COMMUNITY
connectivity program

Windham

Main Street (Route 66) – Road Safety Audit

May 3, 2016

CONNECTICUT DEPARTMENT OF TRANSPORTATION

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

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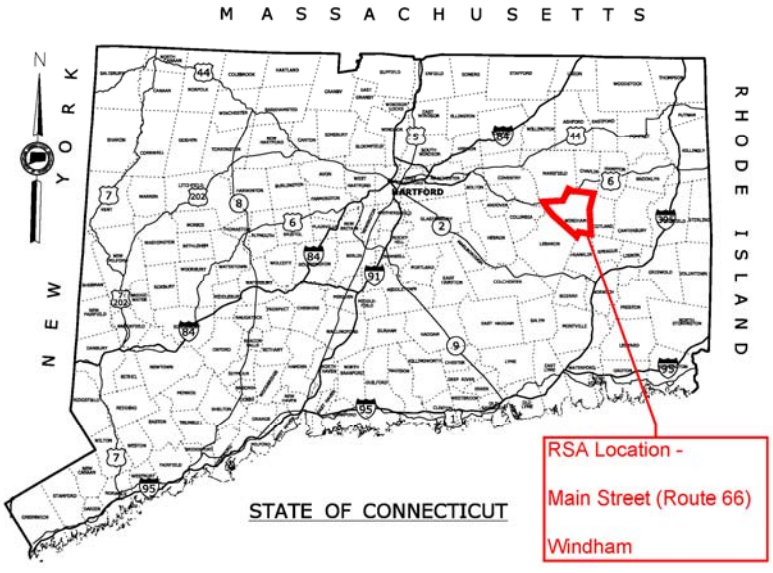
The Connecticut Department of Transportation (CTDOT) is undertaking a Community Connectivity Program that focuses on improving the state's transportation network for all users, with an emphasis on bicyclists and pedestrians. A major component of this program is conducting Road Safety Audits (RSA's) at 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 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 the Windham (Main Street) RSA

The Town of Windham submitted an application to complete an RSA along Main Street (Route 66) to improve safety for pedestrians and bicyclists. The alignment of this intersection, coupled with high traffic volumes, has resulted in what is perceived as a confusing and stressful environment for pedestrians and bicyclists. Specifically, Windham is looking to connect two existing greenways, the East Coast Greenway and the Airline Trail, along Main Street which is located in the Willimantic Business District. Visitors to these trails would benefit from a defined connection, and the businesses along Main Street would benefit from increased visitor traffic.

The Town of Windham's application contained information on traffic volumes, crash data, and mapping of the intersection. The application and supporting documentation are included in Appendix A.

1.1 Location

The site is a corridor along Main Street between Bridge Street and Riverside Drive in the Town of Windham (Figure 1). The Main Street Average Daily Traffic (ADT) ranges from 13,500 at Bridge Street to 13,900 at North Street. The Town of Windham specifically mentioned concerns regarding pedestrian and cyclist safety in this area due to the volume and speed of traffic on Main Street, particularly from commercial trucks. Located south of Route 6, Main Street (Figure 2) is often used as a bypass to reach neighboring communities.

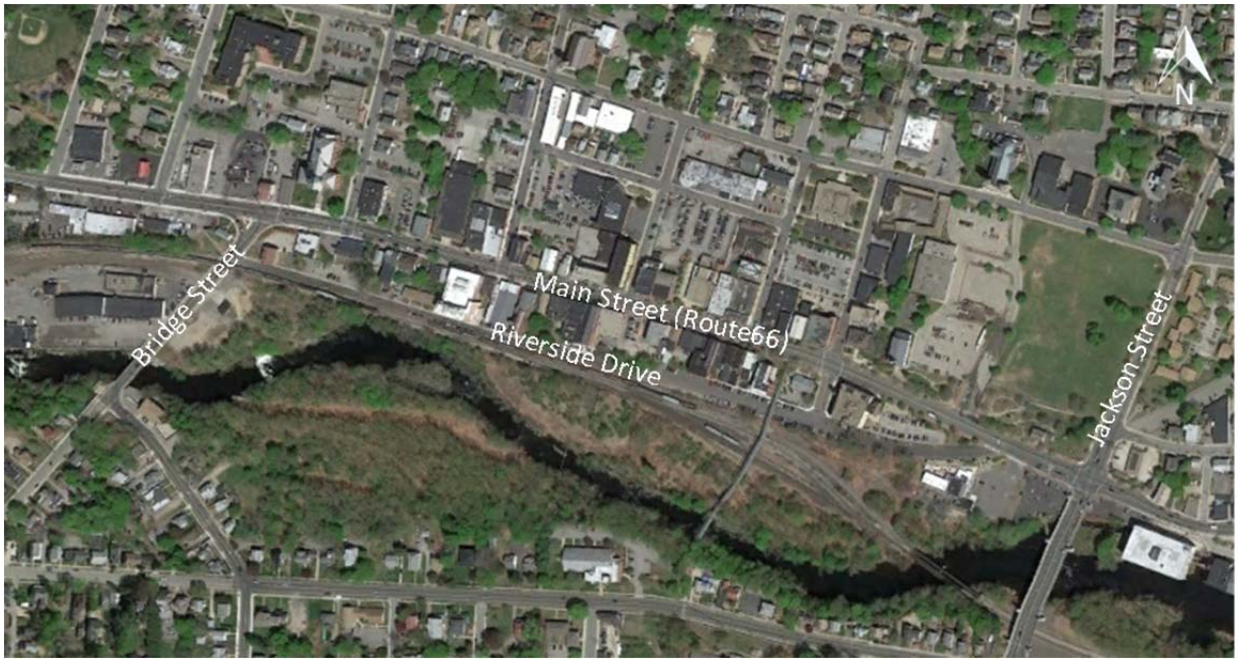


Figure 1. Main Street Study Area

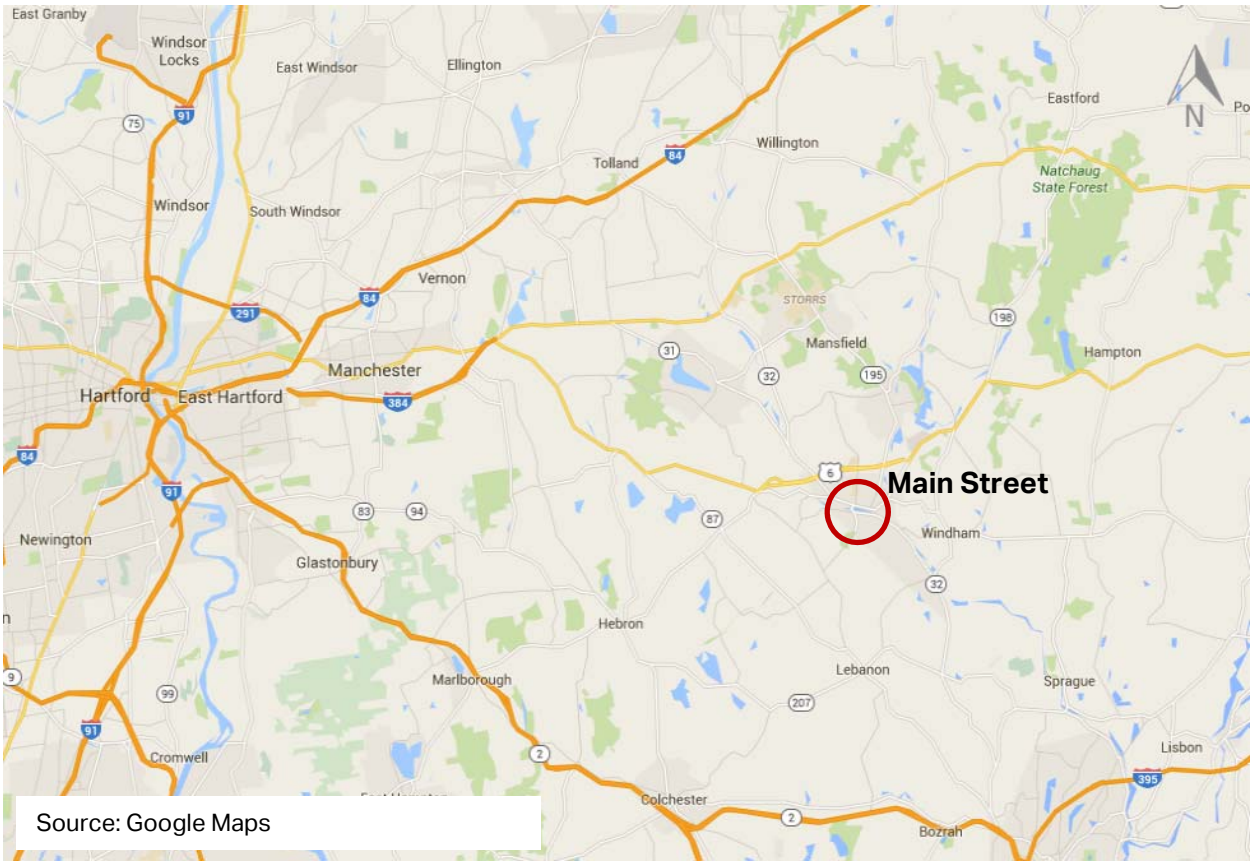


Figure 2. Main Street Regional Context

Main Street is a state owned and maintained facility that runs in a relatively straight east/west direction through the center of the section of Windham known as Willimantic. Main Street has one travel lane in each direction with parking on both sides. The roadway width varies between approximately 40 feet and 48 feet. Additional turn lanes are provided at signalized intersections, including Bridge Street, Walnut Street, Bank Street, North Street, Church Street, and South Street/Jackson Street. Pedestrian signals and crosswalks are provided at each signalized intersection. Brick and concrete sidewalks and street trees are provided on both sides of Main Street along the entire study corridor. The posted speed limit on Main Street is 25 MPH. Bus stops are located along the Main Street corridor.

Riverside Drive is a local road maintained by the Town of Windham. It is bi-directional between Main Street and Church Street and one-way eastbound between Bridge Street and Church Street. In the two-way section it is 42 feet wide with head in/angled parking on both sides and approximately 22 feet in the center for two lanes of travel. There are no edges lines or center line on Riverside Drive. In the one-way section it is between 23 and 28 feet wide with parallel parking provided on the south side in some sections. Riverside Drive is posted for 15 MPH. There is sidewalk on one side along most of Riverside Drive. Railroad tracks are located south of Riverside Drive, separated by a vegetated buffer and a fence.

This area of Main Street is densely developed with commercial and retails uses with multiple driveways located along the corridor. In addition to on-street parking available on both sides of Main Street, there are additional spaces available in some private lots as well as a municipal parking lot located on Riverside Drive.

2 Pre-Audit Assessment

2.1 Pre-Audit Information

As noted previously, traffic volumes are significant at this location. Crash history shows that the most frequent crashes are rear-end collisions (32%) and they are generally clustered around the intersections along Main Street (Figure 3). Approximately two-thirds of accidents occurred between 9:00 AM and 4:00 PM; this may be attributed to commuting, commercial truck traffic, shopping, and school activities. While the majority of crashes resulted in property damage only, 14 crashes did cause injuries to involved parties (Table 1). Although the largest number of crashes involved rear-end collisions (Table 2), it should be noted that there were a considerable number of crashes that involved parking (10 crashes), backing (9 crashes), and vehicles sideswiping in the same direction (19 crashes).

Severity Type	Number of Crashes	
Property Damage Only	100	88%
Injury (No fatality)	14	12%
Fatality	0	0%
Total	**114**	

Table 1. Crash Severity

Source: UConn Connecticut Crash Data Repository, 2012-2014

Manner of Crash / Collision Impact	Number of Crashes	
Unknown	2	2%
Sideswipe-Same Direction	19	17%
Rear-end	37	32%
Turning-Intersecting Paths	11	10%
Turning-Opposite Direction	10	9%
Fixed Object	4	4%
Backing	9	8%
Angle	2	2%
Turning-Same Direction	3	3%
Moving Object	0	0%
Parking	10	9%
Pedestrian	2	2%
Overturn	1	1%
Head-on	0	0%
Sideswipe-Opposite Direction	4	4%
Total	114	

Table 2. Crash Type

Source: UConn Connecticut Crash Data Repository, 2012-2014

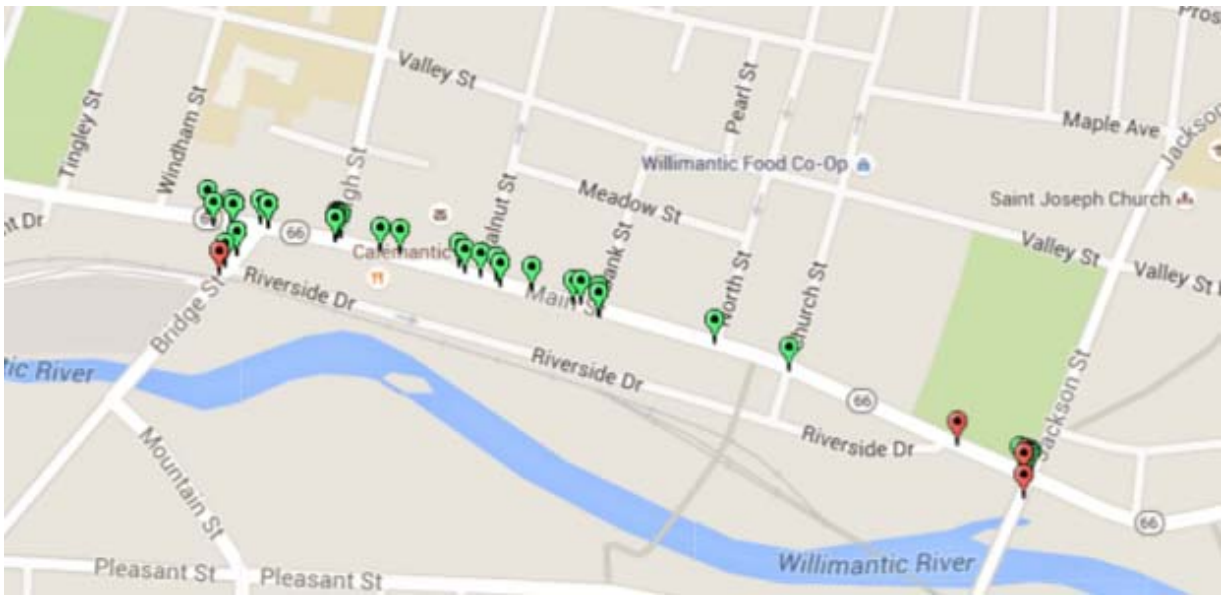


Figure 3. Crashes that Occurred in 2015 (Connecticut Crash Data Repository)

The driveways along Main Street allow traffic to turn onto and off of the roadway with few restrictions. The additional maneuvers may create difficulties for drivers to negotiate a clear path along Main Street while simultaneously watching the signals, pavement markings, and adjacent pedestrian and cyclist movements. Vehicles stopping to turn at these driveways can

block and impede the flow of traffic and add to the general operational difficulty of the roadway.

There are sidewalks on both sides of Main Street and Bridge Street. On Main Street the sidewalks are generally eight (8) feet in width, although some sections are as wide as 12 feet with space designated as a snow shelf or buffer. In general, the walking path of the sidewalk is four (4) feet in width. Along some sections of Main Street the walking path is concrete (Figure 4) while other sections consist entirely of brick pavers (Figure 5). Some concrete and/or brick pavers on Main Street are damaged and in need of replacement.

Figure 4. Concrete and Brick Sidewalk

Figure 5. Brick Sidewalk

On Riverside Drive, there is a bituminous sidewalk on the south side of the two-way section. The sidewalk is in poor condition. In the one-way section there is a concrete sidewalk on the north side in fair-good condition. There is a short portion of the one-way section where there is no sidewalk. Figure 6 provides additional details for existing trails, sidewalks, crosswalks, on-street parking and stop controls. An inventory of existing conditions along Main Street, Riverside Drive and Bridge Street can be found in Table 3.

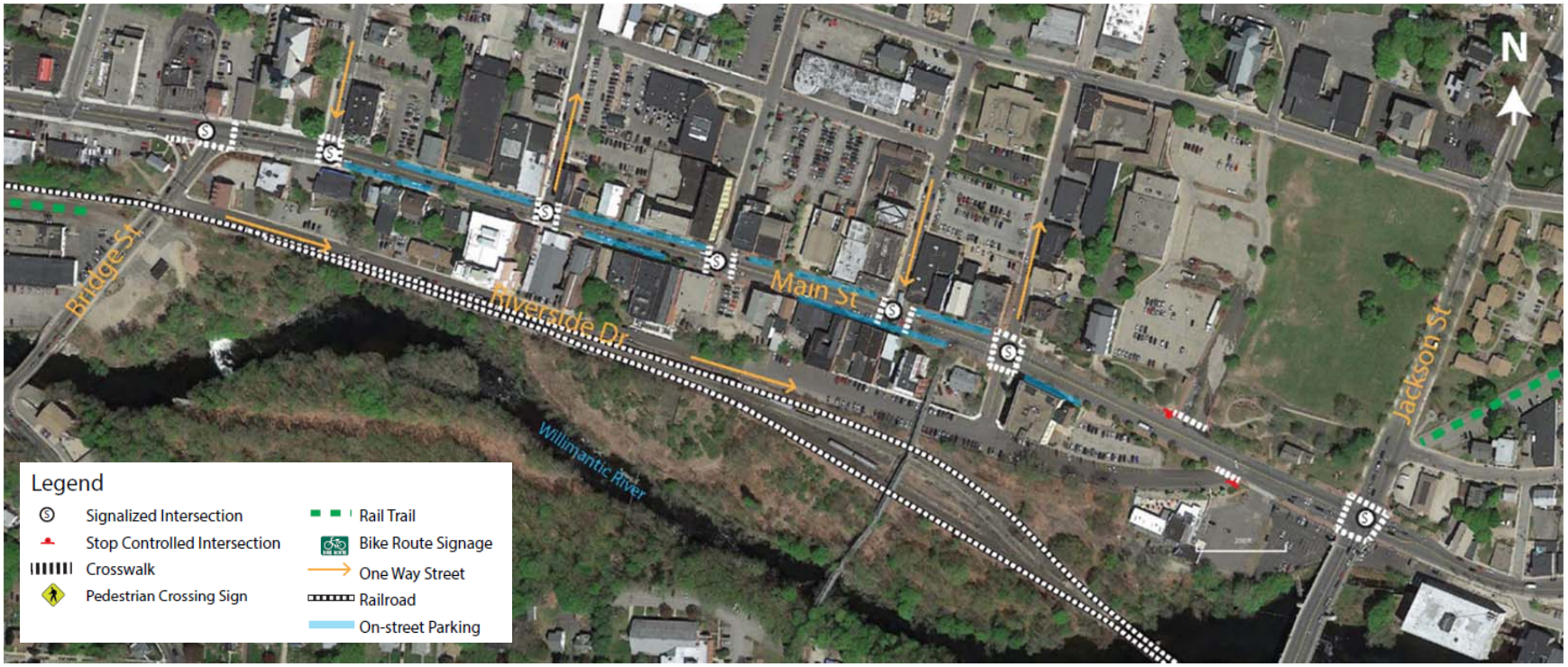


Figure 6. Main Street Road Geometrics

Windham

Street Inventory

From	Distance	Width	Sidewalk				Curb	Parking	Shoulder	Ramps	
			Side	Type	Width	Condition				Exist	Compliant
Main Street	0.5	1 lane	EB	Concrete and Bricks	< 12'	Fair	Concrete and Granite	Yes	-	50%	No
		1 lane	WB	Concrete and Bricks	< 12'	Fair	Concrete and Granite	Yes	-	50%	No
Riverside Drive (two-way)	0.2	1 lane	EB	Asphalt	6'	Poor	Asphalt	Yes	-	Yes	Yes
		1 lane	WB	Asphalt and Concrete	< 5'	Good	Asphalt	Yes	-	-	-
Riverside Drive (one-way)	0.25	1 lane	EB	Concrete	< 5'	Fair	Concrete and Asphalt	Yes	-	No	No
Bridge Street (from Riverside Drive to Main Street)	0.03	2 lanes	NB	Concrete	6'	Fair	Concrete	No	<1'	Yes	Yes
		1 lane	SB	Concrete	6'	Fair	Concrete	No	1' - 2'	Yes	Yes

***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. Intersection Roadway Inventory

2.2 Prior Successful Efforts

A number of best practices have already been applied along this corridor. Windham has an extensive network of pedestrian sidewalks in downtown Willimantic. Sidewalks are provided on both sides of Main Street and connect to surrounding local roads. Crosswalks along Main Street are controlled by exclusive pedestrian phases at signalized intersections. Some sidewalk ramps have tactile warning strips. Windham will be upgrading these sidewalks on Main Street and all sidewalks and ramps will be made compliant with the latest ADA standards as construction occurs. A pedestrian bridge, the Willimantic Footbridge (Figure 7), was built in the early 1900's to connect residential areas to the downtown center over the Willimantic River and rail line.

Figure 7. Willimantic Footbridge

It is noted that an inter-modal transportation center has been proposed and designed for the downtown area; however, the project is on hold due to funding constraints.

2.3 Pre-Audit Meeting

The RSA was conducted on May 3, 2016. The Pre-Audit meeting was held at 8:30 AM in the Windham Town Hall located at 979 Main Street in Willimantic.

The RSA Team was comprised of staff from CTDOT and AECOM, as well as representatives from several Windham departments and organizations including the Public Works Department, and Planning Department. The complete list of attendees can be found in Appendix B. Materials distributed to the RSA Team, including the agenda, audit checklist, ADT counts, crash data and road geometrics, can be found in Appendix C.

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

- There is heavy truck traffic on Main Street.
- Pedestrians have been observed crossing mid-block instead of walking further to reach a crosswalk.
- Pedestrians have been observed crossing the street without using the pedestrian signals.
- Approximately two-thirds of accidents in the RSA area occurred between 9:00 AM and 4:00 PM. Windham indicated this period is when truck traffic is the heaviest on Main Street.

- Street lighting appears sufficient.
- A Multi-Modal Center, which would be located on Main Street, has been designed for Windham. The town is seeking funding for its construction.
- There has been an issue with ATVs on the trails. In another section of town, barriers were installed to prevent people from using ATVs on the trails.
- Windham has an ordinance requiring cyclists to dismount and walk their bikes while on sidewalks. The town indicated that there have been complaints about cyclists not observing this ordinance.
- Windham has $200,000 secured for the reconstruction or building of sidewalks along Main Street.
- Because of high traffic volumes and heavy trucks it may not be safe to install share the road signs and pavement markings on Main Street.
- There is some support in town for adding bump-outs at intersections along Main Street.

3 RSA Assessment

3.1 Field Audit Observations

- Most on-street parking on Main Street is restricted to a maximum of two hours.

- Sidewalks:
  - Sidewalk width varies along Main Street between 8 feet and 12 feet. In general, there is a 4 foot wide travel path and a 4 foot wide area for the tree wells. In some sections along Main Street there is additional space for a snow shelf.
  - There are sidewalk obstructions on Main Street including utility poles, utility boxes, lights, signs and trees (Figure 8).
  - Bricks are in varying condition; some sections need to be repaired.
  - Warning strips are not consistent along Main Street and not all crosswalks have them (Figure 9).

Figure 8. Sidewalk Obstructions

- No bike racks were observed on Main Street.
- The bituminous sidewalk on the south side of Riverside Drive is in poor condition.

- Roadway:
  - The road width varies along Main Street between 40 and 48 feet.
  - There is on-street parking on both sides of the road on Main Street.
  - Travel lanes are wide on Main Street.
  - Near the Church Street intersection there are no lane markings on Main Street. Although this roadway is intended to be one lane in each direction, the lack of pavement markings to direct motorists often leads to this road being treated as two lanes in each direction.

- Crosswalks:
  - Markings are worn and need to be repainted (Figure 10).

- The Willimantic Footbridge that connects Pleasant Street to Main Street over the Willimantic River, rail tracks and Riverside Drive is not accessible to cyclists.

- Riverside Drive:
  - The rear parking lot is not used to full capacity.
  - Part of this roadway is two-way traffic while another section is one-way. During the audit, a vehicle was observed travelling in the wrong direction on the one-way section.
  - The rail line located south of Riverside Drive is owned by DOT and leased by a private rail company for freight service. The town is responsible for the

Figure 9. Missing Detectable Warning Strips

Figure 10. Worn Crosswalk Markings

maintenance of the fence between the parking lot and rail line (Figure 11). Sections of this fence are in need of replacement. Windham discussed the possibility of moving the fence back approximately 10 feet to allow more room for pedestrians and cyclists along Riverside Drive. This would require an easement on the rail property.

- There are drainage issues along this roadway.

Figure 11. Fence Between Riverside Drive and Rail line

3.2 Post-Audit Workshop - Key Issues

1. Heavy traffic on Main Street, particularly from trucks (Figure 12), poses a safety concern for cyclists. The town would prefer to direct bike traffic along Riverside Drive where there is less traffic and cyclists and pedestrians would have fewer conflicts with vehicles.

2. Windham feels the pedestrian crossing times on Main Street are incorrectly timed, which in turn encourages pedestrians to jaywalk.

3. Sidewalks need to be repaired. Windham has secured funding to improve sidewalks on Main Street. When repaired, the sidewalks will meet current ADA standards.

4. There is a lack of facilities for cyclists. There are no bike racks along Main Street so cyclists chain their bikes to lights or sign posts.

5. Vehicles travel faster than the posted speed limit (15 mph) on Riverside Drive. If cyclist traffic is directed on this road, traffic calming measures should be implemented.

Figure 12. Trucks on Main Street

Figure 13. Alleyway Between Riverside Drive and Main Street

6. There is an alleyway connecting Riverside Drive to the intersection of Main Street and North Street; however, the slope is steep and is not currently conducive to use as a trail connection.

7. The main issue Windham faces is identifying a logical and safe connection between the East Coast Greenway (ECG) and the Airline Trail. The following alignment was discussed and it was agreed this could provide the safest connection between the two trails:

    - ECG trail – cross Bridge Street onto Riverside Drive (Figure 14) – head north onto Church Street Extension – cross Main Street – head east towards Jackson Street traveling on existing pathways in Jillson Square – cross Jackson Street – connect to Airline Trail on Union Street (Figure 15).

Figure 14. East Coast Greenway Trail Between Building and Rail Tracks

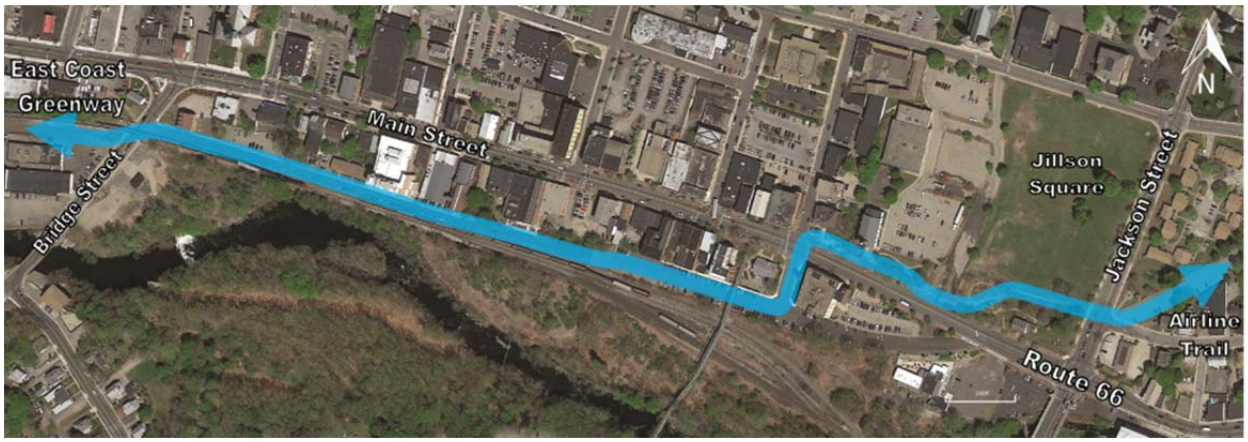


Figure 15. Proposed Trail Connection

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. Pedestrian Signals:
    a. Adjust the pedestrian crossing times to comply with current MUTCD standards.
2. Sidewalks/Crosswalks:
    a. Repaint crosswalks (Figure 16).
    b. Repair damaged sidewalk areas (Figure 17).
    c. Add missing detectable warning strips (Figure 18).
3. Add pavement markings for shoulder lanes to direct vehicles to travel in one lane and help clam traffic (Figure 19).

Figure 20 depicts these recommendations.

Figure 16. Repaint Crosswalks

Figure 17. Repair Damaged Sidewalks

Figure 18. Install Warning Strips at all Crosswalks

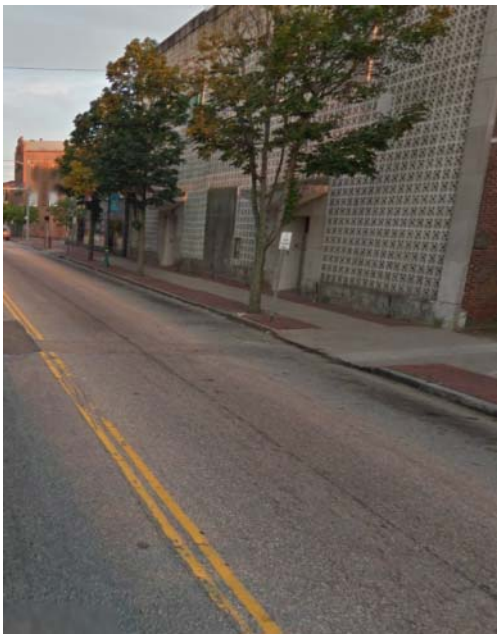


Figure 19. Add Shoulder Lane Markings

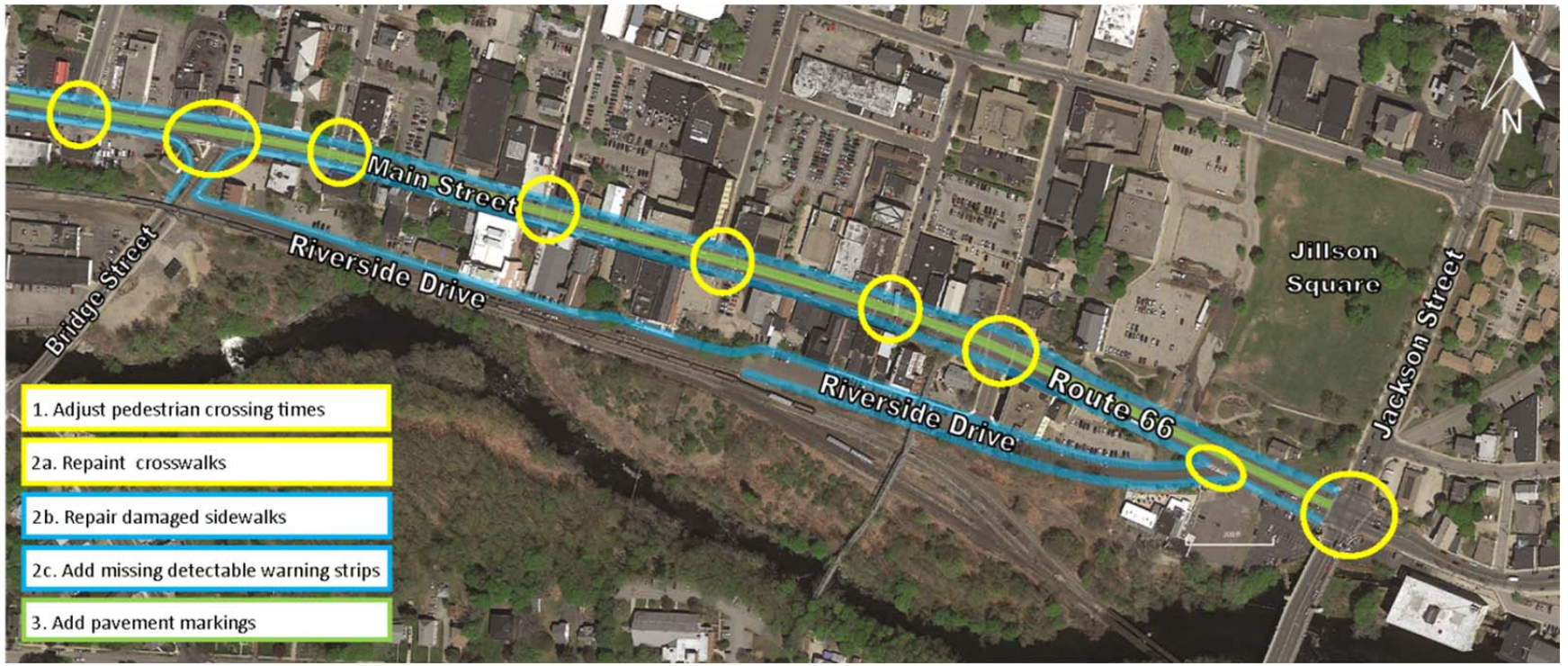


Figure 20. Short Term Recommendations

4.2 Medium Term

1. Add ADA compliant pushbuttons and countdown pedestrian heads along Main Street (Figure 21).
2. Provide bicycle accommodations in the park area in front of the First Baptist Church including bike racks and a kiosk (Figure 22).
3. Install signs to encourage cyclists to dismount their bikes when on sidewalks (Figure 23).
4. Install radar speed control signs at various locations along Main Street to show motorists how fast their vehicles are traveling (Figure 24).

Figure 25 depicts these recommendations.

Figure 21. Upgrade Crossing Signals and Pushbuttons

Figure 22. Install Bicycle Accommodations

Figure 23. Install Signs to Encourage Cyclists to Walk Bikes on Sidewalks

Figure 24. Install Radar Speed Control Signs

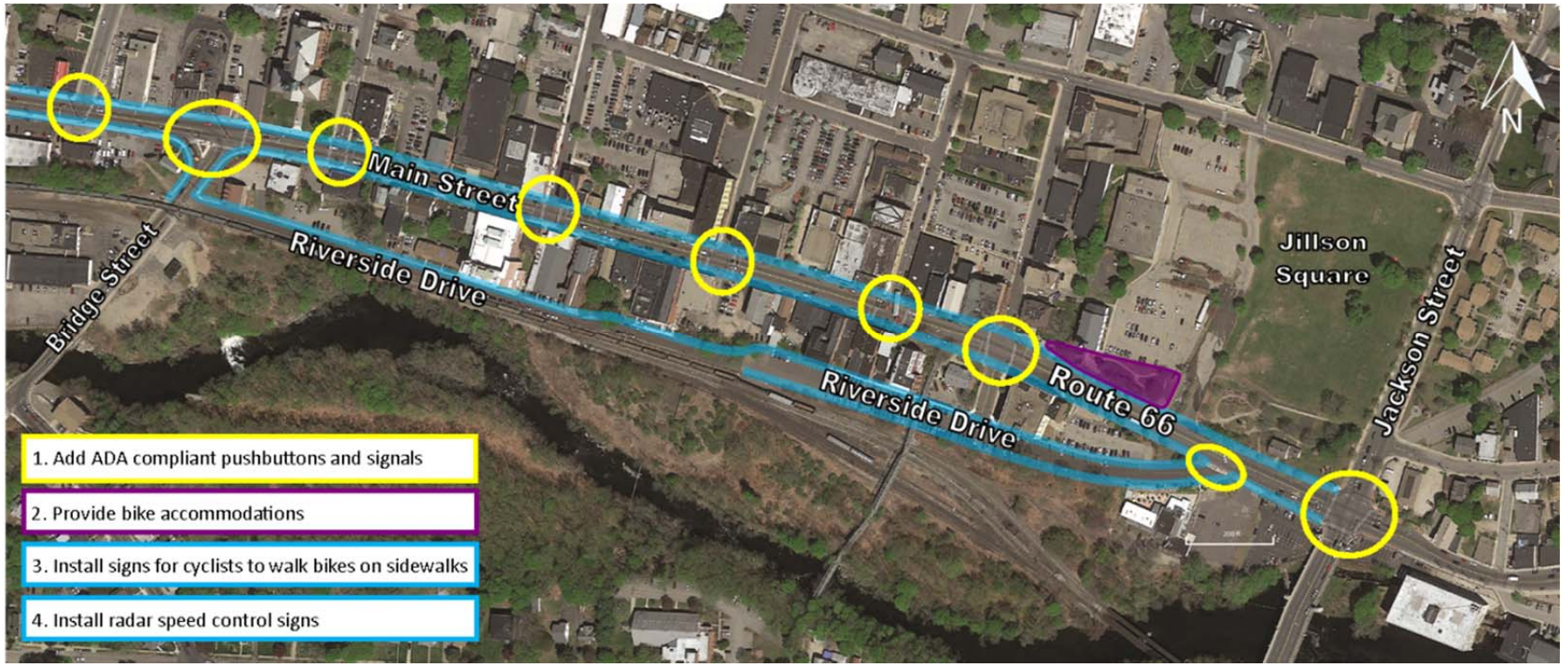


Figure 25. Medium Term Recommendations

4.3 Long Term

1. Establish trail connection between East Coast Greenway and Airline Trail. From the terminus of the East Coast Greenway, trail users will cross Bridge Street onto Riverside Drive. Pedestrians and cyclists will travel on Riverside Drive and turn north on Church Street (Figure 26) towards Main Street. At this point, pedestrians and cyclists could use the pedestrian crossing signal to cross northbound on Main Street and then head east towards Jillson Square. Pedestrians and cyclists can use the existing pathways in Jillson Square (Figure 27) to continue east towards Jackson Street. From here, trail users can cross Jackson Street to connect to the start of the Airline Trail.

2. Evaluate alternatives for providing bicycle accommodation on Riverside Drive that may include:

    a. Designate bike lanes on south side, which may include acquiring ROW on the CTDOT parcel with rail tracks;
    b. Bike lanes in the center of the roadway of the two-way section (Figure 28);
    c. Bicycles and vehicles share the road for the entire Riverside Drive (Figure 29);
    d. Change head in/angles parking in the two-section to parallel parking to provide additional space for bike lanes/path;
    e. Feasibility of a cycle track facility (at sidewalk level);
    f. Traffic calming measures should be evaluated as part of the alternatives analysis.

3. Signage should also be included that shows access from Riverside Drive up to Main Street via the alley way connection.

4. Evaluate the need for a rectangular rapid flashing beacon at the crosswalk across Jackson Street for the Airline Trail.

5. Evaluate potential to provide a municipal parking garage and eliminate on-street parking on one side of Main Street. This would allow enough space to provide two bike lanes (either on one side or each side).

Figure 30 depicts these recommendations and the potential trail connection alignment.

Figure 26. Church Street Looking North Towards Main Street

Figure 27. Jillson Square

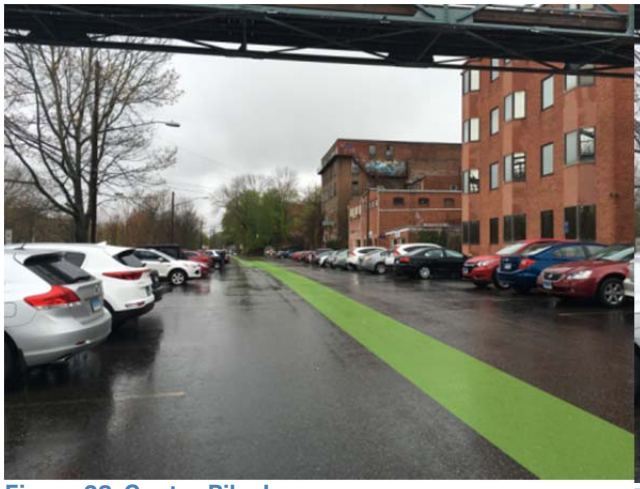


Figure 28. Center Bike Lanes

Figure 29. Bikes and Vehicles Share Roadway

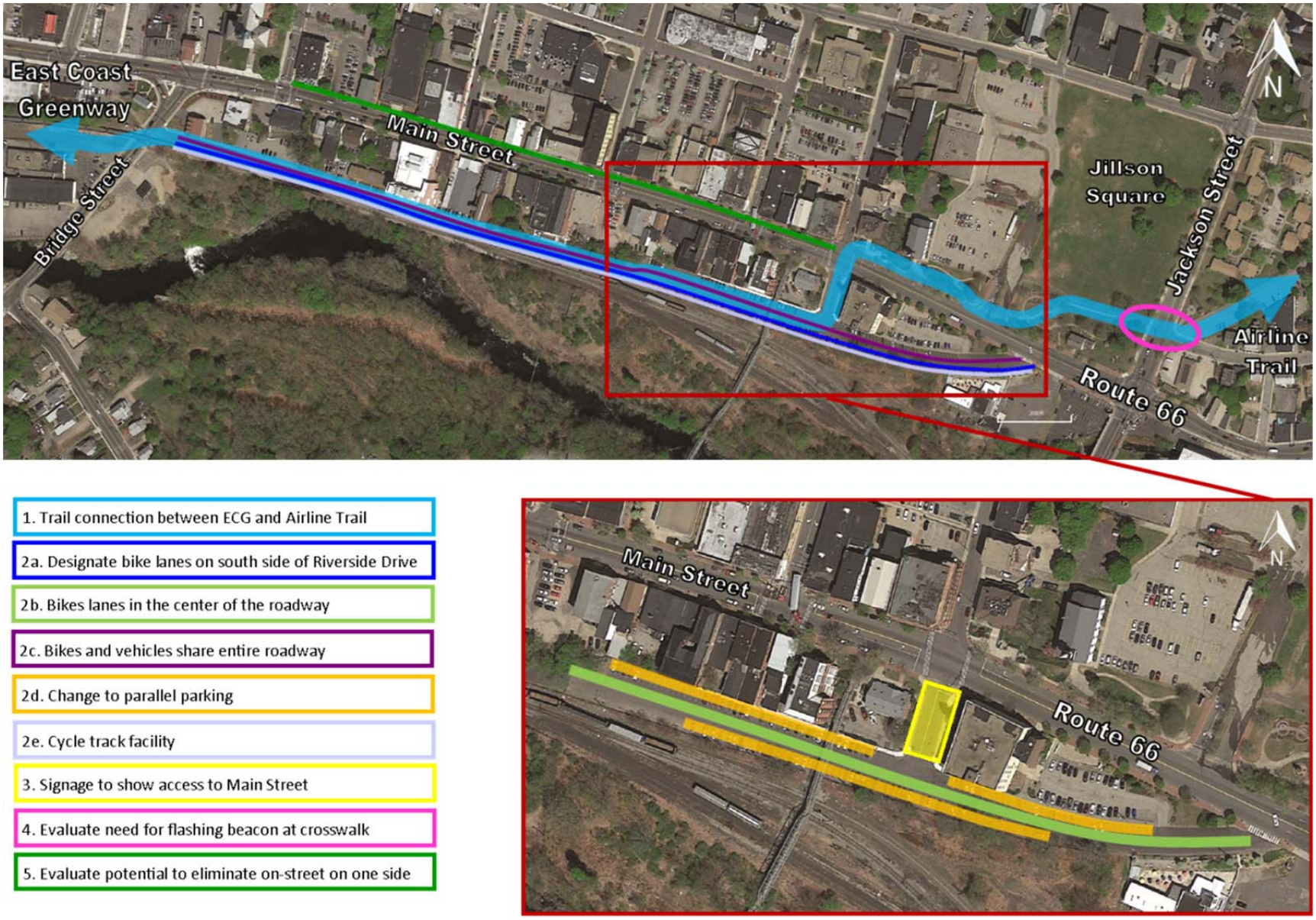


Figure 30. Long Term Recommendations

4.4 Summary

This report outlines the observations, discussions and recommendations developed during the RSA. It documents the successful completion of the Town of Windham RSA and provides Windham with an outlined strategy to improve the transportation network along Main Street for all road users, particularly focusing on pedestrians and cyclists. Moving forward, Windham 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 in the area.

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Appendix A

CONNECTICUT DEPARTMENT OF TRANSPORTATION

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Welcome to the Community Connectivity Program Application

Please fill in the following information to provide the Audit team leaders with a comprehensive description of the area contained in this application.

1. Applicant contact information

Name	Joseph Gardner
Title	Town Engineer
Email Address	jgardner@windhamct.com
Telephone Number	(860) 465-3043

2. Location information

Address	979 Main Street
Description	Windham Town Hall
City / Town	Willimantic CT. 06226

3. Roadway type
(Please select all that apply)

- [x] State road
- [ ] Local road
- [ ] Private Road
- [ ] Other (please specify)

4. Zoning
(Please select all that apply)

- [ ] Industrial
- [ ] Residential
- [ ] Commercial
- [ ] Mixed Use
- [ ] Retail
- [ ] N/A (not applicable)
- [x] Other (please specify)

Business, route passes two schools, and a branch of Quinnebaug Community College,

5. Approximate mile radius around the location

½ mile

Other (Please Specify)

6. Community Sites
(Please select all that apply)

- [ ] Community Centers
- [x] Business Districts
- [x] Restaurant/Bar Districts
- [x] Churches
- [ ] Housing Complexes
- [x] Proximity to Schools
- [x] Tourist Locations (examples – Casino, Malls, Parks, Aquarium, etc...)
- [ ] N/A (not applicable)
- [x] Other (please specify)

Business, route passes two schools, and a branch of Quinnebaug Community College

7. Employment Facilities
(Retail, Industrial, etc...)

- [x] Yes
- [ ] No

If Yes please describe (please specify)

Route passe several resturaunts, and retail stores

8. Educational facilities
(Please select all that apply)

- [x] **Public, Parochial, Private Schools (more than 1 school within a ½ mile)**
- [x] **University / Community Colleges**
- [ ] **N/A (not applicable)**
- [ ] **Other (please specify)**

route goes by two schools, a branch of Quinebaug Community College

9. Transit facilities
(Please select all that apply)

- [x] **Bus**
- [ ] **Rail**
- [ ] **Ferry**
- [ ] **Airport**
- [ ] **Park and Ride Lot**
- [ ] **N/A (not applicable)**
- [ ] **Other (please specify)**

10. Safety Concerns
(Please select all that apply)

- [x] Traffic (volumes & speed)
- [x] Collisions
- [x] Sidewalks
- [x] Traffic Signals
- [x] Traffic Signs
- [ ] Parking Restrictions / Additions
- [ ] Drainage
- [ ] ADA Accommodations
- [ ] Agricultural & Live Stock crossing
- [ ] Maintenance issues (cutting grass, leaves, snow removal)
- [ ] N/A (not applicable)
- [ ] Other (please specify)

11. Are there any past, current or future transportation/economic development projects near this location (i.e. Federal, State or local projects)?

If Yes please describe and list all projects.

In 2003 the Town of Windham constructed a paved trail from Jackson Street to North Windham along the Airline Trail. In North Windham the trail becomes stone dust and proceeds through neighboring towns to Putnam and Rhode Island.

We are completing another section of the airline trail from Bridge Street to Lebanon with a spur along the Hop River Trail to Columbia. This is all part of the East Coast Greenway.

Unfortunately there is a gap in the trail through the Willimantic Business District. This is the area we would like studied.

12. Environmental Concerns:

N/A not applicable

If Yes please describe and list.

13. Please explain why this location should be considered for an RSA

The proposed area is a gap in the Airline Trail, which is part of the East Coast Greenway.

The RSA would greatly assist in the proper planning of how best to get cyclists through this area which is a downtown business district.

14. Are there plans to expand the area?
(Transportation Oriented Development, Economic Development, housing, etc...)

N/A not applicable

15. Any other pertinent information that is unique to this location?

Yes

The proposed RSA area which would be Main Street (Route 66) from Bridge Street to Jackson Street is a fully developed downtown area. There is a magnet school and an Alternative High School on Main Street. There is a branch of Quinnebaug Community College on Main Street.

There are multiple restaurants, retail stores along the route.

In close proximity there is an elementary school and a parochial school.

Eastern Connecticut Community College is less than 1/4 mile from the area.

The Average Daily Traffic is 13,900

There is also parking on both sides of the road.

Thank you for completing the Community Connectivity application.

Please click on the "submit button" below and include the following attachments

1. Location map (google, GIS) **(Required)**
2. Collision data (If available)
3. Traffic data (ADT or VMT) (If available)
4. Pedestrian/bicycle data (If available)

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Appendix B

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Road Safety Audit

Town: Windham
RSA Location: Main Street
Meeting Location: Windham Town Hall
Address: 979 Main Street, Willimantic, CT
Date: 5/3/2016
Time: 8:30 AM

Participating Audit Team Members

Audit Team Member	Agency/Organization
James Finger	Windham
Joe Gardner	Windham
Scott Clairmont	Windham
Ernie Eldridge	Windham Mayor
Patrick Zapatka	CTDOT
Jeff Maxtutis	AECOM
Kristin Hadjstylianos	AECOM

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Appendix C

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Road Safety Audit – Windham

Meeting Location: Windham Town Hall
Address: 979 Main Street, Willimantic, CT 06226
Date: 5/3/2016
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

10:00 AM **Audit**

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

12:00 PM **Post-Audit Discussion / Completion of RSA**

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

2:30 PM **Adjourn for the Day – but the RSA has not ended**

Instruction for Participants:

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

Audit Checklist

Pedestrians and Bicycles	Comment

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

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

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

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

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

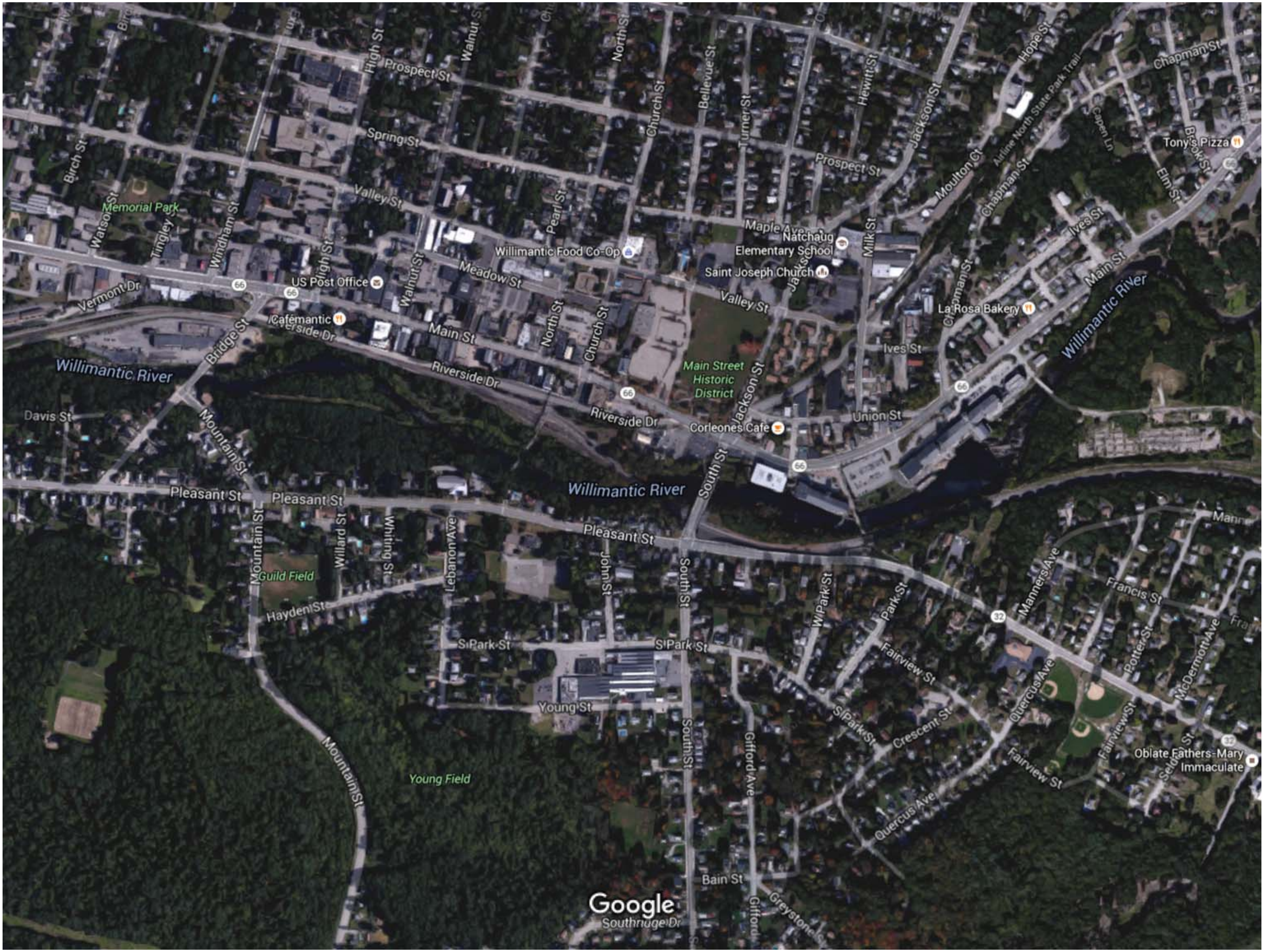
• Pavement
  o Pavement Condition (excessive roughness or rutting, potholes, loose material)
  o Edge drop-offs
  o Drainage issues
• Lighting Adequacy	

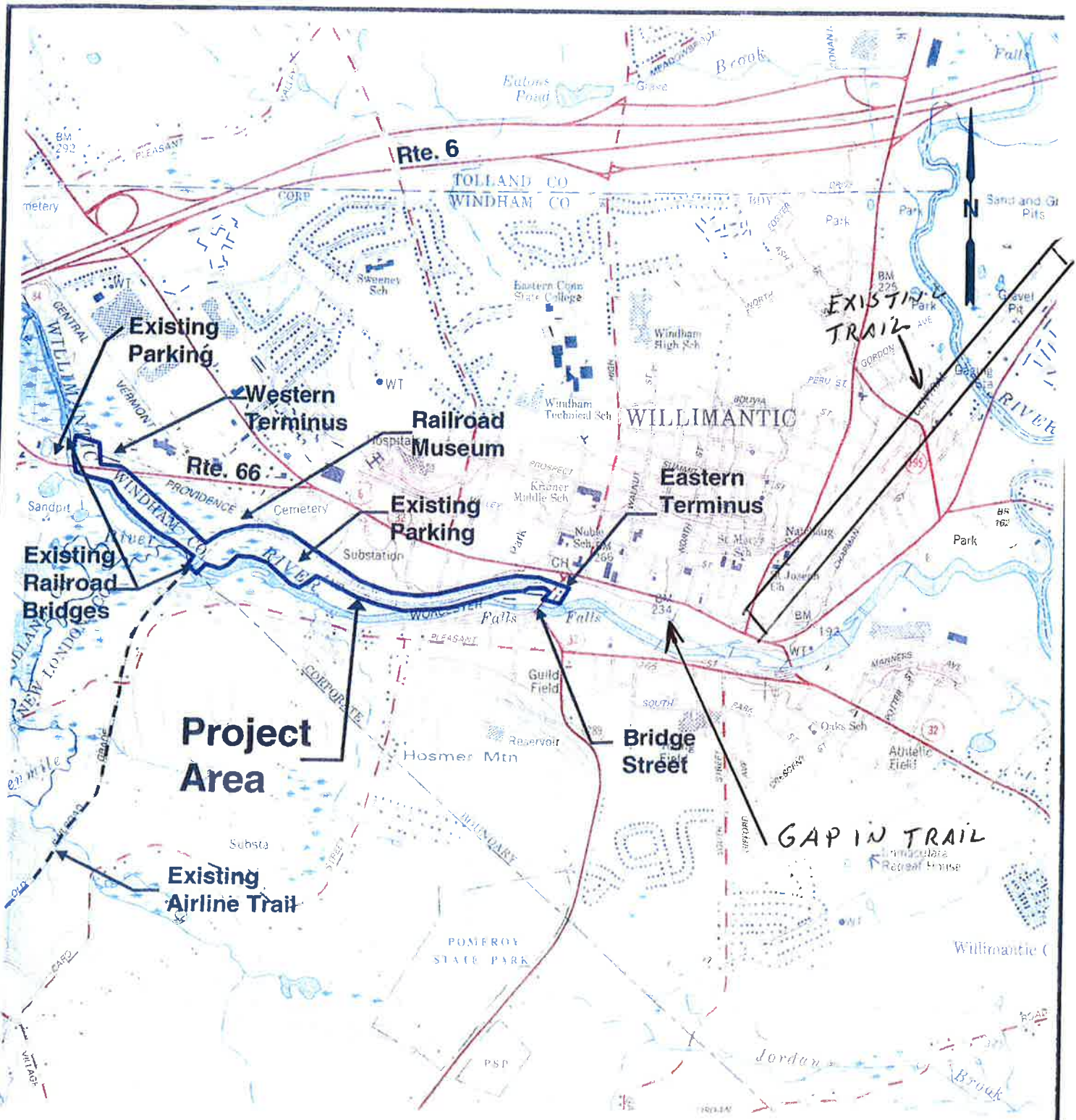
• Signing
  • Correct use of signing
  • Clear Message
  • Good placement for visibility
  • Adequate retroreflectivity
  • Proper support	

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

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

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


Prospect St
Spring St
Valley St
Memorial Park
Willimantic Food Co-Op
US Post Office
Meadow St
Natchaug Elementary School
Saint Joseph Church
Maple Ave
Valley St
Cafemantic
Main St
Riverside Dr
Willimantic River
Main Street Historic District
La Rosa Bakery
Tony's Pizza
Chapman St
Airline North State Park Trail
Corleones Cafe
Union St
Ives St
Davis St
Pleasant St
Guild Field
Hayden St
S Park St
Young St
Young Field
Mountain St
South St
Fairview St
Crescent St
Quercus Ave
Francis St
Manners Ave
Oblate Fathers-Mary Immaculate
Bain St
Greystone St
Gifford Ave
Google



MAP REFERENCE:
THIS MAP WAS PREPARED FROM THE FOLLOWING
7.5 MINUTE SERIES TOPOGRAPHIC MAP:
WILLIMANTIC, CONN. 1984

Quadrangle Location

GRAPHIC SCALE
0 1000 2000
SCALE: 1"=2000'

www.FandO.com
FUSS & O'NEILL
146 HARTFORD RD MANCHESTER, CT 06004 860.646.2469

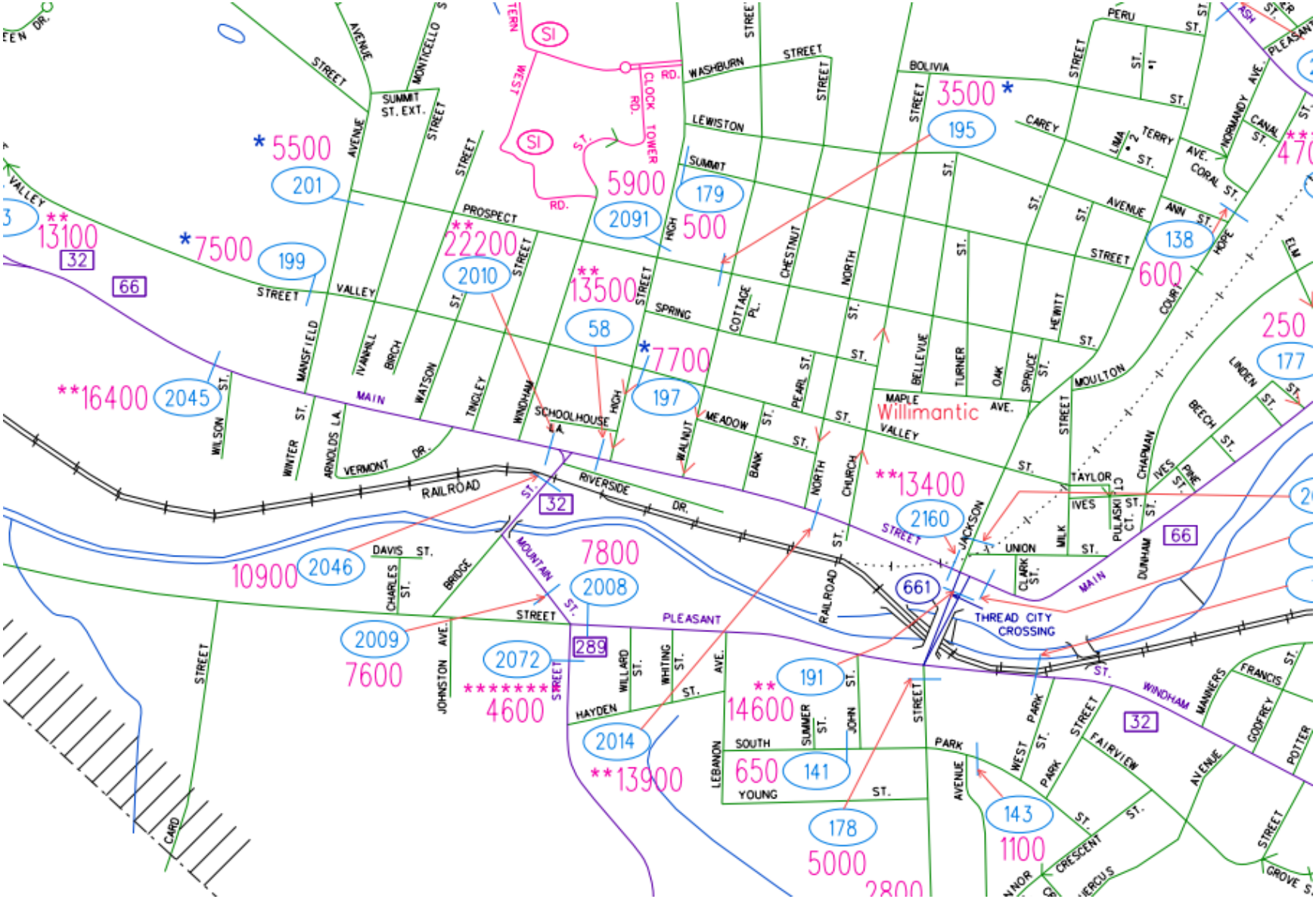
TOWN OF WINDHAM
SITE LOCATION MAP
AIRLINE & HOP RIVER
TRAIL EXTENSIONS
WINDHAM CONNECTICUT

PROJ. No: 20070073A10
DATE: February 2009

ATT. B

20070073\A10\SITELOC.PPT

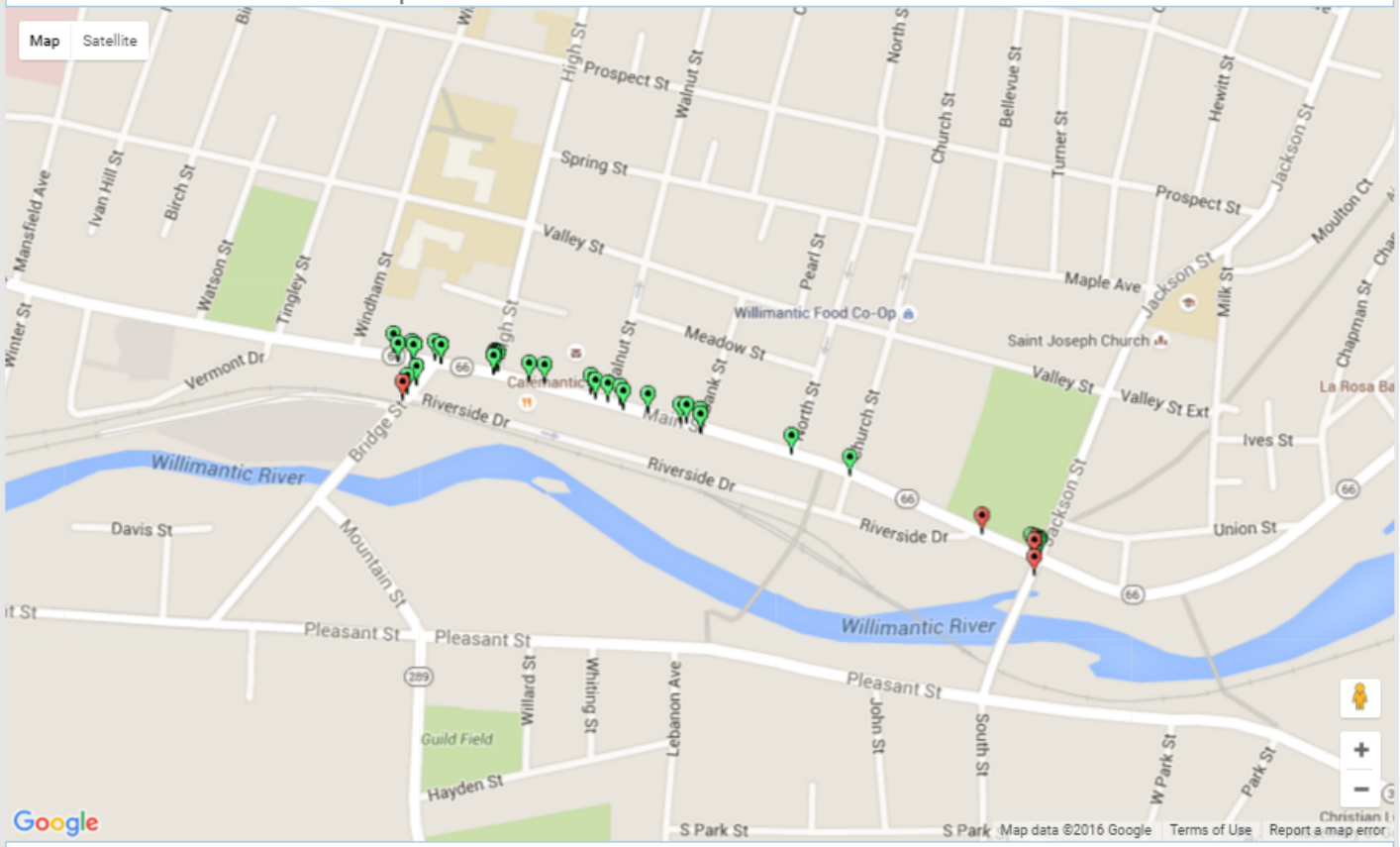
Average Daily Traffic (ADT)



2015 Crashes

UCONN Connecticut Crash Data Repository

Search Criteria:	
Dataset:	mmucc
Towns:	Windham
Crash Severity:	Injury of any type (Serious, Minor, Possible), Fatal (Kill), Property Damage Only
Body Type:	null, null, null
Condition at Time of Crash:	null, null, null
Driver Distracted By:	null, null, null
Non-motorist Distracted By:	null, null, null
Case Status:	Complete



Markers | Heatmap | Select & Query | Query Selection

Injury of any type (Serious, Minor, Possible) | Fatal (Kill) | Property Damage Only

Select All | Deselect All

Road Safety Audit – Windham

Crash Summary

Data: 3 years (2012-2014)

2 accidents involved pedestrians, both resulted in injuries

1 accident involved a bicyclist, resulted in property damage only

Severity Type	Number of Accidents	
Property Damage Only	100	88%
Injury (No fatality)	14	12%
Fatality	0	0%
Total	114	

Manner of Crash / Collision Impact	Number of Accidents	
Unknown	2	2%
Sideswipe-Same Direction	19	17%
Rear-end	37	32%
Turning-Intersecting Paths	11	10%
Turning-Opposite Direction	10	9%
Fixed Object	4	4%
Backing	9	8%
Angle	2	2%
Turning-Same Direction	3	3%
Moving Object	0	0%
Parking	10	9%
Pedestrian	2	2%
Overturn	1	1%
Head-on	0	0%
Sideswipe-Opposite Direction	4	4%
Total	114	

Weather Condition	Number of Accidents	
Snow	8	7%
Rain	15	13%
No Adverse Condition	91	80%
Unknown	0	0%
Blowing Sand, Soil, Dirt or Snow	0	0%
Other	0	0%
Severe Crosswinds	0	0%
Sleet, Hail	0	0%
Total	114	

Light Condition	Number of Accidents	
Dark-Not Lighted	2	2%
Dark-Lighted	16	14%
Daylight	95	83%
Dusk	0	0%
Unknown	1	1%
Dawn	0	0%
Total	114	

Road Surface Condition	Number of Accidents	
Snow/Slush	9	8%
Wet	18	16%
Dry	85	75%
Unknown	1	1%
Ice	1	1%
Other	0	0%
Total	114	

Time		Number of Accidents	
0:00	**0:59**	5	4.4%
1:00	**1:59**	1	0.9%
2:00	**2:59**	1	0.9%
3:00	**3:59**	1	0.9%
4:00	**4:59**	1	0.9%
5:00	**5:59**	0	0.0%
6:00	**6:59**	0	0.0%
7:00	**7:59**	1	0.9%
8:00	**8:59**	7	6.1%
9:00	**9:59**	13	11.4%
10:00	**10:59**	7	6.1%
11:00	**11:59**	10	8.8%
12:00	**12:59**	9	7.9%
13:00	**13:59**	15	13.2%
14:00	**14:59**	4	3.5%
15:00	**15:59**	11	9.6%
16:00	**16:59**	9	7.9%
17:00	**17:59**	4	3.5%
18:00	**18:59**	6	5.3%
19:00	**19:59**	4	3.5%
20:00	**20:59**	2	1.8%
21:00	**21:59**	1	0.9%
22:00	**22:59**	0	0.0%
23:00	**23:59**	2	1.8%
Total		114	

Windham - Airline Trail Connection

Main St (Rt 32 and 66)
Speed =
Lanes = 2
Roadway width =
Shoulder/parking width =
Sidewalk width =

Bridge St
Riverside Dr
Willimantic River
Main St
Jackson St
N
200 ft

Hop River Trail
Proposed Trail Connection
Willimantic River
Airline Trail
Columbia Ave
Trail Under Construction
Main St
1000 ft

Legend

- Signalized Intersection
- Stop Controlled Intersection
- Crosswalk
- Pedestrian Crossing Sign
- Rail Trail
- Bike Route Signage
- One Way Street
- Railroad
- On-street Parking

DRAFT

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 – Windham

Fact Sheet

Functional Classification:

- The Main Street corridor (Route 66) between Bridge St. and Jackson St. is classified as a Principal Arterial

ADT

- ADT along this corridor spans between 13,400 and 13,900

Population and Employment Data (2014):

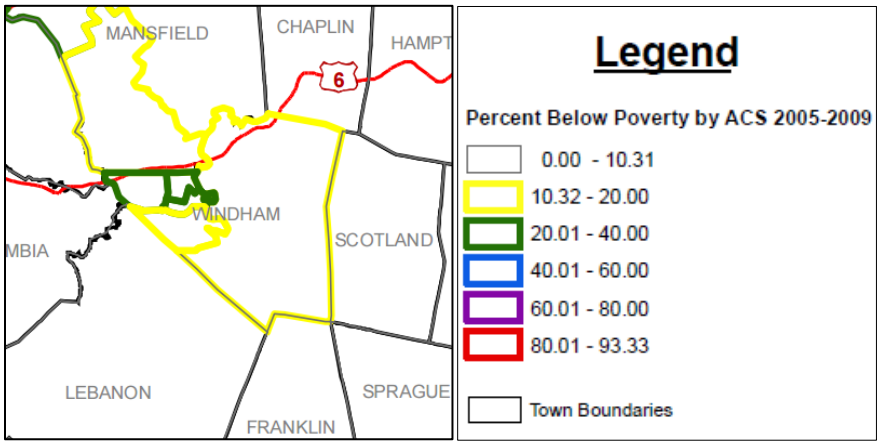
- Population: 25,271
- Employment: 10,755

Urbanized Area

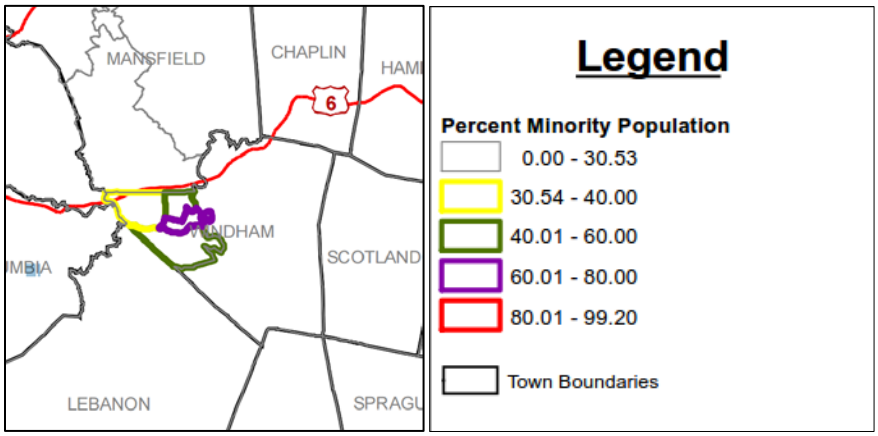
- Main Street is located within the Willimantic Urban Cluster

Demographics

- The statewide average percentage below the poverty line is 10.31%. Within the vicinity of the Main Street corridor, up to 40.0% of Windham residents fall below the poverty level.



- The statewide average percentage minority population is 30.53%. Within the vicinity of the Main Street corridor, up to 80.0% of Windham residents are minority.



Air Quality

- Windham's CIPP number 814
- Windham is within the Greater CT Marginal Ozone Area
- Windham is within a CO Attainment Area