



COMMUNITY
connectivity program

Warren

State Highway 45 and 478 – Road Safety Audit

April 26, 2017



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Acknowledgements:

OFFICE OF INTERMODAL PLANNING
BUREAU OF POLICY AND PLANNING
CONNECTICUT DEPARTMENT OF TRANSPORTATION

With assistance from AECOM Transportation Planning Group

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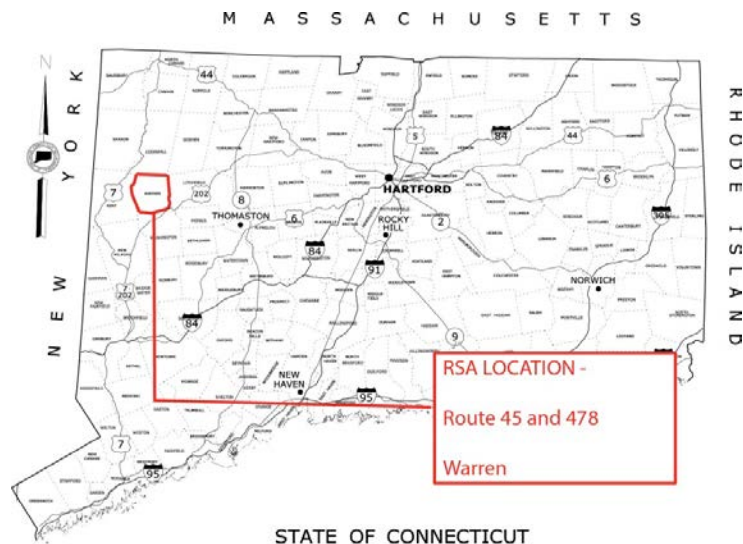
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The Connecticut Department of Transportation (CTDOT) is undertaking a Community Connectivity Program that focuses on improving the state's transportation network for all users, with an emphasis on bicyclists and pedestrians. A major component of this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

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

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



1 Introduction to the Warren State Route 45 and 478, Warren RSA

The Town of Warren submitted an application to complete an RSA on Route 45 (East Shore Road) and Route 478 (West Shore Road/Lake Waramaug Road/North Shore Road) corridor to improve safety for pedestrians and bicyclists around Lake Waramaug. State Routes 45 and 478 form a loop around Lake Waramaug. This loop includes portions of the neighboring municipalities of Kent to the west and Washington in the south. The corridor has narrow travel lanes and has minimal or no shoulders, making it unsuitable for bicycle and pedestrian use and discouraging those users. Nonetheless, it is a designated bicycle route.

The Town of Warren’s application contained information on bicycle volume data (Strava), and mapping of the corridor. The application and supporting documentation are included in Appendix A.

1.1 Location

The audit corridor of Route 45 and 478 forms a loop around Lake Waramaug (Figure 1). Route 45 has the highest Average Daily Traffic (ADT) that is between 1,800 and 2,600 vehicles per day (vpd), while the rest of the corridor has an ADT range from 100-600 vpd. These are fairly low traffic volumes, which is expected given the rural nature of the corridor. Figure 2 shows the regional context of the study area.

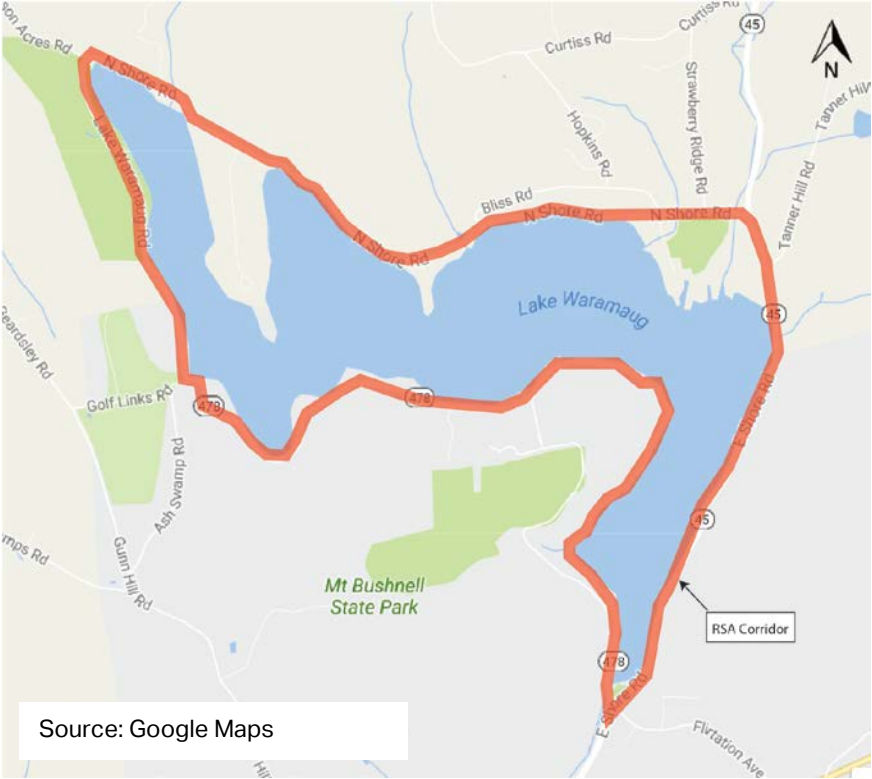


Figure 1. Warren RSA Corridors

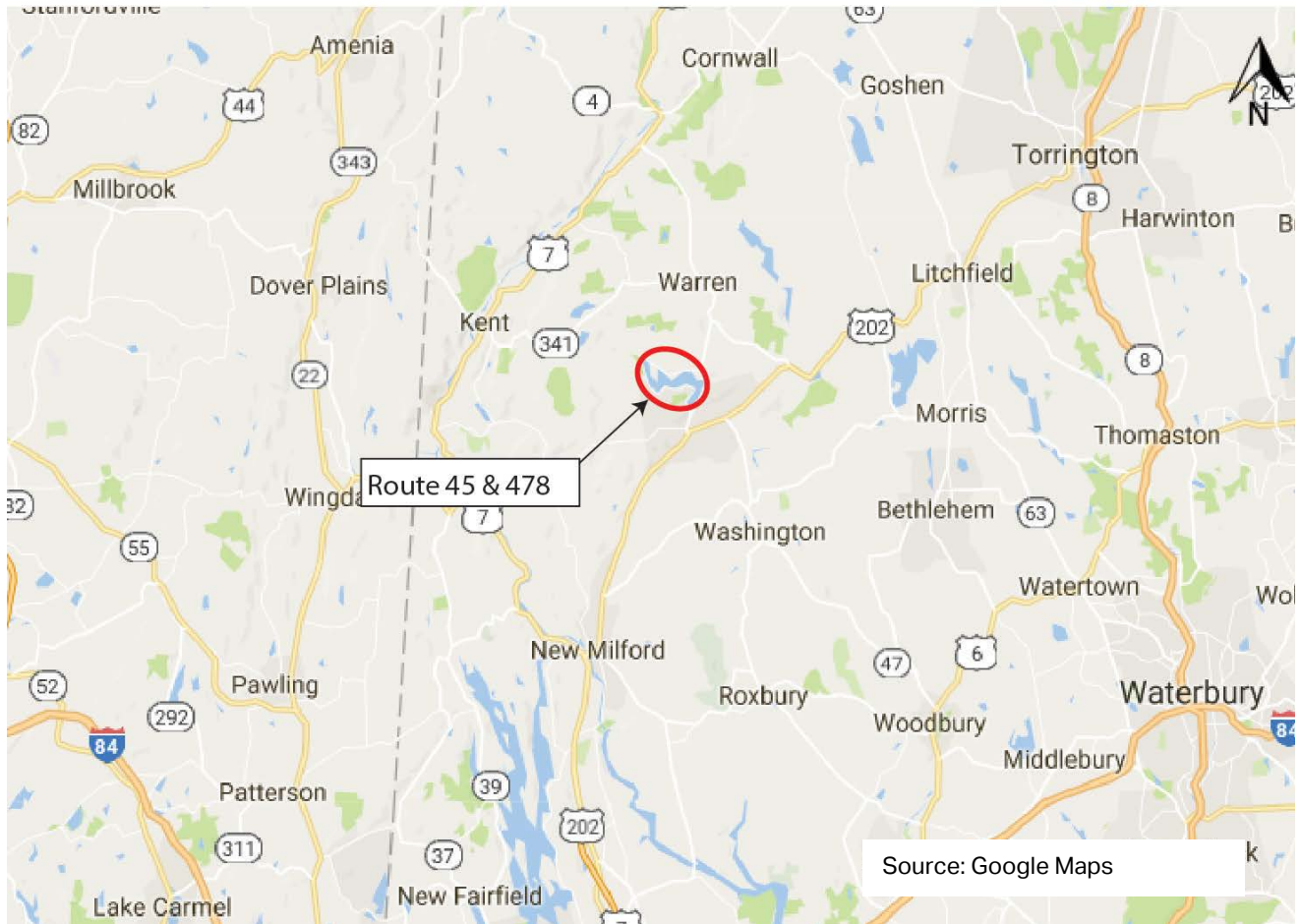


Figure 2. Regional Context

2 Pre-Audit Assessment

2.1 Pre-Audit Information

Between 2012 and 2014 there were 8 crashes in the RSA Area. The majority of crashes (75%) reported in this area resulted in property damage only; however 25% of crashes did result in an injury (Table 1 and Table 2). No crashes involved bicyclists or pedestrians. The crash types reported were primarily fixed object. Figure 3 displays crashes that occurred in this area during 2015. The crash history for year 2015 shows that they are dispersed throughout the corridor.

Severity Type	Number of Accidents	
Property Damage Only	6	75%
Injury (No fatality)	2	25%
Fatality	0	0%
Total	8	

Table 1. Crash Severity 2012-2014

Source: UConn Connecticut Crash Data Repository

Manner of Crash / Collision Impact	Number of Accidents	
Unknown	0	0%
Sideswipe-Same Direction	0	0%
Rear-end	1	13%
Turning-Intersecting Paths	1	13%
Turning-Opposite Direction	1	13%
Fixed Object	3	38%
Backing	0	0%
Angle	0	0%
Turning-Same Direction	0	0%
Moving Object	0	0%
Parking	0	0%
Pedestrian	0	0%
Overturn	0	0%
Head-on	0	0%
Sideswipe-Opposite Direction	2	25%
Miscellaneous- Non Collision	0	0%
Total	8	

Table 2. Crash Type 2012-2014

Source: UConn Connecticut Crash Data Repository

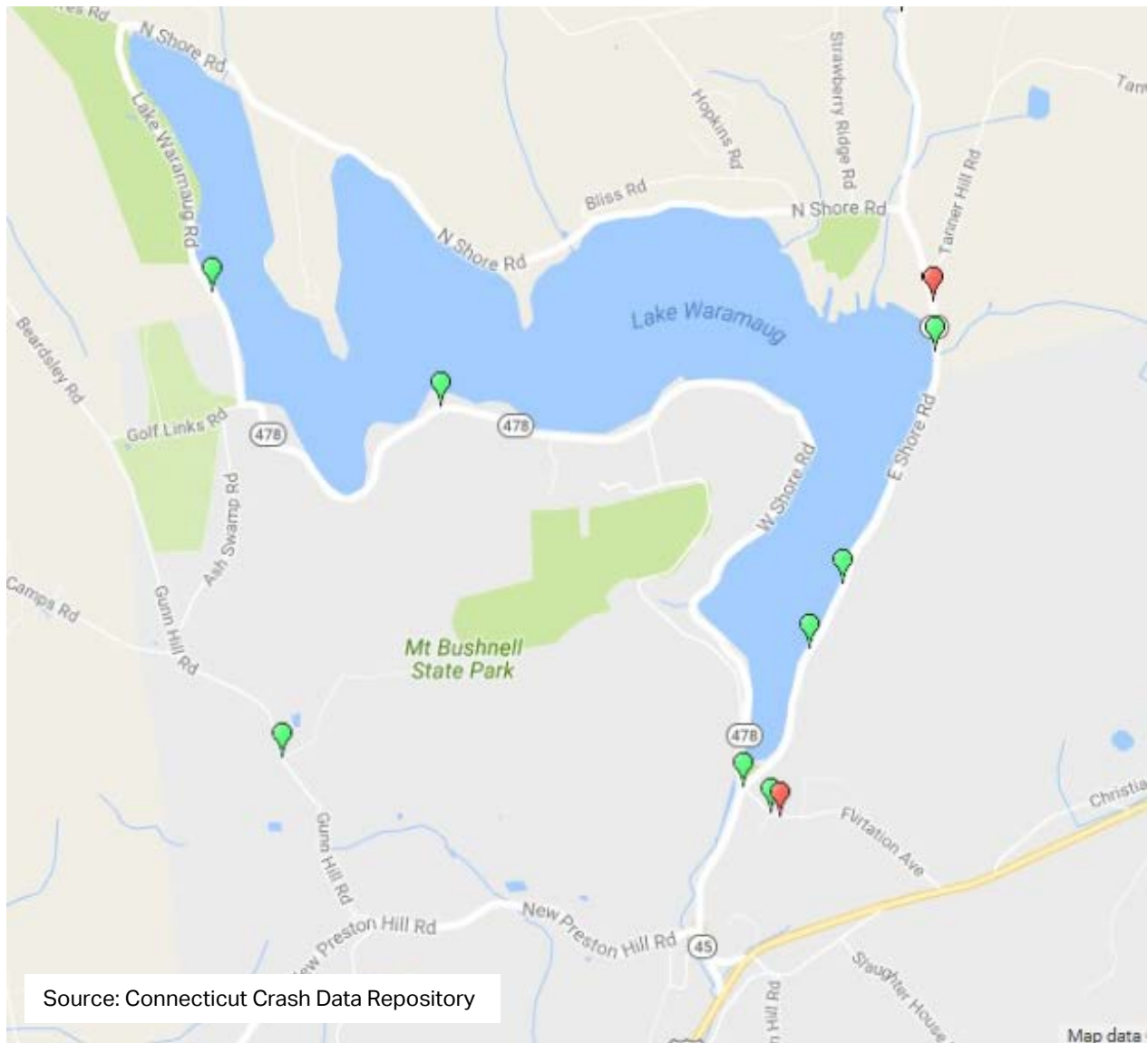


Figure 3. Crashes that Occurred in 2015 (Connecticut Crash Data Repository)

Route 45 is a two lane road with an overall width of approximately 30 feet, and striped 12 foot wide lanes. It has a posted speed limit of 45 mph, and serves as a north/south through route. It is Route 478 is a narrow, curving, two lane road with narrow or no shoulders and a posted speed limit of 25 mph. The corridor has no sidewalks. The geometry of the corridor is shown in Figure 4 and described in Table 3.

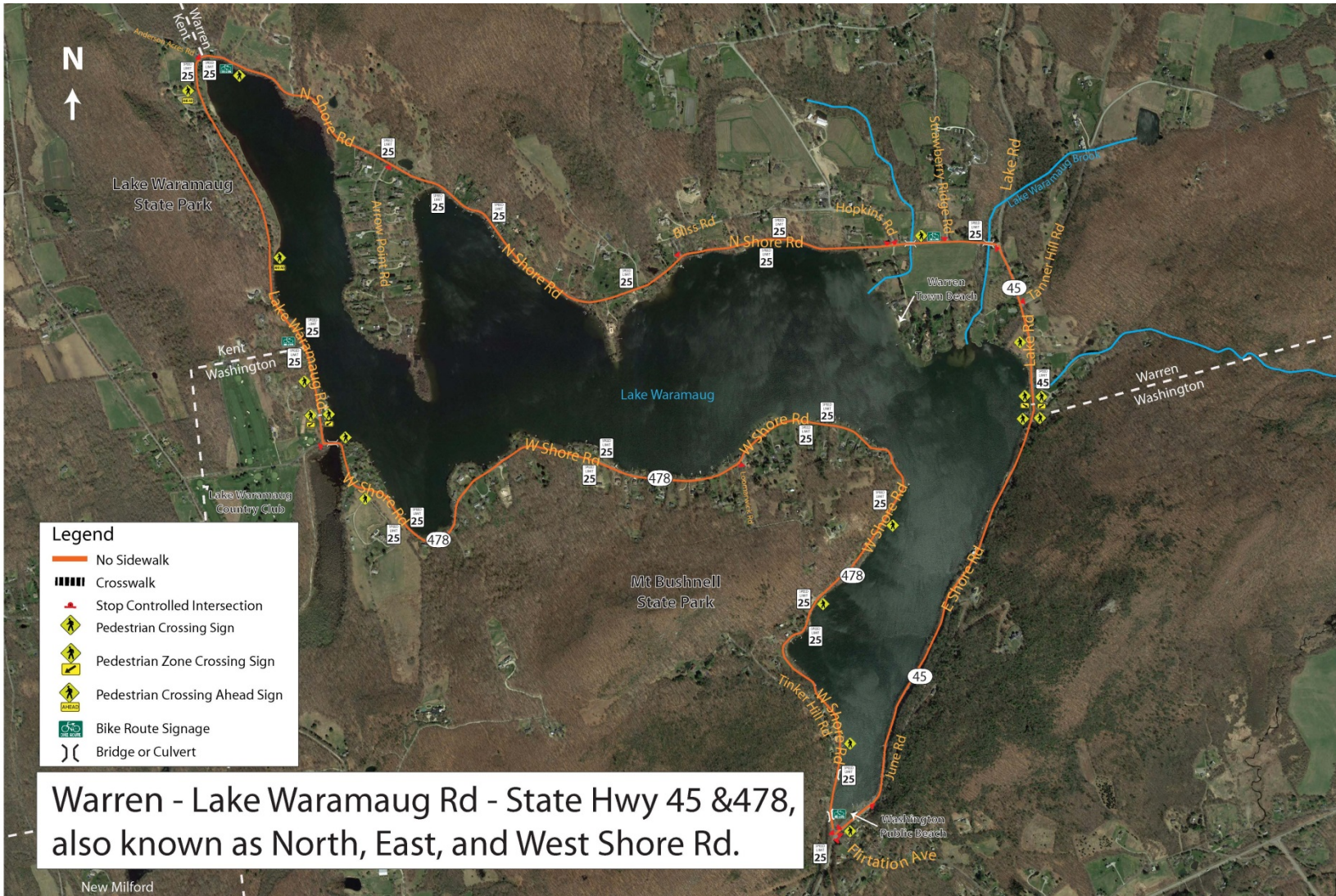


Figure 4. Warren Geometrics

Warren - Route 45 and 478 Street Inventory

Street	Route	Lanes	Avg. Lane Width	Sidewalk				Curb	Parking	Shoulder	Ramps	
				Side	Type	Width	Condition*				Exist	Compliant
North Shore Road	Route 478	1	9-11'	EB	None	N/A	N/A	None	No	None	No	N/A
		1	9-11'	WB	None	N/A	N/A	None	No	None	No	N/A
Lake Waramaug Road	Route 478	1	7-12'	NB	None	N/A	N/A	None	No	None	No	N/A
West Shore Road		1	7-12'	SB	None	N/A	N/A	None	No	None	No	N/A
East Shore Road	Route 45	1	11'	NB	No	N/A	N/A	None	No	2-4'	No	N/A
Lake Road		1	11'	SB	No	N/A	N/A	None	No	2-4'	No	N/A

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

Table 3. Intersection Street Inventory

2.2 Prior Successful Efforts

Warren has received a state STEAP grant that will fund the construction of sidewalks in the town center. CTDOT is in the process of replacing drainage structures and culverts throughout the corridor and has notified the Town that the corridor is scheduled for Vendor-In-Place (VIP) resurfacing in 2017.

2.3 Pre-Audit Meeting

The RSA was conducted on April 26, 2017. The Pre-Audit meeting was held at 8:30 AM in the Warren Town Hall located at 50 Cemetery Road in Warren.

The RSA Team was comprised of staff from CTDOT and AECOM, and representatives from several departments and organizations including the Warren First Selectman, Washington First Selectman, the Warren Road Foreman and the Resident State Police Trooper from Washington. The complete list of attendees can be found in Appendix B. Materials distributed to the RSA Team, including the agenda, audit checklist, ADT counts, crash data and road geometrics, can be found in Appendix C.

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

- Most of the road in the Warren section is actually located on an easement and not on State right-of-way in fee, due to the road being shifted from its original location years ago, and taken over by the State from the town. Because of this, any work to widen the road would require extensive coordination with property owners.
- The entire corridor is on State Routes.
- Route 45 is a cut-through road with significant truck traffic.
- Traffic volumes throughout the rest of the corridor are low but there is constant construction activity surrounding the lake.
- The corridor is a popular bicycle route with significant bicycle volumes, sometimes exceeding the volume of vehicles.
- There may have been additional crashes that were unreported due to their minor nature. It is also felt that there are a significant number of "near misses".
- There are several bicycle events and tours on the corridor throughout the year.
- Campers and trailers are prevalent in the summer.
- There is a State Park in the northwest corner of the study area. The primary access to this park is via the RSA corridor roadways.
- The Town noted success with the permitting process that is now in use. The State issues permits for the road through the Town rather than directly issuing permits themselves so the Town now has control over the conditions of permits and which permits are approved or rejected.

- There is a Lake Authority that is a police force for patrolling the lake only and this entity also has some input into the permitting process.
- There are several narrow sections of the corridor with tight corners and restricted sight lines.
- Low crash rates are deceptive because local knowledge of the roads likely prevents additional crashes from occurring.
- The best route for campers coming from the south would be to use Route 45 northbound and then travel west on North Shore Road. It is unknown if this route is currently used by most visitors.
- There is not much use of the corridor by tourists and most local users are very familiar with the road.
- Many of the bicyclists who use the corridor are not local users and come from out of town on long tours.
- Bicyclists often do not obey traffic laws.
- Large groups of bicyclists are common and bicyclists sometimes ride side by side through the corridor.
- Re-surfacing of the road that is planned for this year will improve shoulder conditions, which will allow bicyclists to stay further to the right.
- There is only a yellow line or double yellow line striped on the roads now and the Town indicated that the roads are likely not wide enough to allow for shoulder lines to be added.

3 RSA Assessment

3.1 Field Audit Observations

North Shore Road

- On North Shore Road, lane widths were measured as 11-feet in each direction near the Lake Road (the east end) (Figure 5). However, only 18-feet of overall roadway width is usable due to deteriorating pavement edges.
- At a cross culvert west of Bliss Road, the overall roadway width was measured to be 19-feet, with 15 feet of drivable pavement due to deteriorated edges.
- In several locations, there is a steep drop off to



Figure 5. North Shore Road near east end

the lake immediately on the south side of the road and a steep embankment immediately on the north side of the road, leaving very little additional room for roadway widening.

- There are various fixed objects immediately adjacent to the pavement on both sides of the road, including trees, tree stumps, rock outcrops, drainage ditches and utility poles.

Lake Waramaug Road

- At Lake Waramaug State Park lane widths were 10-feet and 12-feet on Lake Waramaug Road.
- There is no striped crosswalk at the Lake Waramaug State Park parking lot (Figure 6).
- This section of the loop corridor is in relatively good condition, with good sight lines and reasonable roadside clearances. Parking for the park and campground is on the west side, opposite the lake. Campers and park visitors cross the road at multiple locations, but the good visibility and low traffic volumes make this a generally acceptable condition.

West Shore Road

- Cable guide rails throughout the corridor are in poor condition, and leaning toward the lake.
- At Loomarwick Road the lane widths on West Shore Road are 10-feet in each direction.
- There is a sharp corner on West Shore Road where sight distance is limited by a ledge (Figure 7).
 - Lane widths at the corner are 8-9-feet in each direction.
 - The guiderail at this corner is low. It is a mix of cable/timber post and metal beam rail.
 - There are no marker signs to delineate this curve.



Figure 6. No crosswalk at Lake Waramaug State Park lot



Figure 7. Tight corner, narrow lane widths, limited sight distance

- The ledge is deteriorating and the natural rock is loose. The adjacent stone wall supporting the roadway on the north side appears to be very old and is in poor condition.
- There is a second sharp corner on West Shore Road where sight distance is limited by a rock embankment (Figure 8).
 - Lane widths at the corner are 7-8-feet in each direction.
 - There are no marker signs to delineate this curve.
 - Stairs from the house above this embankment come down to the street at this blind corner.
- Unusual open top drainage structures, some with wooden tops, are located along drainage ditches throughout the corridor (Figure 9).
- Non-bike friendly catch basin grates were observed at multiple locations (Figure 10).
- The latest retro-reflective pedestrian signs are not being used in the corridor.
- There are many signs on West Shore Road near the intersection with East Shore Road (Figure 11).
 - Lane widths in this area are 16-feet and 14-feet.



Figure 8. Second tight corner



Figure 9. Unusual drainage structures



Figure 10. Non-bicycle friendly grate



Figure 11. Dense signage

East Shore Road (Route 45)

- East Shore Road is Route 45 and carries through traffic between Cornwall Bridge and New Preston. It carries substantially higher traffic volumes than the roadway around Lake Waramaug.
- The pavement is generally 30 feet wide.
- The Lanes are striped at 12 feet wide, with 3 foot wide striped shoulders.
- There is cable guiderail with timber post on the lake side of the road, with a relatively steep slope down to the water. The Cable guide rail is leaning toward the lake.
- Much of the side sloe opposite the lake is a steep embankment.

3.2 Post-Audit Workshop - Key Issues

- There is a homeowner's association for property owners around the lake and the town has had some preliminary discussions with them at the association meetings.
- Dense signage was noted in the corridor.
- There are some locations where the road cannot be widened but in many areas, adding a few feet is possible.
- The possibility of alternating one-way traffic with a signal at the tight corners with limited sight distance was discussed (Figure 12, Figure 13).
 - It is thought that homeowners may be in support of this concept.
 - The structural integrity of walls and ledges at these corners should also be assessed.
 - There was also some discussion of the possibility of having no thru trucks due to these corners but it is thought that most truck traffic is local anyway.
- It was noted that the State maintains and plows the entire corridor.
- Leaves and sticks were noted in the catch basins.



Figure 12. Tight corner



Figure 13. Tight corner, failing cable guard rail

- A short term goal might be to request that CTDOT regularly clean catch basins.
- Long term consideration should be given to the roadside drainage ditches that currently exist to see if there are any better alternatives.
- After the road is resurfaced this year, short term consideration should be given to striping sharrows on the road.
- A striped crosswalk could be considered near Hopkins Road where the vineyard is located.
- Another possible location for a striped crosswalk is at the parking lot for the State Park.
- Pedestrian crossing signs should be updated to the latest retro-reflective standards.
- Cable guiderails throughout the corridor are failing (Figure 13).
 - It should be investigated whether these guiderails are being replaced during the resurfacing project this year.
- Improving communication between CTDOT, NHCOC (Northwest Hills Council of Governments) and the Town is a goal.
- Route 45 is the only road that could be considered for lane narrowing during resurfacing.
- There was some discussion of off road bike trails but it was not thought to be a feasible option.

4 Recommendations

From the discussions during the Post-Audit meeting, the RSA team compiled a set of recommendations that are divided into short-term, mid-term, and long-term categories. For the purposes of the RSA, **Short-term** is understood to mean modifications that can be expected to be completed very quickly, perhaps within six months, and certainly in less than a year if funding is available. These include relatively low-cost alternatives, such as striping and signing, and items that do not require additional study, design, or investigation (such as right-of way acquisition). **Mid-term** recommendations may be more costly and require establishment of a funding source, or they may need some additional study or design in order to be accomplished. Nonetheless, they are relatively quick turn-around items, and should not require significant lengths of time before they can be implemented. Generally, they should be completed within a window of eighteen months to two years if funding is available. **Long-term**

improvements are those that require substantial study and engineering, and may require significant funding mechanisms and/or right-of-way acquisition. These projects generally fall into a horizon of two years or more when funding is available.

4.1 Short Term

1. CTDOT to replace non-bicycle friendly catch basin grates with the bicycle friendly type as part of the drainage work currently being done in the corridor.
2. Town to request that CTDOT regularly clean catch basins in the corridor.
3. Consider adding sharrows to the roads after resurfacing of the corridor is completed this year.
4. Investigate the scope of the resurfacing project scheduled for later this year to determine if failing cable guide rails will be replaced under that project.
5. Town, NHCOC and CTDOT to coordinate with each other to improve communication regarding upcoming projects.
6. Evaluate signage throughout the corridor to determine if any signs can be removed or consolidated.

Figure 14 depicts these recommendations.

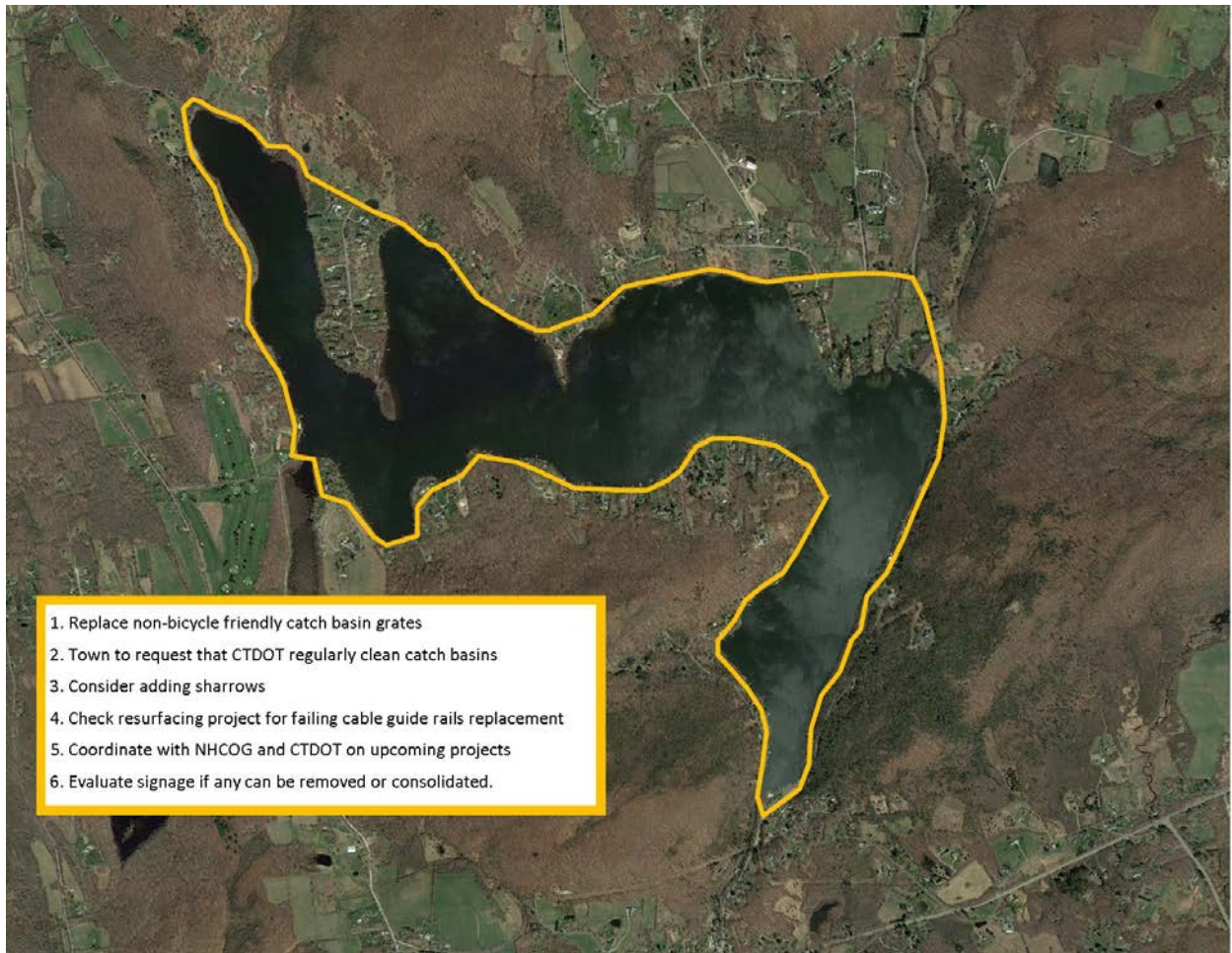


Figure 14. Short Term Recommendations

4.2 Medium Term

1. Consider adding crosswalks including the latest retro-reflective pedestrian signs at Hopkins Road and at the parking lot for the Waramaug State Park.
2. Assess the structural integrity of walls, ledges, embankments etc. to determine if structural improvements are needed in any locations.
3. Install yield lines 20' before crosswalk in both directions of SR 478. (Figure 15)

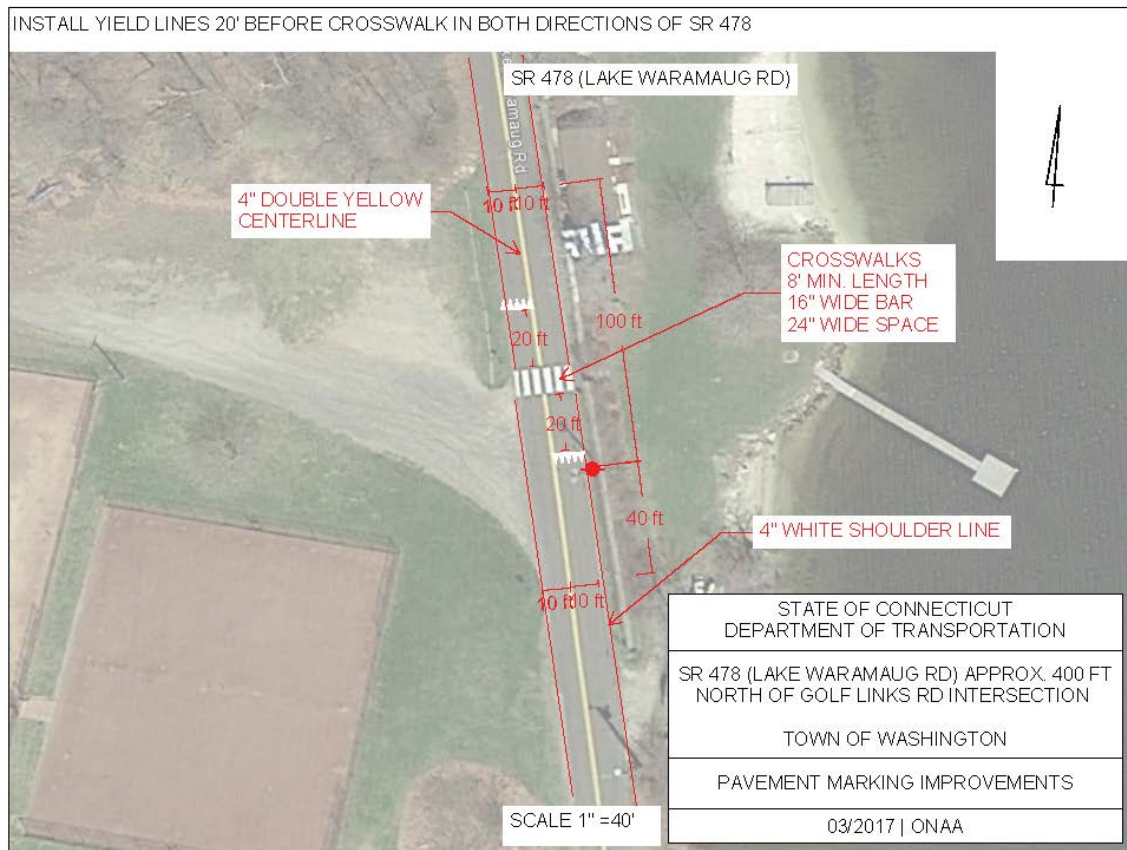


Figure 15. SR 478 Pavement marking improvements

Figure 16 depicts these recommendations.

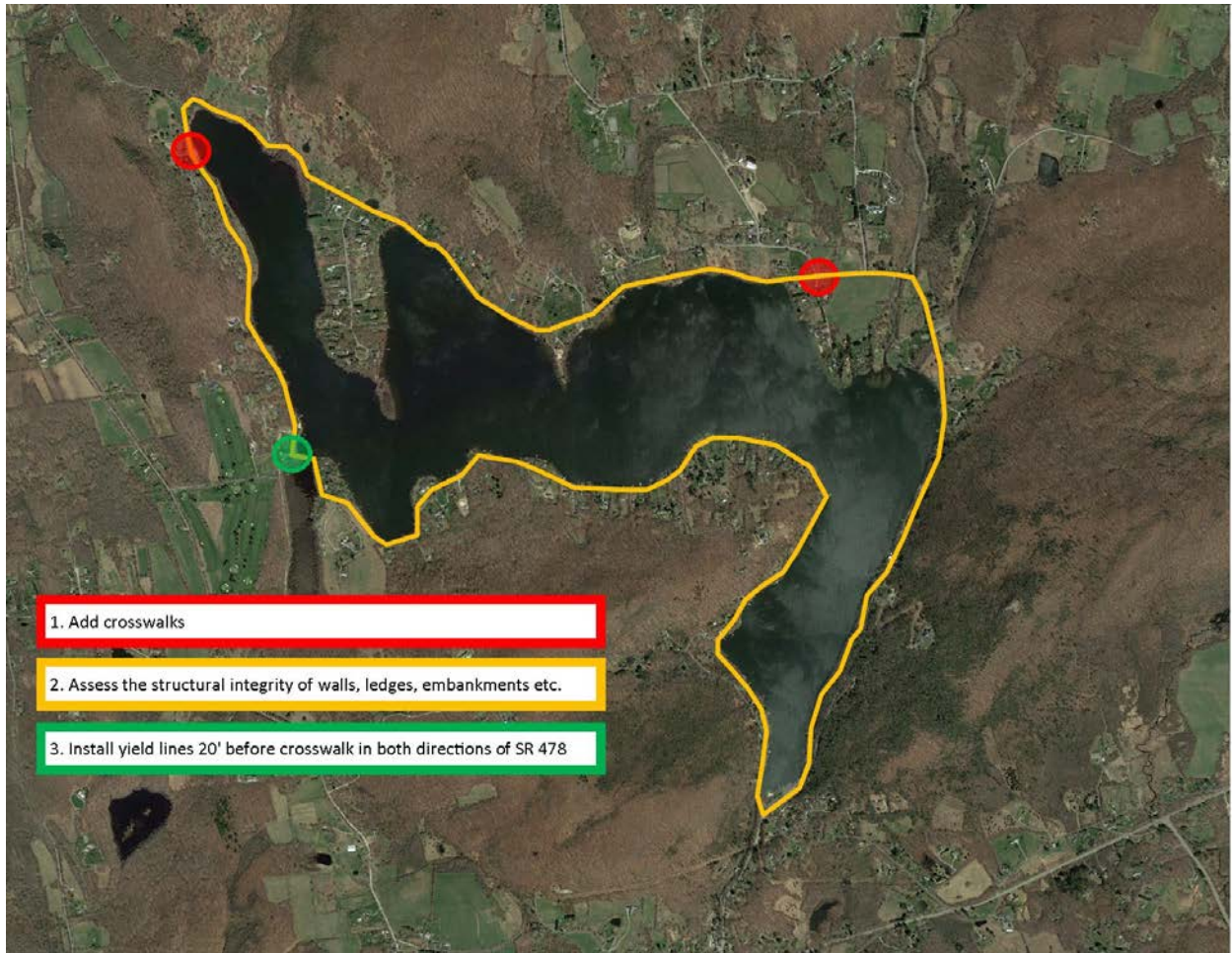


Figure 16. Medium Term Recommendations

4.3 Long Term

1. Town to coordinate with homeowners and widen roadway where possible.
2. Consider the alternative of alternating one-way traffic at the blind corners with a signal.
3. Consider alternatives to the roadside ditches that are currently present in many sections of the corridor.

Figure 17 depicts these recommendations.



Figure 17. Long Term Recommendations

4.4 Summary

This report outlines the observations, discussions and recommendations developed during the RSA. It documents the successful completion of the Town of Warren RSA and provides Warren with an outlined strategy to improve the transportation network around Lake Waramaug for all road users, particularly focusing on pedestrians and cyclists. Moving forward, Warren may use this report to prepare strategies for funding and implementing the improvements, and as a tool to plan for including these recommendations into future development for downtown.



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Appendix A



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Welcome to the Community Connectivity Program Application



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

1. Applicant contact information

Name	<input type="text"/>
Title	<input type="text"/>
Email Address	<input type="text"/>
Telephone Number	<input type="text"/>

2. Location information

Address	<input type="text"/>
Description	<input type="text"/>
City / Town	<input type="text"/>

3. Roadway type
(Please select all that apply)

State road

Local road

Private Road

Other (please specify)

4. Zoning
(Please select all that apply)

Industrial

Residential

Commercial

Mixed Use

Retail

N/A (not applicable)

Other (please specify)

5. Approximate mile radius around the location

Other (Please Specify)

6. Community Sites
(Please select all that apply)

Community Centers

Business Districts

Restaurant/Bar Districts

Churches

Housing Complexes

Proximity to Schools

Tourist Locations (examples – Casino, Malls, Parks, Aquarium, etc...)

N/A (not applicable)

Other (please specify)

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

Yes

No

If Yes please describe (please specify)

8. Educational facilities

(Please select all that apply)

Public, Parochial, Private Schools (more than 1 school within a ½ mile)

University / Community Colleges

N/A (not applicable)

Other (please specify)

9. Transit facilities

(Please select all that apply)

Bus

Rail

Ferry

Airport

Park and Ride Lot

N/A (not applicable)

Other (please specify)

10. Safety Concerns
(Please select all that apply)

Traffic (volumes & speed)

Collisions

Sidewalks

Traffic Signals

Traffic Signs

Parking Restrictions / Additions

Drainage

ADA Accommodations

Agricultural & Live Stock crossing

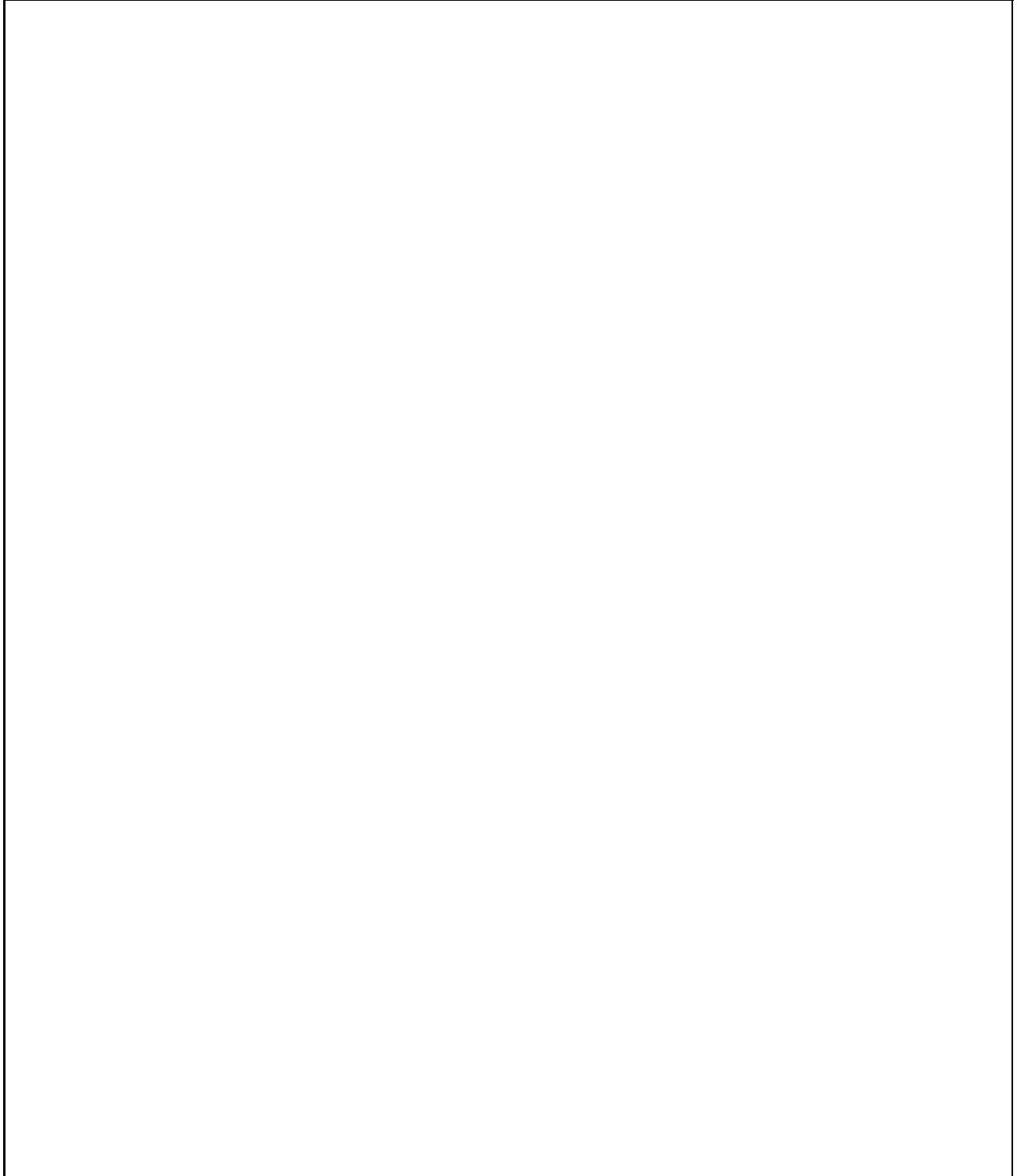
Maintenance issues (cutting grass, leaves, snow removal)

N/A (not applicable)

Other (please specify)

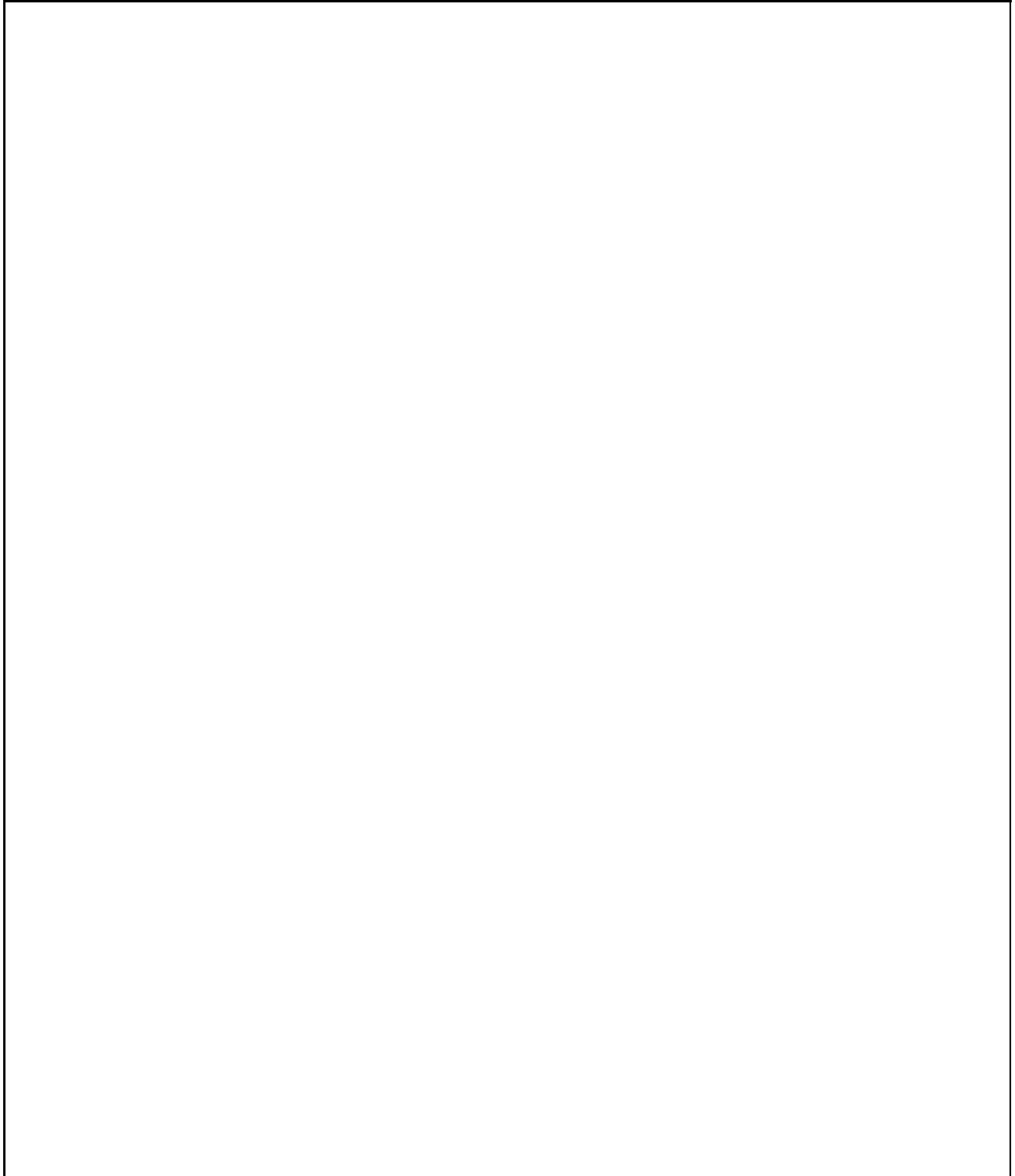
11. Are there any past, current or future transportation/economic development projects near this location (i.e. Federal, State or local projects)?

If Yes please describe and list all projects.

A large, empty rectangular box with a thin black border, intended for the user to describe and list any past, current, or future transportation or economic development projects near the location. The box is currently blank.

12. Environmental Concerns:

If Yes please describe and list.

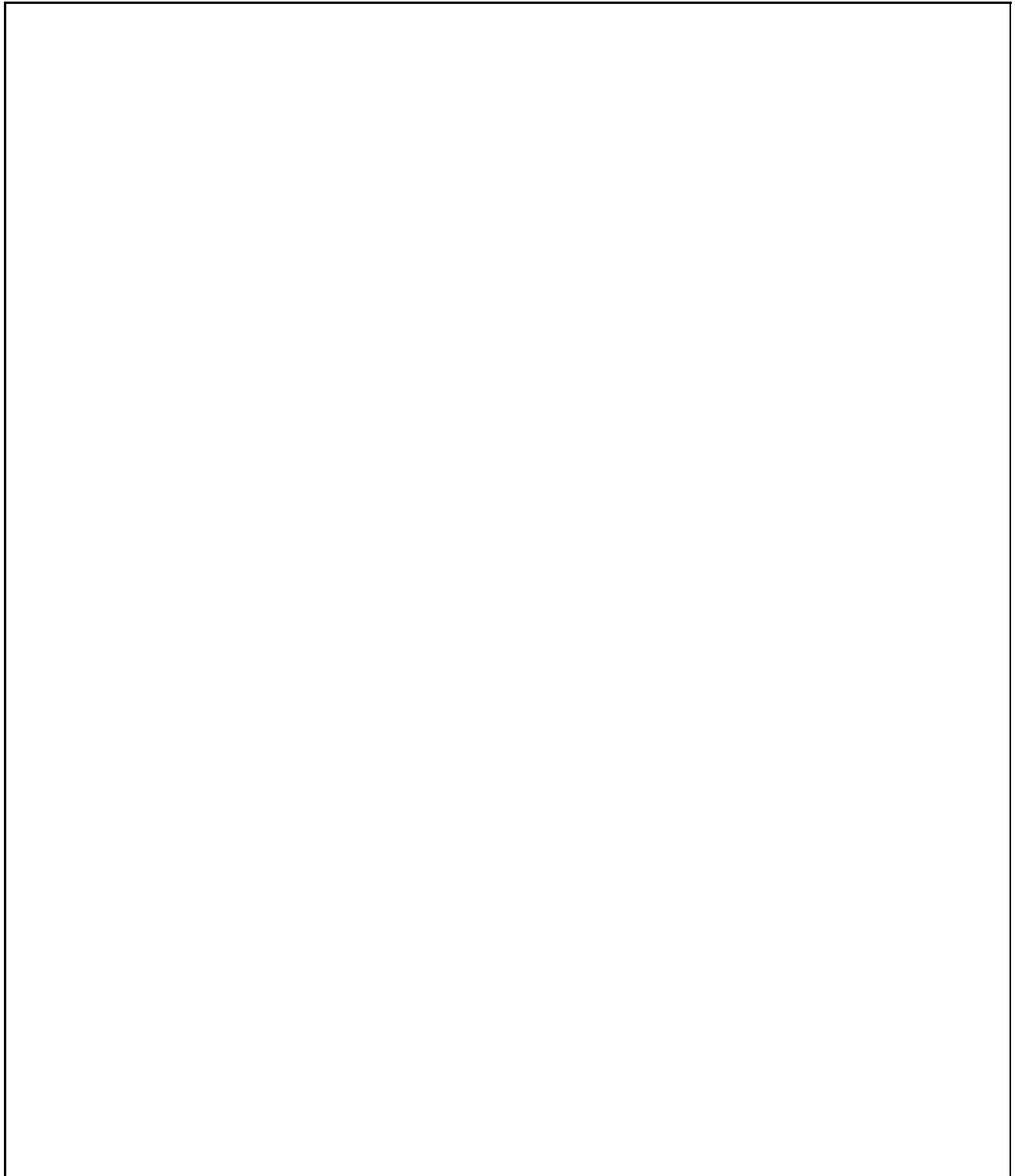
A large, empty rectangular box with a thin black border, intended for the user to describe and list any environmental concerns. The box occupies most of the page's vertical space below the instruction.

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

A large, empty rectangular box with a thin black border, intended for the user to provide an explanation for why a location should be considered for an RSA. The box occupies most of the page's vertical space below the question.

14. Are there plans to expand the area?

(Transportation Oriented Development, Economic Development, housing, etc...)



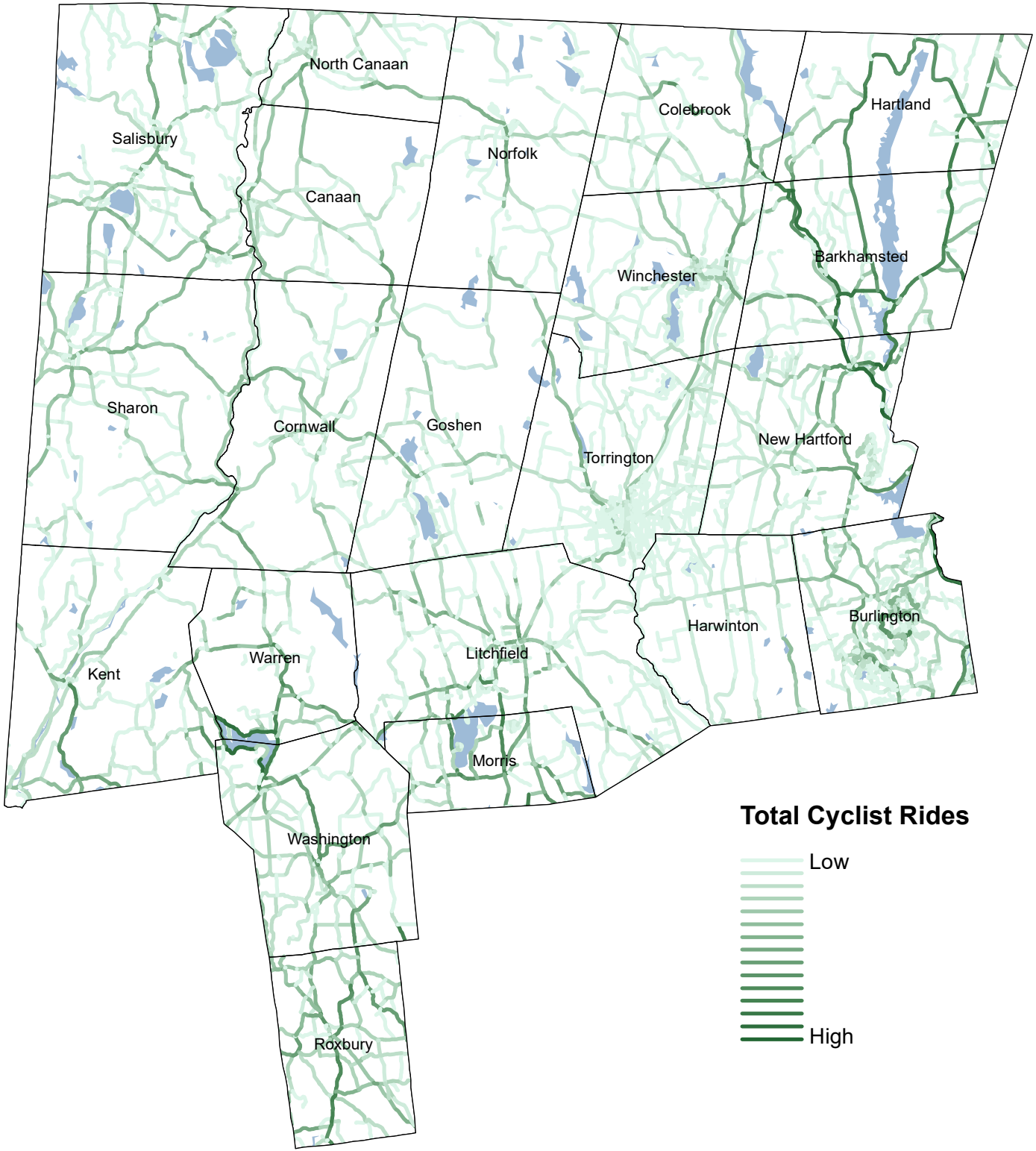
15. Any other pertinent information that is unique to this location?

A large, empty rectangular box with a thin black border, intended for the user to provide any other pertinent information unique to the location.

Thank you for completing the Community Connectivity application.

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

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



Total Cyclist Rides



Source: Strava Metro [Oct 2014 - Oct 2015]



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Appendix B



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Road Safety Audit

Town: Warren
RSA Location: Lake Waramaug Road - State Highway 45 and 478
Meeting Location: Warren Town Hall
Address: 50 Cemetery Road, Warren, CT
Date: 4/26/2017
Time: 8:30AM

Participating Audit Team Members

Audit Team Member	Agency/Organization
Audit Team Member	Agency/Affiliation
Stephen Mitchell	AECOM
Brad Sabean	AECOM
Patrick Zapatka	CTDOT
Kerry Ross	CTDOT
Steve Sordi	CSP - Resident Trooper
Craig Nelson	Town of Warren
Josh Tanner	Town of Warren
Mark Lyon	Town of Washington



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Appendix C



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Road Safety Audit – Warren

Meeting Location: Warren Town Hall
Address: 50 Cemetery Rd. Warren, CT
Date: 4/26/17
Time: 8:30 AM

Agenda

- Type of Meeting:** Road Safety Audit – Pedestrian Safety
- Attendees:** Invited Participants to Comprise a Multidisciplinary Team
- Please Bring:** Thoughts and Enthusiasm!!
- 8:30 AM** **Welcome and Introductions**
- Purpose and Goals
 - Agenda
- 8:45 AM** **Pre-Audit**
- Definition of Study Area
 - Review Site Specific Data:
 - Average Daily Traffic
 - Crash Data
 - Geometrics
 - Issues
 - Safety Procedures
- 10:00 AM** **Audit**
- Visit Site
 - As a group, identify areas for improvements
- 12:00 PM** **Post-Audit Discussion / Completion of RSA**
- Discussion observations and finalize findings
 - Discuss potential improvements and final recommendations
 - Next Steps
- 2:30 PM** **Adjourn for the Day – but the RSA has not ended**

Instruction for Participants:

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



Audit Checklist

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



Bicycles <ul style="list-style-type: none">• 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	
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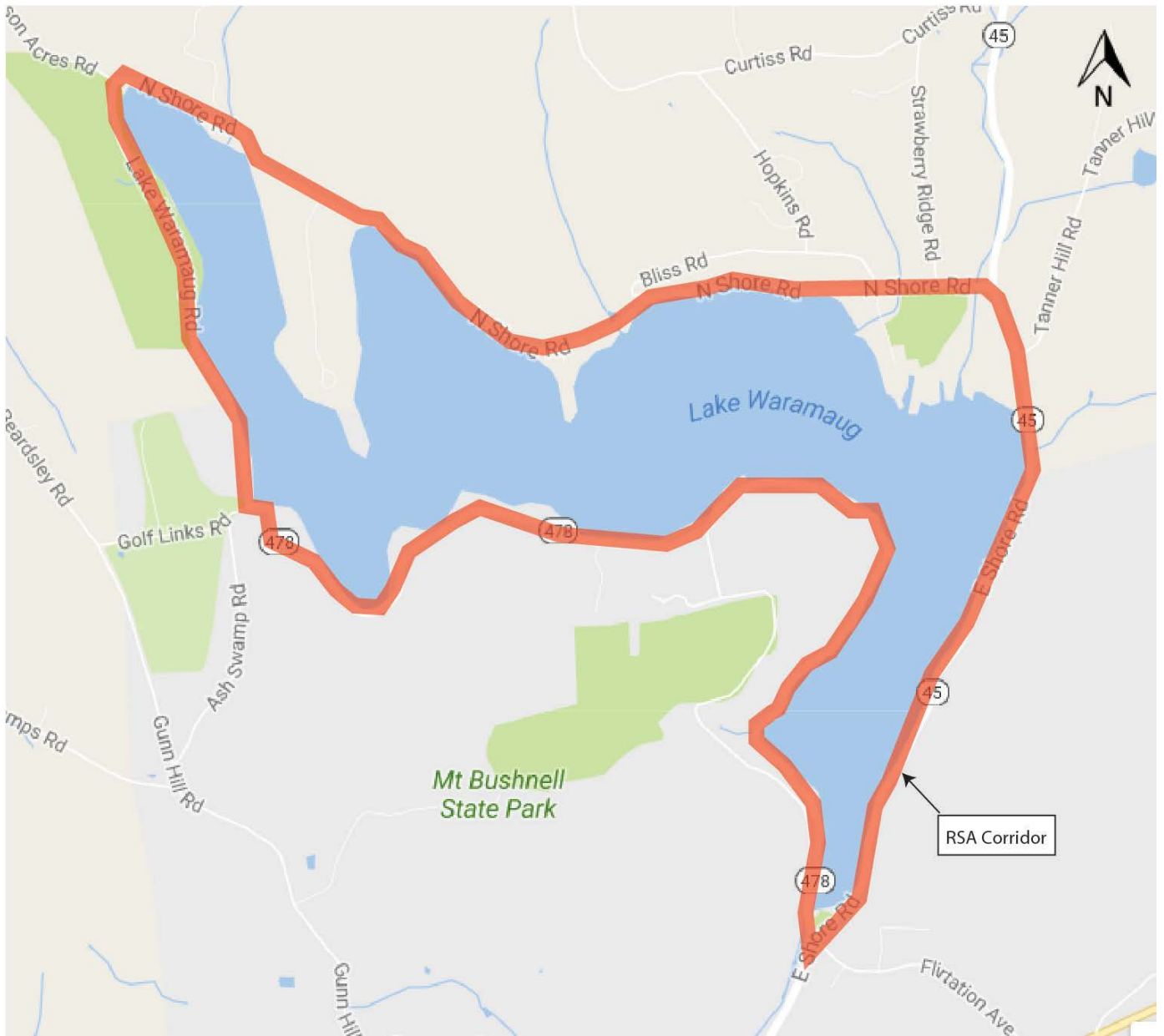
Roadway & Vehicles	
<ul style="list-style-type: none">• Speed-related issues<ul style="list-style-type: none">○ Alignment;○ Driver compliance with speed limits○ Sight distance adequacy○ Safe passing opportunities	
<ul style="list-style-type: none">• Geometry<ul style="list-style-type: none">○ Road width (lanes, shoulders, medians);○ Access points;○ Drainage○ Tapers and lane shifts○ Roadside clear zone /slopes○ Guide rails / protection systems	

<ul style="list-style-type: none">• Intersections<ul style="list-style-type: none">○ Geometrics○ Sight Distance○ Traffic control devices○ Safe storage for turning vehicles○ Capacity Issues	
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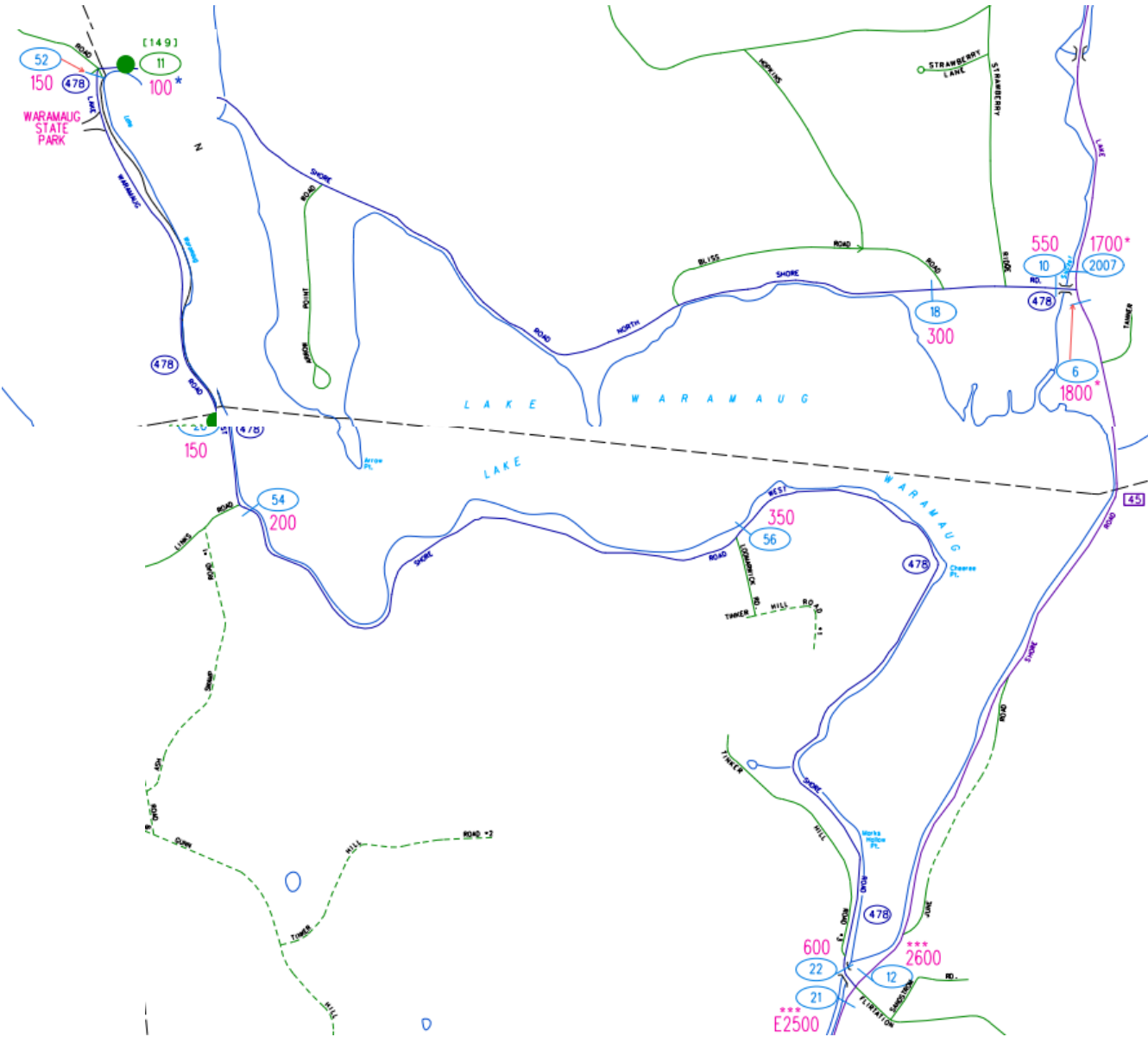


<ul style="list-style-type: none">• Pavement<ul style="list-style-type: none">○ Pavement Condition (excessive roughness or rutting, potholes, loose material)○ Edge drop-offs○ Drainage issues• Lighting Adequacy	
<ul style="list-style-type: none">• Signing<ul style="list-style-type: none">• Correct use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

Location Map



ADT MAP



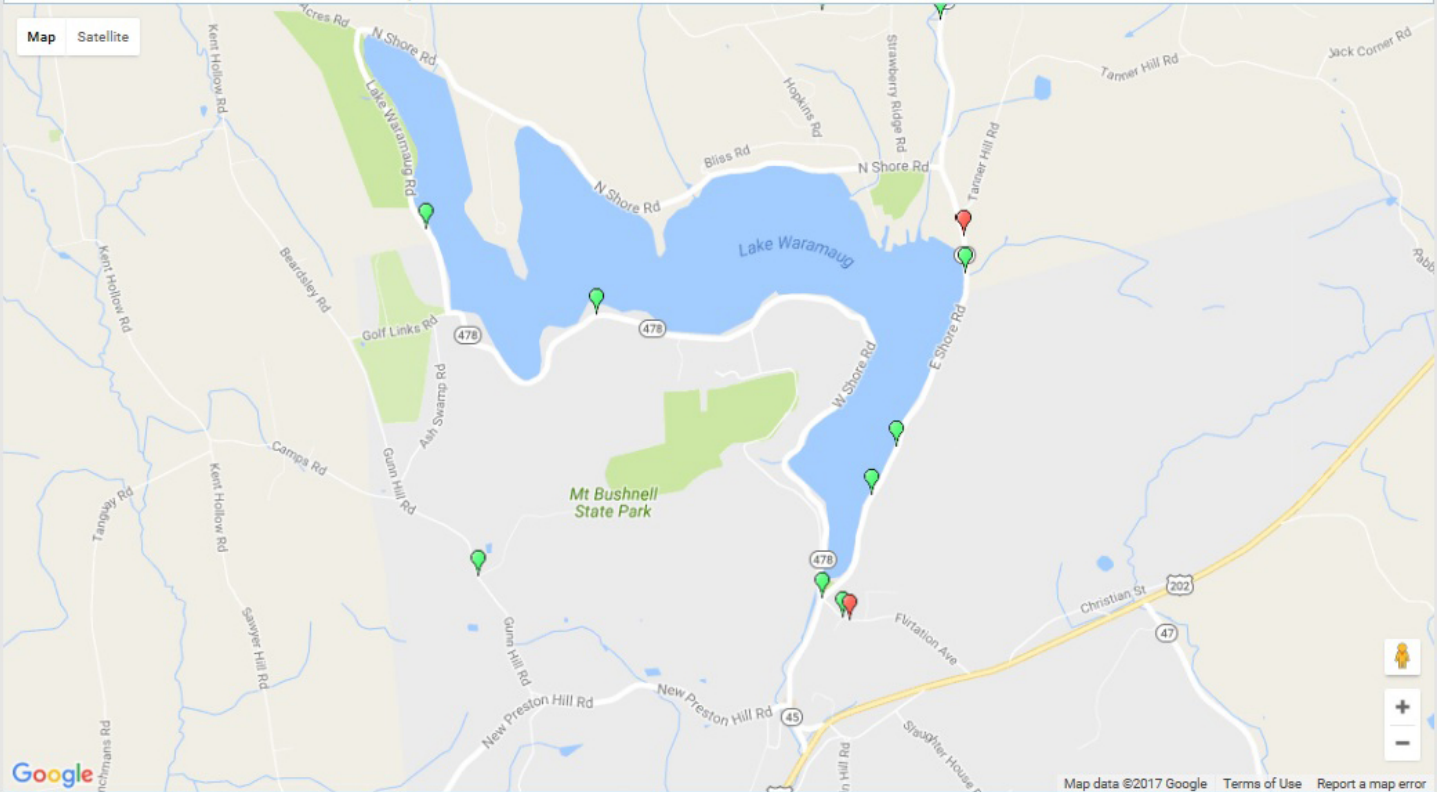
2015/2016 Crashes

UConn

Connecticut Crash Data Repository

Search Criteria:

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



Map data ©2017 Google Terms of Use Report a map error

Markers Heatmap Crashes By Route Select & Query

Query Selection View Vehicle Vectors

Select All Deselect All

Injury of any type (Serious, Minor, Possible) **Fatal (Kill)**
Property Damage Only
Route Segment Scale



Road Safety Audit – Warren

Crash Summary

Data: 3 years (2012-2014)

There were no crashes that involved pedestrians.

There were no crashes involving bicyclists.

Severity Type	Number of Crashes	
Property Damage Only	6	75%
Injury (No fatality)	2	25%
Fatality	0	0%
Total	8	

Manner of Crash / Collision Impact	Number of Crashes	
Unknown	0	0%
Sideswipe-Same Direction	0	0%
Rear-end	1	13%
Turning-Intersecting Paths	1	13%
Turning-Opposite Direction	1	13%
Fixed Object	3	38%
Backing	0	0%
Angle	0	0%
Turning-Same Direction	0	0%
Moving Object	0	0%
Parking	0	0%
Pedestrian	0	0%
Overturn	0	0%
Head-on	0	0%
Sideswipe-Opposite Direction	2	25%
Miscellaneous- Non Collision	0	0%
Total	8	



Weather Condition	Number of Crashes	
Snow	0	0%
Rain	0	0%
No Adverse Condition	8	100%
Unknown	0	0%
Blowing Sand, Soil, Dirt or Snow	0	0%
Severe Crosswinds	0	0%
Sleet, Hail	0	0%
Total	8	

Light Condition	Number of Crashes	
Dark-Not Lighted	1	13%
Dark-Lighted	1	13%
Daylight	6	75%
Dusk	0	0%
Unknown	0	0%
Dawn	0	0%
Total	8	

Road Surface Condition	Number of Crashes	
Snow/Slush	1	13%
Wet	0	0%
Dry	7	88%
Unknown	0	0%
Ice	0	0%
Other	0	0%
Total	8	



Time		Number of Crashes	
0:00	0:59	0	0%
1:00	1:59	1	13%
2:00	2:59	1	13%
3:00	3:59	0	0%
4:00	4:59	0	0%
5:00	5:59	0	0%
6:00	6:59	0	0%
7:00	7:59	0	0%
8:00	8:59	0	0%
9:00	9:59	0	0%
10:00	10:59	0	0%
11:00	11:59	2	25%
12:00	12:59	1	13%
13:00	13:59	1	13%
14:00	14:59	0	0%
15:00	15:59	0	0%
16:00	16:59	0	0%
17:00	17:59	2	25%
18:00	18:59	0	0%
19:00	19:59	0	0%
20:00	20:59	0	0%
21:00	21:59	0	0%
22:00	22:59	0	0%
23:00	23:59	0	0%
Total		8	



Legend

- No Sidewalk
- Crosswalk
- Stop Controlled Intersection
- Pedestrian Crossing Sign
- Pedestrian Zone Crossing Sign
- Pedestrian Crossing Ahead Sign
- Bike Route Signage
- Bridge or Culvert

DRAFT

Warren - Lake Waramaug Rd - State Hwy 45 & 478, also known as North, East, and West Shore Rd.





Post-Audit Discussion Guide

Safety Issues

- Confirmation of safety issues identified during walking audit

Potential Countermeasures

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

Next Steps

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



Road Safety Audit – Warren/Kent/Washington: Lake Waramaug

Fact Sheet

Functional Classification:

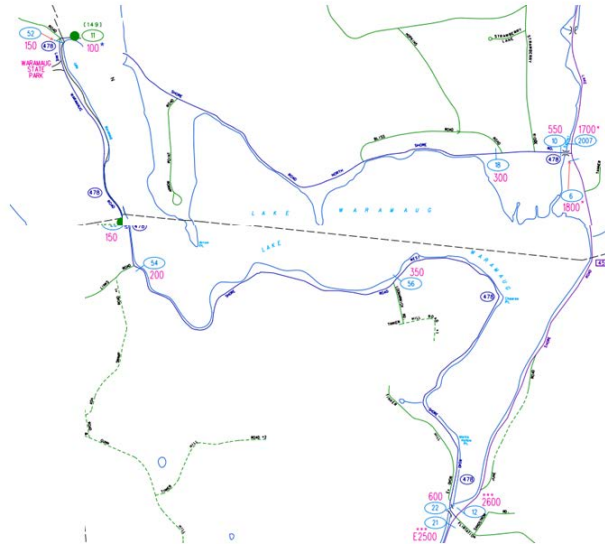
- Lake Waramaug Rd is classified as a minor collector
- N Shore Rd is classified as a minor collector
- E Shore Rd is classified as a major collector
- W Shore Rd is classified as a minor collector

ADT

- ADT on E Shore Rd is 1,800-2,600
- ADT on N Shore Rd is 100-550
- ADT on Lake Waramaug Rd is 150
- ADT on W. Shore Rd is 200-600

Population and Employment Data (2014):

Town	Population	Employment
Warren	1,390	154
Kent	2,951	1,291
Washington	3,529	1,589



Urbanized Area

- Lake Waramaug is not in Urbanized Area

Demographics

- The statewide average percentage below the poverty line is 10.31%. There are no areas in Warren/Kent/Washington exceeding the state average.
- The statewide average percentage minority population is 30.53%. There are no areas in Warren/Kent/Washington exceeding the state average.

Air Quality

- Warren's CIPP number 322, Kent 209, Washington 323
- Lake Waramaug is within the Greater CT Marginal Ozone Area
- Lake Waramaug is within a CO Attainment Area