COMMUNITY
connectivity program

Canterbury

Westminster Road (Route 14) between Canterbury Road (Route 169) and Lisbon Road – Road Safety Audit

June 15, 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

Contents

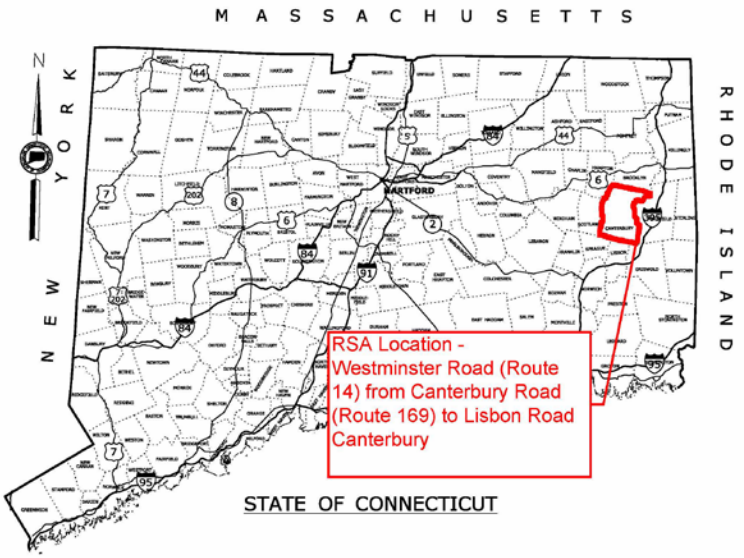
Figures

Tables

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

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

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



1 Introduction to the Westminster Road, Canterbury RSA

The Town of Canterbury submitted an application to complete an RSA along Westminster Road (Route 14) to improve safety for pedestrians and bicyclists. An increase in commercial activity and traffic volumes along Route 14, coupled with high traffic speeds along a predominantly rural facility, has resulted in what is perceived as a confusing and stressful environment for pedestrians and bicyclists. Specifically, the Town has expressed a need for speed reduction measures in the vicinity of school and commercial areas, and new safety features, including pedestrian crossings, pedestrian signals, sidewalks, and signage along the facility. In addition to these concerns along Route 14, driver confusion has been observed at the all-way stop-controlled intersection of Route 14 and Canterbury Road (Route 169), posing a safety risk to motorists and pedestrians.

The Town of Canterbury'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 audit corridor (Route 14) is bounded by Canterbury Road (Route 169) to the east and Lisbon Road to the west, in the Town of Canterbury (Figure 1). The audit corridor includes one all-way stop-controlled intersection at Route 14 and Route 169 and no traffic signals. Average Daily Traffic (ADT) is between 6,100 and 6,400 vehicles along Route 14 and between 2,600 and 3,100 vehicles along Route 169. These are considered moderate volumes for roadways of this type.

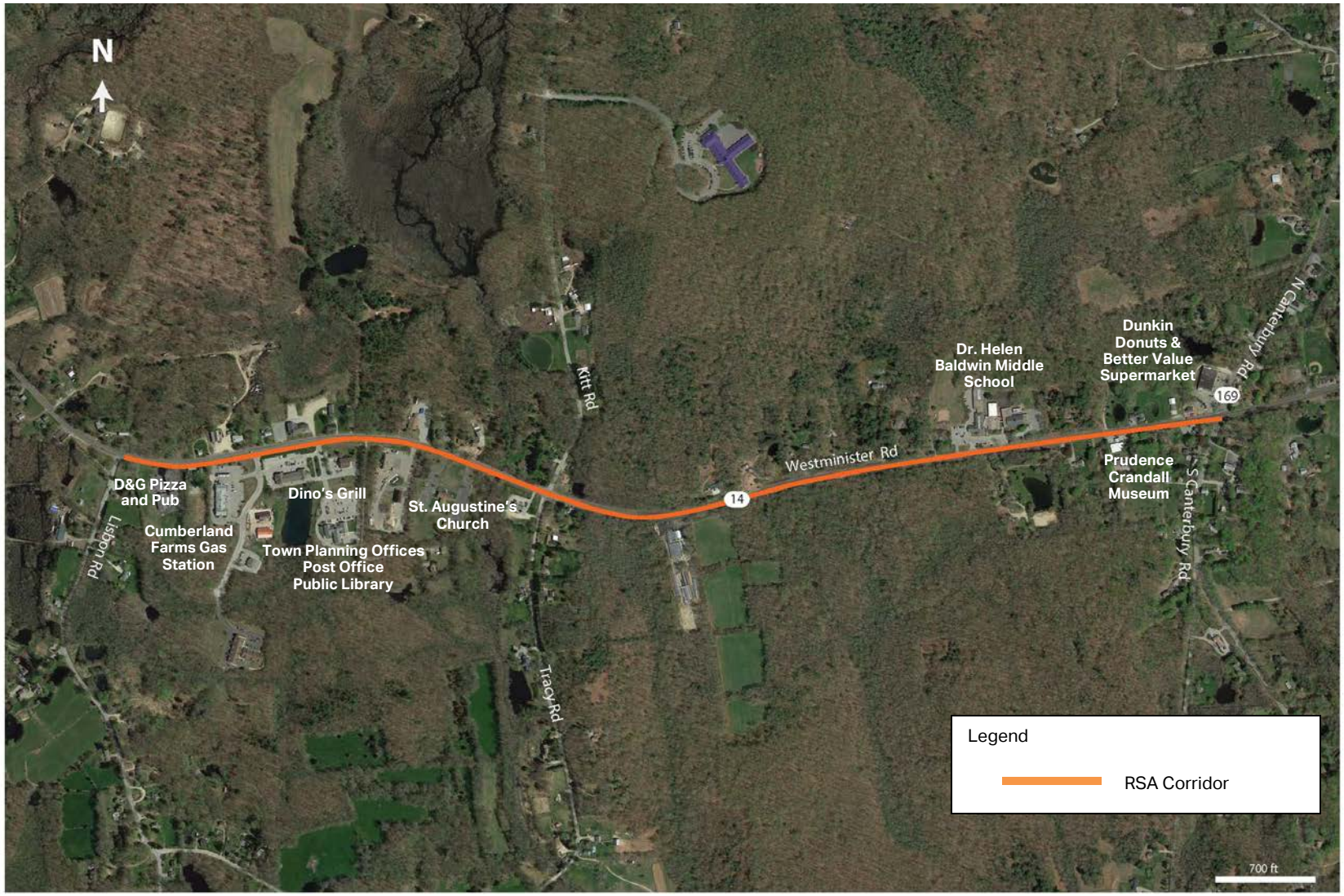


Figure 1. Route 14 Corridor, Canterbury

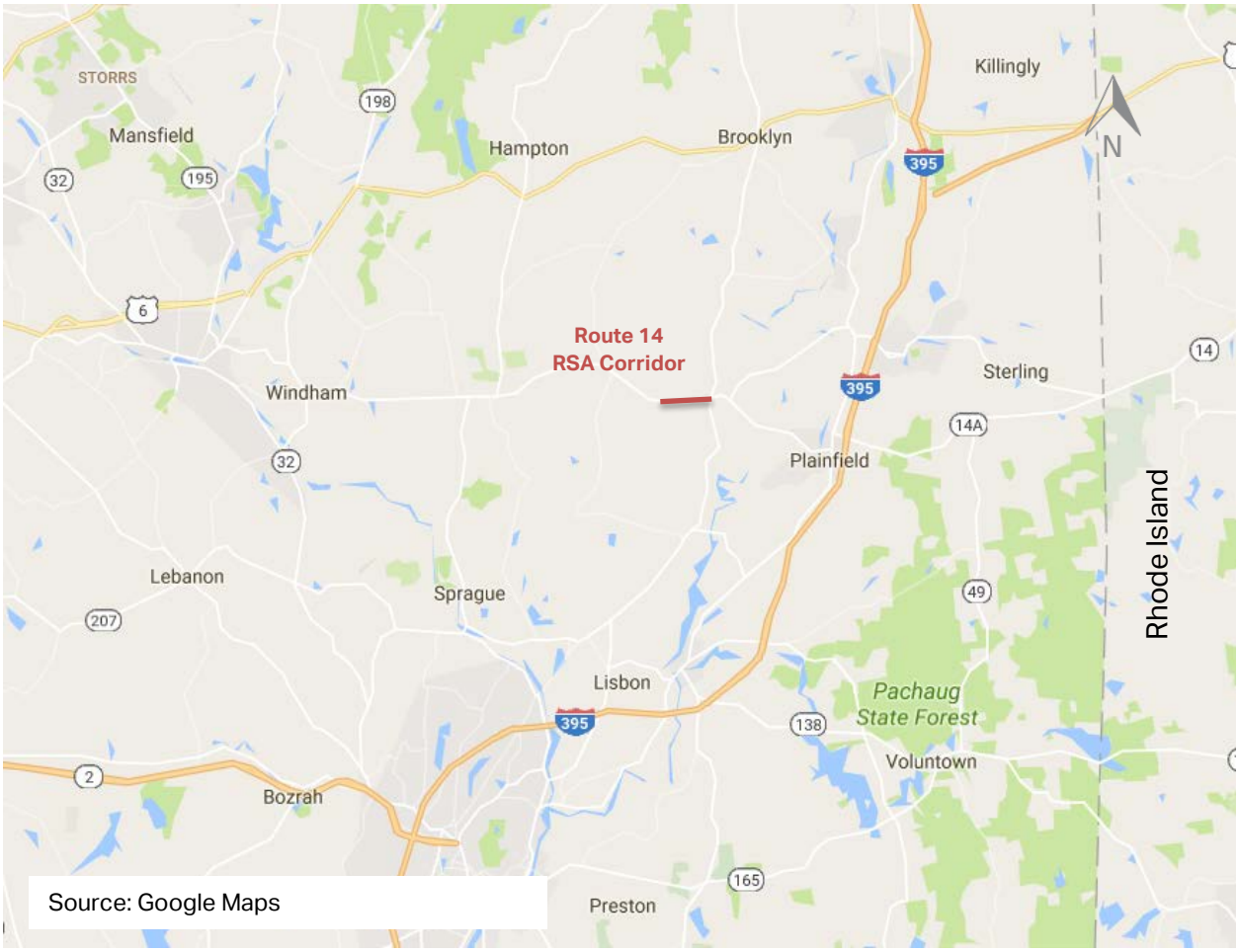


Figure 2. Route 14, Canterbury - Regional Context

Route 14 is a State-owned facility that runs in a relatively straight east/west direction connecting eastern Connecticut and Rhode Island, as shown in Figure 2. Route 169 intersects Route 14 at the eastern limit of the audit corridor and runs in a north/south direction.

2 Pre-Audit Assessment

2.1 Pre-Audit Information

The crash history for year 2015 shows a cluster of accidents at the retail driveways on the western half of the corridor and at the approaches to the stop-controlled intersection at Route 169, as shown in Figure 3. The majority of crashes reported between 2012 and 2014 resulted in property damage only; however, 32 percent resulted in injury (Table 1). The crash types reported were primarily turning-related and angle crashes, accounting for 63 percent of

all reported incidents (Table 2). These types of crashes and locations are indicative of access management issues (many driveways), sight line issues, and high speeds, making it difficult for drivers to find gaps to enter Route 14.

Severity Type	Number of Crashes	
Property Damage Only	13	68%
Injury of any type (Serious, Minor, Possible)	6	32%
Total	19	

Table 1. Crash Severity – 2012-2014

Source: UConn Connecticut Crash Data Repository

Manner of Crash / Collision Impact	Number of Crashes	
Unknown	0	0%
Sideswipe-Same Direction	3	16%
Rear-end	3	16%
Turning-Intersecting Paths	4	21%
Turning-Opposite Direction	2	11%
Fixed Object	0	0%
Backing	0	0%
Angle	5	26%
Turning-Same Direction	1	5%
Moving Object	0	0%
Parking	0	0%
Pedestrian	0	0%
Overturn	0	0%
Head-on	0	0%
Sideswipe-Opposite Direction	1	5%
Miscellaneous- Non Collision	0	0%
Total	19	

Table 2. Crash Type - 2015

Source: UConn Connecticut Crash Data Repository

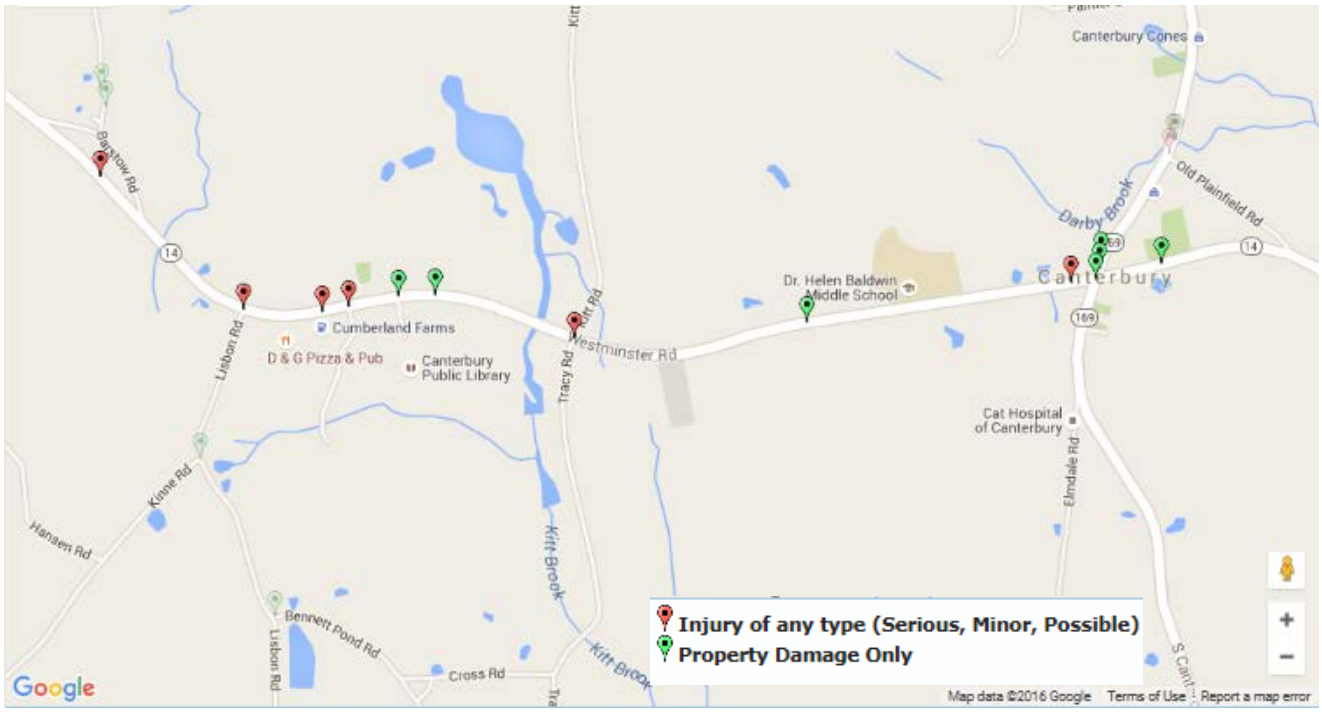


Figure 3. Crashes that Occurred in 2015 (Connecticut Crash Data Repository)

Route 14 is a Major Collector roadway with wide shoulders throughout most of its length and a single travel lane (12-12.5 feet wide) in each direction. While predominantly rural, the corridor has focused areas of commercial and municipal activity, such as the Prudence Crandall Museum located on the southwest corner of the intersection of Routes 14/169. There are no sidewalks along Route 14 for the entirety of the audit area. The posted speed limit on Route 14 in the study area is 45 MPH. The audit portion of the corridor includes three general areas of focus due to land use activity and traffic safety concerns. These are the intersection of Route 14/Route 169; Dr. Helen Baldwin Middle School; and the Cumberland Farms/Canterbury Plains shopping center.

The intersection at Route 14 and Route 169 is all-way stop-controlled with moderate traffic volumes and six adjacent driveways (four on Route 14) providing access to the shared parking area for a Dunkin Donuts and a supermarket. The driveway on the northwest corner of the intersection directly abuts the intersection and creates conflicts and confusion for vehicles traveling along Route 14 and Route 169. There is one existing crosswalk on the north side of the intersection, but no sidewalks are present.

Dr. Helen Baldwin Middle School is located on Route 14, approximately a quarter mile west of Route 169. It has two driveways - the westernmost is exit-only and the other is two-way.

Located on the crest of a hill, the school driveways have sight line constraints due to the elevation change along Route 14. There are no sidewalks or crosswalks serving the school.

The Cumberland Farms / Canterbury Plains shopping center is located on the western limit of the audit area along Route 14. There are three driveways serving this interconnected shopping plaza (Municipal Drive, Knollwood Drive, and an unnamed driveway). There are no sidewalks or crosswalks serving this commercial area.

Roadway geometrics and traffic volumes for the study roadway are shown in Figure 4 and described in Table 3.

Figure 4. Route 14 Roadway Geometrics and Average Daily Traffic (ADT)

Canterbury – Westminster Road (Route 14) and Canterbury Road (Route 169)

Roadway Inventory

Street	Route	Travel Direction	Width	Sidewalk				Parking	Curb	Shoulder	Ramp	
				Side	Type	Width	Condition				Exist	Compliant
Westminster Road	14	2 Way	1 Lane	EB	None	N/A	N/A	No	Concrete/Asphalt*	5’-7’ (varies)	No	No
			1 Lane	WB	None	N/A	N/A	No	Concrete/Asphalt*	4’-8’ (varies)	No	No
Canterbury Road	169	2 Way	1 Lane	NB	None	N/A	N/A	No	Concrete/Asphalt*	10’ (varies)	No	No
			1 Lane	SB	None	N/A	N/A	No	Concrete/Asphalt*	6’-14’ (varies)	No	No

*Concrete curbs on the northwest, northeast, and southwest corners at the intersection of Route 14 and Route 169.

Table 3. Roadway Inventory

2.2 Prior Successful Efforts

A number of best practices have already been applied along Route 14 and at the all-way stop-controlled intersection of Route 169 and Route 14. A flashing red beacon (all approaches) is provided at the intersection and "Stop Ahead" warning signs were recently installed by CTDOT to help alert drivers of the all-way stop. A pedestrian crosswalk is provided on the north side of the intersection to facilitate pedestrian crossings. Along Route 14, there are "School Children" warning signs (one per direction) approaching the Dr. Helen Baldwin Middle School. High-visibility reflective strips have been installed recently on stop sign posts at select commercial driveways in the western portion of the audit area.

The Town has developed a master plan to develop and improve the Town Center area.

2.3 Pre-Audit Meeting

The RSA was conducted on June 15, 2016. The Pre-Audit meeting was held at 8:30 AM in the Canterbury Selectman's office located at 1 Municipal Drive in Canterbury.

The RSA Team was comprised of a representative from CTDOT, AECOM staff, and representatives from several Canterbury departments, including Public Works, Emergency Management, Planning and Zoning, and the Canterbury Selectman. 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 Canterbury presented relevant information for the audit, including:

- There are no sidewalks in the audit area.
- There are sight line issues along Route 14 and at the intersections of Route 169, Tracy Road/Kitt Road, the Middle School, and the shopping centers.
- Vehicles do not always comply with the all-way stop and there is general driver and pedestrian confusion at the intersection.
- It was indicated that travel speeds of 60 MPH on Route 14 are not uncommon even though there is a posted 45 MPH speed limit.
- CTDOT has plans to install centerline rumble strips on Route 14 west of the audit area and plans to expand them to the audit area in the future.
- There is a need to connect local businesses and attractions (Prudence Crandall Museum) with sidewalks and to expand pedestrian amenities.
- The Town indicated a desire to study speeds along the corridor and evaluate the need for a school zone designation on Route 14 at the Dr. Helen Baldwin Middle School.
- Some students bike to the Middle School, but there are not many walkers.
- There are recreational cyclists along Route 14.

- Many large trucks use Route 14 and are generated by various facilities outside of Canterbury such as the Lowe's Distribution Center and trash trucks from Willimantic.
- There are access management issues with the super market and Dunkin Donuts driveways at Routes 14/169.

3 RSA Assessment

3.1 Field Audit Observations

3.1.1 Intersection of Route 14 and Route 169

- The driveway to the grocery store on Route 14 is very close to the intersection, which leads to driver confusion and turning conflicts. It is difficult to make a left turn out of the driveway onto Route 14 (Figure 5).

- There are multiple closely-spaced driveways in close proximity to the intersection, leading to turning conflicts and driver confusion (Figure 6).

- The existing crosswalk does not have a handicap ramp on either side (Figure 7). ADA compliant updates would include handicap ramps and tactile warning strips. The crosswalk serves pedestrians from the adjacent ball fields.

- Destination signs on the northwest corner of Routes14/169 are mounted lower than seven feet which is hazard for pedestrians (Figure 7).

- There are sight line issues for vehicles at the all-way stop due to both the geometry of the intersection and obstructions created by wayfinding signage (Figure 7). This results in drivers edging out into the intersection.

- Motorists sometimes do not fully stop. In some cases this is a compliance issue; however, some motorists are unaware, as there is only one warning sign per direction.

- Shoulders on eastbound Route 14 and southbound Route 169 are very wide and vehicles use them as a right turn lanes at the intersection.

Figure 5. View From Grocery Driveway on Route 14 Facing Southwest

Figure 6. Multiple Driveways Facing West on Route 14.

Figure 7. Existing Crosswalk Without Ramp on Route169

Figure 8. Example of Wide Shoulder Southbound on Route 169 Used as Right-turn Lane at the Intersection

This increases conflicts and exacerbates confusion between vehicles and pedestrians as it is not clear who has the right of way at multi-lane all-way stop controlled intersections (Figure 8).

- Vegetation and trees obscure signage in the area (Figure 8).

3.1.2 Route 14 at Dr. Helen Baldwin Middle School

- "Do Not Enter" signs at the western Middle School driveway are not visible until drivers are already entering the driveway (Figure 9). One of the two signs is considerably worn (Figure 11).

- There is no sidewalk in front of the school (Figure 9, Figure 10).

- There are no left/right lane markings on the western Middle School driveway.

- There is only one warning sign per direction alerting drivers of the Middle School. There is no designated School Zone.

- The Middle School is located on the crest of a hill which creates sight line issues at the driveways and for vehicles traveling along Route 14 (Figure 10, Figure 12). This condition is exacerbated by the high speeds along Route 14.

Figure 9. "Do Not Enter" Signs Set Too Far Back at Middle School Exit Driveway

Figure 10. Sightline Constraints From Middle School Exit Driveway Looking East on Route14

Figure 11. Faded Sign Wear at Middle School Exit Driveway

Figure 12. Sightline Constraints From Exit Driveway Looking West

3.1.3 Route 14 at Shopping Center Area (Municipal Drive to Lisbon Road)

- There are no sidewalks for pedestrians walking between the various land uses (Figure 13).

- Pedestrian activity is focused on the south side of the roadway, in front of the shopping centers. Travel between shopping centers is common; however, pedestrians generally stay on the south side of the road and do not need to cross to the north side.

- The shopping center is along a straight section of Route 14 at the bottom of two hills, so vehicles enter the area at high speed and do not slow down.

- There are sight line constraints exiting Cumberland Farms due to the curve of Route 14 west of the driveway. This makes it difficult to exit the driveway, especially when vehicles are speeding on Route 14 (Figure 14).

- Vertical reflective strips have been installed on stop-sign posts, but not at all approaches (Figure 15).

Figure 13. Lack of Sidewalks on Route 14 at Canterbury Plains Shopping Center

Figure 14. Sightline Constrains Looking at Route 14 West From Cumberland Farms Driveway

Figure 15. Reflective Sign Post on Knollwood Drive

3.2 Post-Audit Workshop - Key Issues

1. Qualitative field observations indicate that speeds in the range of 60 MPH are not uncommon along Route 14, even though the speed limit is 45 MPH. The high speeds exacerbate sight line constraints observed throughout the audit area, specifically the Route 14/Route 169 intersection; the Middle School; Tracy/Kitt Roads; and in the shopping center area, making it difficult to enter and exit driveways. It is recommended that the Town request that CTDOT perform a formal speed study along Route 14.

2. The all-way stop-control at Route 14 and Route 169 has driver compliance/awareness issues, and drivers often do not stop completely or are occasionally unaware of the stop control. Warning sign visibility leading up to the intersection is hindered by sign placement and obscured by trees. The large size of the intersection results in vehicles proceeding into the intersection to get a clear view of the other approaches. The large northwest corner radius encourages higher speeds for the southbound right-turn movement. Wide shoulders encourage drivers to use them as right-turn lanes, which increases driver confusion.

3. There is no north-south crosswalk at the intersection of Route 14 and Route 169, and pedestrians jaywalk to and from the Prudence Crandall Museum on the southwest corner of the intersection. The museum is a trip attractor for school children from the nearby Dr. Helen Baldwin Middle School.

4. The driveway to and from the supermarket and Dunkin Donuts directly abuts the intersection of Route 14 and Route 169 on the northwest corner. The driveway creates turning conflicts and exacerbates driver and pedestrian confusion at the intersection.

5. There is no designated school zone on Route 14 in front of Dr. Helen Baldwin Middle School. There is only one advance warning sign per direction to alert drivers of the school driveways, which are located on a hill crest with sightline constraints.

6. There are no sidewalks on Route 14 in the audit area, resulting in people walking along the roadway shoulder or along unpaved surfaces on the side of the road. This may discourage pedestrians from walking between the various land uses along Route 14 and poses a safety hazard for those who choose to do so. Pedestrian activity in the audit area is greatest at the Route 14/Route 169 intersection, and also in front of the shopping centers on the south side of Route 14 between Municipal Drive and Lisbon

Road. Adding sidewalks would help to connect various trip generators and attractors throughout the audit area, specifically:

- A sidewalk would be beneficial on the north side of Route 14 connecting the Middle School with land uses surrounding the Route 14/Route 169 intersection; and,
- Along the south side of Route 14 connecting Cumberland Farms and the other shopping center land uses.

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. Request for Further Study:
    a. First Selectman of the Town of Canterbury to send a letter to the Office of the State Traffic Administration (OSTA) to request a speed study on Route 14.
    b. Request school zone designation for Dr. Helen Baldwin Middle School on Route 14.
    c. Evaluate the need and benefit of adding rumble strips on each approach of the all-way stop intersection at Routes 14/169.

2. Signage Improvements:
    a. Clear tree branches to improve stop sign visibility at the intersection of Route14/Route 169. Relocate the advance "Stop Ahead" sign from behind the utility pole for the Route 169 northbound approach to Route 14.

b. Raise height of directional signs at the Route14/Route 169 intersection and relocate to improve sight line issues.
c. Install reflective vertical strip on stop sign posts at driveways and cross-streets along Route 14 for improved driver awareness.
d. Replace and relocate worn "Do Not Enter Sign" at Middle School exit driveway. Add "One-Way" signs and "Intersection Ahead" signs. Add stop signs and bars at the exit driveways.
e. Add "Intersection Ahead" warning sign on eastbound Route 14 approaching the Cumberland Farms driveway from the west.

3. Pavement Marking Improvements:
    a. Repaint stop bar on Knollwood Drive so that it is closer to the road.
    b. Stripe separate left and right turn lanes at the Middle School exit driveway.

Figure 16 depicts these recommendations.

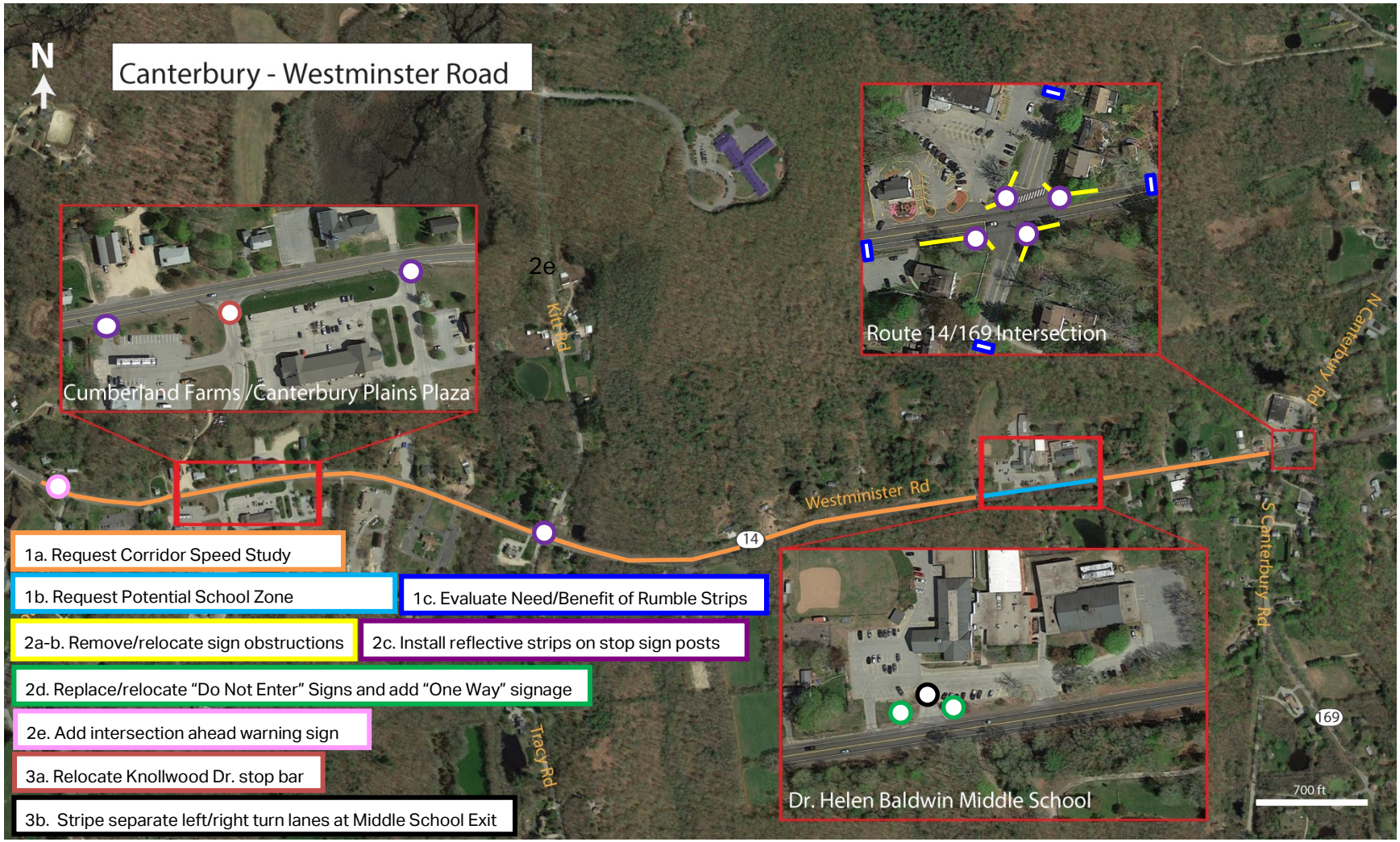


Figure 16. Short-term Recommendations

4.2 Medium Term

1. Signal Improvements:
    a. Upgrade flashing red beacon to flashing LED beacon and consider adding a strobe alert at intersection of Routes 14/169.
2. Geometric Improvements
    a. Routes 14/169 curb extension – Evaluate reducing northwest corner radius and extending curb to shorten crossing and slow down turning traffic (will require turn radius analysis for trucks and vehicle classification and turning movement counts).
3. Pavement Markings Improvements
    a. Reduce shoulder width on eastbound Route 14 and southbound Route 169 intersection approaches to prevent vehicles using them as a right turn lane.
    b. Restripe narrower travel lanes on Route 14 (currently 12-12.5 feet wide) when CTDOT repaints roadway lines.

Figure 17 depicts these recommendations.

Figure 17. Medium-term Recommendations

4.3 Long Term

1. Sidewalk Installation:
    a. Provide new sidewalk on the northwest and southwest corners of the Route 14/Route 169 intersection, in front of grocery store and Dunkin Donuts, and in front of Prudence Crandall Museum.
    b. Provide new sidewalk between the Middle School and Dunkin Donuts, on the north side of Route 14.
    c. Provide new sidewalk in front of shopping center area, on the south side of Route 14, connecting the three shopping plazas.
2. Access Improvements and Crosswalk Installation:
    a. Evaluate alternatives to improve access management and safety at the private commercial driveways on the northwest corner of the Route 14/Route169 intersection. Alternatives should include consolidating driveways to Dunkin Donuts and the grocery store and restricting or prohibiting the exit onto Route 14.
    b. Provide a north/south crosswalk on the west side of the Route 14/Route 169 intersection, (with handicap ramps and warning strips) connecting the Dunkin Donuts and Grocery Store with the Prudence Crandall Museum. Tie into proposed sidewalk on north and south sides of Route 14.
3. Further Study:
    a. If traffic counts indicate high enough volume, consider conducting a signal warrant analysis for conversion of flashing all-way stop to a full signal with a pedestrian phase.

Figure 18 depicts these recommendations.

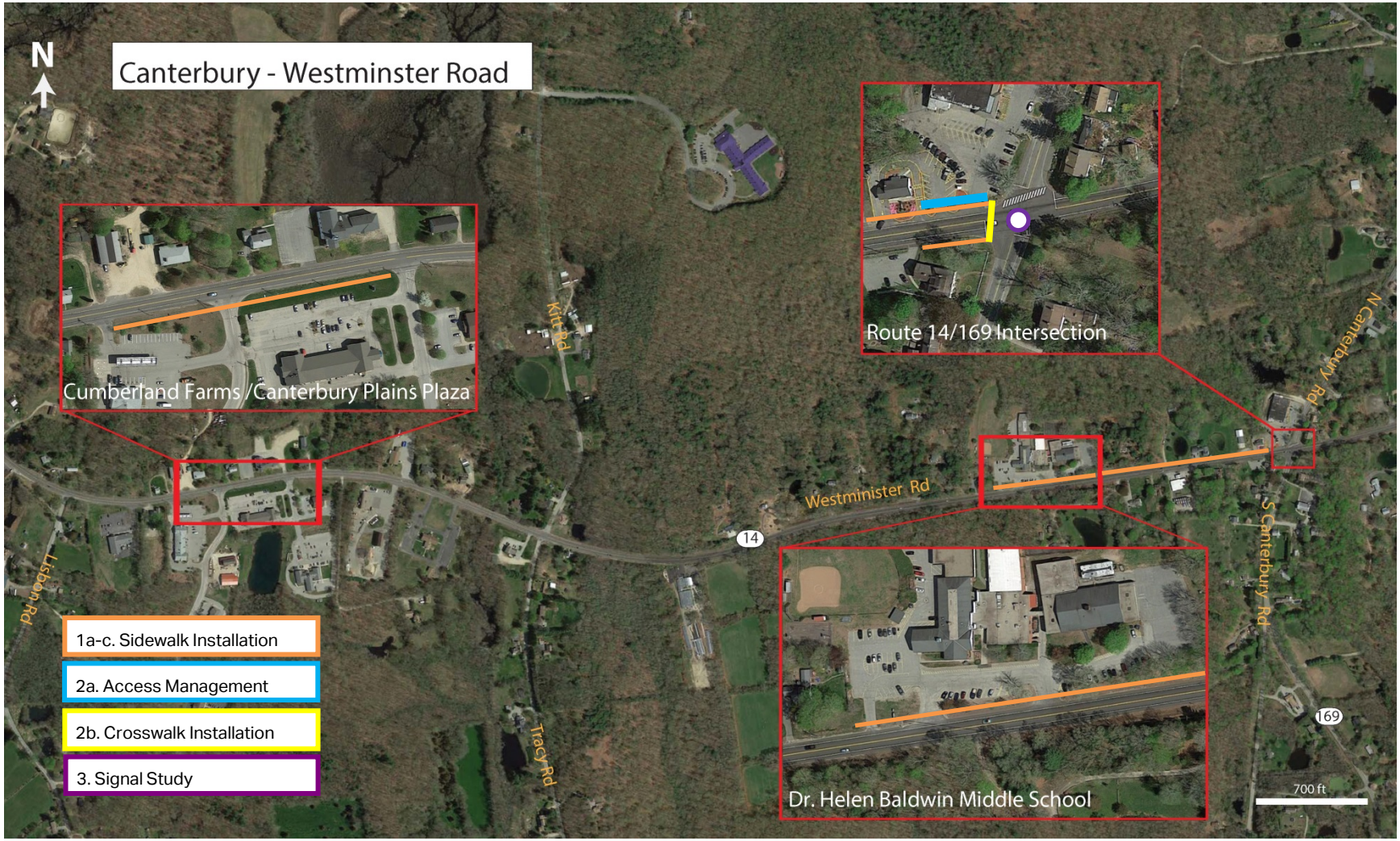


Figure 18. Long-term Recommendations

4.4 Summary

This report outlines the observations, discussions, and recommendations developed during the RSA. It documents the successful completion of the Town of Canterbury RSA and provides Canterbury with an outlined strategy to improve the transportation network along Route 14 for all road users, particularly focusing on safety. Moving forward, Canterbury 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 Route 14.

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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	Melissa Gil
Title	Land Use Director
Email Address	mgil@canterburyct.org
Telephone Number	(860) 546-6857

2. Location information

Address	Westminter Road
Description	From Intersection of Route 14/169 to Lisbon Road
City / Town	Canterbury, CT 06331

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

5. Approximate mile radius around the location

Greater than a ½ mile

Other (Please Specify)

6. Community Sites
(Please select all that apply)

- [x] **Community Centers**
- [ ] **Business Districts**
- [x] **Restaurant/Bar Districts**
- [x] **Churches**
- [ ] **Housing Complexes**
- [x] **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)

8. Educational facilities
(Please select all that apply)

- [x] **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)

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

10. Safety Concerns
(Please select all that apply)

- [x] **Traffic (volumes & speed)**
- [x] **Collisions**
- [ ] **Sidewalks**
- [ ] **Traffic Signals**
- [ ] **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)?

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

Canterbury is a very rural town. Our main center in town is located along Route 14. Many residents walk this strip to go to the Community Center, the Town Hall, the library, or the local grocery store. The school children often walk or ride their bicycles along this main road to get to the athletic fields after school, or to visit the convenience store. There main safety concerns along this road are the traffic volumes and speeds of motorists. There have been several motor vehicle accidents along this strip as well.

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?

N/A not applicable

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

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Road Safety Audit

Town: Canterbury
RSA Location: Route 14 (int with Route 169 to Lisbon Road)
Meeting Location: Canterbury Municipal Building
Address: 1 Municipal Drive
Date: 6/15/2016
Time: 8:00 - 12:00

Participating Audit Team Members

Audit Team Member	Agency/Organization
Jeff Maxtutis	AECOM
Mike Wulforst	AECOM
Lorenzo Varone	AECOM
Albert Botello	Public Works
Luther Thurlow	Emergency Management
Stephen Sheridan	
Melissa Gil	ZEO/WEO
Kevin Tedesco	CTDOT
Roy Piper	Town of Canterbury

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Appendix C

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Road Safety Audit – Canterbury

Meeting Location: Canterbury Municipal Building
Address: 1 Municipal Drive
Date: 6/15/2016
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	

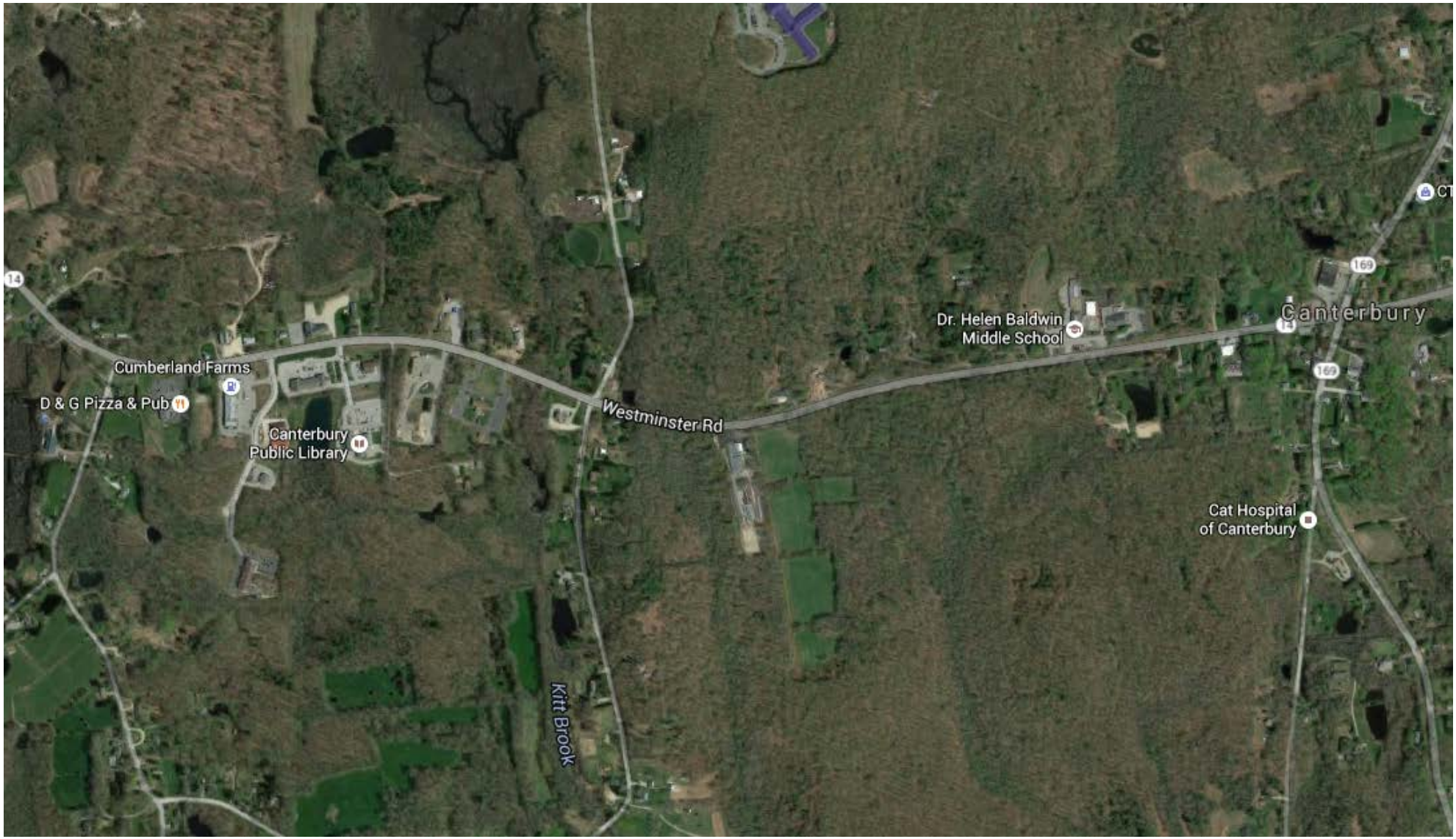
• Pavement
  o Pavement Condition (excessive roughness or rutting, potholes, loose material)
  o Edge drop-offs
  o Drainage issues
• Lighting Adequacy	

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

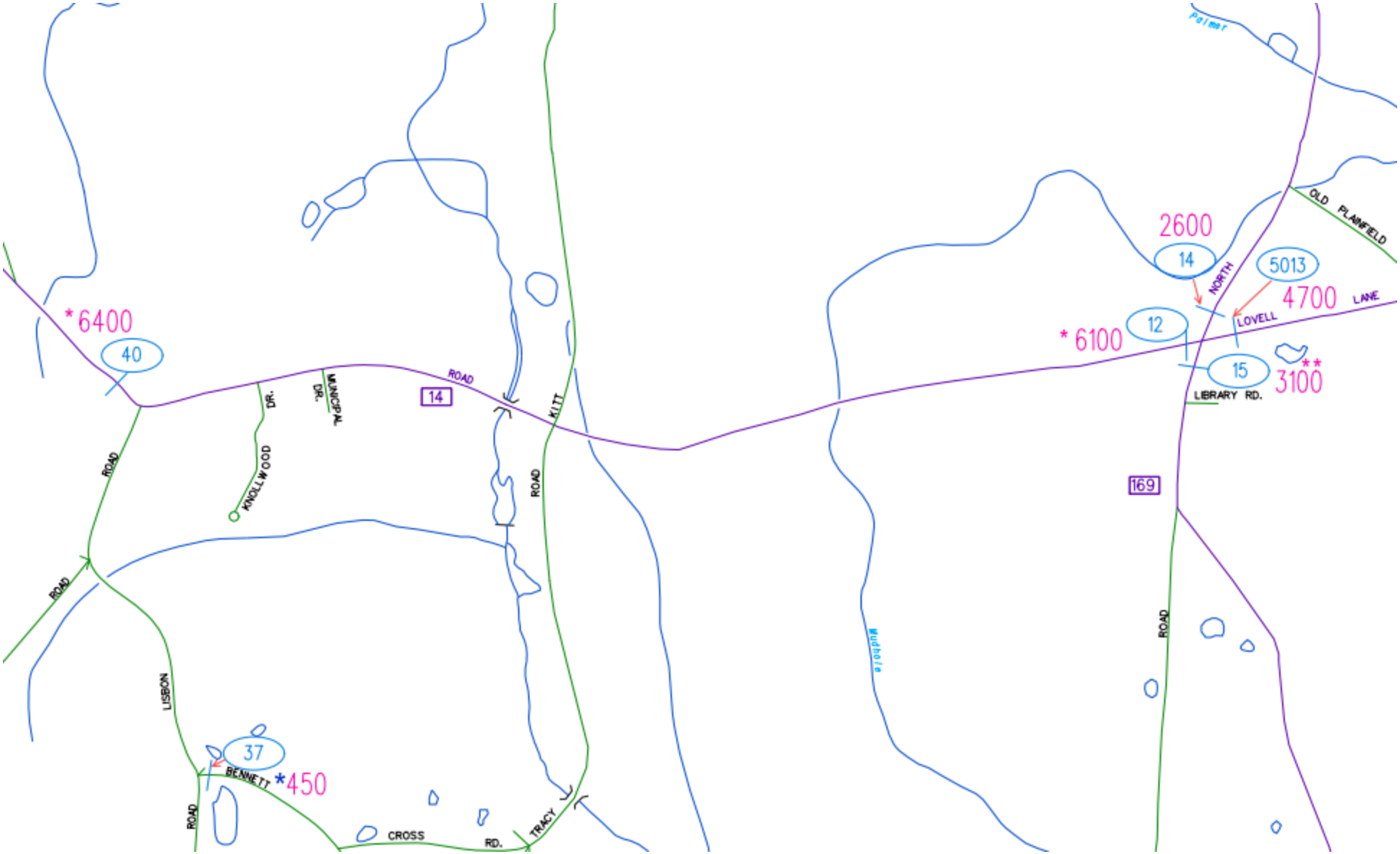
• Signals
  o Proper visibility
  o Proper operation
  o Efficient operation
  o Safe placement of equipment
  o Proper sight distance
  o Adequate capacity	

• 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	


14
Cumberland Farms
D & G Pizza & Pub
Canterbury
Public Library
Westminster Rd
Dr. Helen Baldwin
Middle School
Canterbury
169
169
Cat Hospital
of Canterbury
Kitt Brook

Average Daily Traffic (ADT)

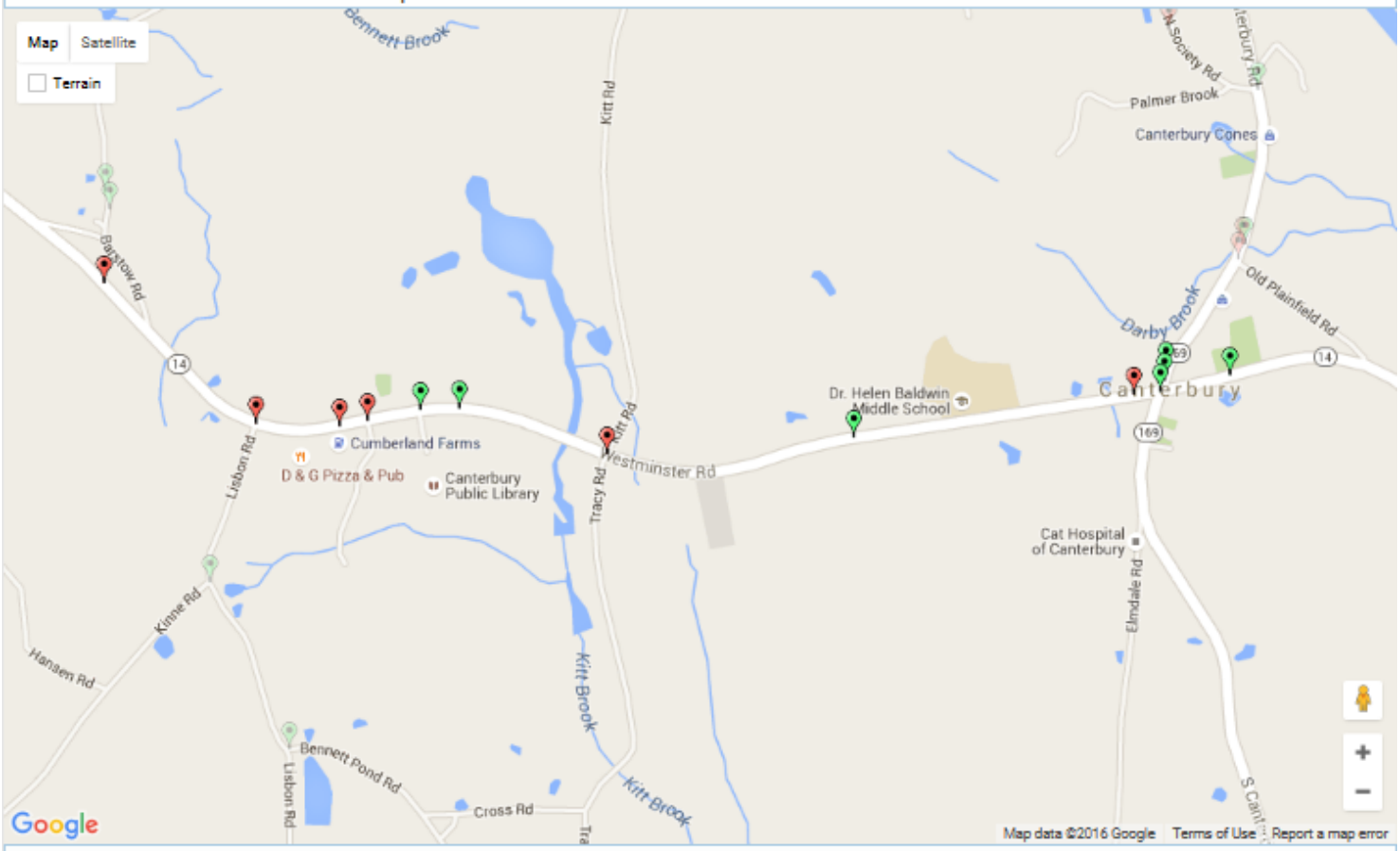


2015 Crashes

UCONN Connecticut Crash Data Repository

Search Criteria:

Dataset:	mmucc
Towns:	Canterbury
Crash Severity:	Injury of any type (Serious, Minor, Possible), Fatal (Kill), Property Damage Only
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

This web site is exempt from discovery or admission under 23 U.S.C. 409.

Connecticut Crash Data Repository - User Guide | Contact Us

Road Safety Audit – Canterbury

Crash Summary

Data: 3 years (2012-2014)

There were no crashes involving pedestrians or cyclists.

Severity Type	Number of Crashes	
Property Damage Only	13	68%
Injury (No fatality)	6	32%
Fatality	0	0%
Total	19	

Manner of Crash / Collision Impact	Number of Crashes	
Unknown	0	0%
Sideswipe-Same Direction	3	16%
Rear-end	3	16%
Turning-Intersecting Paths	4	21%
Turning-Opposite Direction	2	11%
Fixed Object	0	0%
Backing	0	0%
Angle	5	26%
Turning-Same Direction	1	5%
Moving Object	0	0%
Parking	0	0%
Pedestrian	0	0%
Overturn	0	0%
Head-on	0	0%
Sideswipe-Opposite Direction	1	5%
Miscellaneous- Non Collision	0	0%
Total	19	

Weather Condition	Number of Crashes	
Snow	0	0%
Rain	1	5%
No Adverse Condition	16	84%
Unknown	0	0%
Blowing Sand, Soil, Dirt or Snow	0	0%
Other	2	11%
Severe Crosswinds	0	0%
Sleet, Hail	0	0%
Total	19	

Light Condition	Number of Crashes	
Dark-Not Lighted	0	0%
Dark-Lighted	4	21%
Daylight	15	79%
Dusk	0	0%
Unknown	0	0%
Dawn	0	0%
Total	19	

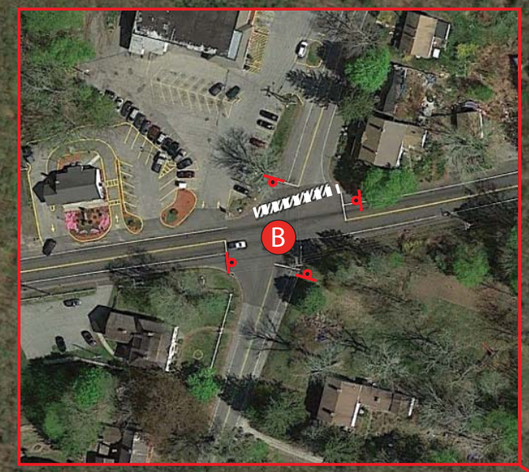
Road Surface Condition	Number of Crashes	
Snow/Slush	0	0%
Wet	3	16%
Dry	16	84%
Unknown	0	0%
Ice	0	0%
Other	0	0.0%
Total	19	

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

N

Westminister Rd (Rt 14)
Speed = 45 MPH
Lanes = 2

Canterbury Road (Rt 169)
Speed = 35 MPH
Lanes = 2



Kirt Rd

Kirt Brook

Tracy Rd

Lisbon Rd

SPEED LIMIT 45

SPEED LIMIT 45

14

6,100 ADT
Westminster Rd

4,700 ADT

2,600 ADT
N Canterbury Rd

3,100 ADT
S Canterbury Rd

169

Legend

- Stop Controlled Intersection
- Crosswalk
- Bridge or culvert
- No sidewalk
- Major waterway
- Flashing Beacon

700 ft

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 – Canterbury

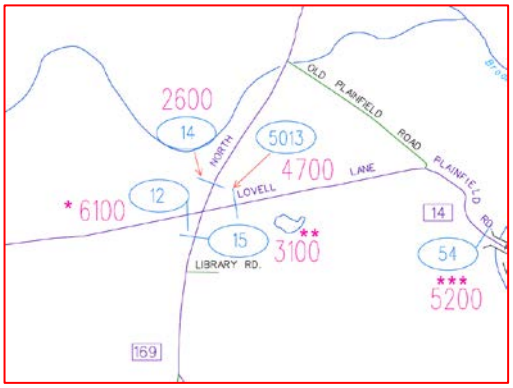
Fact Sheet

Functional Classification:

- Route 14 is classified as a Major Collector

ADT

- ADT on Route 14 is 6,100 - 6,400
- ADT on Route 169 north of Route 14 is 2,600
- ADT on Route 169 south of Route 14 is 3,100
- ADT on Lovell Lane is 4,700



Population and Employment Data (2014):

- Population: 5,110
- Employment: 543

Urbanized Area

- This section of Route 14 is not in an Urbanized Area

Demographics

- The statewide average percentage below the poverty line is 10.31%. There are no areas in Canterbury exceeding the state's average.
- The statewide average percentage minority population is 30.53%. There are no areas in Canterbury that exceed the state's average.

Air Quality

- Canterbury's CIPP number 803
- Canterbury is within the Greater CT Marginal Ozone Area
- Canterbury is within a CO Attainment Area