

# NH Route 16 Corridor Safety Assessment

June 2015

**Prepared by:** Lakes Region Planning Commission and North Country Council

June 2015

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**NH Route 16 Safety Team:**

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**NH Route 16 Study Area:**

Ossipee/Wakefield town line north approximately 27 miles on NH Route 16 to Conway/Bartlett town line.

**Study Area Critical Statistics:**

**Total Reported Accidents 2008-2012**

Fatalities	11
Incapacitating	21
Possible Injury/Non-Incapacitating	194
No Apparent Injury/Unknown	731
	<hr/>
	957

**Average Annual Daily Traffic Volume by Location  
2013/2014**

South of Pine River Road Ossipee	11,303
Tamworth Town Line	14,000
North of NH113 at Saco River	12,000
Albany Town Line	13,000

**NH Route 16 Safety Team Meetings and Key Dates:**

- April 10, 2014 – Organizational meeting
- May 22, 2014 – Consultation with NHDOT Safety Engineer
- June 12, 2014 – Safety Team Meeting
- July 2, 2014 – RPC and NHDOT Meeting re: Candidate Locations

August – Data Collection and Refine Primary Concerns List

September 18, 2014 – Letter to Board of Selectmen – historic accident data request

January 8, 2015 – Road Safety Audit Applications – submission to State Highway Safety Improvement Program (HSIP) Committee

June 12, 2015 – Safety Review Site Assessments

## **NH Route 16 Corridor – Past Study Recommendations**

Lakes Region Planning Commission staff reviewed past plans and studies for recommendations within the NH Route 16 Safety Audit project limits. Noteworthy for their potential applicability to this study were the following: 1) *Route 16 Corridor Protection Program – Travel and Tourism, May 1998*; 2) *Route 16 Corridor Protection Program – Corridor Management Plan, December 1998*; and 3) *Madison Planning and Corridor Initiative, June 2000*. The NH Route 16 Safety Team reviewed the recommendations to confirm their relevance today as a starting point for discussion about specific areas of safety concern. The recommendations are listed by document, followed by a review summary.

### ***Route 16 Corridor Protection Program – Travel and Tourism, May 1998***

1. Limited and informal pull off for view of Chocorua Lake/Mt. Chocorua in Tamworth (curve to north presents safety hazard).  
Recommendations:
  - Create small pull off or widen shoulder
  - Decrease speed limit through area along Chocorua and Little Lakes
  - Install informational signage
2. Chocorua beach public access in Tamworth directly adjacent to NH Route 16 creates traffic conflicts  
Recommendations:
  - Turn lane for northbound traffic, extend shoulders for southbound traffic
  - Install appropriate public access signage
3. View of Chocorua at pine lined section of NH Route 16 in Albany  
Recommendation:
  - Monitor/enforce speeds which typically exceed posted limits

### ***Route 16 Corridor Protection Program – Corridor Management Plan, December 1998***

1. Accident rates from 1993 - 1995 indicate segments of NH Route 16 in Tamworth and Conway that may warrant future investigation.

Other Modes

b. Bicycle and Pedestrian Facilities

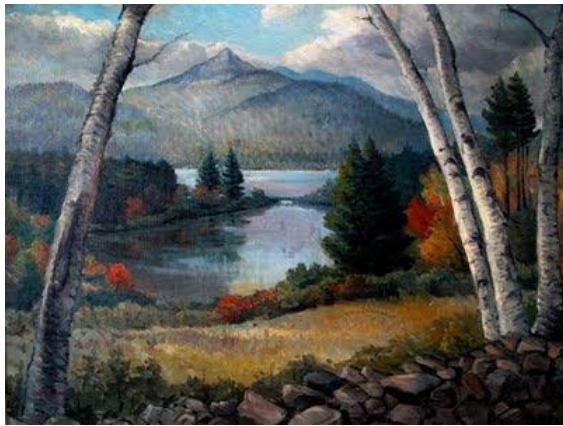
- 2) Consider 10' shoulders for all new construction projects along NH Route 16.

***Madison Planning and Corridor Initiative, June 2000***

1. Extend NH Route 16 bypass southerly beyond Conway project scope.
2. Add southbound turn lane at intersection of Drake Hill Road.
3. Realign NH Route 16 at Davies Family Campground and add center turn lane to facilitate slippage.
4. Pine Knoll Campground driveway realignment.
5. Realign NH Route 16 at Golden Age shop.
6. Realign from Brookwood Park to Bald Hill Road (south section).
7. Major reconfiguration at Albany Town Hall at Drake Hill Road (incorporate old Route 16).
8. Create northbound left turn lane in area of Bald Hill Road (acquire right of way for site distance).
9. Eliminate passing zone north of Town Hall in Albany (development density issue).
10. Control access/egress at Bill's Place (excess road frontage of driveway).
11. Realign intersection of NH Route 16 and West Main Street by Beep Beep Deli.
12. Center turn lane from Conway Bypass southbound to Ledge Pond Road.

The Safety Team noted that the recommendations related to Mt. Chocorua are as relevant today. Motorist behavior appears to be affected by opportunities to view and photograph this spectacular area attraction and scenic view. Increased shoulder widths would alleviate many conflicts; however a formal pull-off would be preferred given the often witnessed inattentiveness and actions of motorists. As a Safety Team member elaborated, "The ideal shot apparently is knelling behind a tripod stationed on the centerline...I've seen it, more

than once.” Another frequently witnessed photo vantage point is simply from the car window while stopped in the travel way.



This well-known view of Mt. Chocorua from NH Route 16 in Tamworth looking through the white birches and across the two lakes in the foreground is a painting done in the late 1950s by a well-known North Conway artist. Dick Packer.

The addition of signage would assist visiting motorists that may not be aware of the recreational users in close proximity to the travel way. The type, location, and placement of signage should be coordinated with the NHDOT Bureau of Traffic and DOT District 3 in consultation with the Manual on Uniform Traffic Control Devices (MUTCD). The regional planning commissions should assist municipal officials in formalizing the request for additional signs.

There was general Safety Team agreement that wider shoulders corridor-wide would eliminate many of the concerns described in the past studies by providing: opportunity for trailing vehicles to bypass left turning vehicles, space for right turning vehicles to get out of the travel lane, a potentially safer place for non-motorized users, and to avoid future roadway closures when accidents occur. The Safety Team is supportive of wider shoulders within the study area and recommends (ideally) ten foot shoulders for NH Route 16 and four foot shoulders on intersecting roads.

There are many examples of intersecting roads in the study area that approach NH Route 16 at skewed angles. These intersections are potentially challenging for turns onto NH Route 16 because the motorist is forced to look back over their shoulder to see oncoming traffic. The aerial photograph below shows a prior NH Route 16 condition in Tamworth and illustrates in red, the angle of view (beyond that required at a 90 degree intersection) for a motorist to see oncoming traffic. An additional safety concern at such skewed intersections is the travel speed of vehicles entering the side street; in this case a residential area on Chocorua Road. The angle of approach requires little reduction in speed to negotiate the slight turn from NH Route 16 onto Chocoura Road. The recent roadway improvements have eliminated these concerns by reconfiguring the approach angle. Similar concerns exist in other areas. An initial review of skewed intersections with highest crash history indicated Town Hall Road in Albany as a candidate for further safety review.



Future access points onto NH Route 16 should be considered within the context of promoting access management. Good access management begins at the local level in cooperation with the NHDOT District office where driveway permits are issued. Access management generally refers to the regulation of interchanges, intersections, driveways and median openings to a roadway. Its objectives are to enable access to land uses while maintaining roadway safety and mobility. This is accomplished through controlling access location, design, spacing and operation. This is particularly important for major roadways intended to provide efficient service to through-traffic movements.

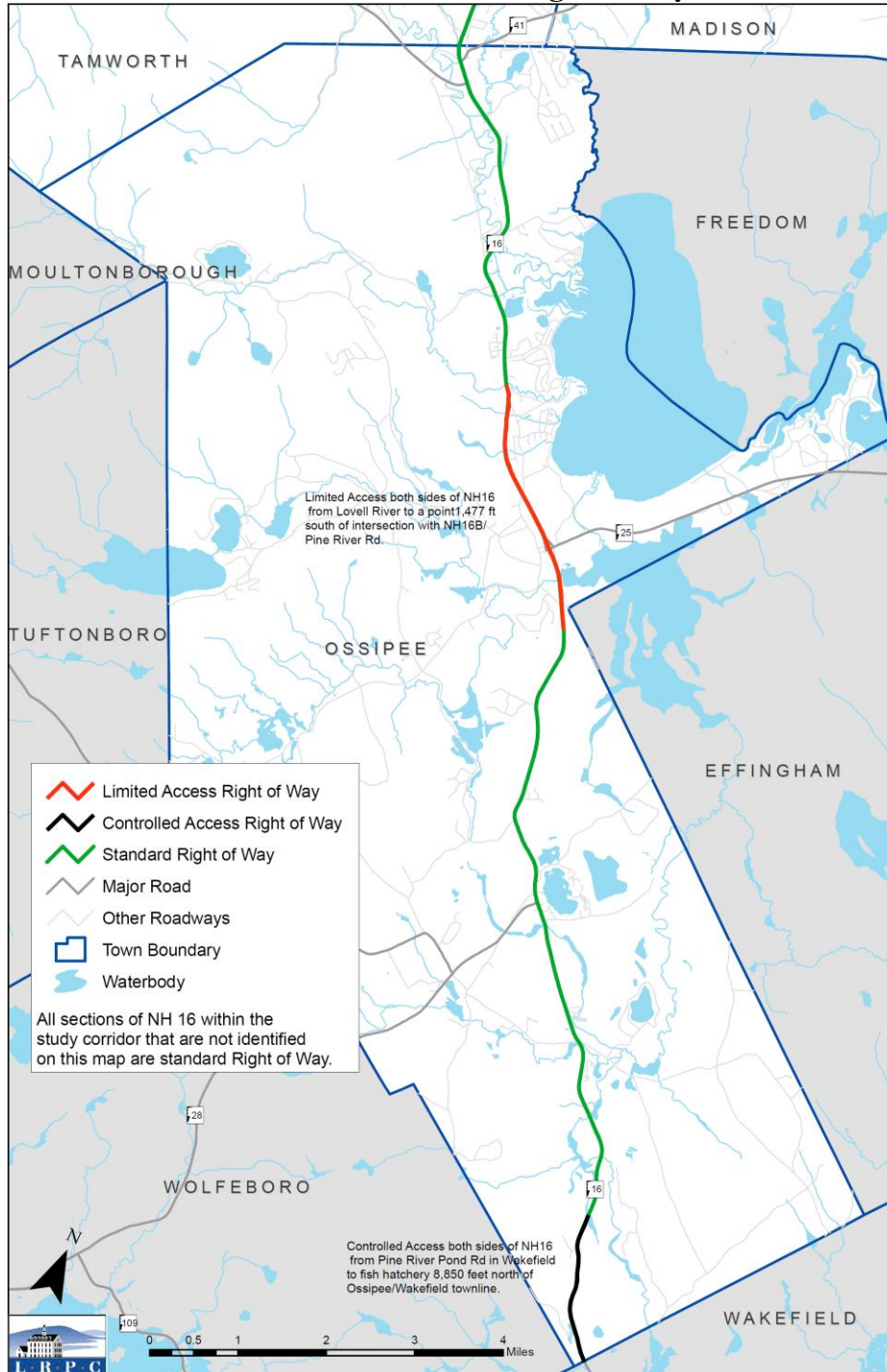
There are three types of access which are generally described as follows:

- **Limited Access (LAROW)** - the most restrictive; typically allowing no access.
- **Controlled Access (CAROW)** - granted as part of the public hearing process required during the development of a highway project. While access points are previously identified anyone seeking access must follow the NHDOT driveway permitting process. Although the number and location of the access points are identified at the time the roadway was constructed, the access points may be moved during the permitting process if the number of access points remains the same.
- **Standard Right-of-Way (ROW)** – least restrictive right-of-way requires an NHDOT driveway permit.

As indicated on the map below, access types along NH Route 16 were determined by LRPC staff based on historic information provided by NHDOT District 3 in Gilford. A section of NH Route 16 is controlled by Limited Access (LAROW). This section is described as both sides of NH Route 16 from Lovell River to a point 1,477 feet south of the intersection with

NH Route 16B/Pine River Road. A section of NH Route 16 is subject to Controlled Access (CAROW). This section, within the study area, is described as: both sides of NH Route 16, 8,850 feet north from Ossipee/Wakefield town line. This section originates from Pine River Pond Road in Wakefield. The remainder of the corridor study area is classified as Right-of-Way, which requires the NHDOT driveway permitting process.

**Extent of Defined ‘Limited’ and ‘Controlled’ Right of Way Access in Study Area**





It is not a DOT practice to limit an owner's use of a property when access points are determined and driveway permits are granted.

Communities that have established access management criteria in their local land use practices should coordinate with the DOT District Office during the



driveway permitting process to ensure local standards are considered. The aerial photograph above is an example of an existing condition in the study area. As illustrated, the parking proximity and orientation to NH Route 16 allows motorists to approach from the travel lane. Not shown is the breadth of the access which measures approximately 190' from parking lot edge of pavement to edge of pavement (full extent of access not viewable in photo) along NH Route 16. An access management approach at this location might include: 1) reducing access from NH16 to the onsite travel lanes defined by existing 'in' and 'out' arrows; 2) widening the isle between parking spaces if possible/needed to provide space to turn in and back out of parking spaces closest to NH16; 3) removing and restriping the parking space end line; 4) defining road shoulder and parking with raised curbing/plantings.

Remedial access management may present a challenge of persuading land owners who currently have wide access points to refine them. This is especially true for commercial properties where the perception is that unrestricted access is good for business and there is limited crash history to substantiate a need for change. Collectively the lack of access management in congested corridors can have the impact of elevated motorist stress due to the increased conflict points. Considering the above example, two entry lanes and ten parking spaces adjacent to the highway represent 12 potential points for autos to enter and exit the highway. The alternatives described could reduce the potential conflicts points by 84 percent. Communities with Site Plan Regulations may have the opportunity to address access management when a business changes or expands.

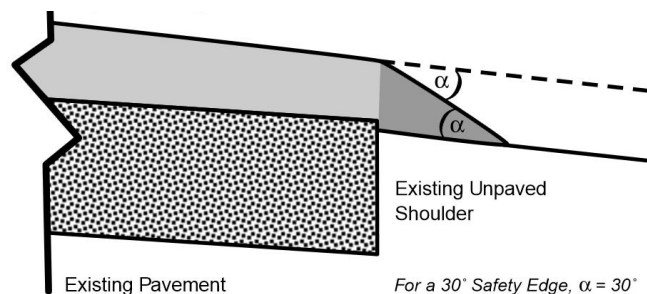
In addition to the study recommendations outlined above, in June 2006 a NHDOT Safety Surveillance Team assessed a portion of NH Route 16 in Ossipee; the notes of this review are outlined below:

## *NHDOT Safety Surveillance Notes*

- Three fatalities in six weeks – all centerline cross-overs, during daylight hours.
- A great deal of human behavior issues.
- Deer Cove and Newman Drew intersections need signing (rear-end collisions).
- Edge drop-off issue in Section 10431 (Ten Year Plan project for pavement rehabilitation and intersection improvements) – lack of shoulder – three injury accidents due to pavement drop-off.
- Intersection issues at Pine River Road/NH Route 16.
- Control access at: Cranky Frankie, Lobster Crest Restaurant, and Watson's.
- Centerline rumble strips (group recommendation).

The NH Route 16 Safety Team will review noted locations as time permits to assess if noted conditions still remain. Due to lack of shoulders and shoulders with limited width in the study area, safety related to vertical pavement edge drop-offs is of particular concern. The United States Department of Transportation (USDOT) suggests that a drop-off with a vertical differential of 3 inches or more is considered unsafe (USDOT 2004). The American Association of State Highway and Transportation Officials (AASHTO 1996) suggests that no vertical differential greater than 2 inches occur between lanes. A driver's ability to recover safely when encountering edge drop-off depends on numerous factors, including the magnitude and geometry of the drop-off, driver ability, vehicle characteristics, and vehicle speed (TRB 1987). As illustrated below, a tapered edge of pavement is preferable to a vertical drop.

Federal Highway Administration Safety Edge Illustration



Source: Safety Impacts of Pavement Edge Drop-offs, Federal Highway Administration, September 2006.

## **Road Safety Audit Candidates Selection Process**

Planning Commission staff reviewed state historic accident data for the period from 2008 to 2010 as a first step in determining potential 'hotspots' to discuss with Safety Team.

Following input from the Safety Team, RPC staff met with NHDOT Safety Engineer to:

clarify questions about how historic data is recorded and used; to refine the list of intersection concerns based on Safety Analyst programming, and determine prime candidates for Road Safety Audits (RSAs) based on crash rates that exceed a predicted crash value.

A shortlist of Road Safety Audit (RSA) candidate locations was determined and shared with the Safety Team. Each community was asked to provide up to ten-years of accident reports for each location to support RSA applications. RPC Staff collected associated data at candidate locations, prepared and submitted RSA applications to the State Highway Safety Improvement Program Committee (HSIP Committee). Based on the HSIP Committee response to the applications submitted, the Safety Team conducted safety reviews at the following four NH Route 16 intersections: 1) Mt. Shaw Road, Ossipee (Appendix A, page 18); 2) Granite Road, Ossipee (Appendix B, page 21); 3) Washington Street, Conway; and 4) East Main Street, Conway (Appendix D, Page 27). Independent of this study, NHDOT will conduct a Road Safety Audit at NH Route 16B/Pine River Road (Appendix C, page 24).

Areas of potential concern were cross referenced with projects currently in the state 2015-2024 Ten Year Plan as noted below.

### 2015-2024 Ten Year Plan Projects in the Route 16 Study Area

<b>ALBANY</b> <b>NCC5</b> <b>[ 9004 ]</b> <u>Individual Projects</u>	NH 16	Widening of shoulders, overlay of pavement to support rumble strips though the center line the entire length of the corridor.	C	2023	M240 - STP - Flexible	5.311	New Project
			C	2024	M240 - STP - Flexible	2.398	New Project
			P	2020	M240 - STP - Flexible	1.208	
			R	2020	M240 - STP - Flexible	.544	
			R	2021	M240 - STP - Flexible	.062	
			<b>I-Total:</b>				
Highway and Bridge							
<b>OSSIPEE</b> <b>10431</b> <b>[ 95 ]</b> <u>Individual Projects</u>	NH 16	PAVEMENT REHABILITATION & INTERSECTION IMPROVEMENTS FROM @ NH 28	C	2017	L050 - NATIONAL HIGHWAY SYSTEM	3.297	2017
			<b>I-Total:</b>				
Highway and Bridge							
<b>OSSIPEE</b> <b>13910</b> <b>[ 1888 ]</b> <u>Individual Projects</u>	NH 16, NH 25, NH 41	INTERSECTION IMPROVEMENTS IN WEST OSSIPEE AT THE INTERSECTION OF NH 16 AND NH 25	C	2019	L050 - NATIONAL HIGHWAY SYSTEM	1.590	2019
			<b>I-Total:</b>				
Highway and Bridge							
<b>OSSIPEE</b> <b>14749</b> <b>[ 2762 ]</b> <u>Red List Bridges</u>	NH 16 / NH 25	REPLACE THREE RED LIST BRIDGES 137/299, 137/297, & 152/268 & RESURFACE APPROX 3.2 MILES	C	2017	M001 - National Highway Performance Program (NHPP)	5.496	2017
			C	2018	M001 - National Highway Performance Program (NHPP)	4.537	2018
			P	2015	M001 - National Highway Performance Program (NHPP)	.250	
			R	2015	M001 - National Highway Performance Program (NHPP)	.188	
			<b>I-Total:</b>				
Highway and Bridge							

Noteworthy aspects of the Ten Year Plan projects within the study area are:

- While currently scheduled for construction in 2023-2024, the Albany project (9004) will be supplemented by a rumble strip test area in Albany which is currently

scheduled for spring/summer 2015. Rumble strips in the NH Route 16 corridor were considered a priority regional project by North Country Council in a recent update to the Ten Year Plan.

- The scope and intent of the Ossipee NH Route 16 Ten Year Plan project pavement (10431) has been defined as improvements from the NH28/NH16 intersection north 3.36 miles to “address pavement condition and problem intersections only.” The most recent Ten Year Plan is less descriptive. The historic project limits are consistent with the 2006 Safety Surveillance review which includes the Pine River Road intersection, Kranky Frankie’s access management, Jude Boulevard, potential pavement drop-off issues and Pine River Road/NH16B intersection.
- Historically, Ossipee (13910) has been discussed in terms of relocating NH Route 41 to form a four-way intersection at the NH16-NH25 signalized intersection. Opportunity may exist, through an abandoned rail corridor, to eliminate intersection queuing during peak hours that prevents left turning vehicles on NH41 from getting onto NH16. The community was recently consulted by NHDOT project managers to fully understand community concerns at this intersection.
- The scope for Ossipee (14749) includes replacement of three bridges: Lovell River (#152/268), Bearcamp River (#137/297), and Bearcamp River Relief (#137/299). Each bridge to include 12 foot travel lanes and five foot wide shoulders.

### **Safety Team Additional Considerations**

- Tamworth
  - NH16 at Depot Road (may be worth a look)
  - NH16 at South Way (discuss in terms of access management)
- Ossipee
  - Review signage at Deer Cove and Newman Drew
  - Review access management opportunities at Watson’s?
  - Any feedback on Jude Boulevard? (this intersection is within the project limits for Ten Year Plan project number 10431).
- Albany
  - Review segments and intersections in proximity to Nickerson, Town Hall, and Pine Knoll Roads
- RPC Staff
  - Monitor safety aspects of existing Ten Year Plan projects

## Safety Team Site Location Review Summaries and Recommendations

On Friday, June 12, 2015 the NH Route 16 Safety Team met at Albany Town Hall to discuss safety review field sheets for assessing previously determined priority locations within the corridor. In attendance were:

Bill Rollins, NHDOT District 3  
Mark McConkey, Ossipee  
John Gotjen, Tamworth  
David Bowles, Tamworth  
David Farley, Tamworth

J James Steele, NCC  
Michael Izard, LRPC  
Madison Resident  
Sara Young-Knox, Conway Daily Sun

Safety Team members were divided into pairs to record areas of concern at each site from a prompt list adapted from a Federal Highway Administration safety assessment field sheets. Each site included independent small team review and opportunity to discuss observations with others. The field sheets were collected and consolidated by NCC staff. The following is a summary of the review from the south to north.

### Ossipee

#### NH16 Intersection with Granite Road / NH171



Figure 1: NH 16 headed south

- Vehicles turning left onto Granite Road or into Pizza parking lot cause SB traffic to use right turn lane for passing. May create head-on with NB vehicles turning left onto NH 171
- Speed through intersection
- Concern for Bicyclists



Figure 2: NH 16 / NH 171 headed north

- Vehicles turning left cause NB traffic to use right only turn lane.
- Pizza sign in ROW obscures view when turning left onto NH 16 SB
- Speed through intersection
- Concern for Bicyclists



Figure 4: Granite Rd looking towards NH 171



Figure 4: NH 171 approaching NH 16

- Difficult turning left to NB NH 16.
- Alignment to NH 16
- Alignment to NH 16

Recommendations:

1. Address left turn concerns
2. Not asking for lower speeds just manage intersection better
3. Work with pizza establishment to improve line of sight issue at entrance.
4. Establish left turn lanes in each direction on NH 16 NB-SB.

NH16 Intersection with Mt. Shaw Road



Figure 5: NH 16 headed south



Figure 6: NH 16 headed north

- Mt. Shaw not readily visible, lack of adequate signage
- Right turn causes traffic to slow on NH 16.
- Mt. Shaw Rd not readily visible, lack of adequate signage
- Left turn dangerous due to speed on NH 16 crosses two lanes of high speed traffic



**Figure 7: Mt. Shaw Road approaching NH 16**



**Figure 4: Looking west towards Mt. Shaw**

- Condition of pavement is deteriorated
- Stop sign obscured by vegetation
- Left turn onto NH16 crosses two lanes of high speed headed south.
- Crossing three lanes to enter Mt. Shaw
- Speed of traffic on NH 16

#### Recommendations:

1. Increase turn radius to Mt. Shaw Road
2. Widen shoulders on NH 16 to 10'
3. Clear vegetation blocking stop sign on approach, Mt. Shaw Road.
4. Improve signage
5. Repair pavement on first 12-15 feet of Mt. Shaw Road.
6. Consider reducing speed through this area

### **Additional Observations in Ossipee**

There has been significant paving conducted recently in the corridor study area. In some cases the pavement marking are yet to be painted and the shoulders backed up. Team members looked for pavement edge drop offs in the section of highway between NH16/28 and NH16/16B (future Ten Year Plan improvement area). There were a few areas noted with pavement drop-offs in excess of three inches.

### **Tamworth**

#### **NH16/ Depot Road Intersection**

Depot Road cross NH16 and is misaligned at the intersection which situates eastbound vehicles facing westbound vehicle. Safety Team members recommend looking into the potential to remedy this when future paving is conducted.

## NH16/ South Way Intersection

The Safety Team noted the stop sign is missing at this intersection.

## Conway

### NH 16 / NH 113 intersection with NH 153 / Washington Street



Figure 9: NH16 headed east towards NH153



Figure 10: NH16 / NH113 headed west towards NH 153

- Lack of lane markings
  - Signage difficult to read
  - Motorist change lanes in or near intersection
  - Directional signage placed after intersection
  - Faded crossings
  - Congestion
  - Concern for bicyclists
  - Motorists turning left onto Washington may be confused by Dead End sign for local business parking lot.
- Faded crossings
  - Faded lane markings
  - Congestion
  - Concern for bicyclists
  - Faded signs





**Figure 11: NH153 headed towards NH16 / NH113**



**Figure 4: Washington St headed towards NH16 / NH113 / NH153**

- Vegetation blocks sign
  - Left turn onto NH 16 conflicts with traffic coming from Washington Street.
  - Vehicles block intersection
  - Faded crossings
  - Poles with no signs
  - Congestion
  - Turning radius for trucks. Large vehicles must go into oncoming traffic onto NH 16.
  - Concern for bicyclists
- Left turn vehicles block intersection
  - Near misses with left turn vehicles from NH 153.
  - Faded crossings
  - Congestion
  - Concern for bicyclists

Recommendations:

1. Implement Conway Roundabout Study (long term solution)
2. Work with District 3 to perform a sign assessment study.
3. Earlier signage to inform motorists of lane selection. Motorists change lanes in or near intersection.
4. Coordinate signals with traffic flow between intersections
5. Need protective left turn signal
6. Remove obsolete poles
7. Clear vegetation
8. Update signage
9. Update lane markings and crosswalks
10. Realign Dead End sign to avoid confusion from NH 16 NB vehicles turning onto Washington Street.

## NH 16 / NH 113 Intersection



**Figure 13: NH16 headed east towards NH113**

- Faded lane markings
- Signage difficult to read
- Directional signage placed after intersection
- Congestion
- Concern for bicyclists
- Road section narrow with utility poles close to road, causes choke point
- Signals do not coordinate with prior intersection



**Figure 14 – NH16 SB to NH113**

- Islands critical to traffic smoothing.
- No crosswalk
- Vegetation encroaching on signage
- Fading lane markings



**Figure 15: NH113 headed WB to NH16**



**Figure 4: NH16 / NH113 NB lane narrow lane "choke point"**

- Signals do not coordinate w traffic or signals at NH 16 / NH 153 intersection
- Lack of NB right turn lane
- Congestion
- Concern for bicyclists
- No sidewalk for pedestrians on NB side NH 113
- Traffic from Gas station turning left onto NH 113

Recommendations:

1. Implement Conway Roundabout Study (long term solution)
2. Work with District 3 to perform a sign assessment study.
3. Coordinate signals with traffic flow between intersections
4. Need protective left turn signal
5. Clear vegetation
6. Update signage
7. Update lane markings and crosswalks
8. Need for right turn lane on NH 113 headed WB to NH 16
9. Add sidewalk on NB side of NH 113 to connect with adjoining neighborhood.
10. Work with property owners to move utility poles back from travel lanes

### **Conway Roundabout Study Notes**

In 2015, the North Country Council Transportation Advisory Committee rated a roundabout as the region's leading transportation improvement for consideration in the state Ten Year Plan. Replace signalized intersections with oval roundabout in Conway Village, NH - the project area will incorporate the intersections of NH 16/153 and NH16/US 113. (See concept drawing below)

**Purpose:**

Improve traffic flow as existing intersections are rate below level F.

**Need:**

Conway Bypass Project No. 11339 Engineering Impact Study: Traffic Appendix shows failed signalized intersections at NH Route 16/153 and NH 16/US 113.

**Goals and Objectives:**

Improve pedestrian access and inter-modal transportation (bike lanes, etc.) through this high volume intersection.

Conway Roundabout Concept Drawing



## Appendix A: Mt. Shaw Road

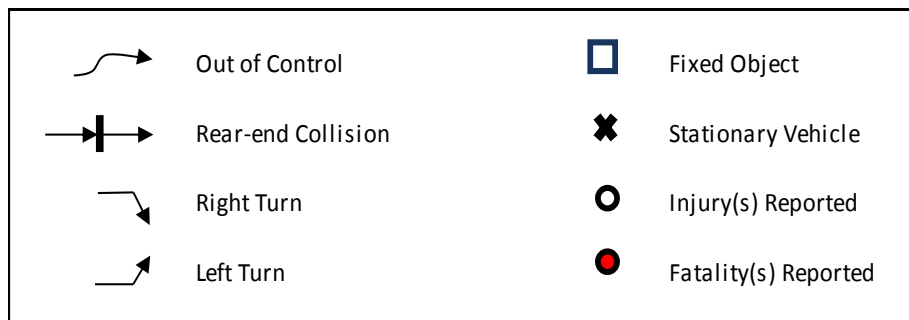
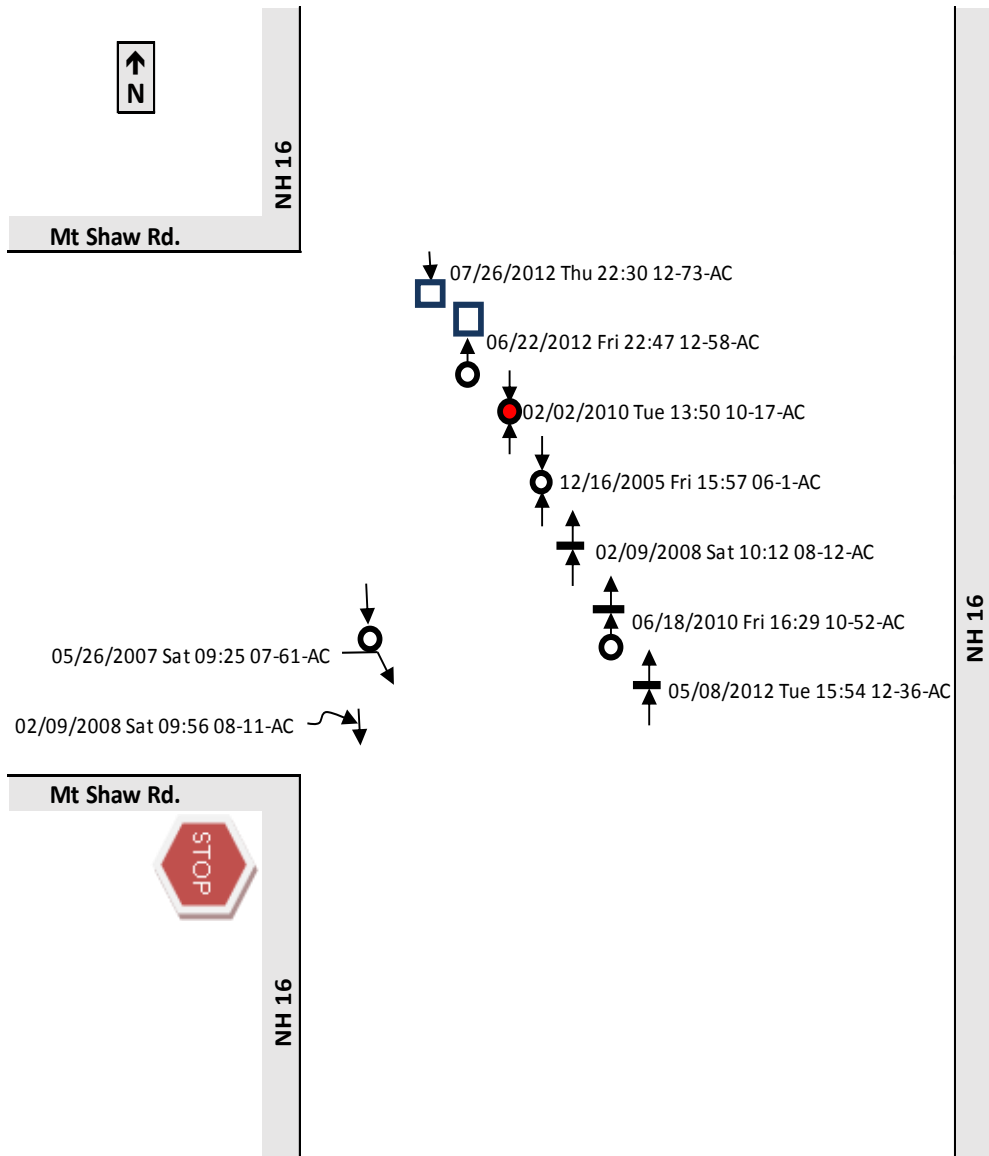
### ROAD SAFETY AUDIT APPLICATION



1. Name, Position/Title, Address of Contact Person: \*  
**Ellen White, Town Administrator**  
**PO Box 67**  
**Center Ossipee, NH 03814**  
Phone Number: **(603) 539-4181**  
Fax: **(603) 539-4183**  
Email: **ewhite@ossipee.org**
2. Type of assessment requested (planning, design, construction, existing): **Existing**
3. Specific location of proposed RSA project (intersection, spot location, road segment or project, or new facility):  
Route(s): **NH Route 16**      Intersecting Road: **Mt. Shaw Rd.**      Project: \_\_\_\_\_  
From/To (if segment/project): \_\_\_\_\_ Segment Length: \_\_\_\_\_  
City/Town/County: **Ossipee / Carroll County**      RPC: **Lakes Region Planning Commission**
4. Describe any improvement plans, including stage (scoping, design, construction, etc.), for this location:  
**This intersection is within the limits of a project currently in the Ten Year Plan (# 14749), which includes resurfacing NH 16 at this intersection. A current study of the NH 16 corridor from the Wakefield/Ossipee town line through Conway was instigated by concerned citizens and municipal officials who contacted LRPC. LRPC's investigation of corridor safety concerns was funded through their UPWP.**
5. Reasons for requesting RSA:  
**A Route 16 Corridor Safety Committee was established in conjunction with recent studies of the corridor. The committee identified the site as a priority safety concern for the corridor. Consulted with safety engineers at NHDOT and used safety analyst to verify prevalence of accidents. A ten-year crash history has been summarized and attached to this form (see below).**
6. What is the crash experience for the most recent 10-year period (total crashes, fatal crashes, injury crashes, crash rate, etc.)? (Attach Crash Records and Diagram (intersection) Not applicable for new facility)  
**Total Crashes (10 yr. history) = 9      Fatalities = 1      Injuries = 4/9      Crash Rate: 0.9/year**

7. Does your agency have a method to identify and prioritize road safety issues? **Yes.** If yes, where does this location rank within your agency's problem locations? **Of the several intersections within the NH 16 study area from Wakefield/Ossipee town line through Conway; this was identified as one of the five priority locations.**
8. Average Daily Traffic (ADT) volume for road(s), turning movement intersections - attached: **AAADT – NH16 North of Mt. Shaw Rd = 9,200 (2014); ADT = 9,787 (Sep 15 – 22, 2014). See attached turning movement count.**
9. Please list month and/or days of week when safety issues are most prevalent, if applicable: **Analysis of recent 10-year accident reports indicates 67 percent of the accidents occurred on either Friday or Saturday; 33 percent occurred in February – the most by month.**
10. Describe any future development planned for this area:  
**The intersection lies within the rural zoning district, but serves as the sole access to a large residential neighborhood that includes a number of undeveloped lots.**
11. Please include any additional road owners, photos and/or other information that highlight the location:  
**See attached aerial map and street view photos.**

Crash Diagram: NH 16 at Mt Shaw Road, Ossipee



## Appendix B: Granite/Old Granite Road



### ROAD SAFETY AUDIT APPLICATION

1. Name, Position/Title, Address of Contact  
Person:

**Ellen White, Town Administrator**

**PO Box 67**

**Center Ossipee, NH 03814**

\*

Phone Number: **(603) 539-4181**

Fax: **(603) 539-4183**

Email: **ewhite@ossipee.org**

2. Type of assessment requested (planning, design, construction, existing): **Existing**

3. Specific location of proposed RSA project (intersection, spot location, road segment or project, or new facility):

Route(s): **NH Route 16**      Intersecting Road: **Granite Rd. / Old Granite Rd**      Project: \_\_\_\_\_

From/To (if segment/project): \_\_\_\_\_ Segment Length: \_\_\_\_\_

City/Town/County: **Ossipee / Carroll County**      RPC: **Lakes Region Planning Commission**

4. Describe any improvement plans, including stage (scoping, design, construction, etc.), for this location:

**A current study of the NH 16 corridor from the Wakefield/Ossipee town line through Conway was instigated by concerned citizens and municipal officials who contacted LRPC. LRPC's investigation of corridor safety concerns was funded through their UPWP.**

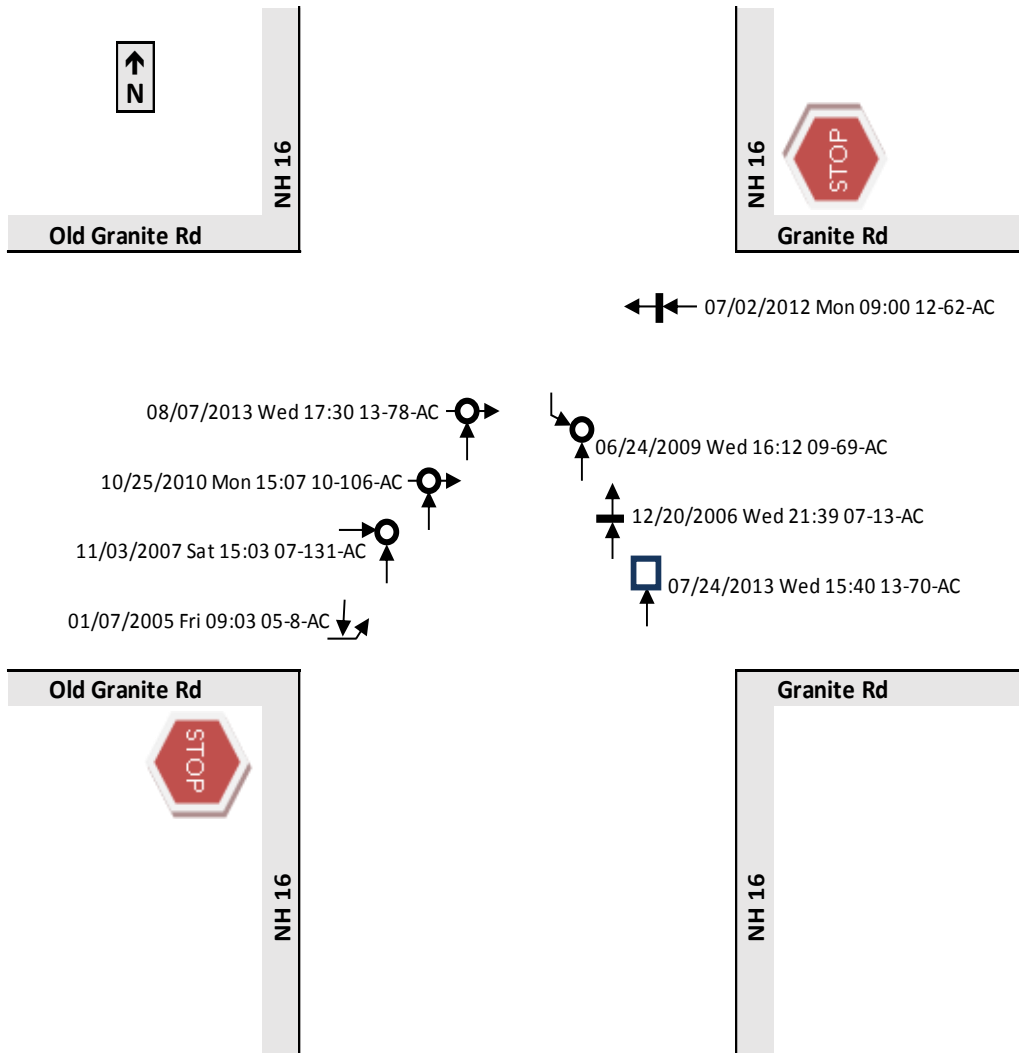
5. Reasons for requesting RSA:

**A Route 16 Corridor Safety Committee was established in conjunction with recent studies of the corridor. The committee identified the site as a priority safety concern for the corridor. Consulted with safety engineers at NHDOT and used safety analyst to verify prevalence of accidents. A ten-year crash history has been summarized and attached to this form (see below).**



6. What is the crash experience for the most recent 10-year period (total crashes, fatal crashes, injury crashes, crash rate, etc.)? (Attach Crash Records and Diagram (intersection) Not applicable for new facility)  
**Total Crashes (10 yr. history) = 8      Fatalities = 0      Injuries = 4/8      Crash Rate: 0.8/year**
7. Does your agency have a method to identify and prioritize road safety issues? **Yes.** If yes, where does this location rank within your agency's problem locations? **Of the several intersections within the NH 16 study area from Wakefield/Ossipee town line through Conway; this was identified as one of the five priority locations.**
8. Average Daily Traffic (ADT) volume for road(s), turning movement intersections - attached: **AADT – NH16 North of Granite Rd = 6,413 (2014); ADT = 6,822 (Sep 15 – 22, 2014). See attached turning movement count.**
9. Please list month and/or days of week when safety issues are most prevalent, if applicable: **Analysis of recent 10-year accident reports indicates 50 percent of the accidents occurred on Wednesday; 25 percent occurred in December – the most by month.**
10. Describe any future development planned for this area:  
**The area encompassing this intersection is zoned as "Corridor" district, which is intended to accommodate commercial uses and clustered residential uses. The intersection provides the most direct access from the south to the village district at Old Route 28 and Courthouse Square.**

Crash Diagram: NH 16 at Granite Road / Old Granite Road, Ossipee



	Out of Control		Fixed Object
	Rear-end Collision		Stationary Vehicle
	Right Turn		Injury(s) Reported
	Left Turn		Fatality(s) Reported

## Appendix C: Pine River Road

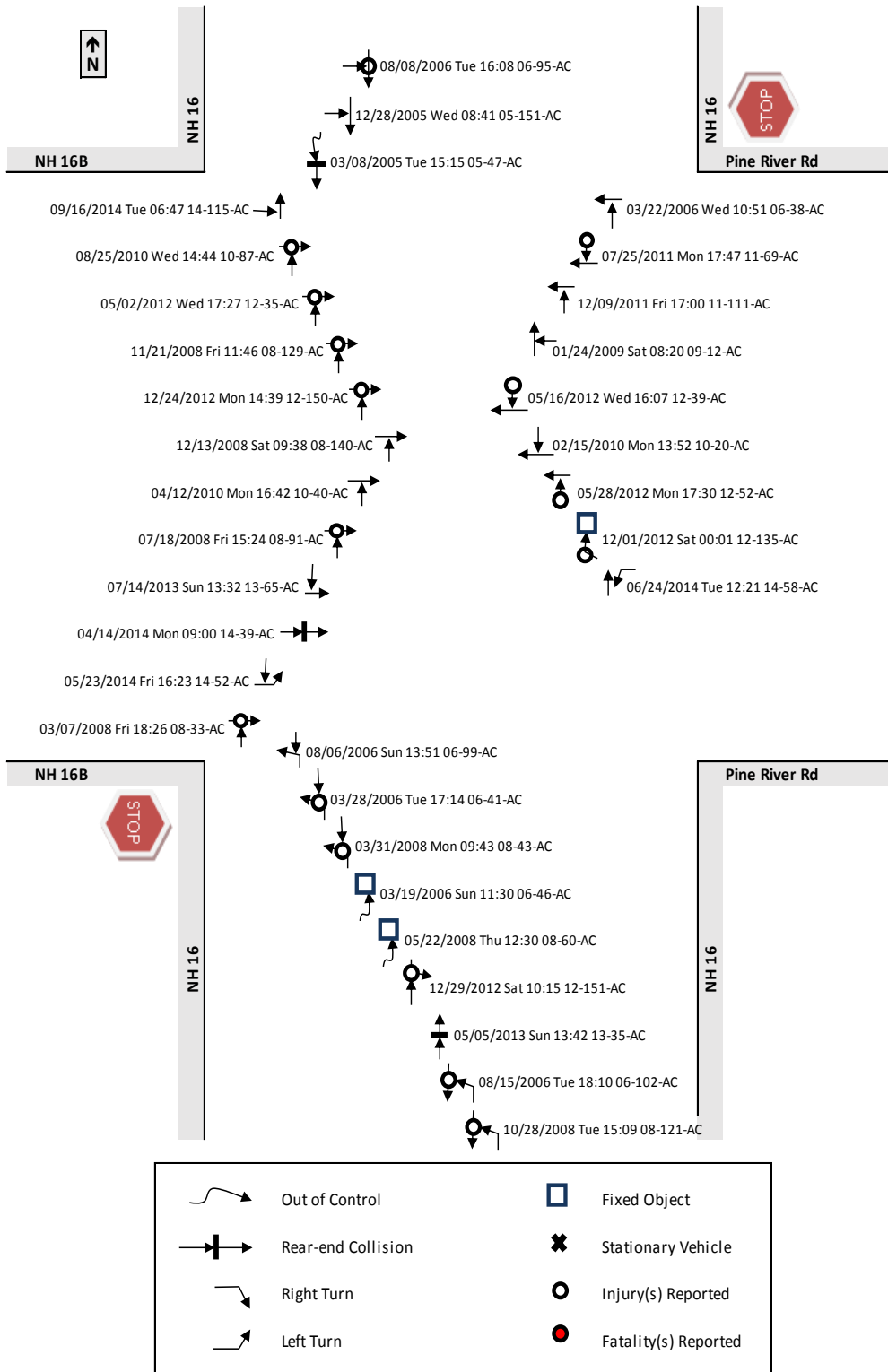


### ROAD SAFETY AUDIT APPLICATION

1. Name, Position/Title, Address of Contact Person: \*  
**Ellen White, Town Administrator**  
**PO Box 67**  
**Center Ossipee, NH 03814**  
Phone Number: **(603) 539-4181**  
Fax: **(603) 539-4183**  
Email: **ewhite@ossipee.org**
2. Type of assessment requested (planning, design, construction, existing): **Existing**
3. Specific location of proposed RSA project (intersection, spot location, road segment or project, or new facility):  
Route(s): **NH Route 16** Intersecting Road: **Route 16B / Pine River Rd.** Project: \_\_\_\_\_  
From/To (if segment/project): \_\_\_\_\_ Segment Length: \_\_\_\_\_  
City/Town/County: **Ossipee / Carroll County** RPC: **Lakes Region Planning Commission**
4. Describe any improvement plans, including stage (scoping, design, construction, etc.), for this location:  
**This intersection is approximately 0.3 miles north of a 3.2 mile long NH 16 bridge replacement and resurfacing project currently in the State's Ten Year Plan (#14749). A study of the NH 16 corridor from the Wakefield/Ossipee town line through Conway was instigated by concerned citizens and municipal officials who contacted LRPC. LRPC's investigation of corridor safety concerns was funded through their UPWP.**
5. Reasons for requesting RSA:  
**A Route 16 Corridor Safety Committee was established in conjunction with recent studies of the corridor. The committee identified the site as a priority safety concern for the corridor. Consulted with safety engineers at NHDOT and used safety analyst to verify prevalence of accidents. A ten-year crash history has been summarized and attached to this form (see below).**
6. What is the crash experience for the most recent 10-year period (total crashes, fatal crashes, injury crashes, crash rate, etc.)? (Attach Crash Records and Diagram (intersection) Not applicable for new facility)  
**Total Crashes (10 yr. history) = 33 Fatalities = 0 Injuries = 16/33 Crash Rate: 3.3/year**

7. Does your agency have a method to identify and prioritize road safety issues? **Yes.** If yes, where does this location rank within your agency's problem locations? **Of the several intersections within the NH 16 study area from Wakefield/Ossipee town line through Conway; this was identified as one of the five priority locations.**
8. Average Daily Traffic (ADT) volume for road(s), turning movement intersections - attached: **AAADT – NH16 South of Pine River Rd = 9,197 (2014); ADT = 9,784 (Sep 15 – 22, 2014). See attached turning movement count.**
9. Please list month and/or days of week when safety issues are most prevalent, if applicable: **Analysis of recent 10-year accident reports indicates that more accidents occurred on Monday or Tuesday (7 each) than any other day; and the months of March, May, and December (6 each) more than any other months.**
10. Describe any future development planned for this area:  
**The intersection is adjacent to Roadside Commercial and Residential zones. The intersection provides direct southerly access to the Village district and municipal services including the school and municipal offices.**

# Crash Diagram: NH 16 at Pine River Rd / Route 16B, Ossipee



# Appendix D: NH16 /NH153 /NH113

## ROAD SAFETY AUDIT APPLICATION

1. Name, Position/Title, Address of Contact Person:

**Earl Sires – Town Manager**

**Town of Conway**

**1634 East Main Street**

**Center Conway, NH 03813-0070**

Phone Number: **603-447-3811 ext. 2**

Fax: **603-447-1348**

Email: **esires@conwaynh.org**

2. Type of assessment requested (planning, design, construction, existing): **Existing**
3. Specific location of proposed RSA project (intersection, spot location, road segment or project, or new facility):  
Route(s): **NH 16 / NH 153** Intersecting Road: **Washington St.**

**NH 16 / NH 113** Intersecting Road: **NH 16 (White Mountain HWY)** Project: \_\_\_\_\_

From/To (if segment/project): \_\_\_\_\_ Segment Length: \_\_\_\_\_

City/Town/County: **Conway / Carroll County**

RPC: **North Country Council**

4. Describe any improvement plans, including stage (scoping, design, construction, etc.), for this location:  
**None at this time**

5. Reasons for requesting RSA:

**A Route 16 Corridor Safety Committee was established in conjunction with recent studies of the corridor. The committee identified this area as a priority safety concern for the corridor. There are two intersections within close proximity to one another that greatly affect one another resulting in the committee combining them into one study area. Consulted with safety engineers at NHDOT and used safety analyst to verify prevalence of accidents. A ten-year crash history has been summarized and attached to this form (see attachment A).**

6. What is the crash experience for the most recent 10-year period (total crashes, fatal crashes, injury crashes, crash rate, etc.)? (Attach Crash Records and Diagram (intersection) Not applicable for new facility)

**NH 16 / NH 153/ Washington St. Total Crashes = 82, Fatalities = 0, Injuries = 16, Crash Rate = 8.2/year**

**NH 16 (Main St) / NH 113 (East Main St) Total Crashes = 54, Fatalities = 0, Injuries = 5, Crash Rate = 5.4/year**

**Combined intersections Total Crashes = 136, Fatalities = 0, Injuries = 21, Crash Rate = 13.6/year**

7. Does your agency have a method to identify and prioritize road safety issues? **YES** If yes, where does this location rank within your agency's problem locations. **Of the several intersections within the NH 16 study area from Wakefield/Ossipee town line through Conway; this was identified as one of the five priority locations.**
  
8. Average Daily Traffic (ADT) volume for road(s), turning movements intersections - attached:  
**AADT NH 16 (Main St) west of NH 153 = 16,000 (2011), NH 16 (Main St) west of NH 113 (East Main St) 16,000 (2011), NH 16 (White Mountain HWY) north of NH 113 (East Main St) 12,000 (2013), NH 113 (East Main St) east of NH 16 (Main St) 8,700 (2011), NH 153 south of NH 16 (Main St) 2374 (2011).  
Turning movement counts see attachment B.**
  
9. Please list month and/or days of week when safety issues are most prevalent, if applicable:  
**NH 16 / NH 153/ Washington St. – Most accidents (24.39%) occurred on Friday with the majority happening in July & August.  
NH 16 (Main St) / NH 113 (East Main St) – Most accidents (22.22%) occurred on Tuesday with a majority happening in August.  
Combined intersections – Most accidents (16.91%) occurred on Friday with a majority (37.04%) happening in the month of August.**
  
10. Describe any future development planned for this area:  
**Construction of a 30+ unit senior housing project to be built on Rt. 16, .5 miles north of the two Conway Village intersections**