

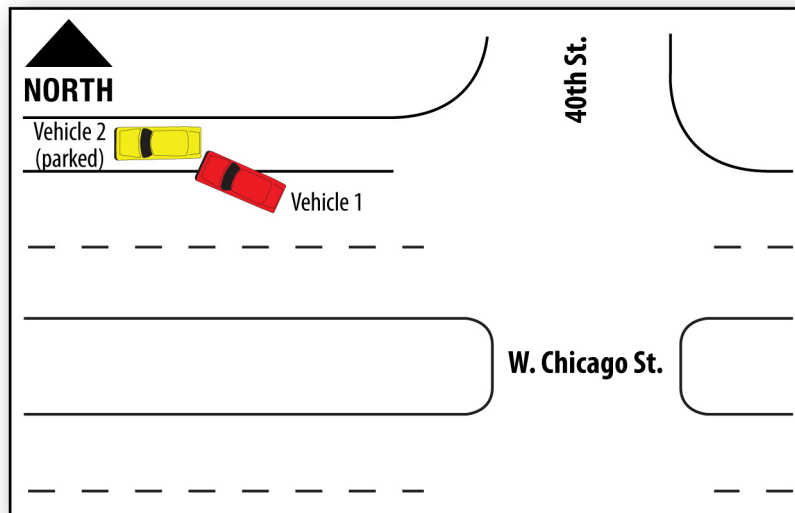
V. FATAL CRASH ANALYSIS

There were a total of 12 fatal crashes that occurred during the three-year study period along the 249 arterial roadway segments analyzed in this study. The crash report for each fatal crash was reviewed to understand the circumstances surrounding each crash and to determine if any measures can be taken to improve the safety of the arterial segments that each of these fatal crashes occurred along. The following provides a brief summary of each fatal crash that occurred during the study period and any recommendations to improve safety on the arterial segments where the crashes occurred.

A. February 28, 2007 – West Chicago Street just west of 40th Street

This crash occurred when vehicle 1 was westbound on Chicago Street and struck a legally parked vehicle (vehicle 2) on the north side of the street on the approach to 42nd Avenue (see **Figure 7**). This crash occurred in dry, daylight conditions around 2PM. The driver of vehicle 1 drifted to the right for an unknown reason and collided with the parked car (vehicle 2). The driver of vehicle 1 was not wearing a seat belt and made an impact with the steering wheel. The driver suffered fatal injuries due to the impact with the steering wheel.

Figure 7. West Chicago Street Fatal Crash Diagram



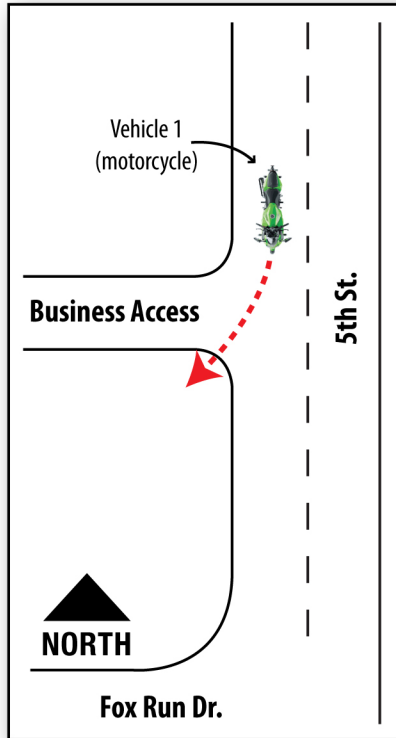
During the study period, there were 6 total crashes on this segment of West Chicago Street. There were 4 PDO crashes, 1 was an injury crash and 1 was the fatal crash. This segment is number 94 on the total crash critical crash ratio ranking list and number 22 on the severe crash critical crash ratio ranking list.

Based on the isolated circumstances of this fatal crash and due to the low crash total on this segment, there does not appear to be a pattern in need of correction.

B. April 30, 2007 – 5th Street just north of Fox Run Drive

This crash occurred when vehicle 1, a motorcycle, was in the southbound direction on 5th Street. The driver lost control, laid the bike on its side and skid off the right side of the road (see **Figure 8**). This crash occurred in dry, daylight conditions around 1PM. The driver suffered fatal injuries due to the impact with the road surface.

Figure 8. 5th Street at Business Access Fatal Crash Diagram



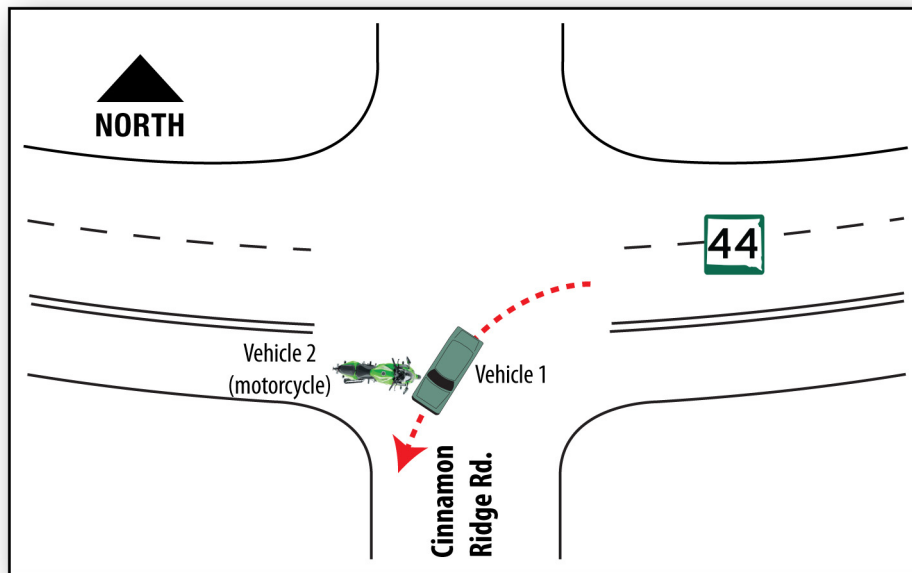
During the study period, there were 18 total crashes on this segment. There were 15 PDO crashes, 2 injury crashes and 1 was the fatal crash. This segment is number 31 on the total crash critical crash ratio ranking list and is number 57 on the severe crash critical crash ratio ranking list.

Based on the isolated circumstances of this fatal crash, there does not appear to be a pattern in need of correction on this segment.

C. May 18, 2007 – South Dakota Highway 44 at Cinnamon Ridge Road

This crash occurred when vehicle 1 in the westbound direction attempted to make a left turn onto Cinnamon Ridge Road and pulled out in front of vehicle 2, a motorcycle that was eastbound on SD 44. The driver of vehicle was attempting to put a water bottle down while making the left turn and did not see vehicle 2. The two vehicles collided and the driver of vehicle 2 was thrown onto the roadway and was fatally injured (see **Figure 9**). This crash occurred in dry, daylight conditions around 2PM.

Figure 9. Highway 44 at Cinnamon Ridge Fatal Crash Diagram



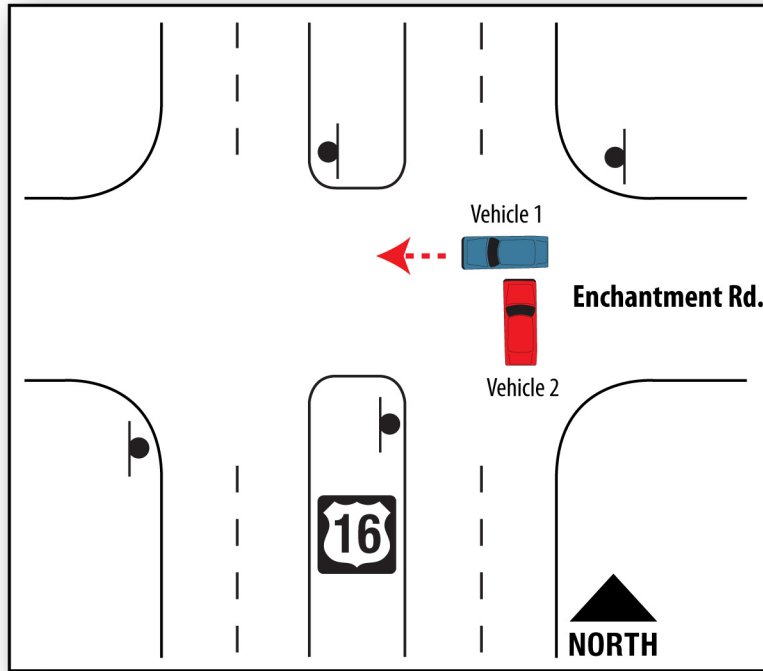
During the study period, there were 5 total crashes on this segment. There were 3 PDO crashes, 1 injury crash and 1 was the fatal crash. This segment is number 105 on the total crash critical crash ratio ranking list and is number 56 on the severe crash critical crash ratio ranking list.

Based on the isolated circumstances of this fatal crash and due to the low crash total on this segment, there does not appear to be a pattern in need of correction.

D. December 10, 2007 – US Highway 16 at Enchantment Road

This crash occurred when vehicle 1 in the westbound direction on Enchantment Road did not stop for the stop sign at Highway 16. Vehicle 2, northbound on Highway 16, collided with the driver side door of vehicle 1 (see **Figure 10**). The front seat passenger in vehicle 1 was not wearing a seat belt and received injuries resulting in a fatality. The driver of vehicle 1 received critical injuries. The driver of vehicle 1 was cited for a stop sign violation. This crash occurred in dark – lighted, frosty conditions.

Figure 10. US Highway 16 at Enchantment Rd. Fatal Crash Diagram



During the study period there were 13 total crashes on this segment. There were 10 PDO crashes, 2 injury crashes and 1 was the fatal crash. This segment is number 140 on the total crash critical crash ratio list and number 63 on the severe crash critical crash ratio ranking list.

There is currently a stop sign located on the right side of the westbound approach to this intersection. However, this sign is well to the right of approach due to a driveway that intersects Enchantment Road from the northeast at an angle (see **Figure 11**).

Figure 11. Intersection of US Highway 16 and Enchantment Road

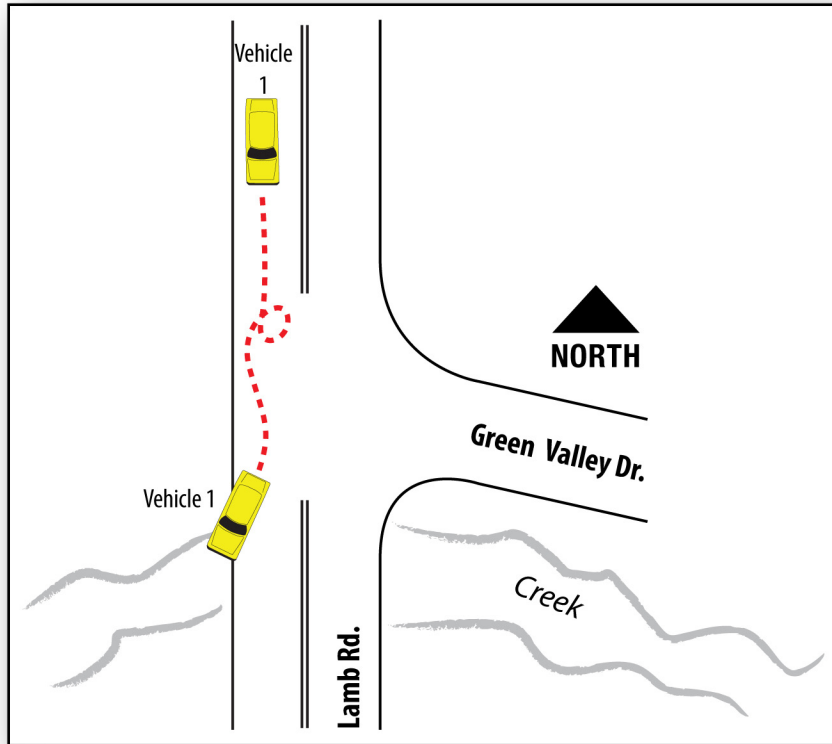


First, consideration should be given to relocating the intersection of the existing private drive further to the east so that it intersects with Enchantment Road in a more standard fashion. The width of the westbound approach can then be reduced which should help to improve the visibility of the existing stop sign. In addition, consideration should be given to installing oversized stop signs and an additional stop sign on the left side of the westbound approach of Enchantment Road. This should also help improve the visibility of the stop sign.

E. February 1, 2008 – Lamb Road near Green Valley Drive

This crash occurred when a vehicle in the southbound direction on Lamb Road drifted to the right and the passenger side tires left the road. The driver brought the vehicle back onto the road but overcorrected which sent the vehicle into a spin. The vehicle then struck a bridge guardrail which knocked the guardrail off of the bridge leaving the vehicle partially suspended over the edge of the bridge (see **Figure 12**). The driver of the vehicle was partially ejected and sustained fatal injuries. Alcohol was involved in this crash. This crash occurred in dark – unlighted, dry conditions.

Figure 12. Lamb Road Fatal Crash Diagram



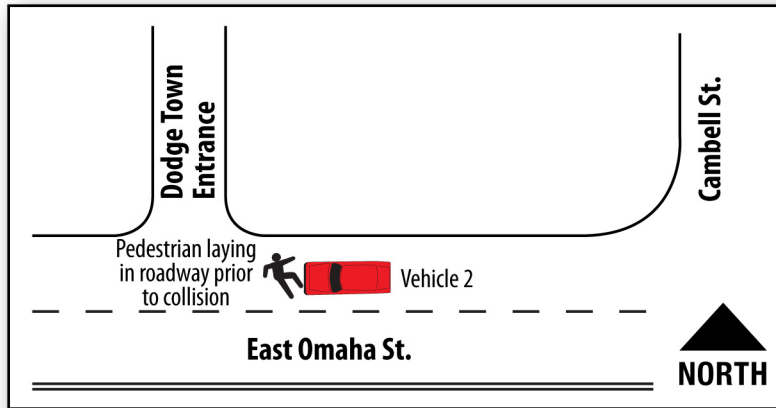
During the study period there were 7 total crashes on this segment. There were 6 PDO crashes and the one fatal crash. This segment is number 3 on the total crash critical crash ratio list and number 51 on the severe crash critical crash ratio ranking list. However, this segment was removed from further consideration as a top crash segment during Steering Committee discussions. This is due to the low daily traffic volume (approximately 200 vpd) during the study period.

Based on the isolated circumstances of this fatal crash, there does not appear to be a pattern in need of correction on this segment.

F. June 6, 2008 – East Omaha Street west of Cambell Street

This crash occurred when vehicle 2 turned right onto westbound East Omaha Street from Cambell Street and struck a pedestrian who was lying in the right lane of westbound Omaha Street (see **Figure 13**). The driver of vehicle 2 swerved to avoid the pedestrian but he was unable to react in time to avoid hitting the pedestrian. The pedestrian sustained severe injuries resulting in a fatality. This crash occurred in dry, dark – lighted conditions around midnight.

Figure 13. East Omaha Street Fatal Crash Diagram



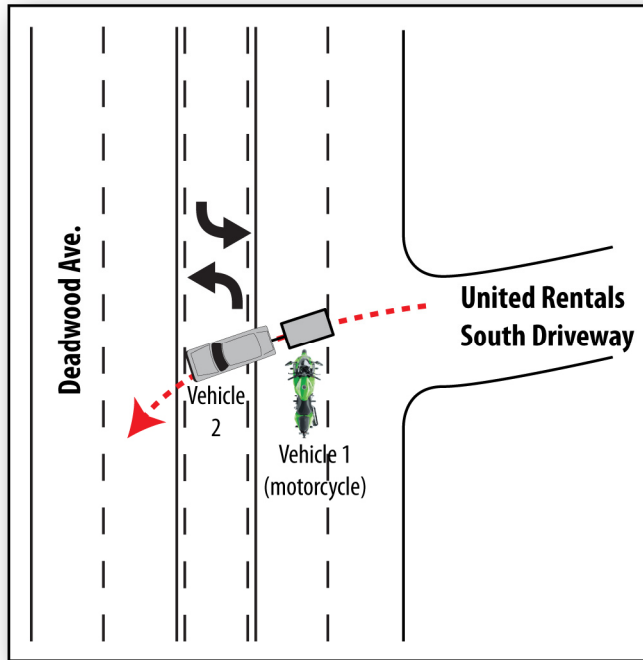
During the study period, there were 12 total crashes on this segment. There were 11 PDO crashes and 1 was the fatal crash. This segment is number 37 on the total crash critical crash ratio ranking list and is number 119 on the severe crash critical crash ratio ranking list.

Based on the isolated circumstances of this fatal crash and due to the low crash total on this segment, there does not appear to be a pattern in need of correction.

G. July 9, 2008 – Deadwood Avenue south of North Plaza Drive

This crash occurred when the trailer of vehicle 2 was struck by vehicle 1. Vehicle 2 was attempting to make a left hand turn from the United Rentals property onto southbound Deadwood Avenue. Vehicle 1 was a motorcycle headed northbound in the right lane of Deadwood Avenue (see **Figure 14**). The driver of vehicle 2 waited for a gap in traffic to make the left turn and proceeded. He judged the gap based on a maroon truck traveling in the left lane of northbound Deadwood Avenue that was traveling approximately 35 to 40 miles per hour. He began to make the left turn but then noticed vehicle 1 traveling in the right northbound lane at approximately 60 to 70 miles per hour (the posted speed limit is 45 mph). The driver of vehicle 2 accelerated in an attempt to complete the left turn and avoid a collision with vehicle 1 but was unable to get out of the way. Vehicle 1 struck the trailer and the driver of vehicle 1 sustained fatal injuries. This crash occurred in dry, daylight conditions.

Figure 14. Deadwood Avenue Fatal Crash Diagram



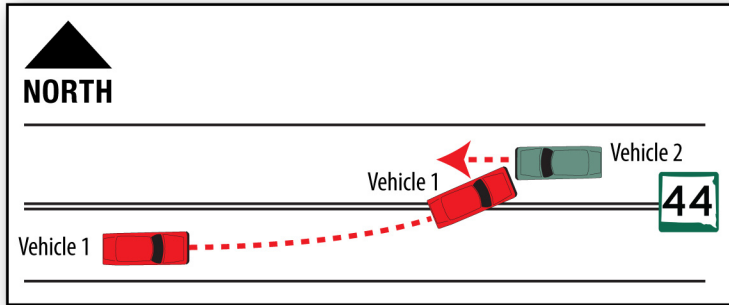
During the study period, there were 8 total crashes on this segment. There were 3 PDO crashes, 4 injury crashes and 1 was the fatal crash. This segment is number 169 on the total crash critical crash ratio ranking list and is number 53 on the severe crash critical crash ratio ranking list.

Based on the isolated circumstances of this fatal crash and due to the low crash total on this segment, there does not appear to be a pattern in need of correction. However, consideration should be given to increasing speed enforcement on this segment of Deadwood Avenue.

H. August 21, 2008 – South Dakota Highway 44 west of Falling Rock Road

This crash occurred when vehicle 1, driving eastbound on Highway 44, crossed into the westbound travel lane and collided with vehicle 2 head on (see **Figure 15**). The driver of vehicle 1 crossed into the westbound lane for an unknown reason. The driver of vehicle 2 attempted to avoid the collision but was unable to. The driver of vehicle 1 sustained fatal injuries. The driver and passenger in vehicle 2 sustained incapacitating injuries. This crash occurred in dry, daylight conditions.

Figure 15. Highway 44 west of Falling Road Road Fatal Crash Diagram



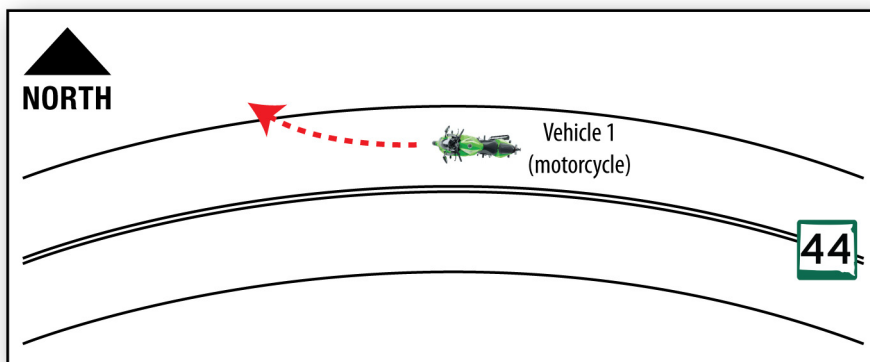
During the study period, there were 14 total crashes on this segment. There were 8 PDO crashes, 5 injury crashes and 1 was the fatal crash. This segment is number 68 on the total crash ranking list and number 15 on the severe crash ranking list.

Based on the isolated circumstances of this fatal crash, there does not appear to be a pattern in need of correction. However, consideration should be given to monitoring this segment given that it falls within the top 20 on the severe crash ranking list.

I. November 2, 2008 – South Dakota Highway 44 east of Elkhart Road

This crash occurred when the driver of vehicle 1, a motorcycle, stood up on the seat of the motorcycle and extended his hands out to his sides. The driver lost his balance and fell from the motorcycle onto the road surface. The motorcycle went off the road and hit a guardrail (see **Figure 16**). The driver sustained a fatal head injury from the fall. This crash occurred in dry, daylight conditions.

Figure 16. Highway 44 east of Elkhart Road Fatal Crash Diagram



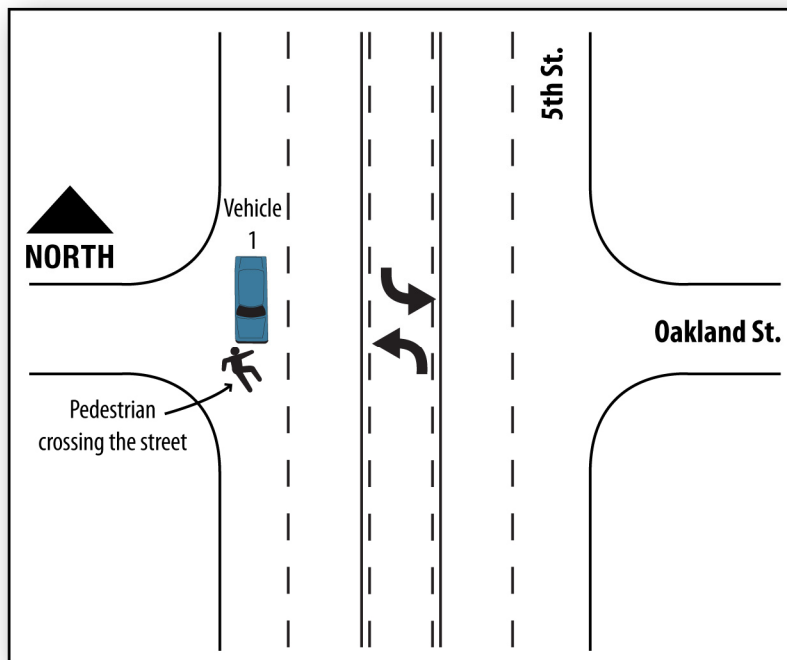
During the study period, there were 7 crashes on this segment. There were 6 PDO crashes and 1 was the fatal crash. This segment is number 81 on the total crash ranking list and number 116 on the severe crash ranking list.

Based on the isolated circumstances of this fatal crash and due to the low crash total on this segment, there does not appear to be a pattern in need of correction.

J. December 7, 2008 – 5th Street at Oakland Street

This crash occurred when a pedestrian crossing 5th Street on the south side of the intersection with Oakland Street was struck by a vehicle in the right southbound lane of 5th Street (see **Figure 17**). The driver of the vehicle stated he saw the silhouette of the pedestrian against the black sky when he was about 10 feet away from him. This crash occurred in dry, dark – lighted conditions and the pedestrian was wearing dark clothing at the time of the crash making it difficult for the driver to see him. The pedestrian sustained fatal injuries from the collision.

Figure 17. 5th Street at Oakland Street Fatal Crash Diagram



During the study period, there were 11 total crashes on this segment. There were 10 PDO crashes on this segment and 1 was the fatal crash. This segment is number 72 on the total crash ranking list and 130 on the severe crash ranking list.

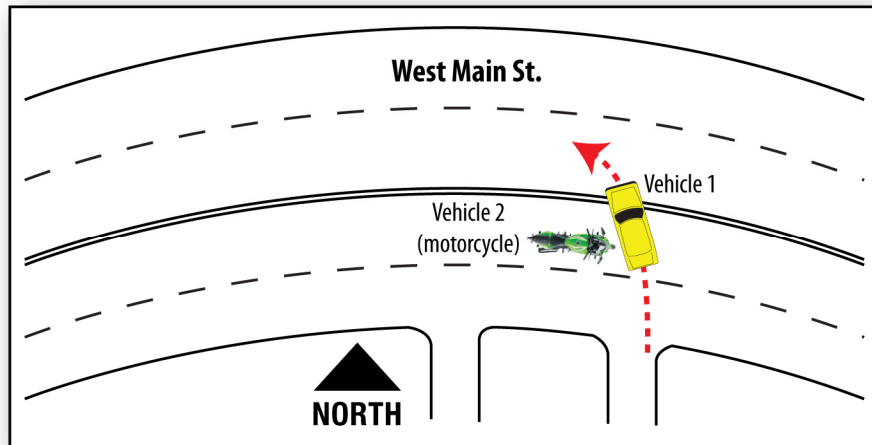
Based on the isolated circumstances of this fatal crash and due to the low crash total on this segment, there does not appear to be a pattern in need of correction.

K. July 17, 2009 – West Main Street to the west of West Street

This crash occurred when vehicle 1, attempting to make a left turn onto westbound Main Street from a business driveway on the south side of West Main Street, turned out in front of vehicle 2, a motorcycle (see **Figure 18**). The driver of vehicle 1 said that he saw a gap in traffic and began

to turn. The driver of vehicle 2 locked up the rear brake and laid the motorcycle on its right side in an attempt to avoid the collision. The driver of vehicle 1 accelerated in an attempt to get out of the way of vehicle 2. However, both the motorcycle and its occupants collided with the side of vehicle 1. Both the driver and the passenger of the motorcycle sustained fatal injuries. This crash occurred in dry, daylight conditions.

Figure 18. West Main Street Fatal Crash Diagram



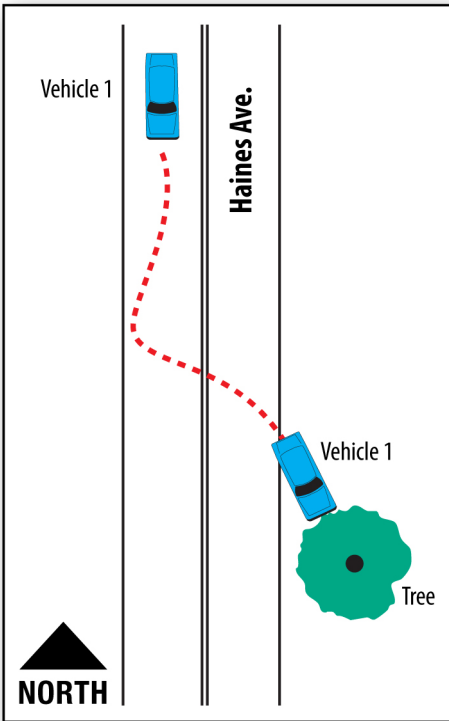
During the study period, there were 12 total crashes on this segment. There were 8 PDO crashes, 3 injury crashes and 1 was the fatal crash. This segment is number 117 on the total crash ranking list and number 64 on the severe crash ranking list.

Based on the isolated circumstances of this fatal crash and due to the low crash total on this segment, there does not appear to be a pattern in need of correction.

L. November 9, 2009 – Haines Avenue north of Country Road

This crash occurred when the driver of the vehicle drifted to the right and onto the shoulder while southbound on Haines Avenue. The driver over corrected, went off the left side of the road, rolled the car and came to rest against a tree (see **Figure 19**). This crash occurred sometime between midnight and 3:30AM but was not reported until about 3:45AM. The driver's blood alcohol content was above the legal limit and was estimated to be driving approximately 75 miles per hour. The posted speed limit is 50 miles per hour. The driver of the vehicle was ejected and sustained fatal injuries. The passenger of the vehicle sustained incapacitating injuries.

Figure 19. Haines Avenue Fatal Crash Diagram



During the study period, there were a total of 6 crashes on this segment. There were 5 PDO crashes and 1 was the fatal crash. This segment is number 114 on the total crash ranking list and number 124 on the severe crash ranking list.

Based on the isolated circumstances of this fatal crash and due to the low crash total on this segment, there does not appear to be a pattern in need of correction.