COMMUNITY
connectivity program

West Hartford

Albany Avenue (U.S. Route 44) & North Main Street (Route 218) Bishops Corner – Road Safety Audit

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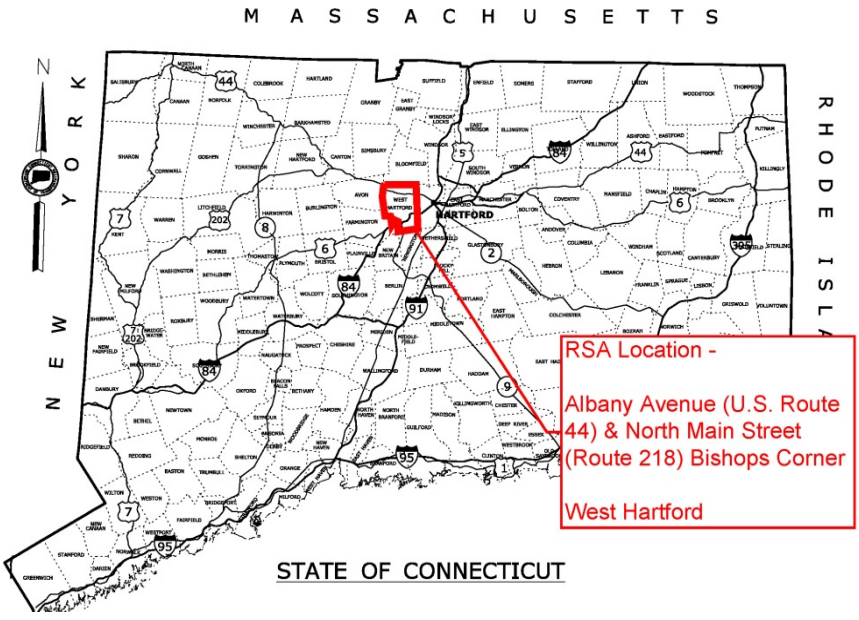
The Connecticut Department of Transportation (CTDOT) is undertaking a Community Connectivity Program that focuses on improving the state's transportation network for all users, with an emphasis on bicyclists and pedestrians. A major component of this program is undertaking Road Safety Audits (RSA's)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

The Town of West Hartford submitted an application to complete an RSA at the Bishops Corner intersection 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, the town has received complaints regarding poor sidewalk and triangular channelizing island conditions, lack of safety features including ramp warning strips, pedestrian crossing signals that are not audible and do not provide a countdown, and ADA accessibility concerns. In addition to these concerns, pedestrians have been observed crossing mid-block, posing a safety risk from conflict with unsuspecting motorists.

The Town of West Hartford'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 the intersection of Albany Avenue (US Route 44) and North Main Street (Route 218) in the Town of West Hartford (Figure 1). It is traditionally known as "Bishops Corner." The North Main Street Average Daily Traffic (ADT) is 17,600 and the Albany Avenue ADT Is 22,600. These are significant volumes of traffic for an intersection to process.

Figure 1. Bishops Corner

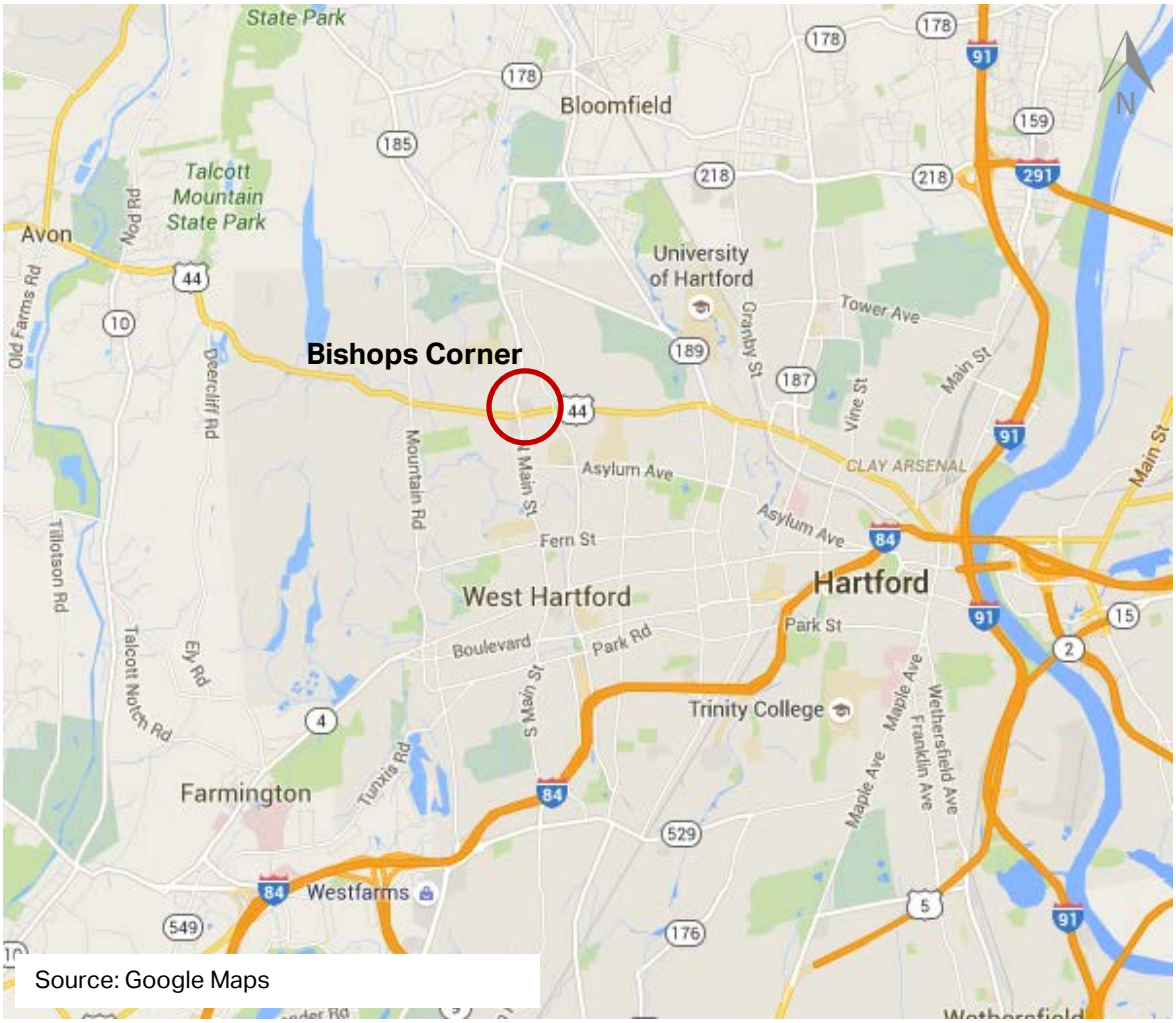


Figure 2. Bishops Corner Regional Context

Albany Avenue is a state owned and maintained facility that runs in a relatively straight east/west direction. North Main Street runs in a north/south direction. It is a town road south of the intersection and is listed as state Route 218 north of the intersection. This intersection generates heavy through traffic as the two arterials, Route 44 and Route 218, meet.

Each leg of the intersection consists of two through lanes, a right-turn lane and a left-turn lane (Figure 3). All right turns are channelized, and operate under the signal control. All left turns are protected only (they can only move on a green arrow, and must stop during the through traffic movement), and the right turns include an "overlap" phase (they can move on an arrow when the complimentary left turn arrow is green). The pedestrian phases are "concurrent" (they show walk/don't walk concurrently with the parallel through traffic phase). Thus, a diagonal crossing of the intersection requires two crossing phases. In addition, each corner of the intersection has an uncontrolled crossing to the triangular channelizing island.

All four corner properties are fully developed with commercial uses with multiple driveways located near the intersection on all but the south-east corner.

Figure 3. Intersection

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 are rear-end crashes on the approaches to the intersection (Figure 4). This is indicative of congestion coupled with access management issues (many driveways). The peak crash rate is in the afternoon which can be attributed to commuting, shopping, and school activities.

Severity Type	Number of Accidents	
Property Damage Only	142	72%
Injury of any type (Serious, Minor, Possible)	23	12%
Injury (No fatality)	33	17%
Total	198	

Table 1. Crash Severity

Source: UConn Connecticut Crash Data Repository

Manner of Crash / Collision Impact	Number of Accidents	
Turning-Intersecting Paths	41	21%
Sideswipe-Same Direction	25	13%
Rear-end	48	24%
Angle	34	17%
Backing	3	2%
Turning-Opposite Direction	8	4%
Turning-Same Direction	5	3%
Fixed Object	4	2%
Sideswipe-Opposite Direction	1	1%
Head-on	1	1%
Not Applicable	3	2%
Front to rear	11	6%
Rear to rear	1	1%
Front to front	2	1%
Sideswipe, same direction	10	5%
Sideswipe, opposite direction	1	1%
Total	198	

Table 2. Crash Type

Source: UConn Connecticut Crash Data Repository

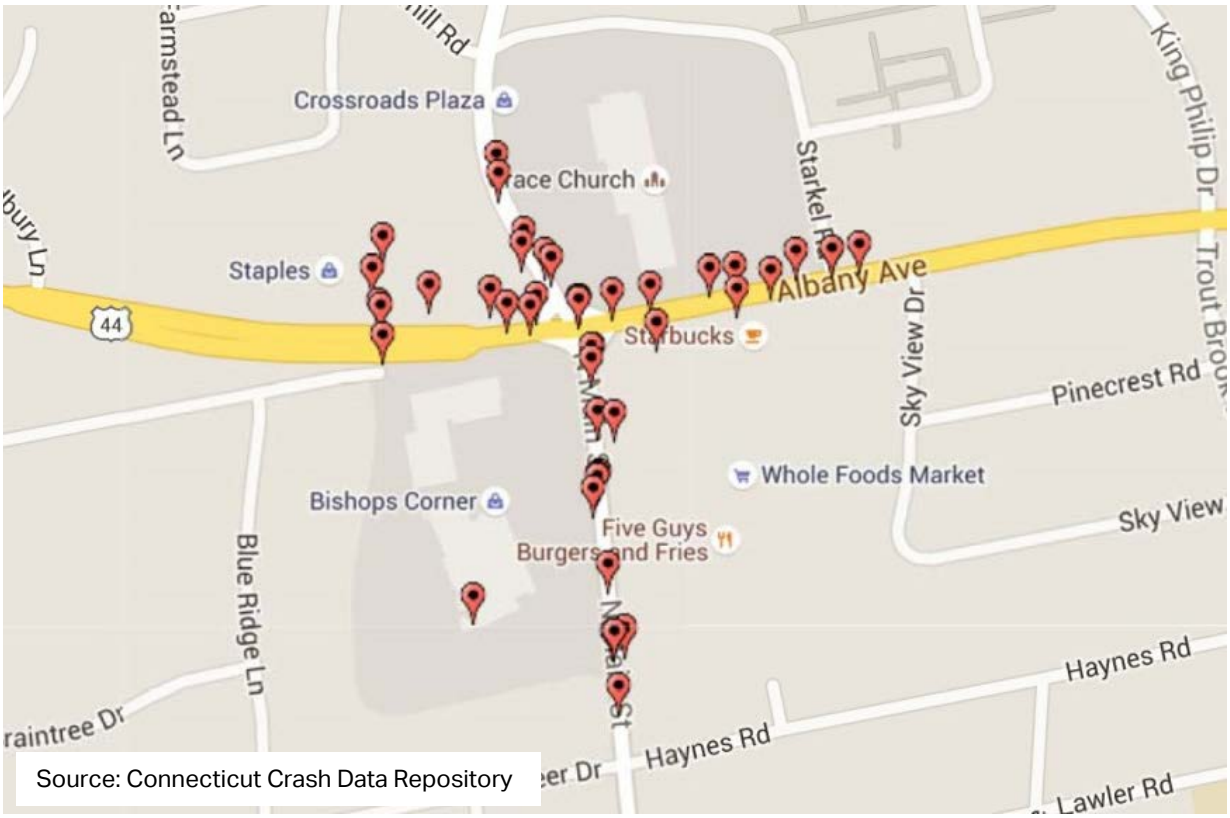


Figure 4. Crashes that Occurred in 2015 (Connecticut Crash Data Repository)

The large number of wide driveways near the intersection permit traffic to turn onto and off of the roadway with few restrictions. The additional maneuvers create difficulties for drivers to negotiate a clear path through the intersection while simultaneously watching the signals, striping, and adjacent pedestrian movements. Vehicles stopping to turn at these driveways can block and impede the flow of traffic, cause abrupt lane changes, and add to the general operational difficulty of the intersection (Figure 5).

There are sidewalks on both sides of all four legs of the intersection. The sidewalks are generally five (5) feet or more in width, but have no snow shelf or buffer from the roadway traffic. Sidewalks are generally concrete, although there are some areas constructed with concrete pavers. Some concrete and/or pavers are damaged and in need of replacement. An inventory of existing conditions at the intersection can be found in Table 3.

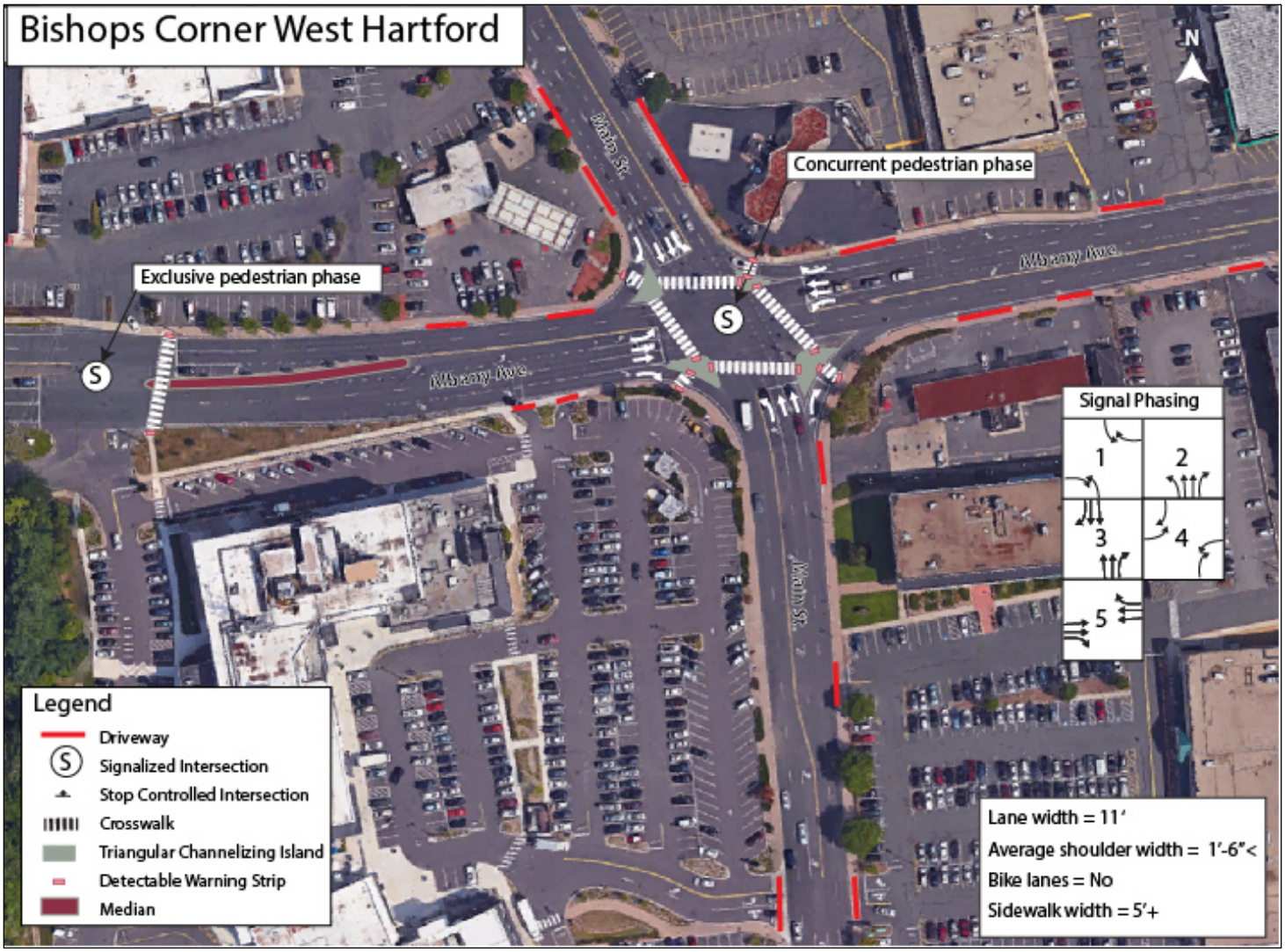


Figure 5. Bishops Corner Road Geometrics

West Hartford - North Main Street and Albany Avenue

Intersection Street Inventory

Street	Route	Approach	Travel Direction	Width	Sidewalk				Curb	Parking	Shoulder	Ramps	
					Side	Type	Width	Condition *				Exist	Compliant
North Main Street	218	North	2 Way	RT, 2 Thru, LT	East	Concrete	5'	Good	Granite	No	2'	Yes	Yes
				2 Departure	West	Paver	8'	Fair	Granite	No	No	Yes	No
North Main Street	Local	South	2 Way	RT, 2 Thru, LT	East	Concrete	8'	Good	Granite	No	No	Yes	Yes
				2 Departure	West	Paver	8'	Good	Granite	No	No	Yes	No
Albany Avenue	US 44	East	2 Way	RT, 2 Thru, LT	North	Concrete	5'	Good	Granite	No	2'	Yes	Yes
				2 Departure	South	Concrete	8'	Good	Granite	No	2'	Yes	Yes
Albany Avenue	US 44	West	2 Way w/Median	RT, 2 Thru, LT	North	Paver	8'	Fair	Granite	No	2'	Yes	No
				2 Departure	South	Paver	8'	Good	Granite	No	2'	Yes	No
N/E/C	Triangular Island					Concrete		Good	Concrete			Yes	Yes
N/W/C	Triangular Island					Asphalt		Poor	Asphalt			Yes	No
S/E/C	Triangular Island					Asphalt		Fair	Asphalt			Yes	No
S/W/C	Triangular Island					Concrete		Fair	Concrete			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 Street Inventory

2.2 Prior Successful Efforts

A number of best practices have already been applied to this intersection. Because of its high traffic volumes, this intersection has incorporated advanced signal timing patterns to provide the greatest safety for pedestrians while maximizing the capacity available for motor vehicles. Pedestrian sidewalks are provided on both sides of the road in all directions, and pedestrian actuated concurrent crossing phases are provided. Sidewalk ramps and pedestrian pushbuttons are provided for all crossings, and the triangular channelizing islands reduce the distance needed to cross the road. Although the ramps were installed before present ADA requirements were in place, the ramps are being upgraded to current standards as construction occurs.

2.3 Pre-Audit Meeting

The RSA was conducted on March 30, 2016. The Pre-Audit meeting was held at 8:00 AM in the Bishops Corner Library/Senior Center located at 15 Starkel Road in West Hartford.

The RSA Team was comprised of staff from CTDOT and representatives from several West Hartford departments and organizations including the Engineering Department, Police Department and the Bishops Corner Neighborhood Association (BCNA), and AECOM. 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 West Hartford presented relevant information for the audit, including:

- There is presently a study under way for a potential "road diet" on a town owned portion of North Main Street. The proposed road diet includes only one through travel lane in each direction. It will not include this intersection, but will end south of the intersection.
- The Shell gas station on the north-east corner is planned for redevelopment. As part of their approval, the town has asked them to narrow their driveways. Construction is scheduled to begin in May of 2016 (Appendix D).
- There are a significant number of elderly people living on Starkel Road. In addition, there are 10 condominium and 64 apartment units under construction in the area, which will add more activity, potentially more pedestrian and bicycle activity, to this intersection
- "This intersection has been noted as being dangerous for the visually impaired." Correspondence regarding these concerns can be found in Appendix E.

- It is believed that when people shop in this area, they drive to and from each parking lot instead of parking once and crossing the street on foot to get to another plaza/store because of the impression that the crossings are unsafe due to traffic volume and speeds.
- Local residents have expressed safety concerns in this area to members of the BCNA and have indicated they are less likely to walk or bike through this intersection.
- According to the BCNA, bicyclists fear riding through the intersection because of narrow travel lanes, insufficient shoulders, and difficult geometry.
- BCNA participants have observed pedestrians often cross mid-block because it takes more time and effort for pedestrians to get to and cross at the intersection than to just take a chance crossing mid-block.
- It is believed that pedestrians sometimes hit the wrong signal button when trying to cross the intersection.
- It was noted that the Town of West Hartford is currently surveying the area to determine the right-of-way (ROW).

3 RSA Assessment

3.1 Field Audit Observations

- The exclusive right-hand turn lanes create a difficult environment for pedestrians to cross. Vehicles turning right often are not looking out for pedestrians (Figure 6).

Figure 6. Pedestrian Crossing and Triangular Channelizing Island

- The triangular channelizing island sizes vary and pedestrians do not have the feeling of being protected while on the triangular channelizing island (Figure 6).

- Heading southbound on North Main Street, when approaching the southwest triangular channelizing island, there is a tight squeeze for cyclists due to the direction of the curve and triangular channelizing island alignment.

- Pedestrian pushbuttons are directional due to the concurrent walk phases. Their placement makes

Figure 7. Unclear Pushbutton Direction

it difficult to be sure of the correct button to push (Figure 7).

- Pedestrians crossing non-designated areas.

- Southbound tractor trailers on North Main Street using the right-hand turn lane often drive over part of the sidewalk due to the narrow lane and tight angle (Figure 8). This a safety concern for pedestrians who are waiting to cross the street at that sidewalk. This corner has a lot of visible wear (brick pavers have settled, curbs are very worn).

- Northbound on North Main Street, channelizing pavement markings, also called "cat tracks", were added through the intersection because cars were hitting the far-side triangular channelizing island. A reflective pylon (Figure 9) was also added to the N/E triangular channelizing island corner to highlight it.

- Shoulder area in some places is less than one foot (Figure 10).

- The gas station driveways are close to the intersection and vehicles queue past the driveways making it difficult for vehicles to exit.

- The no parking sign along Albany Avenue mounted to the information sign is below seven (7) feet standard height and is a pedestrian obstruction.

- N/S route has the signal heads for the right hand turn mounted on a pedestal by the turn. E/W signals are above on the wire. Visibility is much worse when mounted on the wire.

Figure 8. Tire Marks on Sidewalk

Figure 9. Pylon

Figure 10. Inadequate Shoulder Area

- The far side (S/W) triangular channelizing island sticks out into the shoulder, creating a choke point for southbound cyclists.

- Pedestrians waiting on the triangular channelizing islands can create a blind spot for vehicles making right turns.

- The triangular channelizing islands vary in condition. Some are fairly new concrete, while others are badly worn concrete or asphalt. Tactile warning strips are inconsistently installed.

- Signing is generally adequate. Striping is worn due to heavy traffic loads.

- Reflective paint on triangular channelizing islands is either worn or nonexistent.

- Directional route signing is too close to the intersection (Figure 11).

Figure 11. Directional Signage

3.2 Post-Audit Workshop - Key Issues

1. There is a conflict between right turning vehicles and pedestrians crossing to the triangular channelizing islands. Pedestrians cross the right turn lane without a pedestrian signal, although they are in a marked crosswalk and the turning vehicles are controlled by the signal operation (Figure 12 and Figure 13). The vehicle has the legal right-of-way when the signal is green or green arrow, but the pedestrian has the legal right-of-way if the vehicle signal is red. Neither drivers nor pedestrians are always fully aware of the rules, and pedestrians often don't look up to see the vehicle signal. Furthermore, at the two corners lacking an auxiliary signal, visibility is even


Figure 12. Pedestrian Crossing

more difficult, since the signal controlling the right turn is not obvious. Multiple alternatives were discussed, including elimination of the right-turn green arrow, reverting to the exclusive pedestrian phase, and adding auxiliary heads where they are missing. In addition, various methods for controlling the triangular channelizing island crossings with a pedestrian signal were discussed, with the most obvious solution being the use of an exclusive pedestrian phase.

Figure 13. Triangular Channelizing Island

2. The intersection is approaching or at capacity during the peak hours.

3. The cross walks could possibly be pulled back from the intersection and made more perpendicular, which might allow for the elimination or reconfiguration of the triangular channelizing islands. This would mean that the stop bars would need to be pulled back. It would be necessary to examine potential impacts on signal timing, queuing and sight distance.

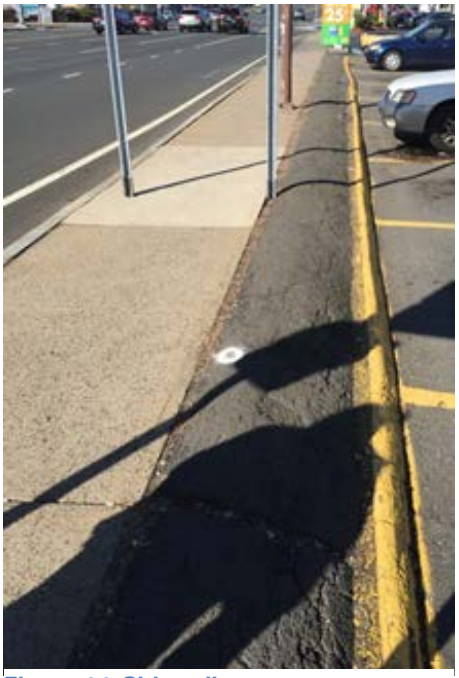


Figure 14. Sidewalk

4. There was a question as to whether it is legal to have high visibility pedestrian signs with a signalized intersection. The possibility to install these signs should be investigated.

5. There are numerous driveways and the town could work with the owners to reduce width, limit turning movements and consolidate access as the owners approach the town for other permits/requests.

6. A question was raised whether a pedestrian bridge could be implemented successfully. The feasibility of this suggestion should be investigated.

7. West Hartford's standard sidewalk width is a minimum of five (5) feet. In the winter, extra room on the sidewalk is needed for snow (Figure 14).

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. Signage:
    a. Adjust signage height to meet the required seven (7) feet standard.
    b. Adjust route signs to improve visibility (Figure 15).
    c. Replace worn-out signs with reflective signs based on current standards..
    d. Add no turn on red signs.
2. Evaluate alternative designs for the intersection:
    a. Eliminate green arrow overlaps.
    b. Change right turns to yield control.
3. Pedestrian Signals:
    a. Adjust the pedestrian crossing times to comply with latest standards.
4. Triangular channelizing islands:
    a. Paint triangular channelizing islands to increase visibility.
    b. Add pylons (a traffic cone used to direct vehicles, see Figure 9) for visibility.
5. Sidewalks/Crosswalks:
    a. Repaint crosswalks (Figure 16).
    b. Repair damaged sidewalk areas (Figure 17).
    c. Add missing detectable warning strips (Figure 18).
6. Add "cat tracks" (pavement markings) to southbound through lanes.

Figure 19 depicts these recommendations.

Figure 15. Adjust Signs Blocking Visibility


Figure 16. Repaint Crosswalks

Figure 17. Repair Damaged Sidewalk Areas


Figure 18. Example of Detectable Warning Strips

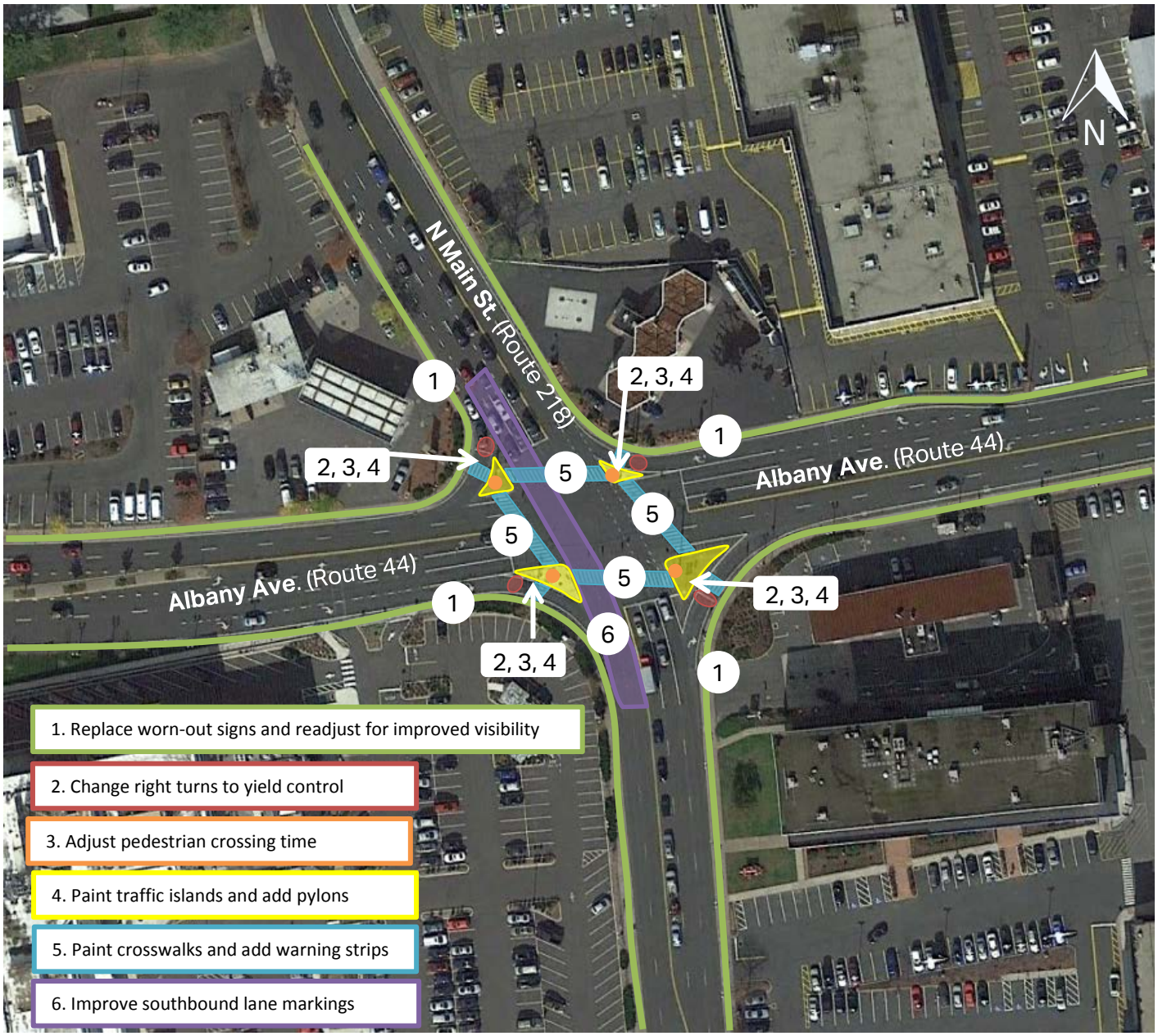


Figure 19. Short Term Recommendations

4.2 Medium Term

1. Traffic Signals:
    a. Add auxiliary signals at missing right turns (Figure 20).
    b. Improve vehicle detection with video detection.
    c. Convert signal to an exclusive pedestrian phase.
2. Add ADA compliant pushbuttons and countdown pedestrian heads. Accessible pedestrian signals have pushbutton locator tones, a vibrotactile arrow pushbutton, and have an audible signal during the walk phase. The design should be confirmed with the Connecticut Services for the Blind. Orient buttons and add pedestals, where necessary, to improve accessibility and eliminate confusion about direction (Figure 21 and Figure 22).
3. Signage:
    a. Investigate high visibility pedestrian warning signs.
4. Alternative designs for the intersection:
    a. Improve southbound alignment – cut back triangular channelizing island and improve lane markings.
    b. Reconstruct northwest radius to accommodate large vehicle movements.
5. Remove trees/shrubs for better sight distance on northwest corner.

Figure 23 depicts these recommendations.

Figure 20. Auxiliary Signal

Figure 21. ADA Button

Figure 22.Countdown Signal

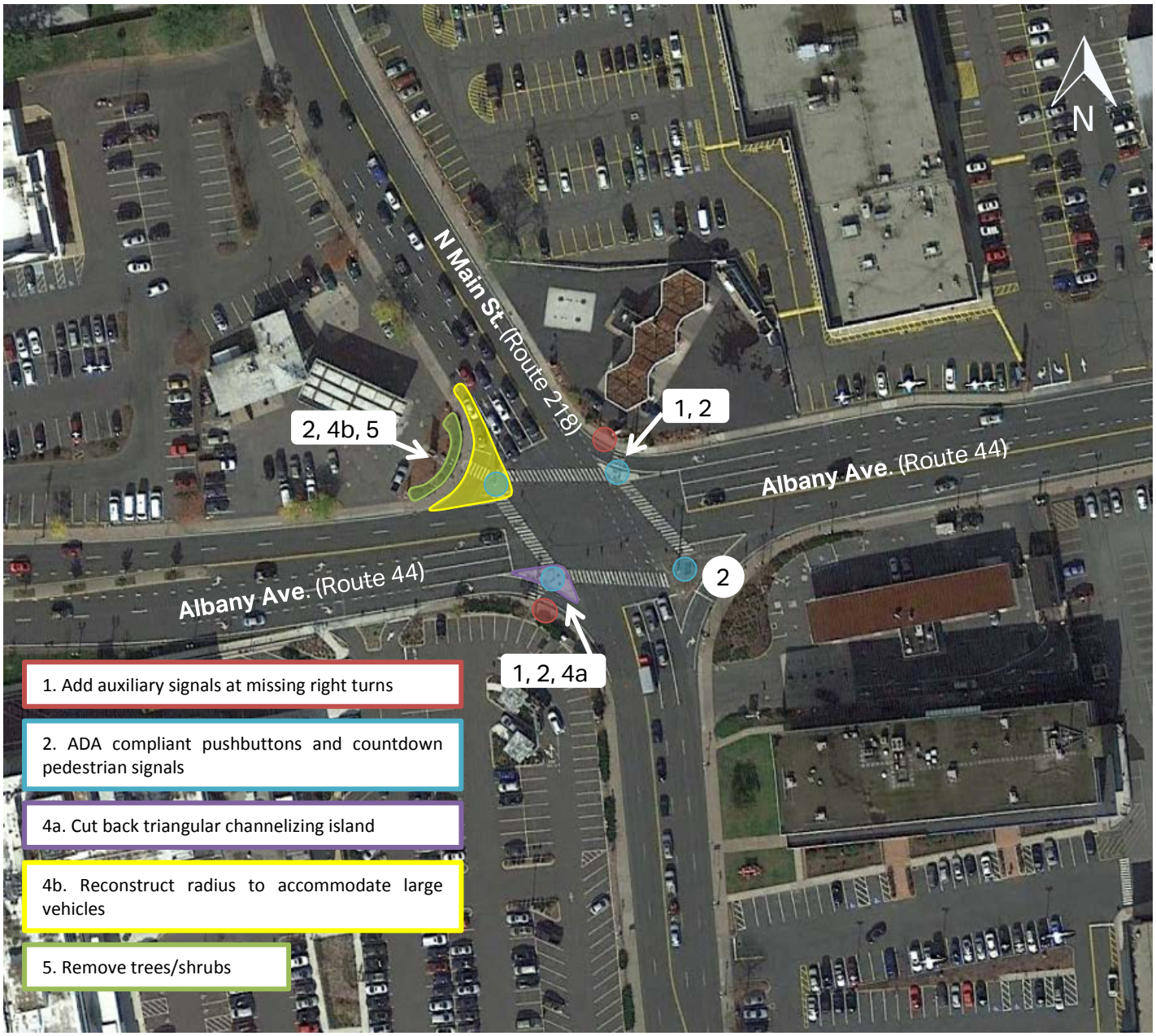


Figure 23. Medium Term Recommendations

4.3 Long Term

1. Re-align crosswalks to be more perpendicular.
2. Re-align intersection to improve radius (north/south).
3. Evaluate alternative designs for the intersection, including:
    a. Reducing the number of travel lanes.
    b. Installing a roundabout.
    c. Elimination of right turn lanes and channelizing Islands.
    d. Square up the intersection.
4. Formulate/Implement access management plan.

Figure 24 depicts these recommendations.

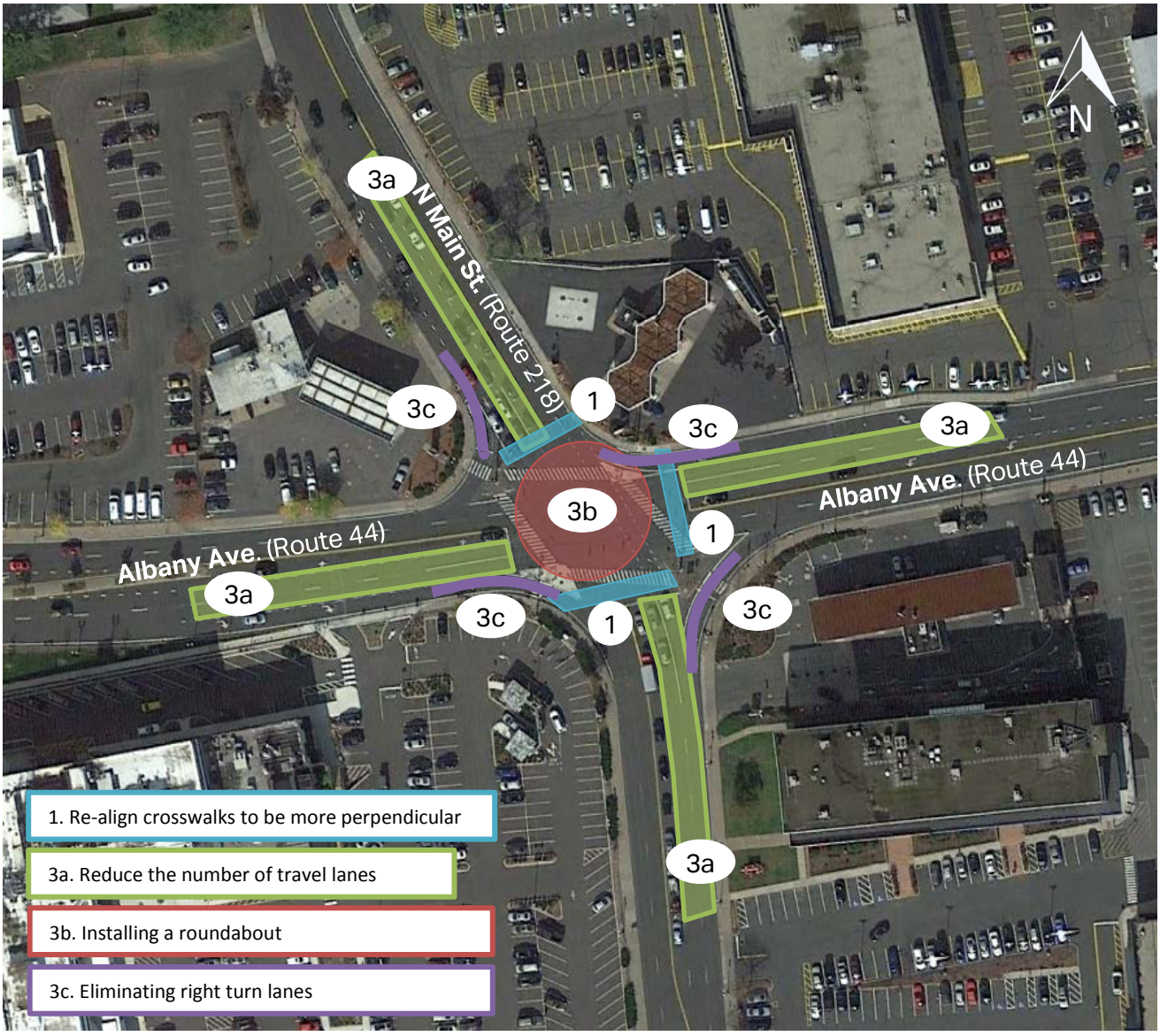


Figure 24. Long Term Recommendations

4.4 Summary

This report outlines the observations, discussions and recommendations developed during the RSA. It documents the successful completion of the Town of West Hartford RSA and provides West Hartford with an outlined strategy to improve the transportation network at Bishops Corner for all road users at Bishops Corner, particularly focusing on pedestrians and cyclists. Moving forward, West Hartford may use this report to prepare strategies for funding and implementing the improvements. However, this is a State intersection with a State traffic signal. The sidewalks are the responsibility of the Town of West Hartford. Also, working with the corner property owners to improve visibility or improve curb cut management could be the Town's responsibility unless it is part of an intersection redesign.

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Appendix A

Built to deliver a better world

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	Duane Martin
Title	West Hartford Town Engineer
Email Address	duanem@westhartfordct.gov
Telephone Number	(860) 561-7539

2. Location information

Address	Route 44 (Albany Avenue) at Route 218 (North Main Street)
Description	Difficult pedestrian and motorist activities surrounding Bishops Corner
City / Town	West Hartford

3. Roadway type
(Please select all that apply)

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

4. Zoning
(Please select all that apply)

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

5. Approximate mile radius around the location

¼ mile

Other (Please Specify)

6. Community Sites
(Please select all that apply)

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

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

- [x] **Yes**
- [ ] **No**

If Yes please describe (please specify)

Bishops Corner has several retail and office establishments.

8. Educational facilities
(Please select all that apply)

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

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)**
- [ ] **Collisions**
- [x] **Sidewalks**
- [x] **Traffic Signals**
- [ ] **Traffic Signs**
- [ ] **Parking Restrictions / Additions**
- [ ] **Drainage**
- [x] **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)?

No

If Yes please describe and list all projects.

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

We received complaints from the Bishops Corner Neighborhood Association pertaining to the difficulty and confusion for pedestrians crossing from several directions at the intersection of Route 44 (Albany Avenue) at Route 218 (North Main Street). The complaints include: There is no signal equipment to indicate when to cross from the outside of the intersection to the raised islands; Motorists do not stop for the pedestrians on the outside of the intersection trying to access the raised islands; The push buttons on the raised islands do not provide adequate messages or arrows pointing to the corresponding crosswalk; Some of the push buttons are difficult or impossible to reach from a wheel chair; The raised islands are in rough shape and do not provide detectable warning strips; The push buttons do not provide audible messages; The pedestrian signal heads do not provide a count down like others in Town.

In addition to the specific issues related to the intersection of Route 44 (Albany Avenue) at Route 218 (North Main Street) listed above, there are several driveways mixed with pedestrian activities that occur in the vicinity of this intersection particularly, Route 44 (Albany Avenue) from the Sims Road/Retail Driveway intersection to the Starkel Road intersection, on Route 218 (North Main Street) from Starkel Road to Route 44 (Albany Avenue), and North Main Street from Route 44 (Albany Avenue) to Sims Road/Retail Driveway.

There are occasions when pedestrians cross midblock, which is unexpected by motorists. There was some discussion for an additional traffic signal on North Main Street between Route 44 (Albany Avenue) and Sims Road to facilitate pedestrian crossings and left turns into the adjacent shopping centers.

North Main Street left turn restrictions into and out of driveways should be evaluated for safety improvements.

The traffic signals at Route 44 (Albany Avenue) at Sims Road/Retail Driveway, Route 44 (Albany Avenue) at Starkel Road, Route 218 (North Main Street) at Starkel Road should be evaluated for accessible pedestrian signal equipment. The Town has received requests for this equipment in the past especially since these traffic signals are used for crossing manuevers by blind pedestrians that are concerned for their safety at the intersection of Route 44 (Albany Avenue) at Route 218 (North Main Street).

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

No

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

No

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)

Submit Application

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Appendix B

Built to deliver a better world

Road Safety Audit

Town: West Hartford
RSA Location: Bishops Corner
Meeting Location: Library/Senior Center
Address: 15 Starkel Road, West Hartford
Date: 3/30/2016
Time: 8:00 - 12:00

Participating Audit Team Members

Audit Team Member	Agency/Organization
Krystal Oldread	AECOM
Shivani Mahajan	AECOM
Steven DePaoli	Bishop's Corner Neighborhood Association
Jack Bass	Bishop's Corner Neighborhood Association
Jason Congdon	Bishop's Corner Neighborhood Association
Ethan Frankel	Bishop's Corner Neighborhood Association
Jeff Rose	West Hartford Police Department
Gary Sojka	CTDOT
Patrick Zapatka	CTDOT
Duane Martin	Town of West Hartford
Mark Carlino	CTDOT
Kristin Hadjstylianos	AECOM
Stephen Gazillo	AECOM
Stephen Mitchell	AECOM
Jeff Maxtutis	AECOM

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Appendix C

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Road Safety Audit – Bishops Corner

Meeting Location: Bishops Corner Library/Senior Center
Address: 15 Starkel Road, West Hartford
Date: 3/30/2016
Time: 8:00 AM – 12:00 PM

Agenda

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

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

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

8:00 AM **Welcome and Introductions**

- Purpose and Goals
- Agenda

8:15 AM **Pre-Audit**

- Schedule
- Safety Procedures
- Review Site Specific Data:
  - Average Daily Traffic
  - Crash Data
  - Geometrics
- Issues

9:15 AM **Audit**

- Walk to Site
- As a group, identify areas for improvements

10:30 PM **Post-Audit Discussion / Completion of RSA**

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

12:00 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.

Road Safety Audit – Bishops Corner

Meeting Location: Bishops Corner Library/Senior Center
Address: 15 Starkel Road, West Hartford
Date: 3/30/2016
Time: 8:00 AM – 12:00 PM

Audit Checklist

ROADWAY ACTIVITY	
Issue	**Comment**
With respect to roadway activity please consider safety elements related to the following: • Pedestrians • Bicycles • Public transportation vehicles and riders • Emergency vehicles • Commercial vehicles • Slow moving vehicles	
Pedestrians & Accessibility	
• Signalized crossings • Sufficient time to cross • Adequacy of signage • Crossing delineations and markings • Handicap ramps • Detectable warning devices • Adequate sight distance • Wheelchair accessible ramps (grades and elevation) • Adequate width of crossing islands for wheelchairs • Warning strip for sight impaired • Visual signage for hearing impaired • Sidewalk width • Parkway Condition • Pedestrian refuge at crosswalks • Mid-block crossings (on a state route) • Pedestrian lighting • Pedestrian amenities (benches, trash receptacles) • Other	

Bicyclists	
• Existing bike accommodations or facilities • Separation from traffic • Conflicts with on-street parking • Bicycle signal detection • Visibility • Roadway speed limit • Bicycle directional signage • Vehicular through lanes per direction • Width of outside travel lane to outside stripe • Shoulder condition • Bi-directional traffic volume (in ADT) • Percentage of heavy vehicles • Pavement conditions • On-street parking • Other	

GEOMETRIC DESIGN	
Issue	**Comment**
A. Speed – (Design Speed; Speed Limit & Zoning; Sight Distance; Overtaking	
Are there speed-related issues along the corridor? Please consider the following elements: • Horizontal and vertical alignment; • Posted and advisory speeds • Driver compliance with speed limits • Approximate sight distance • Safe passing opportunities	
B. Road alignment and cross section	
With respect to the roadway alignment and cross-section please consider the appropriateness of the following elements: • Functional class (Urban Principal Arterial) • Delineation of alignment; • Widths (lanes, shoulders, medians); • Sight distance for access points; • Cross-slopes • Curbs and gutters • Drainage features	

C. Intersections	
For intersections along the corridor please consider all potential safety issues. Some specific considerations should include the following: • Intersections fit alignment (i.e. curvature) • Traffic control devices alert motorists as • necessary • Sight distance and sight lines seem appropriate • Vehicles can safely slow/stop for turns • Conflict point management • Adequate spacing for various vehicle types • Capacity problems that result in safety problems	
D. Auxiliary lanes	
• Do auxiliary lanes appear to be adequate? • Could the taper locations and alignments be causing safety deficiencies? • Are shoulder widths at merges causing safety deficiencies?	
E. Clear zones and crash barriers	

For the roadside the major considerations are clear zone issues and crash barriers. Consider the following:
• Do there appear to be clear zones issues?
  • Are hazards located too close the road?
  • Are side slopes acceptable?
• Are suitable crash barriers (i.e, guard rails, curbs, etc.) appropriate for minimizing crash severity?
• Barrier features: end treatments, visibility, etc.	

F. Bridges and culverts – (if necessary)	
Are there specific issues related to bridges and culverts that may result in safety concerns?	

G. Pavement – (Defects, Skid Resistance, and Flooding)	
• Is the pavement free of defects including excessive roughness or rutting, potholes, loose material, edge drop-offs, etc.) that could result in safety problems (for example, loss of steering control)? • Does the pavement appear to have adequate skid resistance, particularly on curves, steep grades and approaches to intersections? • Is the pavement free of areas where flooding or sheet flow of water could contribute to safety problems? • In general, is the pavement quality sufficient for safe travel of heavy and oversized vehicles?	
H. Lighting (Lighting and Glare)	
It is important to consider to the impacts of lighting. Some specifics include the following: • Is lighting required and, if so, has it been adequately provided? • Are there glare issues resulting from headlights during night time operations or from sunlight?	

TRAFFIC CONTROL DEVICES	
Issue	**Comment**
I. Signs	
Signage is a critical element in providing a safe roadway environment. Please consider the following: • Are all current signs visible (consider both night and day)? Are they conspicuous and clear? Are the correct signs used for each situation? • Does the retroreflectivity or illumination appear satisfactory? • Are there any concerns regarding sign supports?	
J. Traffic signals	
• If present, do the traffic signals appear to be designed, installed, and operating correctly? • Is the signal processing the traffic efficiently? • Is the controller located in a safe position? (where it is unlikely to be hit, but maintenance access is safe) • Is there adequate sight distance to the ends of possible vehicle queues?	
K. Marking and delineation	
• Is the line marking and delineation: – appropriate for the function of the road? – consistent along the route? – likely to be effective under all expected conditions (day, night, wet, dry, fog, rising and setting sun, oncoming headlights, etc.) • Are centerlines, edgelines, and lane lines provided? If not, do drivers have adequate guidance?	

ENVIRONMENTAL CONSIDERATIONS	
Issue	**Comment**
Weather & Animals	
From an environmental perspective it is important to consider any potential impacts. Most notably is likely to be the impacts of weather or animals, including: • Possible effects of rain, fog, snow, ice, wind on design features. • Has snow fall accumulation been considered in the design (storage, sight distance around snowbanks, etc.)? • Are there any known animal travel/migration routes in surrounding areas which could affect design?	

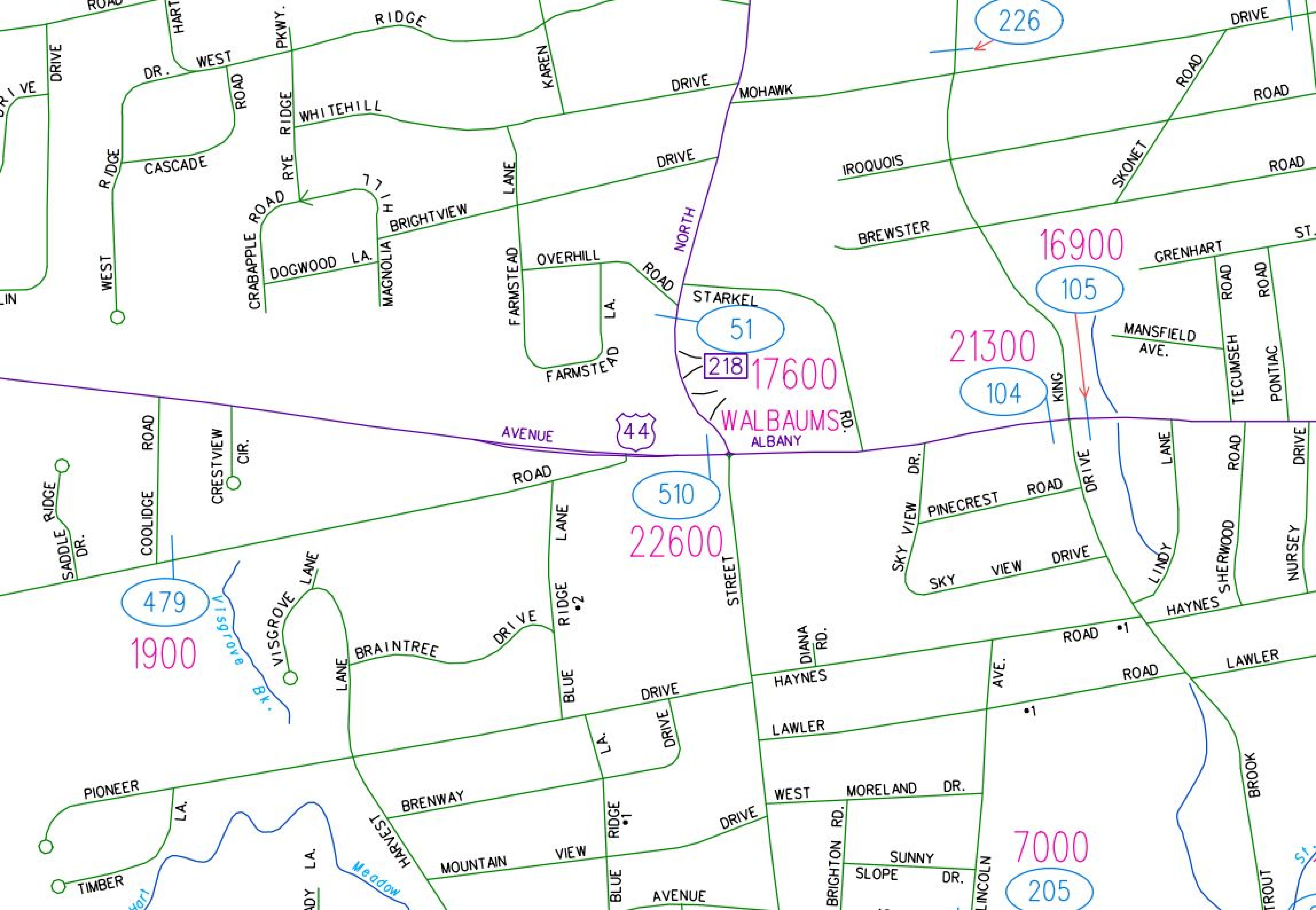
Bishop's Corner - Albany Ave (Rte 44) at North Main St (Rte 218)

TOWN OF WEST HARTFORD

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of West Hartford, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated 5/22/2015
Properties updated Daily



ROAD
HART
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DRIVE
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KAREN
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WHITEHILL
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CASCADE
RYE
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IROQUOIS
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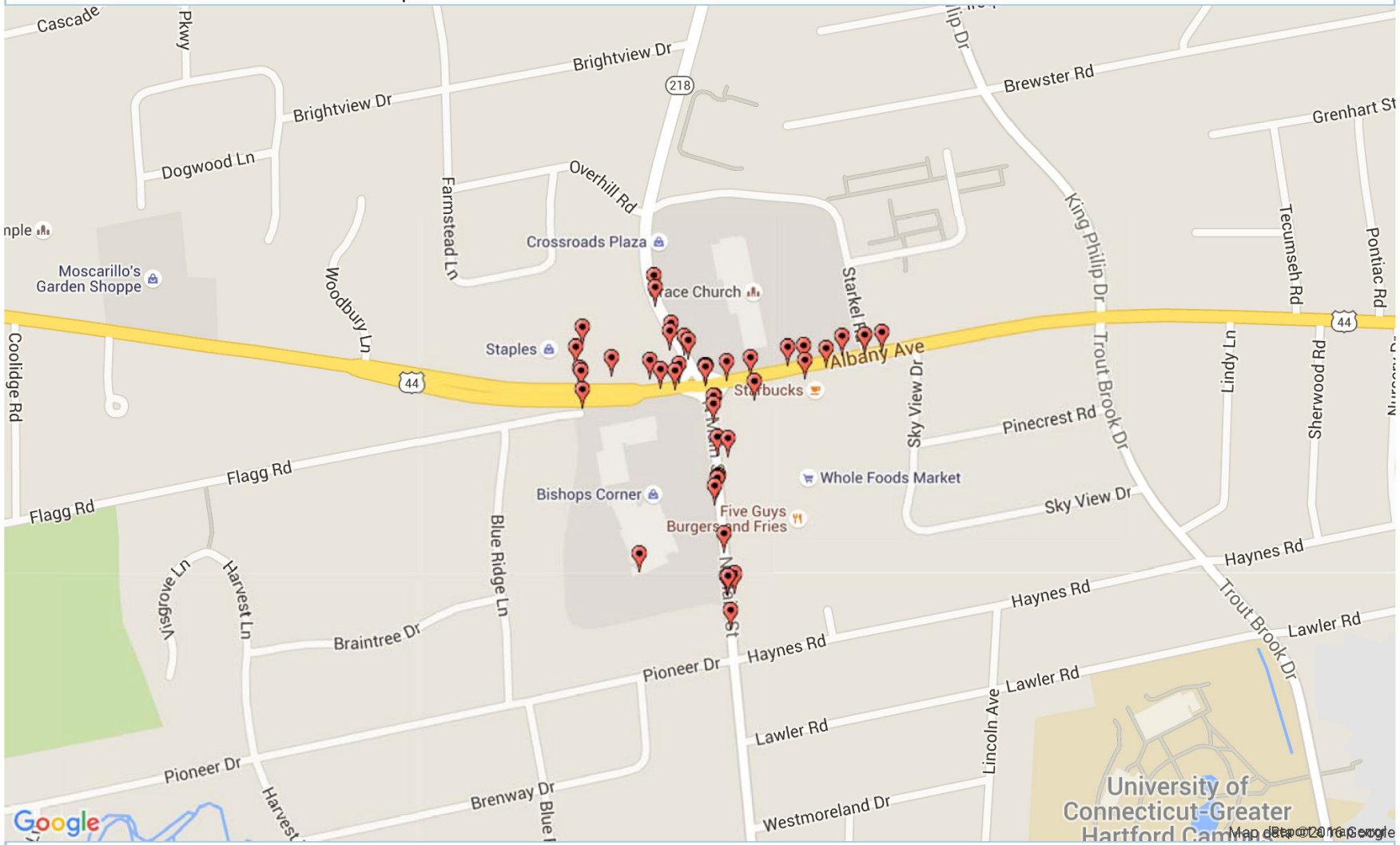
CRABAPPLE ROAD
HILL
LANE
BRIGHTVIEW
NORTH
BREWSTER
16900
ST.
WEST
DOGWOOD LA.
MAGNOLIA
FARMSTEAD
OVERHILL
ROAD
GRENHART
ROAD
ROAD
105
STARKEL
51
LA.
MANSFIELD AVE.
21300
TECUMSEH
PONTIAC
218
17600
FARMSTEAD
104
KING
WALBAUMS
RD.
AVENUE
44
ALBANY
ROAD
DR.
LANE
ROAD
DRIVE
ROAD
CRESTVIEW
CIR.
510
PINECREST
ROAD
DRIVE
LANE
RIDGE
COOLIDGE
22600
SKY VIEW
SHERWOOD
NURSEY
SADDLE
DR.
STREET
SKY VIEW DRIVE
LINDY
479
VISGROVE LANE
RIDGE
HAYNES
1900
Visgrove Bk.
DRIVE
DIANA RD.
ROAD
BRAINTREE
HAYNES
LAWLER
AVE.
ROAD
BLUE
LANE
DRIVE
LA.
DRIVE
LAWLER
BROOK
PIONEER
BRENWAY
WEST
MORELAND DR.
LA.
RIDGE
DRIVE
7000
HARVEST
MOUNTAIN VIEW
BRIGHTON RD.
SUNNY
SLOPE DR.
Meadow
BLUE
AVENUE
LINCOLN
205
TIMBER
TROUT

Connecticut Crash Data Repository

Search Criteria:

Dataset:	mmucc
Date From:	01/01/2015
Date To:	12/31/2015
Towns:	West Hartford
Crash Severity:	Injury of any type (Serious, Minor, Possible), Fatal (Kill), Property Damage Only
Case Status:	Complete



Markers | Heatmap | Select & Query

Road Safety Audit – Bishops Corner

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Time: 8:00 AM – 12:00 PM

Crash Summary

Data: 3 years (2013-2015)

Crash Specific Location	Number of Accidents	
Int. Commercial Dr.	72	36%
None	20	10%
Int. Public Road	52	26%
Int. Private Road	1	1%
Int. Residential	2	1%
Through Roadway	16	8%
Intersection	11	6%
Intersection-Related	6	3%
Other	4	2%
Driveway Access-Related	7	4%
Driveway Access	5	3%
Non-Junction	1	1%
Unknown	1	1%
Total	198	

Severity Type	Number of Accidents	
Property Damage Only	142	72%
Injury of any type (Serious, Minor, Possible)	56	28%
Total	198	

Weather Condition	Number of Accidents	
Clear	155	78%
Snow	7	4%
Rain	26	13%
Unknown	1	1%
Fog	1	1%
Freezing Rain or Freezing Drizzle	1	1%
Fog, Smog, Smoke	2	1%
Cloudy	4	2%
Other	1	1%
Total	198	

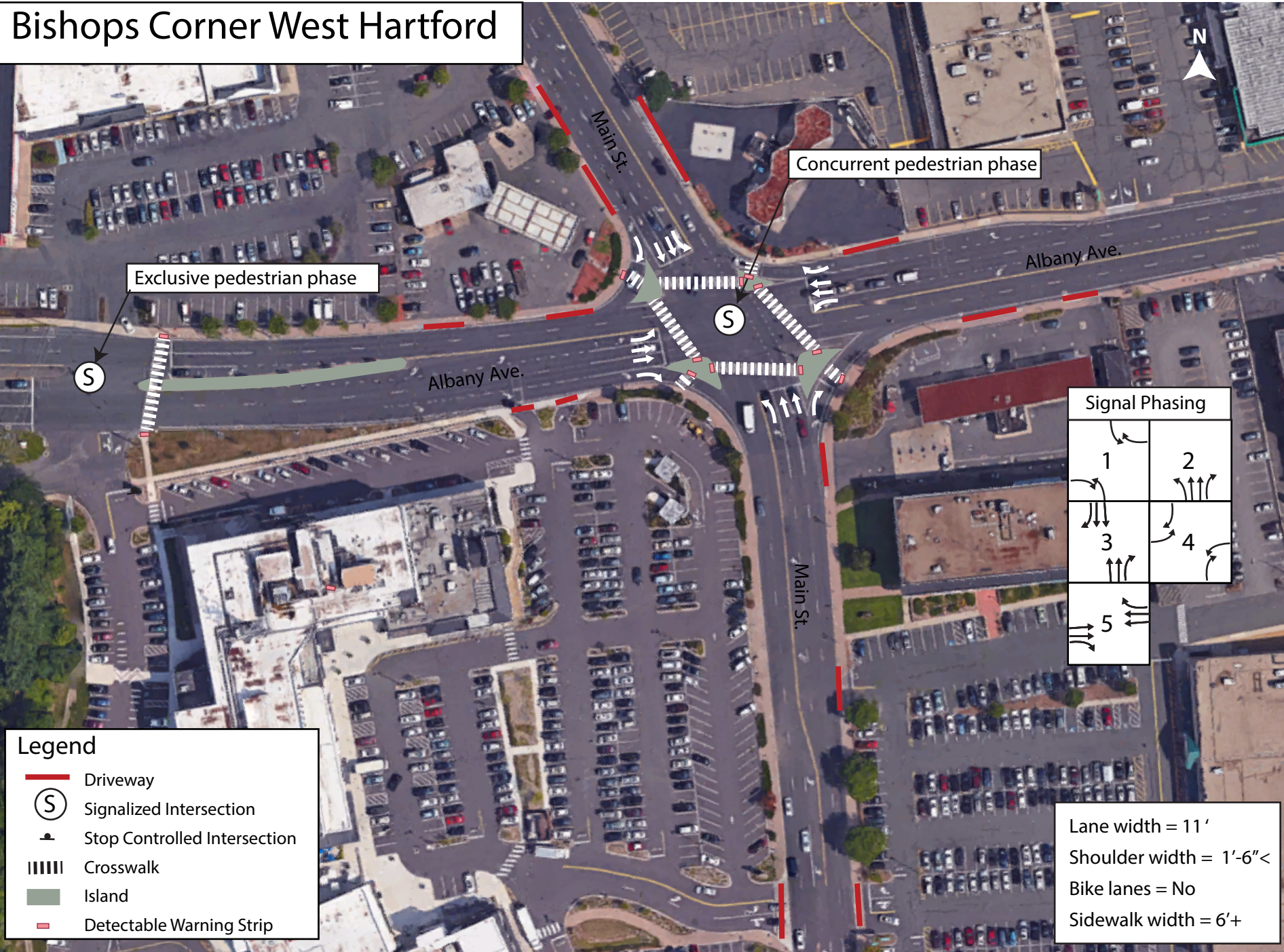
Light Condition	Number of Accidents	
Dusk	1	1%
Daylight	160	81%
Dark-Lighted	34	17%
Dark-Not Lighted	1	1%
Dawn	1	1%
Unknown	1	1%
Total	198	

Road Surface Condition	Number of Accidents	
Dry	144	73%
Ice / Frost	1	1%
Wet	47	24%
Snow/Slush	5	3%
Unknown	1	1%
Total	198	

Manner of Crash / Collision Impact	Number of Accidents	
Turning-Intersecting Paths	41	21%
Sideswipe-Same Direction	25	13%
Rear-end	48	24%
Angle	34	17%
Backing	3	2%
Turning-Opposite Direction	8	4%
Turning-Same Direction	5	3%
Fixed Object	4	2%
Sideswipe-Opposite Direction	1	1%
Head-on	1	1%
Not Applicable	3	2%
Front to rear	11	6%
Rear to rear	1	1%
Front to front	2	1%
Sideswipe, same direction	10	5%
Sideswipe, opposite direction	1	1%
Total	198	

Time Period		Number of Accidents	
0:00	0:59	0	0%
1:00	1:59	0	0%
2:00	2:59	0	0%
3:00	3:59	1	1%
4:00	4:59	1	1%
5:00	5:59	1	1%
6:00	6:59	6	3%
7:00	7:59	7	4%
8:00	8:59	8	4%
9:00	9:59	9	5%
10:00	10:59	12	6%
11:00	11:59	12	6%
12:00	12:59	13	7%
13:00	13:59	18	9%
14:00	14:59	21	11%
15:00	15:59	28	14%
16:00	16:59	17	9%
17:00	17:59	14	7%
18:00	18:59	13	7%
19:00	19:59	5	3%
20:00	20:59	3	2%
21:00	21:59	5	3%
22:00	22:59	3	2%
23:00	23:59	1	1%
Total		198	

Bishops Corner West Hartford



Road Safety Audit – Bishops Corner

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Post-Audit Discussion Guide

Safety Issues

- Confirmation of safety issues identified during walking audit

Potential Countermeasures

- Short Term recommendations
- Medium Term recommendations
- Long Term recommendations

Next Steps

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

COMMUNITY
connectivity program

Appendix D

Built to deliver a better world

Andrea Giudice:

My name is Andrea. I have been a resident of the Bishop's corner neighborhood in West Hartford for eight years. I am blind and use a guide dog. While Bishop's Corner is a truly ideal neighborhood for a non-driver I almost didn't move in because of the conditions facing pedestrians when crossing at the intersection of North Main Street and Albany Avenue (Route 44). This intersection offers no safe way to cross. All directions have turning traffic. In addition the ambient noise would make hearing an audible crossing signal, if available, impossible.

Each corner of this intersection is populated with a host of retail, medical and other business destinations that are a crucial part of the vibrant nature of this area. I wanted all of that but worried about being able to access them. I did decide to move to Bishop's Corner even with the significant deterrent of this intersection at the heart of this neighborhood.

So as to be able to cross safely I use the crossings at either end of Starkel Road which have audible crossing signals. This is safer but can cause me to have to walk considerably out of my way depending on the business I need to patronize. For example: if I am going from the Walgreen's plaza to the Staples plaza I need to walk along North Main and Albany Ave to the crossing at Starkel road; cross there; walk the length of Starkel Rd. to the crossing at the other end and cross North Main St.; then walk along North Main St. to get to the Staples plaza. Much less direct than simply crossing at North main and Albany... and much less dangerous! There have been many times when I have had to walk this extra distance multiple times in one day to complete my errands.

Safety is always my first priority so I am grateful that I do have the option of crossing at the Starkel/Albany and Starkel/North main intersections, however, this doesn't stop me from feeling frustrated by the complete inaccessibility to me of the intersection at North Main and Albany.

I thank you for your time and attention.

With kindest regards,

Andrea

The intersection of North Main Street and Route 44/Albany Avenue affords a very high level of traffic volume. Route 44/Albany Avenue eastbound and westbound traffic have dedicated turn lanes going north and south. For the westbound lanes for the dedicated turn lane to the north, this crossing is difficult because the geometry of the intersection makes it so there is a traffic island (with or without a pedestrian push button located on the island) between westbound traffic and the dedicated turn lane to the north. This geometry configuration is also the case for all directions of traffic flow on either Route 44/Albany Avenue or North Main Street. Because of this, to cross a street could entail crossing 7 lanes of live traffic, not including the traffic islands. A person with blindness could find it very difficult to align properly at such areas and to safely cross in a timely manner. Because of the traffic islands, to get across one street would entail making 3 street crossings instead of just one. The person with blindness should wait on the traffic island to ensure the proper time of the pedestrian cycle. Even for those without blindness, this intersection is not very pedestrian-friendly. Having audible signals at various locations around the area have assisted those with blindness cross the streets more safely. There is still one audible signal which was requested a number of years ago at the crosswalk at the Staples driveway entrance on Route 44. This has not been done. Any improvement to assist pedestrians in this area would make crossing the streets safer for everyone.

Best regards:

Matt Cornelius, Orientation and Mobility Specialist
State of CT: DORS: Bureau of Education and Services for the Blind
Vocational Rehabilitation Department
184 Windsor Avenue
Windsor, CT 06095
Office: (860) 602-4106
FAX: (860) 602-4030