

### 2.1.5 Accident History

The study team obtained accident data from CTDOT's *Traffic Accident Viewing System (TAVS)* for the three-year period beginning January 1, 2006 and ending December 31, 2008. Table 2-9 summarizes the accident data relative to the most frequent types of collisions in the corridor and the most common factors that have contributed to these collisions.

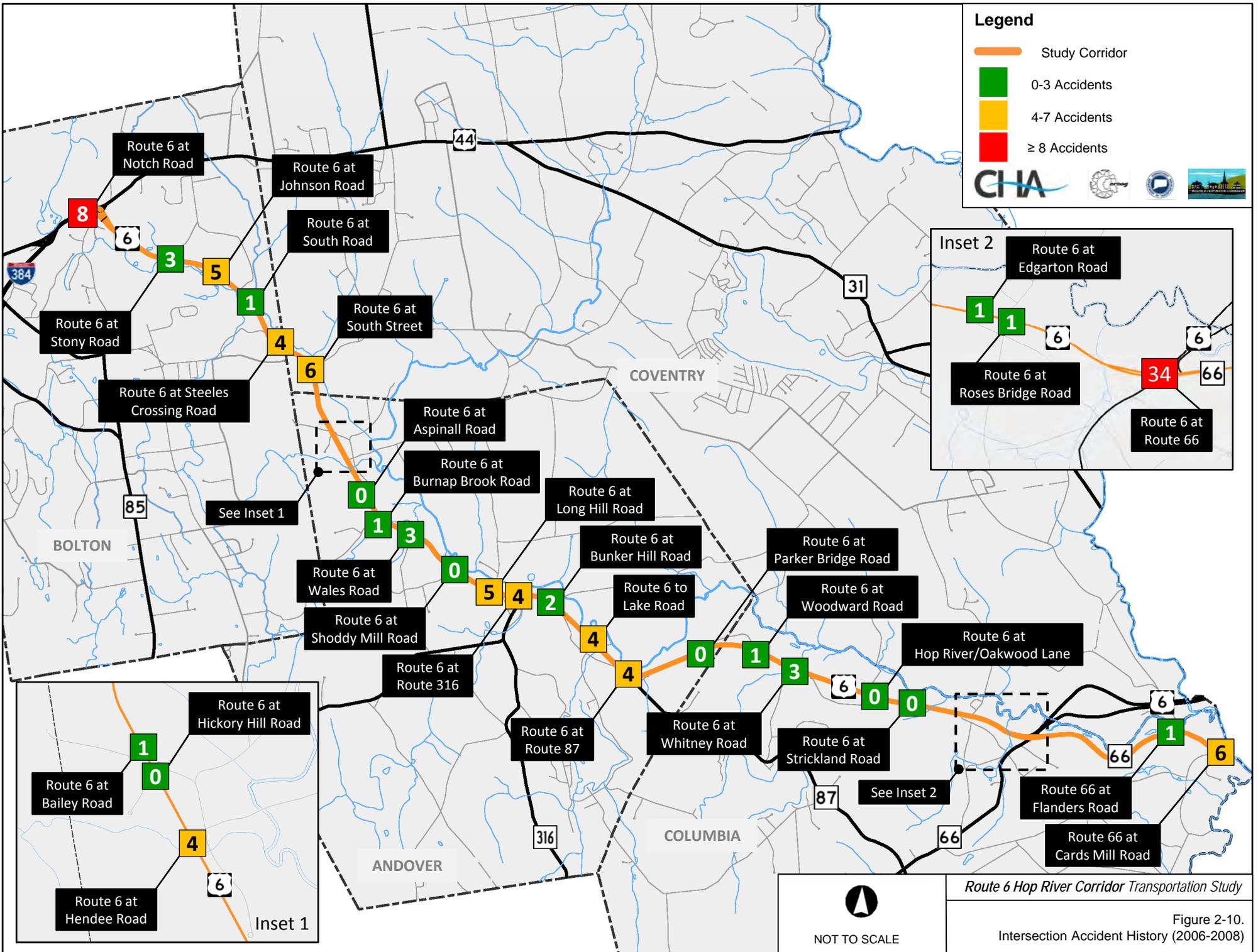
As shown in Table 2-9, 253 accidents were recorded in the Route 6 Hop River corridor during the three-year period ending December 31, 2008. Of these accidents, 60% were either rear end collisions or fixed object collisions. Approximately 63% of all accidents were speed-related caused by vehicles following too closely, drivers losing control, or speed too fast for conditions.

The most frequent collision types and the speed-related contributing factors to these collisions are a function of the driving environment in the Route 6 Hop River corridor. That is, Route 6 is a two-lane, high speed roadway that carries a significant amount of through traffic, particularly during peak commuting periods when more aggressive driving behaviors are typically expected. At both the west and east ends of the corridor, vehicles enter the area via an expressway. This condition, combined with a relatively wide roadway surface on Route 6, contribute to high speeds through the corridor and lead to the prevalence of motorists following too closely, losing control, and driving too fast for conditions.

Figure 2-10 and Table 2-10 detail the accident history at each side road intersection.

Table 2-9. Accident Summary (2006-2008)

Collision Type	Number	Percentage
Rear-End	79	31%
Fixed Object	73	29%
Turning – Intersecting Paths	32	13%
Sideswipe – Same Direction	16	6%
Sideswipe—Opposite Direction	15	6%
Other	38	15%
<b>Total</b>	<b>253</b>	<b>100 %</b>
Contributing Factor	Number	Percentage
Following Too Closely	78	31%
Driver Lost Control	45	18%
Failed to Grant ROW	38	15%
Speed Too Fast for Conditions	36	14%
Fell Asleep	13	5%
Improper Passing Maneuver	9	4%
Improper Turning Maneuver	7	3%
Other	27	10
<b>Total</b>	<b>253</b>	<b>100%</b>
Severity	Number	Percentage
Fatal	3	1%
Injury	66	26%
Property Damage Only	184	73%
<b>Total</b>	<b>253</b>	<b>100%</b>



Route 6 Hop River Corridor Transportation Study

Figure 2-10. Intersection Accident History (2006-2008)

Table 2-10. Accident History (2006-2008) – Side Road Intersections

Intersection	Number of Accidents	Most Common Collision Type	Most Common Contributing Factor(s)
<b>Bolton</b>			
Notch Road	8	Fixed Object	Speed Too Fast for Conditions Failed to Grant ROW Driver Lost Control
Stony Road	3	Turning-Intersecting Paths Backing Fixed Object	Failed to Grant ROW Driver Lost Control Unsafe Backing
Johnson Road	5	Fixed Object	Driver Lost Control
South Road	1	Rear-End	Following Too Closely
Steeles Crossing Road	4	Fixed Object	Speed Too Fast for Conditions Under the Influence Failed to Grant ROW Fell Asleep
<b>Coventry</b>			
South Street	6	Fixed Object	Driver Lost Control Failed to Grant ROW
<b>Andover</b>			
Bailey Road	1	Sideswipe-Opposite Direction	Driver Lost Control
Hendee Road	4	Rear-End	Following Too Closely
Aspinall Road	0	N/A	N/A
Burnap Brook Road	1	Fixed Object	Speed Too Fast For Conditions
Wales Road	3	Rear-End	Following Too Closely
Shoddy Mill Road	0	N/A	N/A
Long Hill Road	5	Rear-End	Following Too Closely
Route 316 (Hebron Road)	4	Rear-End	Following Too Closely
Bunker Hill Road	2	Rear-End Sideswipe-Opposite Direction	Following Too Closely
Lake Road	4	Rear-End	Following Too Closely
Route 87 (Jonathan Trumbull Highway)	4	Rear-End	Following Too Closely
Parker Bridge Road	0	N/A	N/A

Table 2-10. Accident History (2006-2008) – Side Road Intersections

Intersection	Number of Accidents	Most Common Collision Type	Most Common Contributing Factor(s)
<b>Columbia</b>			
Woodward Road	1	Turning-Intersection Paths	Improper Turning Maneuver
Whitney Road	3	Turning-Intersecting Paths Sideswipe-Opposite Directions Fixed Object	Failed to Grant ROW Fell Asleep Improper Turning Maneuver
Hop River Road	0	N/A	
Strickland Road	0	N/A	
Edgerton Road	1	Fixed-Object	Driver Lost Control
Roses Bridge Road	1	Turning-Intersecting Paths	Violated Traffic Control
Route 66 (Middletown Road)	34	Rear-End	Following too Closely
Flanders Road	1	Fixed Object	Animal/Foreign Object
Cards Mill Road	6	Rear-End	Speed Too Fast For Conditions Failed to Grant ROW Following too Closely

As shown in Table 2-10, 102 accidents occurred at side road intersections over the three year period from 2006 to 2008. This number represents approximately 40% of all accidents. A review of statewide accident information indicates that the intersection of Route 6 and Route 66 and the intersection of Route 66 and Cards Mill Road should be evaluated in more detail relative to opportunities to improve safety. The study team assessed these intersections and two other intersections of interest (intersections that were identified as having undesirable geometric characteristics in Section 2.1.1) to understand potential accident patterns and to identify any particular site conditions that might be contributing to these patterns.

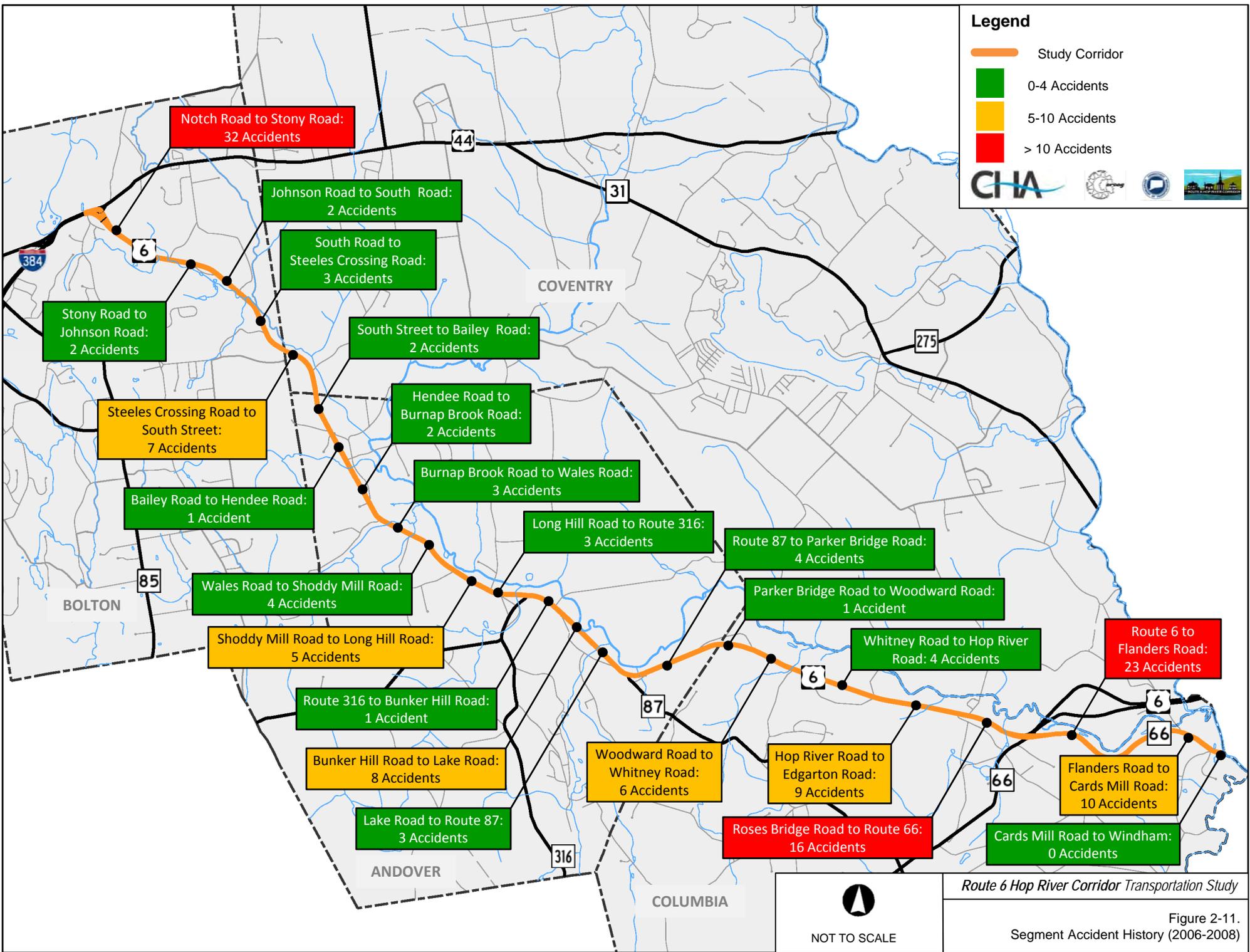
- **Notch Road at Route 6.** Eight accidents in three-year period. Notable patterns include:
  - Fixed object collisions (which are accidents defined by vehicles running off the roadway and striking roadside objects such as guardrail, rock ledge, or utility poles) constituted 50% of all accidents (4 of 8) in the three year period at this unsignalized intersection location. These four accidents were attributed to eastbound vehicles running off the left side of the roadway near Notch Road due to excessive speeds or drivers losing control. This accident pattern could be attributed to the diverge to Route 44 and Route 6 that requires driver decision and speed reduction to negotiate the Route 6 ramp that curves to the right immediately downstream of Notch Road.
  - Turning-related collisions constituted the other 50% of accidents (4 of 8) at Notch Road. Two of these accidents involved right-turning vehicles from Route 6 to Notch Road being struck from behind by through vehicles on Route 6 that were following too closely. These accidents could be attributed to high speeds in this

area and the lack of a right turn lane to Notch Road that would allow turning vehicles to decelerate outside the path of through traffic. The other two accidents involved right-turning vehicles from Notch Road to Route 6 that did not grant the right of way to the vehicles on Route 6. These accidents could be attributed to the restricted sightlines from Notch Road to the west that make it difficult for turning vehicles to perceive sufficient gaps in traffic.

- **South Street at Route 6.** Six accidents in three-year period. Notable patterns include:
  - Fixed object collisions constituted 50% of all accidents (3 of 6) in the three year period at this unsignalized intersection location. Two of these accidents were attributed to westbound vehicles running off the right side of the roadway and one was attributed to an eastbound left-turning vehicle running off the roadway and striking guardrail near South Street. All three of these accidents were attributed to excessive speeds or drivers losing control. The curvature of Route 6 near South Street could also be a factor in these accidents.
  - Turning-related collisions constituted 33% of all accidents (2 of 6). Both of these accidents were caused by vehicles turning left from South Street and colliding with through vehicles (one eastbound and one westbound) on Route 6. The relatively steep approach grade of South Street, which requires additional acceleration and time for a vehicle to complete a turn, and the left and right turn lanes on Route 6, which require additional distance and time for a vehicle to complete a turn, could be factors in these turning-related collisions involving left-turning vehicles from South Street.
- **Route 66 at Route 6.** Thirty-four accidents in three-year period. Notable patterns include:
  - Rear-end collisions constituted 59% of all accidents (20 of 34) in the three year period at this signalized intersection. The majority of these accidents (16 of 20) occurred on the Route 6 approaches to the intersection and were attributed to vehicles following too closely. Sight lines to the signal and vehicle queues on these approaches are good, but driver inattention combined with relatively high approach speeds could be factors in these accidents.
  - Turning-related collisions constituted 15% of all accidents (5 of 34). Four of these accidents involved vehicles turning left from northbound Route 66 to westbound Route 6 or from southbound Route 6 to eastbound Route 66. The northbound/southbound movements at this intersection are concurrent and the left turn movements do not occur under a protected green signal phase. The geometry of the northbound and southbound approach legs – which includes medians, two-lane approaches, and offset left turns that occur from the shared through lane on the northbound approach and exclusive left turn lane on the southbound approach – requires left turning vehicles to traverse a greater distance than usual distance to complete a turn and requires motorists to compensate for this condition by selecting larger gaps in traffic. Failure of motorists to recognize the condition could be a factor in these accidents.

- **Cards Mill Road at Route 66 East.** Six accidents in three-year period. Notable patterns include:
  - Rear-end collisions constituted 33% of all accidents (2 of 6) in the three year period at this unsignalized intersection. These accidents occurred on the heavily skewed, stop-controlled Cards Mill Road approach to Route 66 East and were attributed to vehicles following too closely. Skewed approaches like the Cards Mill Road approach are often treated by drivers (who are making the oblique turn) as yield conditions and rolling stops because little reduction in speed is required to complete the turn. Consequently, when two vehicles are approaching the intersection and the driver of the second vehicle anticipates that the driver of the first vehicle will yield rather than stop at the intersection, rear end collisions oftentimes will result.
  - One turning, one sideswipe, one overturning, and one fixed object collision constituted the other four accidents at this intersection. These accidents were attributed to excessive speeds and failure of motorists to grant the right of way. The variety in the types of collisions and these contributing factors do not indicate any other particular site condition at this intersection that should be investigated further.

Figure 2-11 and Table 2-11 detail the accident history along each roadway segment (between intersections) in the study corridor.



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Table 2-11. Accident History (2006-2008) – Roadway Segments

Intersection	Number of Accidents	Most Common Collision Type(s)	Most Common Contributing Factor(s)
<b>Bolton</b>			
Notch Road to Stony Road	32	Fixed Object	Speeds Too Fast For Conditions
Stony Road to Johnson Road	2	Rear-End	Following Too Closely
Johnson Road to South Road	2	Sideswipe-Opposite Direction Rear-End	Driver Lost Control
South Road to Steeles Crossing Road	3	Rear-End	Speed too Fast For Conditions Failed to Grant ROW Following Too Closely
Steeles Crossing Road to South Street	7	Fixed Object	Fell Asleep
<b>Coventry</b>			
South Street to Bailey Road	2	Fixed Object Sideswipe-Opposite Direction	Driver Lost Control
<b>Andover</b>			
Bailey Road to Hendee Road	1	Fixed Object	Fell Asleep
Hendee Road to Aspinal Drive	0	N/A	N/A
Aspinal Drive to Burnap Brook Road	2	Fixed Object Sideswipe-Opposite Direction	Speed Too Fast For Conditions Driver Lost Control
Burnap Brook Road to Wales Road	3	Fixed Object	Speed Too Fast For Conditions Driver Lost Control Fell Asleep
Wales Road to Shoddy Mill Road	4	Fixed Object	Speed Too Fast For Conditions Following Too Closely Fell Asleep Defective Equipment
Shoddy Mill Road to Long Hill Road	5	Rear-End	Following Too Closely
Long Hill Road to Route 316 (Hebron Road)	3	Turning-Intersecting Paths	Failed to Grant ROW
Route 316 (Hebron Road) to Bunker Hill Road	1	Rear-End	Following Too Closely

Table 2-11. Accident History (2006-2008) – Roadway Segments

Intersection	Number of Accidents	Most Common Collision Type(s)	Most Common Contributing Factor(s)
Bunker Hill Road to Lake Road	8	Turning-Opposite Direction Turning-Intersecting Paths Sideswipe Same Direction	Failed to Grant ROW
Lake Road to Route 87 (Jonathan Trumbull Hwy)	3	Rear-End	Following Too Closely
Route 87 (Jonathan Trumbull Hwy) to Parker Bridge Road	4	Sideswipe Same Direction Rear-End Head On Fixed Object	Under the Influence Improper Passing Maneuver Following Too Closely Driver Lost Control
<b>Columbia</b>			
Parker Bridge Road to Woodward Road	1	Sideswipe-Opposite Direction	Driver Lost Control
Woodward Road to Whitney Road	6	Fixed Object	Fell Asleep
Whitney Road to Hop River Road	4	Rear-End	Following Too Closely
Hop River Road to Edgarton Road	9	Rear-End	Following Too Closely
Roses Bridge Road to Route 66	16	Turning-Intersecting Paths	Failed to Grant ROW
Route 6 to Flanders Road	23	Fixed Object	Driver Lost Control
Flanders Road to Cards Mill Road	10	Rear End Fixed Object Turning-Same Direction Turning-Intersecting Paths	Failed to grant ROW Improper Passing Maneuver Following too Closely
Cards Mill Road to Windham	0	N/A	N/A

As shown in Table 2-11, 151 accidents occurred along roadway segments between intersections over the three year period from 2006 to 2008. This number represents approximately 60% of all accidents. The study team further assessed each these segments and identified several notable accident patterns. These include:

- **Route 6 between Notch Road and Stony Road.** Thirty-two accidents occurred in the three-year period, of these:
  - Eleven accidents occurred in the Route 6/Route 44 “interchange” and were predominantly fixed object collisions attributed to excessive speeds.
  - Five accidents occurred at the Bolton Ice Palace/Munson’s driveway intersection with Route 6 and were predominantly turning-related.

- **Route 6 between Roses Bridge Road and Route 66.** Sixteen accidents occurred in the three-year period, of these:
  - Eleven accidents occurred at commercial driveways and included turning, rear-end, and sideswipe collisions.
- **Route 66 between Route 6 and Flanders Road.** Twenty-three accidents occurred in the three-year period, of these:
  - Fourteen (61%) accidents were fixed object collisions predominantly attributed to excessive speeds and drivers losing control. There were no areas where a concentration of accidents would indicate that a specific site condition has contributed to the number of fixed object collisions in this segment. The relatively narrow shoulders throughout the segment and the generally curving alignment could be contributing factors.
  - Two accidents were fatal collisions. One accident occurred at the Columbia Motorsports driveway and involved a motorcycle being struck by a truck exiting the driveway. The other accident occurred near Murphy's Drive-in and involved a head-on collision.

Although one may feel that the number of accidents along any particular segment of the Route 6 Hop River corridor might appear high, analysis of the local accident data does not suggest a deficiency in vehicular safety along any particular segment when compared to statewide accident data.

### 2.1.6 Incident Management

Severe accidents and other incidents in the Route 6 study corridor that result in the closure of Route 6 and the diversion of traffic from Route 6 to other local and state roadways was an expressed concern of the public and REDC members. Currently, there are no formal plans maintained by CTDOT, the Connecticut State Police, or local traffic authorities in Bolton, Coventry, Andover, or Columbia that outline how traffic is to be managed during these incidents on Route 6.

Formal diversion plans are typically developed for interstates and major expressways by CTDOT working in cooperation with the regional planning agencies and local municipalities to determine viable alternate routes for incident management. Formal diversion plans are not typically developed for other arterial roadways such as Route 6. When necessary, diversion plans for incident management on Route 6 are created and implemented by state and local officials on a case-by-case basis depending on the location of the incident and its proximity to viable alternate routes.

Whether formal diversion plans should be developed for Route 6 in the study corridor would be a point of further discussion among CTDOT, CRCOG, WINCOG, and municipal representatives. Because Route 6 in the study corridor carries a significant proportion of through traffic between the terminus of I-384 and the Route 6 expressway, there is valid reason to suggest that this section of roadway should be treated similarly to I-384 and the Route 6 expressway with respect to incident management.

The development of diversion plans for the Route 6 study corridor, whether as part of a formal planning process or in response to an immediate incident, should consider:

- The identification of viable alternate routes that can most safely and efficiently accommodate large volumes of traffic – a significant percentage of which is through traffic, and a measurable percentage of which is heavy vehicle and truck traffic. Viable alternate routes for through traffic should include other arterial roadways or major, state-maintained collector roadways. In the region, viable alternate routes include:
  - For a closure between Route 44 and Route 316, use Route 85 and Route 316 from I-384 in Bolton to Route 6 in Andover. This route would add approximately 11 miles to a trip between Route 44 and Route 316. It is noted that Route 603 (Boston Hill Road), which connects Route 85 and Route 316, was determined to be too narrow to safely accommodate high volumes of truck traffic and is therefore not considered a viable alternate in this area.
  - For a closure between Route 316 and Route 87, use Route 316 and Route 66 from Route 6 in Andover to Route 6 in Columbia. This route would add approximately 7 miles to a trip between Route 316 and Route 66.
  - For a closure between Route 87 and Route 66, use Route 87 and Route 66 from Route 6 in Columbia to the intersection of Route 6 expressway and Route 66 East, also in Columbia. This route would add approximately 1 mile to a trip between Route 87 and Route 66.
  - For a closure anywhere on Route 6 between Route 44 and Route 66, use Route 44, Route 31, and Route 32 from I-384 in Bolton to Route 6 expressway in Columbia. This route would add approximately 0.1 mile to a trip between Route 44 and Route 6 expressway.
- The need to maintain local access to Route 6. Formal diversion planning for an incident on Route 6 is different from diversion planning for an incident on a limited-access interstate because of the need to provide local access to points beyond the preferred point of diversion (for through traffic) from the main route. When an interstate is closed, all traffic is diverted to the nearest upstream exit and follows a defined detour route that is managed with temporary signs and traffic police. When a portion of Route 6 is closed, access for local traffic must be maintained up to the point of closure, which could be located beyond the preferred point of diversion for through traffic. Through motorists who receive notification in advance of the closure can divert to the most convenient and viable alternate route; through motorists who do not receive notification in advance could proceed into the corridor until the point of closure and bypass the incident along local roadways and detour routes. This latter condition is of particular concern when relatively large volumes of traffic and large trucks are using local roadways that are not designed to safely accommodate this traffic.

- The potential for timely implementation of the diversion plan that includes real-time notification of motorists in the event of an incident. Currently, there are no permanent alert systems (variable message signs or highway emergency radio signs) deployed on eastbound I-384 or westbound Route 6 expressway approaching the Route 6 corridor that could be used to inform motorists of incidents, road closures, or alternate routes. It is noted that CTDOT's current policy regarding variable message signs (VMSs) is that interstate and expressway VMSs are not used to display messages regarding conditions on adjacent or intersecting arterial roadways. Under this policy, signs deployed to the approach roadways would not be used to display Route 6 conditions.

It is noted that the development of a formal diversion plan for the Route 6 study corridor would be contingent upon a decision by state, regional, and local stakeholders regarding the need for a formal plan and further discussion on the applicability of a plan to a non-expressway/non-interstate route; the feasibility of implementing a plan that is targeted to the diversion of through traffic to other major roadways while maintaining local traffic access to Route 6; and the costs associated with developing a plan and deploying new infrastructure (such as permanent VMSs) to ensure its effectiveness.

## 2.2 Resources

The study team identified and reviewed environmental, historic, cultural, and visual resources in the study corridor. These resources are generally considered constraints that could affect the feasibility of various improvement alternatives in the corridor. Potential impacts to these resources will be avoided where possible. More specific environmental evaluations and documentation will be completed in accordance with CEPA and NEPA requirements under subsequent initiatives as study recommendations are advanced to design and implementation.

### 2.2.1 Environmental Resources

Environmental resources (shown in Figure A2-4 in Appendix 2.7) in the study corridor include:

- **Hop River and associated tributaries and floodplains.** The Hop River generally runs parallel to, and north of, the study corridor beginning in Bolton north of Route 6 and west of Stony Road and terminating at the Willimantic River. The Hop River crosses to the south side of Route 6 and back between Stony Road and Steeles Crossing Road in Bolton. Several tributaries are also conveyed under Route 6 in the study area. Potential impacts to the Hop River floodplain need to be avoided or minimized. The Hop River's regulatory floodway will also need to be avoided or spanned in order to ensure that any increases in water surface elevations do not occur as a result of the improvement recommendations.
- **Wetland Soils.** Wetland soils are located throughout the study corridor and are generally associated with the floodplains of the Hop River and its tributaries.