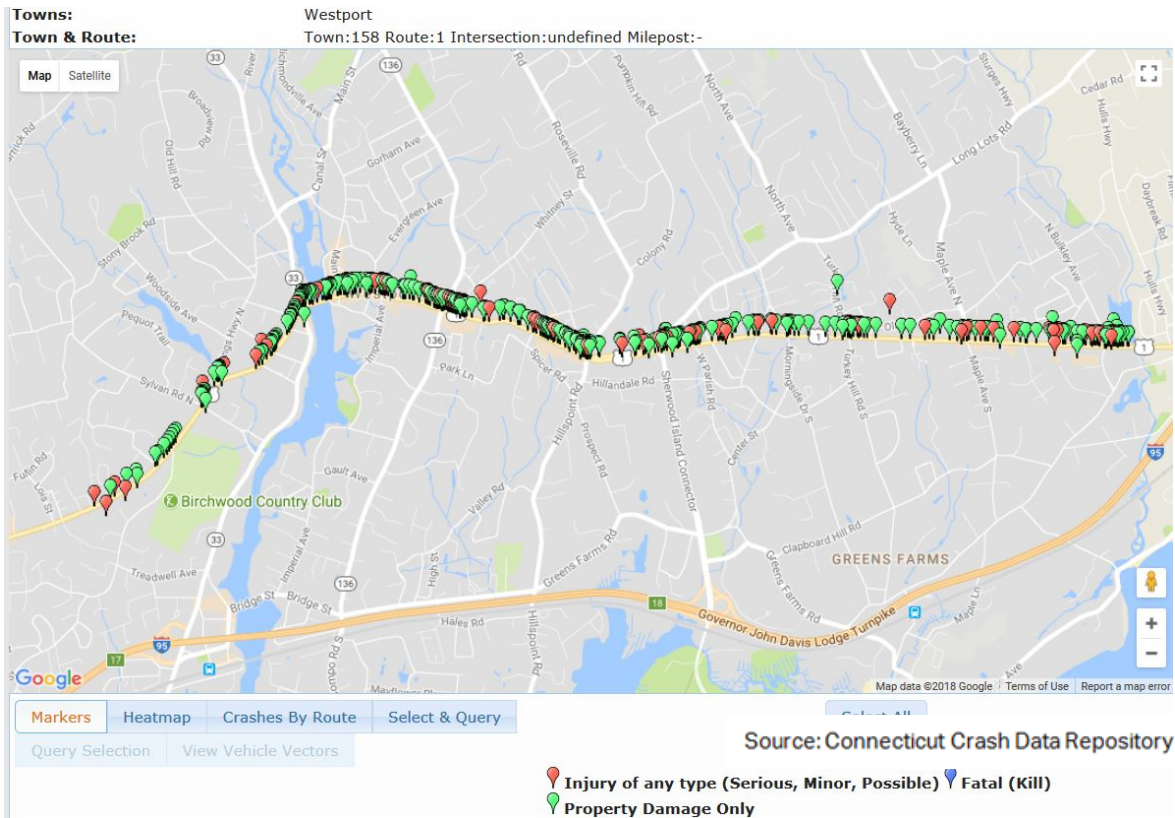


Figure 3. Crashes that Occurred in 2015 (Connecticut Crash Data Repository)

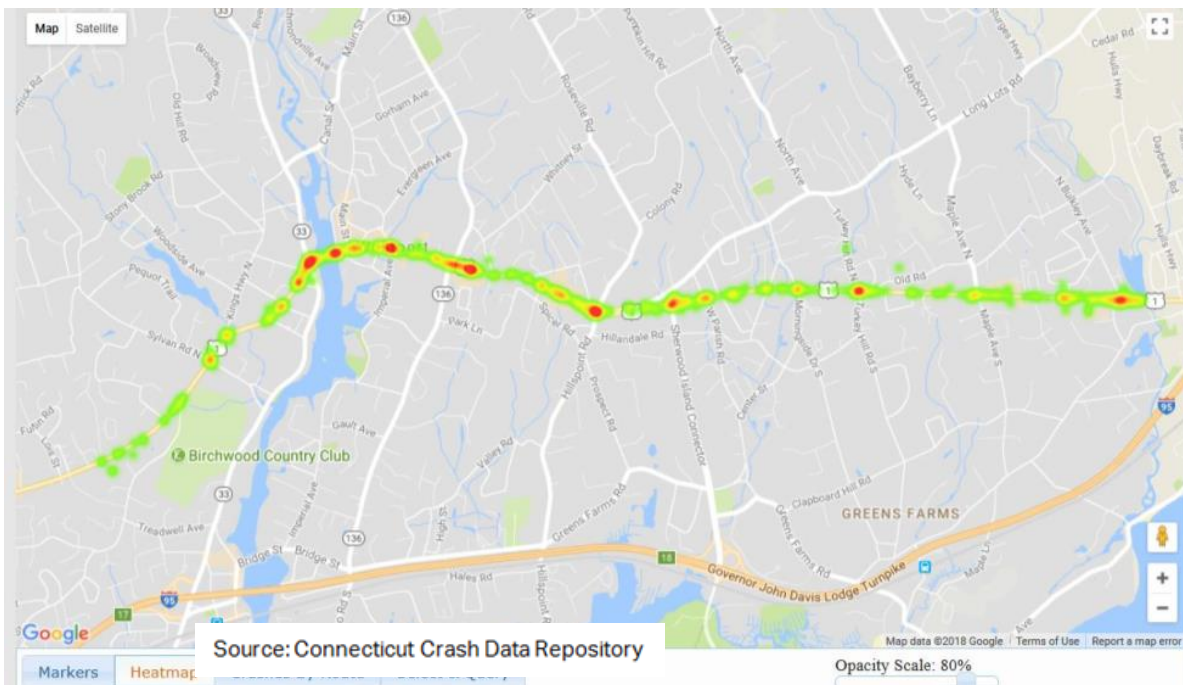


Figure 4 Crash Data Heat Map (2015-2017)

There are 21 signalized intersections within the study corridor. Many of these are closely spaced. In addition, there are many driveways to private businesses, including 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:

- Post Road West at Wilton Road/ CT-33
- Post Road East at Compo Shopping Center and Trader Joes
- Post Road East at Hillspoint Road and Roseville Road
- Post Road East at Long Lots Road
- Post Road East at Maple Avenue
- Post Road East at Bulkley Avenue

Roadway geometrics for study corridor roadways and intersections are shown in Figure 5, Figure 6, Figure 7, and Figure 8. An inventory of existing conditions of the intersections can be found in Table 3 and Table 4.

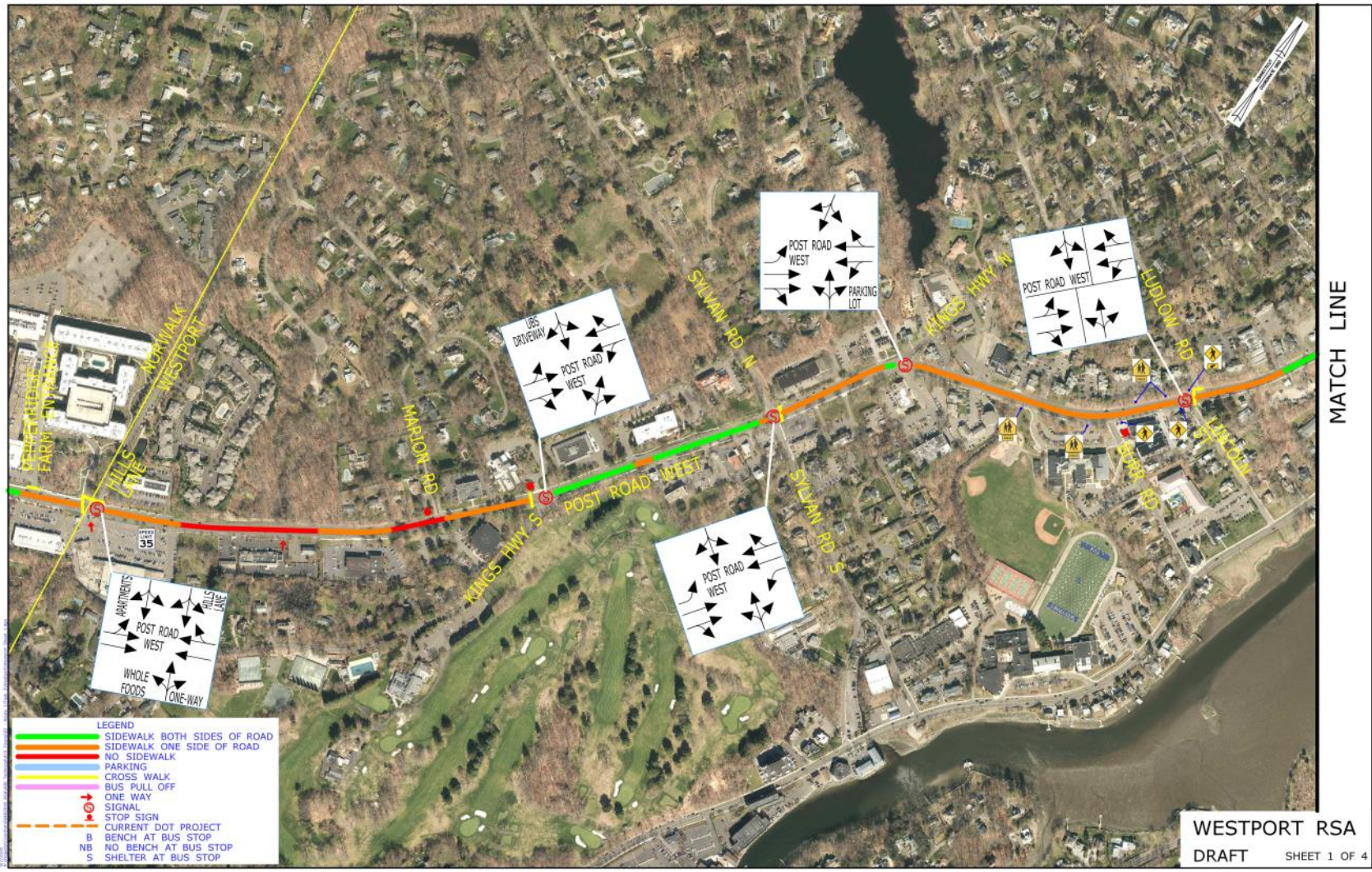


Figure 5. Post Road West, Westport Route 1 - Road Geometrics



Figure 6. Post Road East, Westport Route 1 - Road Geometrics



Figure 7. Post Road East, Westport Route 1 - Road Geometrics



Figure 8. Post Road East, Westport Route 1 - Road Geometrics

Westport RSA

Street Inventory

From	To	Length (ft)	Lanes (Width)	Side	Sidewalk			Curb	Parking	Shoulder	Ramps	
					Type	Width	Condition				Exist	Compliant
Norwalk Town Line	Imperial Plaza East Driveway	470	2 (11')	EB	None	N/A	N/A	Asphalt	No	No	No	No
			2 (11')	WB	Concrete	5'	Fair	Asphalt	No	No	Yes	No
Imperial Plaza East Driveway	345 Post Rd. W	680	2(11')	EB	None	N/A	N/A	Asphalt	No	No	No	No
			2(11')	WB	None	N/A	N/A	Asphalt	No	No	No	No
345 Post Rd. W	333 Post Rd. W	320	2 (11')	EB	Concrete	5'	Good	Concrete	No	No	Yes	Yes
			2 (11')	WB	None	N/A	N/A	Asphalt	No	No	No	No
333 Post Rd. W	Marion Rd	200	2 (11')	EB	None	N/A	N/A	Asphalt	No	No	No	No
			2 (11')	WB	None	N/A	N/A	Asphalt	No	No	No	No
Marion Rd	Kings Hwy S	450	2 (11')	EB	None	N/A	N/A	Asphalt	No	No	No	No
			2 (11')	WB	Concrete	4'	Fair	Asphalt	No	No	Yes	No
Kings Hwy S	243 Post Rd. W	885	2 (11')	EB	Concrete	5'	Fair	Concrete	No	No	Yes	No
			2 (11')	WB	Concrete	5'	Fair	Asphalt	No	No	Yes	No
243 Post Rd. W	Sylvan Rd	225	2 (11')	EB	None	N/A	N/A	Concrete	No	No	No	No
			2 (11')	WB	Asphalt	4'	Poor	None	No	No	No	No
Sylvan Rd	Wright St	2975	2 (11')	EB	Concrete	4'	Fair	Concrete	No	No	Yes	No
			2 (11')	WB	None	N/A	N/A	Asphalt	No	No	No	No
Wright St	Jesup Rd	880	2(10.5')	EB	Concrete	6'	Fair	Concrete	No	3'	Yes	No
			2(10.5')	WB	Concrete	6'	Fair	Concrete	No	<1'	Yes	No
Jesup Rd	Taylor	215	2(10')	EB	Brick	11'	Good	Granite	No	<1'	Yes	No
			2(10')	WB	Concrete	6'	Good	Concrete	No	<1'	Yes	No
Taylor	Bay St.	700	1(13')	EB	Concrete	5'	Fair	Concrete	Yes	No	Yes	No
			2(10')	WB	Brick	7'	Good	Granite	Yes	No	Yes	No
Bay St.	East Main St.	2550	2 (12')	EB	Concrete	6'	Fair	Concrete	No	Varies	Yes	No
			2 (12')	WB	Concrete	6'	Fair	Concrete	No	Varies	Yes	No
East Main St.	Crescent Park Rd	470	2(11'-13')	EB	Concrete	5'	Good	Asphalt	No	No	Yes	No
			2(11'-13')	WB	None	N/A	N/A	None	No	No	No	No
Crescent Park Rd	Crescent Rd	300	2(11'-13')	EB	Concrete	5'	Good	Asphalt	No	No	Yes	No
			2(11'-13')	WB	Concrete	5'	Fair	Concrete	No	No	Yes	No
Crescent Rd	The Fresh Market W. Driveway	660	2(11'-17')	EB	None	N/A	N/A	Asphalt	No	No	No	No
			2(11'-17')	WB	Concrete	5'	Good	Concrete	No	No	Yes	Yes
The Fresh Market W. Driveway	The Fresh Market E. Driveway	500	2(11'-13')	EB	None	N/A	N/A	Asphalt	No	No	No	No
			2(11'-17')	WB	None	N/A	N/A	Asphalt	No	No	No	No
The Fresh Market E. Driveway	Roseville Rd	640	2(11'-13')	EB	Asphalt	3'	Fair	Asphalt	No	No	Yes	No
			2(11'-17')	WB	None	N/A	N/A	Asphalt	No	No	No	No
Roseville Rd	732 Post Rd E	420	2(12'-15')	EB	Concrete	5'	Fair	Asphalt	No	Varies	Yes	No
			2(12'-15')	WB	Concrete	6'	Good	Concrete	No	Varies	No	No
732 Post Rd E	Long Lots Rd	780	2 (12')	EB	None	N/A	N/A	Asphalt	No	Varies	No	No
			2 (12')	WB	Concrete	5'	Good	Concrete	No	Varies	Yes	No
Long Lots Rd	Sherwood Island Connector	550	3 (11')	EB	None	N/A	N/A	Asphalt	No	Varies	No	No
			2 (11')	WB	None	N/A	N/A	Asphalt	No	Varies	No	No
Sherwood Island Connector	880 Post Rd. E	460	2 (12')	EB	Concrete	5'	Good	none	No	Varies	Yes	No
			2 (12')	WB	None	N/A	N/A	Asphalt	No	Varies	No	No
880 Post Rd. E	Ceder Rd	350	2(10'-14')	EB	Concrete	6'	Good	Asphalt	No	Varies	Yes	Yes
			2(10'-14')	WB	Concrete	6'	Good	Concrete	No	Varies	Yes	Yes
Ceder Rd	Colonial Rd	410	2(10'-14')	EB	Concrete	5'	Fair	Concrete	No	No	Yes	No
			2(10'-14')	WB	Concrete	5'	Fair	Asphalt	No	No	Yes	No
Colonial Rd	995 Post Rd E	200	2(11'-15')	EB	None	N/A	N/A	None	No	No	No	No
			2(11'-15')	WB	None	N/A	N/A	None	No	No	No	No
995 Post Rd E	Church St	815	2(11'-15')	EB	Concrete	5'	Good	Concrete	No	No	Yes	Yes
			2(11'-15')	WB	Concrete	5'	Fare	Asphalt	No	No	Yes	No
Church St	Morningside Dr N	600	2(11'-15')	EB	None	N/A	N/A	Asphalt	No	No	No	No
			2(10'-12')	WB	Concrete	5'	Fair	Asphalt	No	No	Yes	No
Morningside Dr N	1200 Post Rd E	540	2(11'-15')	EB	None	N/A	N/A	Asphalt	No	No	No	No
			2(11'-15')	WB	None	N/A	N/A	Asphalt	No	No	No	No
1200 Post Rd E	1244 Post Rd E	450	2(11'-15')	EB	Concrete	5'	Fair	Asphalt	No	No	Yes	No
			2(11'-15')	WB	Concrete	5'	Good	Concrete	No	No	Yes	No
1244 Post Rd E	Harvest Commons	515	2(11'-15')	EB	None	N/A	N/A	Asphalt	No	No	No	No
			2(11'-15')	WB	Concrete	4'	Fair	Asphalt	No	No	No	No

Table 3. Street Inventory-1

Westport RSA

Street Inventory

From	To	Length (ft)	Lanes (Width)	Side	Sidewalk			Curb	Parking	Shoulder	Ramps	
					Type	Width	Condition				Exist	Compliant
Harvest Commons	Mill St W	315	2(11'-15')	EB	Concrete	5'	Good	Concrete	No	No	Yes	Yes
					Concrete	5'	Fair	Asphalt	No	No	Yes	No
Mill St W	Mill St E	540	2(11'-15')	EB	None	N/A	N/A	Concrete	No	No	No	No
				WB	Concrete	5'	Fair	Concrete	No	No	Yes	No
Mill St E	Regent Park Condo Rd	285	2(11'-15')	EB	Concrete	5'	Fair	Asphalt	No	No	Yes	No
				WB	Concrete	5'	Fair	Concrete	No	No	Yes	No
Regent Park Condo Rd	Green Farms Plaza Driveway	500	2(11'-15')	EB	Concrete	4'	Fair	Asphalt	No	No	Yes	No
				WB	None	N/A	N/A	Asphalt	No	No	No	No
Green Farms Plaza Driveway	Maple Ave	620	2(11'-15')	EB	Concrete	4'	Fair	Asphalt	No	No	Yes	No
				WB	Concrete	5'	Fair	Asphalt	No	No	Yes	No
Maple Ave	1550 Post Rd E	285	2(10')	EB	Concrete	5'	Fair	Asphalt	No	<1'	Yes	No
				WB	None	N/A	N/A	Asphalt	No	<1'	No	No
1550 Post Rd E	Oakville Circle	775	2 (11')	EB	None	N/A	N/A	Asphalt	No	Varies	No	No
				WB	Concrete	4'	Fair	Asphalt	No	Varies	Yes	No
Oakville Circle	Lansdowne	335	2 (11')	EB	Concrete	5'	Fair	Asphalt	No	Varies	Yes	No
				WB	Concrete	5'	Good	Concrete	No	Varies	Yes	Yes
Lansdowne	1690 Post Rd E	375	2 (11')	EB	None	N/A	N/A	Asphalt	No	Varies	No	No
				WB	None	N/A	N/A	Asphalt	No	<1'	No	No
1690 Post Rd E	Westport Shopping Center West Driveway	415	2 (11')	EB	Concrete	6'	Good	Concrete	No	Varies	Yes	Yes
				WB	None	N/A	N/A	Asphalt	No	<1'	No	No
Westport Shopping Center West Driveway	Buckley Ave	885	2 (11')	EB	None	N/A	N/A	Concrete	No	Varies	No	No
				WB	None	N/A	N/A	Concrete	No	<1'	No	No
Buckley Ave	Fairfield Town Line	300	2 (11')	EB	Concrete	5'	Good	Asphalt	No	Varies	Yes	No
				WB	Concrete	5'	Good	Concrete	No	<1'	Yes	Yes

Table 4. Street Inventory-2

2.2 Prior Successful Effort

The Town of Westport has made some successful efforts to improve bike and pedestrian connectivity. The Town developed a downtown master plan in 2015 to enhance pedestrian connections, bike paths, general traffic flow and overall connectivity. In addition, to improve pedestrian connectivity, the Town's Planning and Zoning Department requires all new developments to install sidewalks adjacent to their property.

2.3 Pre-Audit Meeting

The RSA was conducted on September 12, 2018. The Pre-Audit meeting was held at 8:30 AM in the Town Hall, located at 110 Myrtle Avenue.

The RSA Team was comprised of staff from CTDOT, staff from AECOM, and representatives from several town departments that include the Department of Public Works, Fire Department, Planning and Zoning, Police Department, as well as a representative from the Town Traffic and Transit Committee and NV5. 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:

- This corridor is 4.8 miles long.
- US-1 is owned by the State and maintained by the Town.
- Generally, the road is four lanes wide, with intermittent turning lanes.
- ADT varies from about 13,400 to 24,000.
- Crashes occurred relatively consistently throughout the corridor with a few hot spots.
- Top crash types: rear ends, angles, sideswipe same directions.
- Weather and illumination are not issues.
- Low pedestrian and bike crash rates.
- Poor vehicle compliance with pedestrians in crosswalks.
- High occurrence of school bus violations in corridor and town in general.
- There is higher percentage of crashes from noon to 1PM, possibly attributable to the midday lunch break traffic.
- Sidewalks are on at least one side of street throughout the corridor.
- Westport Planning and Zoning requires sidewalks be installed with all new developments.
- In front of Fresh Market (just east of Crescent Road) there is no sidewalk and the Town representatives want sidewalk installed here.
- Driveway consolidation is not required by Town.
- Fire Chief expressed concern that any future consolidation and access modifications accommodate fire trucks.
- **US-1 and Maple Ave**
 - Proximity to school

- Long traffic queues during morning commute from people dropping off kids at school and then continuing along Maple Ave to get to the Metro North Train Station
- The pavement is uneven along Maple Avenue traversing US-1. There are dips on each side of US-1
- The neighborhoods on either side of US-1 are residential
- **US-1 and West Fair Drive**
 - Spike in crashes
 - Midblock crossing
- **US-1 and Lansdowne Condo Road**
 - Midblock Crossing
- Fast food restaurants/bus flag down services creates a propensity for pedestrians to jaywalk

3 RSA Assessment

3.1 Field Audit Observations

US-1/Wilton Road/ CT-33

- Four-way signalized intersection.
- Eastbound US-1 congestion due to the single through lane.
- Travel lane reduction and high vehicular volume causes bottle necks.
- Westbound US-1 left turn only lane causes back up and is a major site of traffic violations. Thru traffic illegally uses exclusive left turn only lane. This is enforced daily according to local law enforcement.
- Some traffic violations in westbound lanes are due to lack of adequate advanced traffic signage and pavement markings. Signage and pavement markings don't alert drivers as to which lane they need to be in for the direction they wish to go.



Figure 9. Aerial of Wilton Intersection

US-1/Compo Shopping Center/Trader Joes

- Skewed four-way signalized intersection (Driveways are located opposite and offset from each other) (Figure 10).
- There is a crosswalk with push buttons to call the side street phase. There are auxiliary



Figure 10 Skewed four-way intersection

pedestal mounted signals placed to provide visibility for the pedestrians.

- Signal timing appears to be inefficient.
- Poor drainage noted at crosswalk.
- Ramp on north side is not ADA compliant.
- Signal equipment encroaches on useable sidewalk area.
- District office will be contacted for information on age and plans of signal at Trader Joe's.

US-1 Hillspoint Road/ Roseville Road

- Four-way signalized intersection with a lead lag phase on US-1.
- US-1 measures 78 feet across.
- Northern leg of Roseville Road measures 52 feet across.
- The only marked crosswalk is on the west leg of the intersection. This walk is approximately 80 feet long. The southerly end of this crosswalk is at a narrow area between Hillspoint Road and a commercial driveway. There is no sidewalk or ramp at this location.
- Traffic queues up on Roseville Road, blocking vehicles turning left into McDonalds.
- Sidewalk on the south-east corner is being encroached upon by utilities, narrowing its effective width to approximately 2.5 feet.
- No ADA compliant ramps installed at this time (Figure 11).
- The pushbuttons are not accessible, and are set back from the paved surfaces. Pushbuttons call the side street phase. Auxiliary pedestrian signals are not provided since side street signal faces are visible to crossing pedestrians.
- Turning radius on northwest corner is excessive since this is not a common truck route.

US-1 and Long Lots Road

- US-1 is bifurcated between the Sherwood Island Connector and Roseville Road.
- Skewed stop-controlled T-intersection (Figure 12). Traffic can enter Long Lots Road from



Figure 11. Crosswalk Missing ADA Ramp



Figure 12. Skewed Stop-controlled T-Intersection

either direction, but traffic onto US-1 must turn right. Channelizing island on Long Lots Road has very low curbs and a utility pole in the center of the island.

- Residential lot on north side of Long Lots Road—apartments and town homes and retail are under construction—anticipated to house approximately 50 residents.
- Sidewalk on north side of US-1 runs to west from the intersection. There is no crosswalk. There is sidewalk to the east, although it currently stops at the next driveway. It is not clear if the next parcel (presently under construction) will continue the sidewalk eastward.

US-1 and Maple Ave

- This is a four-way signalized intersection with loop detectors on Maple Ave.
- US-1 measures 57 feet across.
- There are crosswalks on US-1.
- There are no marked crosswalks on Maple Avenue.
- No ADA buttons, pedestrian heads or pedestrian phase is provided. There is an auxiliary vehicle signal for pedestrian visibility.
- There are pushbuttons on the northeast corner (pedestal mounted) and southeast corner (controller mounted) that call the side-street phase. They are not located within reach of the sidewalk or pedestrian ramps.
- Crosswalks do not align properly with ramps; some miss the ramp location completely. No tactile warning strips are provided.
- Parking at stores on north side of Post Rd is nose-in, angled (Figure 13), separated from US-1 by a paved median roughly 4 feet wide. There is no dedicated pedestrian path.
- There is also perpendicular parking on Maple Street, with parked vehicles pulling in and out directly from the roadway.
- There is also no sidewalk in front of the retail stores.



Figure 13. Nose in Parking

- There is an elementary school to the north of US-1 on Maple Avenue.
- Congestion is heavy on southbound Maple Avenue at arrival and dismissal times.
- Pavement is uneven and there is a significant dip travelling from Maple Ave over US-1 (Figure 14).
- There are multiple, large curb cuts for retail access on north side of US-1.
- The north-east corner radius is undefined. The store parking continues around the building with no definition of a corner edge of road. Plans are to close off the parking area and to add sidewalks along US-1 as part of the redevelopment of this site.

US-1/Bulkley Ave

- Four way skewed, signalized intersection with exclusive pedestrian phase.
- US-1 measures 56' across
- Stop bars on US-1 are set back because of the offset at the intersection.
- There is a gravel median on Bulkley Avenue north of US-1. It seems feasible to relocate the island to the west and revise the geometry to align the intersection. Utility pole looks as though it would not need to be moved.
- Marked crosswalks on Bulkley Avenue are not provided.
- US-1 has pedestrian countdown signals; the pedestrian heads do not show all countdown functions such as the walk symbol.
- Cars weave at north side of intersection due to the island.
- Current crosswalk is not level enough for ADA compliance.
- Cars were seen to be trapped mid-intersection when the signal turns red (Figure 15).

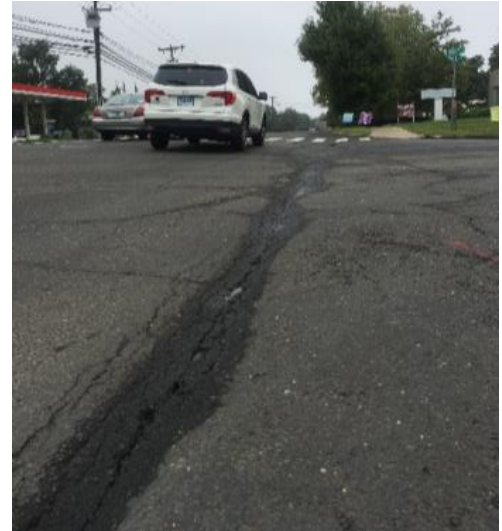


Figure 14. Uneven Cracked Pavement



Figure 15. Vehicle Mid-Intersection When signal Turns Red

3.2 Post Audit Workshop - Key Issues

- Inventory and upgrade signals.
 - ADA compliant signals, buttons, indications
 - Better coordination
 - Improved detection
 - Better geometry and lane arrangements.
- Investigate current midblock crossings to determine the most appropriate type of traffic control (possibly Rapid Rectangular Flashing Beacons) and upgrade.
- Coordinate with the Greater Bridgeport Transit District to move all bus stops closer to intersections.
- Encourage all future developments follow corridor access management best practices to reduce turning movements, and also to complete gaps in the sidewalk system.
- To the extent possible, work with existing developments to reduce/eliminate/combine drives to reduce turning movements, and also to complete gaps in the sidewalk system.
- Coordinate with WESTCOG for the Route 1 Study (aka "Main to Train" study).
- Coordinate with CT DOT to improve sidewalk connectivity, reduce lane widths, and upgrade ADA ramps during next Vendor in Place (VIP) program.
- Restripe high visibility crosswalks.
- Work with CT DOT to inventory and upgrade all pedestrian signal equipment along corridor.

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. Encourage all future developments follow corridor access management best practices to reduce turning movements.
2. Restripe high visibility crosswalks throughout corridor.
3. Inventory all pedestrian signals throughout corridor.
4. US-1/Wilton Road/CT-33:
 - a. Eliminate on-street parking if spots are available for public use at nearby garage.
 - b. Restripe for two lanes for eastbound traffic east of signal (2019 CTDOT VIP program to improve markings).
 - c. Continue to enforce traffic violations at intersection.
 - d. Improve pavement markings and directional signage for travel lanes, especially for westbound travel. Consider use of "Left Lane MUST Turn Left AHEAD" signs (Figure 17).
5. WestCOG US-1 Study could take traffic counts at US-1/ Compo Shopping Center/Trader Joes (Counts have been performed).
6. Install "Do Not Block Intersection" sign and pavement markings on Roseville Road in front of McDonalds entrance.
7. US-1 and Maple Avenue
 - a. Add crosswalks on north and south legs.



Figure 16 Left turn must turn left sign

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



Figure 17. Short Term Recommendations Map 1

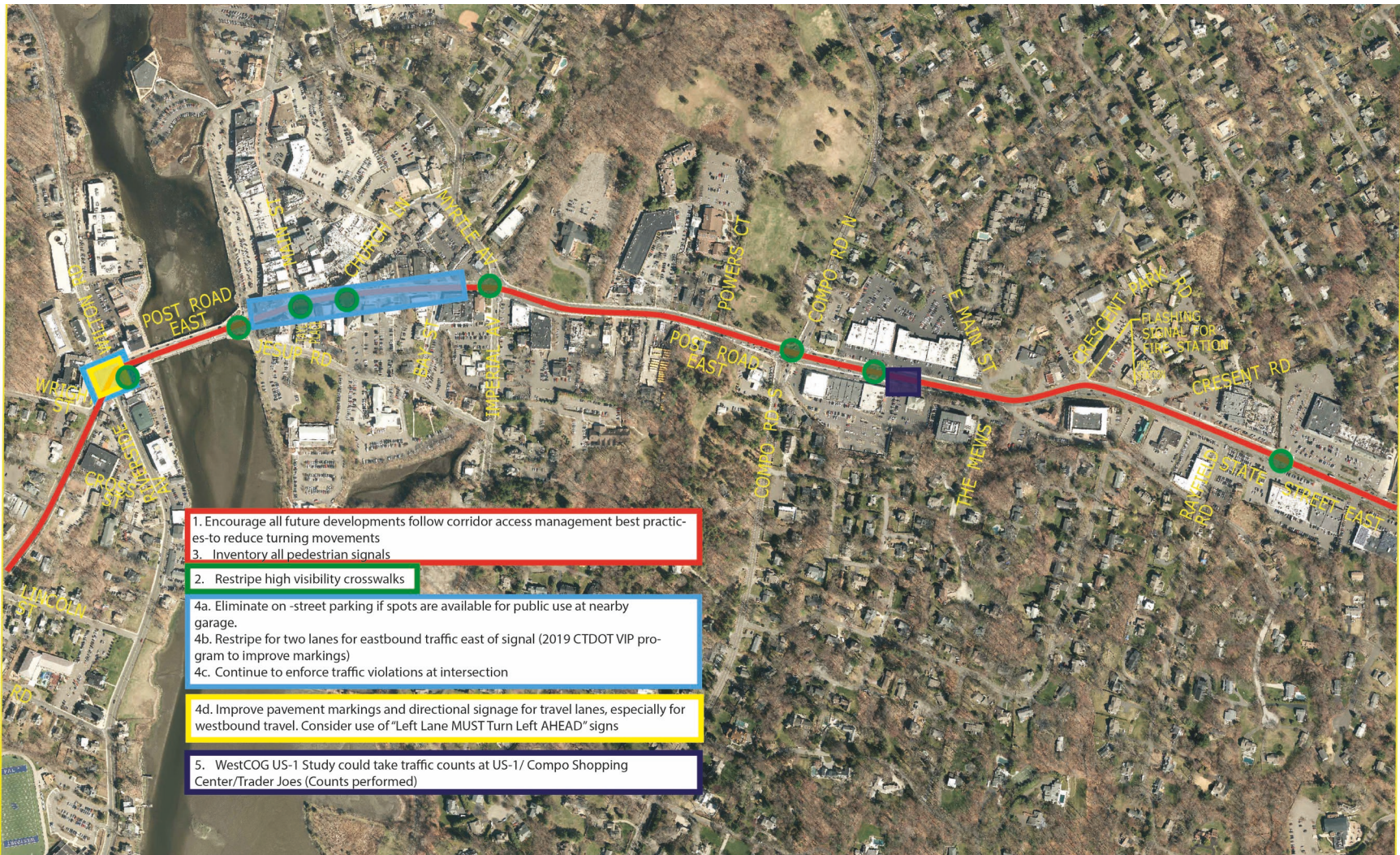


Figure 18. Short Term Recommendations Map 2



Figure 19. Short Term Recommendations Map 3



Figure 20. Short Term Recommendations Map 4

4.2 Medium Term

1. Upgrade current midblock pedestrian crossings at Westfair Drive and at Landsdowne Condo Road with Rapid Rectangular Flashing Beacons (RRFB's) (Figure 23). The work shall include upgrading of the crosswalks and installation of ADA compliant ramps.
2. Coordinate with WESTCOG for Route 1 Main to Train Study.
3. Coordinate with CTDOT to reduce lane widths, and upgrade ADA ramps during next Vendor in Place (VIP) program.
4. Upgrade pedestrian signals throughout corridor for ADA compliance. (Figure 22)
5. Inventory and install ADA Compliant Ramps. (Figure 21)

Figure 24, Figure 25, Figure 26, and Figure 27 depict these recommendations.



Figure 21. ADA Compliant Ramp



Figure 22. Pedestrian Signal Head



Figure 23. Rapid Rectangular Flashing Beacon



Figure 24. Medium Term Recommendations -1



Figure 25. Medium Term Recommendations -2

- 3. Coordinate with the State to reduce lane widths, and upgrade ADA ramps during next Vendor in Place (VIP) program.
- 4. Upgrade or replace selected pedestrian signals along corridor.
- 5. Inventory and install ADA Compliant Ramps.



Figure 26. Medium Term Recommendations -3



Figure 27. Medium Term Recommendations -4

4.3 Long Term

1. Inventory and upgrade the signals in the corridor.
2. Coordinate with the Greater Bridgeport Transit District to move all bus stops closer to intersections.
3. US-1/Compo Shopping Center/Trader Joes
 - a. Coordinate with owner of Compo Shopping Center to align their driveway with Trader Joes.
 - b. Relocation of one utility pole may be necessary.
 - c. Relocate the pedestrian crossing to the revised intersection location.
 - d. ADA accessible ramps should be constructed.
 - e. The signal should be upgraded to provide ADA compliant pedestrian signals and pushbuttons.
4. US-1 and Fresh Market /Shopping Centers (between Crescent Road and Roseville Road)
 - a. A significant portion of this section of the corridor has no sidewalk on the south side; sidewalk is also missing across the frontage of the Fresh Market shopping center on the north side. This sidewalk should be completed to connect the sidewalk to the east and west.
 - b. In several locations, completing the sidewalk may have some degree of impact on the adjacent property because they have built out their sites to the edge of the right-of-way line, or because they regularly encroach on the right-of-way.
 - c. In some locations, completion of the sidewalk may require utility relocations.
 - d. Some opportunity exists to reconfigure/combine driveways for better access management.
 - e. At the signalized intersection, ADA accessible ramps should be constructed, and connected to the continuous sidewalk system.
 - f. The signal should be upgraded to provide ADA compliant pedestrian signals and pushbuttons (State Project 158-215 to improve intersection).
5. US-1 and Hillspoint/Roseville Road (State Project 158-215 to improve intersection)
 - a. Present development on the northeast corner of the intersection should complete the missing sidewalk on that corner.
 - b. The single lane exit only driveway on the southwest corner should be narrowed and designated for right turns only.
 - c. Sidewalk should be extended on the north side and south side of US-1 to connect with existing sidewalk to the west. Sidewalk on the south side should be upgraded to concrete, as appropriate.
 - d. ADA accessible ramps should be installed on all four corners, and crosswalks should be installed.
 - e. The signal should be upgraded to provide ADA compliant pedestrian pushbuttons and signals.
 - f. Turning radii should be examined to determine that the appropriate corner widths are being provided.

6. US-1 and Long Lots Road
 - a. Present development on the north side of US-1 on the east and west sides of Long Lots Road should improve the geometry of the intersection, remove the utility hazard and complete a significant amount of missing sidewalk.
 - b. A crosswalk with appropriate ADA ramps should be provided crossing Long Lots Road and connecting to the existing walk to the west.
 - c. Remaining gaps in the sidewalk should be completed to connect to the sidewalk to the east.
7. US-1 and Maple Avenue
 - a. When parcel on northwest corner is redeveloped, work with developer to limit access to a single drive.
 - b. The redevelopment of the northeast corner should eliminate the issue of the open radius on that corner. It should also provide continuous sidewalk to the north to close the gap on the west side.
 - c. All sidewalks on all corners should be modified as necessary to provide ADA compliant ramps.
 - d. Marked crosswalks should be installed across Maple Avenue on both the North and South sides.
 - e. The signal should be upgraded to provide ADA compliant pedestrian signals and pushbuttons.
8. US-1 and Bulkley Avenue (State Project 158-215 to improve intersection)
 - a. Move crosswalk and stop bar on eastern leg of US-1 closer to the intersection.
 - b. Coordinate with the owner of the gas station on the south-east corner to narrow his westernmost drive. (Figure 28)
 - c. Make geometric modifications to the sidewalk, ramps, island, northeast corner and signal equipment.
 - d. Add crosswalks on Bulkley Ave.
 - e. Upgrade signal equipment to provide ADA compliant pedestrian buttons and signals on all legs.
 - f. Reduce curb radius on northwest corner of intersection. (Figure 29)

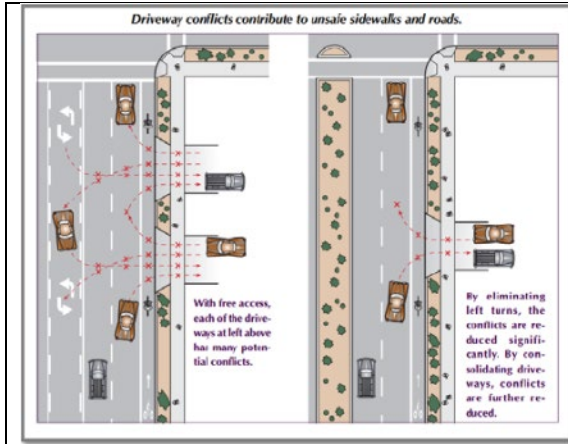


Figure 28. Driveway Consolidation

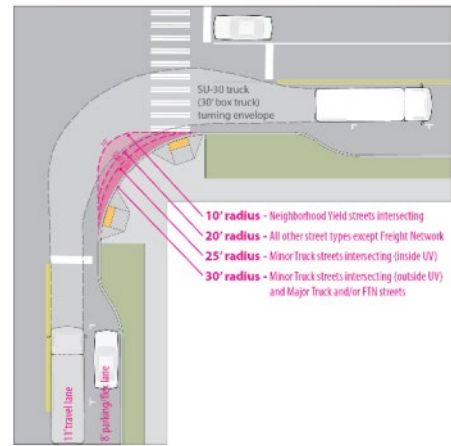


Figure 29. Curb Radii Diagram

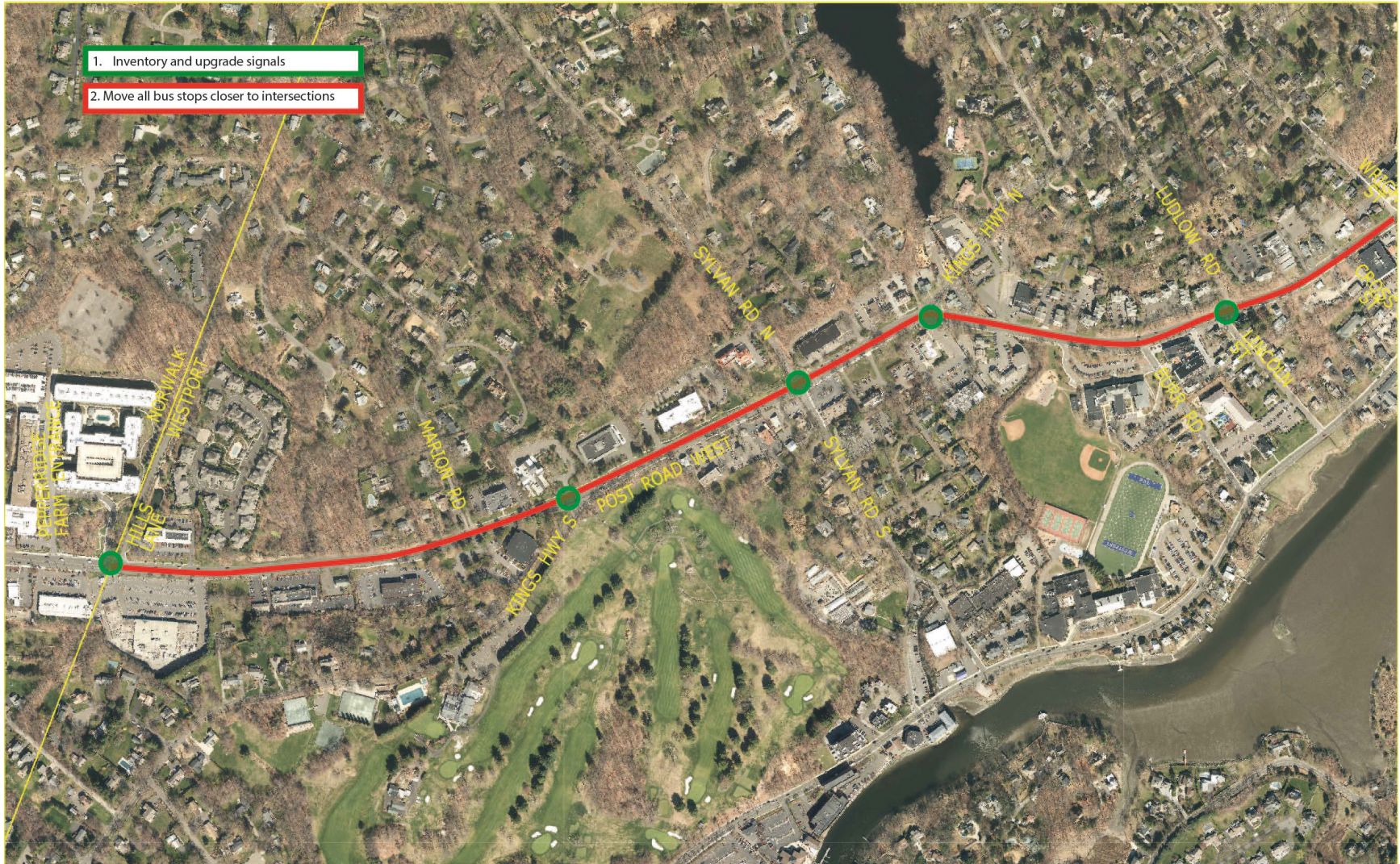


Figure 30. Long Term Recommendations -1

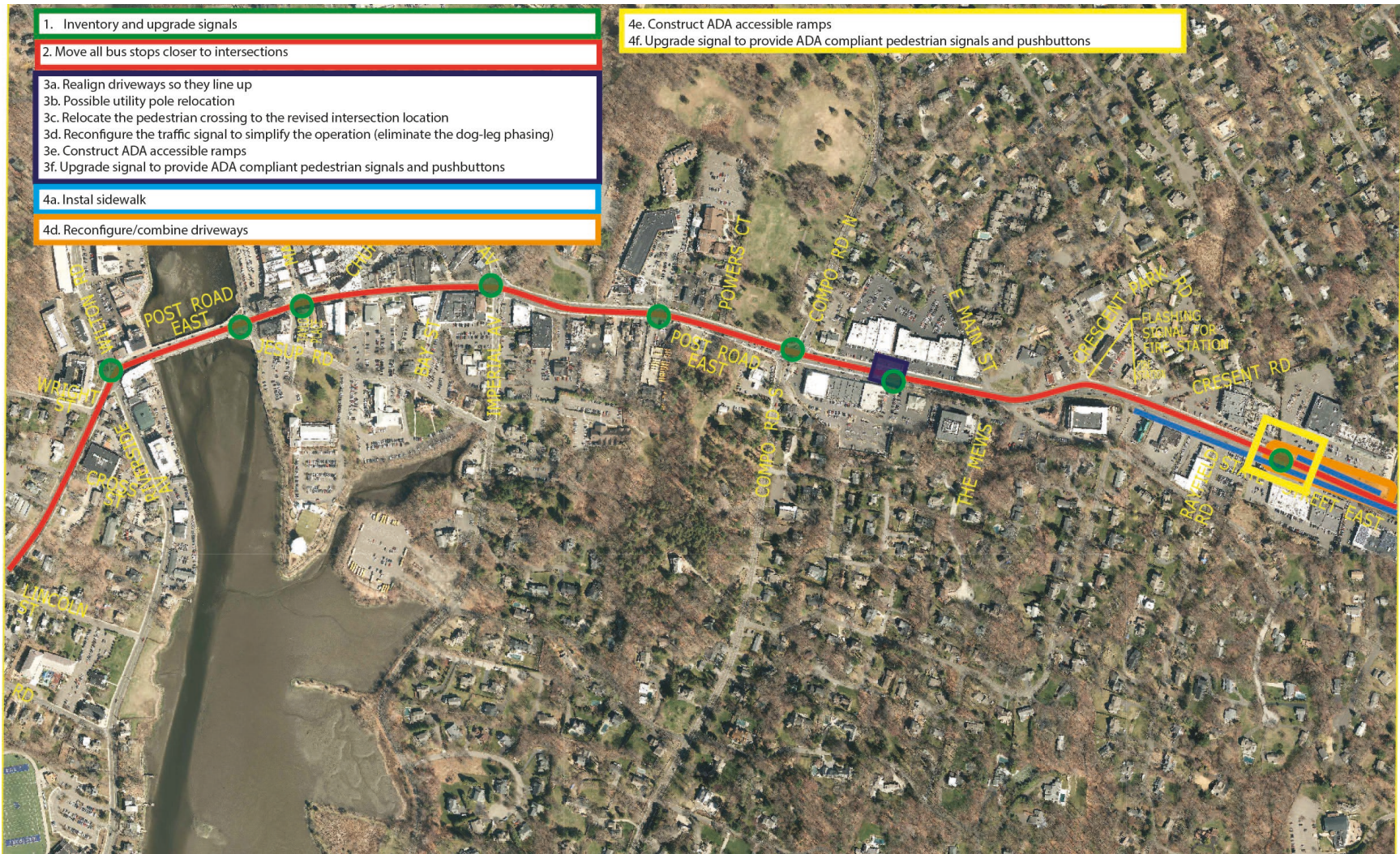


Figure 31. Long Term Recommendations -2

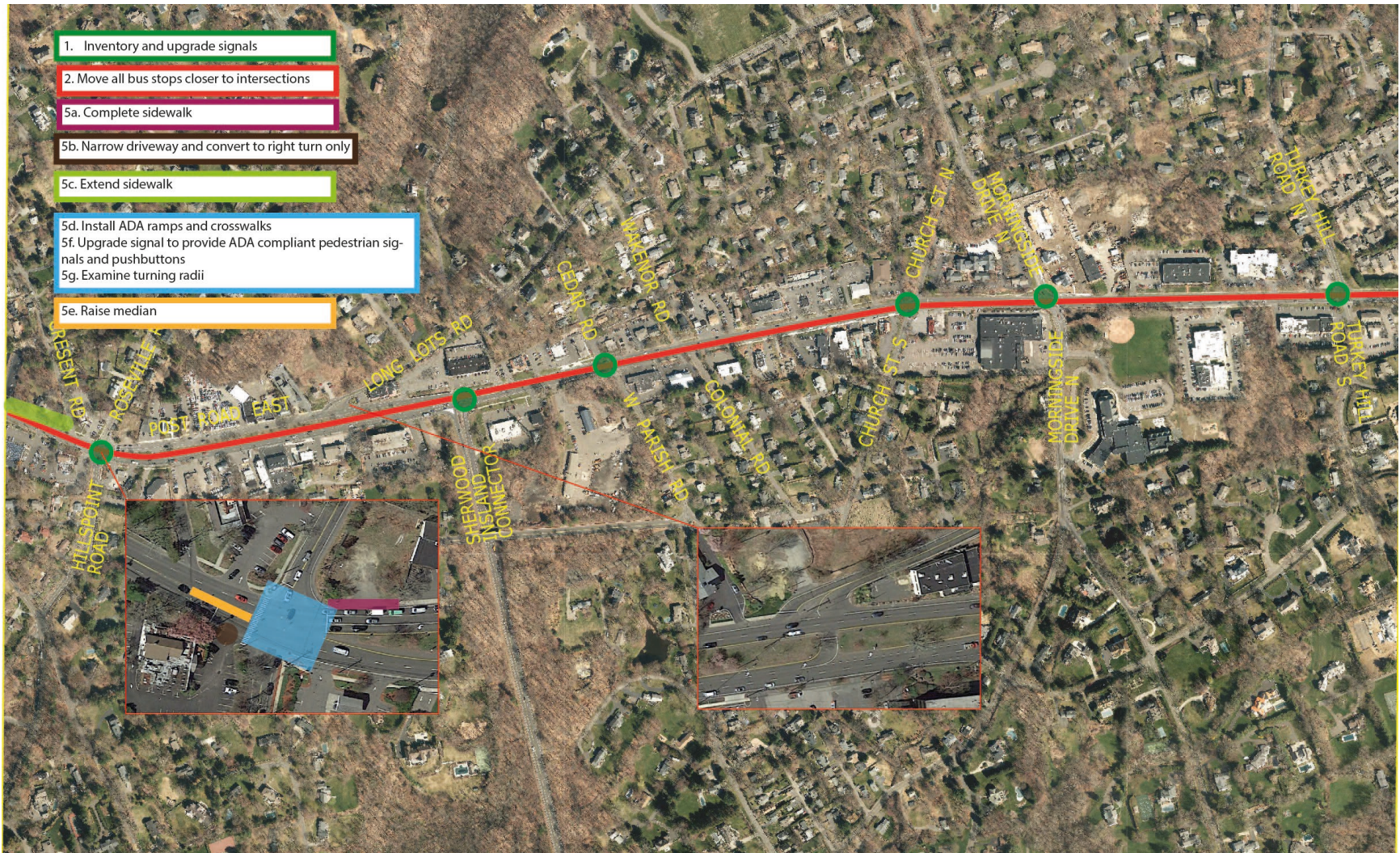


Figure 32. Long Term Recommendations -3



Figure 33. Long Term Recommendations -4

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 Westport. 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.



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Appendix A



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Road Safety Audit – Westport

Meeting Location: Westport Town Hall – Main Auditorium
Address: 110 Myrtle Avenue
Date: 09/12/2018
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
- 9:30 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
<p>Pedestrian Crossings</p> <ul style="list-style-type: none">• Sufficient time to cross (signal)• Signage• Pavement Markings• Detectable warning devices (signal)• Adequate sight distance• Wheelchair accessible ramps<ul style="list-style-type: none">○ Grades○ Orientation○ Tactile Warning Strips• Pedestrian refuge at islands• Other	
<p>Pedestrian Facilities</p> <ul style="list-style-type: none">• Sidewalk<ul style="list-style-type: none">○ Width○ Grade○ Materials/Condition○ Drainage○ Buffer• Pedestrian lighting• Pedestrian amenities (benches, trash receptacles)• Other	



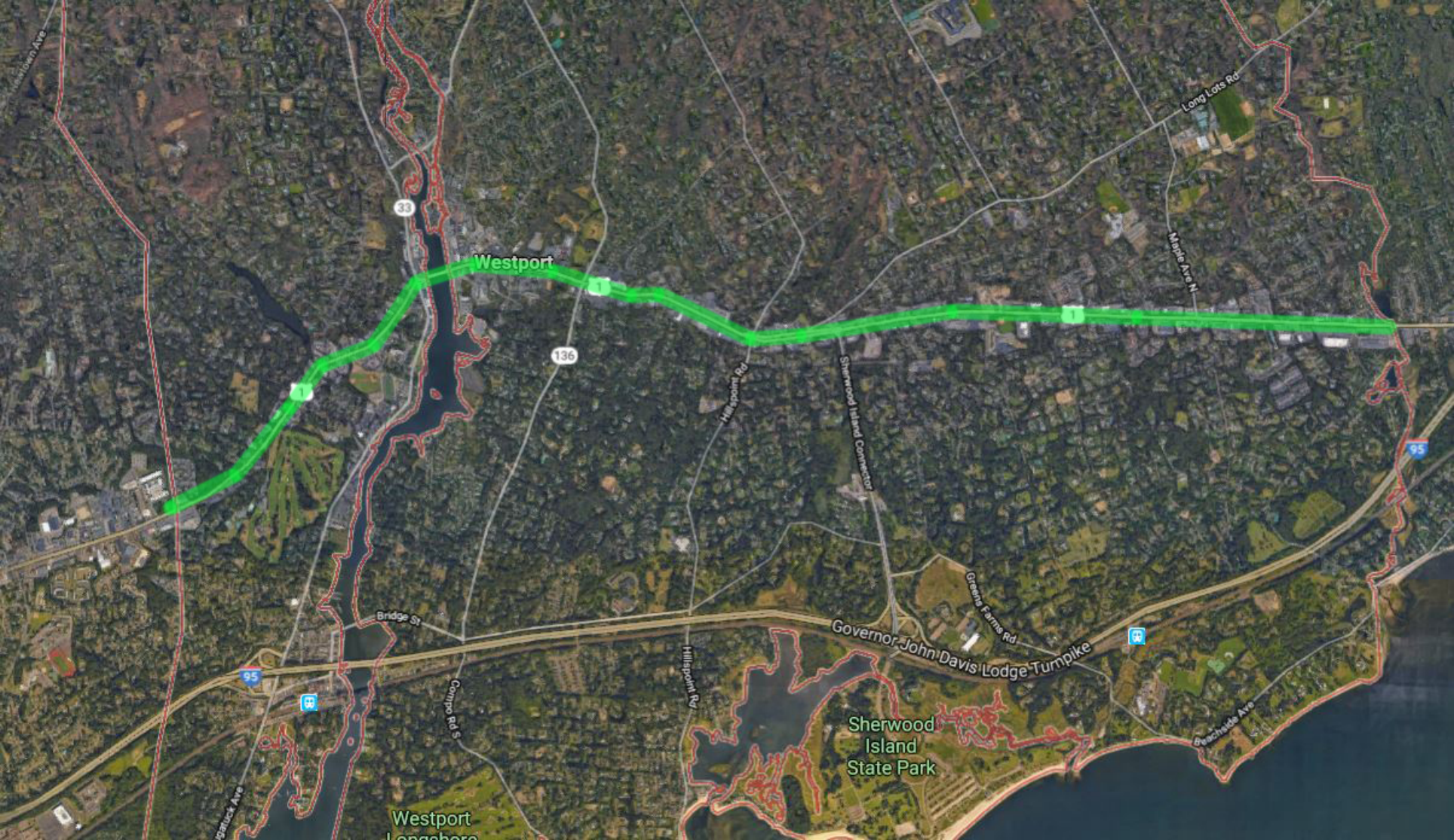
Bicycles <ul style="list-style-type: none">• Bicycle facilities/design• Separation from traffic• Conflicts with on-street parking• Pedestrian Conflicts• Bicycle signal detection• Visibility• Roadway speed limit• Bicycle signage/markings• Shared Lane Width• Shoulder condition/width• Traffic volume• Heavy vehicles• Pavement condition• Other	
--	--

Roadway & Vehicles	
<ul style="list-style-type: none">• Speed-related issues<ul style="list-style-type: none">○ Alignment;○ Driver compliance with speed limits○ Sight distance adequacy○ Safe passing opportunities	
<ul style="list-style-type: none">• Geometry<ul style="list-style-type: none">○ Road width (lanes, shoulders, medians);○ Access points;○ Drainage○ Tapers and lane shifts○ Roadside clear zone /slopes○ Guide rails / protection systems	

<ul style="list-style-type: none">• Intersections<ul style="list-style-type: none">○ Geometrics○ Sight Distance○ Traffic control devices○ Safe storage for turning vehicles○ Capacity Issues	
--	--



<ul style="list-style-type: none">• Pavement<ul style="list-style-type: none">○ Pavement Condition (excessive roughness or rutting, potholes, loose material)○ Edge drop-offs○ Drainage issues• Lighting Adequacy	
<ul style="list-style-type: none">• Signing<ul style="list-style-type: none">• Correct use of signing• Clear Message• Good placement for visibility• Adequate retroreflectivity• Proper support	
<ul style="list-style-type: none">• Signals<ul style="list-style-type: none">○ Proper visibility○ Proper operation○ Efficient operation○ Safe placement of equipment○ Proper sight distance○ Adequate capacity	
<ul style="list-style-type: none">• Pavement Markings<ul style="list-style-type: none">○ Correct and consistent with MUTCD○ Adequate visibility○ Condition○ Edgelines provided	
<ul style="list-style-type: none">• Miscellaneous<ul style="list-style-type: none">○ Weather conditions impact on design features.○ Snow storage	



Westport

Westport Longshore

Sherwood Island State Park

33

136

95

95

25000 Ave

Bridge St

Compro Rd S

Hillspoint Rd

Hillspoint Rd

Sherwood Island Connector

Gorena Farms Rd

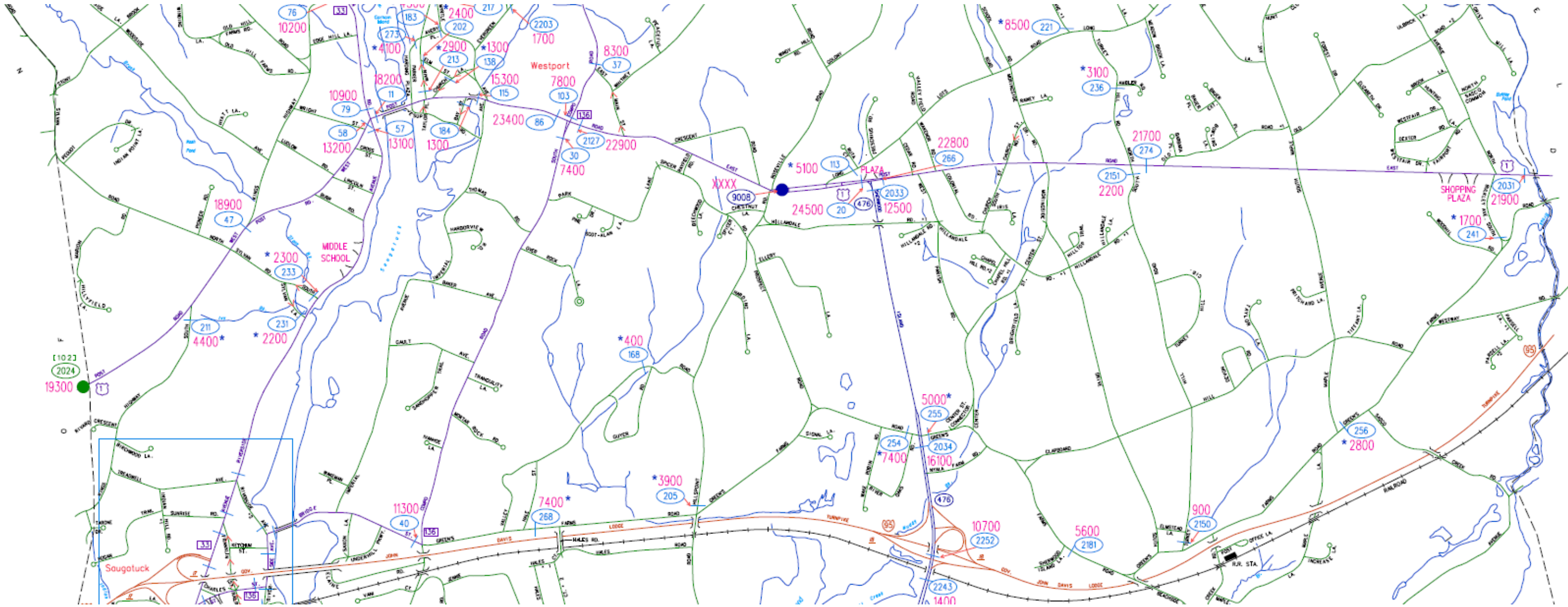
Governor John Davis Lodge Turnpike

Long Lots Rd

Maple Ave W

Beachside Ave

Westport



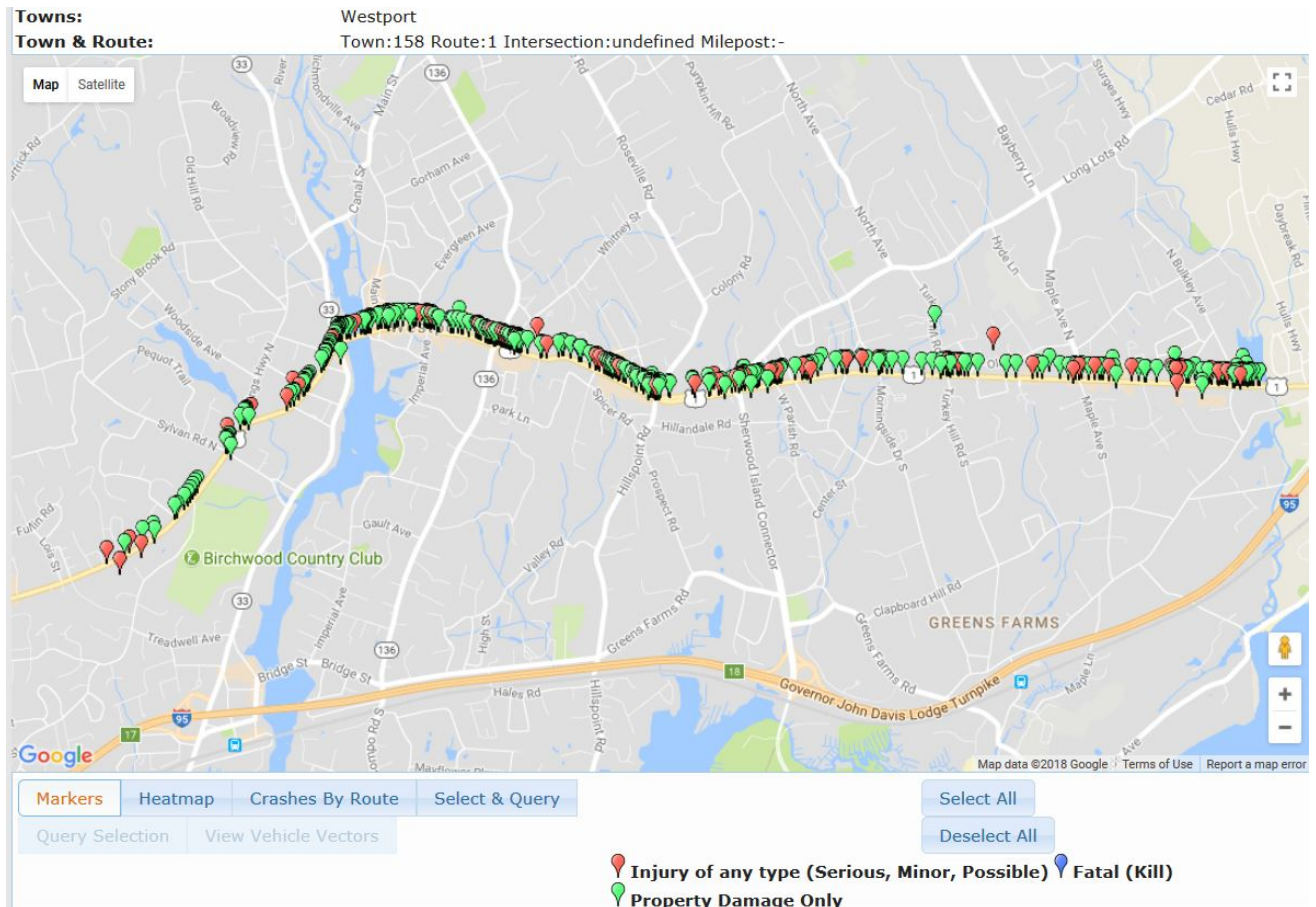


Road Safety Audit – Westport

Crash Summary

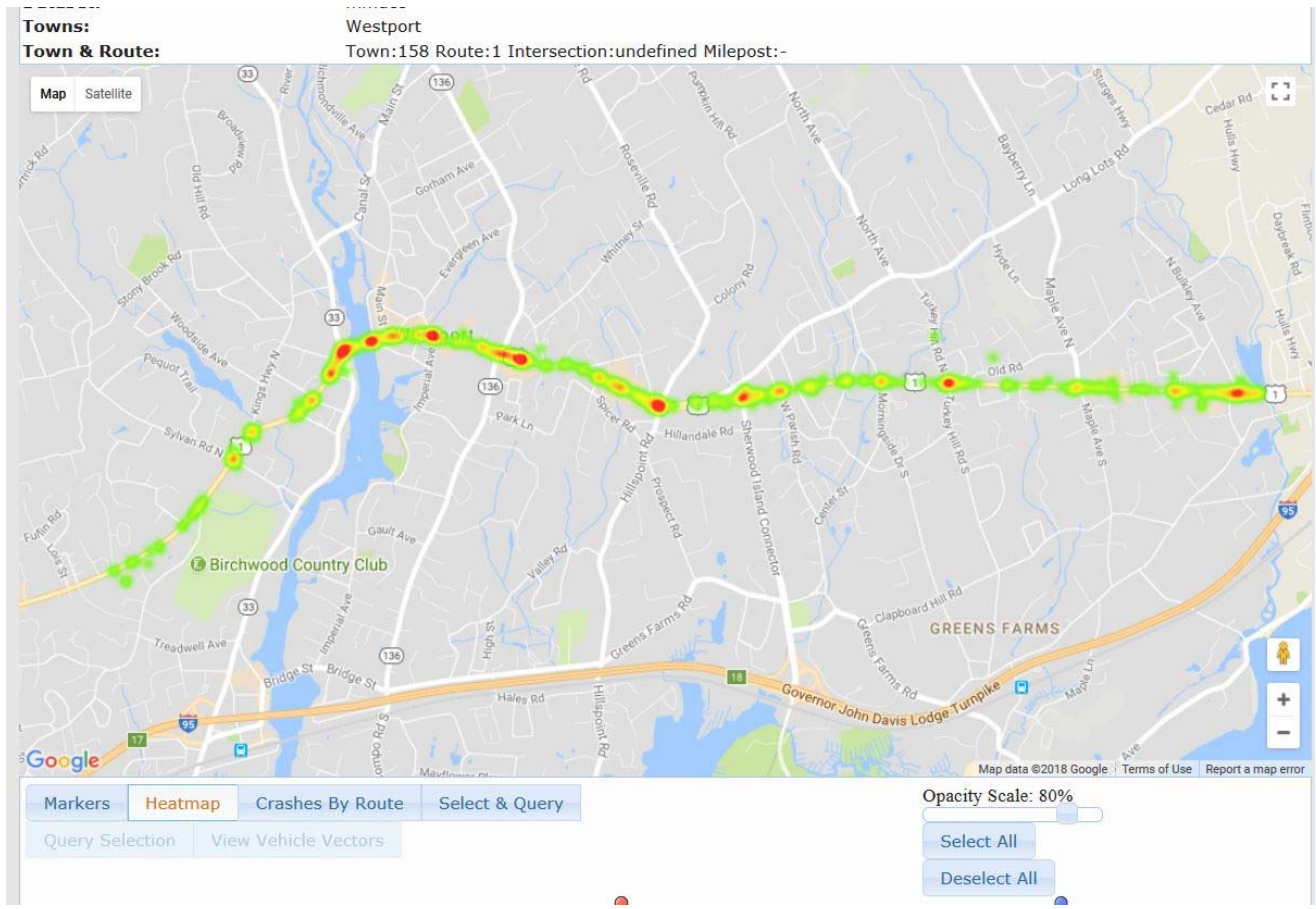
There were 536 crashes in the last 3 years (2015-2017).

There is 1 Fatal Crash.





Heat Map





Data: 3 years (2015-2017)

Severity Type	Number of Crashes	
Property Damage Only	443	83%
Injury of any type (Serious, Minor, Possible)	92	17%
Fatal (Kill)	1	0%
Total	536	

Manner of Crash / Collision Impact	Number of Crashes	
Rear to rear	2	0%
Front to rear	255	48%
Angle	158	29%
Not Applicable	13	2%
Sideswipe, same direction	86	16%
Other	13	2%
Sideswipe, opposite direction	4	1%
Rear to side	2	0%
Unknown	2	0%
Front to front	1	0%
Total	536	



Weather Condition	Number of Crashes	
Clear	435	81%
Snow	11	2%
Cloudy	42	8%
Blowing Sand, Soil, Dirt	0	0%
Rain	38	7%
Fog, Smog, Smoke	1	0%
Blowing Snow	3	1%
Unknown	0	0%
Freezing Rain or Freezing Drizzle	6	1%
Severe Crosswinds	0	0%
Total	536	

Light Condition	Number of Crashes	
Daylight	446	83%
Dark-Lighted	61	11%
Dark-Not Lighted	6	1%
Unknown	9	2%
Dusk	9	2%
Dawn	2	0%
Dark-Unknown Lighting	3	1%
Total	536	

Road Surface Condition	Number of Crashes	
Dry	450	84%
Wet	74	14%
Snow	10	2%
Ice / Frost	1	0%
Slush	1	0%
Unknown	0	0%
Standing Water	0	0%
Total	536	

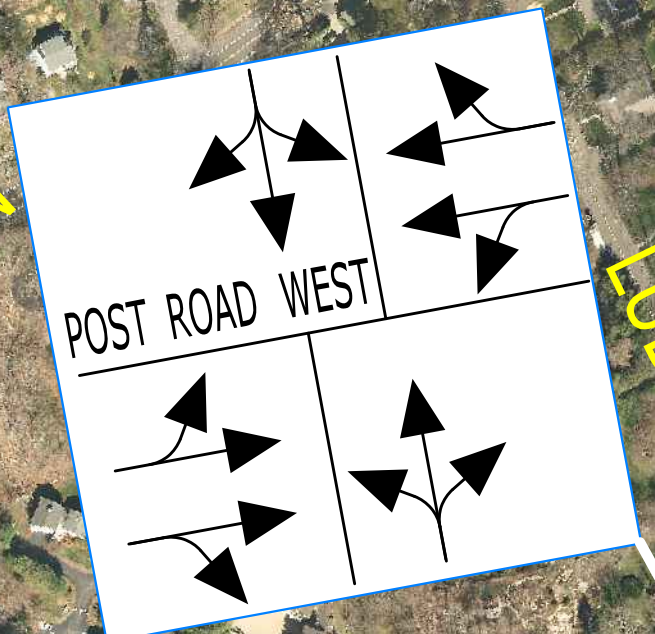
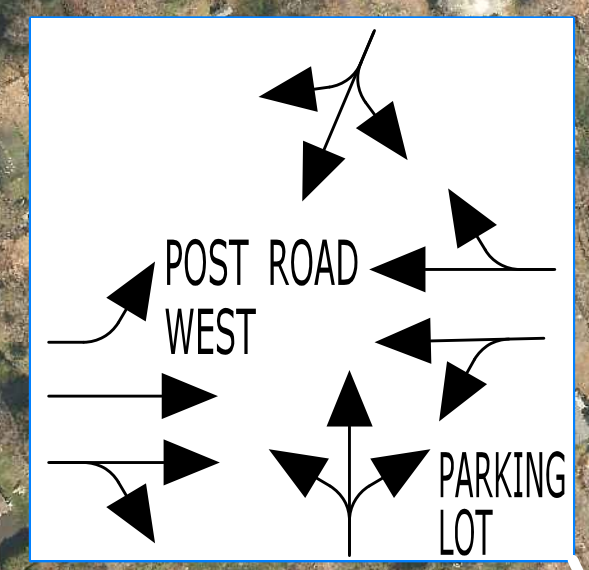
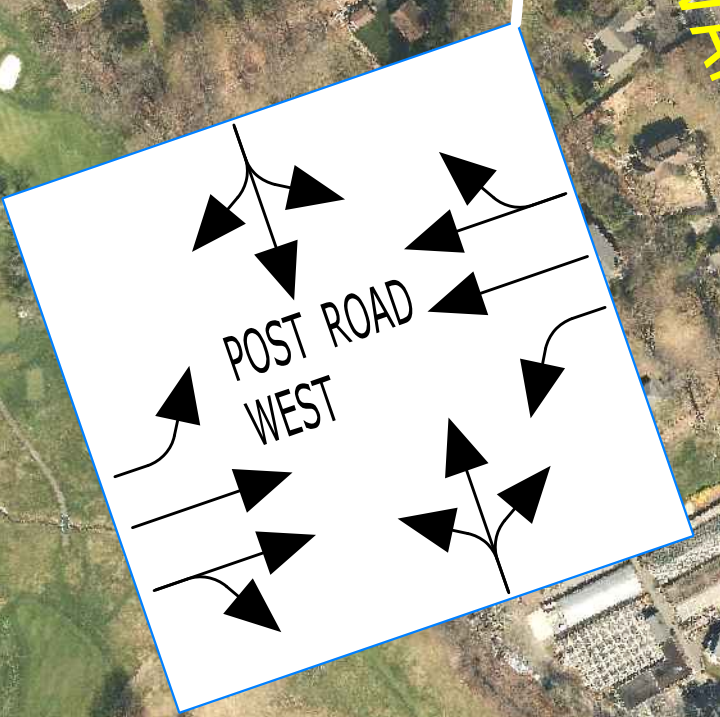
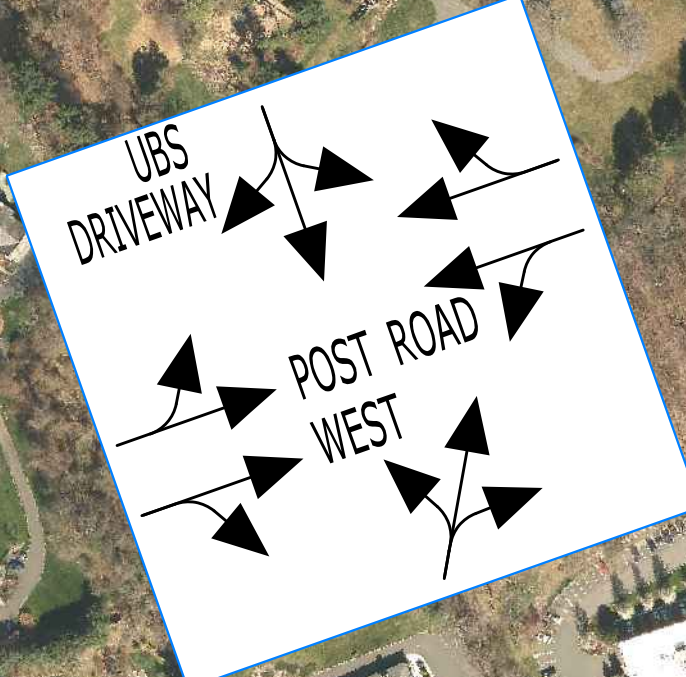
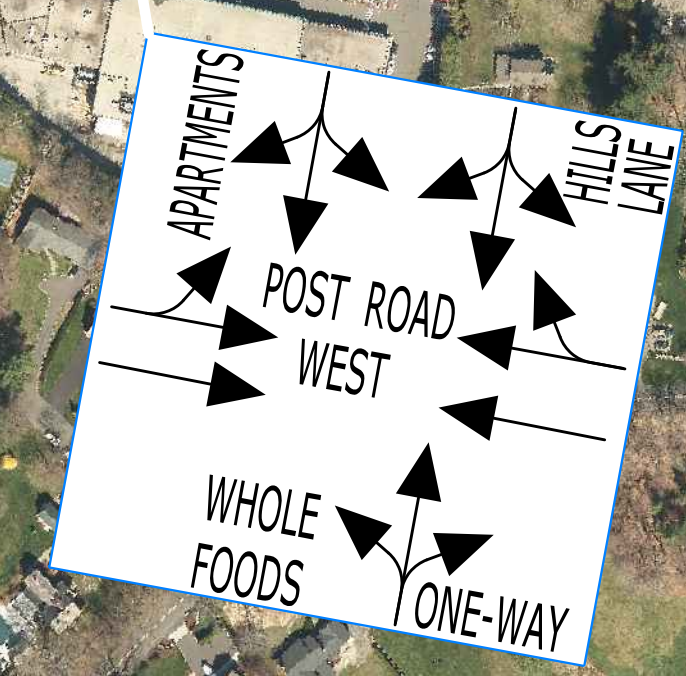


Time		Number of Crashes	
0:00	0:59	10	2%
1:00	1:59	1	0%
2:00	2:59	1	0%
3:00	3:59	2	0%
4:00	4:59	0	0%
5:00	5:59	1	0%
6:00	6:59	12	2%
7:00	7:59	17	3%
8:00	8:59	38	7%
9:00	9:59	28	5%
10:00	10:59	28	5%
11:00	11:59	43	8%
12:00	12:59	62	12%
13:00	13:59	52	10%
14:00	14:59	50	9%
15:00	15:59	44	8%
16:00	16:59	42	8%
17:00	17:59	45	8%
18:00	18:59	31	6%
19:00	19:59	15	3%
20:00	20:59	6	1%
21:00	21:59	2	0%
22:00	22:59	5	1%
23:00	23:59	1	0%
Total		536	

Person Type	Number
Driver	1092
Passenger	304
Bicyclist	3
Pedestrian	3

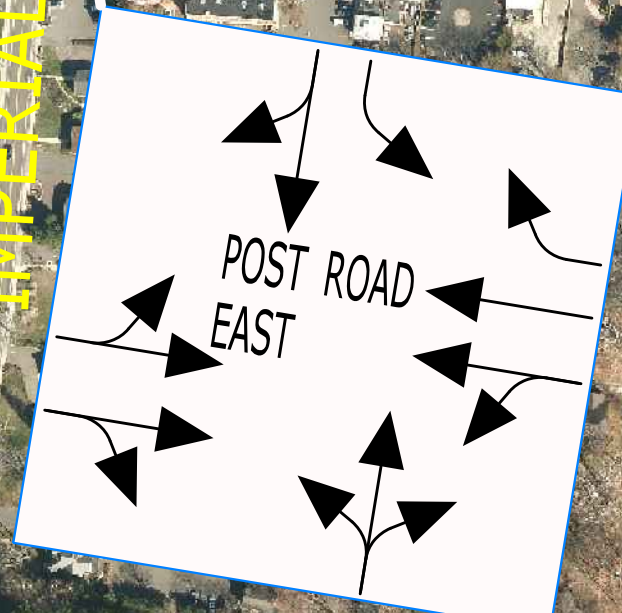
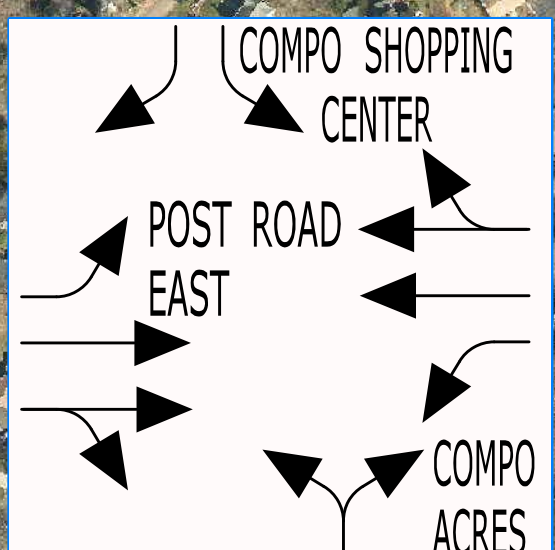
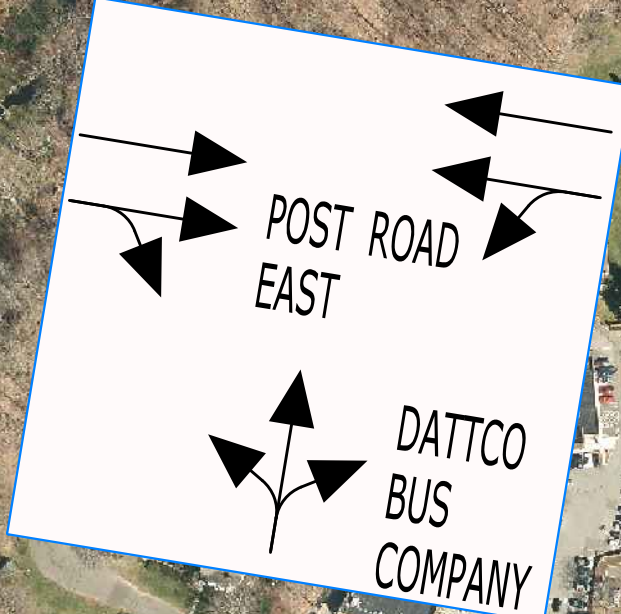
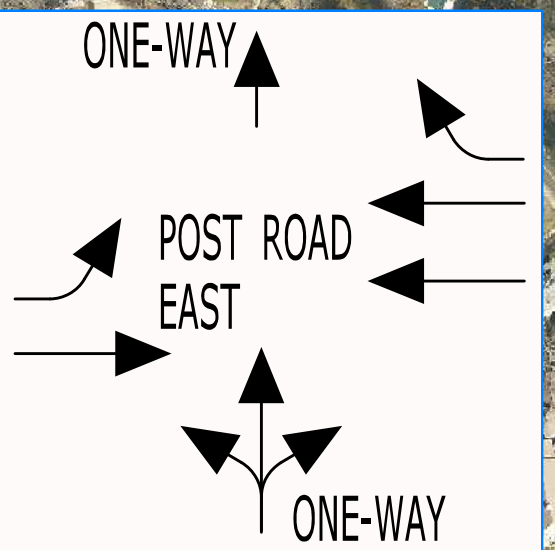
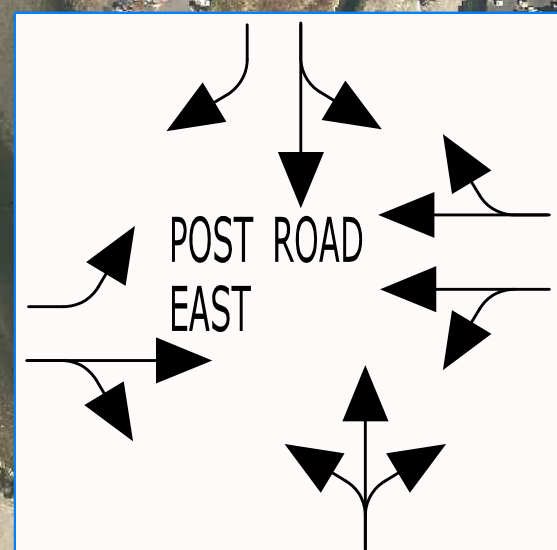
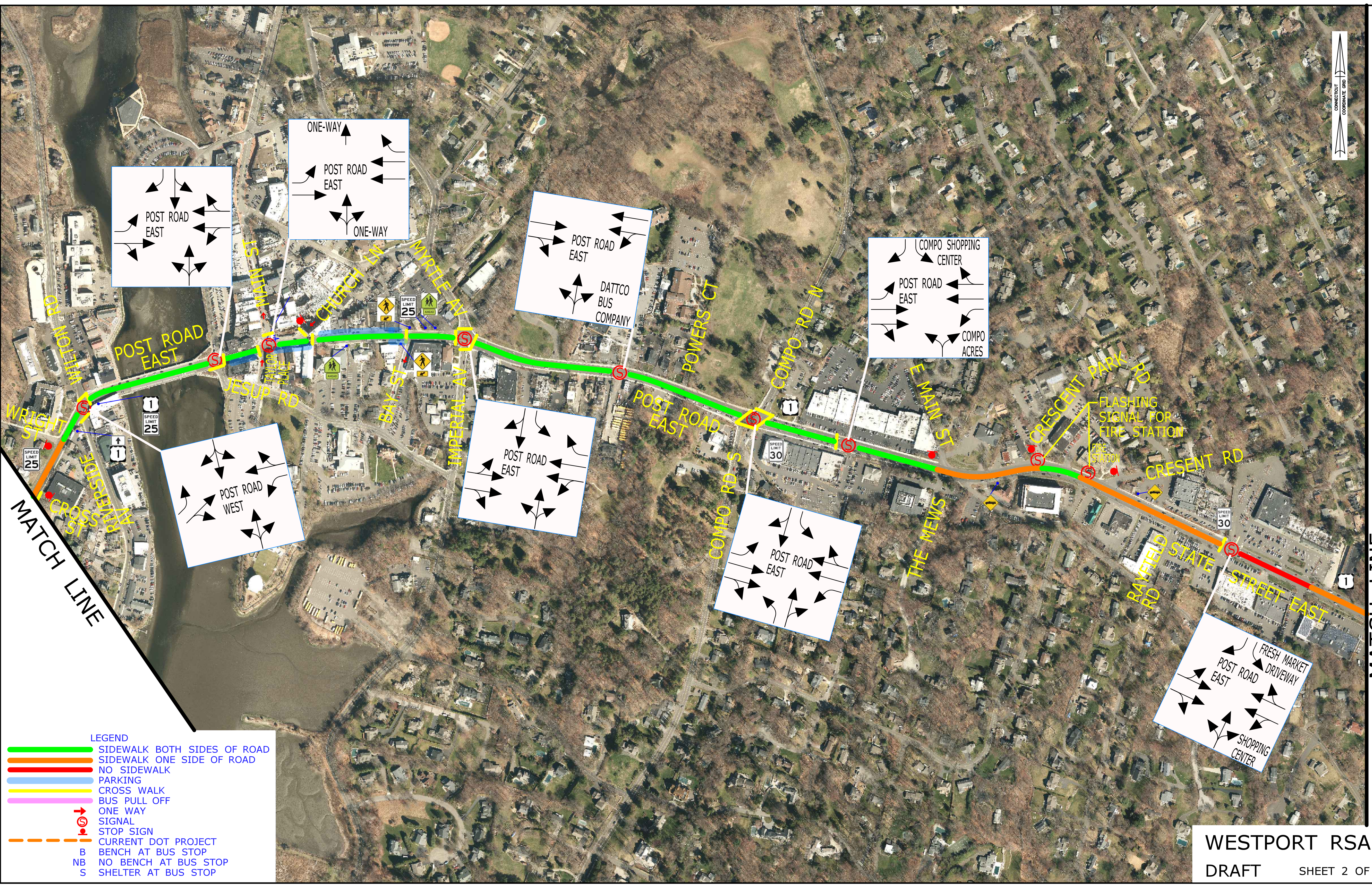


MATCH LINE



- 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

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- 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

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MATCH LINE

MATCH LINE



- 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

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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
- ⊙ SIGNAL
- ⊙ STOP SIGN
- CURRENT DOT PROJECT
- B BENCH AT BUS STOP
- NB NO BENCH AT BUS STOP
- S SHELTER AT BUS STOP



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)



Road Safety Audit – WESTPORT

Fact Sheet

Functional Classification:

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

ADT

- ADT on Route 1 is 24,500 – 15,300

Population and Employment Data (2016 US Census Bureau):

- Population: 27,343
- Employment: 15,468

Urbanized Area

- The study area 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 Westport is 4.7%
- The statewide average percentage minority population is 23%
The minority level of Westport is 10%

Air Quality

- Westport CIPP number 122
- Westport is within the NY/NJ/CT Moderate Ozone Area
PM_{2.5} Attainment/Maintenance Area
- Westport is within a Southwestern Region CO Attainment Area



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Appendix B



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Road Safety Audit

Town: Westport

RSA Location: Route 1

Meeting Location: Westport Town Hall

Address: 110 Myrtle Avenue Westport, CT

Date: September 12th, 2018

Time: 8:30am

Participating Audit Team Members

Audit Team Member	Agency/Organization
Keith Wilberg	Westport DPW
Eric Runowicz	CTDOT
Steve Mitchell	AECOM
N. Gibbons	Westport FD
Anna Bergeron	CTDOT
Kevin Tedesco	AECOM
Monica Staehely	Traffic/Transit Committee
Nicole Sullivan	WestCOG
Bridget Boucaud	VN Engineers
Katherine Daniel	Planning and Zoning
Alan D'Amura	Westport PD
Greg DelRics	NV5
Justin Iwinski	NV5