MANSFIELD ROAD SAFETY AUDIT

ROUTE 195 AND ROUTE 275

CONNECTICUT DEPARTMENT OF TRANSPORTATION 125 1895 - 2020

MANSFIELD · CONN · INCORPORATED · OCT · 1702

COMMUNITY connectivity program

FHI studio

SEPTEMBER 2022

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1 COMMUNITY CONNECTIVITY PROGRAM

1.1 Program Background

The Connecticut Department of Transportation (CTDOT) has created a Community Connectivity Program that focuses on improving the state's transportation network for all users. A major component of this program is conducting Road Safety Audits (RSAs) at selected locations. An RSA is a formal safety assessment of the existing roadway. It is a qualitative review by an independent team experienced in traffic, pedestrian, and bicycle operations and design that considers the safety of all road users and proactively assesses mitigation measures to improve the safe operation of the facility by reducing the potential crash risk frequency and/or severity.

The RSA team includes CTDOT staff, municipal officials and staff, municipal police, local stakeholders, FHI Studio staff, and community leaders. The 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, roadway geometrics, crash data, roadway inventory (i.e. signage, curbs, bicycle/pedestrian facilities, amenities, safety components), and sidewalks.

Each RSA is conducted using RSA protocols published by the FHWA. For details on this program, please refer to the CT Connectivity RSA site on the CTDOT webpage.

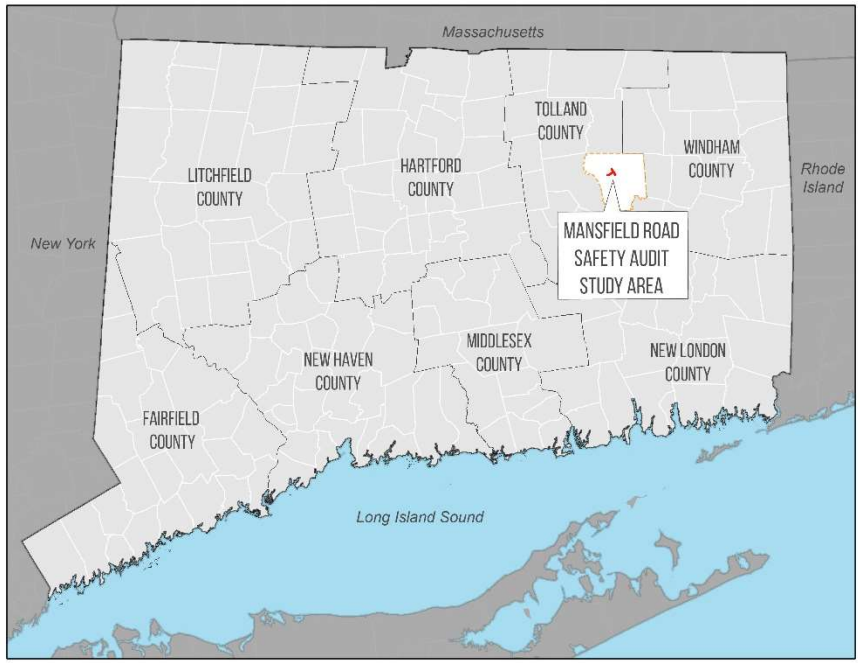
Prior to the site visit, area topography, land use characteristics, intersection sight distance concerns, sidewalk locations, parking, and bicycle facilities are examined using available mapping and imagery. The site visit includes a "Pre-Audit" meeting, the "Field Audit" itself, and a "Post-Audit" meeting to discuss the field observations and formulate recommendations. This procedure and the summary results are discussed in the following sections.

1.2 Mansfield RSA Study Area and Location

CTDOT sponsored an RSA for the Town of Mansfield in the area encompassing Route 195 (Storrs Road) between Mansfield Road and Birchwood Heights Road and Route 275 (South Eagleville Road) between Route 195 (Storrs Road) and Separatist Road.

Exhibit 1 shows the study area in context to the State of Connecticut, while Exhibit 2 shows the study area in further detail.

Exhibit 1: Mansfield RSA Regional Location



The purpose of the RSA is to observe any safety concerns while discussing possible safety improvements for pedestrians and bicyclists travelling along the study area corridor. The study area serves many purposes including the University of Connecticut (UConn) campus, E.O. Smith High School, Town Hall and Community Center, and residential neighborhoods. The study area is also a regional employment center. See Exhibit 3 for points of interest located along the corridor.

Route 195 (Storrs Road) is a principal arterial roadway that provides a regional connection to points north and south as well as access to the UConn campus. Route 275 (South Eagleville Road) is a minor arterial that connects to Route 32 to the west. The study area has sidewalks and crosswalks throughout. There are limited bike facilities in the study area, however a planned side path is planned along Route 275 (South Eagleville Road) between Separatist Road and Maple Road.

Average Daily Traffic (ADT) in the study area ranges between 7,600 vehicles per day on Route 275 (South Eagleville Road) to about 13,200 vehicles per day in the middle of the study area in the campus/commercial core in Downtown Storrs on Route 195 (Storrs Road). Exhibit 4 displays daily traffic in the study area.

There are three signalized intersections in the study area, all on Route 195 (Storrs Road) at the intersection of Mansfield Road, Bolton Road, and Route 275 (South Eagleville Road). The other intersections are controlled by stop signs, with the most notable stop-controlled intersections including the intersections of Route 195 (Storrs Road) and Dog Lane, Hanks Hill and Flaherty Road, and the intersection of Route 275 (South Eagleville Road) and Eastwood Road, Westwood Road, Maple Road, and Separatist Road.

Exhibit 2: Mansfield RSA Study Area

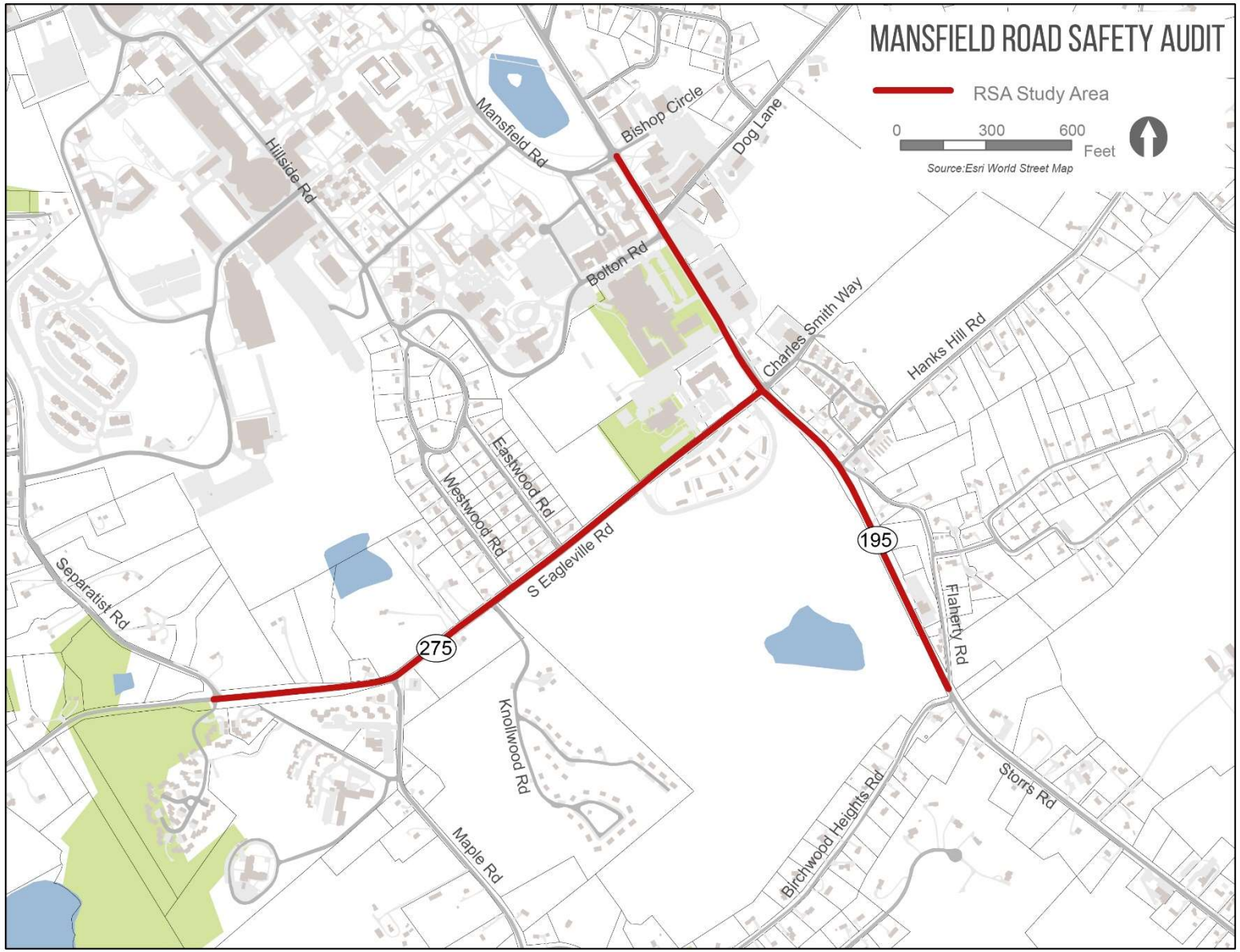


Exhibit 3: Study Area Points of Interest

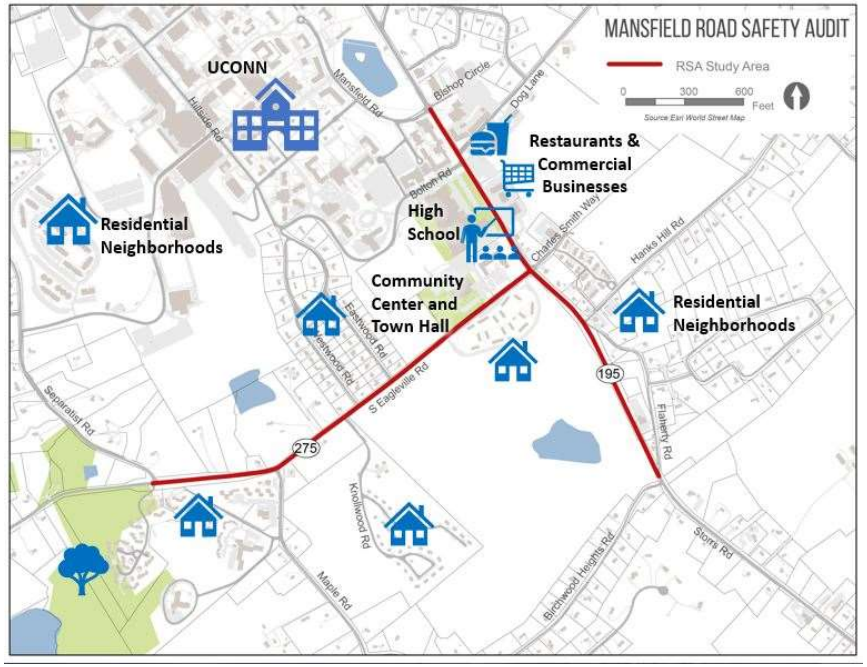
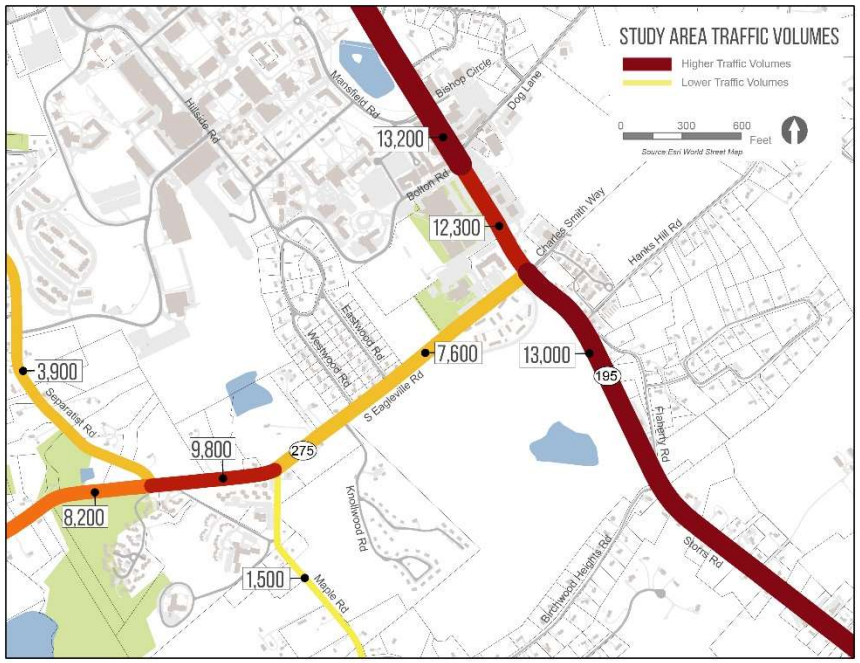


Exhibit 4: Average Daily Traffic Volumes



2 PRIOR EFFORTS IN STUDY AREA

2.1 Downtown Storrs Development along Route 195 (Storrs Road)

Substantial development was completed in Downtown Storrs between 2011 and 2016. Development included streetscape design improvements, additional businesses, student housing, a grocery store, parking garage, as well as other elements. Exhibit 5 shows Downtown Storrs Center.

Exhibit 5: Storrs Center at Dog Lane

2.2 Decorative crosswalks on Route 275 (South Eagleville Road)

Decorative crosswalks had previously been installed on Route 275 (South Eagleville Road) prior to the most recent repaving of Route 275 (South Eagleville Road). Currently, these crosswalks have been repainted as standard continental crosswalks. During the walk audit, these crosswalks were found to be painted with temporary paint with no reflection, which will be replaced once CTDOT repaints with reflectorized epoxy resin paint. Exhibit 6 displays crossings on Route 275 (South Eagleville Road).

Exhibit 6: Crosswalk on Route 275 (South Eagleville Road)

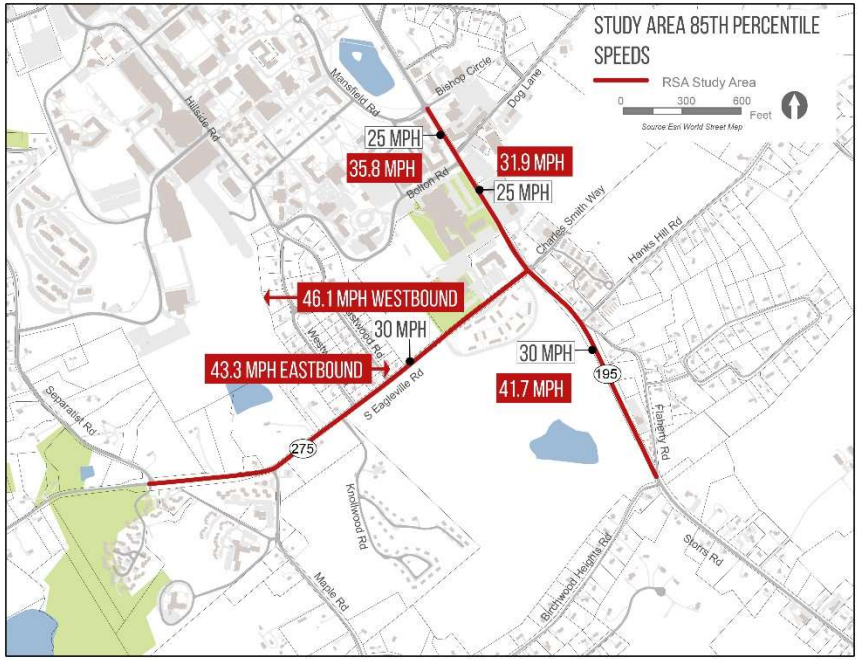
3 PRE-AUDIT MEETING

3.1 Pre-Audit Information

The RSA team conducted a pre-audit meeting in the afternoon of Wednesday, April 26th, 2022. The RSA team presented a brief presentation that included an overview of the Mansfield RSA goals and purpose, the study area, and key existing conditions findings. Key themes discussed during the pre-audit meeting are presented below.

Speeds: Speed limits in the study area range between 25 miles per hour (mph) on Route 195 (Storrs Road) north of Route 275 (South Eagleville Road) to 30 mph on Route 275 (South Eagleville Road). South of Route 275 (South Eagleville Road), Route 195's (Storrs Road) speed limit increases to 30 mph. Despite the speed limits, 85th percentile speeds in the study area were observed to be between 6-12 mph above posted speeds on Route 195 (Storrs Road) and as high as 16 mph above posted speeds on Route 275 (South Eagleville Road). Exhibit 7 displays speed limits and 85th percentile speeds in the study area.

Exhibit 7: Study Area Speed Limits



Crashes: Based on data retrieved from the Connecticut Crash Data Repository (CTCDR) for the five-year period between January 2017 through December 2021, there were a total of 157 crashes in the Mansfield RSA study area. Crashes were concentrated in the vicinities of:

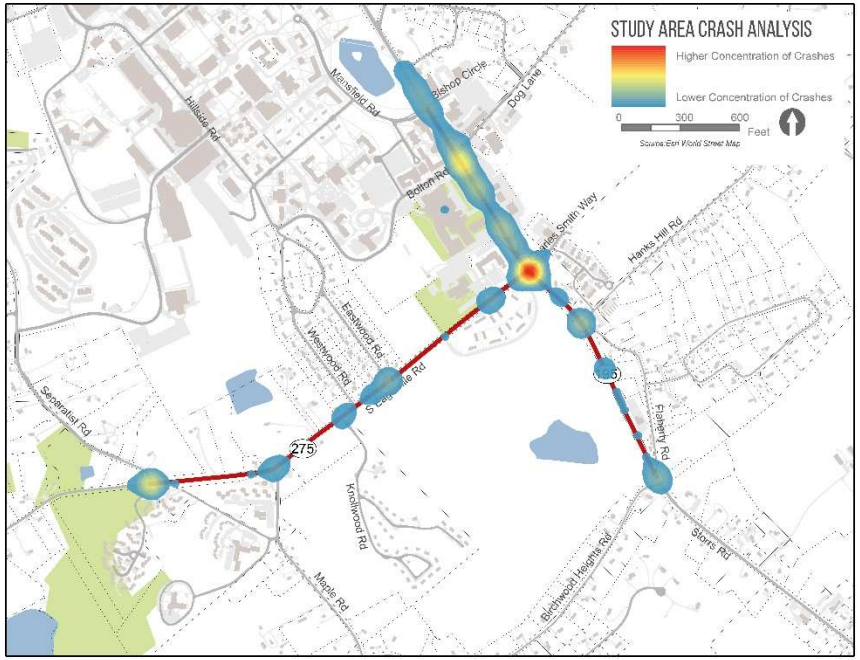
- Near Route 195 (Storrs Road) /Route 275 (South Eagleville Road) – 41 Crashes
- Route 195 (Storrs Road) between Route 275 (South Eagleville Road) and Bolton Road – 27 Crashes
- Route 195 (Storrs Road) /Bolton Road – 23 Crashes
- Route 275 (South Eagleville Road) /Separatist Road – 15 Crashes
- Route 195 (Storrs Road) /Hanks Hill Road – 7 Crashes

Exhibit 8 displays the study area crash summary and Exhibit 9 displays a study area crash heatmap.

Exhibit 8: Study Area Crash Summary

Year	Fatal Injury	Serious Injury	Minor Injury	Possible Injury	Property Damage Only	TOTAL
2017			3	1	33	**37**
2018			3	1	26	**30**
2019			2	4	36	**42**
2020			1	1	16	**18**
2021	1		10	1	18	**30**
TOTAL	**1**		**19**	**8**	**129**	**157**

Exhibit 9: Study Area Crash Heatmap



Crashes by Type: The majority of crashes are front to rear, angle crashes, or single vehicle crashes. Front to rear crashes are fender-bender type crashes that are common in areas of stopped traffic such as an approach to an intersection, commercial area, or in areas with many driveways. Single vehicle crashes are indicative of crashes where motorists veered off the road, ran into a guardrail, etc. Other types of crashes including angle crashes and sideswipe crashes are common in areas with ingress and egress movements such as business areas. Exhibit 10 and Exhibit 11 display the location and breakdown of crashes by type in the corridor.

Exhibit 10: Crashes by Type

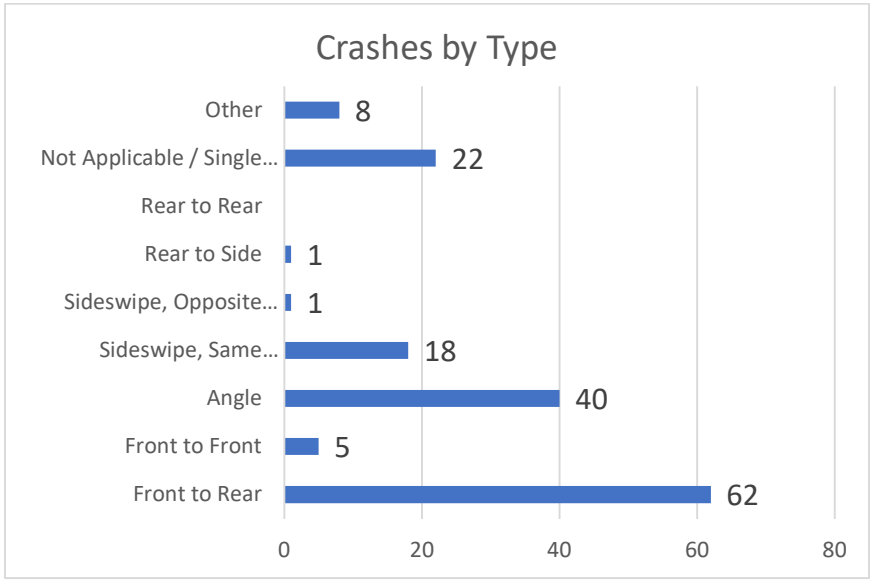
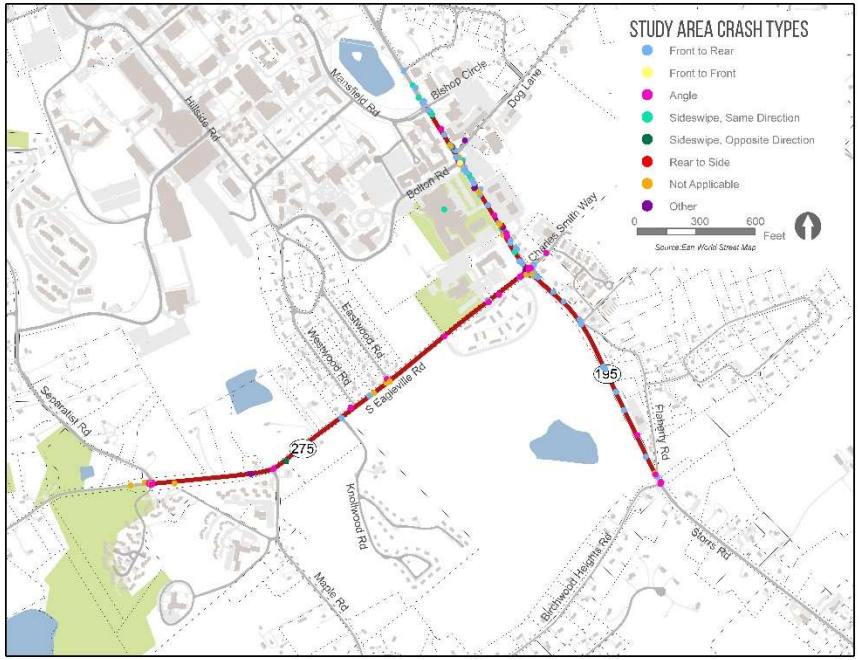


Exhibit 11: Crashes by Type



Crash Severity: The majority of crashes in the study area are classified as No-Apparent Injury-Property Damage Only crashes. There were eight crashes resulting in a possible injury and 19 minor injury crashes. In 2021, one crash resulted in a fatality at Route 275 (South Eagleville Road) and Eastwood Road. A pedestrian was fatally struck in the evening hours while in the crosswalk by a motorist traveling in the westbound direction. Exhibit 12 and Exhibit 13 show crash severity by location and a summary of total crashes by severity.

Exhibit 12: Crash Severity by Location

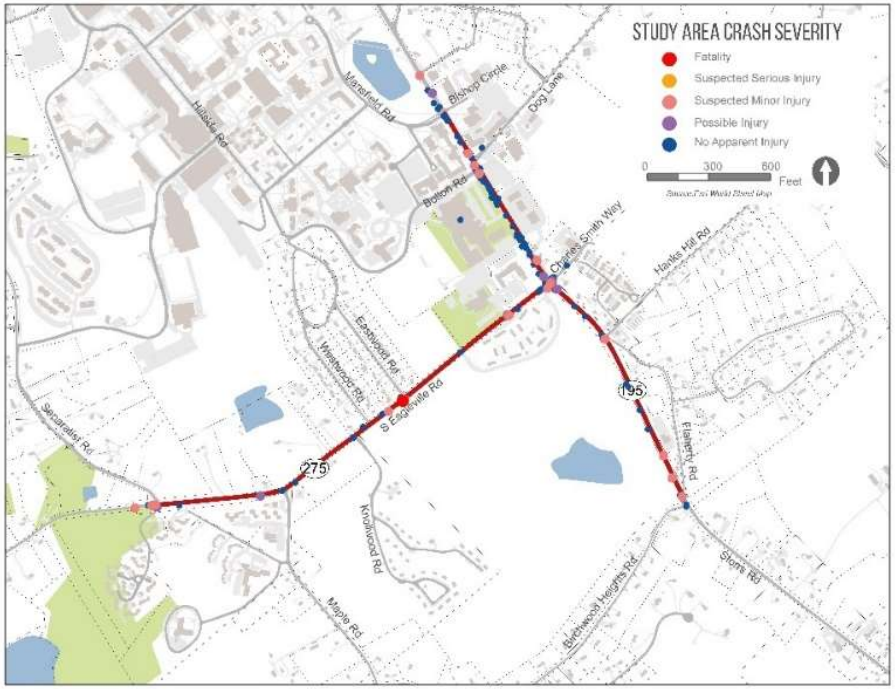
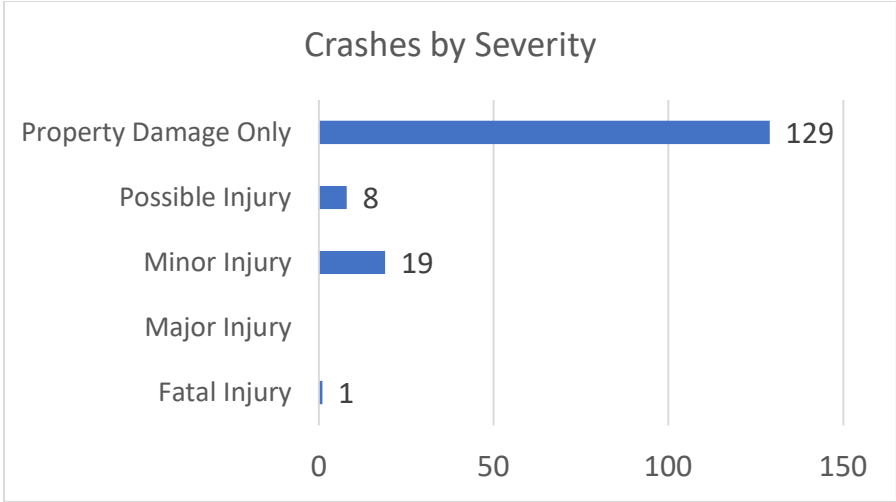
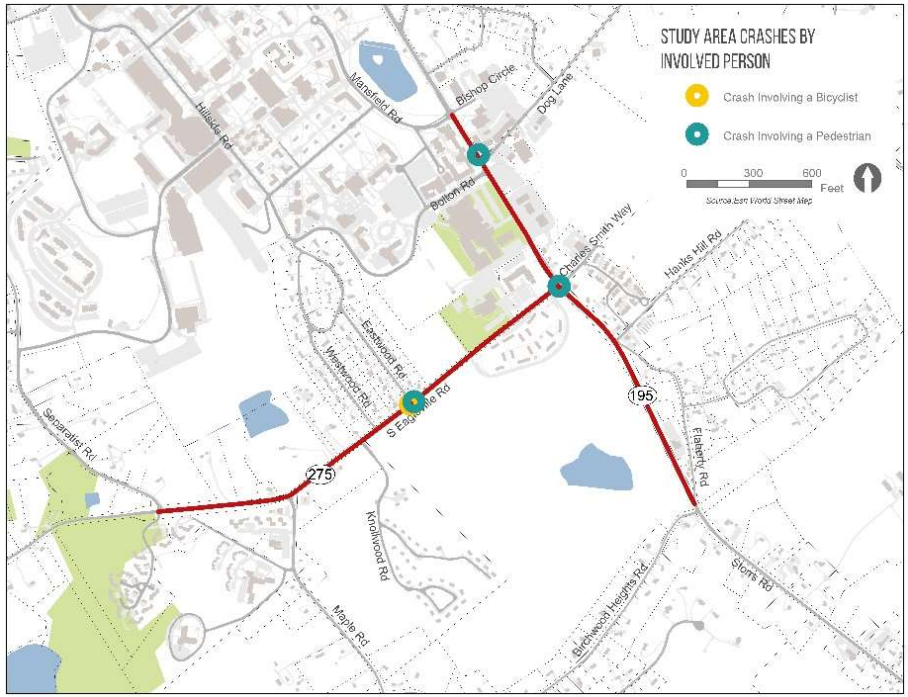


Exhibit 13: Crash Severity Summary



Crashes by Involved Person: There was one crash involving a bicyclist in the study area, which occurred on Route 275 (South Eagleville Road) at Eastwood Road. There were three crashes involving pedestrians in the study area, with one resulting in a fatality in 2021. The other two crashes involving pedestrians occurred at the intersection of Route 195 (Storrs Road) and Route 275 (South Eagleville Road) and across Route 195 (Storrs Road) at 1266 Storrs Road (The Daily Campus). Exhibit 14 shows location of these crashes.

Exhibit 14: Crashes by Involved Person



3.2 Public Transportation

As much of the study area lies within the UConn Campus, many residents within the area do not have access to a personal vehicle and rely on walking, biking, and public transportation. Exhibit 15 displays the transit options within the study area. Public transit services that serve the study area include:

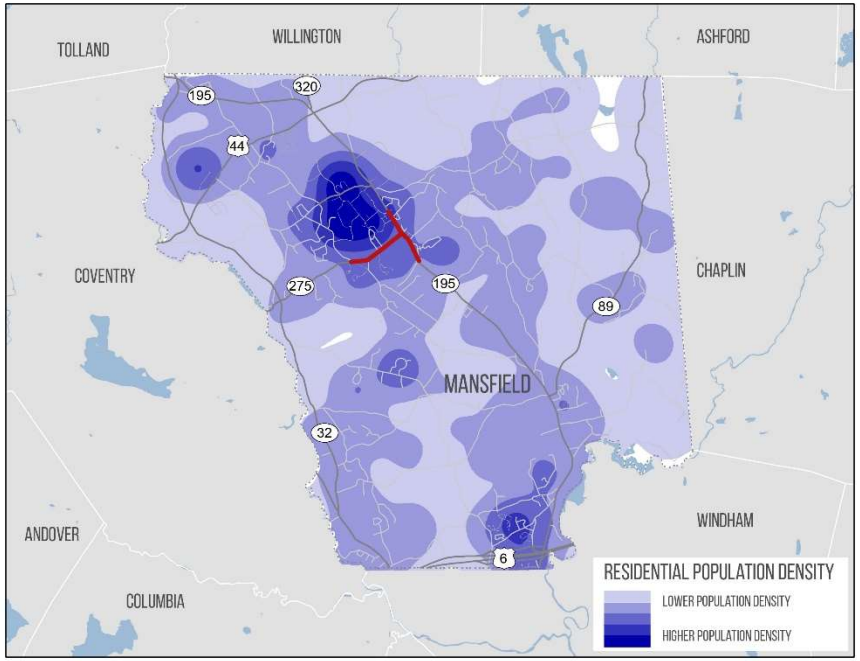
- UConn Shuttle
- WRTD bus to Willimantic
- CT Transit 913 to Hartford
- Peter Pan

Exhibit 15: WRTD and UConn Shuttle Routes in the Study Area

3.3 Population Density

Residential population density is highest in the north and west sides of the UConn campus. Lower population densities are found south of the study area along the Route 195 (Storrs Road) corridor. Exhibit 16 shows the density around the study area.

Exhibit 16: Residential Population Density



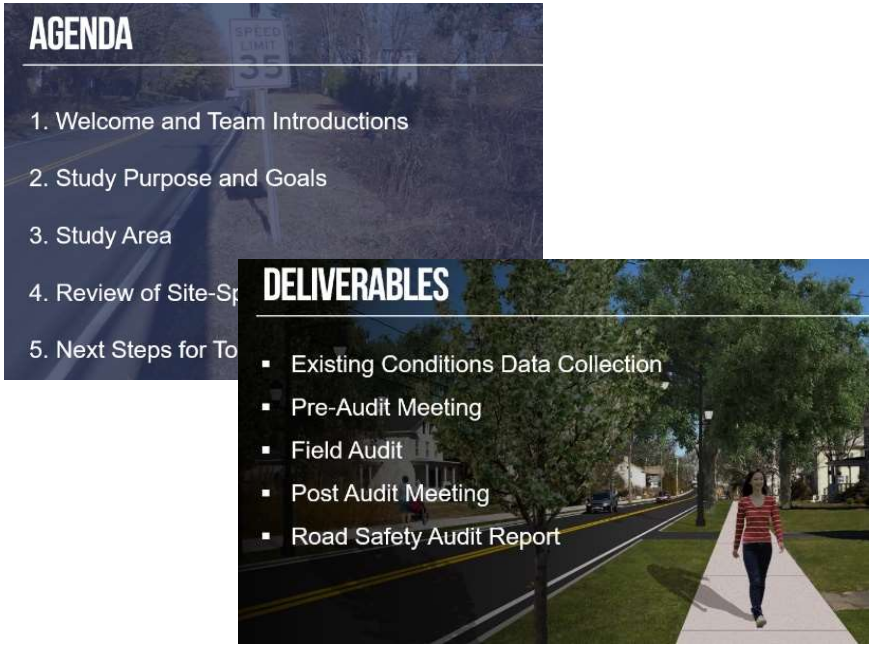
3.4 Pre-Audit Discussion

Immediately following the pre-audit presentation, a discussion followed that highlighted concerns and notes regarding the Mansfield RSA study area. Highlights from this discussion are presented below:

- Many crashes in the study area are classified as property damage only crashes that typically involve a single vehicle and cause over $1,000 worth of damages.
- Crashes in the study area are consistent with other crashes on State Routes. Nothing stood out after a statewide review of similar roadway types and severities.
- The project team will not be collecting lighting information as part of this Study. Although, lighting is believed to be an issue and recommendations for lighting improvements will be included in the final report.
- CT DOT is going to install RRFB's under state project 172-495 on Route 195 (Storrs Road) at the following locations:
    - Route 195 (Storrs Road) at 1244 Storrs Road (EO Smith High School)
    - Route 195 (Storrs Road) at 1220 Storrs Road (Price Chopper)
    - Route 195 (Storrs Road) north of Mansfield Road (Shippee Residence Hall)
    - Route 195 (Storrs Road) at 1132 Storrs Road (Storrs Center Cycle)
- The Town of Mansfield is considering installing RRFB's at three crosswalks on Route 275 (South Eagleville Road):
    - Route 275 (South Eagleville Road) at Westwood Road
    - Route 275 (South Eagleville Road) at Eastwood Road
    - Route 275 (South Eagleville Road) at 10 South Eagleville Road (Mansfield Community Center)
- The pedestrian crash resulting in a fatality on Route 275 (South Eagleville Road) at Eastwood Road occurred after the decorative painted crosswalk was removed. The prior decorative crosswalk did not feature reflective continental bars which increase crosswalk visibility. At the time of the crash the crosswalks were striped with regular, non-reflective paint. CTDOT plans to re-stripe with permanent reflective epoxy resin paint, however supply change shortages have limited epoxy resin painting statewide.
- The University is in the planning stages of a redevelopment project at Mansfield apartments. The project proposes a realignment of the in and out driveways to the apartments. The driveway closest to the exit (near Route 195 [Storrs Road]) will line up with entrance to the Town Hall. The project is still in schematic design and UCONN has committed funds for the project. The Apartment complex will be increasing by three-to-four times its current size. Exact numbers are undetermined at this time, but it is anticipated that the development will include 400 parking spaces and 900 beds. Currently there are about 125 parking spaces and about 270 beds at the site.
- There are many sideswipe same direction crashes on Route 195 (Storrs Road) (approximately 17 in a 5-year period) that could be resulting from parking maneuvers for the on-street parking. There are also many front-to-rear crashes (approximately 50 in a 5-year period) that are common in areas with a high concentration of driveways and intersections.

Sample slides from the pre-audit presentation are shown in Exhibit 17.

Exhibit 17: Sample slides from Pre-Audit Presentation



4 RSA ASSESSMENT

The following summary describes observations and discussion regarding issues and concerns throughout the Mansfield RSA study area. Exhibit 18 shows RSA participants engaging in conversation during the RSA. Discussions were held at each of the noted locations below.

Exhibit 18: RSA participants during the RSA Assessment date

4.1 Route 275 (South Eagleville Road) at Mansfield Community Center

- Sidewalk gap between bus stop on north side of Route 275 (South Eagleville Road) and Route 195 (Storrs Road).
- New UConn apartments redeveloping Mansfield Apartment complex will increase bed count from 270 bed to 900 bed and parking spaces from 125 spaces to 450 spaces.
    - In redevelopment – inner loop will be eliminated.
    - Exiting driveway from the apartment complex will be relocated to oppose the Mansfield Town Hall entrance driveway.
    - New apartments will increase importance for the existing crosswalk at Mansfield Community Center across Route 275 (South Eagleville Road) with an increase in pedestrian traffic. Treatments such as RRFB or pedestrian refuge island should be considered. Exhibit 19 displays the crosswalk on Route 275 (South Eagleville Road).

Exhibit 19: Crosswalk on Route 275 (South Eagleville Road) at Mansfield Community Center

4.2 Route 275 (South Eagleville Road) at Eastwood Road and Westwood Road

- Vertical curves are a concern and a challenge for sight lines for Route 275 (South Eagleville Road) westbound traffic approaching Eastwood

Road. Vertical sightlines should be evaluated based on required minimums for the 85th percentile speeds.

- Eastwood Road is a key cut through to UConn, especially in AM time period.
  - Eastwood Road will be getting Speed humps.
  - UConn & Town confirmed this access will be maintained through future. Participants discussed if access through this neighborhood would be maintained.
  - While the UConn Long Range plan has a potential connection to Route 275 (South Eagleville Road) east of Eastwood Road, this connection is unlikely to be pursued in the near future due to concerns from the nearby neighborhood.
- Visibility of crosswalks is a concern.
  - Downhill grade east of Eastwood Road creates concern for headlights hitting ground and nighttime visibility of crosswalk.
  - Some of the crosswalk signage may not be visible for some westbound drivers due to a vertical crest curve east of Eastwood Road. This should be further evaluated.
  - Very difficult to see crossings especially in inclement weather and nighttime.
- Fast turning traffic into Eastwood Road.
- The town does have Dynamic Speed Feedback signs but doesn't use them on state roads. Installed at each location for a maximum of 8 weeks.
- Lighting in this area should be evaluated. The wattage could be increased, and the light fixtures can be replaced with fixtures with longer mast arms to position the light closer to the center of the roadway.
- Long term – Town is interested in extending Route 195 (Storrs Road) streetscape down Route 275 (South Eagleville Road) with median islands.
- Sidewalk on Eastwood Road is fairly new, about 2-3 years old. However, the crosswalk on Route 275 (South Eagleville Road) was installed by CTDOT in 2000.
- If RRFB is installed, RRFB with advanced warning lights plus crosswalk LED light would be ideal. This is permitted under FHWA Interim Approval 21 (Rectangular Rapid-Flashing Beacons at Crosswalks) when sight distances are less than deemed necessary.
- Short term strategies to narrow the roadway:
  - Painted bump out with delineators – CTDOT would recommend against due to turning traffic and potential obstruction for bicyclists
  - Buffered bike lane
- Yield lines are not able to be installed at this crosswalk due to its location at an intersecting roadway. CTDOT guidance does not permit yield lines at intersections due to conflicting communication to drivers on the through roadway.
- Existing pavement markings are still temporary post-construction paint. Epoxy resin painting (with includes reflectivity) is on backorder. Painted crosswalk was observed to be fading.
- Missing curb ramps at Westwood Road.
- Exhibit 20 displays the crossing on Route 275 (South Eagleville Road).

Exhibit 20: Crosswalk on Route 275 (South Eagleville Road) at Eastwood Road.

Exhibit 21: Sidewalk on Route 275 (South Eagleville Road)

4.3 Route 275 (South Eagleville Road) between Westwood Drive and Maple Road

- This section has a sidewalk on the south side of Route 275 (South Eagleville Road) that could be widened to be incorporated into side paths being developed elsewhere on Route 275 (South Eagleville Road). See Exhibit 21 for an image of the existing sidewalk.
- 71 unit mixed-income redevelopment proposed at 113 and 121 South Eagleville Road.
- Consider relocating EB bus stop to an area with better sightlines (looking WB) – consider at Knollwood Road or with redevelopment.

4.4 Route 275 (South Eagleville Road) at Maple Road

- Participants felt this intersection performs well.
- Future shared use path will cross intersection.
- Consider width and turning radii. Existing condition leads to a long crossing at Maple Road, and observed condition suggests the intersection is larger than needed for the traffic regularly using this intersection.
- While not needed for traffic operations or safety at this intersection, roundabout would be of interest to provide gateway to area to the east and an area getting further redevelopment'.
- LOTCIP program will install sidewalk on Maple Road to Mansfield Middle School (approx 1.7 mile south). Exhibit 22 and Exhibit 23 show this intersection of Route 275 (South Eagleville Road) and Maple Road.

Exhibit 22: Route 275 (South Eagleville Road) at Maple Road

Exhibit 23: Intersection of Route 275 (South Eagleville Road) and Maple Road

4.5 Route 275 (South Eagleville Road) between Maple Road and Separatist Road

- A 10-ft shared use path is proposed on south side of South Eagleville Road.
  - Likely cut into hill with trail raised above road grade with fencing and wall on uphill side.
- Exhibit 24 shows Route 275 (South Eagleville Road) west of Maple Road.

Exhibit 24: Route 275 (South Eagleville Road) between Maple Road and Separatist Road

4.6 Route 275 (South Eagleville Road) at Separatist Road

- Mansfield committee considered roundabout at this location, could be maintained as a long-range plan.
- Project 172-496 will install signal at Separatist Road. It will be in design in June 2022.
  - Observed traffic in the eastbound direction indicated fast eastbound traffic and led to a concern that a nearby crest curve and traffic speeds may cause sight line concerns to the planned signal at this location. CTDOT will evaluate further in the design of this intersection.
  - CTDOT to share design speeds with designers to consider advanced signal ahead signage.
- Will include a pedestrian crossing (LPI with Sycamore Drive).
  - Consider right-turn sight lines to crosswalk.
  - Exhibit 25 shows the intersection.

Exhibit 25: Intersection of Route 275 (South Eagleville Road) and Separatist Road

4.7 Route 195 (Storrs Road) at Birchwood Heights Road and Flaherty Road

- Participants noted that there is pedestrian traffic during weekend events at off-campus student housing south of the existing end of the sidewalk. Participants believed that accommodations should be made, with an extension of a sidewalk to Birchwood Heights Road or shoulder improvements.
- Consider t-up of Flaherty Road

4.8 Route 195 at 1132 Storrs Road (Liberty Bank and Storrs Center Cycle)

- Consider continental markings on top of decorative crosswalk at mid-block crosswalks.
- The crosswalk location is very lightly utilized by pedestrians. The town indicated there was more pedestrian traffic when the sidewalk and crosswalk was originally designed.
- The crosswalk at this location is being upgraded under state project 172-495 which will include new signs and yield lines pavement markings.
- See Exhibit 26 for a photo of crosswalk at this location.

Exhibit 26: Crossing on Route 195 at Liberty Bank/Storrs Center Cycle

4.9 Route 195 (Storrs Road) between 1132 Storrs Road and Hanks Hill Road

- Bus pullout south of Hanks Hill Road can be removed – no longer used by WRTD.

4.10 Route 195 (Storrs Road) at Hanks Hill Road

- An area considered for RRFB – CTDOT would allow this even with flashing beacon.
- CT DOT would like to remove flashing beacon. Policy has been to remove flashing beacons as they have limited effectiveness and create driver confusion on signal indications for other approaches.
- Crosswalk was northwest of Hanks Hill Road (uphill) but moved in 2015 to provide connection to new walkway at Flaherty Road.
- Participants felt that prior location was better in terms of sightlines and position on hill. However, this should be verified with further analysis.
- Consider closing Flaherty Road for drivers.
- Consider walkway from existing Flaherty Road walkway to Hanks Hill Road and then to a relocated crosswalk to its prior location to the north of Hanks Hill Road.
- Consider continental markings on top of decorative crosswalk at mid-block crosswalks. See Exhibit 27 for a photograph of this location.

Exhibit 27: Route 195 (Storrs Road) at Hanks Hill Road

4.11 Route 195 (Storrs Road) at Route 275 (South Eagleville Road)

- Queues to Route 195 (Storrs Road) signal are observed to frequently back up on Route 275 (South Eagleville Road) past Mansfield Apartment driveway, making difficult for buses and traffic to exit driveway.
- Turning radii on the northeast corner appears less than adequate. Exhibit 28 displays this location.
  - Two lamps have been knocked down.
  - Pedestrian button and pedestrian countdown head are missing (was hit by semi-truck making right-turn.
  - Consider moving pedestrian pedestal and light near building. MUTCD allows the pedestrian pushbutton to be located a maximum of 6-ft from the curb and up to 5-ft upstream of the crosswalk.
  - Moving stop bar back?
- Evaluate lane arrangement especially in southbound direction. Exhibit 29 shows the southbound lane arrangement with a southbound bus turning right on Route 275 (South Eagleville Road) at this location. Consider two options for Route 195 (Storrs Road) southbound at this intersection:
  - A) convert right-lane to right-turn lane only, OR
  - B) Extend 2->1 merge south of intersection.
- Sidewalk on east side of Route 195 (Storrs Road) to Hanks Hill Road should be developed.
  - Difficult ROW, but Storrs Center developer owns parcels near this area. Would be included by town in site review if redeveloped.
- Northbound traffic – consider gateway at this location. No visual cues to downtown. Note gateway signage at Route 32 / 195, and UConn signage at Route 195 (Storrs Road) near Husky Village.
- During high school dismissal, northbound traffic blocks the intersection as they stop traffic on Route 195 (Storrs Road) to allow all buses to exit.

Exhibit 28:Traffic in the Route 195 (Storrs Road) and Route 275 (South Eagleville Road) Intersection

Exhibit 29: Bus making a right turn at the intersection of Route 195 and Route 275 (South Eagleville Road)

4.12 Route 195 (Storrs Road) at 1220 Storrs Road (Price Chopper)

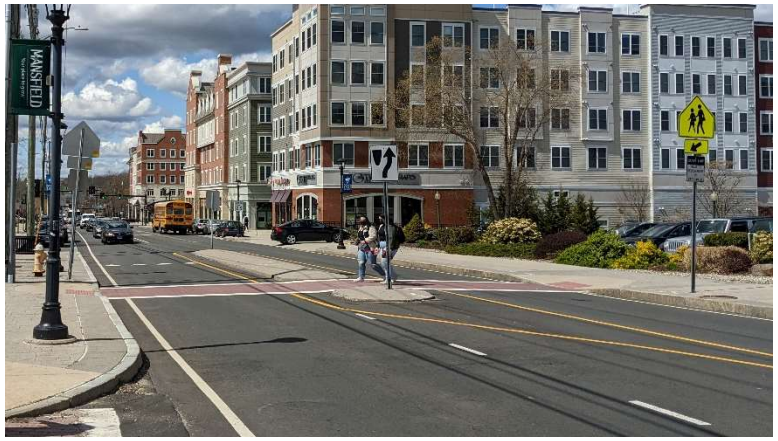
- RRFB will be installed at this location under state project 172-495.
- Participants of the RSA felt this location works well.
- Conversation on Price Chopper Driveway exit and crossing there. Some right-turning vehicles do not look for pedestrians on sidewalk. This driveway is a raised crossing. Opportunity of plaque to look for pedestrians? Consider continental markings on top of decorative crosswalk at mid-block crosswalks. Exhibit 30 displays the crosswalk at this location.

Exhibit 30: Route 195 (Storrs Road) at Price Chopper

4.13 Route 195 (Storrs Road) at 1244 Storrs Road (Betsy Paterson Square)

- RRFB will be installed at this location.
- Participants of the RSA felt this location works well.
- Consider continental markings on top of decorative crosswalk at mid-block crosswalks. Exhibit 31 displays this location.

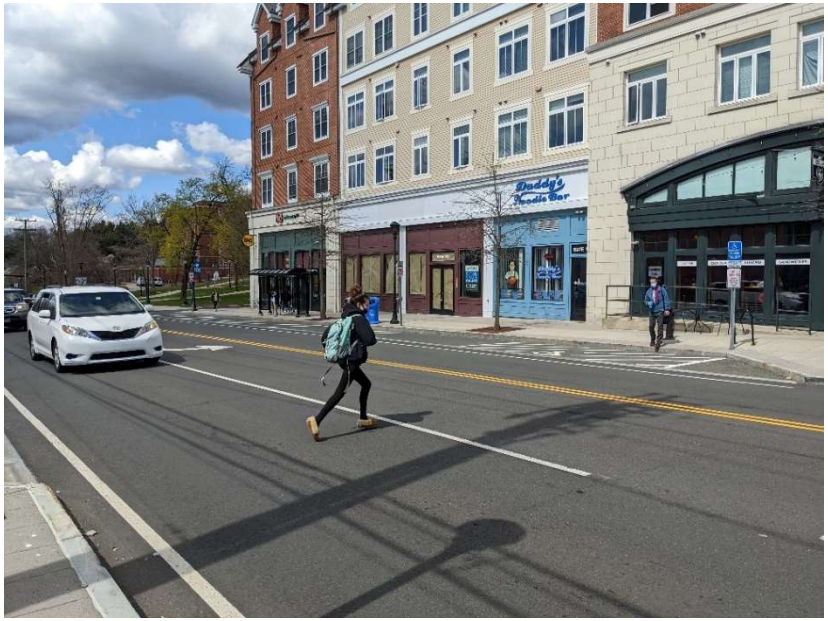
Exhibit 31: Midblock crosswalk at 1244 Storrs Road.



4.14 Route 195 (Storrs Road) at Dog Lane

- This location has heavy pedestrian crossing between School of Arts and Dog Lane Café and apartments and Downtown Storrs. See Exhibit 32.
- Participants discussed that only striping a crosswalk here would not be safe due to the double threat posed by the left-turn lane and southbound through traffic.
    - Queues in southbound direction are constant, but open left-turn lane would create situation in which a motorist may stop to let pedestrian go without knowing of a passing left-turn vehicle
- Crosswalk would be safer with elimination of the left-turn lane and a pedestrian refuge island at this location. Would need to evaluate left-turn volume at Bolton Road. Appears to be light in volume. Perhaps the length of the lane was sized based on higher estimated turning volume in the planning stages of the development?
- Median island could allow for elimination of the pork-chop right-turn island at Dog Lane as the right-turn restriction could be enforced with the median island.
- Town would consider eliminating Dog Lane eastbound (one-way WB only).

Exhibit 32: Pedestrian Jay-walking north of Dog Lane



5 RECOMMENDATIONS

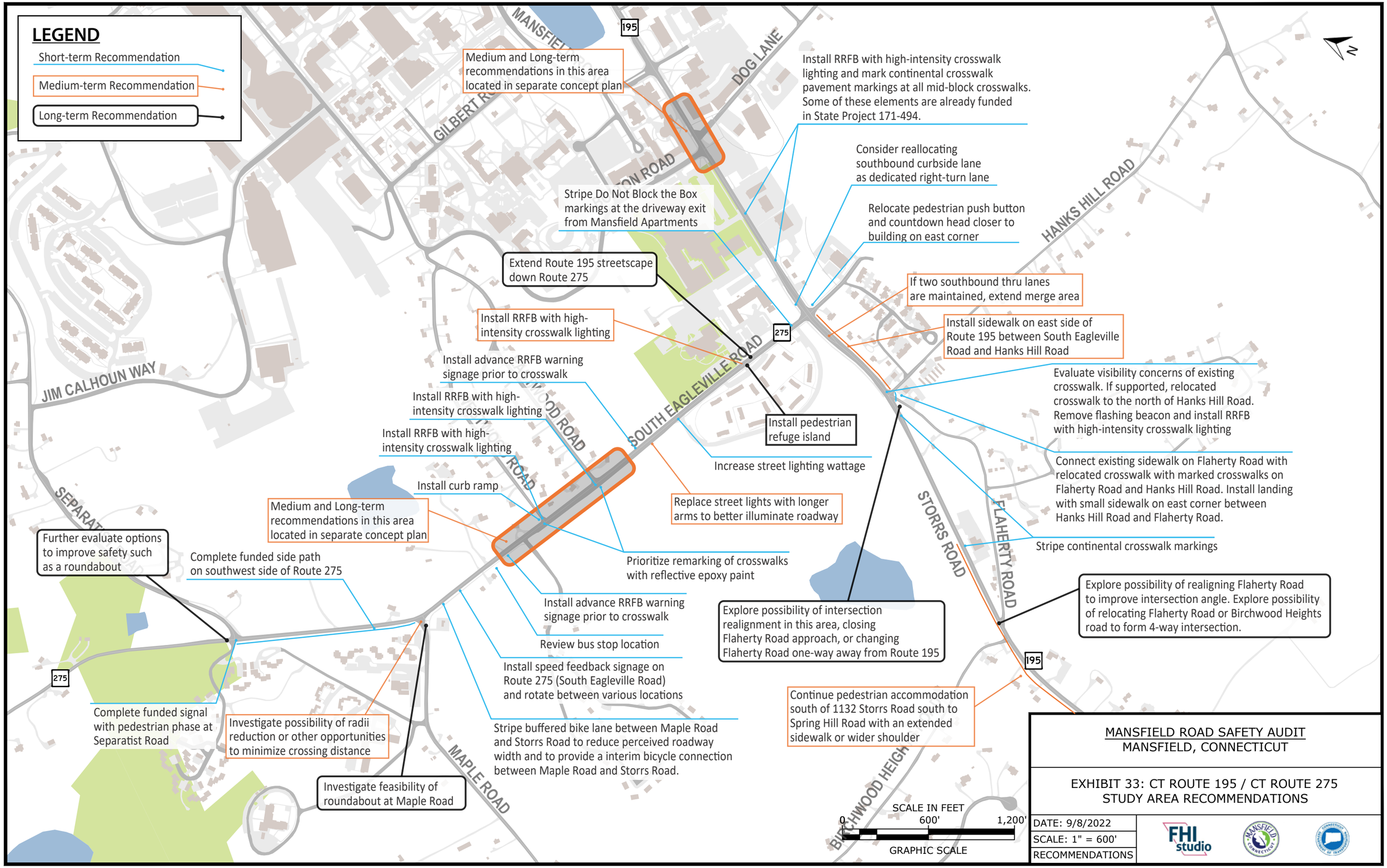
Based on the findings discussed during the RSA, the RSA team compiled a set of recommendations for the study area. These recommendations are organized by study area location. The report includes two focus areas, the first being on Route 195 (Storrs Road) between 1266 Storrs Road (The Daily Campus) and Dog Lane, and the second focus area on Route 275 (South Eagleville Road) between Eastwood Road and Westwood Road. These locations were selected due to recommended roadway reconfiguration in these areas which were better depicted with conceptual graphics. Selection of these areas as focus area does not reduce the importance of other areas identified in this report, and does not indicate that these area are of higher priority than other recommendations in this report. These areas are provided in further detail with conceptual drawings of potential recommendations in this area.

All recommendations for all locations are divided into short-term, medium-term, and long-term recommendations.

- Short-term recommendations: These are improvements that are simpler and could be completed on a quick timeline. These recommendations are low-cost alternatives such as striping and signage. These recommendations generally do not require extensive engineering or construction costs. More extensive recommendations which have funding previously committed may be included. These projects are defined as those that may be complete within two years.
- Medium-term recommendations: These are improvements that may require more substantial engineering than those generally included as short-term recommendations. These may require establishment of funding in capital improvement plans, or a dedicated funding item. However, these recommendations are generally simpler than long-term recommendations and generally do not include ROW acquisition etc. These projects are defined as those that may be completed in two-to-five years.
- Long-term recommendations: These are improvements that require substantial study and engineering. These recommendations generally require significant funding for implementation and may require several years of planning to budget. These projects are defined as those recommendations that may take five years or longer to complete.

It should be noted that any work within the State ROW to be done by non-State forces will require an encroachment permit from the District 2 Permit Office and/or an official request from the Mansfield Local Traffic Authority.

Exhibit 33 displays the recommendations of the overall study area on a map. Further detail is provided in the sections below, while Exhibit 36 and Exhibit 38 provided conceptual graphics of Route 275 (South Eagleville Road) between Eastwood Road and Westwood Road and Route 195 (Storrs Road) between 1266 Storrs Road (The Daily Campus) and Dog Lane respectively.



MANSFIELD ROAD SAFETY AUDIT
MANSFIELD, CONNECTICUT

EXHIBIT 33: CT ROUTE 195 / CT ROUTE 275
STUDY AREA RECOMMENDATIONS

DATE: 9/8/2022	
SCALE: 1" = 600'	
RECOMMENDATIONS	

5.1 Route 275 (South Eagleville Road) at between Route 195 (Storrs Road) and Eastwood Road

Short-term

1) Stripe "Do Not Block the Box" pavement markings at the driveway exit from Mansfield Apartment.
2) Study photometrics for lighting consistency, temperature, and other factors. Refer to *Pedestrian Lighting Primer* published by FHWA. Consider increasing street lighting by replacing bulbs with higher wattage between Route 195 (Storrs Road) and Maple Road.
3) Stripe buffered bike lanes between Maple Road and Route 195 (Storrs Road) on both sides of roadway to reduce perceived roadway width and to provide an interim bicycle connection between Maple Road and Route 195 (Storrs Road). Recommended lane markings within the existing 40-ft curb-to-curb width include:
    a) 2 x 11-ft travel lanes
    b) 2 x 6-ft bike lanes
    c) 2 x 3-ft striped buffer

Medium-term

1) Replace streetlights with longer arms to better illuminate roadway
2) Install RRFB with high-intensity crosswalk lighting between Mansfield Community Center and Mansfield Apartments. Refer to Exhibit 34 for an example of an RRFB during the daytime, while Exhibit 35 shows an RRFB system with high-intensity crosswalk lights.

Long-term

1) Install pedestrian refuge island at the crosswalk between Mansfield Community Center and Mansfield Apartments
2) Extend Route 195 (Storrs Road) streetscape down Route 275 (South Eagleville Road) as part of the redevelopment of the Mansfield Apartments complex

Exhibit 34: An example of RRFB (Source: CTDOT)

Exhibit 35: An example of a crosswalk high intensity light integrated with an RRFB at night in West Hartford, CT. Note – The yellow flashers are not activated in this photo to demonstrate the crosswalk light.

5.2 Route 275 (South Eagleville Road) at Eastwood Road and Westwood Road

Short-term

1) Install RRFB with high-intensity crosswalk lighting at crosswalks at Eastwood Road and Westwood Road. Install advance RRFB warning signage prior to crosswalks. This is permitted under FHWA Interim Approval 21 (Rectangular Rapid-Flashing Beacons at Crosswalks) when sight distances are less than deemed necessary.
2) Install curb ramp at Westwood Road
3) Prioritize remarking crosswalks with retro-reflective epoxy paint
4) Study photometrics for lighting consistency, temperature, and other factors. Refer to *Pedestrian Lighting Primer* published by FHWA. Consider increasing street lighting by replacing bulbs with higher wattage between Route 195 (Storrs Road) and Maple Road.
5) Stripe buffered bike lanes between Maple Road and Route 195 (Storrs Road) on both sides of roadway to reduce perceived roadway width and to provide an interim bicycle connection between Maple Road and Route 195 (Storrs Road). Recommended lane markings within the existing 40-ft curb-to-curb width include:
    a) 2 x 11-ft travel lanes
    b) 2 x 6-ft bike lanes
    c) 2 x 3-ft striped buffer

Medium-term

1) Widen roadway as necessary (approx. 4-ft) to incorporate lateral deflection, stripe dedicated left-turn lanes to Westwood Road and Eastwood Road and to install pedestrian refuge islands opposite proposed left-turn lanes. Note a utility facility south of the intersection with Eastwood Road. Consider the following cross-section
    a) 2x 11-ft travel lanes
    b) 2 x 5-ft shoulder
    c) 1 x 12-ft center median / turn lane (with 8-ft raised pedestrian refuge island)
2) Install RRFB at curb and in median with high-intensity crosswalk lighting
3) Install 10-foot multi-use sidepath between Maple Road and Route 195 (Storrs Road) to connect to planned sidepath between Maple Road and Separatist Road. This sidepath replaces the need for temporary buffered bike lanes striped in the short term recommendations.
4) Replace streetlights with longer arms to better illuminate roadway

Long-term

1) Review vertical curvature issues on Route 275 (South Eagleville Road)
2) Install sidewalk on Westwood Road

LEGEND

- Short-term Recommendation
- Medium-term Recommendation
- Long-term Recommendation

Short-term Recommendations found on study area map

WESTWOOD ROAD

EASTWOOD ROAD

SOUTH EAGLEVILLE ROAD

275

KNOLLWOOD ROAD

Install sidewalk on east side of Eastwood Road

Install sidewalk on Westwood Road

Move crosswalk to south of Westwood Road. Install RRFB at curb and in median with high-intensity crosswalk lighting

Widen roadway as necessary to provide proposed cross-section:
2 x 11-ft travel lanes
2 x 5-ft shoulder
12-ft painted median

Stripe crosswalk across Westwood Road

Advanced RRFB prior to crosswalk

Install landing to crosswalk at Westwood Road

Install landscaped median island to serve as pedestrian refuge island

Install landing to crosswalk at Eastwood Road

Review vertical curvature issues on Route 275

Advanced RRFB prior to crosswalk

Stripe dedicated left-turn lane to Westwood Road

Extend proposed 10-foot multi-use side path between Maple Road and Storrs Road

Stripe dedicated left-turn lane to Eastwood Road

Install landscaped median island to serve as pedestrian refuge island

Note utility facility in this area

SCALE IN FEET
0 80' 80'
GRAPHIC SCALE

MANSFIELD ROAD SAFETY AUDIT
MANSFIELD, CONNECTICUT

CT ROUTE 275 (S EAGLEVILLE RD)
EASTWOOD RD - WESTWOOD RD CONCEPT PLAN

DATE: 9/7/2022	
SCALE: 1" = 80'	
CONCEPT	

5.3 Route 275 (South Eagleville Road) between Westwood Road and Maple Road

Short-term

1) Review bus stop location in eastbound direction west of Knollwood Road. Consider moving adjacent to Knollwood Road.
2) Install speed feedback signage on Route 275 (South Eagleville Road) and rotate between various locations
3) Study photometrics for lighting consistency, temperature, and other factors. Refer to *Pedestrian Lighting Primer* published by FHWA. Consider increasing street lighting by replacing bulbs with higher wattage between Route 195 (Storrs Road) and Maple Road.
4) Stripe buffered bike lanes between Maple Road and Route 195 (Storrs Road) on both sides of roadway to reduce perceived roadway width and to provide an interim bicycle connection between Maple Road and Route 195 (Storrs Road). Recommended lane markings within the existing 40-ft curb-to-curb width include:
   a) 2 x 11-ft travel lanes
   b) 2 x 6-ft bike lanes
   c) 2 x 3-ft striped buffer

Medium-term

1) Replace streetlights with longer arms to better illuminate roadway

5.4 Route 275 (South Eagleville Road) at Maple Road

Medium-term

1) Investigate possibility of radii reduction or other opportunities to minimize crossing distance at the intersection of Route 275 (South Eagleville Road) and Maple Road. Stripe crosswalk across Maple Road following the construction of the side path to the west of this intersection.

Long-term

1) Investigate feasibility of roundabout at Maple Road. Refer to Exhibit 37 for an example of a modern decorative roundabout in Glastonbury, CT.

Exhibit 37: A modern roundabout in Glastonbury, CT serves a safer intersection control compared to a conventional signalized intersection[1] but also reduces vehicle travel speeds for motorists entering the town center. (Source: FHI Studio)

[1]Roundabouts overall have been found to have a 78% reduction in crashes resulting in fatality or injury compared to signalized intersections. This is based on Federal Highway Administration research: safety.fhwa.dot.gov/provencountermeasures/roundabouts

5.5 Route 275 (South Eagleville Road) between Maple Road and Separatist Road

Short-term

1) Complete funded side path on southwest side of Route 275 (South Eagleville Road).
2) Complete funded signal with pedestrian phase at Separatist Road

Long-term

1) Further evaluate long-term safety improvements such as a roundabout at the intersection of Route 275 (South Eagleville Road) and Separatist Road.

5.6 Route 195 (Storrs Road) at Birchwood Heights Road and Flaherty Road

Medium-term

1) Continue pedestrian accommodation south of 1132 Storrs Road south to Spring Hill Road with:
   a) Widened shoulder with roadway widening, OR
   b) 5-foot sidewalk

Long-term

1) Explore possibility of realigning Flaherty Road to improve intersection angle. Explore possibility of relocating Flaherty Road or Birchwood Heights road to form 4-way intersection.

5.7 Route 195 (Storrs Road) between Birchwood Heights Road and Hanks Hill Road

Short-term

1) Stripe continental crosswalk markings over existing mid-block decorative crosswalks to improve visibility at 1232 Storrs Road (Storrs Center Cycle)

5.8 Route 195 (Storrs Road) at Hanks Hill Road and Flaherty Road (North)

Short-term

1) Evaluate visibility concerns of existing crosswalk. If supported, relocate crosswalk at Hanks Hill Road to north of the intersection to improve visibility to this crosswalk. Remove flashing beacon at intersection and install RRFB with high-intensity crosswalk lighting.
2) Connect existing sidewalk on Flaherty Road to the relocated crosswalk with crosswalks across Flaherty Road and Hanks Hill Road. Install landing with sidewalk on east corner between Hanks Hill Road and Flaherty Road

Medium-term

1) Install sidewalk on east side of Route 195 (Storrs Road) between Route 275 (South Eagleville Road) and Hanks Hill Road

Long-term

1) Explore possibility of intersection realignment in this area, closing Flaherty Road approach, or changing Flaherty Road one-way away from Route 195 in this area given the atypical roadway geometry.

5.9 Route 195 (Storrs Road) at Route 275 (South Eagleville Road)

Short-term

1) Reinstall and relocate pedestrian assembly on northeast corner closer to building to avoid damage from turning large vehicles. MUTCD allows positioning the pedestrian push button a maximum of 6-feet from the curb and a maximum of 5-feet upstream from the crosswalk.
2) Consider reconfiguring southbound curbside lane as a dedicated right-turn lane. Preliminary results with traffic volumes collected in April 2022 during the mid-day peak period shows adequate operation in this configuration. Evaluate further. Preliminary results (see Appendix for capacity results) shows the following:
    a) Southbound level of service (LOS) is maintained nearly identical. LOS for this movement is maintained at LOS C with delay increasing slightly from 20.3 seconds to 20.9 seconds.
    b) 95th percentile queues for the southbound through movement increase moderately from an existing 167 feet to 295 feet (+77%). This is south of the driveway to Price Chopper. However, this result should be verified in the field. Field review found predominant usage by thru traffic of the left thru lane. Therefore, an increase in the southbound queues may be less than modeled due to this observed condition in the existing case.
    c) Consider further capacity analysis at nearby signalized intersections and the driveway to 1220 Storrs Road (Price Chopper) as a result of the proposed lane configuration.

5.10 Route 195 (Storrs Road) between Route 275 (South Eagleville Road) and Dog Lane

Short-term

1) Install RRFB with high-intensity crosswalk lighting and mark continental crosswalk pavement markings at all mid-block crosswalks.

5.11 Route 195 at Dog Lane

Medium-term

1) Install decorative crosswalk with continental crosswalk marking overlay at Dog Lane. Install RRFB at this location.
2) Remove channelization island and reconstruct northeast curb radii.
3) Install landscaped median between 1266 Storrs Road (The Daily Campus) and Dog Lane. Utilize this median as a pedestrian refuge island.
    a) RSA participants agreed that a pedestrian refuge island is necessary to provide safe crossing at this location. Without an island, left-turning vehicles could speed by queue thru vehicles in the southbound direction, and not see pedestrians attempting to cross the roadway at this location.

b) To accommodate proposed crosswalks, extend curb extensions as appropriate. This results in the loss of 2 on-street parking spaces in this area.

c) The proposed landscaped median prohibits left-turns from Route 195 (Storrs Road) to Dog Lane and reduces the left-turn storage length at Bolton Road, preliminary SYNCHRO analysis (see Appendix for capacity results) shows the proposed left-turn storage length (100 feet) is sufficient for 95th percentile queues in the mid-day peak volume period.

    i) This analysis is based on an existing southbound left-turn volume of 50 vehicles per hour. A sensitivity analysis conducted revealed that this turn lane is able to handle a left-turn volume of up to 200 vehicles per hour, all other volumes being equal.

    ii) Consider further capacity analysis at nearby signalized intersections and the intersection of Route 195 (Storrs Road) and for additional time periods and during event dates when traffic activity may be busier due to UConn events.

4) Consider converting Dog Lane to one way westbound between Royce Circle and Route 195 (Storrs Road).

LEGEND

- Short-term Recommendation
- Medium-term Recommendation
- Long-term Recommendation

Short-term Recommendations found on study area map

Consider converting Dog Lane to one-way westbound between Royce Circle and Route 195

Install decorative crosswalk with continental crosswalk marking overlay at Dog Lane and install RRFB

Remove channelization island and reconstruct corner. Left turns prohibited via landscaped median

Install landscaped median between 1266 Storrs Rd (The Daily Campus) and Dog Lane

Lengthen curb extension to enhance visibility for proposed crosswalk

Southbound left-turn storage to Bolton Road reduced to approximately 100 feet. Preliminary analysis indicates sufficient storage length for this movement.

Prohibit left-turns from Storrs Road to Dog Lane with landscaped median island.

DOG LANE

BOLTON ROAD

STORRS ROAD 195

SCALE IN FEET
0 50' 100'
GRAPHIC SCALE

MANSFIELD ROAD SAFETY AUDIT
MANSFIELD, CONNECTICUT

CT ROUTE 195 (STORRS RD)
BISHOP CR - BOLTON RD CONCEPT PLAN

DATE: 9/8/2022
SCALE: 1" = 50'
CONCEPT

6 SUMMARY

This report documents the observations, discussions, and recommendations developed during the completion of the Town of Mansfield's RSA. It provides the Town with an outlined strategy to improve the transportation network for all users in the study area, particularly focusing on pedestrians and cyclists. Moving forward, the Town of Mansfield and CTDOT may use this report to prepare strategies for funding and implementing the improvements. This report provides Mansfield with a toolkit to plan for including these multi-modal recommendations into future development within the study area.

The aforementioned Community Connectivity Program: Road Safety Audit Report is an objective review intended for the municipality use to help assess the existing conditions within a predetermined area of town selected by the municipality. The conclusions of this report are advisory and intended for general planning purposes to help identify bicycle, pedestrian and non-motorized transportation needs that encourage walking and bicycling, as well as assists in developing recommendations to improve the existing conditions. The contents of this report are not intended to be legally binding, but rather offer recommendations to improve safety in the vicinity of the audit location and create a more appealing transportation alternative.

APPENDICES

A: Pre-Audit Presentation

B: Walk Audit Materials

C: Intersection Volumes

D: Planning Estimate SYNCHRO Reports

Mansfield Road Safety Audit

Meeting Location: Virtual Meeting

Date and Time: April 26th, 2:00 PM – 3:00 PM

Agenda

1. **Welcome and Introductions**
2. **Pre-Audit Presentation and Discussion**
    - Definition of Study Area
    - Review Site Specific Data
        - Average Daily Traffic
        - Crash Data
        - Geometrics
3. **Walk Audit Procedures and Safety**

Notes for Participants

- All participants will be actively involved in the process throughout. Participants are encouraged to come with thoughts and ideas, as stakeholders' 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.

Mansfield Road Safety Audit

Meeting Location: Mansfield Town Hall

Address: 4 S Eagleville Rd

Date and Time: April 27th, 12:00 PM

Agenda

4. **Welcome and Introductions**
5. **Review of Road Safety Audit Route**
6. **Audit**
    - Visit Study Area
    - Complete Audit Checklist
    - Identify issues and opportunities for improvements
7. **Post-Audit Discussion**
    - Discussion observations and finalize findings
    - Discuss potential improvements and final recommendations
    - Next Steps

Notes for Participants

- All participants will be actively involved in the process throughout. Participants are encouraged to come with thoughts and ideas, as stakeholders' 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.

Mansfield 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	

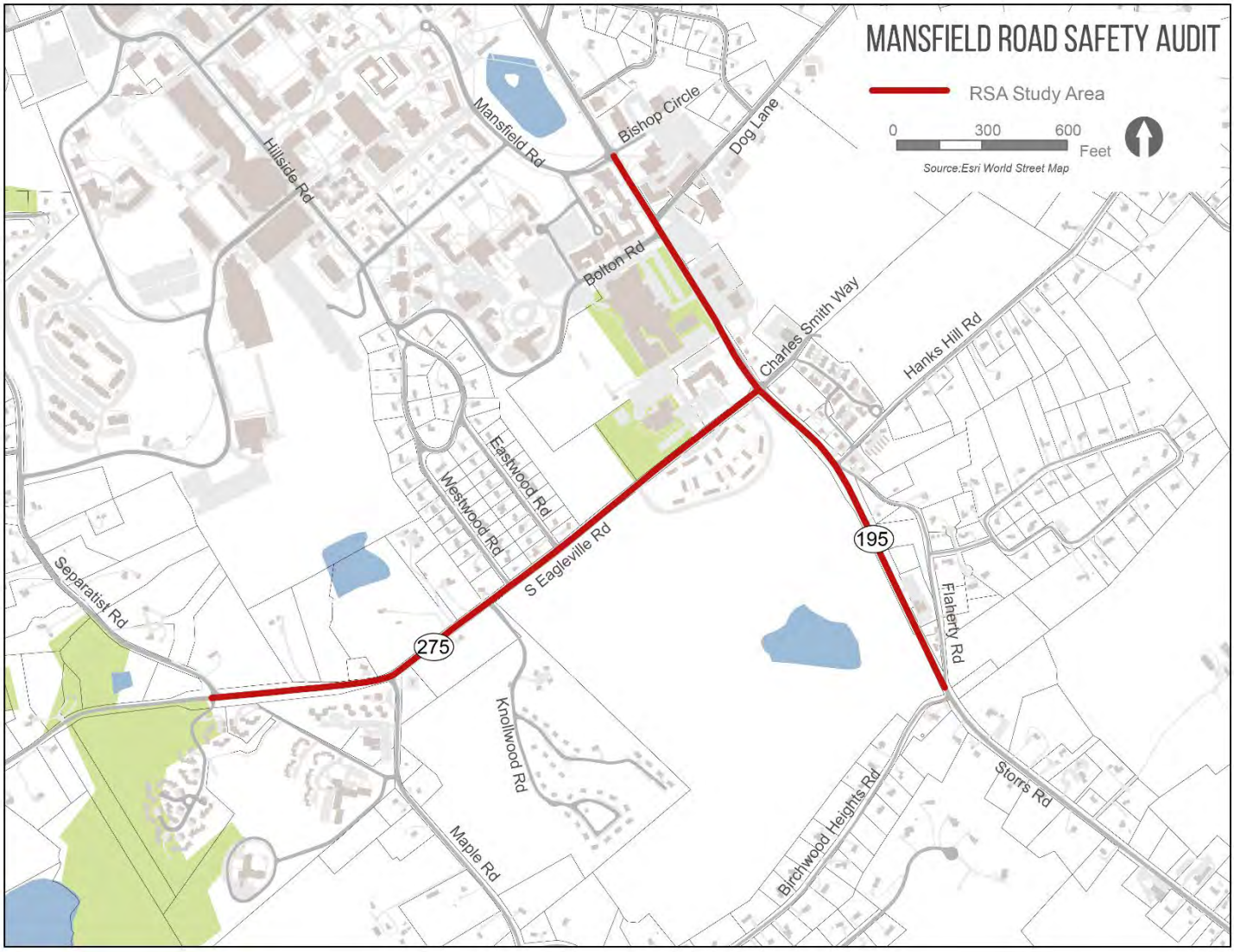
• Signals
  o Proper visibility
  o Proper operation
  o Efficient operation
  o Safe placement of equipment
  o Proper sight distance
  o Adequate capacity	

• 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	

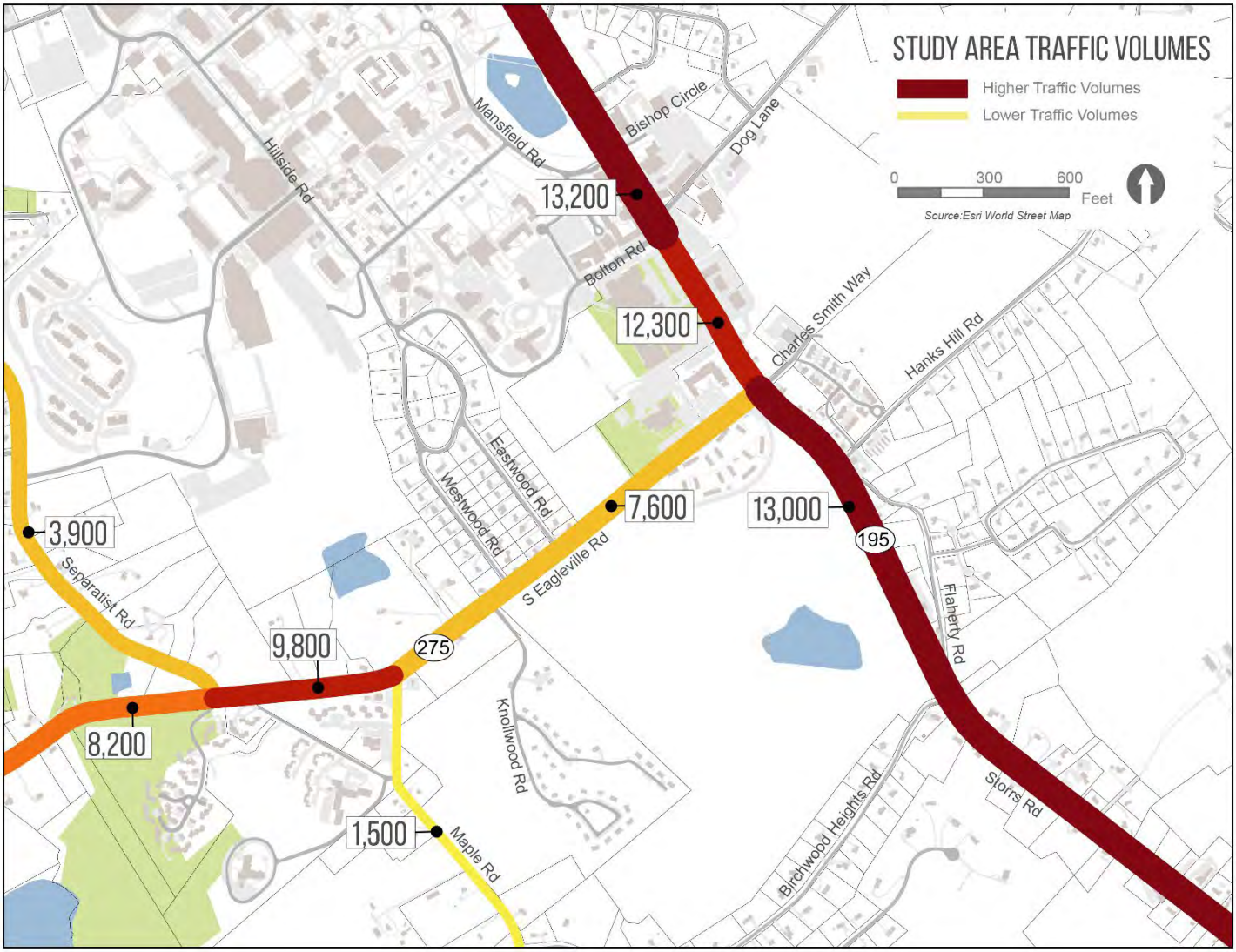
Mansfield Road Safety Audit - Study Area

- Route 195 (Storrs Road) between Mansfield Road and Birchwood Heights Road
  Route 275 (South Eagleville Road) between Storrs Road and Separatist Road



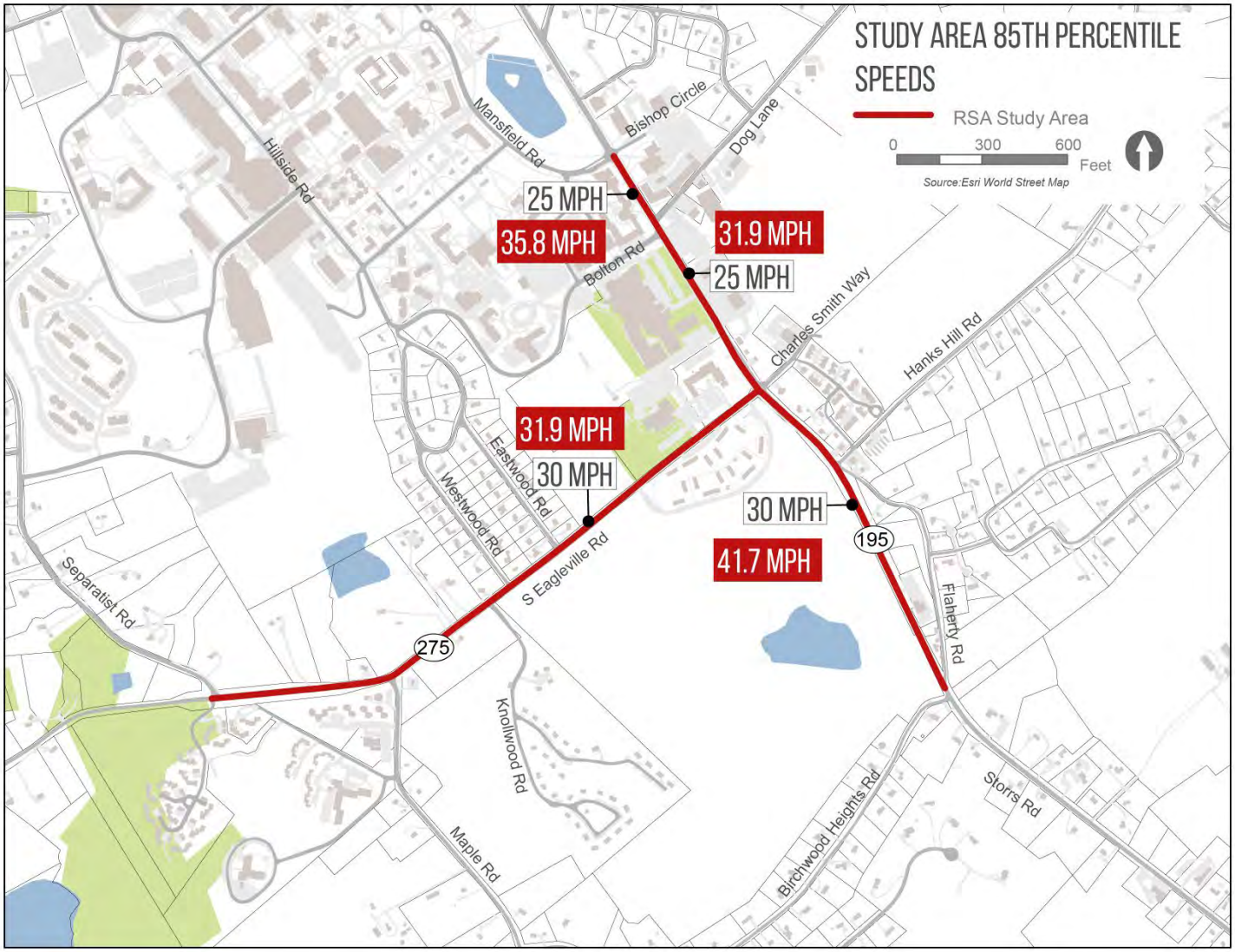
Mansfield Road Safety Audit - Average Daily Traffic Volumes in 2017

- Highest traffic volumes on Route 195 (Storrs Road)
- High volumes on Route 275 (South Eagleville Road)
- Lowest volumes on Maple Road

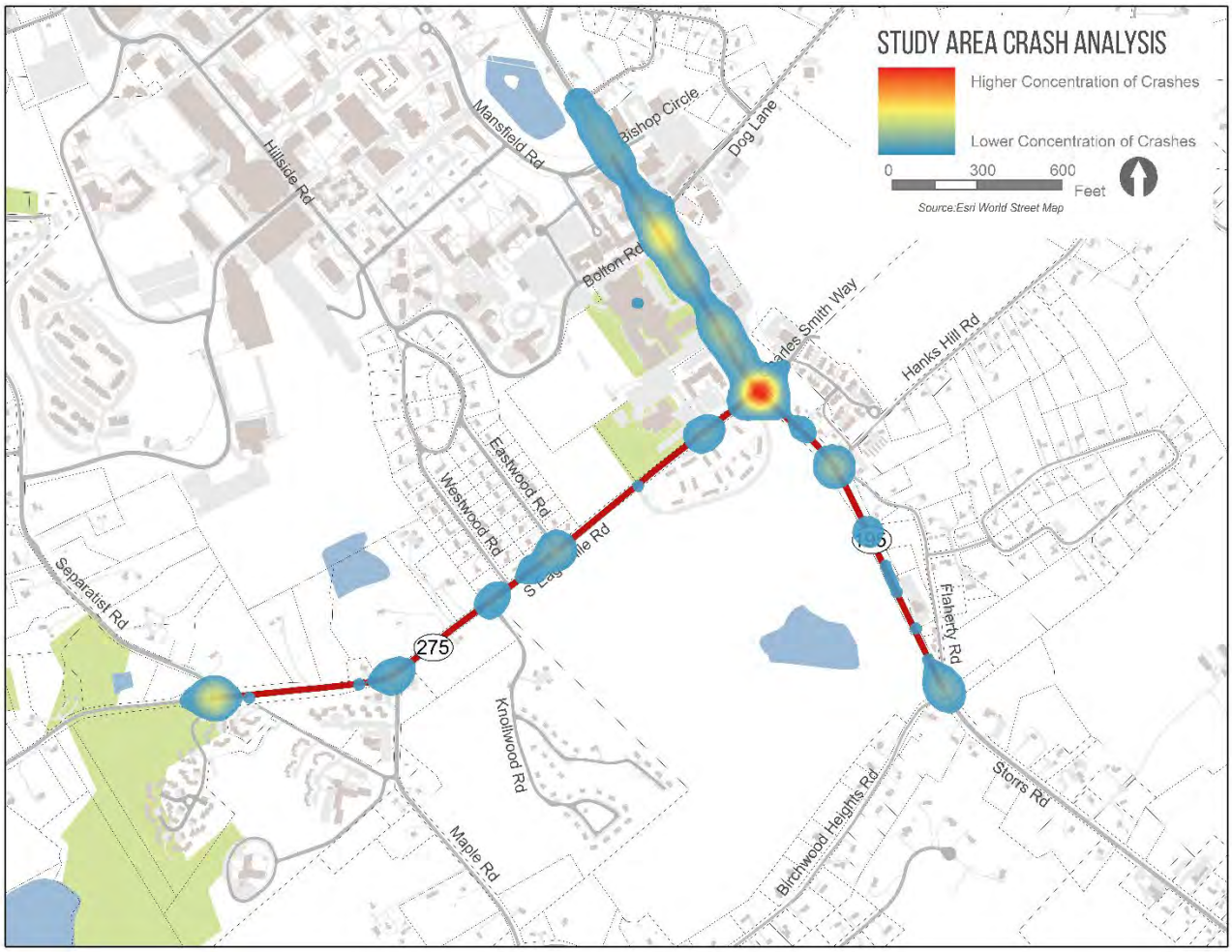


Mansfield Road Safety Audit – Posted Speed Limits

- Speed limit in Study Area is ranges from 25 MPH to 30 MPH
- 85th percentile speeds as high as 41.7 MPH on Storrs Road south of Hanks Hill Road



Mansfield Road Safety Audit - Crash Summary Heat Map



Mansfield Road Safety Audit - Crash Summary

Years: 2017 - 2021

		Crash Severity					
		Fatal Injury	Serious Injury	Minor Injury	Possible Injury	No Apparent Injury, Property Damage Only	**TOTAL**
Crash Type	Front to Rear			5	4	53	62
	Front to Front			1		4	5
	Angle			4	3	33	40
	Sideswipe, Same Direction					18	18
	Sideswipe, Opposite Direction					1	1
	Rear to Side					1	1
	Rear to Rear						
	Not Applicable / Single Vehicle	1		8		13	22
	Other			1	1	6	8
	TOTAL	1		19	8	129	157
	Crashes Involving Pedestrians	1		2			3
	Crashes Involving Bicyclists			1			1

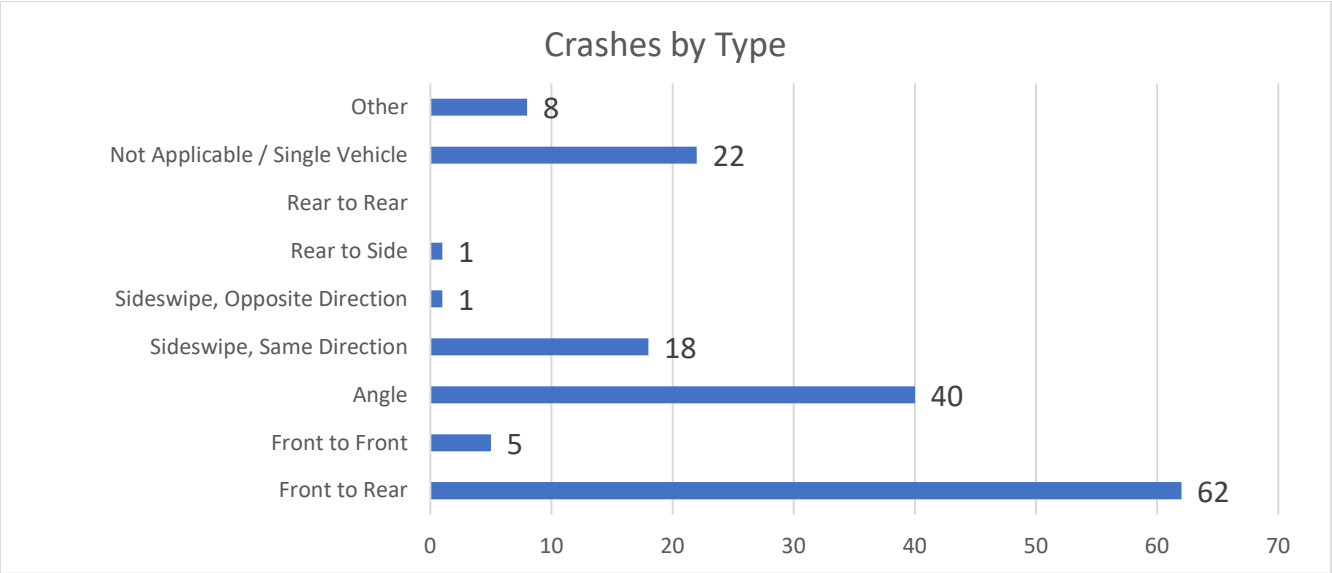
Summary Analysis:

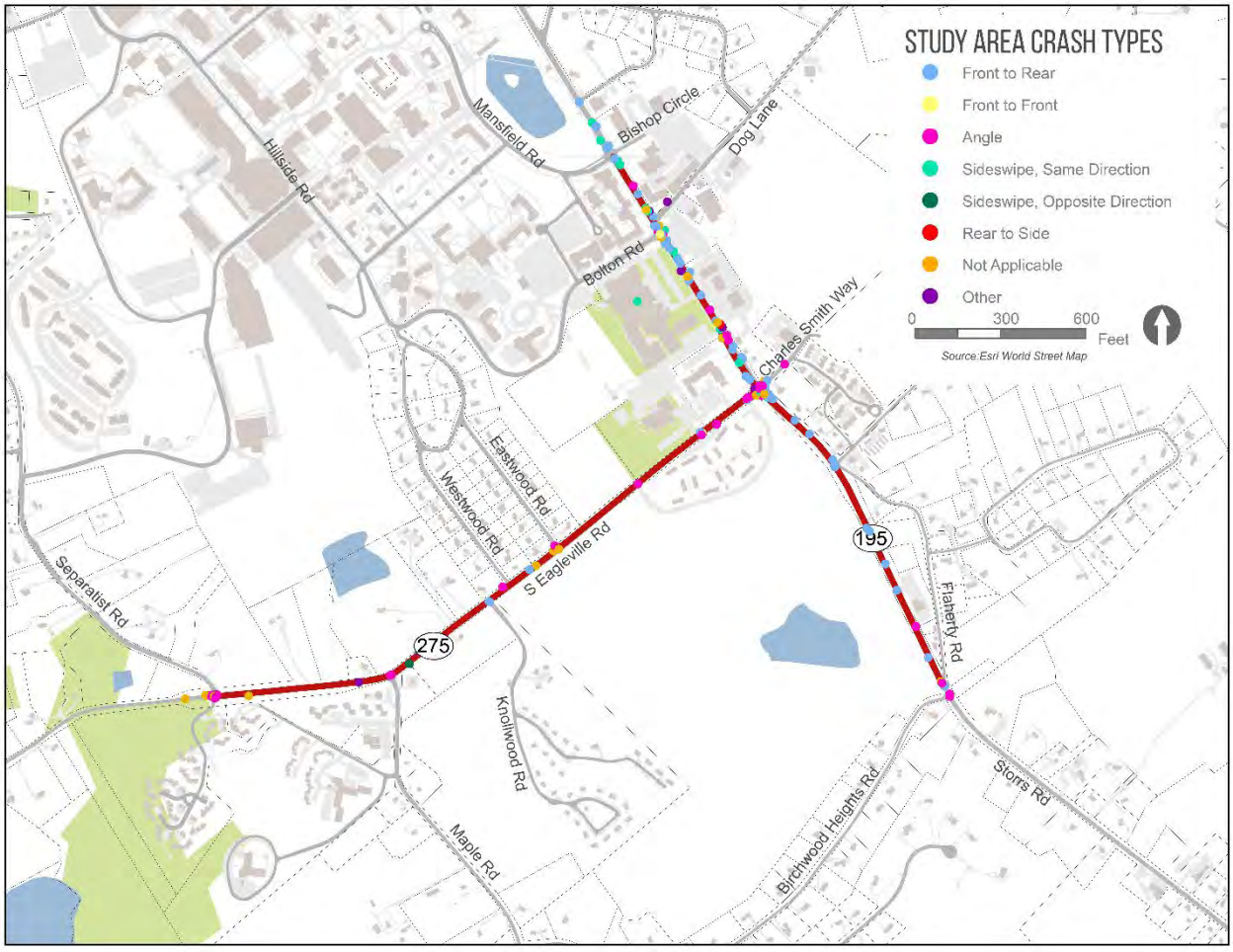
Crash Hotspots (5 Year Crash Total approx.) 157 Crashes Total

- Near Route 195/Route 275 – 41 Crashes
- Route 195 between Route 275 and Bolton Road – 27 Crashes
- Route 195/Bolton Road – 23 Crashes
- Route 275/Separatist Road – 15 Crashes
- Route 195/Hanks Hill Road – 7 Crashes

Mansfield Road Safety Audit Crash Summary - Crashes by Type

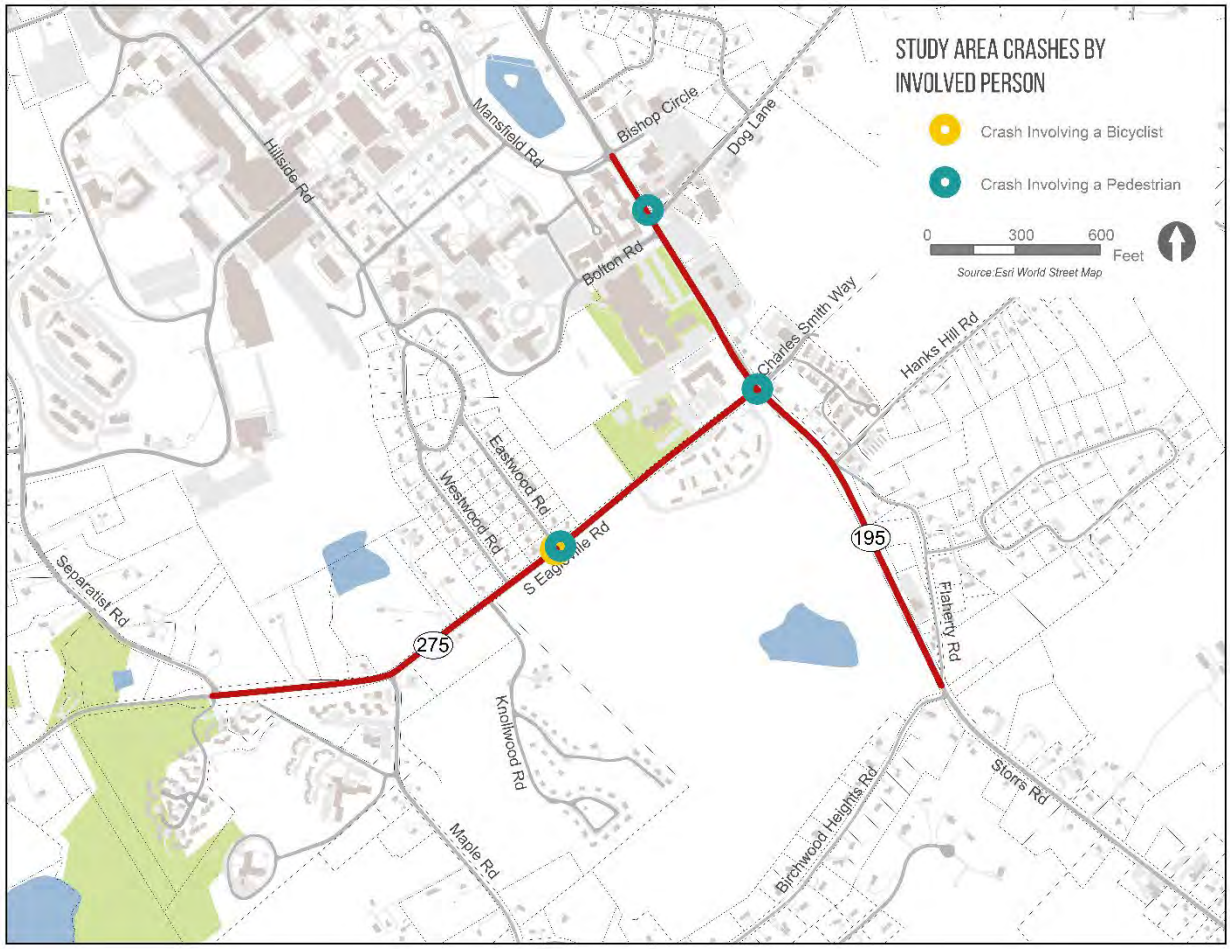
- Majority of crashes are front to rear, angle crashes, or single vehicle crashes





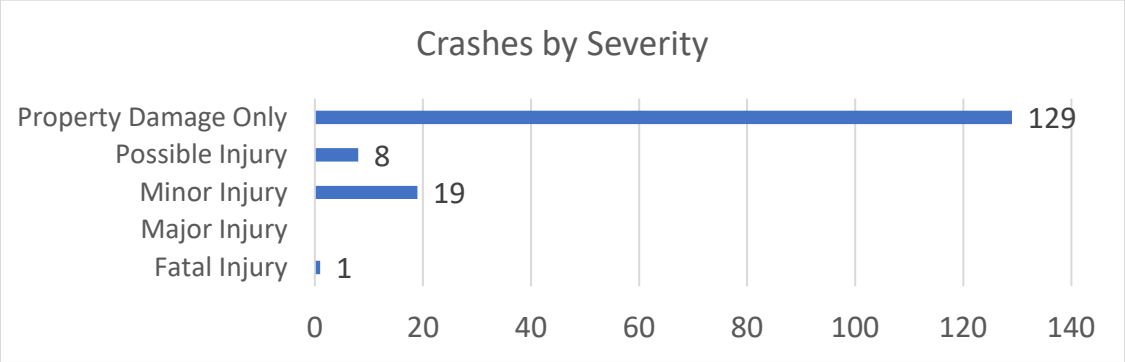
Mansfield Road Safety Audit Crash Summary - Crashes by Involved Person

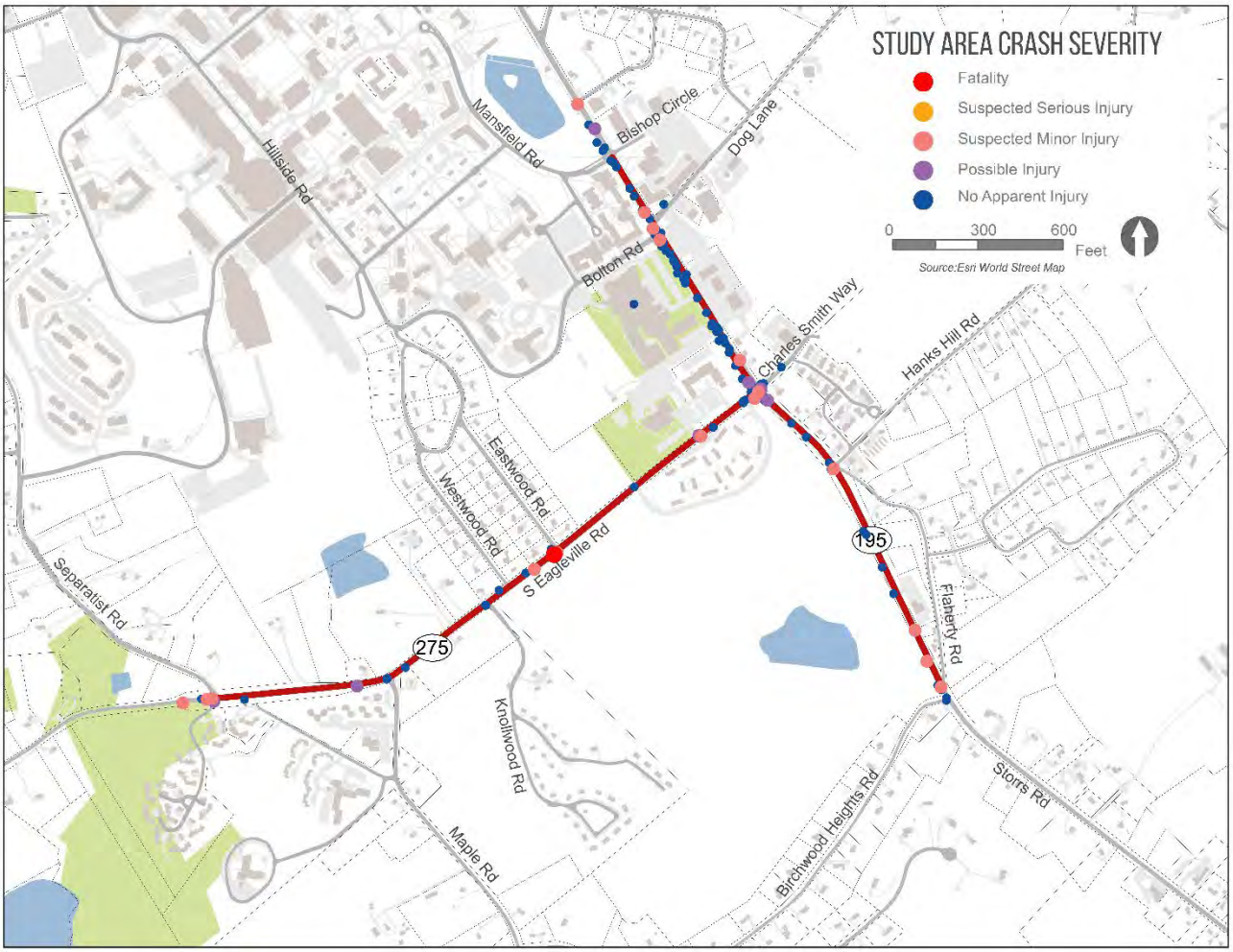
- There were 3 crashes involving pedestrians in the Study Area
- 2 crashes involving pedestrians on Route 195 resulted in minor injury
- 1 pedestrian crash at Eastwood Road resulted in a fatality
- There also was 1 crash involving a bicyclist on Eastwood Road



Mansfield Road Safety Audit Crash Summary - Crash Severity

- Majority of crashes (129) are classified as No Apparent Injury- Property Damage Only
- There were 8 crashes resulting in a possible injury and 19 minor injury crashes
- 1 1 crash in 2019 resulting in a fatality at Eastwood Road

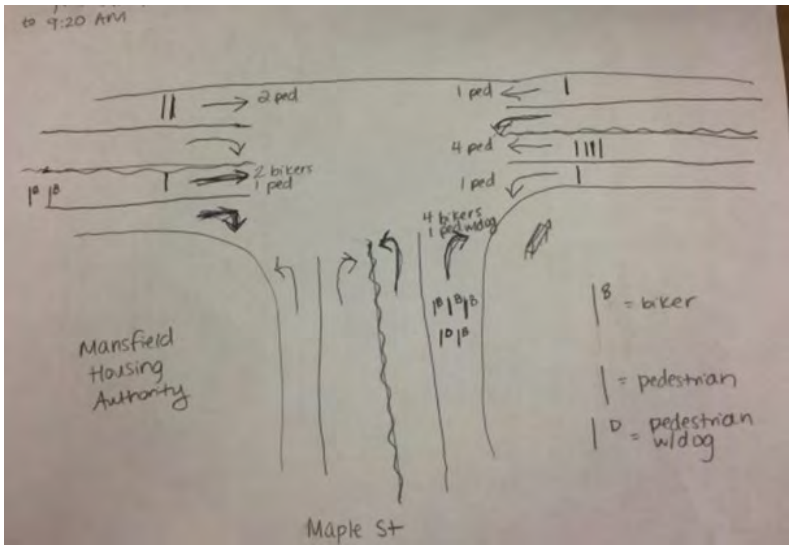




Mansfield Road Safety Audit – Review of Past and Current Work

- Storrs Center development on Route 195
- Painted crosswalks on Route 275
- Pedestrian and Bicycle counts in 2016

Storrs Center mixed use development. Image Credit: Google Street view



Pedestrian and Bicyclist count diagram, 2016
Image Credit: Town of Mansfield Engineering Department

Mansfield Road Safety Audit - Post Audit Discussion Guide

Safety Issues:

- Confirmation of safety issues identified during the pre-audit meeting and the walk audit

Potential Recommendations to Address Issues:

- **Short Term Recommendations**

- **Medium Term Recommendations**

- **Long Term Recommendations**

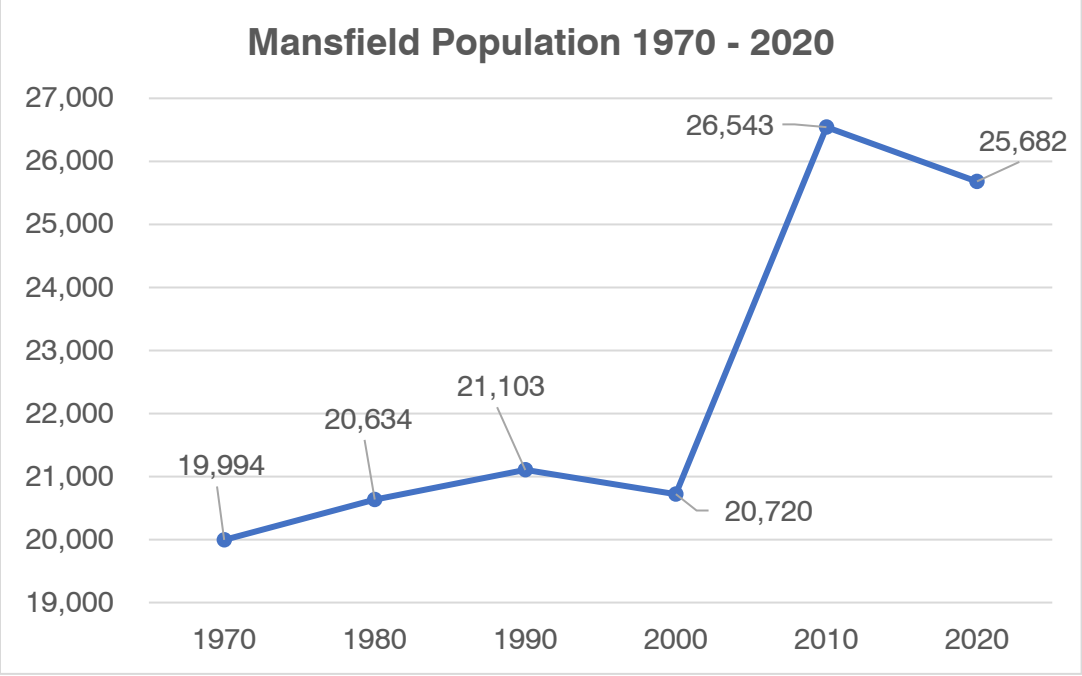
Next Steps

- Discussion involving implementation strategies and responsibilities and funding sources

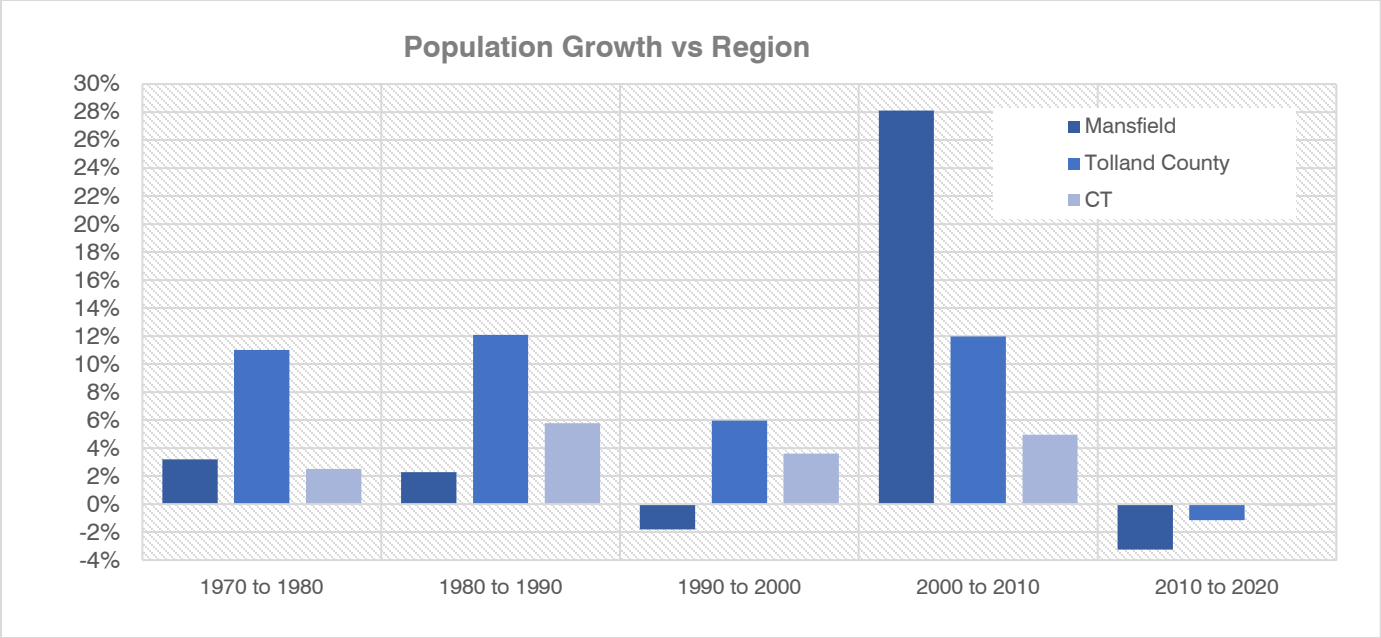
Mansfield Road Safety Audit – Mansfield Fact Sheet

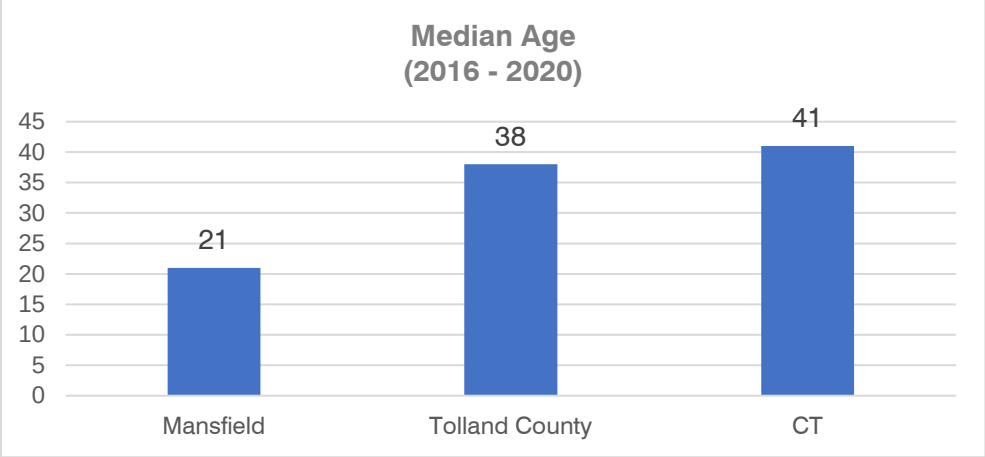
Demographic Highlights[1]:

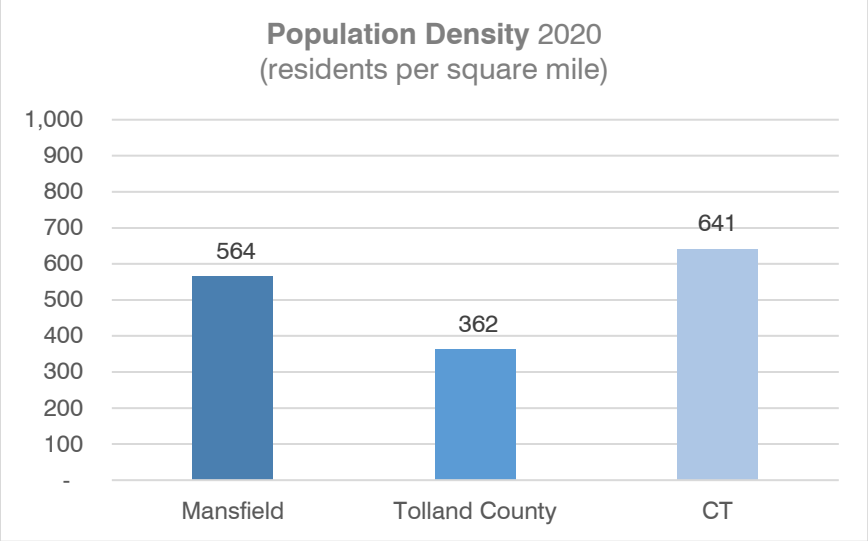
- Total population in Mansfield is 25,682.
- Mansfield has saw significant growth between 2000 and 2010. Mansfield, Tolland County, and the State all declined in population between 2010 and 2020.
- There are approximately 564 residents per square mile in Mansfield which is greater than the density of Tolland County but less than the State as a whole.
- The median age in Mansfield is 21 which can be attributed to the college age population. Tolland County's median age is 38 and the State's is 41 years old.
- Mansfield's non-white population makes up just over 18% of the total population. This is about that of Tolland County's non-white population (12.9%) and below the State's non-white population (25.8%).
- The poverty rate in Mansfield is 26.8%, which can be attributed to the large student population who may not have an income.

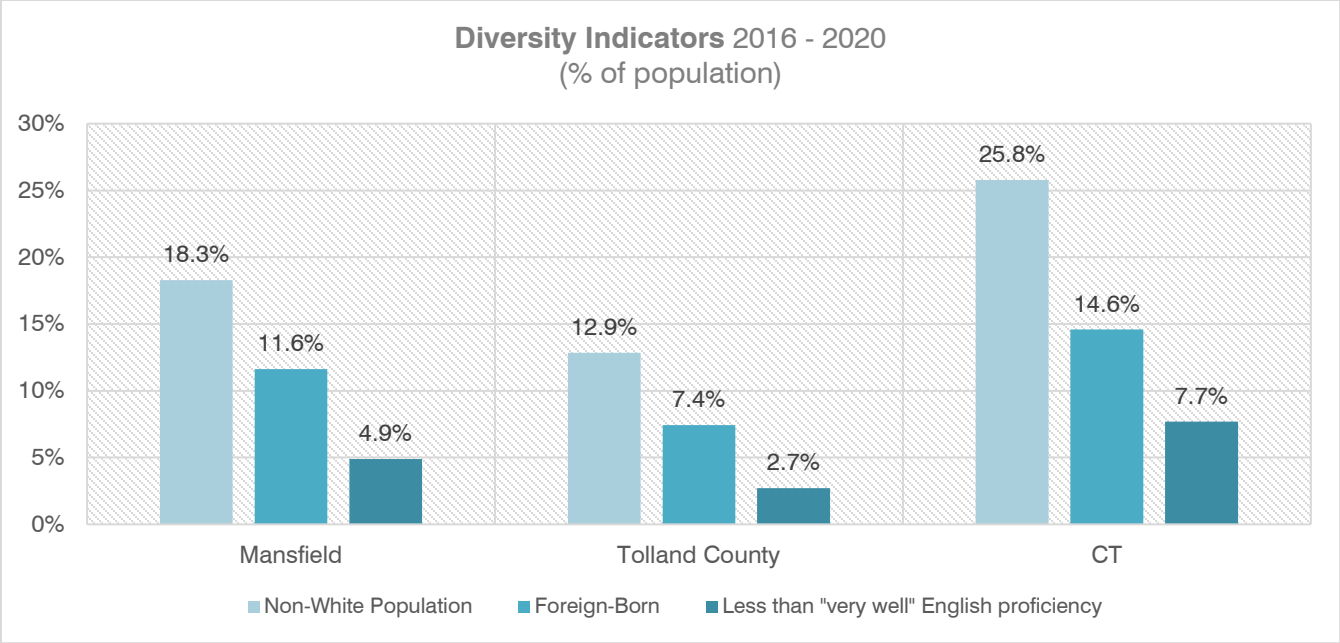


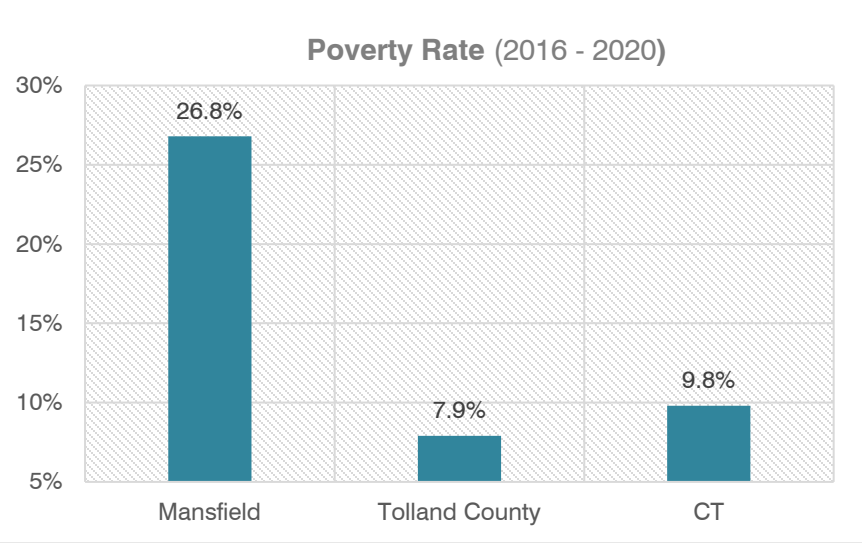
[1] 2020 Decennial Census and 2016- 2020 American Community Survey, 5- year estimate table DP05, Accessed on 4/25/2022 at https://data.census.gov/cedsci/


Population Growth vs Region
30%
28%
26%
24%
22%
20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
-2%
-4%
1970 to 1980
1980 to 1990
1990 to 2000
2000 to 2010
2010 to 2020
Mansfield
Tolland County
CT


Median Age
(2016 - 2020)
45
40
35
30
25
20
15
10
5
0
21
38
41
Mansfield
Tolland County
CT


Population Density 2020
(residents per square mile)
1,000
900
800
700
600
500
400
300
200
100
-
564
362
641
Mansfield
Tolland County
CT

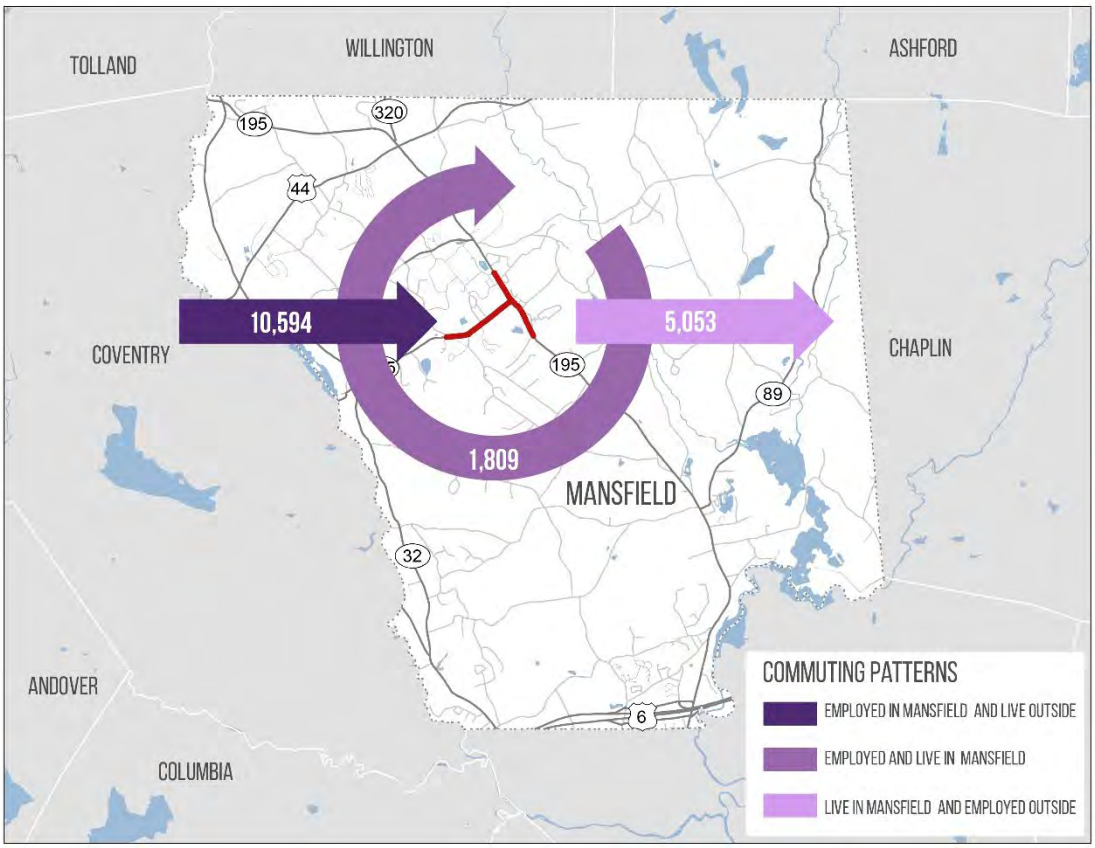

Diversity Indicators 2016 - 2020
(% of population)
30%
25%
20%
15%
10%
5%
0%
18.3%
11.6%
4.9%
12.9%
7.4%
2.7%
25.8%
14.6%
7.7%
Mansfield
Tolland County
CT
Non-White Population
Foreign-Born
Less than "very well" English proficiency


Poverty Rate (2016 - 2020)
30%
25%
20%
15%
10%
5%
26.8%
7.9%
9.8%
Mansfield
Tolland County
CT

Mansfield Safety Audit – Mansfield Fact Sheet

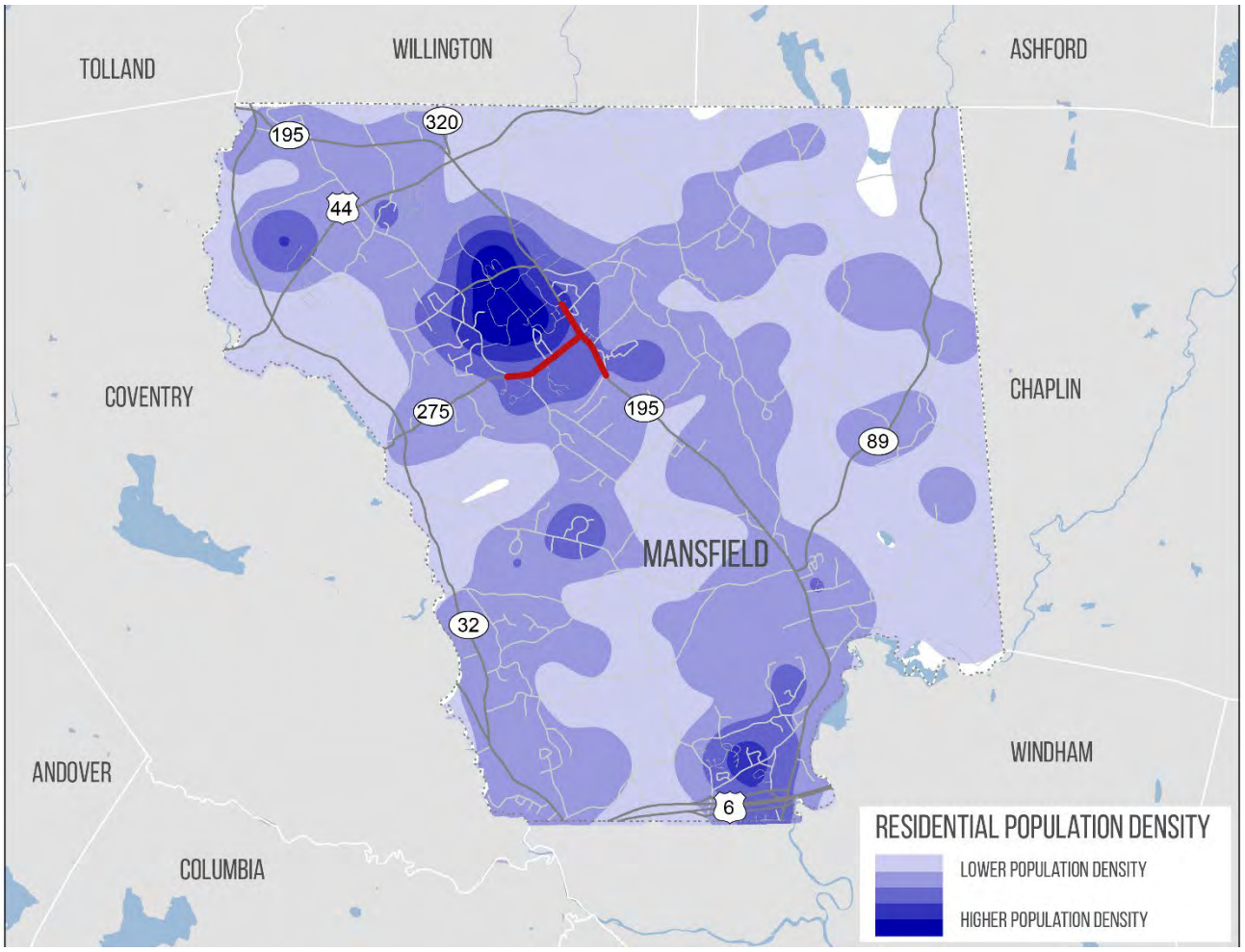
Employment Highlights[2]:

- There were approximately 10,594 workers commuting into Mansfield for employment in 2019. Approximately 1,809 residents of Mansfield are also employed in Mansfield and 5,053 Mansfield residents commuted out of town for employment. (2019)
- The top five employment destinations for Mansfield's residents include:
    - Hartford
    - Storrs
    - Willimantic
    - East Hartford
    - Norwich
- The Study Area and surrounding neighborhoods have a medium population density. The Study Area is home to a variety of uses including the University of Connecticut, commercial businesses, civic uses such as Town Hall, Community Center, and E.O. Smith High School, restaurants, and residential neighborhoods and student housing.



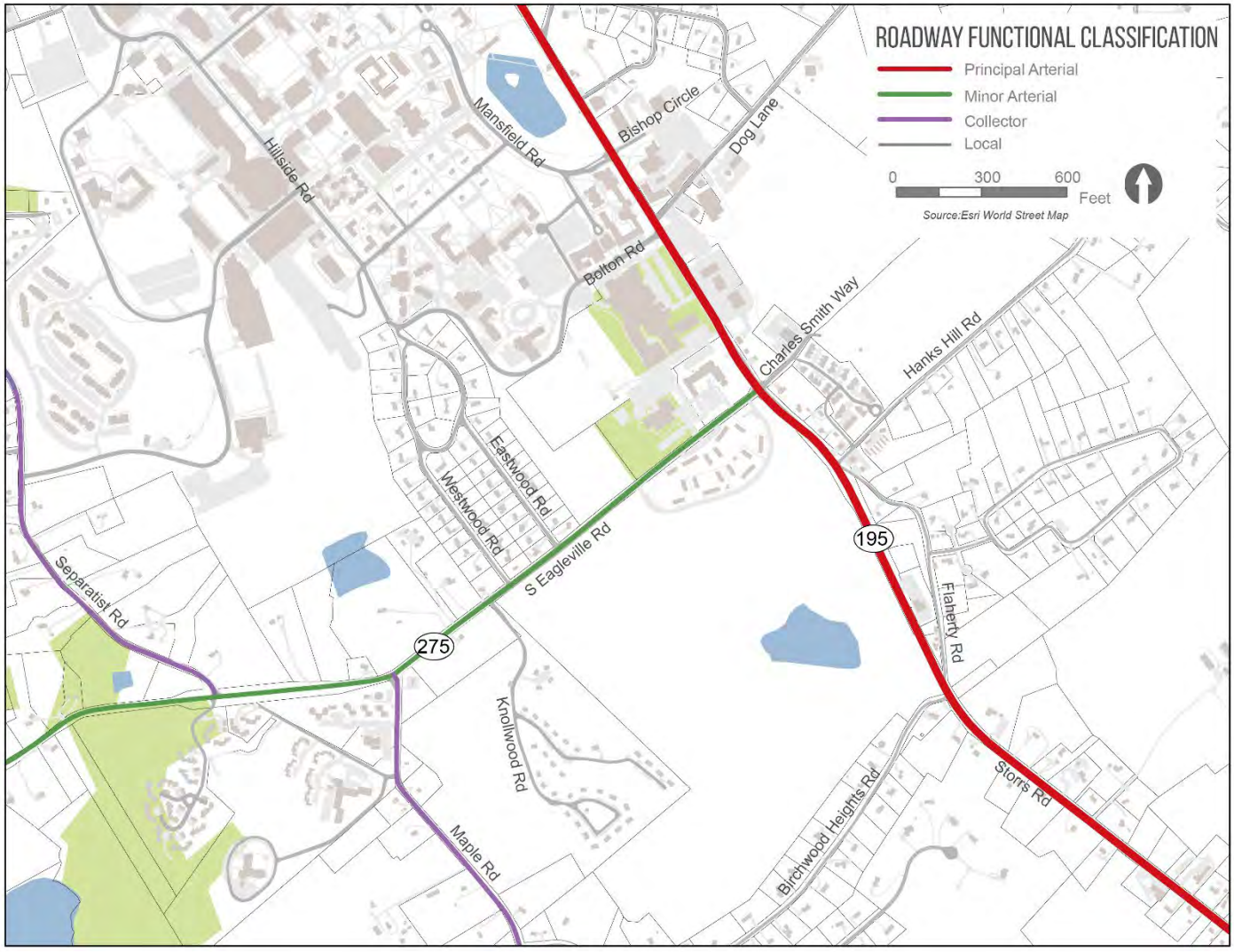
[2] U.S. Census Bureau. (2021). LEHD Origin-Destination Employment Statistics (2002-2019) All Jobs. Washington, DC: U.S. Census Bureau, Longitudinal-Employer Household Dynamics Program, accessed on April 25, 2022 at https://onthemap.ces.census.gov. LODES 7.5

Residential Population Density



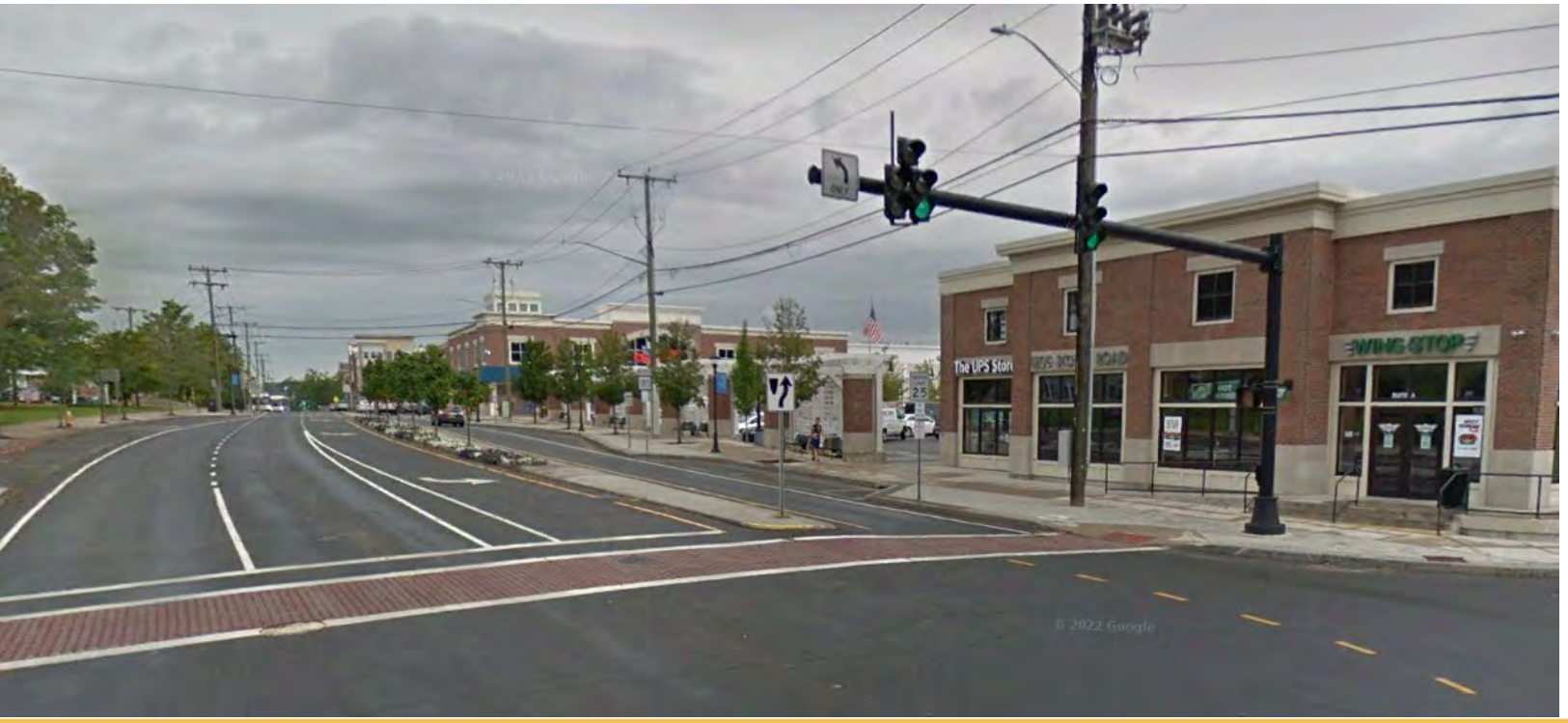
Mansfield Road Safety Audit – Roadway Functional Classification

- Route 195 is a Principal Arterial Roadway
- Route 275 is a Minor Arterial Roadway
- Separatist and Maple Roads are Collector Roadways
- Other streets that intersect the Study Area are Local Roads



MANSFIELD ROAD SAFETY AUDIT

ROUTE 195 and ROUTE 275



CONNECTICUT DEPARTMENT OF TRANSPORTATION 125 1895 - 2020

MANSFIELD · CONN · INCORPORATED · OCT · 1702 · OFFICE BUILDING

COMMUNITY connectivity program

FHI studio

APRIL 2022

INTRODUCTIONS

AGENDA

1. Welcome and Team Introductions
2. Study Purpose and Goals
3. Study Area
4. Review of Site-Specific Data and Issues
5. Next Steps for Tomorrow’s Site Visit Audit

PROJECT TEAM

- Connecticut Department of Transportation (CTDOT) is sponsoring
- Town of Mansfield
- FHI Studio is conducting the Road Safety Audit reporting

PURPOSE AND GOALS OF THE ROAD SAFETY AUDIT

Safety assessment of existing walking and biking routes

Improve transportation network for all users by making conditions safer and more comfortable for pedestrians and cyclists

Identify the issues that may discourage or prevent walking and bicycling

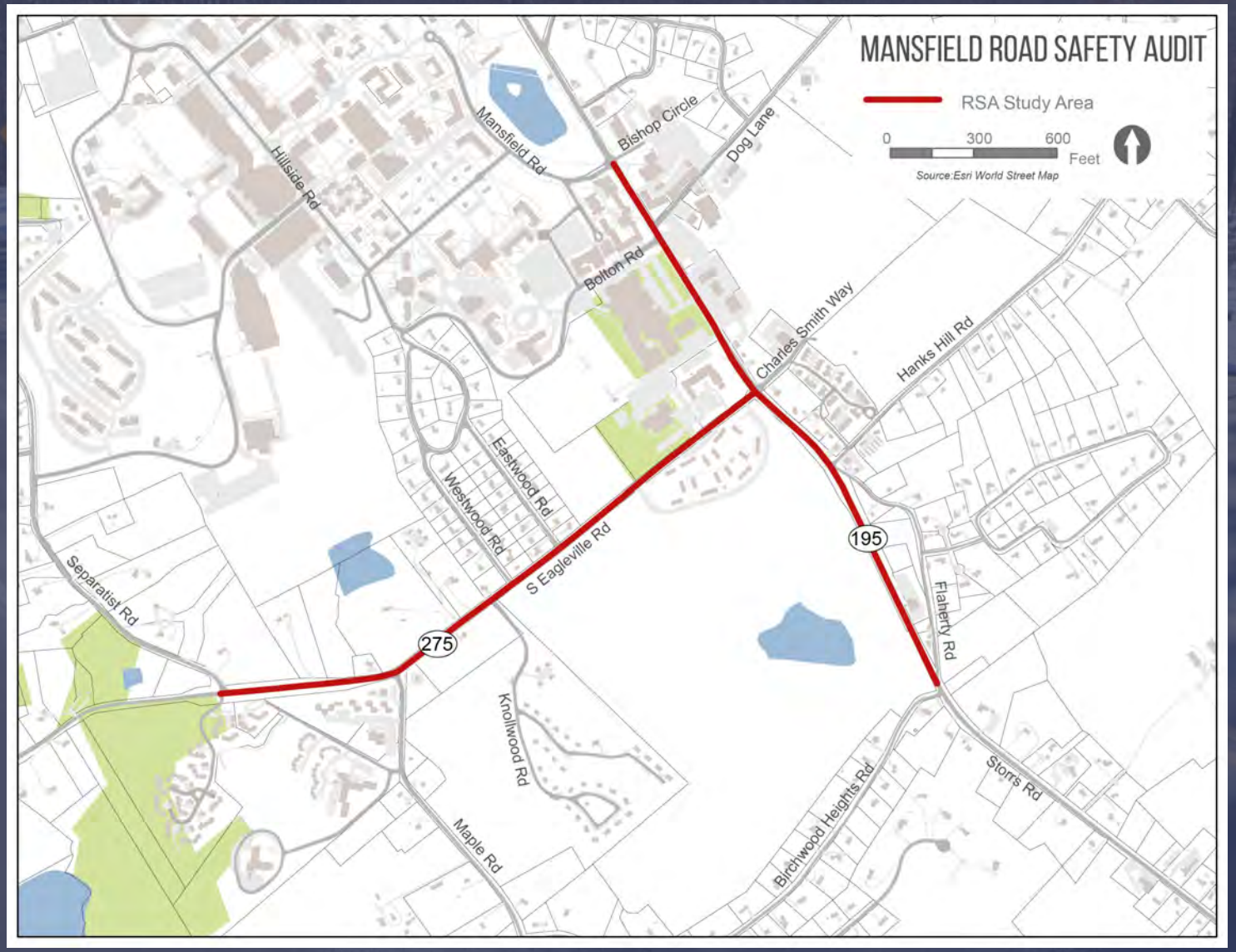
Identify next steps, evaluate feasibility of proposed improvements, and potential funding sources.

DELIVERABLES

- Existing Conditions Data Collection
- Pre-Audit Meeting
- Field Audit
- Post Audit Meeting
- Road Safety Audit Report

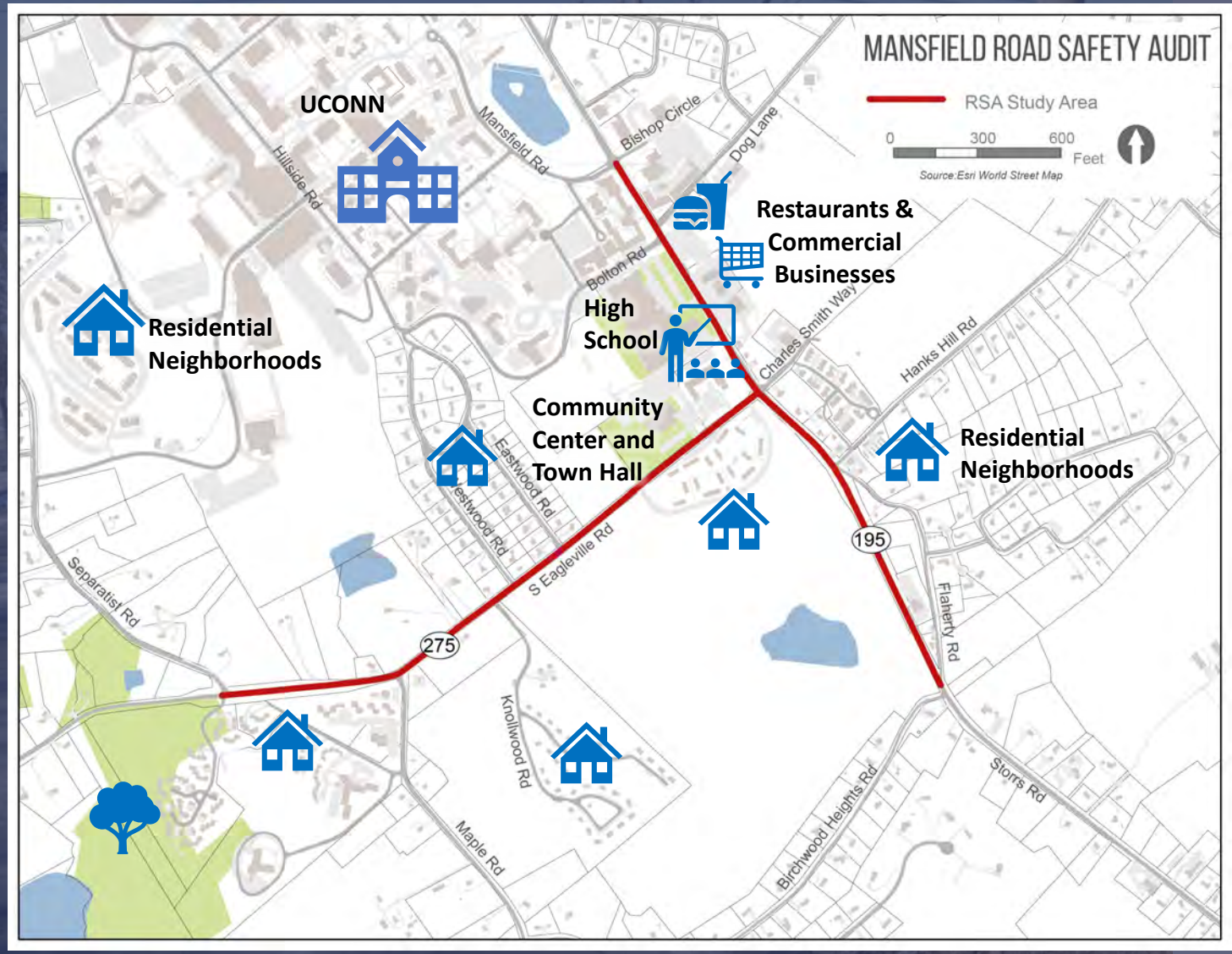
STUDY AREA

- Route 195 (Storrs Road) between Mansfield Road and Birchwood Heights Road
- Route 275 (South Eagleville Road) between Storrs Road and Separatist Road



POINTS OF INTEREST

- UCONN
- Student housing
- Grocery Store, Bank, Pharmacy, services
- E.O. Smith High School
- Town Hall and Community Center
- Residential neighborhoods
- Regional Employment Center



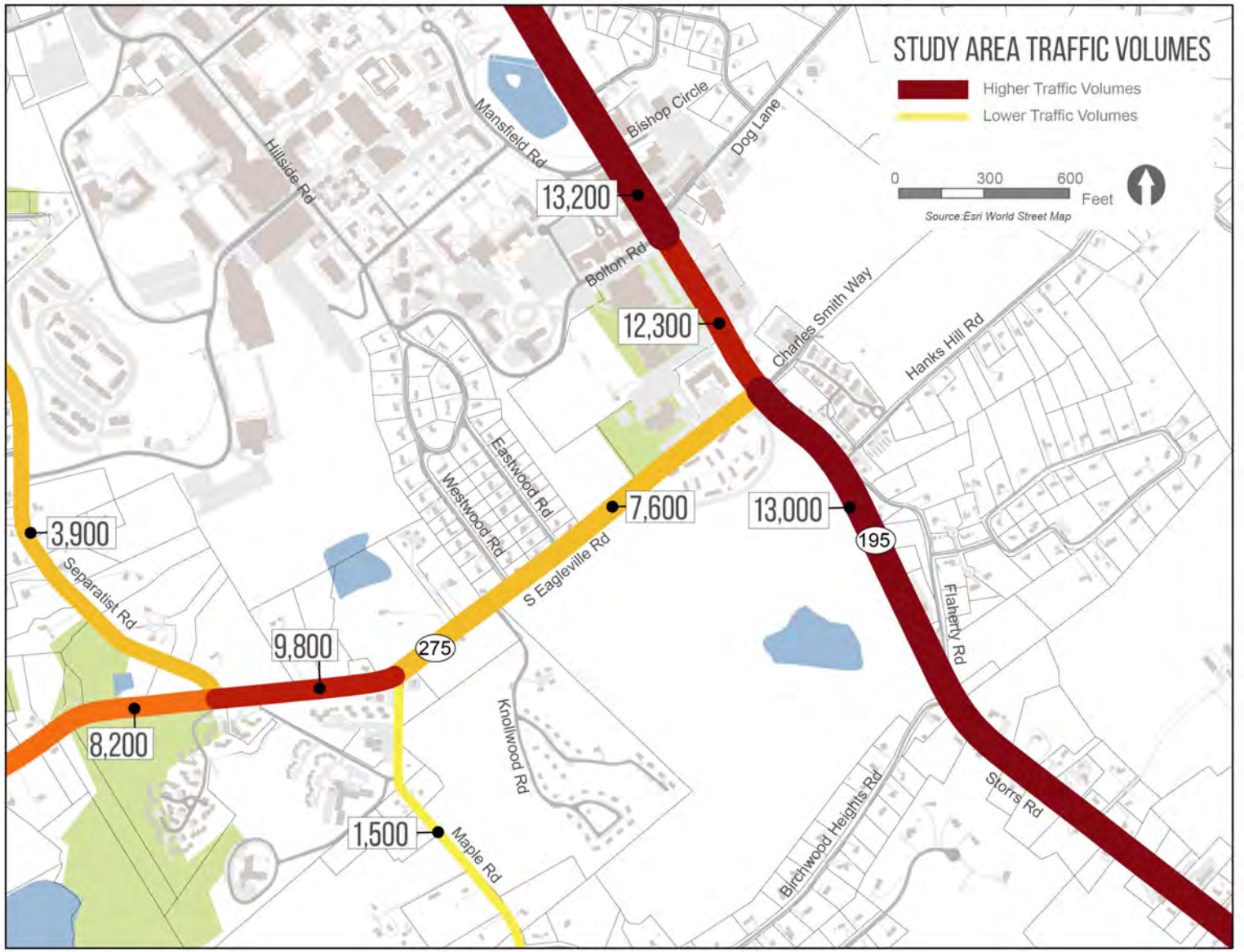
EXISTING CONDITIONS FINDINGS

Route 195 (Storrs Road) and Route 275 (South Eagleville Road)

- Regional Traffic
- Access to major University
- Restaurants/ Commercial uses
- Business and service industry uses
- Civic uses; Town Hall, Community Center, Elementary School
- Pedestrian and Bicyclist movements of the student population as well as local year round residents
- Campus bus routes

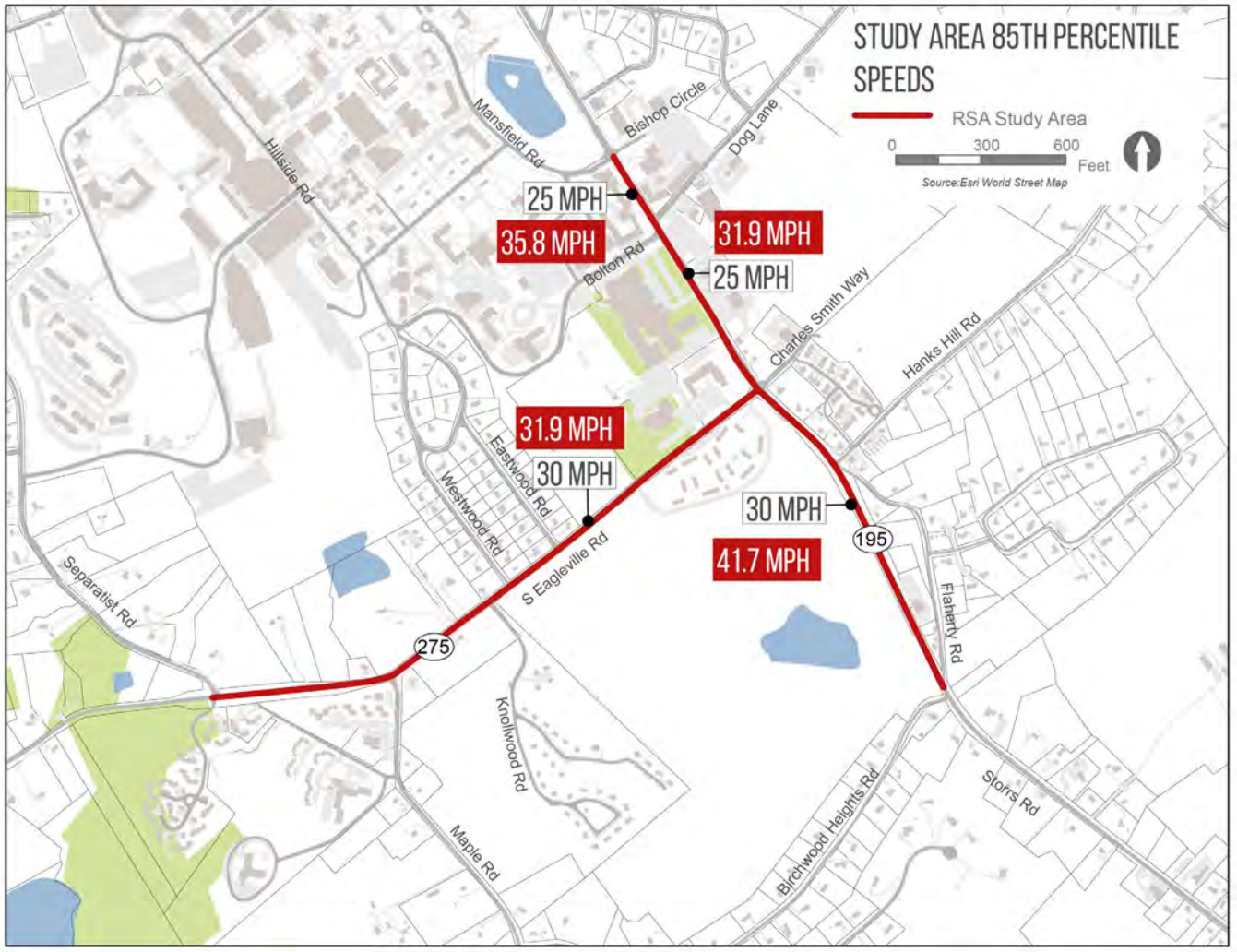
TRAFFIC VOLUMES

- Higher traffic volumes in center of Study Area – 2017 counts prior to Covid
  - Highest volumes are on Route 195
  - Lowest volumes found on Maple Road
  - High volumes on Route 275



TRAFFIC SPEED LIMITS

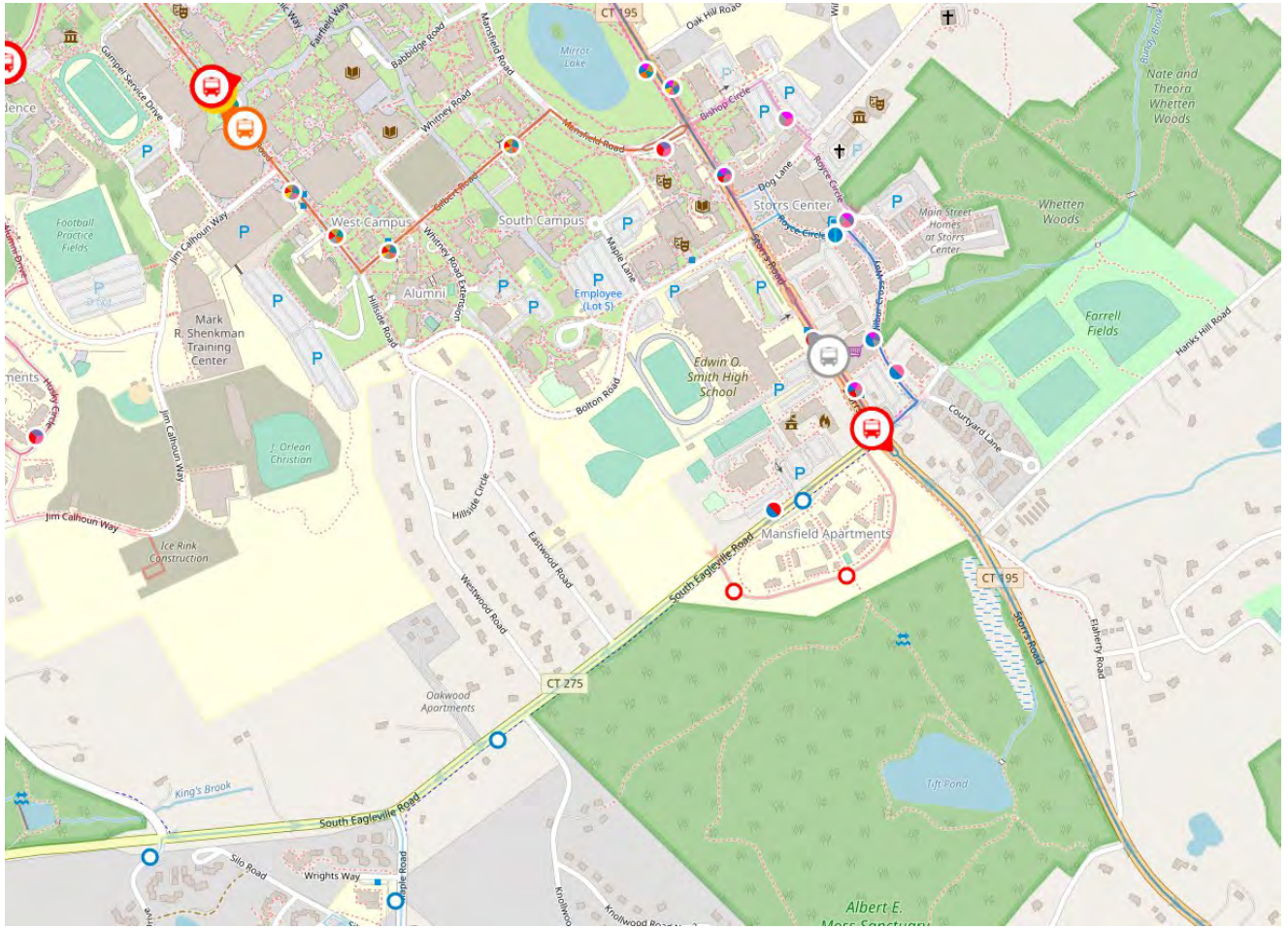
- Speed limit in Study ranges between 25 MPH and 30 MPH
- Highest 85th percentile speeds are on Route 195 south of South Eagleville Road – speeds as high as 41.7 MPH
- 85th percentile speeds of 35.8 and 31.9 MPH on Route 195 through the downtown



TRANSIT NETWORK

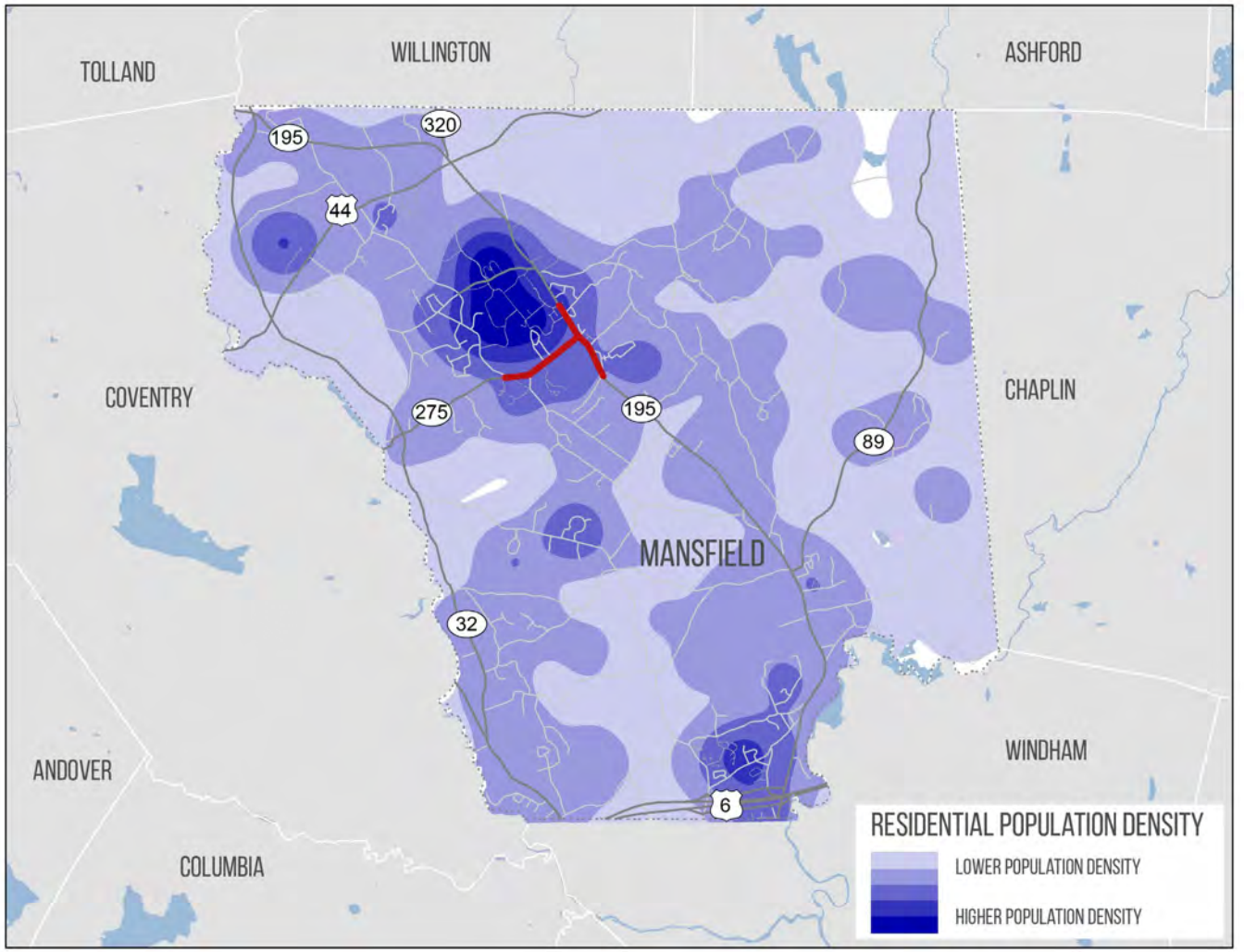
- Large population without access to vehicle

- Transit includes:
  - UConn Shuttle
  - WRTD bus to Willimantic
  - CT Transit 913 to Hartford
  - Peter Pan



POPULATION DENSITY

- Residential population density is highest in the north and west sides of the UConn campus
- Lower population densities south of Study Area on Route 195



2019 data

ROADWAY GEOMETRY

Mansfield - RSA - Route 275 (South Eagleville Road) / Route 195 (Storrs Road)

Street Inventory

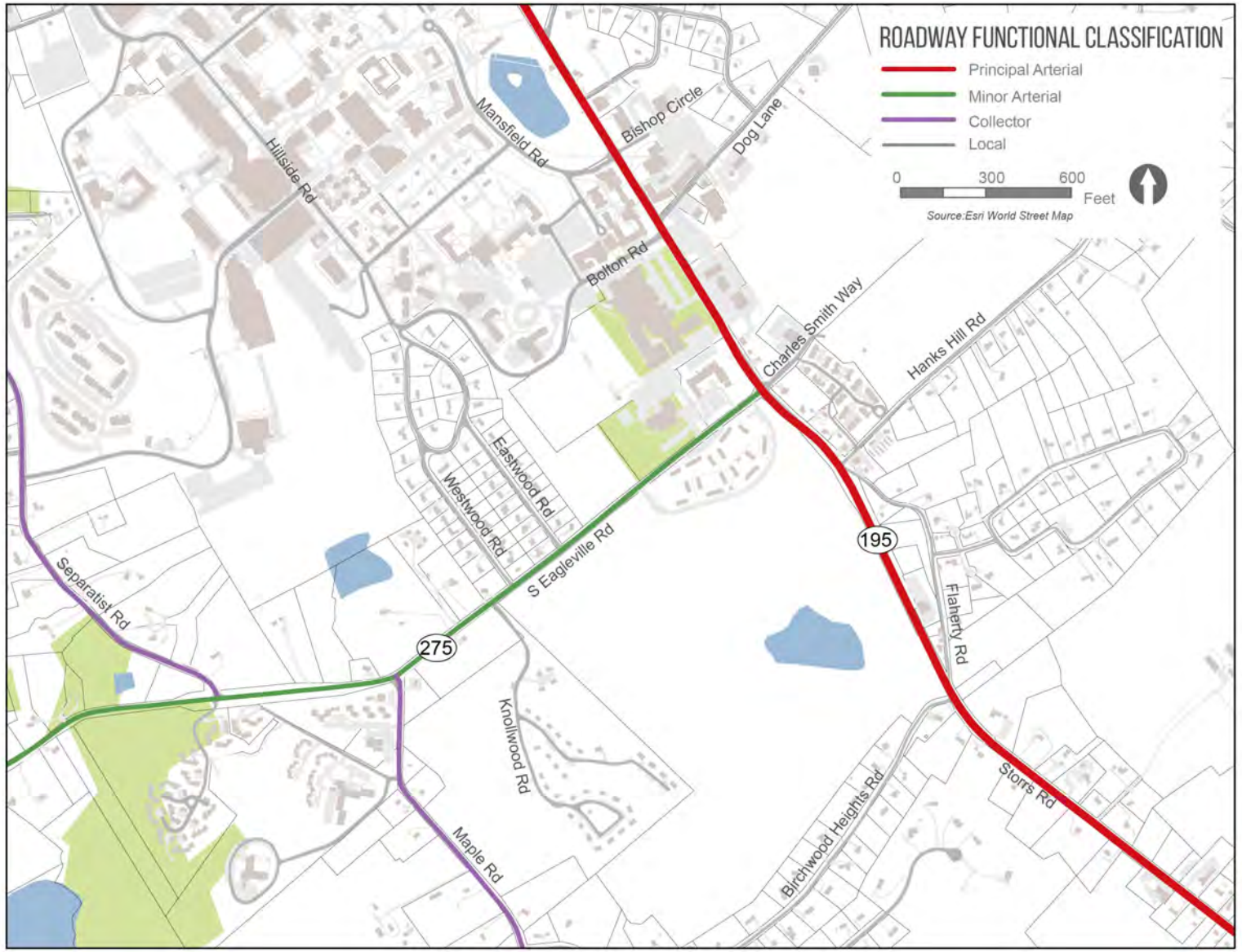
Road	From	To	Distance	Direction	Lanes	Lane Width	Sidewalk Type	Sidewalk Width	Sidewalk Condtion	ADA Ramps Present	ADA Ramps Compliant	Curb	Parking	Shoulder	Notes
Route 275 (South Eagleville Road)	Separatist Road	Maple Road	1,300'	EB	1	11'	N/A	N/A	N/A	No	No	Paved	N/A	4'	Crosswalks at Separatist Road but no landing
				WB	1	11'	N/A	N/A	N/A	N/A	N/A	Paved	N/A	4'	
Route 275 (South Eagleville Road)	Maple Road	Knollwood Road	900'	EB	1	12'	Paved	6'	Good	Yes	Yes	N/A	N/A	3'	
				WB	1	12'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3'	
Route 275 (South Eagleville Road)	Knollwood Road	Route 195 (Storrs Road)	2500'	EB	1	12.5'	Paved	6'	Good	No	No	Paved	N/A	8'	No crosswalk landing at Westwood Road Crosswalk at Eastwood Road previously decorative
				WB	1	12.5'	N/A	N/A	N/A	N/A	N/A	Paved	N/A	8'	
Route 195 (Storrs Road)	Flaherty Road	1132 Storrs Road	700'	NB	1	11'	N/A	N/A	N/A	N/A	N/A	Paved	N/A	4'	
				SB	1	11'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2'	
Route 195 (Storrs Road)	1132 Storrs Road	Hanks Hill Road	1,100'	NB	1	11'	N/A	N/A	N/A	N/A	N/A	Paved	N/A	2'	RRFB at crosswalk at 1132 Storrs Road
				SB	1	11'	Paved	6'	Good	Yes	Yes	Paved	N/A	2'	Decorative crosswalks
Route 195 (Storrs Road)	Hanks Hill Road	Route 275 (South Eagleville Road)	500'	NB	2	11'	N/A	N/A	N/A	N/A	N/A	Concrete	N/A	2'	
				SB	2	11'	Paved	8'	Good	Yes	Yes	Paved	N/A	2'	
Route 195 (Storrs Road)	Route 275 (South Eagleville Road)	1220 Storrs Road	400'	NB	1	11'	Concrete	8'	Good	Yes	Yes	Granite	8'	2'	Decorative landscaped median present Street trees and additional 6' buffer zone
				SB	3	11'	Concrete	8'	Good	Yes	Yes	Granite	8'	2'	
Route 195 (Storrs Road)	1220 Storrs Road	Bolton Road	1,000'	NB	1*	11'	Concrete	6'	Good	Yes	Yes	Granite	8'	2'	Does not include alternating left-turn lanes in this segment 4' buffer on NB side. 6' buffer SB side.
				SB	1	11'	Concrete	8'	Good	Yes	Yes	Granite	8'	2'	
Route 195 (Storrs Road)	Bolton Road	Mansfield Road	700'	NB	1*	11'	Concrete	10'	Good	Yes	Yes	Granite	8'	2'	Does not include alternating left-turn lanes in this segment
				SB	1	11'	Concrete	10'	Good	Yes	Yes	Granite	8'	2'	

*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.

Highlighted cells indicate values which may warrant further investigation

FUNCTIONAL CLASSIFICATION

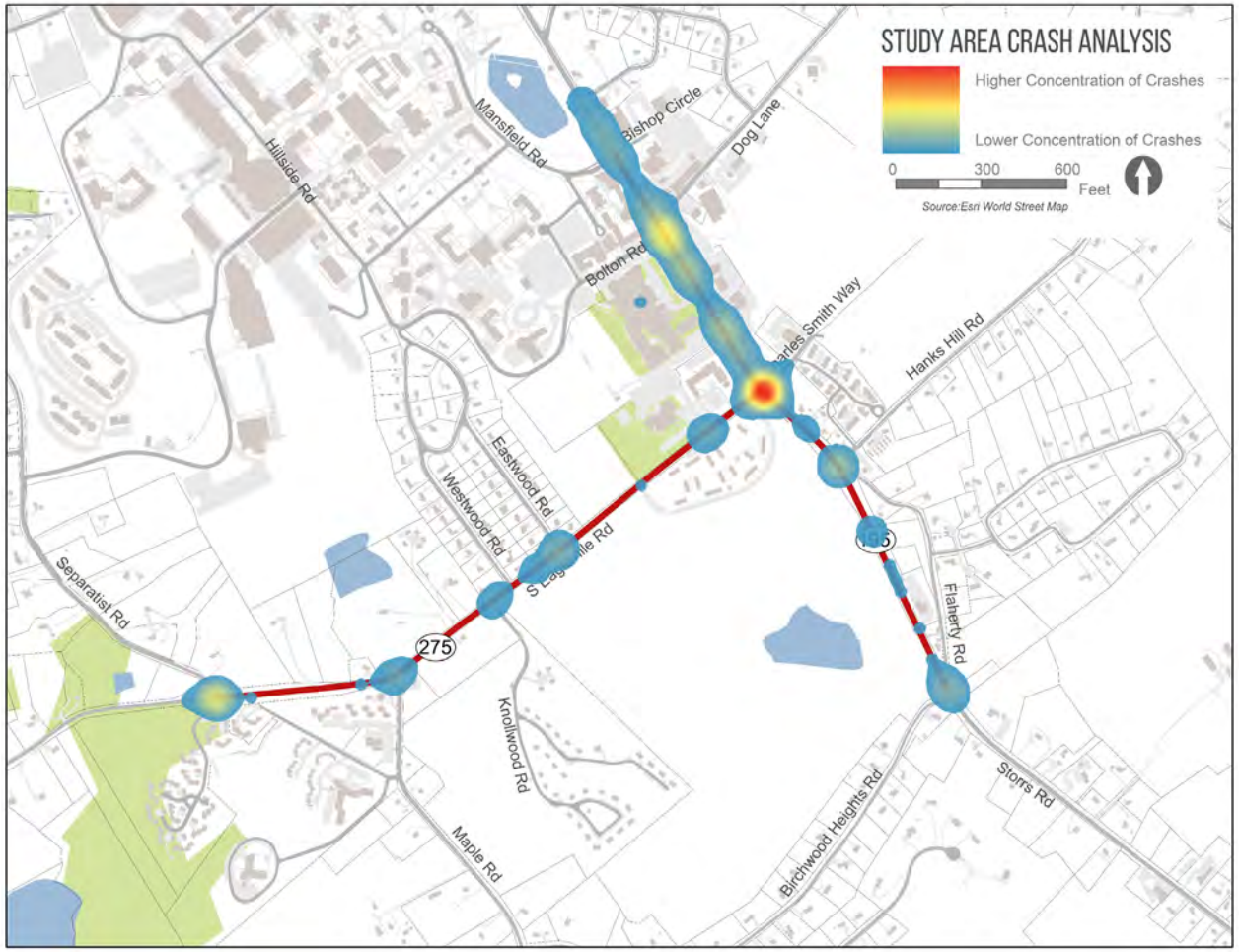
- Route 195 is a Principal Arterial Roadway
- Route 275 is a Minor Arterial
- Separatist Road and Maple Road are Collectors
- Other streets that intersect Study Area are Local Roads



CRASH ANALYSIS

2017 - 2021

Year	Fatal Injury	Serious Injury	Minor Injury	Possible Injury	Property Damage Only	TOTAL
2017			3	1	33	**37**
2018			3	1	26	**30**
2019			2	4	36	**42**
2020			1	1	16	**18**
2021	1		10	1	18	**30**
TOTAL	**1**		**19**	**8**	**129**	**157**

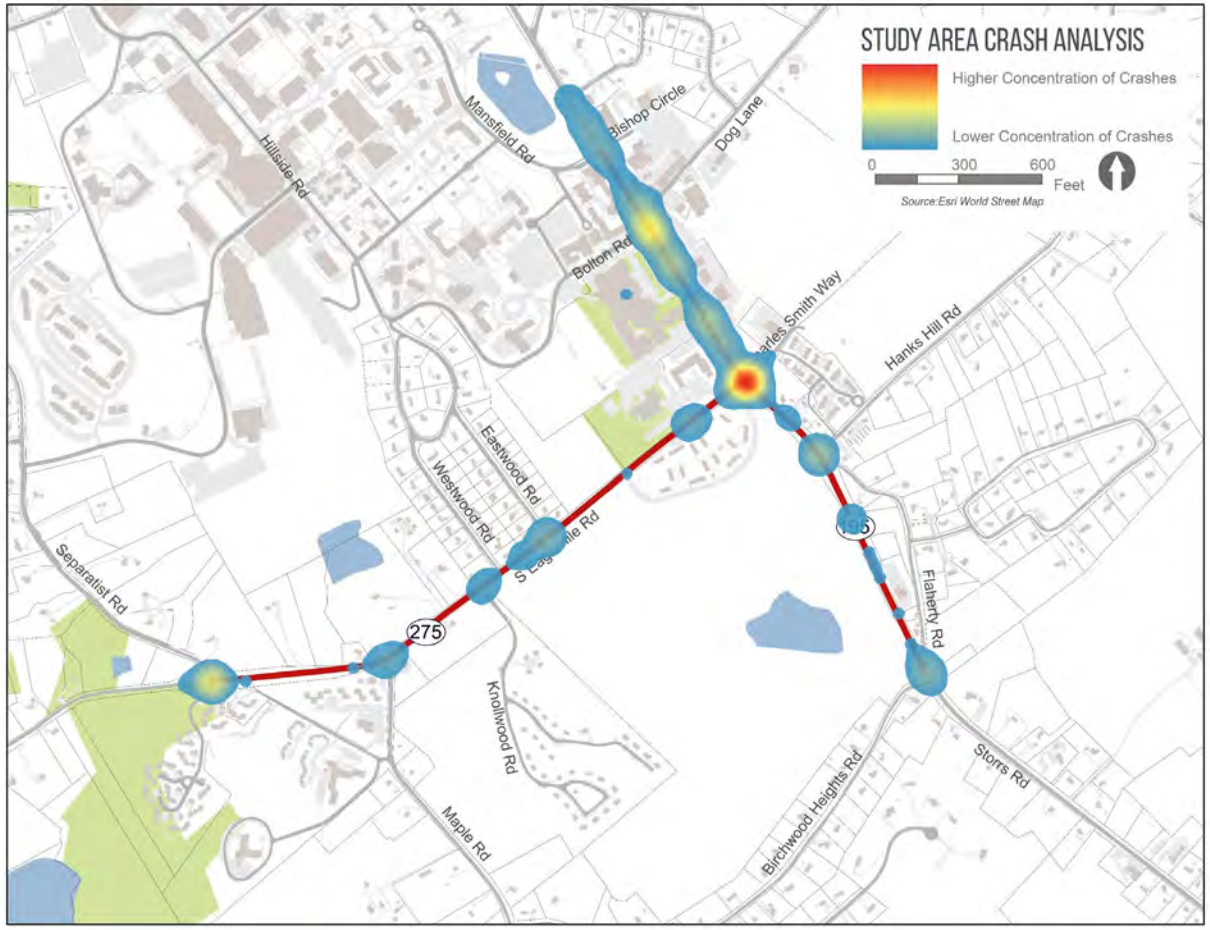


CRASH ANALYSIS

2017 - 2021

Crash Severity

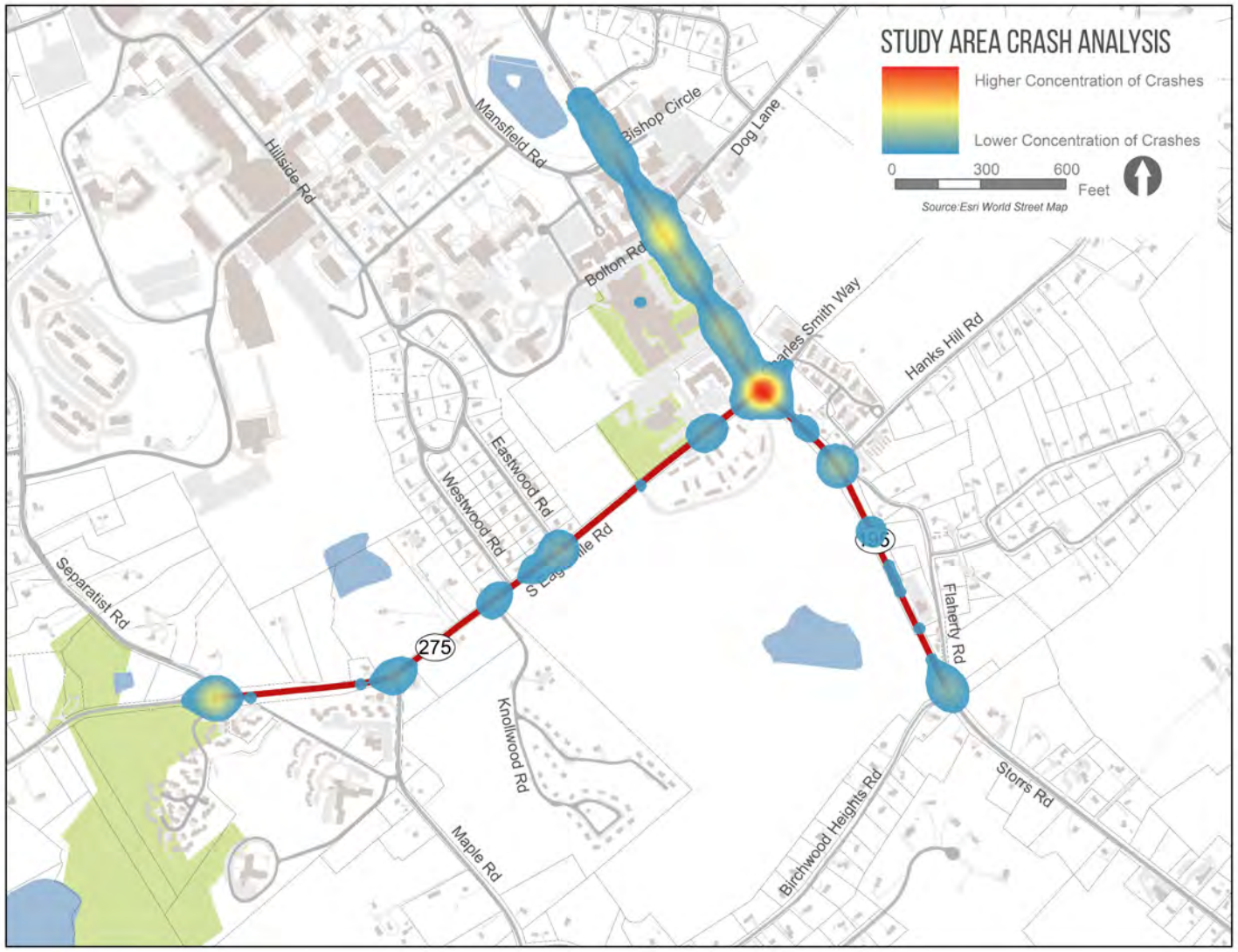
Crash Type	Fatal Injury	Serious Injury	Minor Injury	Possible Injury	No Apparent Injury, Property Damage Only	TOTAL
Front to Rear			5	4	53	62
Front to Front			1		4	5
Angle			4	3	33	40
Sideswipe, Same Direction					18	18
Sideswipe, Opposite Direction					1	1
Rear to Side					1	1
Rear to Rear						
Not Applicable / Single Vehicle	1		8		13	22
Other			1	1	6	8
TOTAL	1		19	8	129	157
Crashes Involving Pedestrians	1		2			3
Crashes Involving Bicyclists			1			1



CRASH ANALYSIS

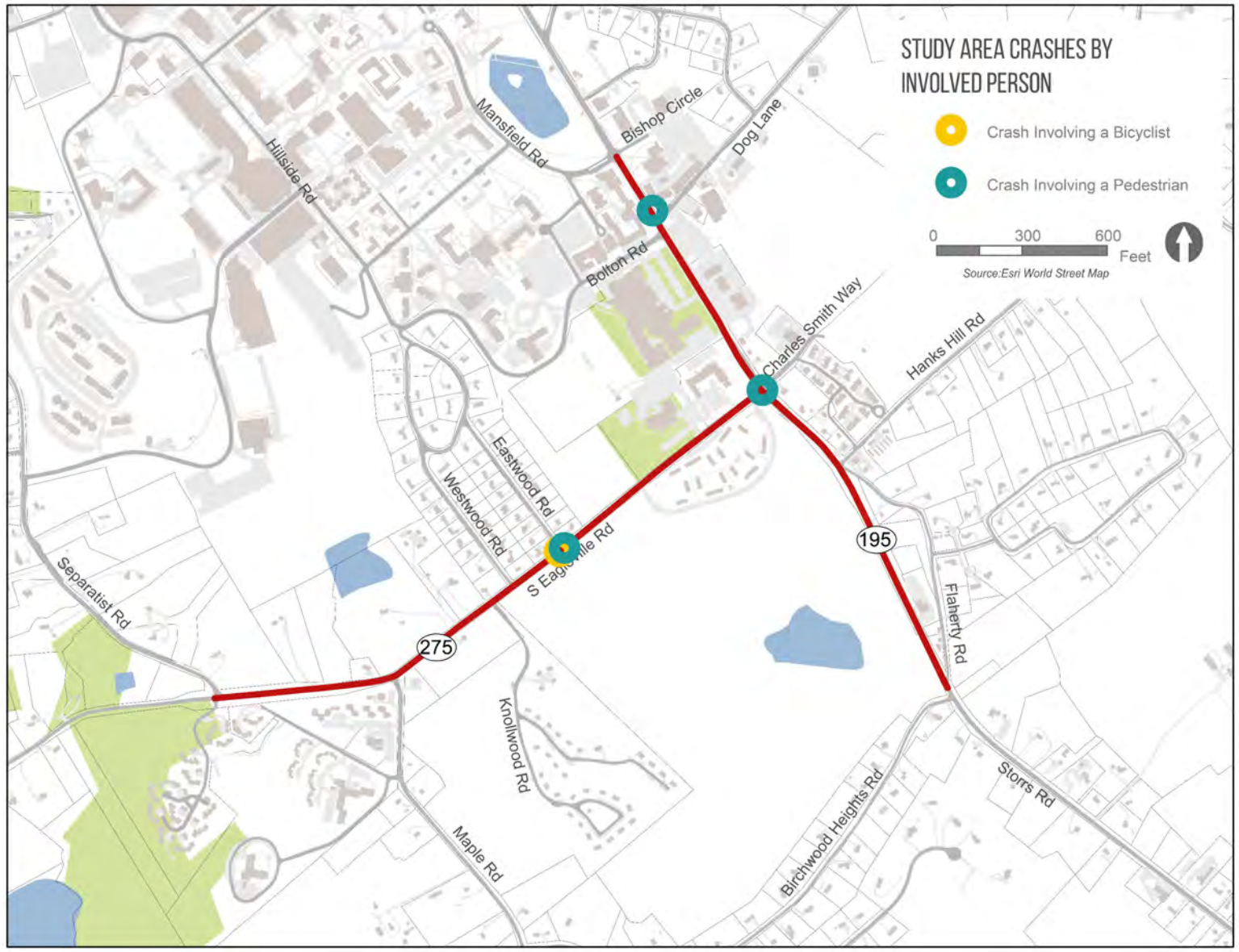
Crash Hotspots (5 Year Crash Total approx.)
157 Crashes Total

- Near Route 195/Route 275 – 41 Crashes
- Route 195 between Route 275 and Bolton Road – 27 Crashes
- Route 195/Bolton Road – 23 Crashes
- Route 275/Separatist Road – 15 Crashes
- Route 195/Hanks Hill Road – 7 Crashes



CRASH ANALYSIS – INVOLVED PERSON

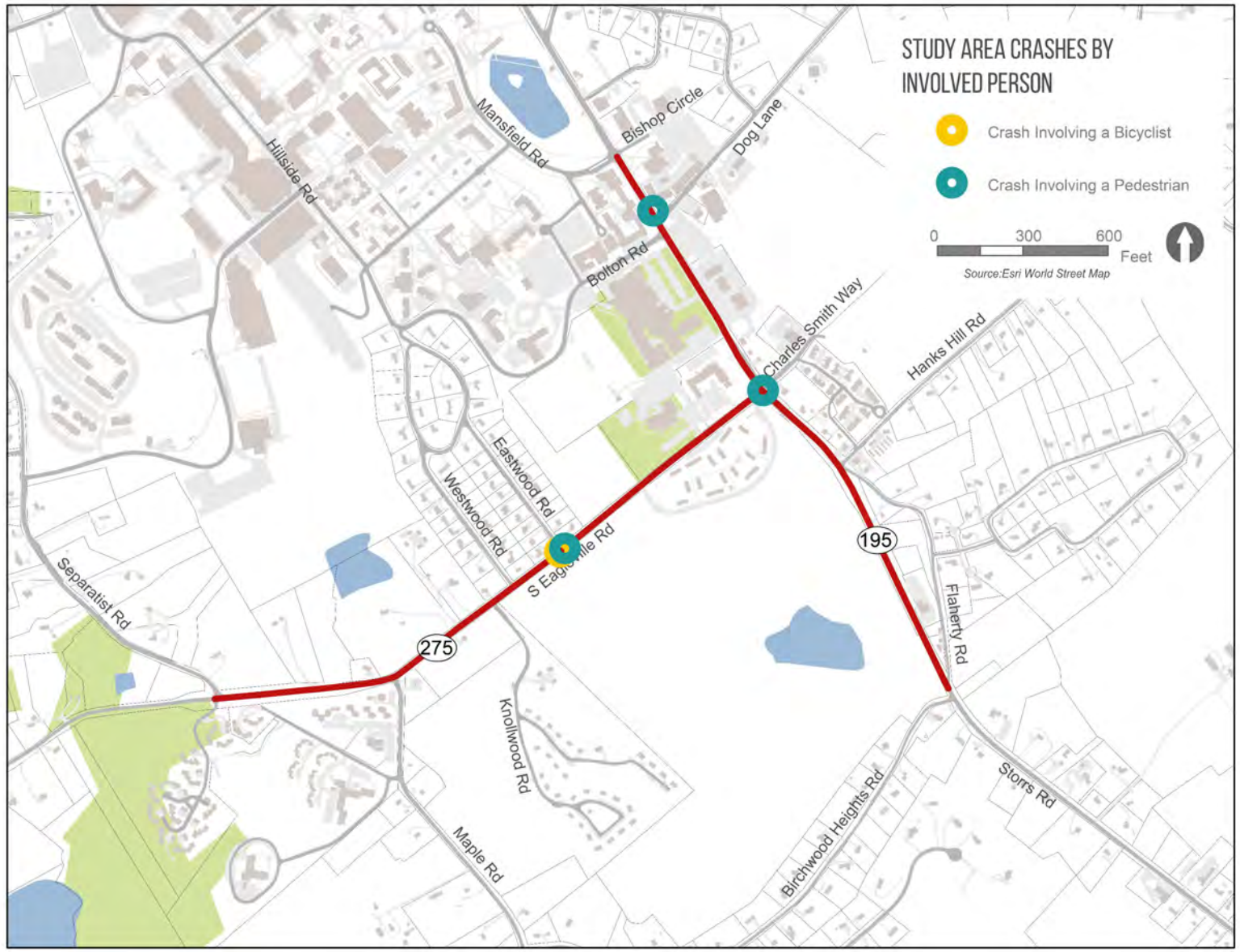
- There were 3 crashes involving pedestrians in the study area
- 2 crashes involving pedestrians on Route 195 resulted in minor injury
- 1 pedestrian crash at Eastwood Road resulted in a fatality
- There also was 1 crash involving a bicyclist at Eastwood Road



CRASH ANALYSIS – INVOLVED PERSON

- Pedestrian (28 yo) fatality on 11/30/2021 at 5:08 PM at Eastwood Road in crosswalk after being struck by westbound motorist

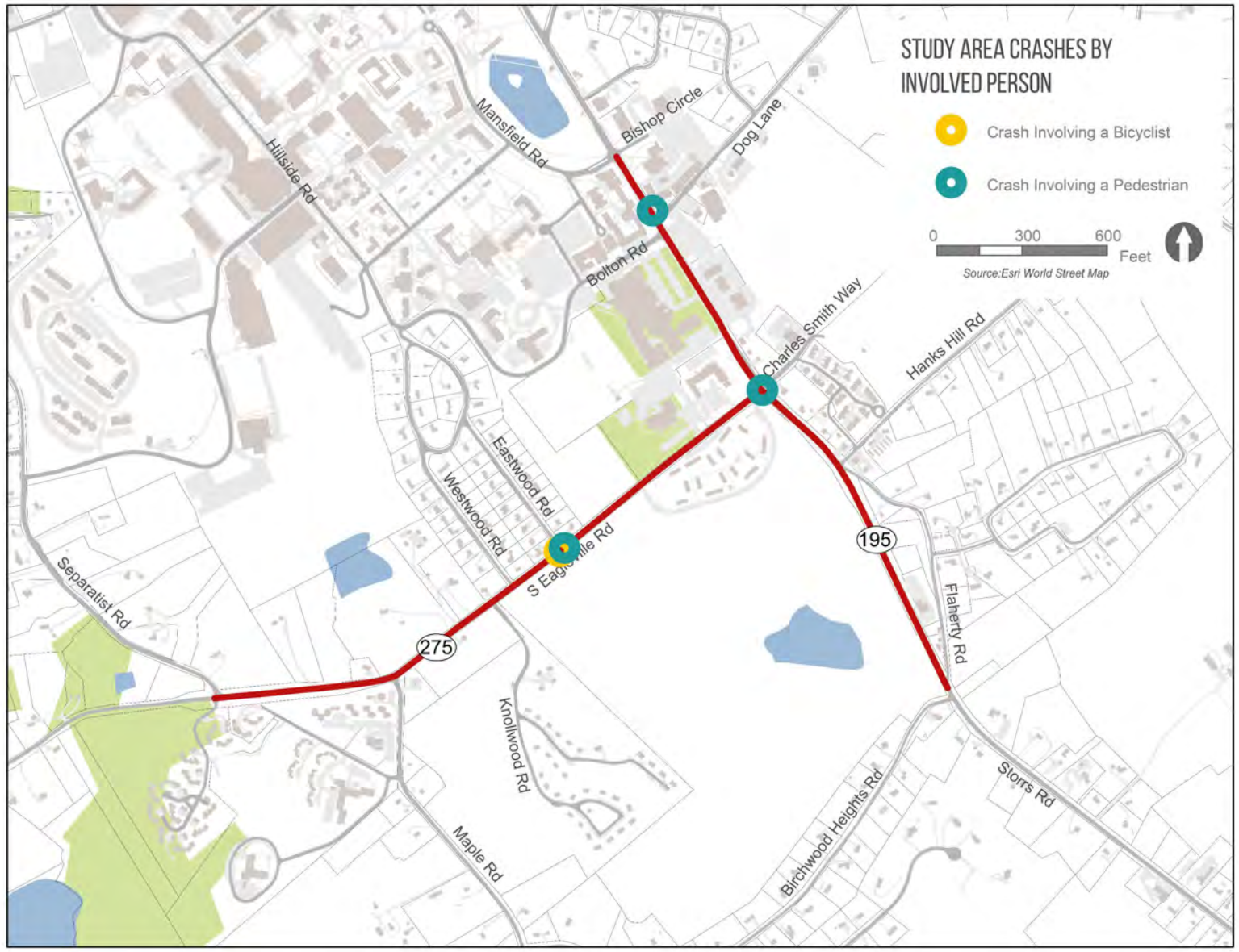
- Bicyclist (21 yo) injured on 11/19/2021 at 4:52 PM at Eastwood Road in crosswalk (southbound) after being struck by westbound motorist
  - Driver issued infraction



CRASH ANALYSIS – INVOLVED PERSON

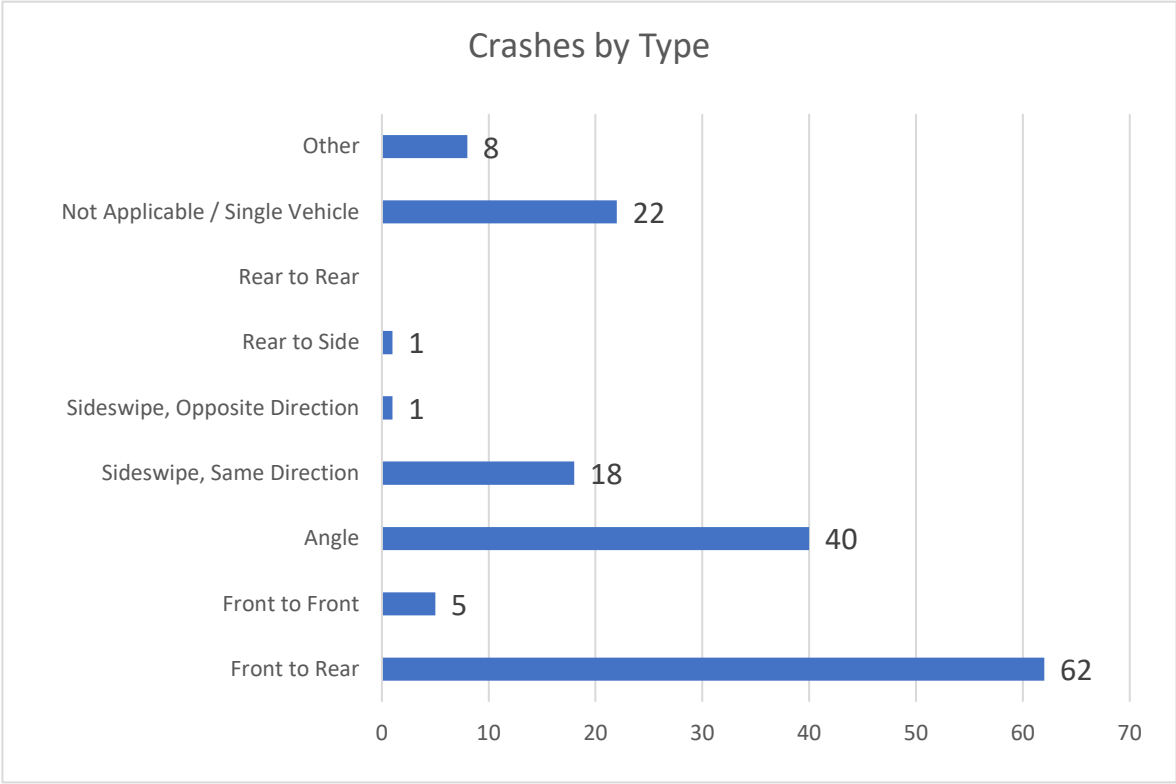
- Two Pedestrians (18 & 19 yo) struck by exiting vehicle from 1244 Storrs Road (People's United Bank) on 11/10/2018 at 2:28 PM

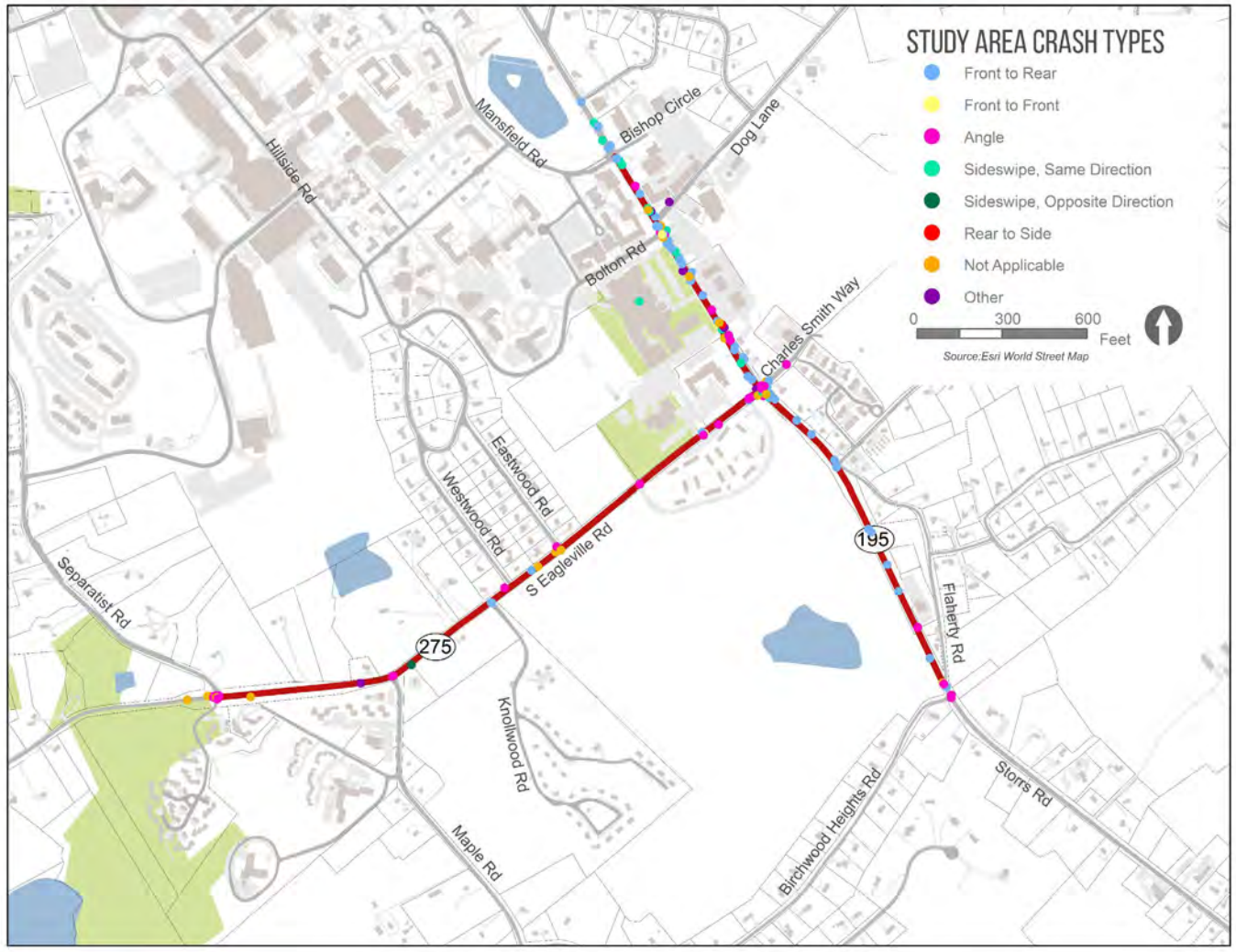
- One pedestrian (22 yo) struck by vehicle turning left exiting driveway while crossing Route 195 near 1 Dog Lane (Moe's) on 9/5/2017 at 4:51 PM
  - Driver failed to yield
  - Verbal warning to both pedestrian and driver



CRASH TYPE

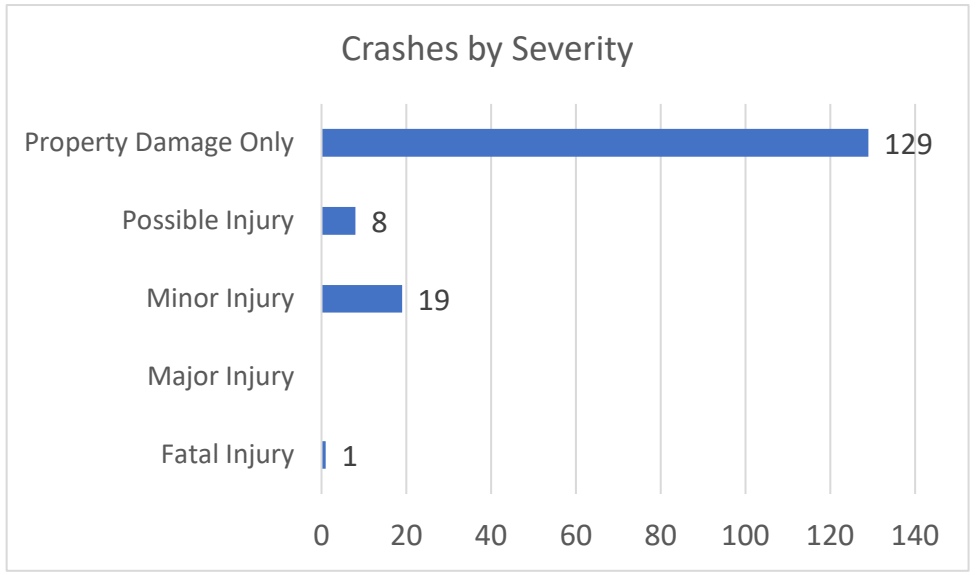
- Majority of crashes are front to rear, angle crashes, or single vehicle crashes

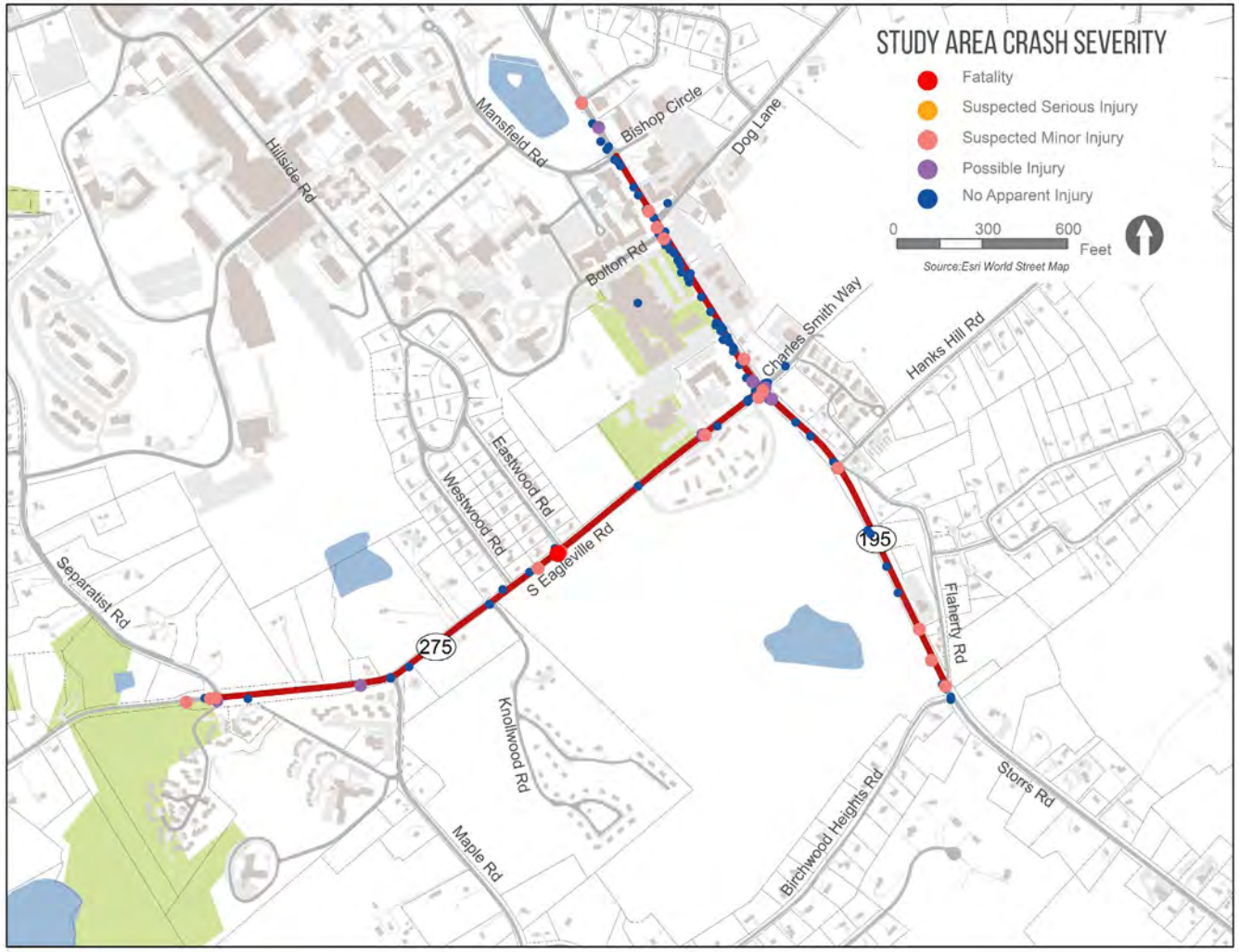




CRASH SEVERITY

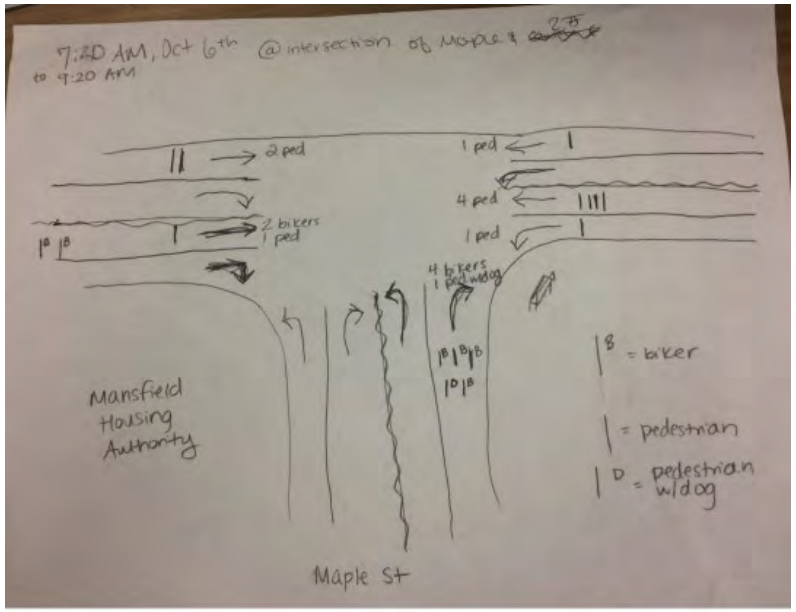
- Majority of crashes (129) are classified as No Apparent Injury- Property Damage Only
- There were 8 crashes resulting in a possible injury and 19 minor injury crashes
- 1 crash in 2019 resulting in a fatality at Eastwood Road





REVIEW OF PAST/CURRENT WORK

- Storrs Center development on Route 195
- Painted crosswalks on Route 275
- Pedestrian and Bicycle Counts in 2016




1244 Storrs Rd
Mansfield, Connecticut
Google
Street View - Aug 2011
Storrs Rd
SR74
CVS
Bolton Rd
Mansfield
Google
Image capture: Aug 2011
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Terms
Privacy
Report a problem


1244 Storrs Rd
Mansfield, Connecticut
Google
Street View - Oct 2021
Storrs Rd
CVS
Bolton Rd
Google
Image capture: Oct 2021 © 2022 Google United States Terms Privacy Report a problem

SAMPLE IMPROVEMENTS TO IMPROVE SAFETY IN THE STUDY AREA

TYPES OF COUNTERMEASURES

- Pedestrian Countermeasures
- Bicycle Countermeasures
- Speed Reduction Measures (Traffic Calming)
  - Vertical Elements
  - Horizontal Elements
  - Cross Sectional and Other Elements
- Intersection Treatments
- Traffic Volume Reduction Measures

- ***Some countermeasures may not be appropriate on certain facilities***

PEDESTRIAN COUNTERMEASURES

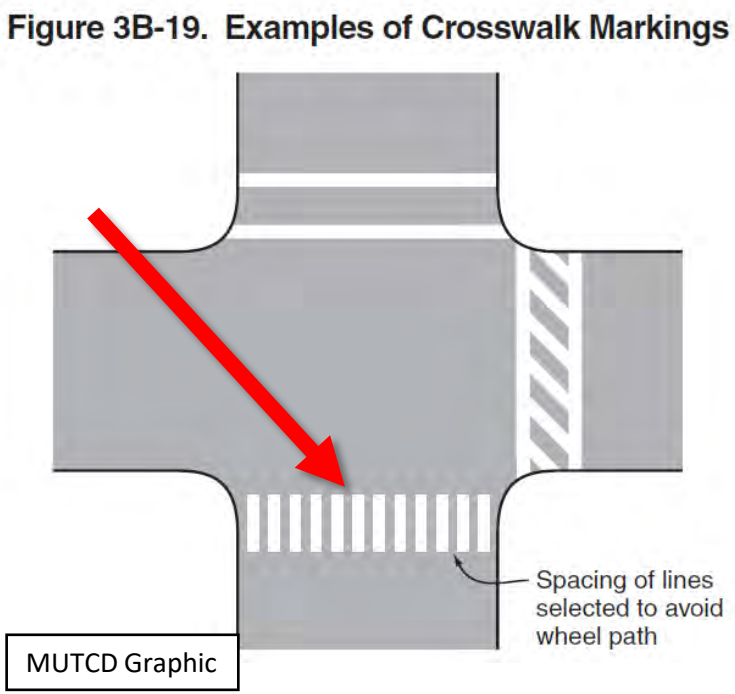
SIDEWALKS

- Sidewalks provide a dedicated space for pedestrians

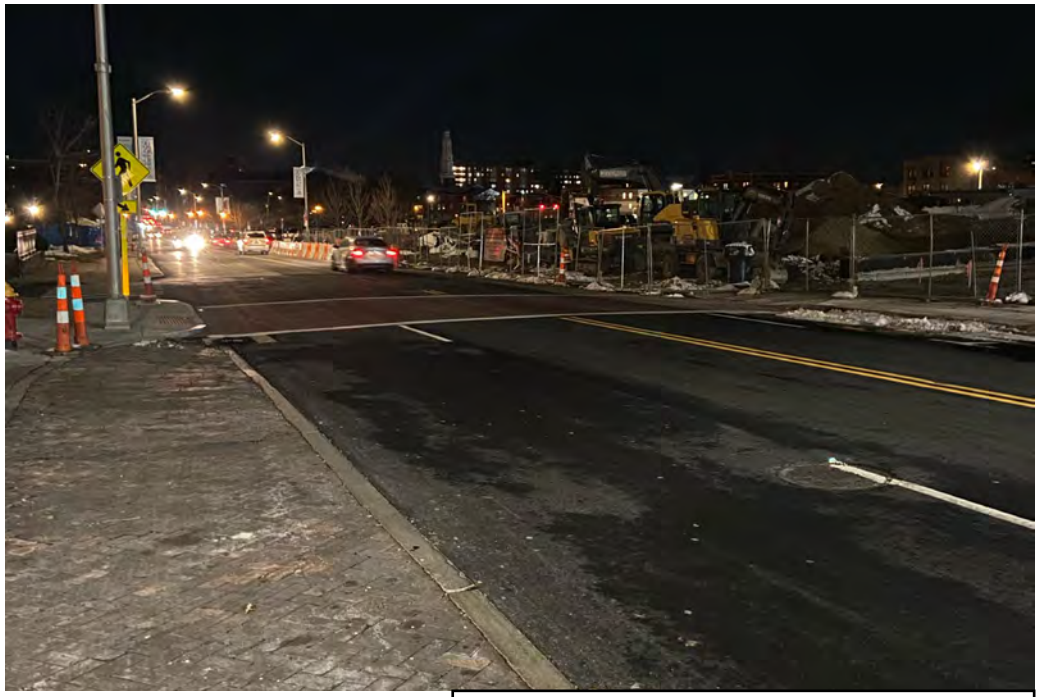
- 5 feet is preferred minimum width

CROSSWALKS

- Continental crosswalks provide the most visibility for crosswalks
- Continental crosswalks are already standard at many crossings, but some crossings do not have any markings



MUTCD Graphic

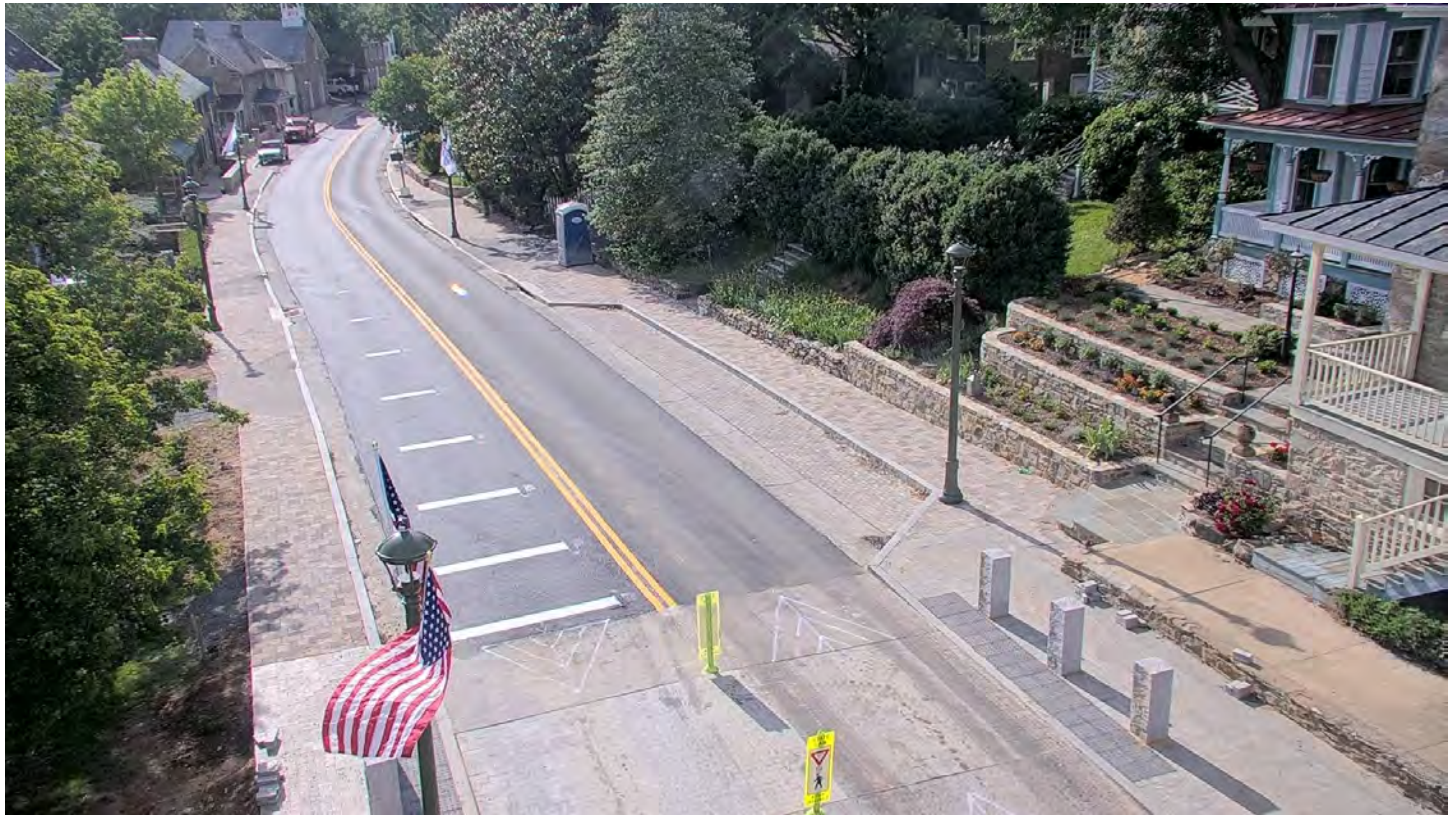


Decorative Crosswalk in Hartford, CT at Night

RAISED CROSSWALKS

- Improves pedestrian safety by causing motorist speeds to decrease at the crossing.

- Typically, between 3 and 6 inches above street level. It is common for a raised crosswalk to be level with the street curb.
  - Height increases the visibility of a pedestrian in a crosswalk to a motorist.



Route 9, Hillsboro, Virginia – Rethink9.com

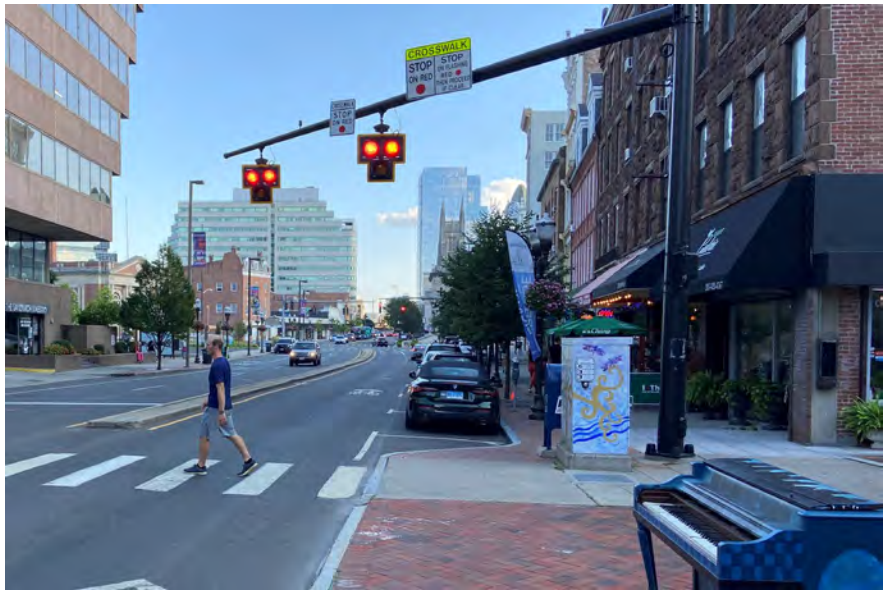
MEDIAN ISLAND WITH PEDESTRIAN REFUGE

- Raise island wide enough to provide allow pedestrian to cross in two-stages

Route 9, Hillsboro, Virginia – Rethink9.com

RRFB & HAWK

- RRFB
  - Rectangular Rapid Flashing Beacon
  - Provides enhanced visibility of crosswalks, but is **not** a regulatory signal
- HAWK = **H**igh Intensity **A**ctivated Cross**W**al**K**
  - Provides a red signal for on-coming motorists



Top – RRFB in Bronxville, NY; Bottom – HAWK in Stamford, CT

LIGHTING AT CROSSWALKS

- Lighting conditions at night in areas of pedestrian crossings should be considered

- Lighting can be increased with RRFB systems with a higher intensity light to enhance visibility of crossing

BICYCLIST COUNTERMEASURES

BIKE SHARROWS

- Bike sharrow markings in lane can alert motorists to presence of bicyclists in roadway

- Sharrows more appropriate in areas of slower vehicular speeds and lower volumes (<5k ADT and <25 MPH)

Bike Sharrow in Concord, NH

BIKE LANES

- Bike lanes and other bike facilities can provide comfortable bike travel in ROW

- A buffer can also be striped to reinforce separation from motorists

Buffered Bike Lane in West Hartford, CT

SEPARATED BIKE LANES

- Also known as Cycle Tracks
- Feature physical separation via grade (e.g. curb) or physical barriers (e.g. bollards, guardrails etc.)
- Can be one-way or two-way
- 5’ preferred for one direction (10’ for two-way). Adequate space necessary (e.g. from door zone, from curb face etc.)
- Driveway and surface material considerations
- Maintenance and operations considerations

Separated Bike Lane in Cambridge, MA

Separated Bike Lane in New Haven, CT

SIDEPATHS & SHARED USE PATH

- Sidepaths and Shared Use Paths can provide a dedicated space for bicyclist and pedestrians off the roadway

- Typically 10-12’ in width
- Minimum 8’ in width

- Consideration for driveway crossings

Sidepath in Mansfield, CT

TRAFFIC CALMING – HORIZONTAL ELEMENTS

LATERAL SHIFT

- Lateral shift breaks straightaways in roadway
- Motorist encouraged to slow speeds to navigate shift

Google Streetview – FHWA Speed Management ePrimer

SHORT MEDIAN

- Similar to lateral shift, requires motorists to slow speeds to navigate horizontal curve in median

Short median in Tolland, CT

Small median island / “roundabout” in Hanover, NH

TRAFFIC CALMING –
CROSS SECTIONAL & OTHER ELEMENTS

LANE NARROWING

- Standard CTDOT lane width is 11 feet
- Narrow lane width (as low as 9 feet) can promote slower speeds and provide space for other purposes
- Narrower width may be appropriate in areas with limited daily traffic and truck traffic

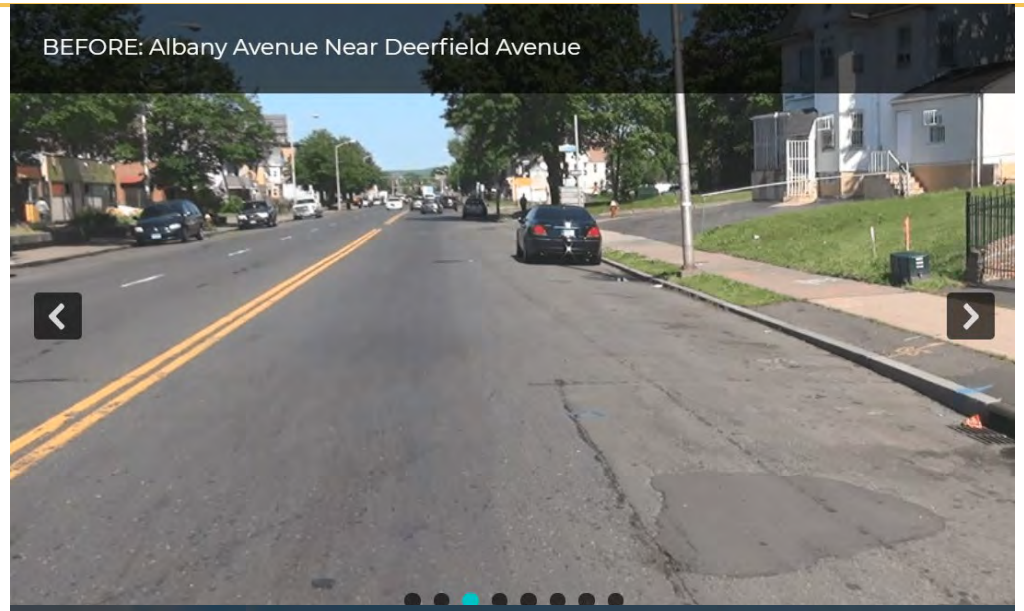
A 10-ft lane installed in Hopkinton, NH

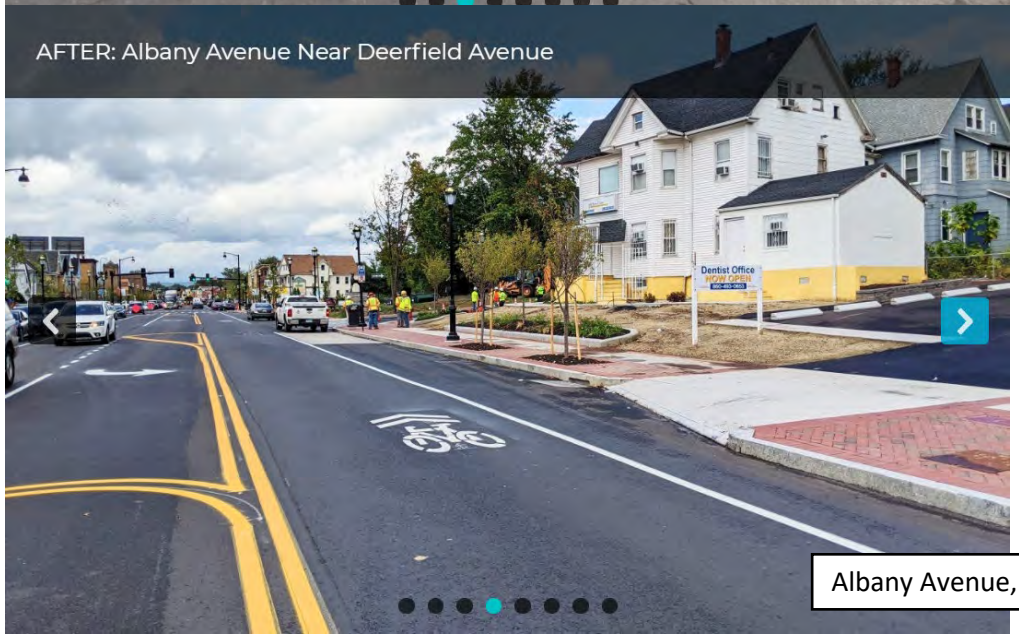
ON-STREET PARKING

- On-street parking can narrow roadway travel lanes by adding friction to traffic flow
- Parking can provide buffer for pedestrian zones

STREETSCAPE DESIGN

- Streetscape elements can communicate different priorities based on design with use of:
  - Curbing materials
  - Landscaping
  - Lighting
  - Sidewalk / Buffer Materials
  - Other amenities





Albany Avenue, Hartford, CT

MEDIAN ISLAND

- Raised island located along a street centerline.

- Narrows the travel lanes at that location
  - Visual appearance of narrowed lanes encourages a motorist to slow.

DYNAMIC SPEED FEEDBACK SIGNAGE

- Dynamic speed feedback signs display speeds of oncoming vehicles
- Must be placed with existing speed limit sign (or include such sign on a mobile unit)
- Requires encroachment permit by CTDOT
- Effectiveness
  - Up to 4 MPH average reduction in passenger vehicle speeds (1)
  - Most reductions from 1,000 ft upstream of sign and 300 ft past sign (2)
  - Decreased effectiveness over time (2)

County of San Luis Obispo

(1) Flynn, D. et al. *Dynamic Speed Feedback Signs Are Effective in Reducing Driver Speeds: A Meta-Analysis.* 2020
(2) Santiago-Chaparro, K. et al. *Spatial Effectiveness of Speed Feedback Signs.* 2012

TRAFFIC CALMING – INTERSECTION TREATMENTS

ROUNDABOUT

- Slows traffic by requiring horizontal deflection for entering vehicles
- Modern roundabout requires entering vehicles to yield to circulating traffic
- Roundabout provides opportunity for greenspace or gateway signage
- Roundabouts reduce vehicles speeding to make green lights etc.

Meredith, NH – NHDOT
Route 9, Hillsboro, VA

MINI-ROUNDABOUT

- Similar to larger roundabout, but with a mountable median traversable by large trucks

Manchester Center, VT
VT Route 30 & 7A
Diameter = 65’

DISCUSSION ON ISSUES IN THE STUDY AREA AND OPPORTUNITIES

TOMORROW'S WALK AUDIT

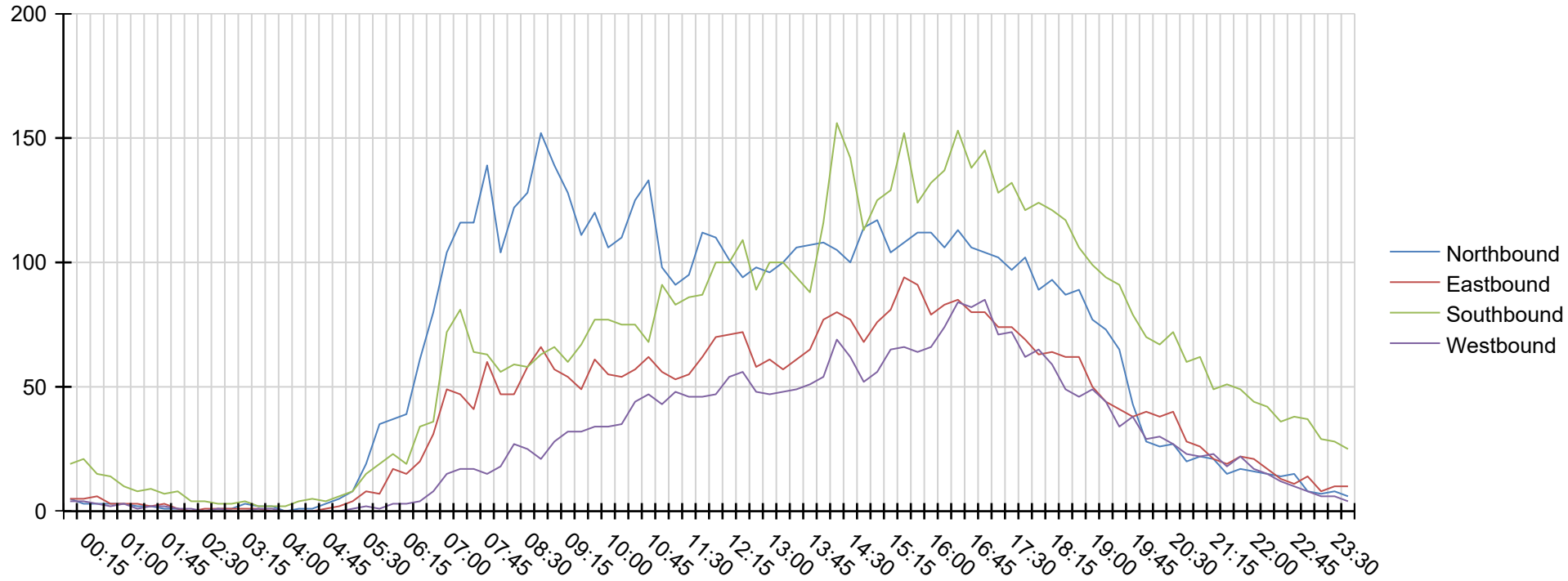
- Review safety protocols, reflective vests, etc.
- Meeting Location
- Walk the Study Area corridor and assess existing conditions and identify areas for improvement
- Post Audit discussion immediately following


THANK YOU!

GRIDSMART® Turning Movement Counts - Average

Intersection 077-204 Rt 195 & Rt 275 & Post Office Rd
Date 4/12/2022-4/28/2022

	Right	Through	Left	UTurn	Total
Northbound	740	3795	1577	4	6117
Eastbound	1356	865	1596	1	3819
Southbound	1376	4542	367	2	6289
Westbound	540	1152	1158	0	2852
Total	**4013**	**10355**	**4699**	**9**	**19078**



GRIDSMART® Turning Movement Counts - Average

Intersection 077-204 Rt 195 & Rt 275 & Post Office Rd
Date 4/12/2022-4/28/2022

	Northbound				Eastbound				Southbound				Westbound			
	R	T	L	U	R	T	L	U	R	T	L	U	R	T	L	U
00:00	0	2	2		2	1	1		3	15	0		1	1	2	
00:15	0	1	1		2	0	3		3	17	0		1	1	2	
00:30	0	1	1		3	1	2		2	13	0		0	1	0	
00:45	0	2	0		1	0	1		2	11	0	0	0	0	0	
01:00	0	1	1		1	0	1		1	8	0		1	1	1	
01:15	0	1	1		1	0	1		2	6	0		0	0	0	
01:30	0	1	1		0	0	1		1	6	0		0	1	1	
01:45	0	0	0		1	0	1		1	5	0		0	0	0	
02:00		0	0		0	0	0		1	6			0	0	0	
02:15	0	0	0		0	0	0		0	4	0		0	0	0	
02:30		0	0		1	0	0		0	3	0		0	0	0	
02:45		1	0		0	0	0		0	2	0		0	0	0	
03:00	0	1	0		0	0	0		0	3			0	0	0	
03:15	1	0	1		0	0	1		0	3	0				0	
03:30	0	1	0		0	0	0		0	2	0		0		1	
03:45		2	0		0		0		0	1	0		0	0	0	
04:00	0	0	0		0	0			0	2			0	0	0	
04:15	0	0	0		0		0		0	3	0			0	0	
04:30		0	1		0	0	0		0	4	0		0	0	0	
04:45	0	1	1		0	0	1		0	3	0			0	0	
05:00	0	1	3		1	0	0		2	4			0	0	0	
05:15	0	2	6		2	0	1		2	6	0		0		0	
05:30	0	10	9		5	1	2		3	11	0		0	0	0	
05:45	0	25	9		4	1	1		2	16	1		0	0	0	
06:00	0	25	11	0	11	2	3		3	19	0		0	1	1	
06:15	1	28	9		7	1	6		3	15	1		0	1	1	

GRIDSMART® Turning Movement Counts - Average

Intersection 077-204 Rt 195 & Rt 275 & Post Office Rd
Date 4/12/2022-4/28/2022

	Northbound				Eastbound				Southbound				Westbound			
	R	T	L	U	R	T	L	U	R	T	L	U	R	T	L	U
06:30	5	43	11		8	2	9		1	30	2		1	2	1	
06:45	7	50	22	0	5	4	21		5	28	1		1	3	2	
07:00	13	67	22	0	10	10	28	0	13	54	4		4	5	5	
07:15	12	77	26	0	11	13	23		20	57	3		4	6	6	
07:30	12	79	25		4	13	23		12	48	3		2	8	7	
07:45	16	90	32	0	13	19	26		15	44	4		4	7	3	
08:00	13	65	25		10	13	23		12	39	4		4	7	6	
08:15	13	77	31	0	10	12	24		13	40	5	0	4	10	11	
08:30	11	86	30		15	12	29		11	43	4		5	10	9	
08:45	14	97	40	0	15	17	33		15	42	4		3	9	9	
09:00	17	86	35		11	14	31		15	45	5		5	12	10	0
09:15	13	84	30	0	13	15	25		13	42	4	0	8	11	12	
09:30	14	73	23	0	13	11	24		13	50	3		6	13	12	0
09:45	16	72	31		15	17	28		19	53	4	0	5	14	13	0
10:00	13	67	25	0	15	12	27		16	56	3	0	7	14	12	
10:15	13	68	29	0	15	13	26		22	47	5	0	6	15	13	
10:30	12	80	32		15	15	26		20	51	4		7	18	19	
10:45	17	78	36	0	18	15	29		15	47	5	0	9	19	18	
11:00	9	61	26		17	14	24		21	64	5		7	19	16	
11:15	10	56	24		16	11	25	0	20	54	7	0	9	20	18	
11:30	9	62	22	0	17	12	25		18	62	5		11	17	17	
11:45	15	67	29		19	13	29		19	61	6		8	19	18	
12:00	13	68	28		25	17	27		20	73	6		9	19	19	
12:15	14	59	27	0	22	15	33		19	73	7		12	23	18	
12:30	12	59	22		28	16	27		28	73	7		11	22	22	
12:45	12	62	23		18	12	26		21	61	6		9	19	19	

GRIDSMART® Turning Movement Counts - Average

Intersection 077-204 Rt 195 & Rt 275 & Post Office Rd
Date 4/12/2022-4/28/2022

	Northbound				Eastbound				Southbound				Westbound			
	R	T	L	U	R	T	L	U	R	T	L	U	R	T	L	U
13:00	14	61	20	0	18	14	29	0	27	65	7	0	9	18	18	
13:15	13	63	23	0	19	12	24		24	69	6	0	9	20	18	
13:30	13	66	26	0	20	13	27		25	64	4		11	19	18	
13:45	15	61	30	0	23	13	28		20	61	6		10	20	20	
14:00	14	64	28	0	30	15	31		28	78	10		10	21	22	
14:15	17	59	27	0	30	18	31		41	103	12		10	27	31	
14:30	16	60	24		33	15	28		30	102	8	0	11	27	24	0
14:45	14	71	28		25	16	26	0	27	78	7	0	9	21	21	
15:00	12	68	36		31	17	26		23	95	6		8	22	24	
15:15	13	63	28	0	33	19	28		27	93	8		10	26	28	0
15:30	17	63	27	0	45	20	29		31	110	10		10	27	29	
15:45	16	68	27	0	34	23	33	0	26	88	8	0	10	26	26	
16:00	17	67	27		31	20	27		25	97	9		12	28	26	
16:15	19	59	27	0	31	20	32		29	97	10	0	10	31	32	0
16:30	14	70	27	0	35	21	28		39	101	12		14	35	34	
16:45	18	60	28		35	18	26		28	102	6		12	37	32	
17:00	12	62	29	0	34	18	27		34	106	4	0	10	36	38	
17:15	13	59	29	0	30	17	26	0	25	96	6		11	29	30	
17:30	12	62	23	0	29	18	26		27	97	8	0	12	28	32	
17:45	11	65	25		24	15	29		28	88	4		11	25	25	
18:00	7	59	22		25	13	24		28	91	5		11	25	28	
18:15	9	57	26		23	12	28		27	87	6		12	21	25	
18:30	9	56	21		24	11	27	0	26	86	5		9	19	19	
18:45	8	63	16		25	9	27		24	77	4		7	19	18	
19:00	7	51	18		18	9	22		23	72	4		11	18	18	
19:15	7	49	16		18	7	18	0	20	70	3		8	18	18	

GRIDSMART® Turning Movement Counts - Average

Intersection 077-204 Rt 195 & Rt 275 & Post Office Rd
Date 4/12/2022-4/28/2022

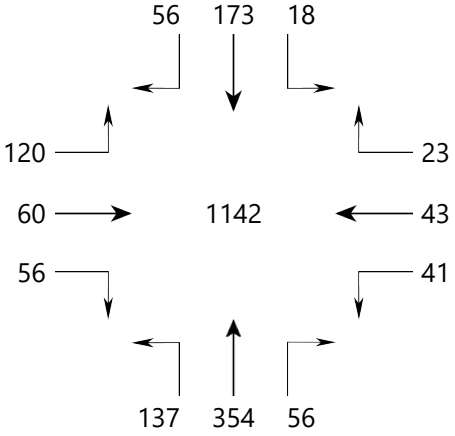
	Northbound				Eastbound				Southbound				Westbound			
	R	T	L	U	R	T	L	U	R	T	L	U	R	T	L	U
19:30	8	43	14		17	7	17	0	16	69	5	0	6	14	13	0
19:45	5	25	12		15	7	15		18	57	3		9	15	14	
20:00	2	16	9		18	6	15		16	51	2		7	9	12	
20:15	2	14	10		16	8	13	0	12	51	2		5	12	11	
20:30	3	15	8		17	8	14		14	55	2		6	9	12	
20:45	2	11	7		11	6	10		14	44	2		5	9	8	
21:00	2	12	7		10	5	11		13	45	3		3	9	9	
21:15	3	12	5		9	5	6		9	37	2		5	9	8	
21:30	0	7	6	0	8	4	6		9	40	1		3	6	8	
21:45	1	10	5		8	3	9	0	11	36	1	0	7	6	8	
22:00	2	8	5		10	3	7		6	36	2		4	5	7	
22:15	1	8	5		8	3	6		7	32	2		2	5	7	
22:30	1	8	4		4	2	7		5	29	1		2	4	5	
22:45	1	9	3		5	2	4		5	31	1	0	2	3	4	
23:00	1	3	4	0	7	2	4		6	30	1		1	2	3	
23:15	0	4	2		4	2	2		4	23	0		1	1	3	
23:30	0	5	3		3	2	4		5	21	1		2	1	2	
23:45	0	2	2		3	0	5		5	18	1		1	1	1	
Total	**740**	**3795**	**1577**	**4**	**1356**	**865**	**1596**	**1**	**1376**	**4542**	**367**	**2**	**540**	**1152**	**1158**	**0**

GRIDSMART® Turning Movement Counts - Average

Intersection 077-204 Rt 195 & Rt 275 & Post Office Rd
Date 4/12/2022-4/28/2022

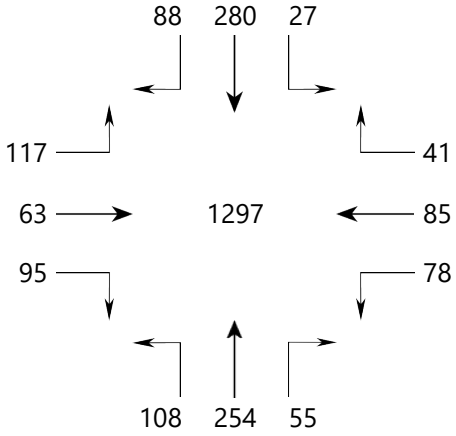
AM PEAK HOUR VOLUME (0:00-10:45)

FROM 08:30 TO 09:30



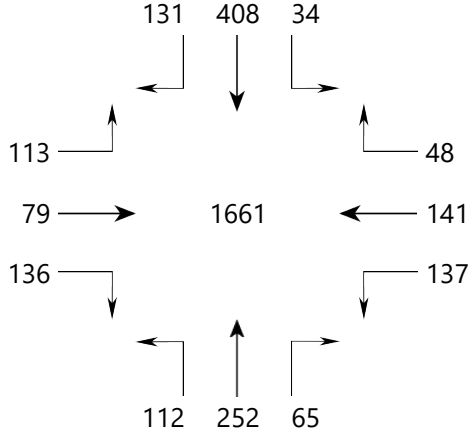
MID-DAY PEAK HOUR VOLUME (11:00-14:00)

FROM 11:45 TO 12:45



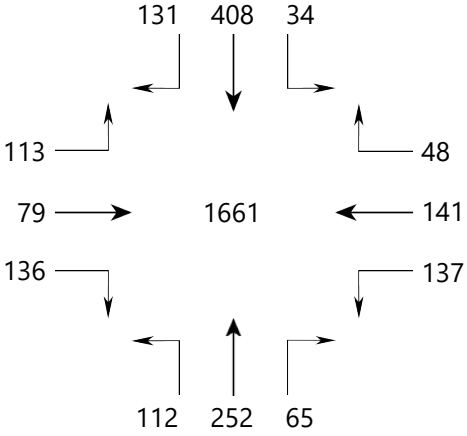
PM PEAK HOUR VOLUME (14:15-23:45)

FROM 16:15 TO 17:15



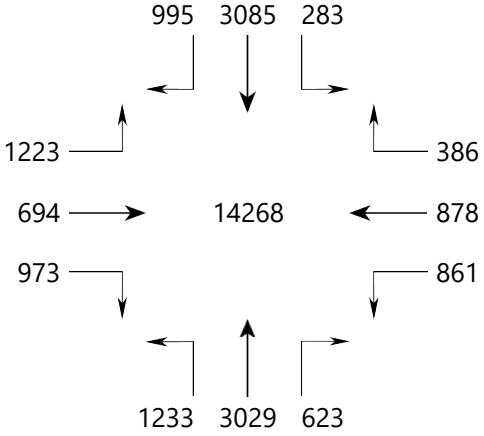
OVERALL PEAK HOUR VOLUME

FROM 16:15 TO 17:15



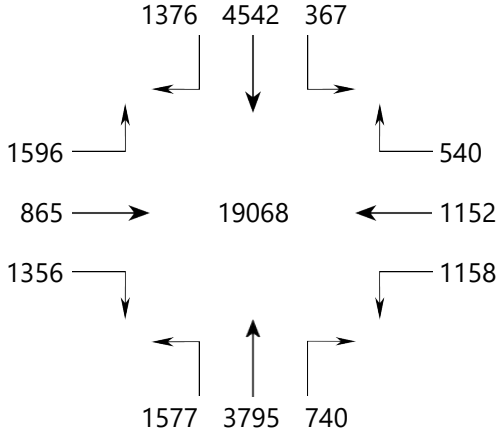
DAYTIME TOTAL VOLUME

FROM 07:00 TO 18:00



SELECTED TIME VOLUME

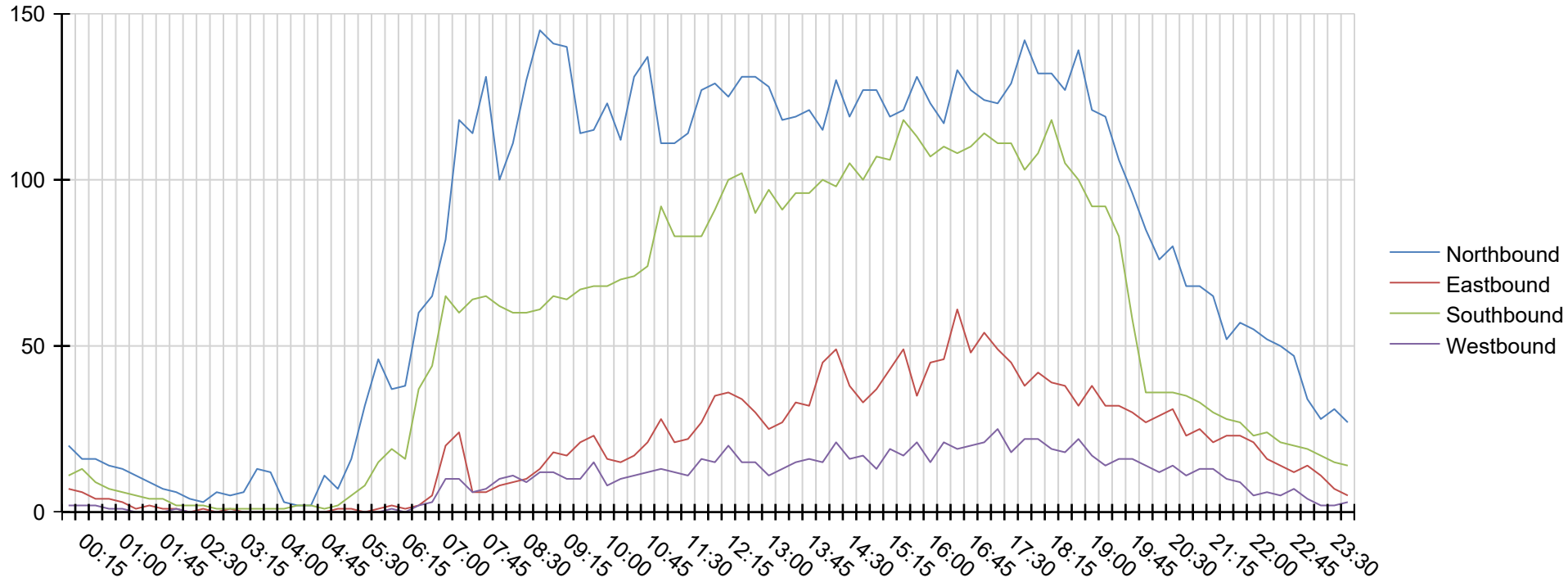
FROM 00:00 TO 23:59



GRIDSMART® Turning Movement Counts - Average

Intersection 077-216 Rt 195 & Bolton Rd & Bolton Rd Extension
Date 4/12/2022-4/28/2022

	Right	Through	Left	UTurn	Total
Northbound	578	5956	1241	9	7785
Eastbound	1062	463	447	2	1977
Southbound	343	4304	653	6	5307
Westbound	289	231	435	1	957
Total	**2273**	**10956**	**2778**	**19**	**16027**



GRIDSMART® Turning Movement Counts - Average

Intersection 077-216 Rt 195 & Bolton Rd & Bolton Rd Extension
Date 4/12/2022-4/28/2022

	Northbound				Eastbound				Southbound				Westbound			
	R	T	L	U	R	T	L	U	R	T	L	U	R	T	L	U
00:00	0	17	2		4	2	0		0	10	1		1	0	0	
00:15	1	13	1		4	1	0		0	10	2		0	0	0	
00:30	0	14	1		3	0	1		0	7	1		1	0	0	
00:45	0	12	2		2	1	0		0	5	1		0	0	0	
01:00	0	10	2		2	0	0		0	5	1		0		0	
01:15	1	9	1		1	0	0			4	0		0		0	
01:30	0	8	0		1	0	0			3	0		0	0	0	
01:45	0	5	1		1		0		0	3	0		0	0	0	
02:00	0	5	0		1	0	0			2			0	0	0	
02:15		3	0		0	0				2					0	
02:30		3	0	0	1	0	0			2	0		0		0	
02:45		5	0		0		0			1	0		0	0	0	
03:00		5	0		0	0	0			1	0					
03:15		6	0		0	0				0	0			0	0	
03:30		9	3			0				1						
03:45		10	1		0		0			1	0		0			
04:00		3					0			1	0				0	
04:15		2	0		0					2	0					
04:30	0	2	0			0	0			2			0	0		
04:45	0	11	0		0					1						
05:00	0	7	0		0	0	0			2	0					
05:15	0	14	1		0	0	0		0	4	0			0	0	
05:30	1	25	6		0		0		0	8	0		0	0	0	
05:45	0	40	5		0	0	0		0	14	0		0		0	
06:00	0	34	1	0	0	0	1		0	19	0		1	0	0	
06:15	0	34	4		0	0	0		1	15	0		0			

GRIDSMART® Turning Movement Counts - Average

Intersection 077-216 Rt 195 & Bolton Rd & Bolton Rd Extension
Date 4/12/2022-4/28/2022

	Northbound				Eastbound				Southbound				Westbound			
	R	T	L	U	R	T	L	U	R	T	L	U	R	T	L	U
06:30	1	49	8		0	0	1	0	2	33	1		1	0	0	
06:45	1	48	16		3	0	1		6	36	2		0	1	2	
07:00	2	57	21		10	2	7		19	43	2		3	4	2	
07:15	3	85	29	0	10	3	10		17	39	3		1	7	1	
07:30	2	88	23		2	1	2	0	3	56	4		2	2	2	
07:45	5	99	26		4	0	1	0	5	55	5		3	2	1	
08:00	3	74	23		4	2	2		7	49	5	0	4	2	3	
08:15	4	81	24	0	5	1	2		6	47	6		3	4	3	
08:30	7	95	28		5	1	3	0	8	48	3		2	2	4	
08:45	8	102	34		5	2	5		11	45	4		3	3	5	
09:00	7	105	28		7	4	6		9	50	5	0	3	3	4	
09:15	6	106	26	0	6	4	6		6	50	7		2	2	5	
09:30	6	86	21		9	5	6		10	51	5		2	2	4	
09:45	7	82	25	0	10	5	8		11	52	4	0	3	5	6	
10:00	7	93	22	0	6	4	5		5	56	5	0	1	2	4	
10:15	10	85	17		8	2	4		4	60	5	0	2	2	5	
10:30	8	98	23	0	8	3	5		4	60	6		2	2	6	
10:45	10	103	22	0	10	5	6	0	5	61	7	0	2	2	7	
11:00	8	89	13	0	14	5	8		4	79	8	0	3	2	7	
11:15	7	88	15	0	10	5	5		5	71	6	0	3	2	7	
11:30	10	88	16	0	10	5	6		2	72	8	0	2	3	5	
11:45	10	95	20	0	14	6	6		4	68	11	0	4	2	9	
12:00	10	101	17	0	20	6	8	0	5	78	8	0	4	4	7	
12:15	11	93	20	0	19	8	8		5	81	13		5	5	9	
12:30	11	102	17	0	19	8	7		5	83	13	0	4	3	8	
12:45	12	101	17	0	15	8	7		3	76	9	0	5	2	7	0

GRIDSMART® Turning Movement Counts - Average

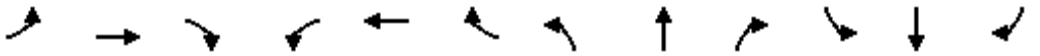
Intersection 077-216 Rt 195 & Bolton Rd & Bolton Rd Extension
Date 4/12/2022-4/28/2022

	Northbound				Eastbound				Southbound				Westbound			
	R	T	L	U	R	T	L	U	R	T	L	U	R	T	L	U
13:00	10	101	15	0	12	6	6		3	83	9	0	3	2	5	
13:15	11	88	19		13	7	6		4	75	11	0	3	3	7	
13:30	11	91	16	0	16	7	9		9	76	11	0	3	4	7	
13:45	10	91	20	0	18	7	5	0	13	71	11	0	5	4	7	
14:00	11	85	18		21	10	13		7	81	11	0	4	3	7	
14:15	10	99	19	0	23	12	14		5	83	10	0	5	8	8	
14:30	8	92	19	0	20	9	8		4	90	11	0	4	2	9	
14:45	12	95	18		17	8	7	0	5	82	12		5	4	7	
15:00	11	96	19	0	21	8	7	0	5	91	11		4	3	6	
15:15	9	90	18	0	25	8	9		5	90	10	0	5	3	10	
15:30	13	91	16	0	30	10	8		6	98	13	0	4	4	8	
15:45	11	99	20	0	19	7	8	0	5	93	13	0	6	4	10	
16:00	11	94	17	0	25	10	10		4	89	13	0	3	4	8	
16:15	9	90	17	0	26	9	10	0	7	90	11	0	5	4	11	
16:30	11	99	23	0	35	12	13	0	5	92	10		6	3	8	
16:45	12	96	17	0	29	8	10	0	6	92	11	0	7	3	9	
17:00	10	94	18	0	32	10	11		5	98	11	0	4	5	11	0
17:15	13	90	19	0	27	12	9		4	91	15	0	7	4	13	
17:30	12	97	19	0	24	13	7	0	3	93	14	0	5	4	8	0
17:45	13	103	24	0	20	9	7	0	5	85	12	0	6	4	11	0
18:00	11	101	19	0	21	12	8	0	4	90	14		6	5	11	
18:15	13	100	17	0	20	11	6	0	5	95	17		5	4	8	0
18:30	11	95	20	0	19	11	6	0	5	83	16		3	5	9	
18:45	12	101	25		18	8	6	0	5	81	13		6	5	10	
19:00	12	90	18		20	12	5		3	73	15		5	3	8	0
19:15	9	92	16	0	15	10	6		2	74	15	0	4	3	6	

GRIDSMART® Turning Movement Counts - Average

Intersection 077-216 Rt 195 & Bolton Rd & Bolton Rd Extension
Date 4/12/2022-4/28/2022

	Northbound				Eastbound				Southbound				Westbound			
	R	T	L	U	R	T	L	U	R	T	L	U	R	T	L	U
19:30	8	84	13	0	17	8	5		3	64	15	0	6	3	6	0
19:45	9	73	13		16	8	5	0	1	41	15		6	3	6	
20:00	8	65	10		15	7	5		0	22	12		5	3	5	
20:15	7	56	11		17	8	4		0	25	10		4	2	4	
20:30	6	63	10		17	6	8		0	26	10		3	4	6	
20:45	5	52	10		13	5	4		0	25	9		4	2	3	
21:00	6	53	8		13	7	4		0	22	10		4	3	5	
21:15	5	51	7	0	12	5	4		0	19	11		6	2	3	
21:30	5	40	7		14	5	3		0	19	7		4	1	3	
21:45	3	46	7		13	6	3		0	20	7		3	2	3	
22:00	3	46	5	0	13	4	3		0	18	4		2	1	2	
22:15	2	43	6		10	4	1		0	19	4		2	1	2	
22:30	2	42	5	0	9	2	2		0	17	3		1	1	2	
22:45	0	39	7		8	1	2		0	16	3		4	0	1	
23:00	1	28	4		8	3	3		0	14	4		2	0	1	
23:15	0	25	2		6	1	2		0	13	4		1	0	1	
23:30	1	25	4		5	1	0			12	3		0		1	
23:45	2	22	2		4	0	1			11	2		1	0	0	
Total	**578**	**5956**	**1241**	**9**	**1062**	**463**	**447**	**2**	**343**	**4304**	**653**	**6**	**289**	**231**	**435**	**1**



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	83	141	113	112	42	108	257	69	37	392	111
Future Volume (vph)	121	83	141	113	112	42	108	257	69	37	392	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	200		0	365		0	380		200
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.906			0.959			0.968			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1688	0	1770	1786	0	1770	1803	0	1770	3422	0
Flt Permitted	0.554			0.328			0.379			0.485		
Satd. Flow (perm)	1032	1688	0	611	1786	0	706	1803	0	903	3422	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		81						16			43	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		793			435			485			1329	
Travel Time (s)		18.0			9.9			11.0			30.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	243	0	123	168	0	117	354	0	40	547	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template												
Leading Detector (ft)	40	40		40	40		40	190		40	190	
Trailing Detector (ft)	-10	-10		-10	-10		-10	-10		-10	-10	
Detector 1 Position(ft)	-10	-10		-10	-10		-10	-10		-10	-10	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								180			180	
Detector 2 Size(ft)								10			10	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	

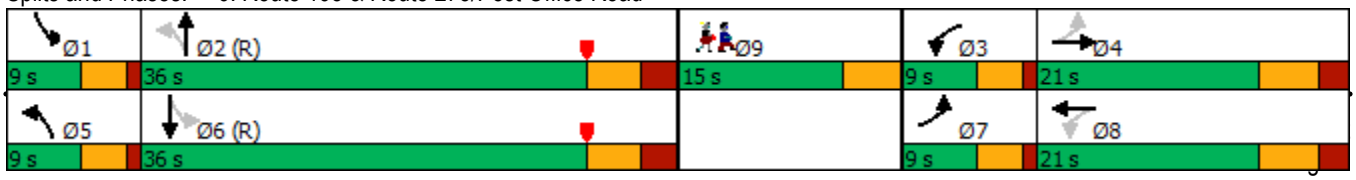
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	9.0	13.2		9.0	13.2		9.0	21.2		9.0	21.2	
Total Split (s)	9.0	21.0		9.0	21.0		9.0	36.0		9.0	36.0	
Total Split (%)	10.0%	23.3%		10.0%	23.3%		10.0%	40.0%		10.0%	40.0%	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.1		1.0	2.1		1.0	2.5		1.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.2		4.0	6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	19.4	12.2		19.4	12.2		47.2	42.0		45.6	38.4	
Actuated g/C Ratio	0.22	0.14		0.22	0.14		0.52	0.47		0.51	0.43	
v/c Ratio	0.50	0.82		0.63	0.70		0.27	0.42		0.08	0.37	
Control Delay	34.0	46.3		41.9	52.2		14.7	21.2		15.6	20.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.0	46.3		41.9	52.2		14.7	21.2		15.6	20.6	
LOS	C	D		D	D		B	C		B	C	
Approach Delay		42.0			47.8			19.6			20.3	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	59	89		55	91		36	154		8	87	
Queue Length 95th (ft)	105	#188		#98	155		70	248		m27	167	
Internal Link Dist (ft)		713			355			405			1249	
Turn Bay Length (ft)	250			200			365			380		
Base Capacity (vph)	263	345		195	293		429	850		506	1485	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.50	0.70		0.63	0.57		0.27	0.42		0.08	0.37	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 29.5 Intersection LOS: C
Intersection Capacity Utilization 58.2% ICU Level of Service B
Analysis Period (min) 15

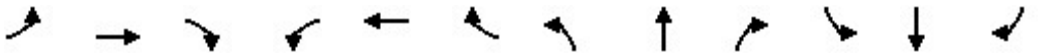
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Route 195 & Route 275/Post Office Road



Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	15.0
Total Split (s)	15.0
Total Split (%)	17%
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	36	100	37	16	18	70	374	44	50	370	22
Future Volume (vph)	36	36	100	37	16	18	70	374	44	50	370	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	0		0	125		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.890			0.919			0.984			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1658	0	1770	1712	0	1770	1833	0	1770	1848	0
Flt Permitted	0.733			0.498			0.416			0.390		
Satd. Flow (perm)	1365	1658	0	928	1712	0	775	1833	0	726	1848	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109			20			8			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		515			200			1329			677	
Travel Time (s)		11.7			4.5			30.2			15.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	148	0	40	37	0	76	455	0	54	426	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template												
Leading Detector (ft)	40	40		40	40		40	206		40	210	
Trailing Detector (ft)	-10	-10		-10	-10		-10	-10		-10	-10	
Detector 1 Position(ft)	-10	-10		-10	-10		-10	-10		-10	-10	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								200			200	
Detector 2 Size(ft)								6			10	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	

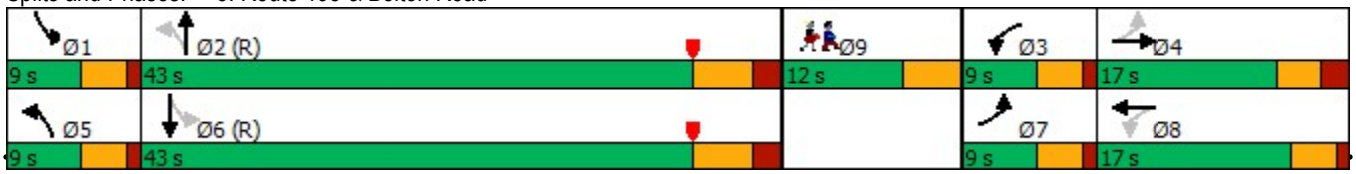
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	9.0	12.0		9.0	12.0		9.0	21.0		9.0	21.0	
Total Split (s)	9.0	17.0		9.0	17.0		9.0	43.0		9.0	43.0	
Total Split (%)	10.0%	18.9%		10.0%	18.9%		10.0%	47.8%		10.0%	47.8%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	1.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0		4.0	4.0		4.0	6.0		4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	12.3	8.3		12.3	9.3		52.1	46.1		52.1	46.1	
Actuated g/C Ratio	0.14	0.09		0.14	0.10		0.58	0.51		0.58	0.51	
v/c Ratio	0.19	0.59		0.23	0.19		0.15	0.48		0.11	0.45	
Control Delay	31.2	22.8		32.4	23.7		14.7	24.5		9.4	17.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.2	22.8		32.4	23.7		14.7	24.5		9.4	17.9	
LOS	C	C		C	C		B	C		A	B	
Approach Delay		24.5			28.2			23.1			16.9	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	19	21		19	9		23	215		12	160	
Queue Length 95th (ft)	43	76		43	36		m51	367		31	272	
Internal Link Dist (ft)		435			120			1249			597	
Turn Bay Length (ft)	300						125			125		
Base Capacity (vph)	209	315		174	264		503	942		477	947	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.47		0.23	0.14		0.15	0.48		0.11	0.45	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 21.3 Intersection LOS: C
Intersection Capacity Utilization 54.6% ICU Level of Service A
Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 195 & Bolton Road



Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	12.0
Total Split (s)	12.0
Total Split (%)	13%
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	Ped
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	83	141	113	112	42	108	257	69	37	392	111
Future Volume (vph)	121	83	141	113	112	42	108	257	69	37	392	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	200		0	365		0	380		200
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.906			0.959			0.968				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1688	0	1770	1786	0	1770	1803	0	1770	1863	1583
Flt Permitted	0.554			0.328			0.351			0.485		
Satd. Flow (perm)	1032	1688	0	611	1786	0	654	1803	0	903	1863	1583
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		81						16				136
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		793			435			485			1329	
Travel Time (s)		18.0			9.9			11.0			30.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	243	0	123	168	0	117	354	0	40	426	121
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	1
Detector Template												
Leading Detector (ft)	40	40		40	40		40	190		40	190	40
Trailing Detector (ft)	-10	-10		-10	-10		-10	-10		-10	-10	-10
Detector 1 Position(ft)	-10	-10		-10	-10		-10	-10		-10	-10	-10
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)								180			180	
Detector 2 Size(ft)								10			10	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	7

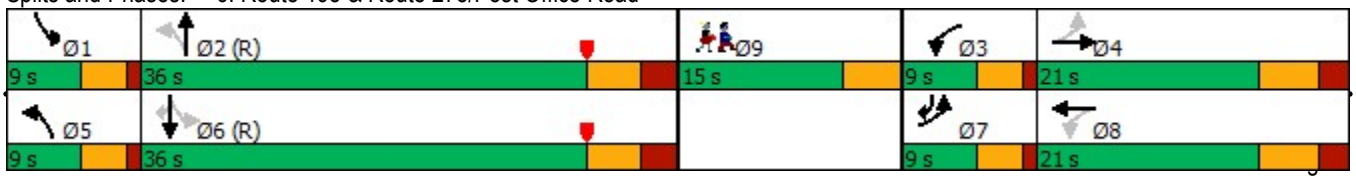
Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0		5.0	15.0	5.0
Minimum Split (s)	9.0	13.2		9.0	13.2		9.0	21.2		9.0	21.2	9.0
Total Split (s)	9.0	21.0		9.0	21.0		9.0	36.0		9.0	36.0	9.0
Total Split (%)	10.0%	23.3%		10.0%	23.3%		10.0%	40.0%		10.0%	40.0%	10.0%
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	3.7		3.0	3.7	3.0
All-Red Time (s)	1.0	2.1		1.0	2.1		1.0	2.5		1.0	2.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.2		4.0	6.2	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)	19.4	12.2		19.4	12.2		47.2	42.0		45.6	38.4	47.2
Actuated g/C Ratio	0.22	0.14		0.22	0.14		0.52	0.47		0.51	0.43	0.52
v/c Ratio	0.50	0.82		0.63	0.70		0.29	0.42		0.08	0.54	0.14
Control Delay	34.0	46.3		41.9	52.2		14.9	21.2		16.4	26.6	2.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.0	46.3		41.9	52.2		14.9	21.2		16.4	26.6	2.3
LOS	C	D		D	D		B	C		B	C	A
Approach Delay		42.0			47.8			19.6			20.9	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	59	89		55	91		36	154		8	147	0
Queue Length 95th (ft)	105	#188		#98	155		70	248		m30	295	38
Internal Link Dist (ft)		713			355			405			1249	
Turn Bay Length (ft)	250			200			365			380		200
Base Capacity (vph)	263	345		195	293		405	850		506	795	894
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.50	0.70		0.63	0.57		0.29	0.42		0.08	0.54	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 29.7 Intersection LOS: C
Intersection Capacity Utilization 62.9% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Route 195 & Route 275/Post Office Road

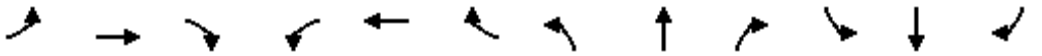


Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	15.0
Total Split (s)	15.0
Total Split (%)	17%
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Conceptual Operation Report - MAX LEFT TURN VOL

PM Peak Hour (3:30-4:30 PM)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	36	100	37	16	18	70	374	44	200	370	22
Future Volume (vph)	36	36	100	37	16	18	70	374	44	200	370	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	0		0	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.890			0.919			0.984			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1658	0	1770	1712	0	1770	1833	0	1770	1848	0
Flt Permitted	0.733			0.487			0.467			0.327		
Satd. Flow (perm)	1365	1658	0	907	1712	0	870	1833	0	609	1848	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109			20			7			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		515			200			1329			677	
Travel Time (s)		11.7			4.5			30.2			15.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	148	0	40	37	0	76	455	0	217	426	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	2		1	2	
Detector Template												
Leading Detector (ft)	40	40		40	40		40	206		40	210	
Trailing Detector (ft)	-10	-10		-10	-10		-10	-10		-10	-10	
Detector 1 Position(ft)	-10	-10		-10	-10		-10	-10		-10	-10	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								200			200	
Detector 2 Size(ft)								6			10	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	

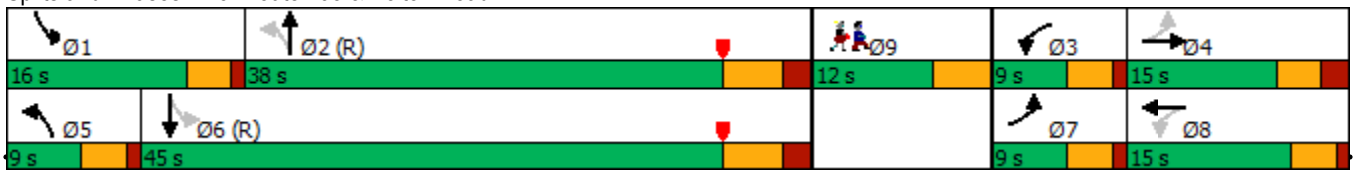
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	15.0		5.0	15.0	
Minimum Split (s)	9.0	12.0		9.0	12.0		9.0	21.0		9.0	21.0	
Total Split (s)	9.0	15.0		9.0	15.0		9.0	38.0		16.0	45.0	
Total Split (%)	10.0%	16.7%		10.0%	16.7%		10.0%	42.2%		17.8%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	1.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0		4.0	4.0		4.0	6.0		4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	11.9	7.9		11.9	8.9		48.0	41.0		55.1	46.5	
Actuated g/C Ratio	0.13	0.09		0.13	0.10		0.53	0.46		0.61	0.52	
v/c Ratio	0.19	0.60		0.24	0.20		0.15	0.54		0.45	0.45	
Control Delay	32.1	24.0		33.4	24.6		14.6	29.1		11.7	17.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.1	24.0		33.4	24.6		14.6	29.1		11.7	17.4	
LOS	C	C		C	C		B	C		B	B	
Approach Delay		25.7			29.1			27.0			15.5	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	19	21		19	9		23	240		53	160	
Queue Length 95th (ft)	44	79		45	37		m51	373		97	260	
Internal Link Dist (ft)		435			120			1249			597	
Turn Bay Length (ft)	300						125			100		
Base Capacity (vph)	203	281		168	226		514	839		531	955	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.53		0.24	0.16		0.15	0.54		0.41	0.45	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 61.5% ICU Level of Service B
Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 195 & Bolton Road



Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	12.0
Total Split (s)	12.0
Total Split (%)	13%
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	Ped
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary