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connectivity program

# Watertown

Main Street - Route 63 – Road Safety Audit

June 13, 2018



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Acknowledgements:

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With assistance from AECOM Transportation Planning Group

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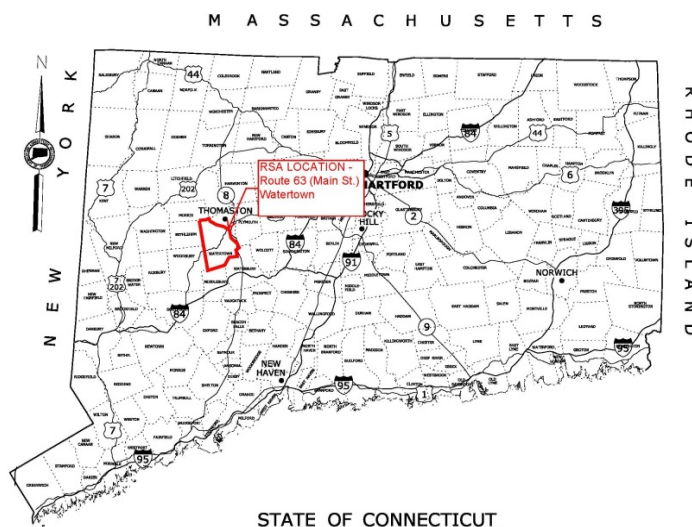




The Connecticut Department of Transportation (CTDOT) is undertaking a Community Connectivity Program that focuses on improving the state's transportation network for all users, with an emphasis on bicyclists and pedestrians. A major component of this program is conducting Road Safety Audits (RSA's) at 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 and/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 Federal Highway Administration (FHWA). For details on this program, please refer to [www.ctconnectivity.com](http://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 the Watertown (Main Street) RSA

The Town of Watertown requested an RSA along Main Street to improve safety for pedestrians and bicyclists. Main Street, from French Street to Warren Way is the village center for Watertown, containing many businesses and restaurants, the Town Hall, a movie theater, a private school and multiple churches. It is also a busy through road for vehicle traffic. Two recent fatal pedestrian crashes in the corridor have increased attention on pedestrian safety, and served as an impetus to request that the audit be conducted.

## 1.1 Location

The RSA corridor includes Main Street from French Street to Warren Way (Figure 1). Main Street is Connecticut State Route 63, and is classified as a principal arterial. Main Street traverses the town, and, as Route 63, continues north through Morris, Litchfield and Goshen to join Route 7 in South Canaan, and continue into Massachusetts. Route 63 also continues south to the City of New Haven. Throughout Watertown, Route 63 is a single through travel lane, with reasonable wide shoulders, and with turning lanes provided at major intersections. In the village area, parking is provided along both sides of the street, with sidewalks provided on both sides along most of the length of the village.

The Main Street Average Daily Traffic (ADT) ranges from 6,800 to 15,300 vehicles per day (vpd). These significant traffic volumes along with the high concentration of pedestrian traffic and on-street parking make the area complicated and present potential concerns. Figure 2 shows the regional context of the study area.

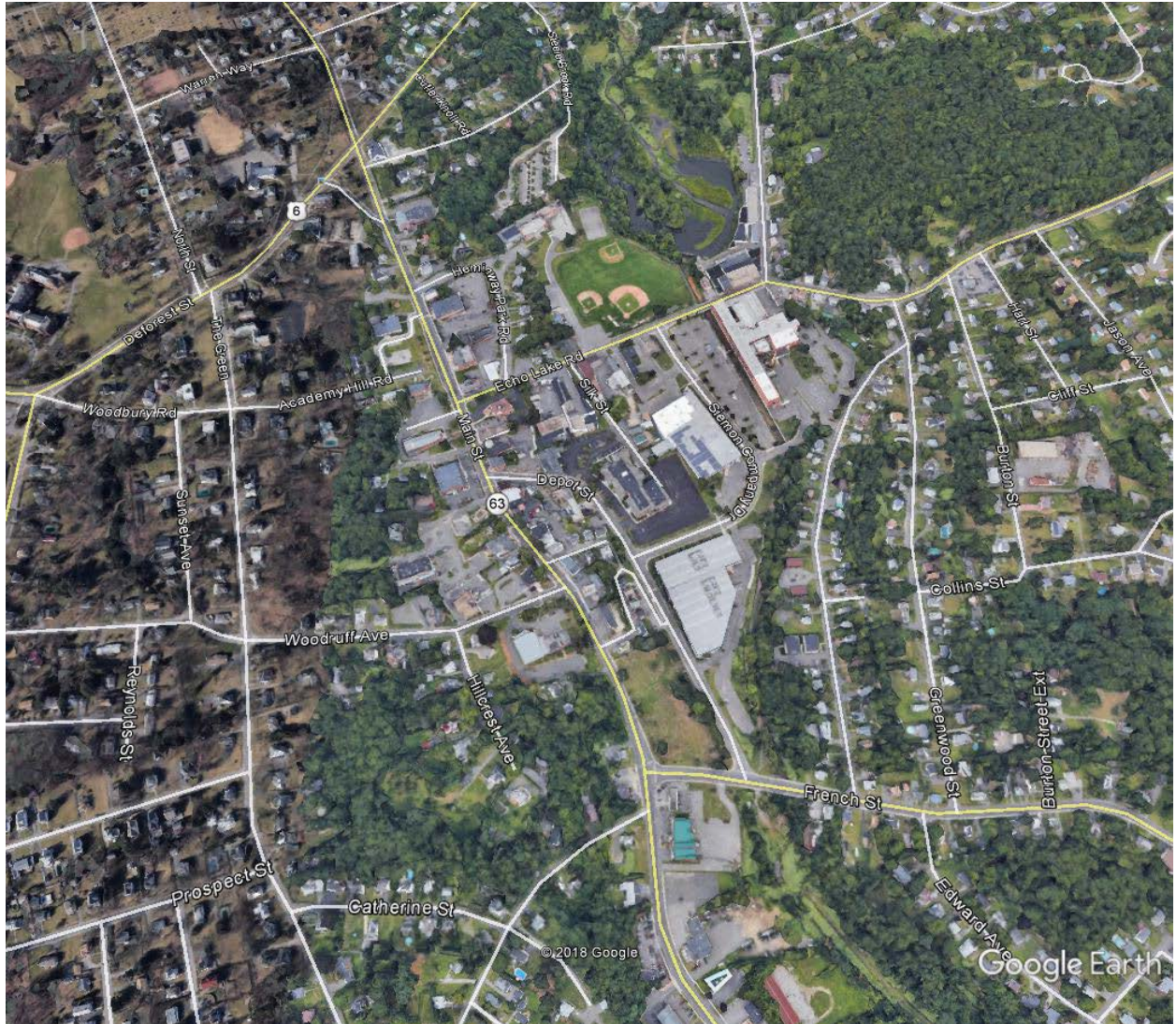


Figure 1. Main Street Watertown



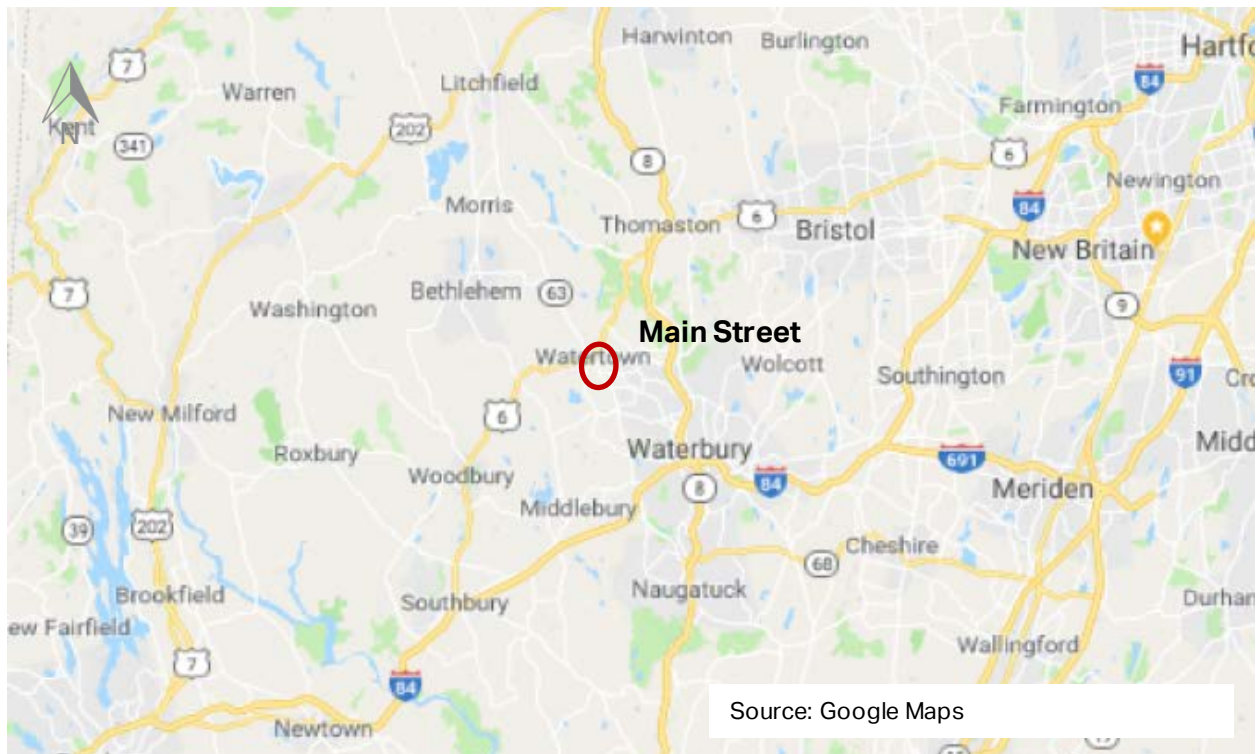


Figure 2. Main Street (Route 63) Regional Context

## 2 Pre-Audit Assessment

### 2.1 Pre-Audit Information

IN the three year period between 2015 and 2017 there were 73 crashes in the RSA Area. The majority of crashes (73%) reported in this area resulted in property damage only; however 25% of crashes did result in an injury and 2 crashes resulted in a fatality (Table 1 and Table 2). No crashes involved bicyclists, but both of the fatal crashes and one injury crash involved pedestrians. The crash types were primarily front to rear (rear-end) and angle collisions. Figure 3 displays the crashes graphically, and indicates a fairly wide dispersal of incidents, with clusters around the intersections.

Severity Type	Number of Accidents	
Property Damage Only	53	73%
Injury (No fatality)	18	25%
Fatality	2	3%
Total	73	

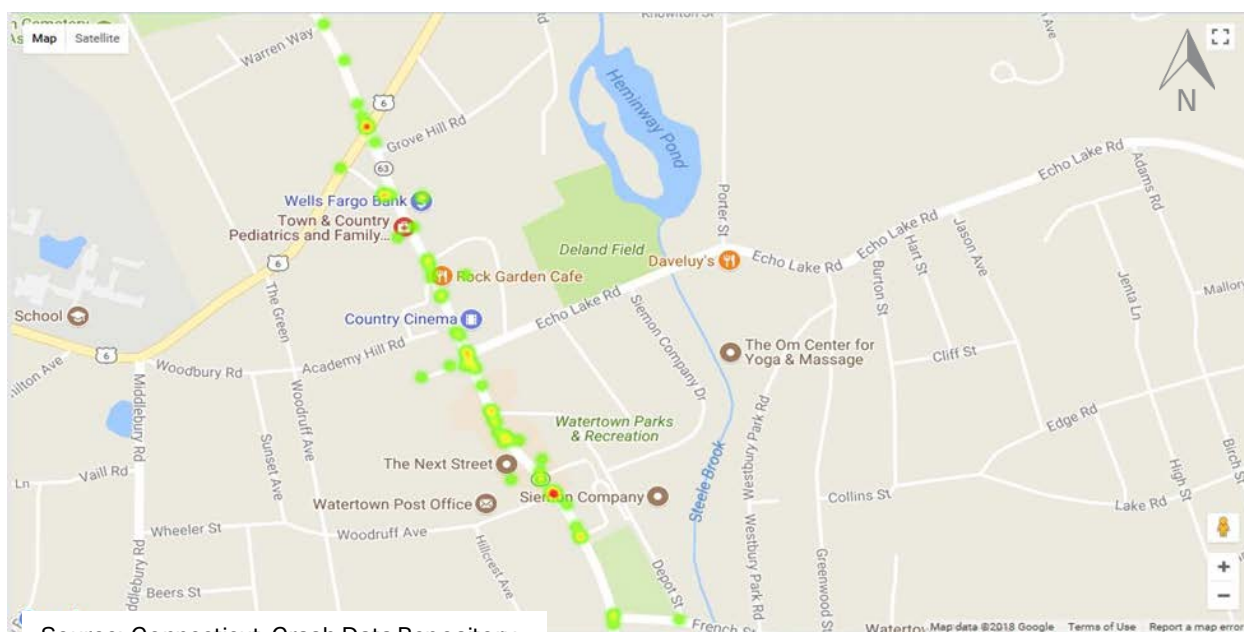
Table 1. Crash Severity 2015-2017

Source: UConn Connecticut Crash Data Repository

Manner of Crash / Collision Impact	Number of Accidents	
Sideswipe, same direction	6	8%
Angle	17	23%
Front to rear	37	51%
Other	6	8%
Rear to side	2	3%
Not Applicable	3	4%
Rear to rear	1	1%
Sideswipe, opposite direction	1	1%
Total	73	

**Table 2. Crash Type 2015-2017**

Source: UConn Connecticut Crash Data Repository



Source: Connecticut Crash Data Repository

**Figure 3. Crashes Locations (2015-2017)(Connecticut Crash Data Repository)**

Route 63 (Main Street) is a two lane, state owned road with a speed limit of 30 mph. There is sidewalk along the entirety of the study corridor on the east side and the majority of the study corridor on the west side, with gaps only occurring at the northern and southern ends. On-street parking is allowed on both sides of Main Street from Woodruff Avenue to Heminway Park Road, except at mid-block crossings, and at bus stops. There are four signalized intersections, and several intersections controlled by side-street stop signs. There are nine painted crosswalks, on Main Street, of which only four are controlled by signals. The others are at unsignalized intersections or at mid-block points. It is noted that many of the

unsignalized intersections form T-intersections, so the crosswalk opposite the street appears to be a mid-block configuration. The geometry of the corridor is shown in Figure 4 and described in Table 3. The intersection configurations are as follows:

**#1 Intersection of Main Street and French Street.** This is a signalized T-intersection, with a crosswalk on the northern and eastern legs, controlled by a pedestrian phase. Each leg of the intersection has two approach lanes, with an exclusive turn lane for each movement.

**#2 Intersection of Main Street and Atwood Court.** This is a T-intersection controlled by a stop sign on Atwood Court. There are no crosswalks. Atwood Court is a low-volume local road that services several residences.

**#3 Intersection of Main Street and Woodruff Avenue.** This is a signalized T-intersection with a crosswalk controlled by a pedestrian phase on only the northern leg. There is also a gas station driveway located opposite Woodruff Avenue, which functions as a fourth leg but it does not have a signal head facing it and is therefore not controlled by the signal. Each leg of the intersection has one approach lane.

**#4 Intersection of Main Street and Pythian Avenue.** This is a T-intersection controlled by a Stop sign on Pythian Avenue. There are no crosswalks. The concrete sidewalk on Main Street is continuous through the intersection. Pythian Avenue is a low-volume local road that services several residences.

**#5 Intersection of Main Street and Depot Street.** This is a skewed T-intersection controlled by a stop sign on Depot Street. There are crosswalks on the east and south roadway legs. Each leg of the intersection has one approach lane. There is a municipal parking lot on Depot Street approximately 100 feet east of the intersection.

**#6 Intersection of Main Street and Echo Lake Road.** This is a signalized T-intersection with crosswalks that are controlled by a signal phase on the east and north roadway legs. Each leg of the intersection has one approach lane with the exception of the northern leg of Main Street which also has a left turn lane.

**#7 Intersection of Main Street and Heminway Park Road.** This is a T-intersection with the Heminway Park Road approach controlled by a stop sign. There is a crosswalk only on the east roadway leg. Each leg of the intersection has one approach lane.

**#8 Intersection of Main Street and Veterans Hill Road.** This is a skewed, unsignalized T-intersection with a skewed crosswalk only on the north roadway leg. The Veterans Hill Road approach is controlled by a Stop sign. Each leg of the intersection has one approach lane, and there is sidewalk on the east side of Veterans Hill Road between this intersection and De Forest Street (U.S. Route 6).

**#9 Intersection of Main Street and De Forest Street/Cutler Street (Route 6).** This is a skewed four-way signalized intersection with crosswalks on the east and south roadway legs controlled by the signal phasing. Each leg of the intersection has one approach lane.

**#10 Intersection of De Forest Street and Veterans Hill Road.** Because of its proximity to the Main Street corridor, and the signal phasing at this intersection, it was included in the audit. This is a signalized T-intersection with a skewed crosswalk only on the north-east leg and a crosswalk on the south-east leg. The crossings are controlled by the signal. Each leg of the intersection has one approach lane and there is sidewalk on the east side of Veterans Hill Road between this intersection and Main Street, as noted above. This intersection is controlled by the intersection at De Forest Street and Main Street, so movements occur simultaneously at both locations. Steep side grades result in the De Forest Crosswalk meeting a set of stairs on the north-west side of the intersection.

**#11 Intersection of Main Street and Warren Way/Baldwin Street** This is a 4-way unsignalized intersection, with the side streets separated by a 75 foot dog-leg. The side streets are stop sign controlled, and there is a single lane in each direction. The sidewalk on the east side of Main Street ends at this intersection, and a crosswalk is provided for pedestrians to access the sidewalk on the east side.



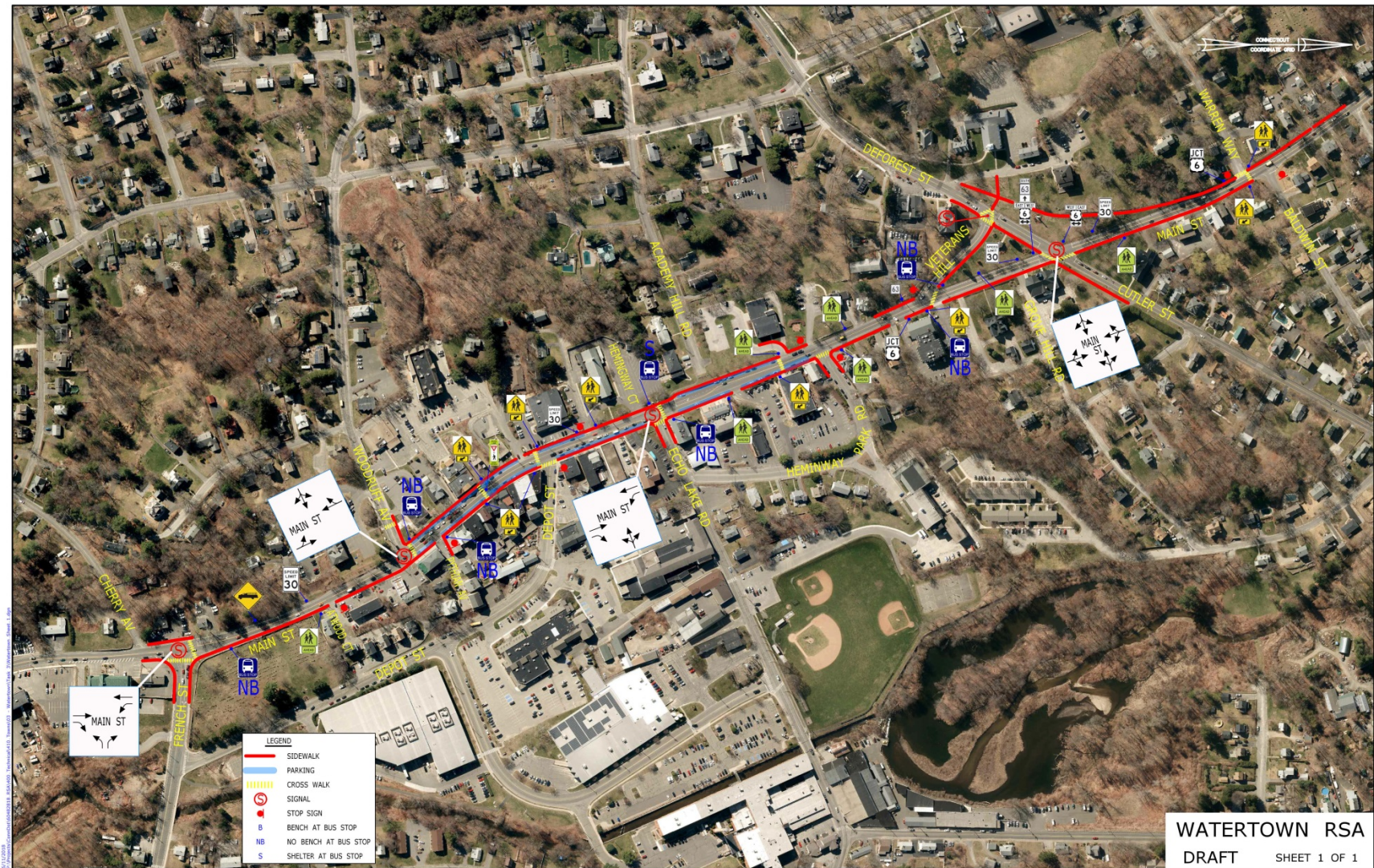


Figure 4. Main Street Road Geometrics



## Watertown - RSA

### Street Inventory

From	To	Length	Lanes (width)	Sidewalk				Curb	Parking	Shoulder	Ramps	
				Side	Type	Width	Condition				Exist	Compliant
French Street	Woodruff Avenue	750 feet	1 (11')	NB	Concrete	4'	Fair	Concrete	No	Varies	Yes	No
			1 (11')	SB	None			Asphalt	No	Varies	Yes	No
Woodruff Avenue	Heminway Park Rd	1500 feet	1 (11')	NB	Concrete	6'-20'	Fair	Granite/	Yes	9'	Yes	No
			1 (11')	SB	Concrete	5'	Fair	Concrete	Yes	9'	Yes	No
Heminway Park Rd	Warren Way	1500 feet	1 (11')	NB	Concrete	4'	Fair	Granite/	No	Varies	Yes	No
			1 (11')	SB	None			Asphalt	No	Varies	Yes	No

**\*CONDITION – “Good” is Serviceable Condition that meets current design standards. “Fair” is generally serviceable, but may need minor repairs, or may not completely align with current design standards. “Poor” is not serviceable, and generally inadequate for continued long-term use.**

Table 3. Street Inventory

## 2.2 Prior Efforts

There are several development/redevelopment projects underway in the vicinity of this corridor. At the south end of the corridor across from the intersection of Main Street and French Street a Starbucks is currently under construction. The project includes revision to the adjacent signal at the intersection and additional pedestrian amenities. CTDOT is scheduled to upgrade the traffic signals at multiple intersections, including handicap ramps and pedestrian signals. Additionally, the Town has had discussions with a property owner regarding a proposal to transfer the property to Town ownership and develop it as an off-street parking facility.

CTDOT painted “shark teeth” markings adjacent to the mid-block cross walks to discourage parking within sight lines of the crosswalks. However, the work was done late in the year and had to use water based paint instead of epoxy markings due to temperature restrictions. As a result the markings have since faded and are no longer effective. Additionally, CTDOT installed new pedestrian crossing signs at the midblock crosswalks.

## 2.3 Pre-Audit Meeting

The RSA was conducted on June 13, 2018. The Pre-Audit meeting was held at 8:30 AM in the Watertown Municipal Center, located at 61 Echo Lake Road in Watertown.

The RSA Team was comprised of staff from CTDOT, staff from AECOM, the Naugatuck Valley Council of Governments (NVCOG) and representatives from several Town departments and organizations, including the Police Department, a State Representative, Department of Public Works, Town Engineer, residents and the Department of Economic Development. The complete list of attendees can be found in Appendix A. Materials distributed to the RSA Team, including the agenda, audit checklist, ADT counts, crash data and road geometrics, can be found in Appendix B.

RSA Team members from Watertown presented relevant information for the audit, including:

- Parking issues are an important concern.
- Pedestrian safety is the top priority.
- Concerned citizens have sent numerous emails to the state representative.
- Speeding has been reported as an issue by citizens and business owners but police and CTDOT studies have both indicated that speeding is not a major problem.
- Congestion seems to limit speeds during the times when pedestrian and vehicle traffic is highest.
- Sidewalks are prevalent, with several crossings, including mid-block crosswalks.
- There have been two fatal crashes recently; one occurred in rainy conditions at night when a vehicle stopped to let a pedestrian cross but a vehicle travelling the other

direction did not yield and hit the pedestrian; the second fatal crash involved a speeding vehicle operated by an impaired driver, who hit a pedestrian getting into a parked vehicle.

- Safety improvements at mid-block crosswalks are a priority.
- Excessive signage creates a confusing situation; signage is not always clear or consistent.
  - There is confusion about where “No Parking” begins and where “30 Minute Parking” ends based on the signs that were used.
- There is a question whether mid-block crosswalks should be kept or removed.
  - If the crossings are kept, options to improve their safety should be considered.
  - Visibility of pedestrians behind parked vehicles at mid-block crosswalks is a concern.
- Public Works recently completed a lighting study and concluded that 3 High Pressure Sodium (HPS) lights near the library should be changed to LED lights, which has been done.
  - The cost to both the Town and State was included in the report.
  - The study found that the existing lighting meets or exceeds standards.
  - There was some question as to whether the study used the correct standards.
  - Specific crosswalk or pedestrian lighting could be added.
  - Street lights are rented from Eversource and the Town has to request that Eversource replace lights that are out and then wait for Eversource to perform the work.
- It may be possible to add lighting, lit signs or other treatments to mid-block crossings especially if the State can assist financially.
- A downtown property has been offered to the town as a potential area to develop a ~75 vehicle parking lot.
  - The town would be required to pay an estimated \$250,000-300,000 to develop the parking area.
  - This would be a major municipal parking area behind a downtown building.
  - Metered parking is being considered as a way to defray the cost of the parking lot.
  - Funding for this project is a major concern.
  - The Town would request State assistance in developing the parking lot.
  - On-street parking on the west side of Main Street could be proposed to be eliminated as part of the proposal.
- Businesses on the east side of the street are currently served by on-street parking.
  - Parking on the west side of the street results in many pedestrians crossing to the east side.
- On-street parking was reported to be somewhat tight.

- Many business owners and their employees have been reported to be parking on the street for extended periods of time, thereby reducing public parking opportunities.
- One possibility to be explored would be to eliminate parking on the west side of the street in conjunction with a new municipal lot and add 4-foot bike lanes on both sides of the street.
- Handicap accessibility is an issue throughout the corridor.
  - Through NVCOG there is an ADA compliance project that proposes to construct handicap ramps.
  - In 2020 CTDOT plans to revise signals including the replacement of loop detectors with video detection. The project will also include construction of handicap ramps.
- Parking on the east side of the street is preferred.
- Parking and lighting are two major issues.
- Uncontrolled crossings by pedestrians are a safety issue.
- Additional striping could help control parking.
  - No action will be taken on this issue until after the results of the RSA are available.
- The possibility of Heminway Park Road and Depot Street being right turn only roads or one-way inbound should be considered.
- "No Parking" signage is currently being ignored.
  - Bump outs may be a safety improvement that would help with "No Parking" compliance.
- A general comment was made to remember that drivers have been used to the street being used the way it currently is for a long time.
- The Town does not have any major outreach programs to the Public for driver education.
  - The "Watch for Me" program through the State could be a possible option.
    - It may be possible to add a link to this program on the Police Department website.
- Complete Streets and bicycle facilities are of interest to the Town.
- The sidewalk network is under development. Trails and greenways are being constructed.
- The Town's Plan of Conservation and Development was recently completed and is available online at:  
[http://www.watertownct.org/filestorage/10298/4365/8433/11272/Plan\\_of\\_Conservation\\_and\\_Development.pdf](http://www.watertownct.org/filestorage/10298/4365/8433/11272/Plan_of_Conservation_and_Development.pdf).
- The Police Department has initiated a bicycle enforcement program in which one bicycle officer is active in downtown areas on every shift whenever available.
- Bicycles are not prohibited on sidewalks; it was not felt that this is a major concern.
  - A general statute may prohibit bicycles on sidewalks.
- Improved bicycle facilities may encourage additional use.

- Additional bicycle facilities are being developed in surrounding areas and it may be possible to connect to these facilities in the future.
- The Town noted that it is difficult to get approval from CTDOT and being a State Route, Main Street is controlled by CTDOT and requires specific sign-offs.
  - Striping cannot be done by the Town without a permit from the CTDOT District 4 Permit Engineer.
  - Some of the review that is required was thought to be excessive such as environmental review of a minor change to an existing sidewalk.
  - The Town and Public can become frustrated with delays and unclear time frames from the State.
  - Better communication and information sharing between the State and Town is a major goal going forward.

### 3 RSA Assessment

#### 3.1 Field Audit Observations

##### Main Street and Warren Way/Baldwin Street

- It appeared that higher speeds may be present at this intersection.
- The intersection is near a funeral home, and overflow parking for the funeral home is on Warren Way.
- At the crosswalk on the northern segment across Main Street the sight line for pedestrians is impeded by a utility pole and vegetation on the northwest corner (Figure 5).
- The sidewalk on the west side of Main Street south of Warren Way is asphalt. Both corner radii on Warren Way are poorly defined, and handicapped ramps are not ADA compliant.
- This is a transition area between rural to urban areas. Better signage or other visual cues are needed to make motorists aware of the change.



Figure 5. Sight distance impeded by pole and vegetation



Figure 6. Intersection of Main Street and Cutler Drive/De Forest Street

Welcoming signage or other indications that this is a gateway to the Watertown Central Business District (CBD) could be considered. This concept could also be considered on both Route 73 and Route 63 heading north to the Watertown CBD. The Town has identified preliminary locations on Route 63 southbound near Warren Way, Route 73 northbound in front of 1465 Main Street, the intersection of Route 63 and Route 73, and Route 73 southbound before Ro's Pizza.

### **Main Street and Cutler Drive/De Forest Street (Route 6)**

- There is a sidewalk on the east side with a crosswalk and pedestrian signals. The ramp on the southwest corner is non-compliant (Figure 6). The pushbutton is also difficult to reach, and is non-compliant.
- Significant levels of truck traffic through the intersection were observed.
- There is an exclusive pedestrian phase.
- This signal is tied to the signal at Route 6 and Veterans Hill Road.
- The Town Green is located adjacent to the intersection. Several events occur at the green each year, attracting many pedestrians and much traffic to the area.
- The crosswalk on the south side of the intersection is skewed and potentially could be straightened (Figure 7).

### **Veterans Hill Road and Route 6**

- There are crosswalks from each side of Veterans Hill Road to the opposite side of this T-intersection. The north-side landing meets a set of stairs (Figure 8) that go up-grade to a sidewalk,



Figure 7. Skewed crosswalk



Figure 8. Stairs at end of Crosswalk



Figure 9. Crosswalk at Veterans Hill Road



which then continues uphill to other walkways. Any attempt to make the sidewalks in this area ADA compliant will require excessive grading and re-orientation of the walks. None of the landings are ADA compatible (Figure 9).

- This signal, which is tied to the signal at Main Street is not included in the list of signals proposed to be upgraded in the CTDOT project.
- Right turning traffic from Route 6 onto Veterans Hill Road is significant, and the queue is impacted by this turn because there is only a single lane on this approach. Consideration should be given to placing a right turn lane at this location.



Figure 10. Steep slope approaching Main Street

### Veterans Hill Road and Main Street

- The intersection alignment is skewed
- Veterans Hill Road is steep, and the skewed intersection makes the sidewalk warp into an even steeper slope. Meeting ADA requirements will be very challenging at this intersection (Figure 10).
- The crosswalk is skewed across Main Street, lengthening the distance a pedestrian must cross.
- Hedges on the east side of Main Street are infringing on the sidewalk space.

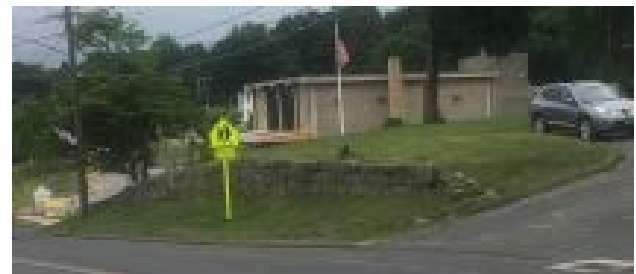


Figure 11. Steep Slope and Stone Wall

### Heminway Park Road and Main Street

- Between Heminway Park Road and Veterans Hill Road, there are sections of missing sidewalk on the west side, and sections of asphalt sidewalk on the east side. Some sections are poorly graded relative to the gutter grade.
- Along the east side, the sidewalk generally is 4 feet wide behind a 4 foot wide grass snow shelf buffer. On the west side, the sidewalk generally has no buffer, and is built to the back of curb.



Figure 12. Sight distance at Heminway Park Road

- One section of missing sidewalk on the west side is adjacent to a steep slope and stone wall. (Figure 11) Adding sidewalk at this location will be difficult due to the location of the wall and the steep slope.
- Hemminway Park Road is a stop sign controlled T-intersection. There is narrow asphalt sidewalk on both sides of the street, with no buffer strip. Plantings encroach on the walking path on the south side, and a tall retaining wall crowds the walking area on the north side. Parking is permitted on both sides.
- There is a crosswalk across Hemminway Park Road. The ramps are not ADA compliant. Curb radii are not well defined.
- Although parking is prohibited on the east side of Main Street south of the intersection, vehicles frequently park in this area, causing sight line issues for vehicles entering the intersection (Figure 12).
- The stop sign and stop bar are not aligned properly (Figure 13).

### Main Street at Library

- A mid-block crossing is located approximately 125 feet south of Hemminway Park Road. This is the site of one of the fatal pedestrian crashes.
- The library is located on the west side of the street and two popular restaurants are located on the east side.
- On-street parking is heavily used at this location. Cars frequently park very close to the cross walk, inhibiting the sight line for pedestrians and for vehicles to see pedestrians.



Figure 13. Stop bar and stop sign not aligned



Figure 14. Sign Clutter



Figure 15. Faded crosswalk, poorly located pedestrian push button



- The crossing is properly signed and appears to be ADA compliant. However, parking and other signs add clutter and may cause confusion (Figure 14).
- The parking lot behind the library is used by motorists who are parking for non-library trips.

### Echo Lake Road and Main Street

- The intersection is a signalized T-intersection.
- The crosswalk across Echo Lake Road is faded (Figure 15).
- The intersection is very busy due to its proximity to an industrial park and the connection from Echo Lake Road to Route 8.
- Heavy truck traffic is present through this intersection.
- Vehicles were observed wandering out of their lanes.
  - Dotted lines are recommended to better guide drivers through the intersection.
- Echo Lake Road was noted as a major cross connection.
- The pedestrian push buttons and signals are in inconvenient locations far from the ramps (Figure 15)

### Depot Street and Main Street

- The intersection is a stop controlled T-intersection.
- Excessive signage clutter was observed. This is mostly private signing, but is a hazard because it competes with regulatory and municipal guide signs. (Figure 16).



Figure 16. Excessive signage



Figure 17. Sight distance at Depot St.



Figure 18. Lightly used parking lot

- Sight distance appears to be limited (Figure 17Figure 17). Parking on Main Street further restricts the sight distance.
- There is an existing municipal parking lot on Depot Street. It was observed to be half empty (Figure 18Figure 18). The town would like to add signing to direct people to this facility.
- The crosswalk on the south side of the intersection could be moved to the north side of the intersection to better align with a staircase in front of Rite Aid (Figure 19).
- There is a concrete apron north of the intersection for access to an alleyway. Parking has been allowed in front of it although CT general statutes generally prohibit parking in these locations unless the owner allows it (Figure 20).
- The ramps on the east side of Main Street are not ADA compliant. Because of the grade of Depot Street, it will be difficult to regrade the sidewalk to make them compliant.



Figure 19. Crosswalks at Depot St.



Figure 20. Apron with parking allowed

### Mid-block Crossing of Main Street at Onyx Jewelry Store

- There is a mid-block crosswalk located approximately 225 feet south of the Depot Street intersection.
- The sidewalk is shaded with benches and a wide sidewalk area. It is very pedestrian friendly (Figure 21).
- There is a pedestrian crossing sign in the road at this crossing (Figure 22).
- This is the potential site of a future parking lot across the street.



Figure 21. Wide, shaded sidewalk with benches

## Woodruff Avenue and Main Street

- The intersection is a signalized T-intersection. Pedestrian phases with walk signals are provided, but they do not meet the latest ADA accessibility standards.
- There is a Catholic elementary school on the southwest corner of the intersection (Figure 23).
- The pedestrian signal on the northern side of the intersection is broken.
- There is a convenience store/gasoline station driveway in the intersection and no signal head facing it.
- On Woodruff Avenue, there is sidewalk located on the north side of the street. It is a mixture of concrete and asphalt and is in fair-to-poor condition. There is no sidewalk on the south side of Woodruff Avenue, except for a small section of stepped sidewalk connecting to the school entrance.
- Approximately 100 feet west of the Main Street intersection, there is a mid-block crosswalk located in front of the sidewalk entrance to the school. This is used by students as well as visitors to the school. Although properly signed, it does not have ADA accessible ramps, and the sidewalk on leading to the school entrance has steps.



Figure 22. Pedestrian crossing sign



Figure 23. Woodruff Ave. and Main St.

## Main Street between Woodruff Avenue and French Street

- On the east side, there is a very wide (150 ft.) paved asphalt apron in front of the gas station.

- There is a pinch point in the sidewalk just south of the intersection between a fire hydrant and a utility pole ( Figure 24).
- South of the asphalt drive, the concrete sidewalk continues to French Street.
- On the west side of the street, there is a wide shoulder, with a small curbed (too narrow to be used as a sidewalk) area adjacent to a stone retaining wall. This extends for approximately the length of the school property. There is no sidewalk south of this point to French Street.



Figure 24. Pinch point

### French Street and Main Street

- The intersection is a signalized T-intersection.
- A Starbucks is under construction on the west side of the intersection (Figure 25).
- There is no sidewalk on the west side of the intersection (Figure 26).
  - This is expected to be a high pedestrian traffic area in the future with the construction of Starbucks.
- No right turns on red are allowed for westbound traffic on French Street.
- The intersection is very wide, resulting in a 93-foot long crosswalk across French Street and a 67-foot long crosswalk across Main Street (Figure 25).
- The intersection with Cherry Avenue is very close to the intersection with French Street.
- The acceptance lane on the north side of Main Street is very wide.



Figure 25. Long crosswalk, future Starbucks in background

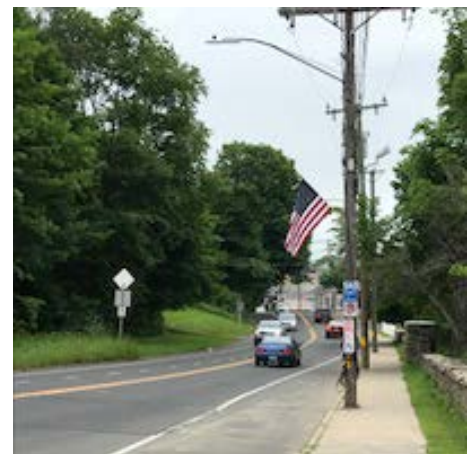


Figure 26. Sidewalk gap on west side, poles in sidewalk on east side



## General

- Grade issues at several intersections complicate handicap accessibility (Pythian, French, Depot and Echo Lake).
- Faded striping was observed in several locations.
- Merchants within the corridor complained about the loss of on-street parking at mid-block crossings.
- Sight lines at mid-block crosswalks are poor due to parked cars in their vicinity.
- Several utility poles are currently in the sidewalk (Figure 26).
- Sidewalk condition is degrading in some locations (Figure 27).
- Some of the wide sections of sidewalk could be good locations for grass strips and/or plantings.
- Multiple crosswalks are not perpendicular to the roadway which makes the crossing distance longer for pedestrians.
- Bump outs appear possible in several locations, especially at the mid-block crossings (Figure 39).
- Striping could be added to clarify the limits of parking.
- Rectangular Rapid Flashing Beacons (RRFB) (Figure 37) or High-Intensity Activated Crosswalk Beacon (HAWK) systems (Figure 28) could be considered at mid-block crossings in front of the library and Onyx Jewelers. RRFBs can be either solar powered or hard wired.



Figure 27. Degrading sidewalk condition



Figure 28. Example of a HAWK system

- Solar powered RRFBs are preferred by the Town but actual locations must be evaluated to assess the possibility of solar power.
- Cars were reported to not currently be stopping for pedestrians at mid-block crossings.
- A portion of the parking signs have been updated to the current standard but there are some that are outdated which can be updated to clarify parking zones (Figure 14).
- Some businesses felt that they would benefit from having parking limits extended longer than 30 minutes.
- CTDOT has additional information regarding Complete Streets at: <http://www.ct.gov/dot/cwp/view.asp?a=3531&q=531678>.

### 3.2 Post-Audit Workshop - Key Issues

- ADA compliance is lacking throughout the corridor. There is a need to update to the latest standards for ramps, warning strips, landings, push buttons and pedestrian signals.
- Several locations appear to have poor sight distance with parking a restraint for visibility. Sight lines throughout need to be checked more thoroughly.
  - The Depot Street intersection, specifically, is very challenging.
    - Making the street one way inbound could resolve sight line problems.
      - This change would require a traffic study to ensure that it would be feasible.
- There are parking issues currently, such as people parking in the wrong places.
  - Striping could clarify the parking limits and allow removal of some of the parking signs.
- Bump outs should be considered as an improvement at mid-block crossings (Figure 29). They would provide several benefits including:
  - Reduced crossing distances.
  - Improved pedestrian sight lines.
  - Improved parking compliance.
  - Traffic calming.



Figure 29 Bump out example

- Striping could be used to temporarily create bump outs as a trial condition.
- RRFBs should also be considered at mid-block crossings to enhance their visibility.
  - A HAWK system could also be considered but RRFBs initially seem more appropriate.
- Refuge islands in the center of the road at mid-block crossings could also be considered.
  - The State generally does not prefer this option but has used it in some locations.
  - Existing roadway widths may preclude this option.
- Removing mid-block crossings is not a preferred option since people are likely to cross mid-block anyway.
  - The preferred situation is to encourage pedestrians to cross as safely as possible at mid-block crosswalks.
- Business owners would object to a reduction in on-street parking but may be willing to accept removal on the west side of the street in conjunction with a new municipal parking lot.
- Northbound traffic was noted as being faster and more of a hazard.
- Sidewalk on the east side of the street near French Street could be improved by widening and upgrading sidewalk based on condition and adjusting to eliminate conflicts between sidewalk and utility poles.
- Sidewalk could be continued through driveways at all locations.
- Low branches in front of the cemetery adjacent to French Street should be trimmed.
- Additional sidewalk connections on the west side at the north and south ends of the corridor should be considered.
- Faded striping should be re-painted, especially in areas that were temporarily painted without epoxy paint last year.
- A new parking area could have its configuration optimized with an "Enter only" driveway and a separate "Exit only" driveway.
- The crosswalk location at Depot Street should be assessed to see if shifting the crosswalk from the south leg to the north leg would be appropriate.
- A house at the intersection of Heminway Park Road and Main Street is currently being removed. This location may be another option for off-street parking if the property is made available.
- Additional trees, snow shelves, benches and other amenities could help enhance the vibrant downtown feel.
  - The Town has a program to provide benches and trash receptacles but it is currently not being used heavily.
- The Department of Public Works and Police Department should determine if they have all of the tools and equipment that they need to properly maintain the facility.
- Making crosswalks perpendicular to the roadway should be a goal.

- It appeared that vehicles were travelling at higher speeds at the north end of the corridor though no formal speed data was gathered.
  - Wayfinding signage and central business district signage were suggested as possible improvements.
- At Depot and Main Street the crossing sign is behind a shrub.
- Back in angled parking was discussed and could be an option with CTDOT's concurrence.
- Raised crosswalks and bump outs could help with traffic calming and pedestrian safety but further coordination will be required with CTDOT if this option is pursued.
- There is a yield to pedestrians delineator at only one of the mid-block crosswalks currently.
  - This sign may have been placed without proper permission.
  - The sign is brought in at night and put out in the morning.
  - A local business owner is currently taking on this responsibility.
  - A second delineator was previously in use at another location but was destroyed by plows.
- Questions arose as to whether line striping could be expedited.
- A traffic signal head should be installed facing the driveway at the intersection with Woodruff Avenue. Detection may be required.
- The pedestrian signal at Woodruff Avenue needs to be repaired.
- Permanent speed indicators were suggested as a traffic calming measure.
  - The idea was refuted based on studies that show these indicators lose their effect over time.
- A curb/access management program could be useful throughout the corridor.
  - There are large curb cuts near Woodruff Avenue that could be improved.
- Presently many of the driveway aprons give priority to the driveway by breaking the sidewalk to let the asphalt driveway go through. Having a continuous concrete sidewalk and apron helps better define pedestrian areas.
- Streetscape should be considered as part of traffic calming.
- Bike lanes should also be considered to determine if they are feasible.
- Road diets should also be considered to see if they can improve the corridor.
- Recessed lighting systems were discussed for mid-block crosswalks as an option.
  - It was noted that these systems are very effective initially but become less effective over time as the lights become covered by dirt, sand and other road debris.
- There is a parking lot on Depot Street that is lightly used currently.
  - Signage directing drivers to the lot could be added in the short term.
- Between Woodruff Avenue and Pythian Street there are two street trees that need to be replaced.
  - Replacement of these street trees is currently out to bid.



- Coordination with transit should be ensured as part of any changes.
- The alternative of restricting turn movements out of specific streets should be studied further.
- Signs should be assessed throughout the corridor to see if any can be eliminated or reduced.
- Transverse rumble strips or textured pavement at crosswalks were discussed as potential traffic calming alternatives.
- CTDOT noted that construction of bump outs by the State would result in the Town being responsible for snow removal in on-street parking areas.

## 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 years or more when funding is available.

### 4.1 Short Term

1. Contact CTDOT to fix the broken pedestrian signals.
2. Paint areas where on street parking is not allowed by means of cross hatching on pavement and yellow curb paint (Figure 30, Figure 31). Consider adding painted bump outs at mid-block crossings and intersection corners.
3. Repaint faded line striping with epoxy paint.
4. Trim branches and hedges that are in conflict with sidewalks.



Figure 30. No Parking Pavement Markings

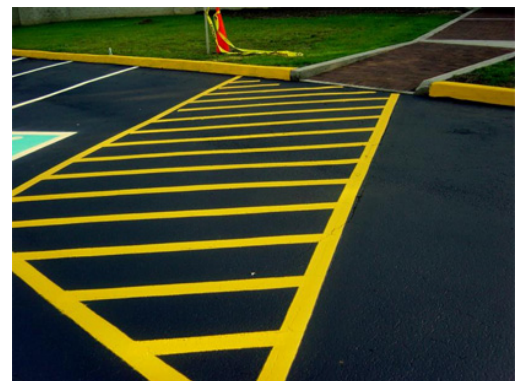


Figure 31. No Parking Pavement Markings

5. Coordinate with business owners to ensure that the current program to distribute street furniture and other amenities is understood and used.
6. Retime signals to meet current MUTCD standards for pedestrian crossings. It is recommended that traffic control signals be brought up to current federal standards.
7. Contact DOT to request an additional signal head at Woodruff Avenue facing the driveway that is within the intersection, along with detection, as necessary.
8. Add signage alerting drivers to the presence of the off-street parking lot at Depot Street (Figure 32).
9. Assess the necessity of signage throughout the corridor and eliminate any signs that are not needed.
10. Replace the missing street trees between Woodruff Avenue and Pythian Avenue.
11. Require new construction to include shifting utilities underground on Main Street to reduce overhead clutter.



Figure 32. Sample Wayfinding Signs

Figure 33 depicts some of these recommendations.

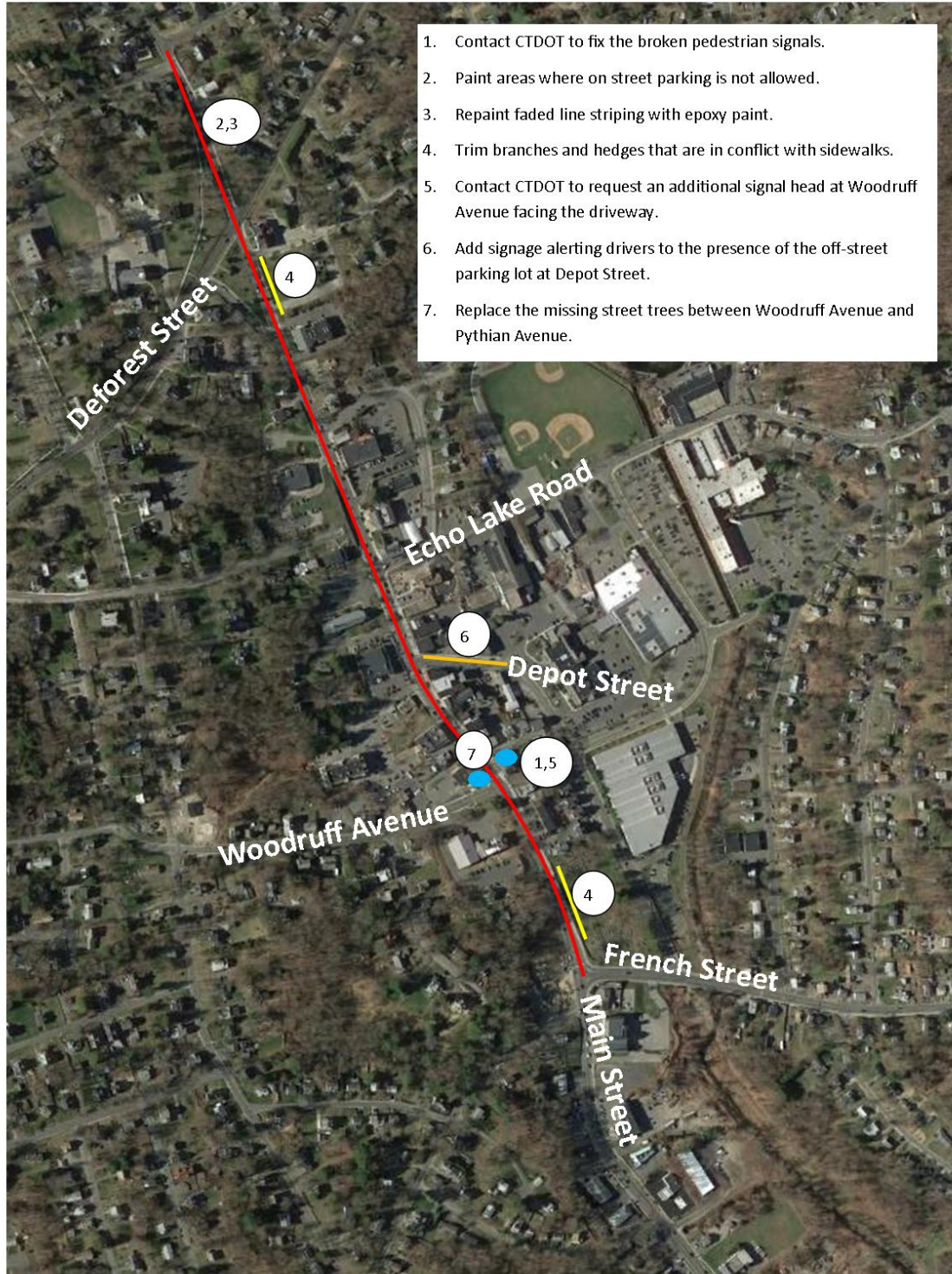


Figure 33. Short Term Recommendations



## 4.2 Medium Term

1. Improve streetscaping with beautification, landscaping, lighting and street furniture.
2. Upgrade pedestrian signals to be accessible and include pushbuttons that are tactile, audible and directional at all signalized intersections and signal heads with countdown timers (Figure 34).
3. Consider shifting the existing crosswalk on the south side of the Depot Street intersection to the north side of the intersection.
4. Conduct a study regarding the use of raised or textured crosswalks for traffic calming and pedestrian safety (Figure 35).
5. Conduct a study for the downtown to look at providing bike lanes and reconfiguring on-street parking.
6. Establish a curb management/access management program to manage driveway openings. Sharing of driveways and off-site parking should also be encouraged under this program.
7. Prepare a conceptual plan/report to determine the effectiveness of adding a right turn lane on Route 6 eastbound for traffic turning onto Veterans Hill Road. The plan should include potential modifications to the signal operations at this intersection.
8. Conduct a study regarding changes to traffic patterns including the possibility of making specific streets one-way inbound or restricting turn movements. The study should also address the possibility of installing pedestrian signals for a new crosswalk across Woodruff Avenue at Main Street and a potential right turn lane from Woodruff Avenue to Main Street.
9. Conduct a study regarding the use of median refuge islands at mid-block crossings (Figure 36).



Figure 34. Tactile Push Button (Left), Countdown Pedestrian Signal Head (Right)



Figure 35. Sample Textured Crosswalk



Figure 36. Sample Pedestrian Safety Island

10. Adjust crosswalks, where necessary, to be perpendicular to the road in order to minimize the length of crossing needed.
11. At the intersection of Route 63 and Echo Lake Road there is currently a project scheduled to replace and update pedestrian equipment to accessible pedestrian equipment. This project is recommended to continue as planned.
12. Install RRFBs on pedestrian crossing signs for mid-block crossings (Figure 37).
13. Evaluate the possibility of installing a sidewalk on the south side of Woodruff Avenue between the entrance to St. John the Evangelist School and the new sidewalk on Main Street.
14. Eliminate on-street parking on the west side of Main Street between Watertown Library and the Town Hall Annex.



Figure 37. RRFB

Figure 38 depicts some of these recommendations.



Figure 38. Mid Term Recommendations



### 4.3 Long Term

1. Develop the proposed off-street parking facility at the current Greenberg building.
2. Install bump outs at the mid-block crosswalks and at intersection corners to define parking and reduce crossing distances (Figure 39).
3. Upgrade sidewalk ramps to comply with ADA requirements including tactile warning strips (Figure 40).
4. Upgrade the sidewalks based on condition and widen in areas where poles are within the sidewalk area. Use decorative elements in the sidewalk to enhance the pedestrian experience.
5. Implement the results of the study regarding a reconfiguration of parking and bike lanes (Figure 41).
6. Implement the results of the study of raised/textured crosswalks.
7. Construct sidewalk in the gaps within the corridor; on the west side of the road in the northern section of the corridor and on the west side of the road in the southern section of the corridor.
8. Improve the sidewalk and ADA accessibility on Route 6 opposite Veterans Hill Road. This will complete the connection to interior walkways, as well.
9. Install a sidewalk on the south side of Woodruff Avenue between the entrance to St. John the Evangelist School and the new sidewalk on Main Street if warranted by evaluation.
10. Construct an eastbound right-turn lane on Route 6 approaching Veterans Hill Road if necessary, in accordance with the outcome of the study and conceptual improvement plan. Implement any

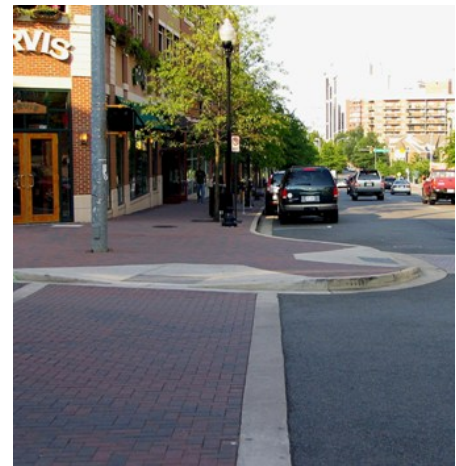


Figure 39. Example of a Bump Out



Figure 40. Tactile Warning Strip



Figure 41. Sample Bike Lane

signalization changes recommended by that study.

11. Improve access management under the access management program including replacing asphalt aprons with concrete aprons to define pedestrian areas and limiting the size of driveway openings.
12. Implement the results of the study regarding changes to traffic patterns.
13. Implement the results of the study regarding median refuge islands.

Figure 42 depicts these recommendations.



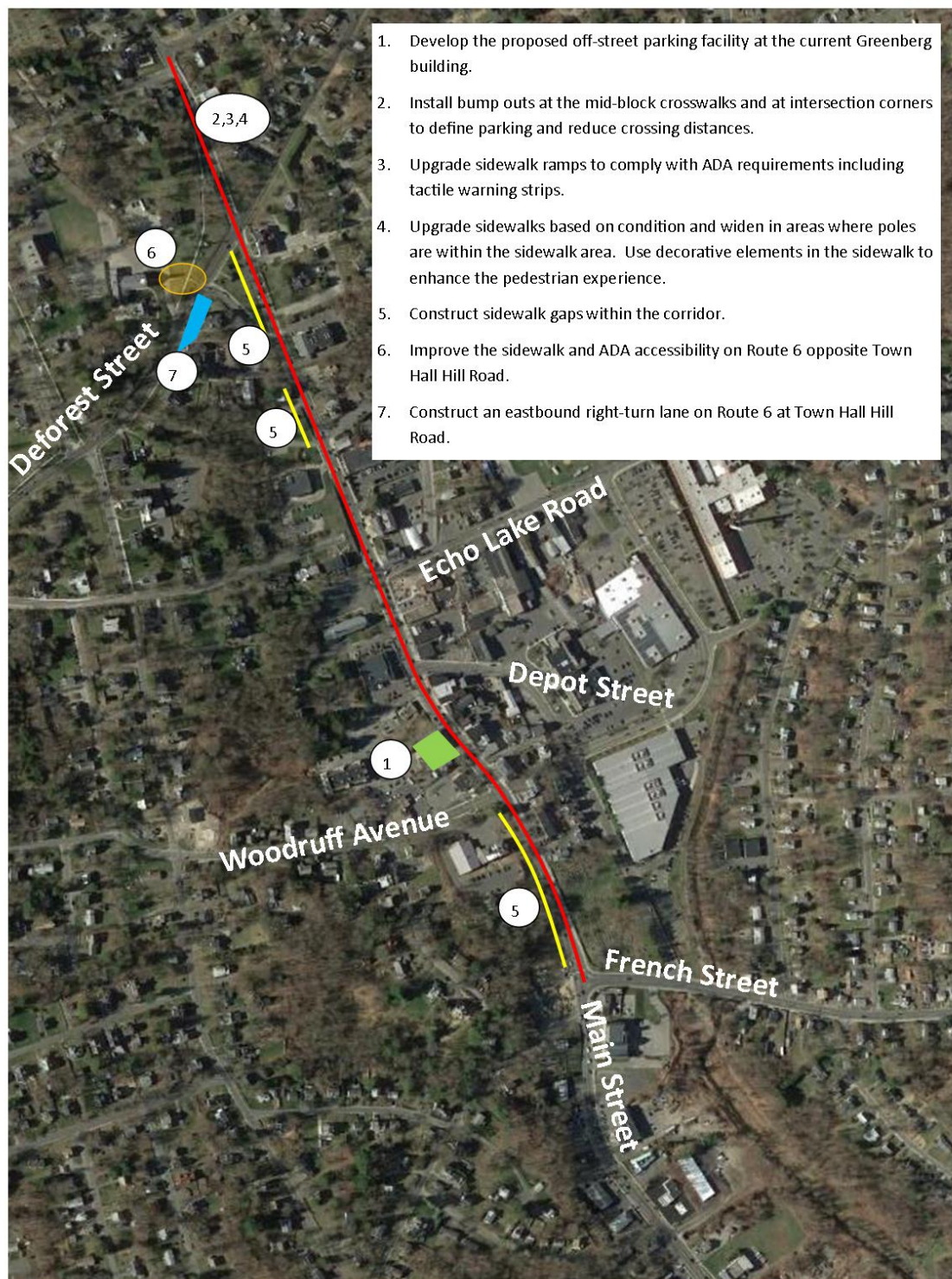


Figure 42. Long Term Recommendations

#### 4.4 Summary

This report outlines the observations, discussions and recommendations developed during the RSA. It documents the successful completion of the Town of Watertown RSA and provides Watertown with an outlined strategy to improve the transportation along Main Street (Route 63) for all road users at, particularly focusing on pedestrians and cyclists. Moving forward, Watertown may use this report to prepare strategies for funding and implementing the improvements, and as a tool to plan for including these recommendations into future development along Main Street (Route 63).



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# Appendix A



**AECOM**  
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## Road Safety Audit

**Town:** Watertown  
**RSA Location:** Main Street (Rte. 63)  
**Meeting Location:** Watertown Municipal Center, Conference Room: Heminway  
**Address:** 61 Echo Lake Road  
**Date:** 6/13/2018  
**Time:** 8:30 AM - 4:00 PM

## Participating Audit Team Members

Audit Team Member	Agency/Organization	Email
Audit Team Member	Agency/Affiliation	Contact Email
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# Appendix B



**AECOM**  
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## Road Safety Audit – Watertown

**Meeting Location:** Watertown Municipal Center (Conference Room Heminway)  
**Address:** 61 Echo Lake Road, Watertown, CT 06795  
**Date:** 06/13/2018  
**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

**4:00 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**

<b>Pedestrians and Bicycles</b>	<b>Comment</b>
<b>Pedestrian Crossings</b> <ul style="list-style-type: none"><li>• Sufficient time to cross (signal)</li><li>• Signage</li><li>• Pavement Markings</li><li>• Detectable warning devices (signal)</li><li>• Adequate sight distance</li><li>• Wheelchair accessible ramps<ul style="list-style-type: none"><li>○ Grades</li><li>○ Orientation</li><li>○ Tactile Warning Strips</li></ul></li><li>• Pedestrian refuge at islands</li><li>• Other</li></ul>	
<b>Pedestrian Facilities</b> <ul style="list-style-type: none"><li>• Sidewalk<ul style="list-style-type: none"><li>○ Width</li><li>○ Grade</li><li>○ Materials/Condition</li><li>○ Drainage</li><li>○ Buffer</li></ul></li><li>• Pedestrian lighting</li><li>• Pedestrian amenities (benches, trash receptacles)</li><li>• Other</li></ul>	





### Bicycles

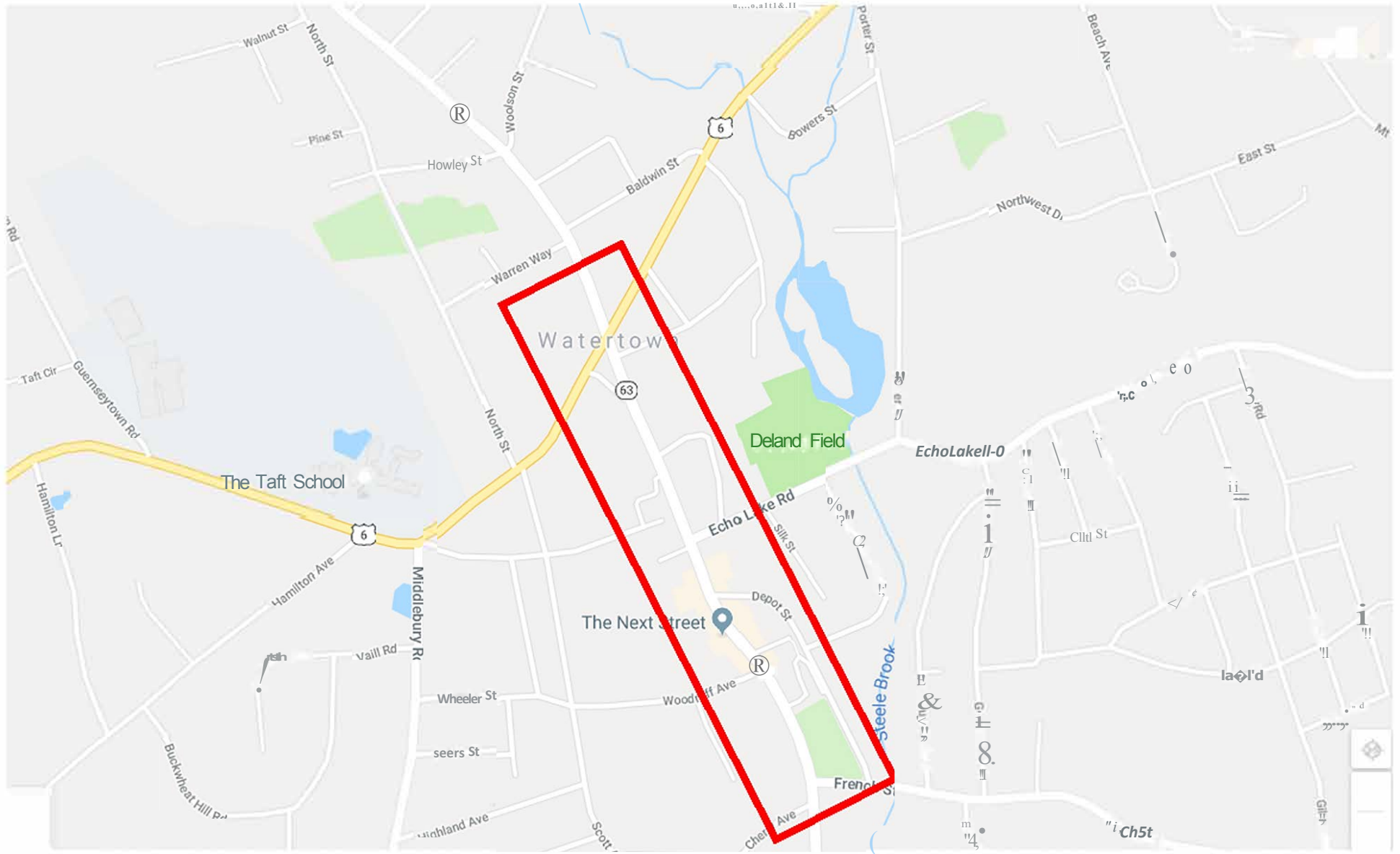
- Bicycle facilities/design
- Separation from traffic
- Conflicts with on-street parking
- Pedestrian Conflicts
- Bicycle signal detection
- Visibility
- Roadway speed limit
- Bicycle signage/markings
- Shared Lane Width
- Shoulder condition/width
- Traffic volume
- Heavy vehicles
- Pavement condition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

### Roadway & Vehicles

- Speed-related issues
  - Alignment;
  - Driver compliance with speed limits
  - Sight distance adequacy
  - Safe passing opportunities
- Geometry
  - Road width (lanes, shoulders, medians);
  - Access points;
  - Drainage
  - Tapers and lane shifts
  - Roadside clear zone /slopes
  - Guide rails / protection systems
- Intersections
  - Geometrics
  - Sight Distance
  - Traffic control devices
  - Safe storage for turning vehicles
  - Capacity Issues

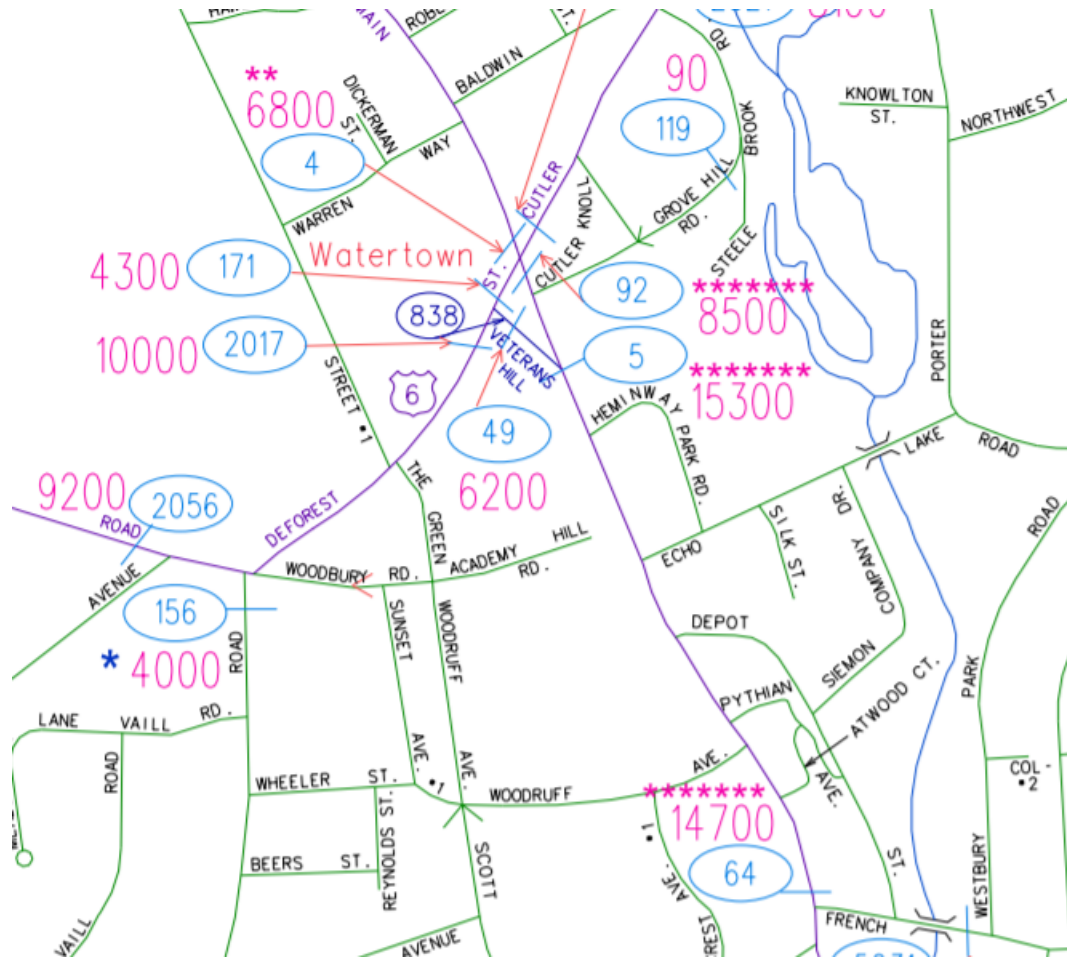


<ul style="list-style-type: none"><li>• Pavement<ul style="list-style-type: none"><li>○ Pavement Condition (excessive roughness or rutting, potholes, loose material)</li><li>○ Edge drop-offs</li><li>○ Drainage issues</li></ul></li><li>• Lighting Adequacy</li></ul>	
<ul style="list-style-type: none">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



Location Map

# Watertown





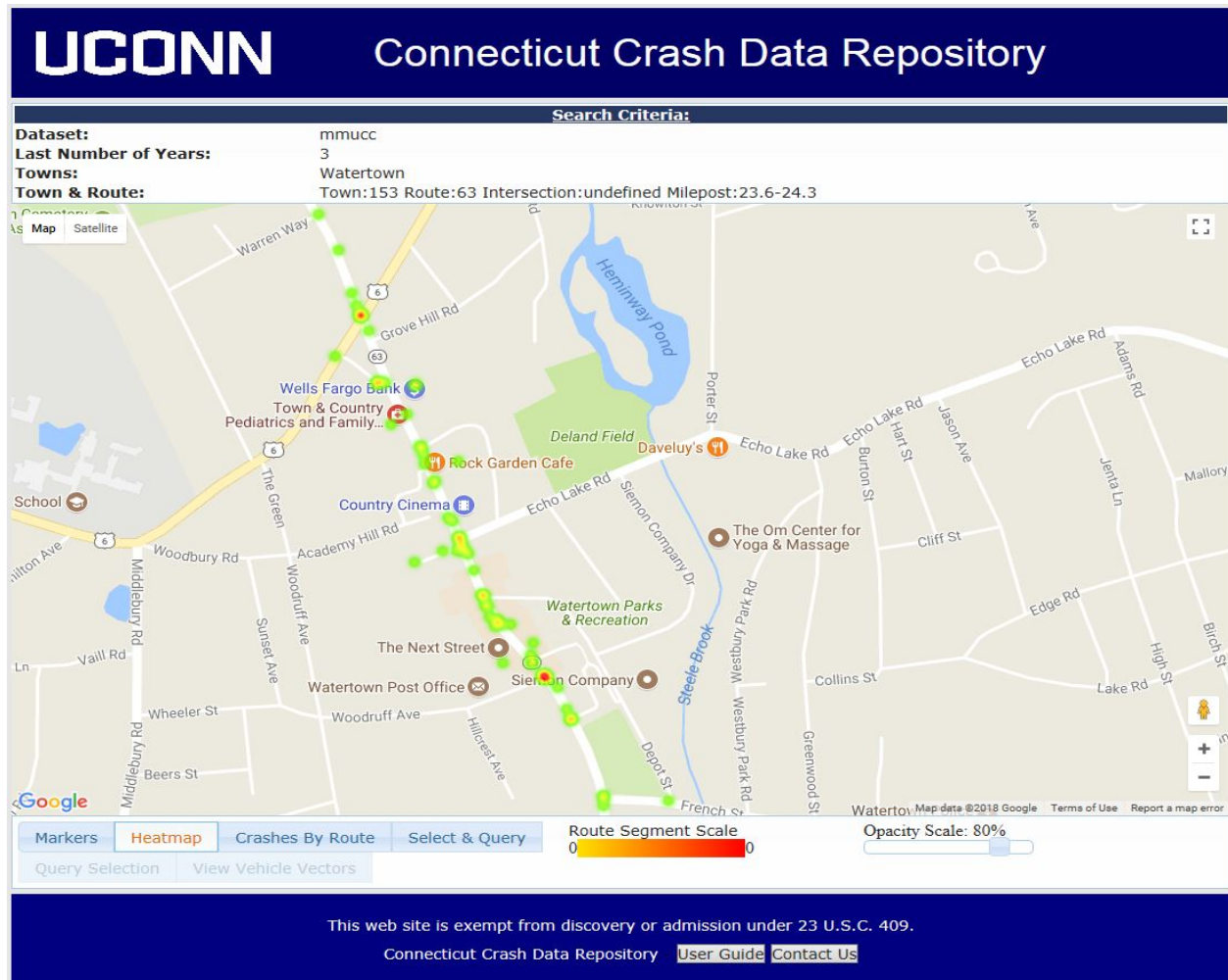


## Road Safety Audit – Watertown

### Crash Summary

There were two (2) fatal crashes.

One involving a pedestrian.





Data: 3 years (2015-2017)

Severity Type	Number of Crashes	
Property Damage Only	53	73%
Injury of any type (Serious, Minor, Possible)	18	25%
Fatal (Kill)	2	3%
Total	73	

Manner of Crash / Collision Impact	Number of Crashes	
Sideswipe, same direction	6	8%
Angle	17	23%
Front to rear	37	51%
Other	6	8%
Rear to side	2	3%
Not Applicable	3	4%
Rear to rear	1	1%
Sideswipe, opposite direction	1	1%
Total	73	

Weather Condition	Number of Crashes	
Clear	62	85%
Cloudy	5	7%
Freezing Rain or Freezing Drizzle	1	1%
Rain	4	5%
Snow	1	1%
Total	73	

Light Condition	Number of Crashes	
Daylight	55	75%
Dark-Lighted	11	15%
Dark-Not Lighted	6	8%
Dusk	1	1%
Total	73	



Road Surface Condition	Number of Crashes	
Dry	63	86%
Wet	9	12%
Snow	1	1%
Total	73	

Time		Number of Crashes	
0:00	0:59	0	0%
1:00	1:59	1	1%
2:00	2:59	0	0%
3:00	3:59	0	0%
4:00	4:59	0	0%
5:00	5:59	1	1%
6:00	6:59	0	0%
7:00	7:59	1	1%
8:00	8:59	2	3%
9:00	9:59	3	4%
10:00	10:59	3	4%
11:00	11:59	5	7%
12:00	12:59	7	10%
13:00	13:59	5	7%
14:00	14:59	6	8%
15:00	15:59	4	5%
16:00	16:59	8	11%
17:00	17:59	9	12%
18:00	18:59	6	8%
19:00	19:59	5	7%
20:00	20:59	4	5%
21:00	21:59	2	3%
22:00	22:59	0	0%
23:00	23:59	1	1%
Total		73	



Person Type	Number
Driver	131
Passenger	21
Bicyclist	0
Pedestrian	3





---

## **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 – WATERTOWN

## Fact Sheet

### Functional Classification:

- Route 63 is classified as a Principal Arterial (Other)

### ADT

- ADT on Route 63 is 15,300 – 6,800

### Population and Employment Data (2016 US Census Bureau):

- Population: 22,514
- Employment: 7,631

### Urbanized Area

- The study area of Route 63 is in the Waterbury Urbanized Area

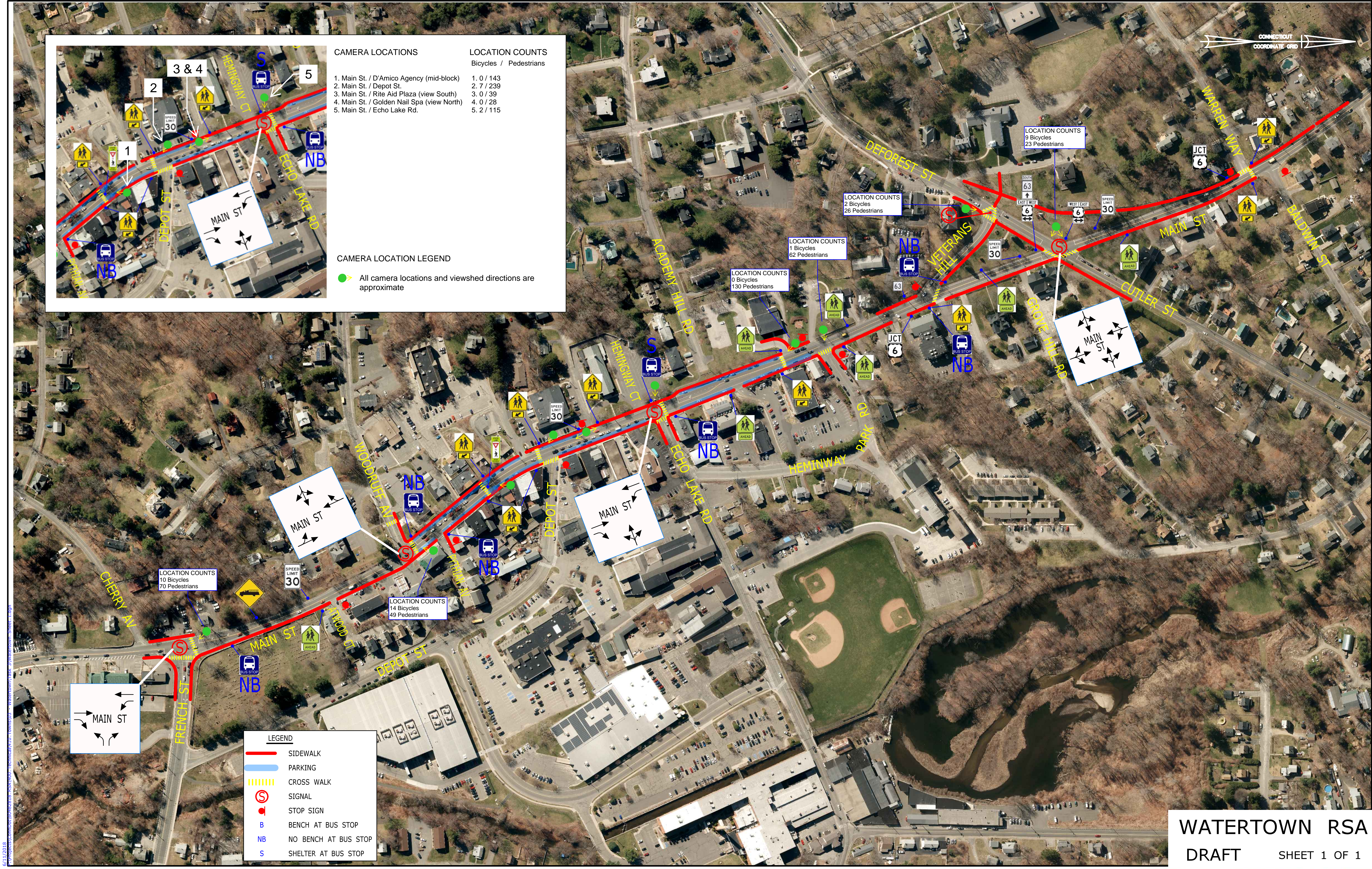
### Demographics

- The statewide average percentage below the poverty line is 10.5%  
The poverty level of Watertown is 4.6%
- The statewide average percentage minority population is 23%  
The minority level of Watertown is 7.98%

### Air Quality

- Watertown CIPP number 324
- Watertown is within the Greater CT Moderate Ozone PM<sub>2.5</sub> Attainment/Maintenance Area
- Watertown is within a New Haven-Meriden-Waterbury Region CO Attainment Area





CAMERA LOCATIONS

- 1. Main St. / D'Amico Agency (mid-block)
- 2. Main St. / Depot St.
- 3. Main St. / Rite Aid Plaza (view South)
- 4. Main St. / Golden Nail Spa (view North)
- 5. Main St. / Echo Lake Rd.

LOCATION COUNTS

Bicycles / Pedestrians
1. 0 / 143
2. 7 / 239
3. 0 / 39
4. 0 / 28
5. 2 / 115

CAMERA LOCATION LEGEND

● All camera locations and viewshed directions are approximate

LEGEND

—	SIDEWALK
—	PARKING
----	CROSS WALK
⊙	SIGNAL
●	STOP SIGN
B	BENCH AT BUS STOP
NB	NO BENCH AT BUS STOP
S	SHELTER AT BUS STOP