# Superstreet Benefits and Capacities 

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| 16. Abstract <br> This research evaluated operational, safety, and perceived effects of superstreets, called restricted crossing U-turn intersections by FHWA, and developed a useful level of service estimation program which could be used on North Carolina's urban and rural arterial roadway system. The operational analysis involved calibrating and validating VISSIM models of three existing signalized superstreets in North Carolina - two isolated intersections, and one fiveintersection superstreet corridor. Results from the three models were compared to results from models of equivalent conventional intersections at various volume levels using travel time as the main measure of effectiveness. The superstreet outperformed the conventional intersection at each location studied, reducing the overall average travel time per vehicle traveling through the intersection. The safety analysis involved three separate methods - naïve, comparison-group, and Empirical Bayes. Only unsignalized superstreets were analyzed using the Empirical Bayes method. Three signalized superstreets were also evaluated using SSAM. The results from the analyses were inconclusive with signalized superstreets. Unsignalized superstreets, however, showed a significant reduction in total, angle and right turn, and left turn collisions in all analyses. Analyses also showed a significant reduction in fatal and injury collisions as well. Resident, commuter, and business perceptions of superstreets were evaluated using survey data. The perceptions were mixed within each of the three groups, with some positive and some negative feelings. A LOS program was developed to provide highway capacity and service volumes for superstreets for use in planning applications. The research outcomes will enable NCDOT to have a better understanding of superstreet performance, which can lead to cost saving by reductions in collisions and travel time. |  |  |  |  |  |
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## EXECUTIVE SUMMARY

Arterials across North Carolina and the United States are operating inefficiently these days. In urban and suburban areas they are becoming more and more congested due to growing traffic demands, and in rural and suburban areas they experience far too many collisions. Agencies tasked with fixing these arterials are running out of good solutions. Superstreets, called restricted crossing U-turns by the Federal Highway Administration, are a part of a menu of unconventional arterial designs that may provide a promising solution. Up to this point, there is little valid information available on the effects of superstreets. Studies have been done analyzing this new design, but the results are from theoretical analyses, macroscopic analyses, and simulations of hypothetical arterials. The purpose of this research was to determine the operational and safety effects of the superstreet treatment on real arterials in North Carolina.

The operational analysis involved calibrating and validating VISSIM models of three existing signalized superstreets in North Carolina - two isolated intersections, and one five-intersection superstreet corridor. Results from the three models were compared to results from models of equivalent conventional intersections at various volume levels using travel time as the main measure of effectiveness. The superstreet outperformed the conventional intersection at each location studied, reducing the overall average travel time per vehicle traveling through the intersection. The travel time savings and extra capacity at higher volumes can buy agencies more years of good operation before intersection improvements are necessary.

The safety study involved a naïve analysis and comparison group (C-G) analysis of rural signalized and unsignalized superstreets and an Empirical Bayes (EB) method analysis of rural unsignalized superstreets. The project team also evaluated three signalized superstreets using the Surrogate Safety Assessment Model (SSAM) because the VISSIM models were previously calibrated and validated against travel time. These three methods of analysis were used to find the effects a superstreet design has on collision frequencies and severities. Signalized superstreets utilized the naïve and C-G methods because the NCDOT installed superstreets at these sites for their congestion problems and not for their safety problems. Based on this fact, regression-to-the-mean will not have an effect on the collision frequencies which makes the use of the naïve and C-G methods acceptable. Conversely, unsignalized superstreets were installed for their safety issues and therefore, regression-to-the-mean must be accounted for in the analysis. The results from analyses are inconclusive with signalized superstreets. Unsignalized superstreets, however, showed a significant reduction in total, angle and right turn, and left turn collisions in all analyses. Analyses also showed a significant reduction in fatal and injury collisions as well.

In addition to the operational and safety analyses, the team conducted three surveys: a residential survey to gather opinions of drivers that live near a superstreet, a survey to gather opinions of commuters driving through a superstreet on a daily basis, and a business survey to gather the perceived effects of superstreets on adjacent businesses. Each of the surveys provided interesting feedback. Residents living near superstreets had mixed reactions about the ease of navigation through superstreets compared to typical intersections, but they agree the design helps them travel more safely through the intersection. Commuting drivers perceived superstreets to be more difficult to navigate, but felt strongly about savings in travel time and reductions in
numbers of stopped vehicles. Business reactions varied greatly depending on the ability to make direct left turns from the arterial. In general, more business managers felt superstreets negatively impacted business growth and operations. Based on the opinions of adjacent business owners/managers, access and confusion have been identified as key problems in retaining the number of regular customers and attracting new customers near superstreets. Agencies contemplating superstreet projects should be aware of these perceptions and try to mitigate the negative ones if possible.

The existing NCLOS program was modified to include a determination of highway capacity for superstreets based upon the specific conditions present in North Carolina for use in planning applications. The NCLOS tool is based upon the methodology and theory already present in the 2000 Highway Capacity Manual, but is geared specifically to North Carolina. The software program includes a graphical interface that allows for various planning scenarios to be examined in an efficient, yet accurate manner. Default values are provided for key parameters (such as saturation flow rate, effective green, etc.) in calculating service volumes and capacity for the superstreet being examined. However, users are able to change the values in lieu of more specific or current information for their particular project.

The research outcomes will enable NCDOT to have a better understanding of superstreet performance, which can lead to cost saving by reductions in collisions and travel time. The NCDOT can better allocate its limited resources by understanding the best implementation for signalized and unsignalized superstreets. The results of this research provide the first calibrated VISSIM models, Empirical Bayes safety analysis, and LOS evaluation for superstreets, which can help transportation agencies to implement this promising design in an optimal manner.

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### 1.0 INTRODUCTION

Many arterials with four or more lanes in NC and across the US operate very poorly these days. In suburban areas they are often congested, due in part to growing traffic demands that probably will continue for some time, and in rural and suburban areas they experience far too many collisions. Unfortunately, agencies tasked with fixing their arterials do not have many good solutions available. For suburban arterials, conventional traffic engineering solutions like actuated signals, turn bays, and signal systems have generally been exhausted. Widening projects and bypasses are expensive, environmentally disruptive, and may not help operations much. Flyovers and interchanges are expensive and unpopular with roadside businesses left in the shadows. Intelligent transportation, transit, demand management, and other possibilities have not yet proven helpful on arterials. For rural highways, signal installations, flashing beacons, reduced speed limits, and other conventional measures all have serious drawbacks.

Superstreets, called restricted crossing U-turns by the Federal Highway Administration, are a part of a menu of unconventional arterial designs that may provide a promising solution for arterials. They have the potential to move more vehicles efficiently and safely through the same arterial pavement as conventional arterials, at-grade, with minimal disruptions to the surrounding environment and businesses. A superstreet works by redirecting left turn and through movements from side streets. Instead of allowing those to be made directly through a two-way median opening, as in a conventional design, a superstreet sends those movements to a one-way median opening 800 feet or so downstream, as Figure 1.1 shows. Thus, a side street through movement will be made by a right turn, then a U-turn, then another right turn. Readers should note that a superstreet is different from the design called a "directional crossover" in North Carolina, in which one or both of the U-turn maneuvers is made using a two-way median opening. Superstreets, outside of North Carolina, are known to exist in Maryland, Minnesota, and Michigan.


Figure 1.1. Superstreet Design
The results from this redirection are dramatic. Traffic signals now require only two phases instead of the four or more phases-with green arrows for left turns from both streets-usually required at a busy two-way median opening. Since every signal phase introduces extra "lost time" for all motorists, this reduction in phases means significant time savings for everyone. In addition, the superstreet intersection without direct left turns shown in Figure 1.1 has only eight conflict points-places where vehicle streams cross, merge, or divergeand the superstreet intersection with direct left turns only has 14 conflict points while a conventional intersection with a two-way median opening has 32 . Since each conflict point adds another way for a vehicle to get hit, superstreets are likely to be safer.

The most profound change provided by a superstreet in a suburban area is in progression, which is the ability of vehicles to move along a road at a steady speed hitting one green signal after another. With a superstreet, the signals that control one direction of the arterial
have nothing to do with the signals that control the other direction. This means that a superstreet will operate like a pair of one-way streets, and that perfect progression is possible at any speed with any signal spacing. This is an extraordinary capability; conventional arterials cannot approach this efficiency even with excruciating control of accesses and signal installations. The ability of a superstreet to control motorist speeds should add to its safety. Superstreets also provide superb and safe service to crossing pedestrians.

### 1.1 Research Objectives

Superstreets are a promising new arterial design, but the idea meets resistance when proposed in some places. Business owners and land owners are concerned about less direct access, developers are concerned about higher signal equipment costs, and emergency officials are concerned about indirect movements of their vehicles, for example. Motorists, who would enjoy the presumed safety and travel time benefits from superstreets, are a "silent majority" whose voices could get drowned out by the concerns of these other more vocal groups. The NCDOT needs valid and local information on the benefits and capacities of superstreets to represent this silent majority, answer the concerns of the vocal groups, and make the best decisions for all stakeholders when superstreets are proposed.

One objective of this project was to fill this information gap and determine whether superstreets are producing safety and operational benefits for motorists in North Carolina. In rural areas, such as on US-23 and US-74 near Waynesville, superstreets have been in place long enough on large enough stretches of highway to provide a good look at changes in safety. In suburban areas such as US-17 in Brunswick County, the project team investigated safety and delay, using sophisticated traffic models to simulate what conditions would be with a conventional boulevard design. In both rural and suburban areas, the project team also conducted surveys of local officials, business owners, shoppers, motorists, and other stakeholders to gather opinions on the effects of the superstreet design.

This project also filled a critical need for a capacity and level of service methodology for superstreets. The potential problems lie in two areas. First, there are questions about the saturation flow rates-the basic building blocks of a capacity calculation--for the various types of U-turn crossovers. To this point, analysts looking at superstreets are using default saturation flow rates in their macroscopic procedures or microscopic simulation models. No one has calibrated those models for superstreets. Some work has been done on capacities of U-turns but superstreet crossovers are different from U-turns on conventional roads. The NCDOT needs valid saturation flow rates for five types of crossovers:

- U-turn unopposed (shown above in Figure 1.1),
- U-turn unopposed and left turn,
- U-turn opposed,
- U-turn opposed and left turn, and
- Left turn (shown above in Figure 1.1).

Valid saturation flow values are the building blocks to help solve the second problem, which is putting a capacity and level of service estimate together for an entire superstreet intersection. A superstreet essentially breaks up a large conventional intersection into four
small intersections. Analysts can use conventional techniques to estimate the capacity and level of service for these pieces, but no one has tried to assemble the pieces into a single overall estimate of capacity and level of service for the entire intersection, including consideration of the outstanding mainline progression and the extra travel times some vehicles experience in completing their maneuvers.

This research has updated the NC LOS program to include a capability to estimate capacity and level of service for superstreets. Co-PI Foyle helped develop the NC LOS program (1) currently being used by several units within NCDOT. It is a unique, visual display of the Highway Capacity Manual methodologies for freeways, multilane highways, arterials, and two-lane highways. The program creates a graphical plot of LOS against AADT based on default, boundary and user inputs, and has output reports and linking capabilities to TransCAD. Another module can be added to this very intuitive and user-friendly software.

### 1.2 Research Scope

The scope of this research is the effect of superstreets on North Carolina motorists. Superstreets affect safety, travel time and delay, and stakeholder opinion. The operational analysis produced an overall intersection capacity estimate and a revision to the NC LOS program.

Two main sources of data have been pursued in this research. The first source of data was field and video-collected data for the travel time experiment. This included travel time runs, free flow speeds, saturation flow studies, and origin-destination movements. The second source of data was the Traffic Engineering Accident Analysis System (TEAAS) software for the safety analysis. TEAAS is the primary tool used by the NCDOT to analyze and report on crashes within North Carolina.

The extent of the data collection activity of this research is tremendous compared to similar research reported in the literature. The relatively large data sets enabled us to evaluate the impacts of superstreets and to create high-quality travel time models.

Though the team followed typical calibration and safety procedures, readers should note that the direct results of this research (such as the travel time calibrated models or the safety results) may not be directly applicable to other geographic regions of the US and other countries. The readers in other geographic regions could use the methodologies and procedures presented here, but, they may need to use their own data and draw conclusions based on the data collected in their region.

### 1.3 Outcomes and Benefits

The results of the travel time experiment showed that all three signalized superstreets, which included two isolated intersections and one five-intersection corridor, performed better than the corresponding conventional intersections when comparing the average travel times per vehicle. The largest travel time savings occurred at the peak, peak+10\%, and peak+20\% demand levels.

With the superstreet reducing overall travel time through the intersection at peak periods and higher, the design can buy an agency more years after the conventional intersection hits capacity. Using the critical sum as a capacity check, the superstreet was able to provide more capacity beyond what the conventional intersection could provide when it reached high demand levels in these three cases. When agencies are looking to make intersection improvements along their corridors, the superstreet can give them more capacity and at the same time reduce travel time, therefore adding more years to the intersections' useful lives before having to make additional improvements, and thus saving money.

The safety analyses of signalized superstreets did not provide a clear result. Each site we examined had unique characteristics that affected its analysis. The US-15/501 superstreet was affected by spillback from a downstream intersection; the US-17 superstreets were implemented with signals and with a large development that significantly influenced traffic volume and safety; and the US-421 superstreet has flashing yellow arrows for major left turns and U-turns which no other signalized superstreet uses. The SSAM analysis for signalized sites was also difficult because we coded our VISSIM models to produce travel time results, and this was not optimal for a realistic safety model.

Unsignalized superstreets showed unambiguously a significant reduction in total, angle and right turn, and left turn collisions in all analyses. Analyses also showed a significant reduction in fatal and injury collisions as well.

The significant collision reduction from unsignalized superstreets is important because it shows the strong success of NCDOT superstreet application. The cost savings to taxpayers from this collision reduction will be enormous. Additionally, the NCDOT can use the information to justify their design decisions to local citizens and business owners.

Each of the survey types provide interesting feedback. Residents living near superstreets have mixed reactions about the ease of navigation through superstreets compared to typical intersections, but agree that the design helps them travel more safely through the intersection. Commuting drivers perceive superstreets to be more difficult to navigate, but feel strongly about savings in travel time and reductions in numbers of stopped vehicles. Business reactions varied greatly depending on the ability to make direct left turns from the arterial. In general, more business managers feel superstreets negatively impact business growth and operations. Based on the opinions of adjacent business owners/managers, access and confusion have been identified as key problems in retaining the number of regular customers and attracting new customers near superstreets. Agencies contemplating superstreet projects should be aware of these perceptions and try to mitigate the negative ones if possible.

The benefits from this research should easily extend beyond the borders of North Carolina. It is our hope that the benefits documented here would inspire analysts worldwide to also consider superstreet alternatives in confidence, much as the publication of solid research results on the safety of roundabouts in the late-1990s boosted confidence in that design. The NCDOT and its motorist customers should enjoy a huge savings in construction, collision, and delay costs in the future due to superstreets. The construction savings will come from selecting a superstreet on an arterial rather than interchanges, which have become extremely
expensive over the past few years. The collision savings could be substantial, especially in leading to less severe collisions. The prevention of an injury collision that would have occurred at an unsignalized two-way median opening would save North Carolina citizens an average of $\$ 100,000$. The delay savings will be from motorists cruising through a superstreet with minimal signal delay. A one-mile long superstreet design on a busy arterial that saves motorists an average of one minute each during peak periods over a conventional boulevard could easily add up to $\$ 1,000,000$ per year in total savings. This delay savings would also mean lower fuel consumption, better air quality, and other environmental benefits.

### 1.4 Report Organization

The remainder of the report is organized into chapters that present each of the major analyses performed during this project. Chapters 2 and 3 introduce the travel time experiment and safety analyses. Chapter 4 presents the resident, commuter, and business surveys. Chapter 5 discusses the NC LOS program. Chapters 6 and 7 present conclusions and recommendations for each major analysis, and Chapter 8 presents technology transfer plans of the research project. Chapters 9 and 10 are references and appendices for the report.

### 2.0 TRAVEL TIME EXPERIMENT

### 2.1 Literature Review

The literature review for this section addresses operational studies on both superstreets and median U-turns. An important part of the superstreet concept is the use of directional median U-turns, which is why it is important to include median U-turns in the literature review. Most of the studies on median U-turns give similar results showing that the design decreases average total delay at an intersection and reduces the number of conflict points and collisions. There are fewer studies available on superstreets. Most of the studies on superstreets are based on macroscopic analyses and simulations of hypothetical arterials.

### 2.1.1 Median U-turns

Median U-turns are similar to the superstreet in that both designs eliminate left turns from the minor road to the arterial and send them instead to downstream directional U-turn crossovers. The difference between the median U-turn intersection and the superstreet is that the median U-turn allows through movements from both the arterial and minor road at the main intersection. No left turns from the arterial to the minor road are allowed at the main intersection, which operates with a two-phase signal. Figure 2.1 shows a diagram of the median U-turn design.


Figure 2.1. Median U-Turn Design
There is a large variety of literature on median U-turns. The studies of interest to this project include operational research for signalized intersections, as well as access management studies. Some of the research topics include capacity of U-turns at unsignalized and signalized openings, and travel time efficiency of median U-turns.

### 2.1.1.1 Operations

Al-Maseid (2) conducted a study on capacity of U-turns at median openings using two different methods: empirical and gap-acceptance. The U-turn capacity model showed strong correlation between conflicting traffic flow and average total delay. The gap-acceptance model showed that critical gap varied according to average total delay and speed of conflicting traffic flow. Both models yielded similar results for high and low conflicting traffic volumes. The differences between the models were not significant at the $95 \%$ confidence level so he concluded that both models give similar capacity results. Al-Maseid noted that it is important to consider the delay effect on gap acceptance because drivers change behavior the longer they have to wait, therefore accepting smaller gaps.

Liu et al (3) also performed a study on capacity of U-turns at median openings. Their study was conducted on multilane highways in the Tampa Bay, Florida area. They predicted that the factors affecting U-turn capacity would be major street traffic volume in the direction of conflict, the critical gap for U-turn movements, and the follow up time for U-turn movements. Results showed that U-turns at narrow median openings have a larger critical gap than those at wide medians, and that median size can greatly affect the capacity - wide medians were found to have up to $268 \mathrm{pc} / \mathrm{h}$ greater capacity than narrow medians. The major street traffic volume was also a major factor - U-turn capacity decreased at a faster rate than the capacity of a left turn movement from a major street when the major street volume increased.

The Michigan Department of Transportation is a frequent user of directional crossovers on their boulevards to relieve capacity problems that are associated with interlocking left turns in bi-directional crossovers. Maki reported on this strategy (4); at the time (1996) Michigan had over 425 miles of boulevards with 700 directional crossovers in their state highway system. A capacity analysis showed a $20-50 \%$ capacity improvement, although it is not clear in the report what volumes this applies to, or how many sites were analyzed. The measures of effectiveness (MOEs) used for the operational analysis were network total time and left turn total time in the network. The network consisted of six intersections. It was found that even though left-turning vehicles would have to travel a longer distance, that extra travel time was offset by delay savings at the intersection (compared to direct left turns), which is similar to findings from other papers. Since this analysis was done on a network of six intersections, it is possible that smaller networks with one, two or three intersections would yield different results.

Dorothy et al performed a study (5) that compared a five-lane highway with a two-way left turn lane (TWLTL) to a four-lane highway with a median (boulevard design). The measures of effectiveness used were network total time (total time vehicle spends in the network which includes delay and travel time), and left turn total time (time it takes to make a left turn as a combination of delay and travel time). All analysis was done using TRAF-NETSIM computer simulation and modeling. Results showed that the boulevard design with indirect left turns and signalized crossovers had best results for both total network time and left turn total time. Boulevards with direct left turns had the highest amount of delay. Hummer and Boone's study on unconventional arterial intersection designs for NCDOT (6) compared the travel efficiency of the median U-turn, continuous green T, and the NCSU bowtie
intersections to conventional intersections. They used Traf-Netsim 4.0 for network simulation which was calibrated using field data from Michigan, Florida and Maryland. The MOEs were total travel time and number of stops. The median U-turn was most effective with higher through volumes and left turns. The relative efficiency varied with the through volume. The median U-turn overall led to more travel time and stopped delay for left-turning vehicles than the standard intersection.

Bared and Kaisar (7) performed a study investigating the operational benefits of median Uturns for left-turning vehicles. They compared a typical intersection (four lanes intersecting four lanes) to a median U-turn design. Their median U-turn design implemented U-turns for the left-turning vehicles on the major road and direct left turns within the intersection for vehicles on the minor road, which is opposite from a typical superstreet. CORSIM was used for model simulation and TRANSYT-7F was used for signal optimization. Average network travel time became noticeably better for the median U-turn design for entering flows upwards of 6000 vph . Bared and Kaisar also found that the average proportion of vehicles that stop in the network is $20-40 \%$ lower for the U-turn design; however, stopping time is higher for the U-turning vehicles by $10-18 \mathrm{~s} /$ veh because they are likely to stop at both the main intersection and the left turn bay downstream. The significance of the results could have been greater if the models were calibrated with field data and if a series of intersections was used instead of an isolated intersection.

Henderson and Stamatiadis (8) conducted a study on how median U-turns improve traffic flow along arterials. Their study implemented median U-turns on a major arterial in Lexington, Kentucky to see how it would help relieve congestion. They looked at both the bowtie and superstreet designs before deciding that the median U-turn would be more appropriate given the geometry of the road in an effort to keep construction time and cost at a minimum. Modeling was done using TSIS and CORSIM, while TRANSYT-7F was used for signal optimization. A p.m. peak hour travel time study validated the models. The researchers implemented median U-turns at intersections with high left turn volumes and high delays. The computer simulation had the following system-wide effects from the median U-turns: increased speed, decreased average and total delay time, and an increase in move/total time ratio, therefore increasing the efficiency of the network. Peak hour travel times were reduced by $32 \%$ and delays were reduced by $35 \%$. They also ran a simulation that widened the arterial to three instead of two lanes in each direction, but the median U-turn efficiency remained superior. Table 2.1 is a summary of the network-wide operating measures of effectiveness.

Table 2.1. Summary of Network-Wide Operating MOE (7)

|  | Move/Total <br> time | System <br> speed <br> (mph) | Total <br> delay <br> (veh-hr) | Average delay <br> $(\mathbf{m i n} / \mathbf{v e h}$-trip $)$ |
| :--- | :---: | :---: | :---: | :---: |
| Existing Conditions | 0.35 | 15.4 | 855 | 3.40 |
| Signal Optimization | 0.36 | 16.2 | 842 | 3.22 |
| Additional Lane | 0.41 | 17.8 | 703 | 2.65 |
| U-turns $^{1}$ | 0.41 | 17.8 | 647 | 2.45 |
| U-turns ${ }^{2}$ | 0.44 | 19.0 | 583 | 2.19 |
| U-turns \& Additional Lane | 0.47 | 20.8 | 498 | 1.85 | | Note: |
| :--- |
| 1. At four intersections <br> 2. At six intersections |

Thakkar et al (9) conducted a study to evaluate the impacts of prohibiting median opening movements. The factors that were investigated included: impacts on adjacent intersection operations, median opening/driveway operations, arterial weaving operations, overall system operations, rerouted motorist's convenience, safety, cost-benefit value, and public acceptance. The investigators made the case that preventing left turns at a median opening or driveway would shift the traffic to the nearest intersection, which would in turn decrease the operation level due to heavier U-turn traffic volumes. This would not necessarily be the case for superstreets since a designated directional crossover is built into the design, and would theoretically be able to handle the volume of traffic needing to make U-turns to switch directions.

### 2.1.1.2 Access Management

The TRB Access Management Manual (10) presented studies done across the country indicating that raised medians have little to no overall adverse impact on surrounding businesses. In Kansas, changes in traffic patterns did not cause a change in use in the abutting businesses. In Texas, the perception of the median installation by business owners prior to construction is usually worse than reality. Also, "accessibility to store" is usually ranked lower than customer service, quality of product, and product price by business owners when asked what factors were important in attracting customers.

Similar results were found in a study done by the Texas Transportation Institute (11) addressing the economic impacts of raised medians. This four-year study was done at eleven locations to assess the effects prior, during, and after construction of raised medians. Through surveys and interviews with business owners and customers, the researchers found that the only major adverse impact raised medians have is during the construction phase. For businesses that were present before, during, and after construction, property value increased by 6.7 percent after the construction of the raised median compared to the before conditions, while owners thought they would experience a decrease in value. The duration of construction typically lasted one to two years, with construction dates between 1979 and 1998 for all study locations. As with other studies, accessibility is ranked lower in
importance for destination businesses, and slightly higher for pass-by businesses such as gas stations. Overall, the study concludes that there is no negative economic impact caused by raised medians.

### 2.1.2 Superstreets

Richard Kramer (12) first developed the superstreet concept in the 1980s as a way to alleviate congestion on arterials. While the concept was new, the techniques he used were not. Kramer listed ten "dream" characteristics of ideal operations on an arterial, with the major focus on the importance of giving through traffic priority. The ten characteristics are as follows:

1. Its three or four lanes in each direction of travel would receive a minimum of two-thirds to three-fourths of the signal cycle as green time at all intersections encountered along its entire length.
2. Each direction of travel would be signalized for progressive movement so that traffic would simultaneously flow as smoothly in each direction as if it were two parallel one way streets.
3. Thru traffic would be protected (by signalization) from conflicting left turns from the opposing direction.
4. Direct left turns would be provided from the arterial at frequent intervals, and would be protected by signalization from conflicting thru traffic movements from the opposing direction.
5. The facility would accommodate all maneuvers of increased truck sizes and combinations allowable under the 1982 STAA.
6. Pedestrians crossing this arterial would be provided protected signal phasing and be free from (lawful) conflict with any vehicular traffic crossing their path; and the spacing of pedestrian crossing would be so convenient as to discourage pedestrian crossing at unprotected locations.
7. The facility would also provide for transit operations that would not impede thru traffic movement at any bus stop.
8. Transit bus operations would be enhanced by providing stops at all convenient locations in close proximity to protected pedestrian crossings.
9. The geometric design of the facility would accommodate the infusion of additional major traffic generators with minimal adverse affect to the road user, i.e., thru traffic could continue to receive a minimum of two-thirds to three-fourths of the signal cycle as arterial green time.
10. Signalization timing and offset programs for this arterial would be independently variable for each direction to take into account changes in traffic volumes, provide for special event (stadium) traffic, and accommodate an uninterrupted flow for emergency vehicles having on-board pre-emption equipment.

These characteristics provide the foundation for the superstreet design, which results in perfect signalized progression. Each direction of the arterial acting as independent one-way streets allows the flexibility to change progression speed, cycle lengths, and signal spacing in either direction while still maintaining optimal progression along the corridor.

Hummer (13) in 1998 presented seven unconventional alternatives for intersections that focus on left turns to and from the arterial. The two major points of the designs are to reduce delay for through traffic and decrease the number of conflict points. Both the median U-turn and superstreet are presented in this paper. While the paper does not include any quantitative studies, data, or analysis, it does present the designs with a description, variations, history, advantages, disadvantages, and when to consider each alternative. Since the superstreet design is closely related to the median U-turn design, it is not surprising that similar advantages and disadvantages are listed for both options. Both designs are said to operate best with low to medium left turn volumes from the minor street. The median U-turn can handle more minor street through traffic than the superstreet, but the superstreet can handle more left turns from the arterial. The superstreet also has the advantage of "perfect progression" in both directions at any time with any intersection spacing.

Hummer (14) also wrote a chapter on superstreets in an information report by the FHWA on non-traditional intersections and interchanges. The chapter covers all aspects of the superstreet design, including operations, safety, signalization treatment, pedestrian accommodations, and access management considerations. VISSIM was used to assess the operational performance of five geometric design cases, where 90 unique simulations were done for both superstreet and comparable conventional intersections. When the ratio of minor road volumes compared to total intersection volumes is small (less than 0.25), simulation results show that superstreets have higher intersection capacities and shorter travel times than conventional intersections. Pedestrians are accommodated better in low to medium volume traffic scenarios.

Kim, Edara, and Bared (15) conducted a study on the operation and safety performance of the superstreet. The study analyzed three scenarios of the superstreet design - one left lane and two through lanes on major road, one left lane and three through lanes on major road, and two left lanes and three through lanes - and compared them to the conventional intersection. Using VISSIM to run various traffic flows, the researchers came up with ideal volumes where a superstreet would function better than a standard intersection. Those volumes were 260-340 veh $/ \mathrm{h} / \mathrm{ln}$ for left turn traffic and 900-1150 veh $/ \mathrm{h} / \mathrm{ln}$ for through traffic on the major road with one left turn lane and two to three through lanes. It is important to keep in mind that this analysis was done without collecting field data to calibrate the models or check the numbers.

Reid and Hummer (16) conducted an experiment comparing travel time efficiency of median U-turns to two-way left turn lanes and superstreets. The tests were done using CORSIM with real traffic volumes and geometry from a median U-turn arterial in Detroit, MI. Four time periods were tested - AM peak, noon, midday, and PM peak. The superstreet proved better than the TWLTL in mean speed for all four time periods and total system time for the peak periods; however it had the highest mean stops for all time periods compared to both the TWLTL and median U-turn. The superstreet was inferior to the median U-turn for all four time periods in all three categories - total system time, mean stops per vehicle, and mean speed. At first glance it seems that the median U-turn is superior to the superstreet, but it is important to remember that the volumes used were based on an existing median U-turn
arterial with high cross street through volumes. Superstreets are not designed to handle high cross street volumes, as their primary function is to serve the through vehicles. The results from this experiment were restated in another paper by Hummer and Reid (17) on unconventional left turn alternatives for urban and suburban arterials.

Another study by Reid and Hummer (18) compared travel times between seven unconventional arterial intersection designs, which included both the median U-turn and superstreet. The study obtained actual data from seven high-volume, conventional intersections in North Carolina and Virginia and used them to construct traffic models in CORSIM. For each simulation model the number of lanes, signal timing parameters, design speeds, turn bay lengths and driver characteristics were all kept constant. Three volume levels were used: peak afternoon, $15 \%$ greater than peak afternoon, and midday (off-peak). The use of the off-peak volumes makes this study noteworthy since they take into consideration that designers will want to know how the unconventional design performs at all times of the day, not just the peak period. Results showed that while the conventional design had the fewest amount of stops, at each type of intersection analyzed there was at least one unconventional design that had a lower travel time. Superstreets only proved better than the conventional design at intersections with two-lane cross streets, although superstreets were still optimal for two-way progression.

Lu and Liu (19) conducted a study on the operational evaluation of right turns followed by U-turns in which they developed travel time regression models for right turn U-turns (RTUT) at both signalized intersections and unsignalized median openings. Data were collected from sixteen four-lane arterial sites in Florida. The sites were selected based on the following criteria: raised median with full or directional opening big enough to safely store vehicles, four lanes of through traffic (two in each direction), speed limit of 40 mph or higher, driveway with either two lanes (one for right turn and one for left turn) or shoulder flare so the two movements do not interfere, high RTUT and direct left turn (DLT) volumes, median width wide enough to store left turn vehicles, and downstream signal with exclusive left turn lane and protected left turn phase. The travel time regression models developed were based on RTUT flow rate, length to downstream intersection, and percent split in upstream through traffic. Table 2.2 shows the comparison of the average total travel time for different volume categories for a RTUT at a signalized intersection (sig), a RTUT at a median opening (med), and a direct left turn. The model, however, does not take deceleration or acceleration into consideration, and it does not take the vehicle through the entire length of the intersection.

Table 2.2. Comparison of the Average Total Travel Time in Different Volume Categories (19)

| Traffic Volume (vph) |  | Average Travel Time (sec) |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Through Volume | Left turn/U-turn volume | RTUT (sig) | RTUT (med) | DLT |
| 1000-1999 vph | 0-49 vph | 101.2 | 48.1 | 22.2 |
| 2000-2999 vph |  | 114.1 | 53.3 | 28.8 |
| 3000-3999 vph |  | 115.2 | 74.3 | 40.5 |
| $>=4000 \mathrm{vph}$ |  | N/A | N/A | 49.7 |
| 1000-1999 vph | $>=50 \mathrm{vph}$ | 116.7 | 50.8 | 22.8 |
| 2000-2999 vph |  | 122.6 | 55.1 | 32.2 |
| 3000-3999 vph |  | 114.7 | 64.2 | 40.8 |
| $>=4000 \mathrm{vph}$ |  | 111.4 | 72.6 | 48.7 |

Notes-- Through Volume: the major road through traffic volume in both directions of the arterials; N/A: no data points in the specific category

A paper presented at the $3^{\text {rd }}$ Urban Street Symposium by Hummer et al (20) explores the capacity and progression of superstreets. To find intersection capacity they used the HCM critical lane volume method but with modifications for the superstreet. Adjustments to the ideal saturation flow rate were made for trucks, and an average saturation headway of 2.1 seconds was used to calculate a new base critical lane capacity of $1587 \mathrm{pcu} / \mathrm{hr} / \mathrm{ln}$. Lane volumes were also adjusted to account for the slower speeds of turning movements. The authors created an Excel spreadsheet to check demand against capacity. While they recommend this procedure as a good starting tool for planners and traffic engineers to determine the feasibility of a superstreet intersection, it does have limitations since it does not address delay or travel times. FHWA recently released an alternative intersection selection tool (21) that builds upon this concept using the critical lane volume as a comparable method to determine capacity at conventional and unconventional intersections, including the superstreet.

Hummer et al (20) also researched the effects of progression speed on total travel time and total delay. A Synchro model was built representing the first superstreet opened on US-17 in Brunswick County, NC. Existing intersection spacing was used; however assumptions and simplifications were made for traffic volumes and geometry. Different scenarios were run involving different levels of entering volumes, turning volumes, and progression speed, for a total of 32 model runs. The results showed total delay staying approximately constant across varying speeds, while travel time changes with speed. It also showed that the impact of additional through vehicles is less than the impact of additional turning movements and side street volumes. This study could be expanded by using the actual geometry from the site in a model and comparing how it performs against the model with the simplified geometry.

### 2.1.3 Other Unconventional Intersection Designs

There are other unconventional intersection designs in place with similar concepts to the superstreet. One of those is the reduced conflict intersection (RCI), developed by Denny Eyler (22). The RCI prohibits direct left and through movements from the minor street,
similar to the superstreet. The minor street through and lefts essentially do a two-stage crossing, first crossing one direction of traffic, but then travel away from the "center" of the intersection to cross the other direction. Figure 2.2 shows a layout of the RCI.


Figure 2.2. Reduced Conflict Intersection Developed by D. Eyler, SRF Consulting Group, Inc. (22)

Demand-based signal controls are used to help guide traffic efficiently when excessive queues or delays are detected. A partial RCI was built on US 169 near Mankato, Minnesota. Currently there have not been any studies done on the operational affects of reduced conflict intersections.

### 2.2 Methodology

This section describes the methodology used for the operational analysis conducted for this research project. The operational analysis involved conducting a saturation flow study at directional crossovers and simulating three superstreets in North Carolina and comparing them to the equivalent conventional intersection. This section describes the process behind the site selection, data collection, and data analysis.

### 2.2.1 Identification and Selection of Sites

The sites selected for the operational study were taken from a list that included all operating signalized superstreets in North Carolina. The criteria for selection were signalization on all legs of the intersection and at each crossover location. Unsignalized superstreet sites, also referred to as directional crossovers, were not analyzed in the operational study because they are generally implemented in rural areas as a safety countermeasure. There are currently four existing signalized superstreet sites in North Carolina. Three of these sites were selected for
the study and are listed below in Table 2.3. Figures 2.3 through 2.9 show aerial photos of the study sites and the distances to the U-turn crossovers. The only site not chosen for this study was a corridor on US-17 in Pender and New Hanover counties. This site was eliminated because of low volumes along the minor roads.

Table 2.3. Signalized Superstreet Sites Selected for Operational Study

| Arterial | No. of <br> Intersections | Cross Street(s) | Location |
| :---: | :---: | :---: | :---: |
| US-15/501 | 1 | Erwin Rd./Europa Dr. | Chapel Hill, NC |
| US-421 | 1 | Myrtle Gardens Dr./Carolina Beach Rd. | Wilmington, NC |
| US-17 | 5 | Ploof Rd./Poole Rd. <br> Gregory Rd./Walmart entrance <br> West Gate Dr./Grandiflora Dr. <br> Brunswick Forest Pkwy | Leland, NC |
|  |  | Lanvale Rd./Brunswick Forest Dr. |  |



Figure 2.3. US-15/501 at Erwin Rd./Europa Dr. in Chapel Hill, NC


Figure 2.4. US-421 at Myrtle Gardens Dr./Carolina Beach Rd. in Wilmington, NC


Figure 2.5. US-17 at Ploof Rd./Poole Rd. in Leland, NC


Figure 2.6. US-17 at Walmart/Gregory Rd. in Leland, NC


Figure 2.7. US-17 at Grandiflora Dr./West Gate Dr. in Leland, NC


Figure 2.8. US-17 at Brunswick Forest Pkwy. in Leland, NC


Figure 2.9. US-17 at Lanvale Rd./Brunswick Forest Dr. in Leland, NC

Along with the signalized superstreet sites, the team needed to identify sites for other types of crossovers that exist for use in the saturation flow study. There were eight possible types of crossovers identified by the team: U-turn unopposed, U-turn unopposed and left turn, U-turn opposed, U-turn opposed and left turn, left turn, left-over, left-out with signal, and left-out with merge. Figure 2.10 shows the crossover types considered for this study.


Figure 2.10. Crossover Types Considered for Saturation Flow Study

The list of crossover types used in the saturation flow study was reduced down to four: Uturn unopposed, U-turn opposed and left turn, left turn, and left-out with signal. The U-turn unopposed with left turn and the U-turn opposed designs were eliminated because they are a rare occurrence, most likely due to the one-way minor street. The left-over was eliminated because it is the same as the left turn crossover, except with left turns added from both directions on the major road. Saturation flows from the left turn can be applied to both left turns on the left-over design. Finally, the left-out with merge was eliminated because saturation flow is not relevant with the merges.

Study sites for the remaining crossover types were selected based on the criteria for saturation flow studies as suggested by the ITE Manual of Transportation Engineering Studies (23). Queues needed to have a minimum of seven vehicles to record the headways, so high-volume arterials throughout North Carolina were scoured for crossover sites. Finding few signalized crossovers in NC with enough queuing, the team focused site selection in the Detroit, Michigan metro area. Michigan has hundreds of miles of arterial roads with median U-turns (the "Michigan left"), with varying number of lanes and median widths. Table 2.4 lists the sites selected for the saturation flow study. The team did not collect saturation flow data at any of the NC superstreets because of the lack of queue buildup at the U-turn crossovers.

Table 2.4. Crossover Sites Selected for the Saturation Flow Study

| Site type | Intersection(s) | Location | No. of <br> Lanes | Median <br> width |
| :---: | :---: | :---: | :---: | :---: |
| U-turn opposed <br> + left turn | Telegraph \& 12 Mile | Hall \& Schoenherr | Southfield, MI | 1 |
| Utica, MI | 2 | narrow |  |  |
| U-turn | Telegraph \& Maple | Bloomfield Township, MI | 1 | narrow |
| unopposed | Hall \& Hayes | Clinton, MI | 2 | wide |
| Left-out | Telegraph \& Ford | Dearborn Heights, MI | 1 | narrow |
|  | Hall \& M53 (SB) | Utica, MI | 2 | wide |
| Left turn | Hall \& M53 (NB) | Utica, MI | 2 | wide |

### 2.2.2 Data Collection

The field data collected from each of the three NC study sites were turning movement counts, travel times, and free-flow speeds. The turning movement counts and free-flow speeds were used as model inputs. The travel times collected in the field were compared to the VISSIM travel time output during the calibration and validation process. The field data can be found in Appendix 10.1.

### 2.2.2.1 Turning Movement Data

To collect the turning movement counts video cameras were set up (two or three depending on the site) to capture all movements at the central intersection and the crossovers. The team
collected the data in two 90 -minute sets at each site, which was limited by the length of the video tapes.

Origin-destination counts were extracted from the videos for each of the twelve turning movements at the intersection (left, through, and right from each leg) by tracking the individual vehicles. Vehicles were counted in five-minute intervals, then converted into 15minute flows. Tracking the vehicles through the intersection is a time-consuming but necessary process due to the redirection of side street traffic at superstreets. All U-turning vehicles were ignored, as well as vehicles entering from and exiting to driveways along the arterial. Passenger cars and heavy vehicles were counted separately to determine the vehicle distribution at each site.

### 2.2.2.2 Travel Time Data

Travel time runs were done simultaneously with the turning movement count data collection using GPS units in the vehicle. Prior to collecting the data, an initial set of travel time runs were recorded from the Chapel Hill superstreet to determine the sample size needed. At a $95 \%$ confidence level with a 3.0 mph permitted error, a minimum of three runs for each movement were needed (23). When collecting the actual data as many travel time runs as time permitted before the 90 -minute video tape ran out were performed, or before traffic volume characteristics changed.

The US 17 superstreet in Leland consists of five total intersections, with three intersections back-to-back and the remaining two farther apart. Data was collected at two of the five intersections: US-17 at Walmart/Gregory Road and US-17 at Lanvale Road. Based on traffic volume observations and the number of lanes from the minor road and at the crossovers, the data from these intersections would be representative of the remaining three intersections. The data collected from these intersections were applied to the remaining intersections along the US-17 corridor.

The data collected from all three sites were post-processed in the office using GeoStats TravTime 2.0. Travel time runs were constructed in the program using the GPS data points collected in the field. The team calculated the achieved permitted error for all travel time movements based on the tables from the ITE Manual of Transportation Engineering Studies (23). Table 2.5 lists the achieved permitted travel time error from each site for the combined twelve movements.

Table 2.5. Achieved Permitted Travel Time Error for All Movements

| Site | Range (mph) | Avg. (mph) |
| :---: | :---: | :---: |
| Chapel Hill | $1.5-5.0$ | 2.8 |
| Wilmington | $1.0-5.0$ | 2.4 |
| US-17 (Walmart/Gregory Rd.) | $1.0-3.0$ | 1.8 |
| US-17 (Lanvale Rd.) | $1.0-5.0$ | 2.3 |

### 2.2.2.3 Free-Flow Speed Data

The final set of data collected was free-flow speed data. Speeds were collected during offpeak periods using a laser gun. For each of the three sites, speeds were collected at a location approaching the superstreet but far enough away from the influence of signals. Using the laser gun, the speeds of randomly selected non-platooned vehicles were recorded. These speeds were used to construct a speed distribution curve for each site for use in VISSIM. Each distribution was checked using the chi-squared goodness-of-fit test, and all were confirmed normally distributed.

### 2.2.3 Data Analysis

### 2.2.3.1 Saturation Flow Study

The team compiled the headway data collected in Michigan and calculated saturation flow for each collection site for both the crossover and the adjacent through lanes. The saturation flow for each observed queue was calculated, and then all were averaged to get a final average saturation flow for each movement at that location. The saturation flow adjustment factor was then calculated as the ratio of the crossover saturation flow to the through lane saturation flow.

### 2.2.3.2 Travel Time Comparison of Superstreets and Conventional Intersections

Using the data collected in the field, the team calibrated and validated the three superstreet models in VISSIM. The team also constructed models in VISSIM of an equivalent conventional signalized intersection, had the superstreet not been built. The reason for using VISSIM over other programs, such as SimTraffic, was because of the ability to specify origin-destination segments for collecting travel time. Travel time was used as the measure of effectiveness for the calibration and validation of the models, and in the comparison of the superstreet and conventional models, so it was important to be able to specify the origin and destination points for the travel time segments.

It was important to keep the comparison between the superstreet to the conventional intersection fair. For this analysis, the team defined "fair" based on geometry only, not cost. This analysis was not a "before and after" comparison, but a comparison of the superstreet design to an equivalent conventional intersection. The geometries (i.e. lanes) of the conventional intersections were updated from the before scenario prior to the construction of the superstreet. This was done to replicate what the conventional improvements would have been had the superstreet not been built, assuming that improvements would have been made at each site. At the Chapel Hill site, this included adding an additional left turn lane in both directions of the major road. The superstreet along the US-17 corridor was built in conjunction with major development along the arterial - a new Super-Walmart was constructed, along with new retail, business, and residential developments. In this case assumptions were made on the number of lanes for the conventional intersections.

Table 2.6 lists the approach configurations for each site. The major road with the U-turn crossovers was the north-south street in each case. There were two approaches where there were fewer lanes for the conventional than the superstreet, while there were four approaches with fewer lanes for the superstreet than the conventional. As with the superstreet models,
the conventional models also included the adjacent intersections. No geometric improvements were made to the adjacent intersections.

Table 2.6. Lane Configurations by Approach for Study Sites

|  | SUPERSTREET |  |  |  |  | CONVENTIONAL |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | SITE |  |  |  |  |  |  |  | NB

* $\mathrm{L}=$ left turn lane, $\mathrm{R}=$ right turn lane, $\mathrm{T}=$ through lane

To keep the comparison fair, the team used Synchro to optimize signal timings for both the superstreets and the conventional intersections. This was done for various demand levels. The yellow and all-red times were used from the original superstreet timings from the field since the intersection widths did not change very much. All signals were coded as actuatedcoordinated with protected left turns. Signal timings and offsets were optimized for each network. Tables 2.7 through 2.9 list the cycle lengths for all intersections in this study.

Table 2.7. Cycle Lengths for Chapel Hill Superstreet and Conventional Intersections (sec)

| Intersections | Peak- <br> $\mathbf{4 0 \%}$ | Peak- <br> $\mathbf{2 0 \%}$ | Peak- <br> $\mathbf{1 0 \%}$ | Peak | Peak+ <br> $\mathbf{1 0 \%}$ | Peak+ <br> $\mathbf{2 0 \%}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Superstreet: |  |  |  |  |  |  |
| Ephesus Church* | 80 | 90 | 110 | 120 | 100 | 110 |
| South UT | 110 | 115 | 115 | 120 | 110 | 115 |
| Europa | 110 | 115 | 115 | 120 | 110 | 115 |
| Erwin | 90 | 105 | 105 | 120 | 85 | 95 |
| North UT | 90 | 105 | 105 | 120 | 85 | 95 |
| Sage/Old Durham* | 90 | 105 | 105 | 120 | 120 | 125 |
| Conventional: |  |  |  |  |  |  |
| Ephesus Church | 90 | 120 | 120 | 120 | 100 | 110 |
| Erwin/Europa | 90 | 120 | 120 | 120 | 110 | 130 |
| Sage/Old Durham | 90 | 120 | 120 | 120 | 115 | 125 |

*Adjacent conventional intersections

Table 2.8. Cycle Lengths for Wilmington Superstreet and Conventional Intersections (sec)

| Demand Level | Peak- <br> $\mathbf{4 0 \%}$ | Peak- <br> $\mathbf{2 0 \%}$ | Peak- <br> $\mathbf{1 0 \%}$ | Peak | Peak+ <br> $\mathbf{1 0 \%}$ | Peak+ <br> $\mathbf{2 0 \%}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Superstreet: |  |  |  |  |  |  |
| Sanders* | 75 | 80 | 100 | 90 | 110 | 120 |
| South UT | 75 | 80 | 100 | 90 | 110 | 120 |
| Myrtle Gardens | 75 | 80 | 100 | 90 | 110 | 120 |
| Carolina Beach | 80 | 110 | 90 | 120 | 130 | 130 |
| North UT | 80 | 55 | 90 | 60 | 130 | 130 |
| College/Piner* | 80 | 110 | 90 | 120 | 130 | 130 |
| Conventional: |  |  |  |  |  |  |
| Sanders | 75 | 115 | 115 | 120 | 120 | 120 |
| Myrtle Gardens | 75 | 115 | 115 | 120 | 120 | 120 |
| College/Piner | 75 | 115 | 115 | 120 | 120 | 120 |

*Adjacent conventional intersections

Table 2.9. Cycle Lengths for US-17 Superstreet and Conventional Intersections (sec)

| Bemand Level | Peak- <br> $\mathbf{4 0 \%}$ | Peak- <br> $\mathbf{2 0 \%}$ | Peak- <br> $\mathbf{1 0 \%}$ | Peak | Peak+ <br> $\mathbf{1 0 \%}$ | Peak+ <br> $\mathbf{2 0 \%}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Superstreet: |  |  |  |  |  |  |
| Ploof | 110 | 95 | 120 | 120 | 120 | 120 |
| Ploof North UT | 70 | 90 | 90 | 100 | 105 | 120 |
| Poole | 70 | 90 | 90 | 100 | 105 | 120 |
| Poole South UT | 110 | 95 | 120 | 120 | 120 | 120 |
| Walmart | 110 | 95 | 120 | 120 | 120 | 120 |
| Walmart North UT | 70 | 90 | 90 | 100 | 105 | 120 |
| Gregory | 70 | 90 | 90 | 100 | 105 | 120 |
| Gregory South UT | 110 | 95 | 120 | 120 | 120 | 120 |
| West Gate | 110 | 95 | 120 | 120 | 120 | 120 |
| West Gate North UT | 70 | 90 | 90 | 100 | 105 | 120 |
| Grandiflora | 70 | 90 | 90 | 100 | 105 | 120 |
| Grandiflora South UT | 110 | 95 | 120 | 120 | 120 | 120 |
| Brunswick Forest Pkwy | 70 | 90 | 60 | 70 | 105 | 120 |
| Brunswick Forest North UT | 110 | 95 | 90 | 100 | 120 | 120 |
| Brunswick Forest Dr. | 70 | 90 | 60 | 70 | 105 | 120 |
| Brunswick Forest North UT | 110 | 95 | 90 | 100 | 120 | 120 |
| Lanvale | 110 | 95 | 90 | 100 | 120 | 120 |
| Lanvale South UT | 70 | 90 | 60 | 70 | 105 | 120 |
| Conventional: |  |  |  |  |  |  |
| Ploof/Poole | 95 | 115 | 120 | 120 | 150 | 150 |
| Walmart/Gregory | 95 | 115 | 120 | 120 | 150 | 150 |
| Grandiflora/West Gate | 95 | 75 | 120 | 120 | 150 | 150 |
| Brunswick Forest | 75 | 75 | 120 | 120 | 105 | 105 |
| Lanvale/Brunswick Forest | 75 | 75 | 120 | 120 | 105 | 105 |
|  |  |  |  |  |  |  |

With varying volume levels and optimized signal timings, the travel time output from the superstreet model was compared to the travel time output from the conventional model for all three sites. Using travel time as the measure of effectiveness in this analysis allows for a fair comparison between superstreets and conventional intersections because superstreets have additional signals and require drivers to travel an extra distance to complete certain maneuvers. The analysis was done comparing the travel times for each turning movement, as well as comparing the average travel time per vehicle for the intersection as a whole.

### 2.3 Calibration and Validation of VISSIM Models

This section describes the processes used to calibrate and validate the superstreet models in VISSIM. The team collected two sets of field data from each site-turning movement counts, travel times, and free-flow speeds-to calibrate and validate each model.

The measure of effectiveness (MOE) used for calibration and validation was the travel time output from VISSIM compared to the travel times collected in the field for all twelve movements at the intersection (left, through, and right turn from each leg). This was also the MOE used in the analysis of the results. Superstreets have additional signals and require drivers to travel an extra distance to complete certain movements. Using travel time as the MOE allows for a fair comparison between the superstreet and conventional intersection because it takes into account any extra delay at the signals and the extra time it might take to complete a turning movement.

### 2.3.1 Model Construction

The VISSIM models were calibrated using field data collected at each of three superstreet sites. The team collected two sets of data from each site: the first data set was used for the calibration, and the second data set was used for validating the models. The data included turning movement counts, travel times, and free flow speeds at four intersections-two out of the five superstreet intersections from the US-17 corridor, and one superstreet intersection each at US-15/501 in Chapel Hill and US-421 in Wilmington. This set of intersections makes up most of the signalized superstreets in North Carolina. Currently, the only other signalized site in NC is on US-17 near the Pender and New Hanover County lines. This site was not included in the study because of low minor street volumes. The team used the turning movement counts for the vehicle inputs and origin-destination routing decisions, and the free-flow speeds for speed distributions specific to each site.

The models were coded to replicate the superstreets using construction drawings and aerial photography from Google Earth ©. Both the Chapel Hill and Wilmington superstreets have adjacent conventional signalized intersections, which were included in the models to account for platooning effects as vehicles enter the superstreet. All the signal timing data that were used in the models, for both the superstreet and adjacent conventional intersections, were actual field timings that were received from the NCDOT, the City of Wilmington, and the Town of Chapel Hill.

Since the team included the adjacent intersections in the models, assumptions were made on the percentages of the vehicle inputs that were coming from each leg of the adjacent intersection. For Chapel Hill the team assumed a $60 / 40$ split for the northbound vehicles, and a 80/20 split for the southbound vehicles (the larger percentage of vehicles coming from the main arterial). For Wilmington, the team assumed a $75 / 25$ split for the northbound vehicles, and a 70/30 split for the southbound vehicles. These assumptions were based on knowledge on the operations of the adjacent intersection from field observations. The US-17 corridor does not have adjacent signalized intersections, so the model only includes the five superstreet intersections along the corridor. Vehicles arrived at the first signal on US-17 in a random arrival distribution. Vehicle counts were binned into 15 -minute counts, and then
converted to 15-minute flows since VISSIM requires volume inputs to be entered in vehicles per hour.

Each superstreet model was run in sets of 10 runs. The team applied a 15 -minute seeding period to provide adequate time to fill the network with vehicles. The simulation period for Chapel Hill and Wilmington was 5400 seconds ( 1.5 hours), and the period was 6300 seconds ( 1.75 hours) for US-17. The duration of each simulation was based on the amount of traffic volume data obtained from the first set of field data which was time-limited by the video tapes used to record the data. Travel time output files were not collected during the seeding period. All models were run using the multi-run setting, with a starting random seed of one and with a random seed increment of one for each run in the set of ten.

### 2.3.2 Model Calibration

The models were calibrated using travel time as the comparison between VISSIM and the field data. The team collected travel time data from four intersections-the superstreet intersections in Chapel Hill and Wilmington, and two intersections along the US-17 superstreet corridor. Each intersection had twelve possible travel patterns (left, through, and right at each leg of the intersection), for a total of 48 movements that were driven. The purpose of the calibration was to test the mean percent difference in field collected travel time versus modeled travel time over each of the 48 movements. This was achieved by combining the travel times for each of the 48 movements from all three sites and calibrating the models together based on the mean percent difference to achieve a "global" calibration rather than calibrating them as individual sites. This was done to find the single set of VISSIM parameters that was the best for all the sites, rather than settling for different VISSIM parameters for different sites.

The main parameters adjusted in VISSIM were speed distribution and conflict areas. The speed distribution for each site was based on the free-flow speed data collected in the field. During the calibration process, the team kept the same shape of the distribution curve, but changed the mean speed. The final speed distribution used for all three sites was a $25 \%$ reduction of the original free-flow speed data collected in the field. The free-flow speed data were collected during the off-peak period on the arterial approaching the superstreet, but far enough away from the influence of the signals. Having to reduce the speeds to calibrate the model is not surprising because the models are capturing the peak periods so there is a higher volume of traffic, and vehicles travel slower through the intersection than on the open arterial.

Conflict areas were used for coding the right turn on red (RTOR) at all sites, and for the flashing yellow arrows utilized by NCDOT at Wilmington to allow permitted/protected lefts for the mainline left turn movements and at the U-turn crossovers. The team used the video from Wilmington to calculate the average rear gap that vehicles accepted when making a $U$ turn and major left maneuver on a flashing yellow arrow, as well as a RTOR. This was the only site with proper video footage to collect these data, so the team applied the RTOR gap values from the Wilmington site to the Chapel Hill and US-17 models. Table 2.10 lists the front and rear gap values used in VISSIM. At the time of data collection, the flashing yellow arrow was still a new concept in North Carolina, so the team was unaware if vehicles were
not accepting gaps as efficiently as expected because of the actual gap size, or because of unfamiliarity of the flashing yellow arrow. For future studies of superstreets, the team recommends conducting a more thorough gap study at crossovers with flashing yellows and for RTOR in conjunction with VISSIM calibration.

Table 2.10. Gap Values Used for Coding Conflict Areas in VISSIM

| SITE | RTOR |  | U-turn <br> (flashing yellow) |  | Major left <br> (flashing yellow) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Front gap <br> (sec) | Rear gap <br> (sec) | Front gap <br> (sec) | Rear gap <br> (sec) | Front gap <br> (sec) | Rear gap <br> (sec) |
| Chapel Hill | 2.0 | 3.6 | N/A | N/A | N/A | N/A |
| Wilmington | 2.0 | 3.6 | 3.0 | 7.1 | 2.0 | 5.5 |
| US-17 | 2.5 | 3.6 | N/A | N/A | N/A | N/A |

To calibrate the models the team ran multiple sets of runs for each site as parameters were adjusted in VISSIM. Table 2.11 shows the parameters adjusted for each set of runs. "Set 1" is the earliest effort and "Set 5" is the latest effort. The team did not follow any particular method when changing the parameters in each set; the team simply ran a set of runs, checked the results, adjusted the parameters, and repeated until the final set of parameters could be determined. The order of conducting these sets of runs does not have an impact on the outcome of the final set of results. The models could be replicated by disregarding the adjustments made in sets one through four, and directly inputting the parameters used in the final set of runs (set five). The final set of parameters can be found in Appendix 10.1.

Table 2.11. VISSIM Parameters Adjusted in Each Set of Runs During Calibration

| SET 1 | SET 2 | SET 3 | SET 4 | SET 5 |
| :---: | :---: | :---: | :---: | :---: |
| - orig. <br> parameters <br> - no adjustments | - reduced orig. speed dist. by $20 \%$ <br> - reduced speed zones for U-turns <br> - incr. SF for conflict areas for minor RTOR | - reduced orig. speed dist. by $25 \%$ <br> - added reduced speed zones for UT approaches <br> - added desired speed decisions for minor roads <br> - reduced des. speed zones for all turns | - updated signal timing offsets | - adjusted gap values for all RTOR and flashing yellow arrows |

Table 2.12 shows the percent difference in the VISSIM travel time output compared to field data for each site, as well as the mean difference for all sites combined. The Lanvale Rd. intersection, part of the US-17 corridor, had consistently high differences in travel time and did not calibrate as well as the other models. This is a low-volume intersection, and the travel time data were collected at a different time than the other data from the corridor, and were therefore under a different time of day plan for the signal operations. In the model, the team used signal plans for the same time of day for the entire corridor. The discrepancy in the signal timing between the model and when the team collected the field data at Lanvale Road could be a reason for the large differences in travel time. The final calibration value was a mean percent difference of $-15.2 \%$ between the VISSIM output and field data. Fifteen percent is a generally accepted target for comparing model and observed travel times (24).

Table 2.12. Percent Difference in Travel Time (VISSIM - Field Data) from Calibration

| SITE | SET 1 | SET 2 | SET 3 | SET 4 | SET 5 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Chapel Hill | $-16.9 \%$ | $-12.2 \%$ | $-9.5 \%$ | $-9.5 \%$ | $-9.2 \%$ |
| Wilmington | $-22.3 \%$ | $-22.5 \%$ | $-21.9 \%$ | $-21.9 \%$ | $-18.7 \%$ |
| US-17 (Walmart) | $-24.5 \%$ | $-16.9 \%$ | $-10.0 \%$ | $-9.6 \%$ | $-8.5 \%$ |
| US-17 (Lanvale Rd) | $-35.9 \%$ | $-31.7 \%$ | $-23.8 \%$ | $-23.4 \%$ | $-25.0 \%$ |
| Mean difference | $\mathbf{- 2 3 . 7 \%}$ | $\mathbf{- 2 0 . 6 \%}$ | $\mathbf{- 1 6 . 0 \%}$ | $\mathbf{- 1 5 . 8 \%}$ | $\mathbf{- 1 5 . 2 \%}$ |

### 2.3.3 Model Validation

With the calibration complete, the team validated the models using the second set of field data. The second set of field data was collected in the same manner as the first, but at a different time of day. All parameters in the models were kept the same as they were in the final calibration set. The only changes made to the models were the signal timing, which was adjusted to the time of day plans corresponding to the time when the second data set was collected, and the vehicle inputs. The vehicle counts from the second field data set were grouped in 15 -minute flows. The models were run in sets of ten runs each, keeping the same seeding time, simulation period, and random seed generation as in the calibration stage.

Table 2.13 lists the percent difference in travel time for each site and the overall mean percent difference. The final mean percent difference comparing the VISSIM travel time output to the field data was $-4.4 \%$. Since the mean percent differences are less that the percent differences from the calibration stage, all models are validated. Both the calibration and validation results can be found in Appendix 10.1.

Table 2.13. Percent Difference in Travel Time (VISSIM - Field Data) from Validation

| SITE | SET 1 |
| :--- | :---: |
| Chapel Hill | $5.6 \%$ |
| Wilmington | $-10.5 \%$ |
| US-17 (Walmart) | $2.1 \%$ |
| US-17 (Lanvale Rd) | $-17.6 \%$ |
| Mean percent difference | $\mathbf{- 4 . 4 \%}$ |

### 2.4 Results

This section describes the results from the saturation flow study of U-turn crossovers and the travel time experiment comparing superstreets to conventional intersections.

### 2.4.1 Saturation Flow Adjustment Factor for Directional Crossovers

The team calculated the saturation flow adjustment factor for four different crossovers types based on the data collected in Michigan. Finding few signalized crossovers in NC with enough queuing, the team focused site selection in the Detroit, Michigan metro area. Michigan has hundreds of miles of arterial roads with median U-turns (the "Michigan left"), with varying number of lanes and median widths. The saturation flow adjustment factor was calculated as the ratio of the crossover saturation flow to the through lane saturation flow. Table 2.14 lists the saturation flow adjustment factors for each site and type of crossover. Table 2.15 lists the saturation flow for each crossover including sample size, mean, standard deviation and variance.

Table 2.14. Saturation Flow Adjustment Factors for Directional Crossovers

| Crossover <br> type | Location | No. of <br> Crossover <br> Lanes | Median <br> Width <br> $(\mathbf{f t})$ | Sat. Flow <br> Adjustment <br> Factor |
| :---: | :--- | :---: | :---: | :---: |
|  | Telegraph Rd. \& 12 Mile Rd. | 1 | 45 | 0.895 |
|  | Hall Rd. \& Schoenherr Rd. | 2 | 150 | 1.006 |
| U-turn <br> unopposed | Telegraph Rd. \& Maple Rd. | 1 | 45 | 0.839 |
|  | Hall Rd. \& Hayes Rd. | 2 | 150 | 1.017 |
| Left-out | Telegraph Rd. \& Ford Rd. | 1 | 30 | 1.016 |
|  | Hall Rd. \& M53 (SB) | 2 | 200 | 0.945 |
| Left turn | Hall Rd. \& M53 (NB) | 2 | 160 | 1.054 |

Table 2.15. Saturation Flow for Directional Crossovers

| Crossover Type | SITE | Sample Size | Saturation flow (veh/h/ln) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Mean | St. Dev. | Var. |
| U-turn opposed + left turn | TELEGRAPH RD. \& 12 MILE RD. <br> Crossover Thru lanes | $\begin{gathered} 84 \\ 104 \end{gathered}$ | $\begin{aligned} & 1515 \\ & 1693 \end{aligned}$ | $\begin{aligned} & 172.7 \\ & 257.1 \\ & \hline \end{aligned}$ | $\begin{aligned} & 29828 \\ & 66112 \end{aligned}$ |
|  | HALL RD. \& SCHOENHERR RD. <br> Crossover Thru lanes | $\begin{gathered} 51 \\ 159 \end{gathered}$ | $\begin{aligned} & 1762 \\ & 1751 \end{aligned}$ | $\begin{aligned} & 238.7 \\ & 285.0 \end{aligned}$ | $\begin{aligned} & 56967 \\ & 81220 \end{aligned}$ |
| $\begin{aligned} & \text { U-turn } \\ & \text { unopposed } \end{aligned}$ | TELEGRAPH RD. \& MAPLE RD. <br> Crossover <br> Thru lanes | $\begin{aligned} & 60 \\ & 97 \end{aligned}$ | $\begin{aligned} & 1555 \\ & 1854 \end{aligned}$ | $\begin{aligned} & 217.7 \\ & 334.3 \end{aligned}$ | $\begin{aligned} & 47381 \\ & 111750 \\ & \hline \end{aligned}$ |
|  | HALL RD. \& HAYES RD. <br> Crossover <br> Thru lanes | $\begin{aligned} & 83 \\ & 35 \end{aligned}$ | $\begin{aligned} & 1802 \\ & 1772 \end{aligned}$ | $\begin{aligned} & 218.4 \\ & 274.8 \end{aligned}$ | $\begin{aligned} & 47688 \\ & 75489 \end{aligned}$ |
| Left-out | TELEGRAPH RD. \& FORD RD. <br> Crossover Thru lanes | $\begin{gathered} 51 \\ 220 \end{gathered}$ | $\begin{aligned} & 1992 \\ & 1961 \end{aligned}$ | $\begin{aligned} & 244.3 \\ & 290.7 \end{aligned}$ | $\begin{aligned} & 59697 \\ & 84535 \end{aligned}$ |
|  | HALL RD. \& M53 (SB) <br> Crossover <br> Thru lanes | $\begin{gathered} 114 \\ 54 \end{gathered}$ | $\begin{aligned} & 1851 \\ & 1958 \end{aligned}$ | $\begin{aligned} & 245.0 \\ & 381.0 \end{aligned}$ | $\begin{gathered} 60012 \\ 145142 \end{gathered}$ |
| Left turn | HALL RD. \& M53 (NB) <br> Crossover <br> Thru lanes | $\begin{aligned} & 106 \\ & 115 \end{aligned}$ | $\begin{aligned} & 2086 \\ & 1978 \end{aligned}$ | $\begin{aligned} & 269.3 \\ & 354.1 \end{aligned}$ | $\begin{gathered} 72498 \\ 125397 \end{gathered}$ |

Based on the site characteristics and the saturation flows, the team noticed that one-lane, narrow median U-turn crossovers had saturation flow adjustment factors from around 0.85 to 0.90 , while everything else, which includes two-lane, wide median U-turn crossovers as well as left-outs and left turn crossovers, had an adjustment factor of about 1.0. The team statistically analyzed this theory by conducting t-tests to compare the saturation flows of the two sites for each crossover type. At the $95 \%$ confidence level, the one-lane narrow median U-turn and two-lane wide median U-turn saturation flows were statistically different. The team then compared the saturation flows for both one-lane, narrow median sites to see if there was a difference between the U-turn unopposed and U-turn opposed. The t-test confirmed that there was no significant difference at the $95 \%$ confidence level. Based on this the team concluded that the adjustment factors for U-turns should be $0.85-0.90$ for one-lane, narrow medians and 1.0 for all other crossovers.

### 2.4.2 Travel Time Comparison of Superstreets and Conventional Intersections

Using the calibrated and validated models of three of the four signalized superstreets in North Carolina, the team set up an experiment to test the operational effects of superstreets
compared to conventional intersections. Models of the equivalent conventional intersection at each site were also constructed in VISSIM. The team ran both the superstreet and conventional models from each site at various demand levels and collected the travel time output to compare the superstreet against the conventional, as well as to find the capacity limits of the superstreet.

### 2.4.2.1 Travel Time Comparison

As discussed in Section 2.2, we ran both the superstreet and conventional models from each site in VISSIM under varying demand levels. For each site the flow from the peak 15-minute period from the turning movement count field data was used as the baseline. It was important to use volume levels greater than and less than the peak to compare the two designs not only during periods with increased demand, but also during off-peak periods. The following demand levels were used in the comparison:

- Peak,
- Peak minus $10 \%$,
- Peak minus 20\%,
- Peak minus $40 \%$,
- Peak plus $10 \%$,
- Peak plus $20 \%$, and
- Peak plus $40 \%$.

All models were run in sets of ten runs for each demand level. A 15-minute seeding period was used to provide adequate time to fill the network with vehicles. The simulation period was one hour for all models. Travel time output files were not collected during the seeding period. All models were run using the multi-run setting, with a starting random seed of one and with a random seed increment of one for each run in the set of ten. The team used Equation 2.1 (24) to determine if ten runs were sufficient for producing the estimated mean travel time within $15 \%$ of the true mean at the $95 \%$ confidence level. Fifteen percent was chosen as the desired confidence level because that is what was used as the target for the calibration of the models.

$$
\text { Equation 2.1. } \quad \mathbf{C I}_{(1-\alpha) \%}=2 * \mathbf{t}_{(1-\alpha / 2), N-1} \mathbf{S} / \sqrt{ } \mathbf{N}
$$

Where:
$\mathrm{CI}_{(1-\alpha) \%}=$ the $(1-\alpha) \%$ confidence interval for the true mean, where alpha equals the probability of the true mean not lying within the confidence interval
$\mathrm{T}_{(1-\alpha / 2), \mathrm{N}-1}=$ the t statistic for the probability of the two-sided error summing to alpha within $\mathrm{N}-1$ degrees of freedom
$\mathrm{N}=$ the number of repetitions
$\mathrm{S}=$ the standard deviation of the model results
The following shows an example calculation of the confidence interval for the WBL movement at the Chapel Hill superstreet for the peak demand level. The average travel time was 152 seconds with a standard deviation of 7.04 seconds.

$$
\begin{aligned}
\mathrm{CI}_{(1-\alpha) \%} & =2 * \mathrm{t}_{(1-\alpha / 2), \mathrm{N}-1} \mathrm{~S} / \sqrt{ } \mathrm{N} \\
& =2 *(2.262) *(7.044) / \sqrt{ } 10 \\
& =10.08 \mathrm{sec}
\end{aligned}
$$

CI as a percent of travel time $=\left[\left(\mathrm{CI}_{(1-\alpha) \%} / \operatorname{Avg} . \mathrm{TT}\right) * 100\right] / 2$

$$
\begin{aligned}
& =[(10.08 / 152) * 100] / 2 \\
& =3.31 \%
\end{aligned}
$$

The achieved confidence interval for the WBL movement at Chapel Hill during the peak period was within $3.31 \%$ of the true mean travel time. All models, both superstreet and conventional, from each site were well within the $15 \%$ target. Table 2.16 shows the achieved confidence interval for the travel time results. The results were within $+/-2.4$ to $6.5 \%$ of the true mean travel time. Therefore, the team did not make more VISSIM runs than the original ten for each scenario.

Table 2.16. Achieved Confidence Interval for Travel Time Results

| Site | Confidence Interval |  |
| :---: | :---: | :---: |
|  | Superstreet | Conventional |
| Chapel Hill | $2.4 \%$ | $3.2 \%$ |
| Wilmington | $2.5 \%$ | $5.9 \%$ |
| US-17 corridor | $3.6 \%$ | $6.5 \%$ |

Certain geometric factors at the sites were influencing the travel time output enough at the higher demand levels that the team made some changes to the original models. At the Chapel Hill site there is a lane drop after the adjacent conventional intersection just south of the superstreet. This lane drop was causing major congestion at the peak+ $10 \%$ and higher demand levels, so vehicles were not entering the superstreet at the demand level expected. To get the full demand into the superstreet, an additional lane was added to alleviate the lane drop problem. This allowed the vehicles to enter the superstreet at the appropriate demand level, and thus allowed for a better analysis of the capabilities of the design without compromising the fair comparison. This modified geometry was used for the peak+10\% and peak $+20 \%$ levels for both the superstreet and conventional models. The original geometry was kept for all other demand levels because the upstream lane drop did not affect traffic flow into the superstreet, and the team wanted to keep the existing conditions as much as possible for a more accurate assessment of the superstreet at that location.

The other major factor that affected the travel time results was the adjacent intersections. At the higher demand levels (peak $+20 \%$ and peak $+40 \%$ ), these intersections were over capacity and failing, causing major delay and congestion to spill back to the superstreet locations. Using the data from these scenarios would not be a fair representation of the superstreet, so the team did not include the peak $+40 \%$ scenario in the results. The US- 17 corridor does not have nearby adjacent signalized intersections, but at the peak+20\% level the conventional comparison reached its limit, and any higher demand level caused errors in the model output.

Travel time output was collected for all twelve turning movements at each intersection. At each intersection the major road runs in the north/south direction, while the minor road runs east/west. Tables 2.17 through 2.22 give the volumes and travel times for each movement at each intersection studied. The average travel time per vehicle for each movement was calculated and compared between the superstreet and conventional intersection. Figures 2.11 through 2.17 display the results from each intersection. A negative percent difference means the superstreet required less travel time than the conventional, while a positive percent difference means the superstreet required more travel time.

Table 2.17. Chapel Hill Volumes by Movement (vph)

| Movement | Peak- <br> $\mathbf{4 0 \%}$ | Peak- <br> $\mathbf{2 0 \%}$ | Peak- <br> $\mathbf{1 0 \%}$ | PEAK | Peak+10\% | Peak+20\% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| WBL | 29 | 40 | 46 | 50 | 55 | 59 |
| WBR | 94 | 121 | 137 | 153 | 167 | 183 |
| WBT | 36 | 52 | 57 | 63 | 67 | 72 |
| EBL | 22 | 30 | 34 | 39 | 43 | 47 |
| EBR | 197 | 259 | 290 | 323 | 352 | 386 |
| EBT | 30 | 41 | 46 | 50 | 55 | 62 |
| NBL | 130 | 172 | 206 | 216 | 238 | 257 |
| NBR | 31 | 41 | 46 | 51 | 55 | 59 |
| NBT | 950 | 1270 | 1414 | 1590 | 1758 | 1905 |
| SBL | 55 | 72 | 81 | 88 | 94 | 109 |
| SBR | 35 | 48 | 53 | 59 | 65 | 71 |
| SBT | 912 | 1227 | 1362 | 1527 | 1681 | 1824 |

Table 2.18. Chapel Hill Travel Times by Movement (sec)

| Movement | Peak-40\% |  | Peak-20\% |  | Peak-10\% |  | PEAK (AM) |  | Peak+10\% |  | Peak+20\% |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. |
| WBL | 133 | 103 | 146 | 121 | 152 | 120 | 178 | 125 | 155 | 121 | 169 | 145 |
| WBR | 52 | 46 | 60 | 49 | 65 | 51 | 69 | 53 | 66 | 59 | 75 | 70 |
| WBT | 133 | 78 | 155 | 96 | 157 | 97 | 203 | 100 | 159 | 99 | 203 | 120 |
| EBL | 152 | 96 | 161 | 115 | 163 | 111 | 191 | 108 | 168 | 104 | 178 | 125 |
| EBR | 56 | 58 | 62 | 62 | 64 | 66 | 72 | 72 | 69 | 79 | 76 | 98 |
| EBT | 137 | 73 | 148 | 89 | 156 | 89 | 178 | 86 | 158 | 84 | 167 | 103 |
| NBL | 121 | 80 | 127 | 93 | 133 | 96 | 153 | 99 | 132 | 109 | 165 | 129 |
| NBR | 31 | 34 | 31 | 37 | 31 | 38 | 31 | 37 | 32 | 43 | 32 | 45 |
| NBT | 41 | 54 | 43 | 58 | 44 | 60 | 45 | 58 | 48 | 66 | 50 | 71 |
| SBL | 130 | 69 | 137 | 116 | 136 | 91 | 122 | 97 | 143 | 101 | 145 | 129 |
| SBR | 47 | 48 | 47 | 71 | 49 | 58 | 48 | 58 | 54 | 71 | 54 | 71 |
| SBT | 50 | 55 | 53 | 76 | 55 | 63 | 56 | 66 | 62 | 80 | 63 | 83 |

Table 2.19. Wilmington Volumes by Movement (vph)

| Movement | Peak- <br> $\mathbf{4 0 \%}$ | Peak- <br> $\mathbf{2 0 \%}$ | Peak- <br> $\mathbf{1 0 \%}$ | PEAK | Peak+10\% | Peak+20\% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| WBL | 62 | 83 | 93 | 103 | 117 | 129 |
| WBR | 66 | 90 | 104 | 115 | 124 | 134 |
| WBT | 12 | 15 | 16 | 18 | 21 | 23 |
| EBL | 26 | 36 | 40 | 45 | 51 | 56 |
| EBR | 55 | 73 | 83 | 91 | 100 | 108 |
| EBT | 6 | 7 | 8 | 9 | 10 | 11 |
| NBL | 47 | 61 | 70 | 78 | 86 | 94 |
| NBR | 54 | 73 | 81 | 88 | 97 | 106 |
| NBT | 883 | 1184 | 1334 | 1484 | 1629 | 1775 |
| SBL | 80 | 107 | 118 | 133 | 143 | 159 |
| SBR | 48 | 64 | 74 | 81 | 86 | 95 |
| SBT | 990 | 1318 | 1483 | 1649 | 1799 | 1962 |

Table 2.20. Wilmington Travel Times by Movement (sec)

| Movement | Peak-40\% |  | Peak-20\% |  | Peak-10\% |  | PEAK (AM) |  | Peak+10\% |  | Peak+20\% |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. |
| WBL | 106 | 77 | 114 | 101 | 125 | 121 | 125 | 147 | 153 | 279 | 164 | 278 |
| WBR | 41 | 41 | 43 | 48 | 46 | 53 | 47 | 64 | 50 | 111 | 51 | 110 |
| WBT | 90 | 50 | 105 | 72 | 107 | 74 | 109 | 88 | 132 | 135 | 155 | 128 |
| EBL | 110 | 69 | 121 | 85 | 129 | 94 | 134 | 92 | 152 | 111 | 171 | 108 |
| EBR | 47 | 47 | 50 | 48 | 52 | 49 | 54 | 58 | 59 | 60 | 64 | 64 |
| EBT | 97 | 57 | 110 | 73 | 117 | 68 | 114 | 71 | 143 | 77 | 159 | 76 |
| NBL | 52 | 50 | 57 | 52 | 60 | 54 | 61 | 72 | 70 | 85 | 78 | 93 |
| NBR | 39 | 39 | 41 | 40 | 41 | 41 | 42 | 41 | 41 | 42 | 42 | 44 |
| NBT | 50 | 52 | 53 | 59 | 53 | 61 | 55 | 58 | 54 | 62 | 55 | 66 |
| SBL | 48 | 45 | 55 | 50 | 57 | 51 | 62 | 63 | 67 | 67 | 73 | 73 |
| SBR | 33 | 34 | 36 | 36 | 34 | 37 | 37 | 35 | 36 | 36 | 37 | 38 |
| SBT | 49 | 54 | 53 | 59 | 51 | 62 | 55 | 53 | 53 | 54 | 53 | 55 |

Table 2.21. US-17 Volumes by Movement (vph)

|  | Movement | Peak- $40 \%$ | Peak- $20 \%$ | Peak- $10 \%$ | Peak | $\begin{gathered} \text { Peak+ } \\ 10 \% \end{gathered}$ | Peak+ <br> 20\% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | WBL | 12 | 16 | 18 | 20 | 22 | 24 |
|  | WBR | 13 | 16 | 18 | 20 | 22 | 24 |
|  | WBT | 5 | 7 | 8 | 9 | 10 | 11 |
|  | EBL | 39 | 53 | 60 | 66 | 75 | 80 |
|  | EBR | 236 | 311 | 350 | 391 | 434 | 469 |
|  | EBT | 5 | 8 | 9 | 11 | 11 | 13 |
|  | NBL | 189 | 254 | 283 | 319 | 357 | 379 |
|  | NBR | 23 | 31 | 33 | 37 | 42 | 47 |
|  | NBT | 1425 | 1898 | 2133 | 2358 | 2629 | 2834 |
|  | SBL | 14 | 17 | 20 | 22 | 23 | 26 |
|  | SBR | 38 | 54 | 59 | 65 | 72 | 79 |
|  | SBT | 859 | 1148 | 1294 | 1436 | 1571 | 1725 |
|  | WBL | 40 | 54 | 60 | 66 | 73 | 78 |
|  | WBR | 209 | 278 | 310 | 345 | 381 | 413 |
|  | WBT | 6 | 8 | 9 | 11 | 11 | 12 |
|  | EBL | 11 | 14 | 17 | 18 | 20 | 21 |
|  | EBR | 12 | 17 | 18 | 20 | 23 | 26 |
|  | EBT | 5 | 7 | 7 | 9 | 10 | 10 |
|  | NBL | 13 | 17 | 19 | 20 | 23 | 24 |
|  | NBR | 42 | 56 | 65 | 71 | 79 | 85 |
|  | NBT | 1224 | 1632 | 1838 | 2029 | 2272 | 2446 |
|  | SBL | 193 | 258 | 291 | 321 | 361 | 386 |
|  | SBR | 24 | 31 | 34 | 38 | 45 | 47 |
|  | SBT | 977 | 1305 | 1466 | 1637 | 1772 | 1960 |
| 気 | WBL | 44 | 55 | 64 | 71 | 78 | 84 |
|  | WBR | 238 | 317 | 352 | 391 | 431 | 473 |
|  | WBT | 5 | 8 | 8 | 10 | 10 | 11 |
|  | EBL | 42 | 57 | 67 | 74 | 82 | 89 |
|  | EBR | 234 | 312 | 345 | 387 | 424 | 466 |
|  | EBT | 6 | 8 | 9 | 10 | 11 | 11 |
|  | NBL | 18 | 24 | 26 | 28 | 24 | 33 |
|  | NBR | 60 | 80 | 90 | 101 | 86 | 121 |
|  | NBT | 1152 | 1546 | 1742 | 1934 | 2158 | 2323 |
|  | SBL | 13 | 16 | 18 | 20 | 22 | 23 |
|  | SBR | 40 | 52 | 59 | 64 | 70 | 77 |
|  | SBT | 975 | 1303 | 1462 | 1629 | 1782 | 1953 |

Table 2.21. continued

|  | Movement | Peak40\% | Peak20\% | Peak- $10 \%$ | Peak | Peak+ $10 \%$ | Peak+ $20 \%$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0000000000 | WBL | 40 | 53 | 60 | 68 | 74 | 81 |
|  | WBR | 235 | 315 | 351 | 389 | 430 | 467 |
|  | NBR | 45 | 58 | 64 | 71 | 78 | 86 |
|  | NBT | 1006 | 1340 | 1507 | 1686 | 1843 | 2016 |
|  | SBL | 194 | 261 | 288 | 318 | 350 | 382 |
|  | SBT | 1054 | 1407 | 1581 | 1762 | 1926 | 2119 |
| \#0000000000 | WBL | 42 | 57 | 64 | 72 | 77 | 84 |
|  | WBR | 208 | 271 | 306 | 340 | 372 | 410 |
|  | WBT | 6 | 8 | 11 | 11 | 12 | 12 |
|  | EBL | 12 | 17 | 19 | 21 | 24 | 26 |
|  | EBR | 11 | 14 | 16 | 18 | 19 | 21 |
|  | EBT | 6 | 8 | 9 | 10 | 11 | 12 |
|  | NBL | 13 | 16 | 19 | 21 | 22 | 25 |
|  | NBR | 43 | 57 | 62 | 68 | 75 | 80 |
|  | NBT | 766 | 1030 | 1155 | 1283 | 1413 | 1541 |
|  | SBL | 12 | 16 | 18 | 19 | 21 | 24 |
|  | SBR | 43 | 56 | 63 | 68 | 75 | 84 |
|  | SBT | 1036 | 1386 | 1562 | 1743 | 1909 | 2094 |

Table 2.22. US-17 Travel Times by Movement (sec)

| Int. | Moveme nt | Peak-40\% |  | Peak-20\% |  | Peak-10\% |  | PEAK (AM) |  | Peak+10\% |  | Peak+20\% |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. |
|  | WBL | 125 | 71 | 128 | 82 | 139 | 91 | 138 | 91 | 147 | 123 | 131 | 123 |
|  | WBR | 37 | 40 | 44 | 47 | 48 | 50 | 52 | 60 | 59 | 67 | 62 | 66 |
|  | WBT | 125 | 68 | 120 | 79 | 134 | 78 | 132 | 78 | 135 | 87 | 121 | 85 |
|  | EBL | 104 | 66 | 119 | 75 | 133 | 79 | 137 | 78 | 141 | 140 | 163 | 205 |
|  | EBR | 37 | 38 | 44 | 48 | 48 | 56 | 56 | 63 | 66 | 143 | 80 | 217 |
|  | EBT | 106 | 63 | 125 | 77 | 140 | 71 | 139 | 74 | 139 | 143 | 171 | 212 |
|  | NBL | 73 | 58 | 62 | 68 | 62 | 71 | 65 | 75 | 66 | 87 | 79 | 91 |
|  | NBR | 26 | 26 | 26 | 27 | 26 | 28 | 27 | 29 | 27 | 30 | 27 | 32 |
|  | NBT | 21 | 22 | 21 | 25 | 22 | 28 | 22 | 33 | 22 | 37 | 23 | 39 |
|  | SBL | 69 | 82 | 79 | 88 | 90 | 93 | 87 | 95 | 86 | 129 | 81 | 137 |
|  | SBR | 26 | 28 | 27 | 29 | 27 | 29 | 28 | 31 | 28 | 35 | 29 | 46 |
|  | SBT | 24 | 30 | 26 | 34 | 26 | 35 | 28 | 39 | 29 | 60 | 30 | 91 |
| Walmart/Gregory | WBL | 144 | 77 | 146 | 88 | 155 | 90 | 174 | 95 | 208 | 105 | 200 | 139 |
|  | WBR | 51 | 51 | 62 | 68 | 73 | 87 | 81 | 113 | 107 | 115 | 111 | 132 |
|  | WBT | 123 | 62 | 126 | 75 | 140 | 83 | 153 | 100 | 182 | 101 | 180 | 110 |
|  | EBL | 113 | 74 | 119 | 87 | 142 | 87 | 149 | 93 | 152 | 117 | 175 | 124 |
|  | EBR | 33 | 37 | 38 | 37 | 40 | 39 | 41 | 41 | 43 | 50 | 50 | 49 |
|  | EBT | 102 | 67 | 112 | 68 | 138 | 73 | 131 | 66 | 136 | 75 | 152 | 73 |
|  | NBL | 92 | 82 | 81 | 90 | 81 | 93 | 84 | 105 | 91 | 144 | 94 | 138 |
|  | NBR | 35 | 37 | 38 | 40 | 37 | 51 | 38 | 64 | 40 | 80 | 46 | 84 |
|  | NBT | 39 | 43 | 44 | 50 | 43 | 65 | 44 | 85 | 47 | 111 | 57 | 120 |
|  | SBL | 62 | 72 | 72 | 106 | 83 | 124 | 87 | 170 | 103 | 365 | 86 | 421 |
|  | SBR | 24 | 24 | 24 | 24 | 25 | 25 | 25 | 25 | 25 | 31 | 25 | 40 |
|  | SBT | 35 | 36 | 36 | 37 | 37 | 38 | 38 | 40 | 38 | 49 | 39 | 59 |

Table 2.22. continued

| Int. | Moveme nt | Peak-40\% |  | Peak-20\% |  | Peak-10\% |  | PEAK (AM) |  | Peak+10\% |  | Peak+20\% |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. |
|  | WBL | 157 | 77 | 155 | 75 | 162 | 119 | 167 | 151 | 174 | 221 | 170 | 386 |
|  | WBR | 42 | 45 | 50 | 51 | 55 | 66 | 61 | 90 | 69 | 140 | 77 | 357 |
|  | WBT | 124 | 58 | 135 | 55 | 137 | 71 | 146 | 76 | 159 | 101 | 149 | 368 |
|  | EBL | 131 | 75 | 153 | 73 | 174 | 128 | 162 | 163 | 182 | 255 | 190 | 391 |
|  | EBR | 46 | 47 | 52 | 49 | 54 | 59 | 58 | 64 | 63 | 71 | 68 | 73 |
|  | EBT | 120 | 55 | 137 | 44 | 158 | 64 | 157 | 58 | 163 | 76 | 169 | 73 |
|  | NBL | 89 | 93 | 79 | 76 | 75 | 94 | 80 | 97 | 79 | 178 | 93 | 194 |
|  | NBR | 35 | 38 | 36 | 38 | 38 | 38 | 39 | 40 | 38 | 120 | 40 | 117 |
|  | NBT | 41 | 50 | 44 | 49 | 45 | 49 | 48 | 63 | 48 | 187 | 54 | 193 |
|  | SBL | 67 | 90 | 74 | 74 | 82 | 114 | 76 | 112 | 77 | 123 | 70 | 111 |
|  | SBR | 30 | 31 | 30 | 34 | 31 | 32 | 31 | 32 | 32 | 33 | 32 | 44 |
|  | SBT | 41 | 45 | 42 | 56 | 44 | 48 | 44 | 49 | 45 | 56 | 47 | 74 |
|  | WBL | 131 | 83 | 128 | 72 | 130 | 89 | 133 | 86 | 148 | 123 | 147 | 149 |
|  | WBR | 40 | 38 | 45 | 43 | 44 | 50 | 47 | 56 | 57 | 132 | 61 | 165 |
|  | NBR | 32 | 32 | 33 | 33 | 34 | 35 | 34 | 34 | 33 | 41 | 35 | 44 |
|  | NBT | 34 | 38 | 35 | 39 | 36 | 51 | 38 | 53 | 39 | 107 | 40 | 126 |
|  | SBL | 60 | 53 | 68 | 52 | 53 | 65 | 57 | 72 | 78 | 75 | 75 | 75 |
|  | SBT | 32 | 34 | 33 | 36 | 33 | 36 | 33 | 39 | 34 | 41 | 34 | 43 |

Table 2.22. continued

| Int. | $\begin{gathered} \text { Moveme } \\ \text { nt } \end{gathered}$ | Peak-40\% |  | Peak-20\% |  | Peak-10\% |  | PEAK (AM) |  | Peak+10\% |  | Peak+20\% |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. | SS | Conv. |
|  | WBL | 132 | 71 | 128 | 70 | 128 | 82 | 136 | 83 | 145 | 88 | 163 | 104 |
|  | WBR | 45 | 47 | 50 | 52 | 50 | 59 | 55 | 64 | 66 | 100 | 75 | 140 |
|  | WBT | 127 | 59 | 116 | 56 | 114 | 71 | 121 | 68 | 129 | 76 | 153 | 103 |
|  | EBL | 124 | 77 | 137 | 81 | 127 | 111 | 138 | 105 | 159 | 123 | 160 | 141 |
|  | EBR | 50 | 50 | 51 | 51 | 52 | 55 | 53 | 59 | 57 | 57 | 57 | 57 |
|  | EBT | 106 | 57 | 122 | 59 | 106 | 74 | 113 | 74 | 142 | 69 | 139 | 65 |
|  | NBL | 107 | 84 | 95 | 81 | 97 | 106 | 100 | 109 | 102 | 101 | 109 | 113 |
|  | NBR | 39 | 40 | 40 | 40 | 41 | 41 | 41 | 42 | 41 | 42 | 42 | 48 |
|  | NBT | 51 | 54 | 53 | 57 | 56 | 59 | 56 | 61 | 58 | 91 | 60 | 121 |
|  | SBL | 63 | 75 | 71 | 74 | 60 | 98 | 63 | 100 | 85 | 83 | 84 | 97 |
|  | SBR | 40 | 37 | 40 | 38 | 41 | 39 | 41 | 41 | 41 | 43 | 43 | 42 |
|  | SBT | 49 | 52 | 49 | 56 | 50 | 57 | 50 | 59 | 51 | 63 | 53 | 61 |



Figure 2.11. Comparison of Travel Times by Movement - Chapel Hill


Figure 2.12. Comparison of Travel Times by Movement - Wilmington


Figure 2.13. Comparison of Travel Times by Movement - US-17 @ Ploof/Poole


Figure 2.14. Comparison of Travel Times by Movement - US-17 @ Walmart/Gregory


Figure 2.15. Comparison of Travel Times by Movement - US-17 @ Grandiflora/West Gate


Figure 2.16. Comparison of Travel Times by Movement - US-17 @ Brunswick Forest


Figure 2.17. Comparison of Travel Times by Movement - US-17 @ Lanvale Rd

The team ran an ANOVA to determine if there was a statistically significant difference in the travel time results between the three sites, the designs (superstreet or conventional), and the demand levels. Table 2.23 lists the results of the ANOVA. At a $95 \%$ confidence level the interactions between all three factors, and between combinations of the factors, were all statistically significant. This shows that location, the design choice, and the volume levels all play a role and impact the travel times through the intersection. It is not surprising that the sites and demand levels had a significant impact on travel time. The important result from this is that the design choice - superstreet or conventional - did impact the travel time of vehicles traveling through the intersection, doing so at both isolated intersections and corridors.

Table 2.23. Analysis of Variance for Travel Time, Using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj <br> MS | F | P |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Site | 6 | 74785.4 | 74785.4 | 12464.2 | 1361.45 | 0.0000 |  |  |  |  |
| Demand | 5 | 96874.5 | 96874.5 | 19374.9 | 2116.29 | 0.0000 |  |  |  |  |
| Design | 1 | 48482.4 | 48482.4 | 48482.4 | 5295.66 | 0.0000 |  |  |  |  |
| Site*Demand | 30 | 28129 | 28129 | 937.6 | 102.42 | 0.0000 |  |  |  |  |
| Site*Design | 6 | 15860.5 | 15860.5 | 2643.4 | 288.74 | 0.0000 |  |  |  |  |
| Demand*Design | 5 | 44107.5 | 44107.5 | 8821.5 | 963.56 | 0.0000 |  |  |  |  |
| Site*Demand*Design | 30 | 24329.4 | 24329.4 | 811 | 88.58 | 0.0000 |  |  |  |  |
| Error | 756 | 6921.3 | 6921.3 | 9.2 |  |  |  |  |  |  |
| Total | 839 | 339490.1 |  |  |  |  |  |  |  |  |
|  | $5=3.02574$ |  |  |  |  |  |  | R-Sq $=97.96 \%$ | R-Sq(adj) | $97.74 \%$ |

### 2.4.2.2 Travel Time Effects on the Intersection

The simulations show that the superstreet reduces travel time for the major road through and left movements, and increases travel time for the minor road through and left movements. However, looking at the operation of the intersection as a whole, the superstreet outperforms the conventional design. Table 2.24 shows the percent difference in average travel time per vehicle. The superstreet reduced travel time for the average vehicle traveling through the intersection at every location.

Table 2.24. Percent Difference in Average Travel Time Per Vehicle Between Superstreet and Conventional Intersections

| Intersection | Pk-40\% | Pk-20\% | Pk-10\% | Peak | Pk+10\% | Pk+20\% |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| US-15/501 @ <br> Erwin / Europa | $-1.6 \%$ | $-16.2 \%$ | $-4.8 \%$ | $-1.6 \%$ | $-13.8 \%$ | $-16.8 \%$ |
| US-421 @ <br> Myrtle Gardens Dr. | $-2.2 \%$ | $-6.7 \%$ | $-12.7 \%$ | $-1.5 \%$ | $-11.9 \%$ | $-12.7 \%$ |
| US-17 corridor (avg. <br> for all intersections) | $-3.7 \%$ | $-7.7 \%$ | $-15.4 \%$ | $-26.5 \%$ | $-79.6 \%$ | $-100.2 \%$ |
| US-17 @ Ploof / Poole | $-2.8 \%$ | $-15.1 \%$ | $-18.6 \%$ | $-27.8 \%$ | $-71.8 \%$ | $-106.3 \%$ |
| US-17 @ Walmart / <br> Gregory | $-3.9 \%$ | $-10.9 \%$ | $-27.8 \%$ | $-54.0 \%$ | $-89.6 \%$ | $-99.2 \%$ |
| US-17 @ Grandiflora / <br> West Gate | $-7.2 \%$ | $-8.3 \%$ | $-5.6 \%$ | $-19.2 \%$ | $-122.8 \%$ | $-146.6 \%$ |
| US-17 @ Brunswick <br> Forest Pkwy | $-2.6 \%$ | $-0.6 \%$ | $-20.2 \%$ | $-23.4 \%$ | $-80.8 \%$ | $-104.3 \%$ |
| US-17 @ Lanvale / <br> Brunswick Forest | $-1.7 \%$ | $-5.4 \%$ | $-8.2 \%$ | $-10.0 \%$ | $-32.9 \%$ | $-49.4 \%$ |

Not only did the superstreet reduce travel time, but it also reduced travel time variability. Table 2.25 shows the standard deviation of the simulated travel times by movement for each site. The superstreet had less travel time variability than the conventional intersection at the Wilmington site and the US-17 corridor. The Chapel Hill simulations produced similar standard deviations for the two designs, with the superstreet slightly greater than the conventional. However, with the exception of the NBL, the arterial travel time variability was less for the superstreet than the conventional model. The lower travel time standard deviation means drivers experience less variability, and thus more reliability, when driving through superstreet intersections and corridors compared to the conventional equivalent.

Table 2.25. Standard Deviation of Simulated Travel Time by Movement (sec)

| Movement |  | Chapel Hill |  | Wilmington |  | US-17 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | SS | Conv. | SS | Conv. | SS | Conv. |
| $\begin{aligned} & \text { B } \\ & 0 \\ & 0 \\ & 0.3 \end{aligned}$ | WBL | 8.09 | 8.16 | 2.93 | 27.26 | 6.55 | 14.67 |
|  | WBR | 2.34 | 2.10 | 1.35 | 9.24 | 2.84 | 7.65 |
|  | WBT | 12.16 | 7.53 | 6.69 | 17.21 | 13.66 | 15.93 |
|  | EBL | 6.67 | 6.40 | 6.92 | 10.40 | 6.08 | 22.22 |
|  | EBR | 1.47 | 1.86 | 1.78 | 1.67 | 2.59 | 7.44 |
|  | EBT | 5.10 | 4.82 | 9.58 | 12.27 | 11.84 | 14.72 |
| $\begin{aligned} & \text { IJ } \\ & \text { N } \end{aligned}$ | NBL | 9.04 | 5.14 | 2.44 | 3.40 | 5.67 | 8.26 |
|  | NBR | 1.00 | 1.32 | 0.86 | 0.74 | 0.85 | 2.22 |
|  | NBT | 0.42 | 1.09 | 0.56 | 1.16 | 0.76 | 4.71 |
|  | SBL | 3.34 | 8.91 | 2.31 | 3.68 | 5.21 | 13.31 |
|  | SBR | 1.12 | 2.05 | 1.05 | 1.15 | 0.68 | 1.59 |
|  | SBT | 0.51 | 0.86 | 0.62 | 0.71 | 0.31 | 2.30 |
| Intersection Avg. |  | 4.27 | 4.19 | 3.09 | 7.41 | 4.75 | 9.59 |

### 2.4.2.3 Travel Time Effects on the Arterial

At all sites the superstreet outperformed the conventional intersection for the major road through movements. This was expected because the superstreet benefits the arterial through movements due to the ability to have perfect progression in both directions. The superstreet major through travel times improved over the conventional by a greater amount at the higher volume levels. At both Wilmington and along the US-17 corridor, the major lefts also saw travel time improvements over the conventional design.

At Chapel Hill, the northbound through (NBT) remained consistent at each volume level, with improvements from $28 \%$ to $42 \%$. With the exception of the peak $-20 \%$ volumes, the southbound through (SBT) travel times savings steadily increased over the conventional with each increasing demand level. This was the only site where the major left turns experience more travel time than the conventional design. This superstreet intersection does not allow the direct major left turns at the main intersection. This is a modified design of the superstreet where the major left turns use the downstream directional U-turn crossover to make the left turn maneuver. The direct left turns were not built at this site because of a suspected weaving problem due to two roads merging together just upstream of the superstreet.

The Wilmington superstreet resulted in a similar situation to the Chapel Hill superstreet, with travel times improving more with each increase in traffic through the intersection for the NBT.

The NBT travel time savings for the superstreet over the conventional ranged from $3 \%$ to $14 \%$. The SBT improved steadily with increasing demand for the superstreet as well, except during the peak, peak $+10 \%$ and peak $+20 \%$ scenarios. The superstreet saw a minimal increase in travel time during these three cases, from $1.5 \%$ to $5.1 \%$.

The US-17 corridor saw similar effects as the Chapel Hill and Wilmington superstreets with travel time steadily improving as demand increased. At the peak+10\% and peak+20\% levels, the major through movements had large travel time savings over the conventional, reaching up to over $100 \%$ and even $200 \%$ in some cases. This is an indication that the conventional intersections were most likely overloaded and failing.

### 2.4.2.4 Travel Time Effects on the Minor Road

The minor road through and left turn movements were negatively impacted by the superstreet. By the nature of the design, the minor road through and left turns have to travel an extra distance to a downstream U-turn, then back through the main intersection. The travel times for these movements were higher at the superstreet than the conventional intersections for all sites. The minor lefts were impacted less than the minor through movements at all sites.

Along the US-17 corridor, the minor left turn and through movements were affected more during the low-volume scenarios, with the travel time difference between the superstreet and conventional decreasing as the volumes increased. The percent differences ranged from a 30 to $40 \%$ increase at the lowest volumes (peak- $40 \%$ ), to a 9 to $18 \%$ decrease in travel time at the highest volumes (peak+20\%). At the highest demand level the superstreet travel times were lower than the conventional travel times for all movements.

At the Chapel Hill and Wilmington sites, the minor left turn and through movements were affected differently than they were along US-17. At Chapel Hill the minor left and through movements were negatively impacted the most during the peak period, with 30 to $50 \%$ increases in travel time. The differences then decreased as the volume levels changed from the peak. The minor street movements were least negatively impacted by the superstreet during the highest demand level, at only a 14 to $30 \%$ difference from the conventional. At Wilmington the eastbound and westbound directions were affected differently. The WBT movement was affected in the same way as the minor movements at Chapel Hill with the largest difference at the peak demand. The opposite effect happened for the eastbound minor movements. The EBL and EBT were negatively impacted the least during the peak period, and more during the high volume and low volume scenarios. The WBL movement was different from the rest, with superstreet travel times higher than the conventional for the low volume scenarios, and lower than the conventional for the high volume scenarios.

### 2.4.2.5 Capacity Check

For a check on the capacity of each intersection, both superstreet and conventional, the team applied the critical sum method. This method involves computing the sum of the critical lane volumes for each signal phase. This was not done to calculate the actual capacity of superstreets or the conventional intersections, but to compare the two designs to estimate how much more capacity one might get out of a superstreet than a conventional intersection. A signal-controlled intersection is generally considered to be in good operating condition if the critical sum is less than 1400 vphpl with a four-phase signal, and 1600 vphpl with a two-phase signal. These values
come from the base saturation flow rate of $1900 \mathrm{pc} / \mathrm{h} / \mathrm{ln}$ and multiplied by adjustment factors for heavy vehicles, left turns, right turns, and U-turns (21). Table 2.26 lists the critical sums for both the superstreet and conventional intersections for the high volume demand levels. The superstreet outperforms the conventional intersections at all sites, and is below the 1600 vphpl reference for two-phase signals at five of the intersections for all demand levels up to peak $+40 \%$. Based on this check, the superstreet design has a higher capacity than the conventional design.

Table 2.26 Critical Sums for Superstreet and Conventional Intersections

| Site | Demand | Critical Sum (vphpl) |  |
| :---: | :---: | :---: | :---: |
|  |  | Conv. | SS |
| Chapel Hill | Peak | 1190 | 1020 |
|  | Peak+10\% | 1310 | 1120 |
|  | Peak+20\% | 1430 | 1220 |
|  | Peak+40\% | 1670 | 1430 |
| Wilmington | Peak | 1120 | 1100 |
|  | Peak+10\% | 1230 | 1210 |
|  | Peak+20\% | 1340 | 1320 |
|  | Peak+40\% | 1570 | 1540 |
| Ploof/Poole <br> (US-17) | Peak | 1320 | 1410 |
|  | Peak+10\% | 1450 | 1560 |
|  | Peak+20\% | 1580 | 1700 |
|  | Peak+40\% | 1840 | 1980 |
| Walmart/Gregory (US-17) | Peak | 1750 | 1410 |
|  | Peak+10\% | 1930 | 1560 |
|  | Peak+20\% | 2100 | 1700 |
|  | Peak+40\% | 2450 | 1980 |
| Grandiflora/West Gate (US-17) | Peak | 1310 | 1080 |
|  | Peak+10\% | 1520 | 1280 |
|  | Peak+20\% | 1570 | 1300 |
|  | Peak+40\% | 1830 | 1520 |
| Brunswick Forest (US-17) | Peak | 1140 | 1110 |
|  | Peak+10\% | 1250 | 1230 |
|  | Peak+20\% | 1360 | 1340 |
|  | Peak+40\% | 1590 | 1560 |
| Lanvale Rd. <br> (US-17) | Peak | 1320 | 960 |
|  | Peak+10\% | 1450 | 1060 |
|  | Peak+20\% | 1580 | 1150 |
|  | Peak+40\% | 1840 | 1340 |
|  | Peak+60\% | 2100 | 1540 |

### 3.0 SAFETY ANALYSES

### 3.1 Literature Review

The literature review for this section addresses safety studies on both superstreets and median U turns, as well as access management studies for safety and economic impacts. Median U-turn intersections are included in the literature review because they use directional crossovers like superstreets, and median U-turns have been used more extensively for a longer period of time. Median U-turns, as in Figure 2.1, use directional crossovers for all left-turn movements, and unlike superstreets, they allow minor street through movements. Most studies on median Uturns and superstreets show they reduce the number of conflict points and collisions. There are significantly fewer studies available on superstreets because of their limited field implementation. Access management studies are included in the literature review because they give depth into the safety and economic impacts of superstreets.

### 3.1.1 Median U-Turns

Maki conducted an evaluation of Michigan's median U-turns (4). As part of that effort, he conducted a before and after study using five years of collision data at four locations where directional crossovers replaced bi-directional crossovers. Directional crossovers allow movement in one direction only, whereas bi-directional crossovers allow both turning movements. The results showed a 60 percent reduction in total crashes, with more than a 95 percent reduction in angle crashes. Taylor et al performed a similar study (25). They examined eight arterial road segments for 54 bi-directional crossover replacements and ten years of collision data. The results showed an average of 30 percent reduction in total crashes. No significant change occurred at intersections or crossovers that were not altered. Neither study accounted for traffic volume changes, seasonal effects, or regression to the mean.

A study by Carter et al examined the operational and safety effects of U-turns at signalized intersections (26). The locations used were a combination of randomly selected sites and U-turn problem sites as identified by local traffic engineers. Despite the problem sites in the sample, 65 out of 78 sites had no U-turn collisions in the three year study period. Results showed that locations with double left-turn lanes, protected right-turn overlap, high left-turn and conflicting right-turn traffic volumes had the greatest number of U-turn collisions. The protected right-turn overlap was a significant factor in increasing the likelihood of a collision. Overall, Carter et al concluded that U-turns do not have a large negative effect on signalized intersections.

Potts et al conducted a study on the safety of unsignalized median openings on urban and suburban arterials (27). Field data from twenty corridors in five different geographic regions of the US were collected for specific median opening types, along with safety data from 668 median openings. The study looked at fifteen median opening types, including directional and conventional openings, with and without left turn lanes and loons, mid-block openings, and three- and four-leg intersections. The findings showed that collisions relating to U-turn and leftturn movements at unsignalized median openings were infrequent. The rate of U-turn plus leftturn crashes per median opening per year was found to be 0.41 for urban arterials and 0.20 for rural arterials. Also, at three-leg intersections the rate was 48 percent lower for directional median openings compared to conventional median openings. Four-leg intersections have a 15 percent reduction for directional median openings than conventional openings. This is relevant
to our study because superstreets use directional median openings and this design feature indicates no safety concern.

Hummer and Reid compared the safety effectiveness of median U-turns to arterials with twoway left turn lanes (TWLTL) and medians with conventional left turns using five years of collision data in Michigan (17). Hummer and Reid found that total collision rates were significantly lower for roadway sections with signalized median U-turns than with medians or TWLTL. Roadway sections with unsignalized median U-turns had higher total collision rates than conventional medians but were lower than TWLTL.

The Federal Highway Administration (FHWA) published a TechBrief on the safety and operational benefits of median U-turns (28). The report provides design guidelines and a literature review of the important publications on median U-turns. Reported relevant safety information found that replacing bidirectional crossovers with directional crossovers reduced the number of total crash frequencies by 58 percent at four-legged intersections and 34 percent at three-legged intersections. However, the safety study did not account for regression to the mean. Also reported was that directional and bidirectional crossovers have approximately the same collision rate for divided highway sections without traffic signals; however, as the traffic signal density increases the directional crossovers have a 50 percent lower crash rate than the bidirectional crossovers.

FHWA's Alternative Intersections Informational Report provides safety results for median Uturn intersections (29). Implementation of median U-turn intersections from conventional fourleg signalized intersections reduced rear-end, angle, and sideswipe collisions by 17, 96, and 61 percent, respectively.

### 3.1.2 Superstreets

A 2007 study by Kim, Edara and Bared also analyzed the safety performance of the superstreet compared to conventional intersections (15). The safety analysis was done using the Surrogate Safety Assessment Methodology tool (SSAM), which is a module of the VISSIM simulation program that records the number of conflicts for each VISSIM run, for both single U-turn and double U-turn lanes. Based on simulation runs in VISSIM, the single U-turn lanes reduced the total number of conflicts by 80 percent. There was a 100 percent improvement in rear end conflicts and a 10 percent increase in lane change conflicts; however, the increase in lane change conflicts was not a significant finding. Double U-turn lanes resulted in a less favorable outcome. They showed a significant increase in rear end conflicts ( 81 percent) and lane change conflicts (75 percent), proving to be more dangerous in this measure than the conventional intersection. The analysis was done using computer simulations that were not calibrated with field data.

A study by Hochstein et al analyzed crash data from unsignalized J-turn intersections in Maryland and North Carolina (superstreets in Maryland are referred to as J-turns) (30). One site in Maryland was converted to a J-turn from a two-way stopped-controlled intersection, resulting in a 92 percent reduction in annual crash frequency at the main intersection. It should be noted that crash data were not available for the crossover sections. In North Carolina, three spot studies were conducted that showed 48-69 percent reductions in total collisions. The study locations were the intersections of US-23/74 and SR-1527/1449, US-64 and SR-2234/2500, and US-321 and SR-1796. While these studies give insight on the safety effects of superstreets, conclusions on safety benefits cannot be drawn from the report because of the limited number of
sites, sample size, and the use of naïve before and after analysis. Hochstein et al, however, report that rural TWSC intersections will benefit from J-turn (superstreet) implementation if they have any of the following characteristics: a history of far-side right-angle collisions, collisions within the median, or "left-turn leaving" collisions; high through volumes; or relatively low volumes of left turns from the minor road. Hummer et al also investigated the safety aspects of the superstreet (20, 29, 31). The papers analyzed the same sites in Maryland and North Carolina as the Hochstein et al paper and yielded similar results and conclusions.

The North Carolina Department of Transportation (NCDOT) performed several spot study evaluations at locations across the state where directional median crossovers were installed as a safety countermeasure (32-42). The directional crossovers prohibited left and through movements from the side streets onto the main roadway. The locations either had full-median openings or were two-way stop controlled intersections in the before period. All the locations had divided major roadways. The spot studies consisted of a naïve before and after analysis of treatment sites, and in some cases, an analysis of intersections of either side of the location to test for crash migration (treatment influenced intersections). At the US-64 and SR-2234 site in Wake County, NCDOT also chose to evaluate the intersection using an odds ratio. The before and after periods were equal for each study and ranged from three to six years. Although these studies are naïve, they generally show a crash reduction at the treatment sites. Table 1 shows the percent reduction in total crashes and frontal impact crashes for the treatment sites, the treatment influenced intersections, and the corridor strip which includes both treatment and influenced intersections.

Table 3.1. Percent Crash Reduction from NCDOT Spot Studies (32-42)

| US-23/74 from Jackson County Line to East of SR-1158, Haywood County |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | \% reduction (-), \% increase (+) |  |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |  |
| US-23/74 strip | -2.0 | -75.0 | 5.6 |  |
| Treatment site 4 | 20.0 | -71.4 | 5.5 |  |
| Treatment site 5 | -66.7 | -100.0 | 6.5 |  |
| Treatment site 8 | -42.9 | -84.6 | 5.4 |  |
| US-64 and SR-2234/SR-2500/Mark's Creek Rd., Wake County |  |  |  |  |
|  | \% reduction (-), \% increase (+) |  |  |  |
|  | Total Crashes | Frontal Impact Crashes | Odds <br> Ratio | ADT |
| Treatment site | -47.6 | -76.5 | --- | 5.8 |
| Comparison site | 53.8 |  | -66.0 | 6.4 |
| Treatment Influenced Intersections |  |  |  |  |
| Crossover 1 | 0.0 |  |  |  |
| Crossover 2 | -11.1 |  |  |  |
| US-321/Hickory Blvd. and SR-1796/Victoria Ct./Clover Dr., Caldwell County |  |  |  |  |
|  | \% reduction (-), \% increase (+) |  |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |  |
| US-321 strip | -38.0 | -70.3 | 2.1 |  |
| Crossover section | -68.8 | -83.3 |  |  |
| Treatment Influenced Intersections |  |  |  |  |
| SR-1164 | -60.0 | -71.4 |  |  |
| SR-1774 | -66.7 | -66.7 |  |  |
| SR-1223/Dickerson Blvd. from US-74 to Commerce Dr., Union County |  |  |  |  |
|  | \% reduction (-), \% increase (+) |  |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |  |
| US-74 strip | -54.7 | -88.0 | 8.0 |  |
| Treatment site 1 | -61.3 | -100.0 |  |  |
| US-23/74 at SR-1527/Steeple Dr. and SR-1449/Cope Creek Rd., Jackson County |  |  |  |  |
|  | \% reduction (-), \% increase (+) |  |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |  |
| Treatment site | -53.3 | -72.7 | 18.3 |  |
| Treatment Influenced Intersections |  |  |  |  |
| Exit 85 ramp | 100.0 |  |  |  |
| SR-1788 | 0.0 |  |  |  |
| US-70, Craven County |  |  |  |  |
|  | \% reduction (-), \% increase (+) |  |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |  |
| US-70 strip | 146.4 | 6.7 | 10.6 |  |
| Treatment sites (1-4) | -46.2 | -50.0 | 11.3 |  |
| Treatment Influenced Intersections (1-3) | 261.5 | 57.1 | 12.7 |  |

Table 3.1. continued (32-42)

| US-29/70 / I-85B at SR-1744/Mendenhall St., Davidson County |  |  |  |
| :---: | :---: | :---: | :---: |
|  | \% reduction (-), \% increase (+) |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |
| Treatment site | -76.9 | -90.5 | 5.5 |
| Treatment Influenced Intersections |  |  |  |
| I-85B at North Ave | 0.0 |  | 5.2 |
| I-85B at National Hwy | 64.1 |  | 6.8 |
| NC-132 and SR-2003/King's Grant Rd., New Hanover County |  |  |  |
|  | \% reduction (-), \% increase (+) |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |
| Treatment site | 11.8 | -50.0 | 30.0 |
| Treatment Influenced Intersections |  |  |  |
| NC-132 and SR-2004 | 9.4 | -36.4 |  |
| NC-132 and SR-2061 | 72.7 | 71.4 |  |
| US-17 and Parkwood Dr., Onslow County |  |  |  |
|  | \% reduction (-), \% increase (+) |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |
| US-17 strip | -3.8 |  |  |
| Treatment site | -95.7 |  |  |
| Treatment Influenced Intersections |  |  |  |
| US-17 and McDaniel Dr | 209.5 |  |  |
| US-17 and SR-1470 | 6.4 |  |  |
| US-64 at SR-1163/Kelly Rd., Wake County |  |  |  |
|  | \% reduction (-), \% increase (+) |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |
| Treatment site | -18.6 | -96.4 | 31.3 |
| Treatment Influenced Intersections |  |  |  |
| Crossover 1 | -50.0 |  |  |
| Crossover 2 | 0.0 |  |  |
| US-70 and SR-1731/Piney Grove Rd., Wayne County |  |  |  |
|  | \% reduction (-), \% increase (+) |  |  |
|  | Total Crashes | Frontal Impact Crashes | ADT |
| Treatment site | -85.2 | -100.0 | -3.4 |

NCDOT also performed a spot study evaluation at the intersection of NC-87 and SR1150/Peanut Plant Road in Bladen County where a superstreet was installed as a safety countermeasure (43). The spot study consisted of a naïve before and after analysis with three years of before and after crash data. NCDOT found that the superstreet reduced total crashes and frontal impact crashes by 83.3 percent and 90.9 percent, respectively. The average daily traffic decreased by 19.8 percent from the before period year to the after period year (2004 to 2008). NCDOT also analyzed surrounding intersections for crash migration. The study showed a possible, but not likely, crash migration with an increase of three and six collisions in the after period to the nearby intersections.

FHWA's Alternative Intersections Informational Report includes the safety benefits of superstreets (also known as restricted crossing U-turn intersection or RCUT) (29). The relevant safety information included a before and after study of crash rates from the RCUTs along the US-23/74 corridor in North Carolina and from the US-301 site in Maryland (previously mentioned). The study also shows comparisons of the after period crash rates from three RCUTs
along US-17 in North Carolina to comparable conventional intersections in Charlotte, NC. A before and after study was not used because the RCUTs were implemented as a part of the redevelopment of the area and traffic patterns changed significantly from the before conditions. The study used crash performance predictions for four-legged signalized intersections based on Chapter 12 of AASHTO's Highway Safety Manual (HSM to be published later in 2010). The findings showed that the total crash rates for all three RCUT intersections were below both the HSM predicted rates and the comparison sites in Charlotte.

### 3.1.3 Access Management

There is a large variety of literature on access management. The studies of interest to this project include safety impacts of directional median openings from driveways and economic impacts of these access management techniques on businesses. Much of the safety literature for access management is similar to or can be applied to median U-turns because they both involve directional crossovers. The safety literature for access management is different because the studies involve turns from driveways rather than turns from intersections.

### 3.1.3.1 Safety

Liu et al conducted a study to compare the safety of direct left turns versus right turns followed by U-turns (RTUT) from driveways in Florida (44). The researchers used video-captured data from sixteen median openings along urban or suburban multilane highways to conduct a conflict study. The median openings were located on six- to eight-lane divided roadways and were split between signalized intersections and unsignalized openings. The study produced 2,873 conflicts for various driveway left turn alternatives. The findings show that indirect left turn movements from a driveway at a median opening and at a signalized intersection have fewer conflicts than direct left turn movements by 47 percent and 26 percent, respectively.

Pirinccioglu et al conducted a similar conflict study comparing RTUT with direct left turns (DLT) along four-lane divided arterials (45). The researchers used video-collected U-turn data at signalized intersections and median openings. The study showed that RTUT related conflicts are less severe than DLT related conflicts at signalized intersections; however, RTUT movements had a five percent higher conflict rate than DLTs. At median openings, DLT conflicts are more severe and the rates are 62 percent higher than RTUT movements. The severity and conflict rates for both DLT and RTUT are higher at median openings than signalized intersections.

Lu et al also evaluated the safety effects of indirect driveway left turn treatments or RTUTs (46). The study used 140 roadway segments where U-turns replace direct left turns from driveways and 32 three-leg unsignalized intersections with direct left turns in Florida. The researchers found that U-turn crashes are very infrequent with a collision rate of 0.2 crashes per year per site, and most RTUT related crashes occur in the weaving section between driveways and U-turn openings. Lu et al developed a crash prediction model. They identified three key factors that contribute to RTUT weaving section collisions: major roadway ADT, location of the U-turn bay, and separation distances between driveway exits and downstream U-turn locations.

The National Cooperative Highway Research Program (NCHRP) Reports 420 and 524 showed similar results for access management techniques on arterials (27, 47). NCHRP 420 reported that U-turns generally provide a 20 percent collision reduction by eliminating direct left-turns from driveways and a 35 percent reduction when the U-turns are signalized. NCHRP 524
produced results of safety effectiveness of U-turns at unsignalized median openings. The study used 918 unsignalized median openings found in 62 arterial corridors in seven states. The arterials consisted of either four or six lane cross-sections with a balanced mixture of low and high speed roadways. Forty-three percent of median openings were located on low speed arterials ( $\leq 50 \mathrm{mph}$ ) and 57 percent on high speed arterials ( $\geq 55 \mathrm{mph}$ ). The research concluded that access management strategies that increase U-turn volumes at unsignalized median openings can be used safely and effectively. The study also found that U-turn and left-turn maneuvers at unsignalized median openings occur very infrequently at 0.41 collisions per median opening per year in urban arterial corridors, and 0.20 collisions per median opening per year in rural arterial corridors. Median opening collision rates are significantly lower for midblock than at intersections for urban arterials, and collision rates at three-leg conventional intersections are slightly lower than for four-leg conventional intersections.

### 3.1.3.2 Economic Impacts

The Transportation Research Board Access Management Manual presented studies done across the country indicating that raised medians have little to no overall adverse impact on surrounding businesses (10). In Kansas, changes in access or traffic patterns did not cause a change in use of the abutting businesses. In Texas, the number of customers and employment increased overall, and the perception of the median installation by business owners prior to construction is usually worse than reality. Also, business owners ranked "accessibility to store" lower in priority than customer service, quality of product, and product price. In Iowa, before and after survey data were collected from seven projects. Findings showed that 80 percent of businesses reported equal or higher sales and reported no customer complaints about business access after project completion. Ninety (90) to 100 percent of motorists also favored the roadway modifications from controlled access. In Florida, a study showed no adverse impacts on truck deliveries and business activity. Williams presented similar findings in all states (49)

Similar results were found in a study done by the Texas Transportation Institute addressing the economic impacts of raised medians (11). This four-year study was done at eleven locations to assess the effects prior, during, and after construction of raised medians. Through surveys and interviews with business owners and customers, the researchers found that the only major adverse impact raised medians have is during the construction phase. For businesses that were present before, during, and after construction, property value increased by 6.7 percent after the construction of the raised median compared to the before conditions, while owners thought they would experience a decrease in value. The duration of construction typically lasted one to two years, with construction dates between 1979 and 1998 for all study locations. As with other studies, accessibility is ranked lower in importance for destination businesses, while slightly higher for pass-by businesses such as gas stations. Overall, the study concludes that there is no negative economic impact caused by raised medians.

FHWA's Alternative Intersections Informational Report provides access management considerations for median U-turn and superstreet intersections (29). Because the designs primarily service through traffic on the major road, inferences can be made that some land uses that rely on pass-by traffic may suffer; however, no documented studies of median U-turns or superstreets on adjacent land users are identified. The designs' flexibility on crossover placement can provide safer and more efficient access.

### 3.2 Methodology

This section describes the approach used to complete the evaluation of the safety effectiveness of superstreets installed in North Carolina. The safety study involved a naïve and comparison group (C-G) analyses of signalized and unsignalized superstreets and an Empirical Bayes (EB) method analysis of unsignalized superstreets. The team also evaluated signalized superstreets using the Surrogate Safety Assessment Model (SSAM) because VISSIM models were previously calibrated and validated (see Chapter 2). The team used these three methods of analysis to find the effects a superstreet design has on collision frequencies and severities. Signalized superstreets utilized the C-G method because the NCDOT installed superstreets at these sites for their congestion problems and not for their safety problems. Based on this fact, regression-to-the-mean will not have an effect on the collision frequencies, thus making the use of the C-G method acceptable. Conversely, unsignalized superstreets were installed for their safety issues; therefore, regression-to-the-mean must be accounted for in the analysis.

### 3.2.1 Selection of Sites

The identification of sites for the safety analysis involved finding both signalized and unsignalized superstreets in North Carolina. Sites were selected for the study only if they were, by definition, a full superstreet. A site is considered to be a full superstreet if it reroutes left and through movements from the side street to directional crossovers on both sides of the main intersection. Figure 1.1, shown previously, displays the two most common four-legged superstreet designs. Four-legged sites that had only one U-turn crossover or used a full-median opening as a directional crossover were not included in the study. Table 3.2 lists the sites selected for analysis. Site selection criteria also included that the roads must have existed prior to the superstreet and the superstreet was not installed with other major improvements (no twolane to four-lane conversion for example).

Table 3.2. Sites Selected for the Safety Analysis

| Main Road | Cross Street(s) | City | County |
| :---: | :---: | :---: | :---: |
| US-15/501 | Erwin Rd./Europa Dr. | Chapel Hill | Orange |
| US-17 (Ocean Hwy) | Ploof Rd./Olde Waterford Way | Leland | Brunswick |
| US-17 (Ocean Hwy) | West Gate Dr./Grandiflora Dr. | Leland | Brunswick |
| US-17 (Ocean Hwy) | Gregory Rd. | Leland | Brunswick |
| US-421 (Carolina | SR-2501 | Wilmington | New |
| Beach Rd.) |  |  | Hanover |
| US-17 (Ocean Hwy) | Mt. Pisgah Rd. (SR-1130)/Sellers Rd. (SR-1344) |  | Brunswick |
| US-17 (Ocean Hwy) | Ocean Isle Beach Rd. (SR-1184) |  | Brunswick |
| US-74 (Great Smokey | Red Bank Rd. (SR-1155)/Walker |  | Haywood |
| US-23 |  |  |  |
| US-74 (Great Smokey | Old Balsam Rd. (SR- |  | Haywood |
| Expressway)/US-23 | 1158) |  |  |
| US-74/441 | Barkers Creek Rd. (SR1392)/Wilmont Rd. |  | Jackson |
| US-74/441 | Dicks Creek Rd. (SR-1388) |  | Jackson |
| US-74 (Andrew Jackson Hwy) | Elmore Rd. (SR-1321) |  | Scotland |
| US-74/76 | Blacksmith Rd. (SR-1800) | Bolton | Columbus |
| NC-24 (Beulaville | Haw Branch Rd. (SR-1230) |  | Onslow |
| Hwy) |  |  |  |
| US-1 | Camp Easter Rd./Aiken Rd. (SR1853) |  | Moore |
| NC-87 | Peanut Plant Rd. (SR-1150) | Elizabethtown | Bladen |
| NC-87/24 (Bragg | N. $2^{\text {nd }}$ St. | Spring Lake | Cumberland |
| Blvd.) |  |  |  |
| NC-87 | School Rd./Butler Nursery Rd. (SR-2233) | Fayetteville | Cumberland |
| NC-87 | Alderman Rd. (SR-2261)/Grays Creek Church Rd. | Fayetteville | Cumberland |

### 3.2.2 Data Collection

The team began data collection by gathering information related to each site that was necessary to assemble the appropriate collision reports. These data included distances from the main intersection to the directional crossovers, all possible road names of the intersections including route numbers, and the construction period. The team needed distances to the crossovers to specify the area around the intersection for collecting relevant collision reports. Many roads in the state have multiple names that collision reports could be filed under, so it was important to list all possible road names when amassing collision reports. Lastly, the construction period was needed to make sure the team requested collision reports for enough time prior to construction of
the superstreet. Most of these data gathered at this stage were useful in collecting collision data and later in the safety analysis as well.

In addition to the data needed to acquire collision reports, the team also needed annual average daily traffic (AADT), along with data on road geometry, traffic control information, and other pertinent features of the site. The team retrieved AADT from the NCDOT traffic volume maps, and used Google Earth to note road geometry and features.

To use the C-G method of analysis, it was necessary to identify a suitable list of comparison sites for each superstreet. Comparison sites were used to predict what the collision frequency of the treatment site would have been in the "after" period had the treatment not been in place. This is important in determining the net safety effect following installation of the superstreet. Graphing the collision frequency of the comparison sites with the superstreet sites in the "before" period versus time, or using the sample odds ratio, helps show if the collision frequencies at the comparison sites were tracking the treatment sites. If they tracked well, the team assumed that the comparison sites would be good predictors of collision frequency if the superstreet had not been built. The team typically used two comparison sites per superstreet for the C-G method; however, some superstreets did not track well with two comparison sites so the team used either one or three in those cases. The following criteria were used to find comparison sites:

1. Conventional intersections,
2. Similar geometry,
3. Traffic control measures,
4. Divided major road,
5. Proximity to the superstreet, and
6. Similar AADT.

The first three measures listed above were required for comparison sites. That is, comparison sites must be conventional intersections (full median openings), they must have the same geometry (number of approaches), and they must have the same form of traffic control as their superstreet comparison. For instance, if a superstreet was a three-legged signalized intersection, then its comparison sites must be three-legged signalized conventional intersections.

The last three measures listed above were not required but were highly recommended. That is, the team wanted similar medians, similar AADTs, and proximity to the superstreets. Most comparison sites had divided major roads, but at some locations the team was not able to find adequate divided conventional intersections. If the AADTs were similar between treatment and comparison sites they had a better chance of having a similar history of collisions because the exposure levels were similar. Comparison sites with similar or higher AADTs helped ensure a large enough sample of collisions to provide for a better analysis. The team wanted comparison sites to be within five miles of the superstreet, and every effort was made to find similar sites in this influence area. This was important because if the sites are in close proximity they likely experienced the same weather events, driver demographics, and effects of policies which play an important role on the collision history.

The EB method involves using a model to predict the collision frequency. The team chose to calibrate and use the Highway Safety Manual (HSM) model, which will be discussed later. To use the EB method of analysis for collision frequency, the team needed to find a large pool of
calibration sites for three-legged and four-legged superstreets. Unlike the C-G method, the EB method does not require each treatment site to have its own specific comparison sites. Instead, the team found a model calibration factor for three-legged superstreets by analyzing a large pool of three-legged calibration sites, and the team made a similar effort for four-legged sites. The EB method works better if the calibration sites have varying characteristics in numbers of turn lanes and AADTs. Calibration sites only need to share the most basic set of traits as the superstreet sites: divided four-lane major road, undivided two-lane minor road, and two-way stop-control. Varying the other characteristics enabled the team to collect a robust set of calibration sites that will give a better estimate of the group need (50). Three-legged and fourlegged calibration sites were found by initially looking for intersections with given major and minor approach AADTs on NCDOT traffic volume maps. Available AADTs were limited and, to be time- and cost-efficient, the search focused on intersections or highways that already had recorded volumes. Next, each candidate calibration site was checked using Google Maps to confirm that it fit the necessary criteria. Sites that had one minor approach but had a commercial driveway opposite of the minor approach were considered four-legged sites. Alternatively, sites that had one minor approach and had a residential driveway opposite of the minor approach were considered three-legged sites. The team used the following criteria to evaluate three-legged and four-legged calibration sites:

- Full median opening or median that allows all direct movements,
- Major road is four-lane and divided for at least 500 feet beyond the intersection,
- Traffic control limited to stop-control on minor approach(s), and
- At least one minor approach AADT greater than 700 vehicles per day.

The criteria helped ensure fair comparisons between superstreets and their conventional counterparts. The major road must be divided at least 500 feet beyond the intersection on the major road because the only collisions desired are those related to the intersection and not from geometry changes. The team also chose to set a constraint on the minor approach volume because it was assumed a conventional intersection would only be retrofitted into a superstreet if the volumes were significant enough to cause a safety concern. Although the HSM model has no minimum volume, 700 vehicles per day was chosen as the constraint.

NCDOT traffic volume maps were reviewed from all counties in North Carolina to give the best opportunity for site selection. Counties varied in the availability of calibration sites. Some counties did not have four-lane divided highways with unsignalized intersections and others had several. The goal was to collect between 30 and 50 calibration sites for each type of site, threelegged and four-legged, because that is the recommendation of the Highway Safety Manual (51). The team achieved a complete census rather than a random selection of calibration sites because of setting certain criteria for calibration sites, and choosing every site meeting those criteria.

Strip analyses and collision reports were collected for all sites analyzed including superstreets, comparison sites, and calibration sites. To collect the strip analyses the team used the Traffic Engineering Accident Analysis System (TEAAS) software which is the primary tool used by the NCDOT to analyze and report on crashes within North Carolina (52). This software provides a complete set of all police-reported collisions in North Carolina. It was necessary to collect code numbers for each major road and mile posts for each area of interest. The area of interest for treatment sites included 150 feet beyond the intersection on the minor road(s), and 500 feet beyond each median crossover on the major road. The team chose 150 feet for the minor road
because that is standard NCDOT practice. The team chose 500 feet beyond the median crossovers on the major road to capture all collisions that may have been affected by the unconventional geometry. Comparison sites had the same area of interest as their superstreet sites because it ensured a fair comparison for the C-G method. Calibration sites' area of interest included 150 feet on the minor road(s) and 500 feet along the major road from the intersection. The team chose 500 feet beyond the intersection on the major road to capture all collisions that may have been affected by the intersection. The team used code numbers and mile posts in conjunction with the appropriate time period for each site in TEAAS. The time period for collected collision data for superstreets and their comparison sites was from five years prior to the construction of the superstreet to the most recent day for which data were available. Calibration sites were collected for five years as well, from January 1, 2004 to December 31, 2008.

To collect the collision reports the team used North Carolina's Division of Motor Vehicles (DMV) Crash Reports Request which is a primary tool used by the NCDOT to gather specific details on each collision (52). The DMV tool provided review of collision reports for all crashes that were suspected at the intersections to make sure the location identified was correct, to see if construction was ongoing or if construction may have attributed to the crash, and to see if the geometry or traffic control had changed at any time during the data collection period. The team included collisions that occurred during construction if the construction was temporary or if only a few collisions occurred during construction. A site was not used if all of the collisions occurred while the roadway was under construction. Appendix 10.2 contains dates of before and after time periods, geometric details, and major and minor road AADTs for each site.

### 3.2.3 Data Analysis

The team conducted an observational before and after safety study using the naïve and C-G methods for signalized and unsignalized superstreets, and an EB approach for unsignalized superstreets. Signalized superstreets utilized the naïve and C-G methods because (based on feedback from NCDOT) the NCDOT installed superstreets at these sites for their congestion problems and not for their safety problems. Based on this fact, regression-to-the-mean would not have an effect on the collision frequencies which makes the use of the naïve and C-G methods acceptable. The C-G method properly accounts for any changes in collision frequencies from the before period to the after period. Comparison sites were used to predict what the "after" period would have been had the superstreet not been built. Graphing the collision frequency of the comparison sites with the superstreet sites in the "before" period versus time, or using the sample odds ratio, helps show if the comparison sites have similar trends to the treatment site. If they tracked well, then it was assumed that the comparison sites would be good predictors for what the collision frequency would have been at the treatment sites if the superstreet had not been built. This analysis will summarize the effects, if any, the superstreet had on intersection safety by comparing the actual number of collisions at the treatment site to what would have likely happened had no treatment been installed.

The EB method was used to analyze the safety of unsignalized intersections. The NCDOT selected most unsignalized sites for superstreet installation due to safety problems. The decision to make a change based on safety is a red flag for regression-to-the-mean (RTM). RTM effects make a treatment seem a lot safer than it really is because the intersections already had a higher-than-average collision frequency, and regardless of whether or not a treatment had been installed, the collision frequency was very likely to decrease even if the treatment had not been installed.

By taking RTM into account, the estimate of collisions had the treatment not been installed will be unbiased, showing the actual affect of the countermeasure.

The EB method uses a model to predict the collision frequency at typical sites of interest (in this case, on four-lane rural divided arterials). There were several available options for models, each with its own advantages and disadvantages:

1. The intersection model in Chapter 11 of the Highway Safety Manual (51),
2. Dr. Jongdae Baek's model for multilane highway segments with or without curbs (53),
3. Ms. Stacie Phillips' model for four-lane median divided highways (54), or
4. Dr. Raghavan Srinivasan's model for two-lane highways (55).

The HSM Chapter 11 collision frequency model was beneficial because it is applicable to rural divided multilane highway intersections. It is also applicable to three-legged and four-legged intersections. The drawback to using this model was that it was not calibrated for North Carolina.

Jongdae Baek's and Stacie Phillips' models would have been beneficial because they were calibrated in North Carolina. The disadvantage of these models was that they do not take into account side streets, and trying to modify the models to include minor road AADT's would have been more complicated than calibrating the HSM model for North Carolina with no guarantee that they would have fit well.

Raghavan Srinivasan's model for two-lane highways would have been beneficial because his model had an adaptation if minor road AADT was unavailable, like at many of the study's potential rural reference sites. However, it was not appropriate because it was for two-lane highways only.

The team determined that the most effective approach was to use the HSM model and calculate a calibration factor. The HSM model uses a procedure to estimate the expected average crash frequency of a specific facility type. The chosen facility was a rural multilane highway unsignalized intersection. The model estimates the expected average crash frequency for an individual site, with the cumulative sum of all sites representing the entire network. The model requires a set time period, consistent traffic control measures, and known AADTs on at least one major and minor approach. Equation 3.1 shows the predictive model used for three-leg and fourleg stop-controlled intersections (51).

## Equation 3.1 $\quad \mathbf{N}_{\text {predicted int }}=\mathbf{N}_{\text {spf int }} \times \mathbf{C}_{\mathbf{i}} \times\left(\mathrm{AMF}_{1 i} \times \mathrm{AMF}_{2 i} \times \ldots \times \mathrm{AMF}_{4 i}\right)$

Where:
$\mathrm{N}_{\text {predicted int }}=$ predicted average crash frequency for an individual intersection for the selected year,
$\mathrm{N}_{\mathrm{spf} f}$ int $=$ predicted average crash frequency for an intersection with base conditions,
$\mathrm{AMF}_{1 i} \ldots \mathrm{AMF}_{4 \mathrm{i}}=$ Accident Modification Factors for three- and four-leg stopcontrolled intersections, and
$\mathrm{C}_{\mathrm{i}}=$ calibration factor for intersections of a specific type developed for use in North Carolina.

Safety Performance Functions (SPFs) predict the average crash frequency for three- and four-leg stop-controlled intersections with base conditions. The SPF base conditions are shown below:

- Zero degree intersection skew angle,
- No left turn lanes on major road,
- No right turn lanes on major road, and
- No presence of lighting.

The rural highway intersection SPF, $\mathrm{N}_{\text {spf }}$ int, is calculated per year using regression coefficients and major and minor leg AADTs. The SPF equation is modified for intersection type (three-leg or four-leg) and severity level (total collisions, fatal and injury collisions, or KAB collisions using the KABCO scale) through the regression coefficients. Equation 3.2 shows the SPF calculation (51):

## Equation 3.2 $\quad \mathbf{N}_{\text {spf int }}=e^{a+b \times \ln A A D T_{m a y}+c \times \ln A A D T_{\text {min }}}$

Where:
$\mathrm{N}_{\text {spf int }}=$ SPF estimate of intersection-related expected average crash frequency for base conditions,
$\mathrm{AADT}_{\text {maj }}=\mathrm{AADT}$ (vehicles per day) for major road,
$\mathrm{AADT}_{\text {min }}=\mathrm{AADT}$ (vehicles per day) for minor road, and
$\mathrm{a}, \mathrm{b}, \mathrm{c}=$ regression coefficients.
The team calculated the three-legged and four-legged SPFs for years 2004 to 2009 and for two severity types: total collisions and fatal and injury collisions. Some sites did not have major or minor AADTs for every year, and in those cases, a linear trend line was used to estimate the missing traffic volumes. HSM methodology suggested using the higher AADT if both volumes are given for a roadway

Accident Modification Factors (AMFs) are used to adjust the predicted average crash frequency when base conditions are not met. AMFs are calculated per site, and can be modified for total crashes or fatal and injury crashes (51). AMFs for intersections modify the effect on safety due to intersection skew angle, presence of a left-turn(s) on the major road, presence of a rightturn(s) on the major road, and presence of intersection lighting. "The AMFs are multiplicative because the safety effects of the features they represent are presumed to be independent. Little research exists regarding the independence of these effects, but there is no basis in current knowledge for any assumption other than the independence of these effects" (51).

The calibration factor, $\mathrm{C}_{\mathrm{i}}$, is calculated separately for facility type and severity level. Equation 3.3 shows the calibration equation (51):

Equation 3.3 $\quad C_{i}=\frac{\Sigma_{\text {all sites }} \text { observed crashes }}{\Sigma_{\text {all }} \text { sites }}$
Table 3.3 shows the calculated calibration factors for 2004 to 2009 that were calculated from the data collected for North Carolina. The results from Table 3.3 indicate that North Carolina collisions occur at a higher rate than the collisions used to develop the base equation for the HSM. This is not unusual as "the general level of crash frequencies may vary substantially from one jurisdiction to another for a variety of reasons including climate, driver populations, animal
populations, crash reporting thresholds, and crash reporting system procedures" (51). For example, unlike most other states, North Carolina has one single owner and agency for its roads which would lead to more uniform crash reporting.

Table 3.3. Calculated HSM Calibration Factors

| Facility <br> Type | Severity Level | Calibration <br> Factor |
| :--- | :--- | :--- |
| Three-legged | Total | 1.57 |
|  | Fatal and | 2.05 |
| injury | 1.39 |  |
| Four-legged | Total | 1.74 |
|  | Fatal and |  |

### 3.3 Results

The team separated the analysis of superstreets into three separate groups. First, signalized superstreets were not affected by RTM; therefore, they were only analyzed using observational naïve and comparison group (C-G) methods instead of Empirical Bayes (EB). As a supplemental analysis of signalized superstreets, the team used a time-of-day and milepost analysis and the Surrogate Safety Assessment Model (SSAM). Second, unsignalized superstreets were affected by RTM; thus, they were analyzed using EB methods. As a supplemental analysis of unsignalized superstreets, the team used observational naïve and C-G methods. Third, some superstreets were converted with additional major improvements, such as signalized traffic control, additional through lanes, or as a brand new road. These signalized and unsignalized superstreets had dissimilar before and after periods; therefore, they were only analyzed using the HSM model for collision rates. These analyses are shown in the following subsections.

### 3.3.1 Naïve Analysis

A naïve study was performed on the superstreet sites to obtain a basic before/after analysis. The naïve study predicts what the safety of the site would have been in the after period had the superstreet not been implemented; however, it has some shortcomings compared to more rigorous studies used later in this effort. The team used the naïve study because it provided a good base comparison for the C-G and EB methods. The team conducted the study on three groups: all superstreets, only signalized superstreets, and only unsignalized sites. Then, each group was analyzed using different collision types: total, fatal and injury, angle and right turns, rear-end, sideswipes, left turns, and other. Right turn collisions were included with angles because most crashes reported as right turns could also be categorized as angle crashes. Left turn collisions could be reported as 'Left Turn, Same Roadway' or 'Left Turn, Different Roadways', and were combined together in one category because the collision types were indistinguishable in the collision reports. Left turn collisions were separated from angle and right turn collisions because there was a distinguishable difference between the two categories in the collision reports. The 'other' category includes all collision types not covered by the specific categories. Table 3.4 shows the number of collisions per treatment site and by the collision type. Table 3.5 shows the before and after collisions for each treatment site and its comparison sites (which will
be used for the C-G methods later). These collision data were used in all other safety analyses, where appropriate, and will not be repeated in the rest of the paper. Appendix 10.2 contains superstreet and comparison site crash data.

Table 3.4. Number of Collisions per Treatment Site and by Collision Type

| Treatment site | Total |  <br> injury |  <br> right <br> turns | Rear <br> ends | Sideswipes | Left <br> turns | Other |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| All | 1331 | 556 | 270 | 493 | 118 | 181 | 269 |
| Signalized | 617 | 220 | 88 | 337 | 55 | 79 | 58 |
| Unsignalized | 714 | 336 | 182 | 156 | 63 | 102 | 211 |
| Signalized superstreets |  |  |  |  |  |  |  |
| Erwin/Europa | 226 | 72 | 33 | 150 | 16 | 9 | 18 |
| Leland corridor | 140 | 47 | 30 | 56 | 17 | 12 | 25 |
| Carolina Beach | 251 | 101 | 25 | 131 | 22 | 58 | 15 |
| Unsignalized superstreets |  |  |  |  |  |  |  |
| Mt. Pisgah | 83 | 35 | 21 | 18 | 5 | 21 | 18 |
| Ocean Isle Beach | 84 | 29 | 8 | 39 | 2 | 17 | 18 |
| Red Bank/Old | 169 | 92 | 32 | 33 | 18 | 31 | 55 |
| Balsam corridor |  |  |  |  |  |  |  |
| Barkers Creek | 31 | 16 | 6 | 6 | 4 | 3 | 12 |
| Dicks Creek | 24 | 11 | 4 | 1 | 4 | 5 | 10 |
| Elmore | 20 | 12 | 9 | 2 | 0 | 1 | 8 |
| Blacksmith | 19 | 15 | 10 | 4 | 0 | 0 | 5 |
| Haw Branch | 42 | 14 | 14 | 1 | 2 | 5 | 20 |
| Camp Easter/Aiken | 39 | 15 | 6 | 7 | 8 | 5 | 13 |
| Peanut Plant | 48 | 32 | 35 | 1 | 2 | 1 | 9 |
| 2 nd Street | 84 | 28 | 15 | 40 | 16 | 7 | 6 |
| School Road | 44 | 25 | 12 | 3 | 1 | 5 | 23 |
| Grays Creek Church | 27 | 12 | 10 | 1 | 1 | 1 | 14 |

Table 3.5. Total Before and After Collisions for Treatment Sites and Comparison Sites

| Treatment site | Time Period (months) |  | Treatment Sites |  | Comparison Sites |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Before | After | Before | After | Before | After |
|  |  |  |  |  |  |  |
| Signalized sites |  |  |  |  |  |  |
| Erwin/Europa | 90 | 18 | 180 | 46 | 393 | 49 |
| Leland corridor | 59 | 34 | 42 | 98 | 754 | 410 |
| Carolina Beach | 60 | 11 | 218 | 33 | 224 | 38 |
| Unsignalized sites |  |  |  |  |  |  |
| Mt. Pisgah | 59 | 10 | 76 | 7 | 139 | 17 |
| Ocean Isle Beach | 59 | 11 | 76 | 8 | 42 | 6 |
| Red Bank/Old Balsam | 96 | 115 | 87 | 82 | 222 | 392 |
| corridor |  |  |  |  |  |  |
| Barkers Creek | 58 | 8 | 28 | 3 | 83 | 5 |
| Dicks Creek | 58 | 8 | 21 | 3 | 52 | 5 |
| Elmore | 58 | 13 | 18 | 2 | 62 | 11 |
| Blacksmith | 59 | 32 | 14 | 5 | 6 | 8 |
| Haw Branch | 59 | 21 | 36 | 6 | 44 | 15 |
| Camp Easter/Aiken | 59 | 41 | 24 | 15 | 22 | 24 |
| Peanut Plant | 58 | 36 | 38 | 10 | 23 | 26 |
| 2nd Street | 59 | 34 | 60 | 24 | 208 | 118 |
| School Road | 60 | 13 | 34 | 10 | 37 | 5 |
| Grays Creek Church | 60 | 13 | 26 | 1 | 42 | 16 |

The team performed the naïve studies with the duration factor, $r_{d}$, and traffic flow adjustment factor, $\mathrm{r}_{\mathrm{tf}}$. The duration factor used the ratio of before and after time periods to adjust for different durations before and after superstreet installation. The traffic flow adjustment factor used the ratio of HSM rural unsignalized intersection SPFs for the before and after periods. The team used the ratio of SPFs instead of a simple AADT proportionality for $r_{t f}$ because the HSM SPFs are more robust functions that take more into account than the simple AADT proportionality. Due to time and resource constraints, the team was only able to conduct a calibration study on unsignalized sites. Therefore, signalized intersections used the unsignalized SPF for consistency.

The SPFs used AADTs taken from NCDOT traffic volume maps. A weighted average of AADTs was used in the before period and after period where possible, and where impossible, linear regression was used to estimate before or after volumes because it generally fit most trends. The superstreets in Leland were not included in the naïve study because huge development in that area occurred along with the implementation of the superstreets. It is not a fair study to analyze the Leland superstreets without taking into account the change in traffic patterns that affected the safety of the sites. Equations 3.4 and 3.5 show the $r_{d}$ and $r_{t f}$ calculations, respectively. Table 3.6 shows the naïve method results for each superstreet by total collisions, and Table 3.7 shows the results by collision type. A negative value in the table indicates a reduction in the number of collisions, and a positive value indicates an increase in the number of collisions.

Equation $3.4 \quad r_{d}=\frac{\text { duration of after period }}{\text { duration of before period }}$

Equation 3.5 $\quad \mathbf{r}_{\mathbf{f f}}=\frac{\mathrm{f} \text { (average traffic flows for the after period) }}{\mathrm{f} \text { (average traffic flows for the before period) }}$
Table 3.6. Naïve Method Results for Individual Superstreets - Total Collisions

| Superstreet | Impact (\%) | St. dev. (\%) |
| :--- | :---: | :---: |
| Signalized superstreets |  |  |
| US-15/501 and Erwin Rd/Europa Dr | 25.2 | 25.7 |
| US-421 and SR-2501 | $-26.1^{*}$ | 21.0 |
| Unsignalized superstreets | $-54.6^{*}$ | 19.5 |
| US-17 and Mt Pisgah Rd/SR-1130 | $-55.7^{*}$ | 18.3 |
| US-17 and Ocean Isle Beach Rd/SR-1184 | $-31.7^{*}$ | 18.1 |
| US-74 and Red Bank Rd/Old Balsam Rd corridor | -32.6 | 40.3 |
| US-74/441 and Barkers Creek Rd/SR-1392 | -11.9 | 52.7 |
| US-74/441 and Dicks Creek Rd/SR-1388 | $-53.1^{*}$ | 33.1 |
| US-74 and Elmore Rd/SR-1321 | $-31.9^{*}$ | 33.7 |
| US-74/76 and Blacksmith Rd/SR-1800 | $-61.0^{*}$ | 17.3 |
| NC-24 and Haw Branch Rd/SR-1230 | -22.7 | 26.3 |
| US-1 and Camp Easter Rd/SR-1853 | $-49.4^{*}$ | 18.6 |
| NC-87 and Peanut Plant Rd/SR-1150 | $-35.4^{*}$ | 17.1 |
| NC-87/24 and 2nd St | 7.6 | 39.8 |
| NC-87 and School Rd/Butler Nursery Rd | $-84.2^{*}$ | 15.4 |
| NC-87 and Grays Creek Church Rd/Alderman Rd |  |  |

* Denotes a significant difference of at least one standard deviation from zero.

Table 3.7. Naïve Method Results

| Collision type | All |  | Signalized |  | Unsignalized |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\underset{\%}{\text { Impact }}$ | $\begin{gathered} \text { St. dev } \\ \% \end{gathered}$ | $\underset{\%}{ } \text { Impact }$ | $\begin{gathered} \text { St. dev } \\ \% \\ \hline \end{gathered}$ | $\underset{\%}{\text { Impact }}$ | $\begin{gathered} \text { St. dev } \\ \% \end{gathered}$ |
| Total | -26.2* | 8.5 | -1.0 | 18.1 | -34.3* | 9.2 |
| Fatal and injury | -53.4* | 7.7 | -35.0* | 17.8 | -57.6* | 8.1 |
| Angle and right-turns | -69.8* | 6.7 | 102.5* | 61.3 | -86.4* | 4.3 |
| Rear-end | 7.1 | 15.7 | -10.0 | 18.6 | 22.2 | 25.0 |
| Sideswipe | 14.8 | 27.6 | 9.4 | 46.0 | 13.9 | 31.9 |
| Left-turns | -74.8* | 7.4 | -77.2* | 13.5 | -74.7* | 8.3 |
| Other | 14.6 | 20.7 | 80.2* | 70.3 | 8.7 | 20.9 |

* Denotes a significant difference of at least one standard deviation from zero.

The results from the naïve method for individual superstreets infer that most implementations were successful in reducing crashes. The signalized superstreet at US-421 showed a small reduction in collisions while the US-15/501 signalized superstreet showed an increase in collisions but was statistically insignificant. Eight of the 13 unsignalized superstreets significantly reduced total collisions, while the other five were statistically insignificant (four showed a reduction in collisions).

The results from the naïve method by collision type show that superstreets reduce most types of crashes. Superstreets reduced total crashes by 26 percent, fatal and injury crashes by 53 percent, and angle and right turn crashes by 70 percent. The increase in rear-end, sideswipe, and other crashes can be explained by the addition of more signals and additional vehicle maneuvers made from the side street to the median U-turn opening; even so, the predicted increases in these categories were not statistically significant. The results also show that unsignalized superstreets reduced total crashes by 34 percent, fatal and injury crashes by 58 percent, and turning crashes by approximately 80 percent ( 75 percent for left turns and 86 percent for angle and right turns). The naïve method shows that signalized superstreets reduce fatal and injury crashes by 35 percent and left-turning crashes by 77 percent. However, the results also indicate that signalized superstreets increased angle and right turn crashes by just over 100 percent. As noted earlier, findings from naïve analyses should be used with caution. For our purposes, the team used these findings to spot possible trends, and to help explain the findings of the C-G or EB methods which account for more variability in the data.

### 3.3.2 C-G Analysis

Prior to conducting C-G studies, the team calculated sample odds ratios from total collisions by individual sites, the set of all signalized sites, and the set of all unsignalized sites, to determine if the comparison sites tracked well with the superstreets. If the mean of the odds ratio was within one standard deviation of one, the collisions were assumed to track well and the comparison sites were used in the C-G study. Equation 3.6 shows the odds ratio formula. The odds ratio can only be calculated from whole years of data (i.e. partial years are not acceptable).

## Equation $3.6 \quad 0=(K * N) /(L * M) /(1+1 / L+1 / M)$

Where:

$$
\begin{aligned}
& o=\text { odds ratio for year } n, \\
& K=\text { superstreet collisions in year } n-1, \\
& L=\text { superstreet collisions in year } n, \\
& M=\text { sum of comparison site collisions in year } n-1, \text { and } \\
& N=\text { sum of comparison site collisions in year } n .
\end{aligned}
$$

The following shows an example calculation of the odds ratio for US-74/441 and Barkers Creek Road/Wilmont Road and its comparison sites. Table 3.8 shows the input data and Table 3.9 shows the calculation steps.

Table 3.8. Odds Ratio Example - Input Data

|  | Superstreet | Sum of Comparison Sites |
| :--- | :---: | :---: |
| 2003 collision data | 9 | 18 |
| 2004 collision data | 5 | 11 |
| 2005 collision data | 7 | 21 |
| 2006 collision data | 3 | 12 |

Table 3.9. Odds Ratio Example - Calculation

|  | Odds Ratio (o) |  |  |
| :---: | :---: | :---: | :---: |
|  | Formula | Calculation | Answer |
| 2003-2004 | $=(\mathrm{K} * \mathrm{~N}) /(\mathrm{L} * \mathrm{M}) /(1+1 / \mathrm{L}+1 / \mathrm{M})$ | $=(9 * 11) /(18 * 5) /(1+1 / 18+1 / 5)$ | 0.876 |
| 2004-2005 | $=(\mathrm{K} * \mathrm{~N}) /(\mathrm{L} * \mathrm{M}) /(1+1 / \mathrm{L}+1 / \mathrm{M})$ | $=(5 * 21) /(11 * 7) /(1+1 / 11+1 / 7$ | 1.105 |
| 2005-2006 | $=(\mathrm{K} * \mathrm{~N}) /(\mathrm{L} * \mathrm{M}) /(1+1 / \mathrm{L}+1 / \mathrm{M})$ | $=(7 * 12) /(21 * 3) /(1+1 / 21+1 / 3)$ | 0.966 |
| Mean (m) | $=\left(\mathrm{o}_{03-04}+\mathrm{O}_{04-05}+\mathrm{O}_{05-06}\right) / \mathrm{n}$ | $=(0.876+1.105+0.966) / 3$ | 0.982 |
| Variance (v) | $\begin{aligned} & =\left(\left(\mathrm{o}_{03-04-\mathrm{m}}\right)^{2}+\left(\mathrm{o}_{04-05}^{-}\right.\right. \\ & \left.\mathrm{m})^{2}+\left(\mathrm{o}_{05}-06-\mathrm{m}\right)^{2}\right) /(\mathrm{n}-1) \end{aligned}$ | $\begin{aligned} & =\left((0.876-0.982)^{2}+(1.105-\right. \\ & \left.0.982)^{2}+(0.966-0.982)^{2}\right) / 2 \end{aligned}$ | 0.013 |
| Standard deviation (s) | $=(\mathrm{v} / \mathrm{n})^{0.5}$ | $=(0.013 / 3)^{0.5}$ | 0.067 |
| Within 1 standard deviation of 1.0? | Is $\mathrm{m}-\mathrm{s} \leq 1.0 \leq \mathrm{m}+\mathrm{s}$ ? | $\begin{aligned} & \text { Is } 0.982-0.067 \leq 1.0 \leq \\ & 0.982+0.067 \text { ? } \end{aligned}$ | Yes |

The team performed the odds ratio test for the set of signalized and unsignalized sites by bringing all of the construction start dates to time zero. This enabled all sites to be analyzed in one group even though the before periods varied greatly. This was possible because there were no changes in reporting thresholds that would have caused significant problems during the analysis. All sites had successful odds ratios except for NC-87 and Grays Creek Church Road/Alderman Road in Cumberland County. The team used the comparison sites in the C-G analysis for that site anyway because the mean plus the standard deviation equals 0.952 which the team assumed to be close enough. Also, the unavailability of four-legged, unsignalized, conventional intersections on divided major roadways near this superstreet made the analysis difficult. In the unsignalized analysis, the team did not include collisions before 1996 to account for collision recording changes that occurred in 1995. Table 3.10 shows the odds ratios for the signalized set, the unsignalized set, and individual superstreets.

Table 3.10. Odds Ratio Results

| Superstreet | Average <br> $\mathbf{m ( 0 )}$ | Std. dev. <br> $\mathbf{s ( 0 )}$ | Within 1 std. <br> dev.of 1.0? |
| :--- | :---: | :---: | :---: |
| Signalized sites | 0.937 | 0.173 | Yes |
| Unsignalized sites | 1.013 | 0.151 | Yes |
| US-15/501 and Erwin Rd/Europa Dr | 0.919 | 0.113 | Yes |
| US-17 Leland corridor | 0.847 | 0.473 | Yes |
| US-421 and SR-2501 | 1.108 | 0.302 | Yes |
| US-17 and Mt Pisgah Rd/SR-1130 | 0.923 | 0.393 | Yes |
| US-17 and Ocean Isle Beach Rd/SR-1184 | 0.883 | 0.162 | Yes |
| US-74 and Red Bank Rd/Old Balsam Rd corridor | 1.235 | 0.354 | Yes |
| US-74/441 and Barkers Creek Rd/SR-1392 | 0.982 | 0.067 | Yes |
| US-74/441 and Dicks Creek Rd/SR-1388 | 0.844 | 0.333 | Yes |
| US-74 and Elmore Rd/SR-1321 | 0.936 | 0.341 | Yes |
| US-74/76 and Blacksmith Rd/SR-1800 | 0.728 | 0.372 | Yes |
| NC-24 and Haw Branch Rd/SR-1230 | 0.792 | 0.395 | Yes |
| US-1 and Camp Easter Rd/SR-1853 | 1.349 | 1.144 | Yes |
| NC-87 and Peanut Plant Rd/SR-1150 | 1.147 | 0.577 | Yes |
| NC-87/24 and 2 ${ }^{\text {nd }}$ St | 1.042 | 0.143 | Yes |
| NC-87 and School Rd/Butler Nursery Rd | 0.875 | 0.186 | Yes |
| NC-87 and Grays Creek Church Rd/Alderman Rd | 0.760 | 0.192 | No |

Figure 3.1 shows a plot of the total before collisions for US-74/441 and Barkers Creek Road/Wilmont Road and its comparison sites as an example to show if the collisions in both groups had similar trends. Figure 3.2 shows the total crashes for the signalized set of superstreets and their comparison sites in the before period using one start date. Similar to Figure 3.2, Figure 3.3 shows the crashes for the unsignalized set.


Figure 3.1. US-74/441 and Barkers Creek Road/Wilmont Road Collisions in the Before Period


Figure 3.2. Signalized Superstreet and Comparison Site Collisions in the Before Period


Figure 3.3. Unsignalized Superstreet and Comparison Site Collisions in the Before Period
The team conducted C-G studies on individual superstreets, the signalized set of superstreets, and the unsignalized set of superstreets. Conventional Hauer symbology and methodology were used in the evaluation (50). The following is an example of a C-G analysis using total collisions from US-74/441 and Barkers Creek Road/Wilmont Road and its comparison sites. The input data are as follows: $\mathrm{K}=28, \mathrm{~L}=3, \mathrm{M}=83, \mathrm{~N}=5$, Variance $(\mathrm{o})=0.013$. Table 3.11 shows the calculations.

Table 3.11. C-G Method Example - Total Collisions

| Step | Formula | Calculation | Answer |
| :---: | :---: | :---: | :---: |
| $\lambda$ | =L | = 3 | 3 |
| $\mathrm{r}_{\mathrm{c}}$ | $=(\mathrm{N} / \mathrm{M}) /(1+1 / \mathrm{M})$ | $=(5 / 83) /(1+1 / 83)$ | 0.06 |
| $\pi$ | $=\mathrm{r}_{\mathrm{c}} * \mathrm{~K}$ | $=0.06 * 28$ | 1.67 |
| Variance( $\lambda$ ) | $=$ L | = 3 | 3 |
| Variance( $\omega$ ) | $\begin{aligned} & =\text { Variance }(0)-(1 / \mathrm{K}+1 / \mathrm{L}+1 / \mathrm{M}+ \\ & 1 / \mathrm{N})>0,0 \text { otherwise } \end{aligned}$ | $\begin{aligned} & =0.013-(1 / 28+1 / 3+1 / 83+ \\ & 1 / 5)>0,0 \text { otherwise } \end{aligned}$ | 0 |
| Variance ( $\mathrm{r}_{\mathrm{t}}$ )/ $\mathrm{r}_{\mathrm{t}}^{2}$ | $=1 / \mathrm{M}+1 / \mathrm{N}+\operatorname{Variance}(\omega)$ | $=1 / 83+1 / 5+0$ | 0.212 |
| Variance ( $\pi$ ) | $=\pi^{2}\left(1 / \mathrm{K}+\operatorname{Variance}\left(\mathrm{r}_{\mathrm{t}}\right) / \mathrm{r}_{\mathrm{t}}^{2}\right)$ | $=1.67^{2}(1 / 28+0.212)$ | 0.69 |
| $\delta$ | $=\pi-\lambda$ | = 1.67-3 | -1.3 |
| $\theta$ | $=(\lambda / \pi) /\left(1+\operatorname{Variance}(\pi) / \pi^{2}\right)$ | $=(3 / 1.67) /\left(1+0.69 / 1.67^{2}\right)$ | 1.44 |
| Variance( $\delta$ ) | $=\operatorname{Variance}(\pi)+$ Variance $(\lambda)$ | $=0.69+3$ | 3.69 |
| Variance( $\theta$ ) | $\begin{aligned} & =\theta^{2}\left(\text { Variance }(\lambda) / \lambda^{2}+\operatorname{Variance}(\pi) / \pi^{2}\right) \\ & /\left(1+\operatorname{Variance}(\pi) / \pi^{2}\right)^{2} \end{aligned}$ | $\begin{aligned} & =1.44^{2}\left(3 / 3^{2}+0.69 / 1.67^{2}\right) / \\ & \left(1+0.69 / 1.67^{2}\right)^{2} \end{aligned}$ | 0.78 |
| Standard deviation( $\delta$ ) | $=\operatorname{Variance}(\delta)^{0.5}$ | $=3.69^{0.5}$ | 1.92 |
| Standard deviation $(\theta)$ | $=$ Variance $(\theta){ }^{0.5}$ | $=0.78^{0.5}$ | 0.88 |

## Where:

$\lambda=$ Actual number of after period crashes,
$r_{c}=$ Ratio of expected number of after collisions to the expected number of before collisions on the comparison group (comparison ratio),
$\pi=$ Predicted number of after period crashes had the treatment not been in place,
$\delta=$ Reduction in the expected frequency of collisions in the after period, and
$\theta=$ Ratio of what safety was with the treatment to what it would have been without the treatment (Index of effectiveness).

Table 3.12 shows the C-G results for the individual superstreets. Due to sample size, individual superstreets were only analyzed for total collisions. Note that a negative impact value indicates a reduction in collisions.

Table 3.12. C-G Method Results for Individual Superstreets - Total Collisions

| Superstreet | Impact (\%) | St. dev. (\%) |
| :--- | :---: | :---: |
| Signalized superstreets |  |  |
| US-15/501 and Erwin Rd/Europa Dr | $94.7^{*}$ | 51.2 |
| US-17 Leland corridor | $158.8^{*}$ | 127.6 |
| US-421 and SR-2501 | -27.9 | 30.3 |
|  |  |  |
| Unsignalized superstreets | $-42.6^{*}$ | 29.6 |
| US-17 and Mt Pisgah Rd/SR-1130 | -10.7 | 45.9 |
| US-17 and Ocean Isle Beach Rd/SR-1184 | $-71.3^{*}$ | 14.4 |
| US-74 and Red Bank Rd/Old Balsam Rd corridor | 44.3 | 88.1 |
| US-74/441 and Barkers Creek Rd/SR-1392 | 19.5 | 73.1 |
| US-74/441 and Dicks Creek Rd/SR-1388 | $-47.2^{*}$ | 37.1 |
| US-74 and Elmore Rd/SR-1321 | $-77.1^{*}$ | 12.6 |
| US-74/76 and Blacksmith Rd/SR-1800 | $-68.7^{*}$ | 16.5 |
| NC-24 and Haw Branch Rd/SR-1230 | $-87.7^{*}$ | 5.0 |
| US-1 and Camp Easter Rd/SR-1853 | $-87.2^{*}$ | 6.7 |
| NC-87 and Peanut Plant Rd/SR-1150 | $-31.2^{*}$ | 17.9 |
| NC-87/24 and 2nd St | $77.9^{\text {St }}$ | 84.5 |
| NC-87 and School Rd/Butler Nursery Rd | $-90.8^{*}$ | 8.7 |
| NC-87 and Grays Creek Church Rd/Alderman Rd |  |  |

* Denotes a significant difference of at least one standard deviation from zero.

The results from the individual superstreets show that unsignalized superstreet installations were successful. Ten superstreets showed a reduction in collisions with nine of those being statistically significant. Of those ten, six superstreets had a reduction in collisions of 65 percent or greater. Three unsignalized sites showed a decrease in safety, but those sites were also not statistically different from zero. The signalized sites did not appear as successful; however, the signalized superstreet analysis is limited because each site has issues. US-15/501 and Erwin Road/Europa Drive is affected by spillback from the downstream conventional intersection and the design does not allow major left turns, the US-17 superstreet was built with a large development which affected the before/after study results, and the US-421 site has flashing yellow arrows for major left turns and U-turns, a characteristic unique to that signalized superstreet.

The team analyzed the signalized and unsignalized set of superstreets using different collision types: total, fatal and injury, angle and right turns, rear-end, sideswipes, left turns, and other. Right turn collisions were included with angles because most crashes reported as right turns could also be categorized as angle crashes. Left turn collisions could be reported as 'Left Turn, Same Roadway' or 'Left Turn, Different Roadways', and were combined together in one category because the collision types were indistinguishable in the collision reports. The team separated left turn collisions from angle and right turn collisions because there was a distinguishable difference between the two categories in the collision reports. Table 3.13 shows the C-G results for the signalized and unsignalized set of superstreets. Note that a negative impact value indicates a reduction in collisions.

Table 3.13. C-G Method Results for Signalized and Unsignalized Superstreets

| Collision Type | Signalized Set |  | Unsignalized Set |  |
| :--- | :---: | :---: | :---: | :---: |
|  | Impact (\%) | Std. dev. (\%) | Impact (\%) | Std. dev. (\%) |
| Total | $110.9^{*}$ | 35.1 | $-46.2^{*}$ | 8.0 |
| Fatal and injury | $108.5^{*}$ | 47.1 | $-62.7^{*}$ | 6.9 |
| Angles and right turns | $266.1^{*}$ | 114.9 | $-74.5^{*}$ | 7.8 |
| Rear ends | $192.6^{*}$ | 54.8 | -0.6 | 24.2 |
| Sideswipes | $48.2^{*}$ | 54.1 | -13.3 | 29.6 |
| Left turns | $-56.1^{*}$ | 20.3 | $-59.4^{*}$ | 12.4 |
| Other | $59.0^{*}$ | 53.3 | -14.6 | 18.2 |

* Denotes a significant difference of at least one standard deviation from zero.

The results show that unsignalized superstreets reduced collisions in every category. Total collisions were reduced by 46 percent and fatal and injury collisions by 63 percent. Angle and right turn collisions were reduced the most at 75 percent. The results also indicate that signalized superstreets generally increased collisions. Total collisions increased by approximately 111 percent and fatal and injury collisions by 109 percent. However, the signalized sites had study issues that limited the usefulness of their analysis as noted above.

### 3.3.3 EB Method

The team analyzed unsignalized superstreets using the EB method to account for RTM because these sites were primarily installed for safety reasons. The EB method can be applied to the naïve and C-G analyses (known hereafter as "EB naïve" and "EB C-G"). The team followed the EB naïve method as described in Chapter 9 of the HSM (51), and the EB C-G method as described by Hauer (50). Each analysis type and the results are discussed below.

### 3.3.3.1 EB Naïve

Chapter 9 of the HSM provides a 14-step approach to the EB naïve method (51). The necessary input data include duration of the before and after periods, number of before and after collisions, and major and minor traffic volumes. The SPF also uses an overdispersion parameter (given by the model), appropriate AMFs, and a calibration factor that the team calculated previously. The steps have been repeated below:

1. Calculate the predicted crash frequency, $\mathrm{N}_{\text {pre- }}$, for each site in the before period using SPFs and AMFs.
2. Calculate the expected crash frequency, $\mathrm{N}_{\text {exp-B}}$, for each site in the before period using $\mathrm{N}_{\text {pre- }}$ and a weighting factor, w . The weighting factor is a function of the SPF overdispersion parameter and $\mathrm{N}_{\text {pre-B }}$ that combines the two into a weighted average.
3. Calculate the predicted crash frequency, $\mathrm{N}_{\text {pre-A }}$, for each site in the after period.
4. Calculate the adjustment factor, $r$, at each site to account for differences between the before and after periods in duration and traffic volume.
5. Calculate the expected crash frequency, $\mathrm{N}_{\text {exp-A }}$, for each site in the after period as if the treatment had not been in place. $\mathrm{N}_{\text {exp-A }}$ is a function of $\mathrm{N}_{\text {exp-B }}$ and r .
6. Calculate an odds ratio at each site. The odds ratio is an estimate of the safety effectiveness of the superstreet and is a function of the observed after period collisions and $\mathrm{N}_{\text {exp-A }}$.
7. Calculate the safety effectiveness as a percentage crash change at each site. This is a function of the odds ratio.
8. Calculate the overall effectiveness of the superstreet, in the form of an odds ratio, for all sites combined.
9. Calculate a factor to adjust the odds ratio from Step 8 because it may be potentially biased. The factor is in terms of the variance of $\mathrm{N}_{\text {exp-A }}$.
10. Calculate the unbiased safety effectiveness, $\theta$, as a percentage change in crash frequency across all sites.
11. Calculate the variance of the odds ratio from Step 8.
12. Calculate the standard deviation of the odds ratio from Step 8.
13. Calculate the standard deviation of $\theta$ from Step 10.
14. Assess the statistical significance of $\theta$ to determine if it is significant or not significant at least one standard deviation from zero.

The team used these steps to analyze unsignalized superstreets. Tables 3.14 and 3.15 show the results for unsignalized superstreets individually and as a whole, respectively. Due to sample size, individual superstreets were only analyzed for total collisions. Note that a negative impact value indicates a reduction in collisions.

Table 3.14. EB Naïve Results for Individual Unsignalized Superstreets

| Superstreet | Impact (\%) | Std. dev. (\%) |
| :--- | :---: | :---: |
| US-17 and Mt Pisgah Rd/SR-1130 | $-50.6^{*}$ | 19.6 |
| US-17 and Ocean Isle Beach Rd/SR-1184 | $-49.1^{*}$ | 19.0 |
| US-74 and Red Bank Rd/Old Balsam Rd corridor | -22.9 | 11.9 |
| US-74/441 and Barkers Creek Rd/SR-1392 | $-25.3^{2}$ | 46.0 |
| US-74/441 and Dicks Creek Rd/SR-1388 | -7.7 | 57.8 |
| US-74 and Elmore Rd/SR-1321 | $-49.3^{*}$ | 38.5 |
| US-74/76 and Blacksmith Rd/SR-1800 | $-20.8^{*}$ | 41.8 |
| NC-24 and Haw Branch Rd/SR-1230 | $-51.2^{*}$ | 21.7 |
| US-1 and Camp Easter Rd/SR-1853 | -4.1 | 31.7 |
| NC-87 and Peanut Plant Rd/SR-1150 | $-42.8^{*}$ | 20.4 |
| NC-87/24 and 2nd St | $-28.4^{*}$ | 17.3 |
| NC-87 and School Rd/Butler Nursery Rd | 35.1 | 49.0 |
| NC-87 and Grays Creek Church Rd/Alderman Rd | $-81.2^{*}$ | 19.5 |

* Denotes a significant difference of at least one standard deviation from zero.

Table 3.15. EB Naïve Results for Unsignalized Superstreets

| Collision type | Impact (\%) | Std. dev. (\%) |
| :--- | :---: | :---: |
| Total | $-27.2^{*}$ | 24.5 |
| Fatal and injury | $-51.0^{*}$ | 26.0 |
| Angles and right turns | $-85.9^{*}$ | 15.4 |
| Rear ends | 12.4 | 71.3 |
| Sideswipes | -11.5 | 81.5 |
| Left turns | $-76.1^{*}$ | 26.4 |
| Other | 8.4 | 62.6 |

* Denotes a significant difference of at least one standard deviation from zero.

The EB naïve results for the individual unsignalized superstreets showed a collision reduction at all 13 sites, except for one site that was not statistically significant. NC-87 and Grays Creek Church Road/Alderman Road showed the largest crash reduction at 81 percent. Six sites showed reductions in collisions that were statistically significant.

The EB naïve results for unsignalized superstreets as a group indicate that the superstreet significantly reduced total crashes by 27 percent and fatal and injury crashes by over 50 percent. Unsignalized superstreets had a tremendous impact on turning collisions with a reduction of 86 percent on angles and right turn crashes and 76 percent on left turn crashes. Estimated changes in rear end, sideswipe, and other collisions were not statistically significant.

The team observed that the US-74 and Red Bank/Old Balsam corridor had 82 of the 176 total collisions in the after period. Because of this site's potential impact on the group results in Table 3.15 , the team conducted the analysis again excluding the site. Table 3.16 shows the comparison between the EB naïve method results with and without the US-74 corridor. The team determined that the US-74 and Red Bank/Old Balsam corridor did not have an overwhelming effect on the EB naïve analysis.

Table 3.16. EB Naïve Results for Total Collisions with and without US-74 and Red Bank/Old Balsam Corridor

|  | Impact (\%) | Std. dev. (\%) |
| :--- | :---: | :---: |
| With US-74 corridor | -27.2 | 6.8 |
| Without US-74 corridor | -30.9 | 27.6 |

The EB naïve method is described by two sources: the HSM and Ezra Hauer (50, 51). The team chose to use the HSM method because it uses a clear step-by-step approach, it is the later source, and with the HSM's publication, it will likely become the premier source for all safety analyses in the United States. However, the team wanted to compare the results of the HSM EB naïve method with Hauer's EB naïve method to confirm the validity of the results. Table 3.17 shows the comparison between the two methods for total collisions.

Table 3.17. Comparison of EB Naïve Results for Total Collisions between HSM and Hauer Methods

| Collision type | HSM |  | Hauer |  |
| :--- | :---: | :---: | :---: | :---: |
|  | Impact (\%) | Std. dev. (\%) | Impact (\%) | Std. dev. (\%) |
| Total | -27.2 | 6.8 | -29.1 | 11.0 |
| Fatal and injury | -51.0 | 7.2 | -53.0 | 10.0 |
| Angles and right turns | -85.9 | 4.3 | -86.5 | 4.4 |
| Rear ends | 12.4 | 19.8 | 12.4 | 22.2 |
| Sideswipes | -11.5 | 22.6 | -8.1 | 23.4 |
| Left turns | -76.1 | 7.3 | -77.6 | 7.5 |
| Other | 8.4 | 17.4 | 4.8 | 21.6 |

Table 3.17 shows that the two methods produce similar results for all collision types. The largest difference between results was 3.4 percent for the other collision category. All collision types had the same effect in regards to a reduction or an increase in collisions. This similarity of results between the two methods indicates that the results are valid.

### 3.3.3.2 EB C-G

The team used Hauer's multivariate regression method in the EB C-G analysis because it should account for RTM as well as seasonality, historical trends, and other factors that the C-G method attempted to account for. However, the HSM does not include this type of analysis. The multivariate regression method uses an SPF to estimate $\kappa$, the expected number of crashes in the before period, to compare with the observed collisions in the before period. The necessary input data included observed collisions for treatment sites and comparison sites in the before and after period and major and minor traffic volumes in the before period for the treatment sites. The SPFs also used appropriate AMFs and a calibration factor. Guided by Hauer (51) the team used the following steps to complete the EB C-G analysis:

1. Calculate $r_{c}$, a ratio of collisions for the comparison sites.
2. Calculate $\kappa$, the expected number of collisions for the treatment site in the before period. This uses the SPF, appropriate AMFs, and the calibration factor.
3. Calculate the variance of $\kappa$. This step involves finding the residual and difference between $\kappa$ and the observed value, and then fitting a model to those differences. The team chose to use a linear regression to find variance of $\kappa$; however, any model that links $\kappa$ to the difference is appropriate.
4. Calculate $\alpha$, a weighting factor between zero and one that weights the model prediction with the observed collisions.
5. Calculate $\mathrm{E}(\kappa \mid \mathrm{K})$, the expected number of crashes when it is given that the site recorded K observed collisions. This takes into account $\alpha$ which specifies how important the model is compared to the observed collisions.
6. Calculate $\pi$, the expected number of crashes in the after period had there not been treatment.
7. Calculate $\delta$, the reduction in the expected frequency of collisions
8. Calculate $\theta$, the index of effectiveness.

Tables 3.18 and 3.19 show the results for unsignalized superstreets individually and as a whole, respectively. Due to sample size, individual superstreets were only analyzed for total collisions. Note that a negative impact value indicates a reduction in collisions.

Table 3.18. EB C-G Results for Individual Unsignalized Superstreets

| Superstreet | Impact (\%) | Std. dev. (\%) |
| :--- | :---: | :---: |
| US-17 and Mt Pisgah Rd/SR-1130 | $-68.6^{*}$ | 8.2 |
| US-17 and Ocean Isle Beach Rd/SR-1184 | $-93.1^{*}$ | 2.0 |
| US-74 and Red Bank Rd/Old Balsam Rd corridor | $-94.8^{*}$ | 1.6 |
| US-74/441 and Barkers Creek Rd/SR-1392 | 13.0 | 67.7 |
| US-74/441 and Dicks Creek Rd/SR-1388 | -13.0 | 52.8 |
| US-74 and Elmore Rd/SR-1321 | $-44.6^{*}$ | 38.2 |
| US-74/76 and Blacksmith Rd/SR-1800 | $-84.8^{*}$ | 8.2 |
| NC-24 and Haw Branch Rd/SR-1230 | $-97.3^{*}$ | 0.6 |
| US-1 and Camp Easter Rd/SR-1853 | $-94.9^{*}$ | 1.4 |
| NC-87 and Peanut Plant Rd/SR-1150 | $-97.4^{*}$ | 0.8 |
| NC-87/24 and 2nd St | $-90.4^{*}$ | 3.3 |
| NC-87 and School Rd/Butler Nursery Rd | $-87.2^{*}$ | 3.0 |
| NC-87 and Grays Creek Church Rd/Alderman Rd | $-98.2^{*}$ | 0.7 |

* Denotes a significant difference of at least one standard deviation from zero.

Table 3.19. EB C-G Results for Unsignalized Superstreets

| Collision type | Impact (\%) | Std. dev. (\%) |
| :--- | :---: | :---: |
| Total | $-73.7^{*}$ | 13.2 |
| Fatal and injury | $-85.2^{*}$ | 7.2 |
| Angles and right turns | $-78.0^{*}$ | 9.3 |
| Rear ends | $-16.3^{*}$ | 29.1 |
| Sideswipes | $-35.9^{*}$ | 24.8 |
| Left turns | $-66.5^{*}$ | 12.9 |
| Other | $-27.1^{*}$ | 23.0 |

* Denotes a significant difference of at least one standard deviation from zero.

The results from the EB C-G method show that unsignalized superstreets as a whole reduced all types of collisions. Total, fatal and injury, and turning (angle and right turns and left turns) crashes were all reduced by over 65 percent. A reduction in rear end collisions was the only type that was not statistically significant. The EB C-G analysis for individual unsignalized superstreets showed that all of the superstreets either had a significant reduction in collisions or were not statistically significant. Nine of the 13 superstreets had a reduction in collisions of 85 percent or greater. Only one superstreet showed a small increase in collisions but it was not statistically significant.

As noted above, the US-74 and Red Bank/Old Balsam corridor had 82 of the 176 total treatment collisions in the after period. Because of this site's potential impact on the results, the team conducted the analysis again excluding the site. Table 3.20 shows the comparison between the EB C-G method results with and without the US-74 and Red Bank/Old Balsam corridor. The
team determined that the US-74 and Red Bank/Old Balsam corridor did not have an overwhelming effect on the EB C-G analysis.

Table 3.20. EB C-G Results for Total Collisions with and without US-74 and Red Bank/Old Balsam Corridor

|  | Impact (\%) | Std. dev. (\%) |
| :--- | :---: | :---: |
| With US-74 corridor | -73.7 | 13.2 |
| Without US-74 corridor | -71.9 | 14.1 |

### 3.3.4 Supplemental Collision Rate Analysis

The team used the Highway Safety Manual (HSM) collision prediction model to calculate expected collisions for signalized and unsignalized superstreets that did not have comparable before and after periods. This analysis provided collision predictions for the superstreets as if they were conventional one-way stop-controlled intersections. The superstreets selected for this analysis are along US-1, US-17, and US-601 in North Carolina. The US-601 superstreets in Monroe County were implemented in conjunction with a two- to four-lane conversion. The US1 sites in Moore and Lee Counties were newly constructed sites and had no before period. The Lanvale Road and Brunswick Forest Parkway superstreet intersections on US-17 in Brunswick County were implemented in conjunction with signalization. Finally, the Sidbury Road and Scotts Hill Loop Road superstreet intersections on US-17 in Pender County were constructed in conjunction with a three- to four-lane conversion. Although the HSM does have a signalized intersection prediction model, the team used the unsignalized intersection prediction model on the signalized as well as the unsignalized sites due to time and cost constraints. To use the signalized intersection prediction model, the team would have had to calibrate the signalized HSM model as well. Table 3.21 shows the HSM collision prediction model results by severity level. Note that a negative difference indicates fewer collisions occurred in the after period than what the model predicted would have occurred if a conventional stop-controlled intersection was in place.

Table 3.21. Collision Rate Comparison by Severity Level (crashes/year)

| Main road | Cross street | County | Total |  |  | Fatal \& injury |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Observed | Predicted | Diff. (\%) | Observed | Predicted | Diff. (\%) |
| Signalized superstreets |  |  |  |  |  |  |  |  |
| US-17 | Lanvale Rd | Brunswick | 6.00 | 15.66 | -9.66 (-161\%) | 4.80 | 7.07 | -2.27 (-47\%) |
| US-17 | Brunswick Forest Pkwy | Brunswick | 6.00 | 9.96 | -3.96 (-66\%) | 1.20 | 4.21 | -3.01 (-251\%) |
| US-17 | Sidbury Rd | Pender | 20.90 | 16.49 | 4.41 (21\%) | 5.81 | 7.54 | -1.73 (-30\%) |
| US-17 | Scotts Hill Loop Rd | Pender | 15.10 | 15.34 | -0.24 (-2\%) | 5.81 | 6.93 | -1.12 (-19\%) |
| Unsignalized superstreets |  |  |  |  |  |  |  |  |
| US-1 | Cranes Creek Rd (SR-1825) | Moore | 2.00 | 1.74 | 0.26 (13\%) | 0.67 | 0.76 | -0.09 (-13\%) |
| US-1 | $\begin{aligned} & \text { Cedar Lane Rd } \\ & \text { (SR-1182) } \end{aligned}$ | Lee | 1.67 | 1.79 | -0.12 (-7\%) | 0.00 | 0.93 | -0.93 (N/A) |
| US-601 | Marion Lee Rd (SR-2105) | Union | 0.00 | 1.05 | -1.05 (N/A) | 0.00 | 0.44 | -0.44 (N/A) |
| US-601 | Eudy Rd (SR-2204) | Union | 0.00 | 1.10 | -1.10 (N/A) | 0.00 | 0.47 | -0.47 (N/A) |
| US-601 | Carl Funderburk (SR-1950) | Union | 0.00 | 0.87 | -0.87 (N/A) | 0.00 | 0.33 | -0.33 (N/A) |
| US-601 | Griffin Cemetery Rd (SR-1971) | Union | 2.00 | 1.42 | 0.58 (29\%) | 0.00 | 0.59 | -0.59 (N/A) |
| US-601 | Hargette Rd (SR-1939) | Union | 0.00 | 1.27 | -1.27 (N/A) | 0.00 | 0.52 | -0.52 (N/A) |
| US-601 | Ervin Thomas Rd (SR-2112) | Union | 0.00 | 2.18 | -2.18 (N/A) | 0.00 | 2.57 | -2.57 (N/A) |
| US-601 | Landsford Rd (SR-1005) | Union | 4.00 | 1.99 | 2.01 (50\%) | 2.00 | 0.88 | 1.12 (56\%) |

The HSM collision prediction model results show that most superstreets performed well. Nine of 13 superstreets had fewer total crashes than the model predicted. This means that if the intersection had been conventional, then these sites would likely have had more collisions. Twelve of the 13 superstreet sites performed better than conventional model predictions for fatal and injury crashes as well.

### 3.3.5 Supplemental Time-of-Day and Mile Post Analysis

The team analyzed three signalized superstreets using a time-of-day and mile post analysis because each roadway is operating uniquely. The three signalized superstreets are US-15/501 and Erwin Road/Europa Drive, US-17 and the Leland corridor, and US-17 and Lanvale Road.

### 3.3.5.1 US-15/501 and Erwin Road/Europa Drive

The team created a collision diagram of the superstreet at US-15/501 in Chapel Hill because it was the first implementation of a signalized superstreet and some people perceive the site to have safety problems. This superstreet is also the only signalized design in North Carolina that does not allow direct left turns from the major roadway. Major left turns are instead directed through downstream directional crossovers. The team was concerned that this type of design would have a negative safety impact because of the longer driving distances, higher U-turning volumes, and possible driver confusion. Figures 3.4 and 3.5 show the collision diagrams for the before and after cases, respectively. As expected, the large majority of collisions in the before period were near the intersection. With the superstreet in the after period, the collisions are spread out and no longer centrally located. However, the team did notice an unusually high number of collisions in the after period near the north crossover involving northbound vehicles: 15 crashes in the before period and ten in the after period. With 90 months making up the before period, and only 18 months in the after period, this over involvement in the after period led to further analysis. The team went over the collision reports for all ten northbound crashes near the north crossover in the after period; the following is a summary of our findings:

- Eight collisions were rear ends and two were sideswipes,
- The two sideswipe collisions were an attempt by the driver to reduce impact (so were essentially rear end collisions as well),
- Seven collisions explicitly say in the collision report that the first vehicle was stopped due to traffic ahead, and
- Eighty percent of collisions occurred during a lunch or PM peak hour.

The team concluded that these ten collisions were not the result of the superstreet at US-15/501 and Erwin Road/Europa Drive, but rather a failure of the conventional downstream intersection at US-15/501 and Sage Road/Old Durham Road to process its demand. The team recommends that the downstream intersection be analyzed for superstreet conversion because the progression benefits of a superstreet corridor would likely prevent the spillover that currently exists.

The team also conducted a second C-G analysis without crossover collisions on the northbound or southbound side. These included northbound collisions between the intersection and the northern crossover and southbound collisions between the intersection and the southern crossover. The results showed an increase of 28.5 percent of total crashes in the after period with a standard deviation of 40.2 percent. Although this analysis still showed an increase in collisions, the predicted increase was less than the C-G analysis showed earlier.


Figure 3.4. US-15/501 and Erwin Road/Europa Drive Before Period Collision Diagram


Figure 3.5. US-15/501 and Erwin Road/Europa Drive After Period Collision Diagram

### 3.3.5.2 US-17 and the Leland Corridor

The team conducted a time-of-day and mile post analysis on the Leland corridor because the superstreets were implemented in conjunction with a large development, and the type of traffic control changed from the before to the after period. The development influenced both traffic volumes and collision data which prevented a fair before and after evaluation with a C-G method. The team analyzed data from the collision reports for both before and after crashes. The following is a summary of the findings:

- Before scenario
- 42 collisions in 59 months
- 36 percent of crashes were turning related (e.g. left turn or angle)
- 17 percent of crashes were rear end related
- After scenario
- 98 collisions in 34 months
- 35 percent of crashes were turning related
- 52 percent of crashes were rear end related

The installation of signals and the large development severely impacted the safety of the corridor. Therefore, the team was unable to determine the impact the superstreet installation itself had on safety in the corridor.

### 3.3.5.3 US-17 and Lanvale Road

Again, the team conducted a time-of-day and mile post analysis on the Lanvale Road superstreet because the type of traffic control changed from stop signs in the before to signals in the after period. The team analyzed data from the collision reports for both before and after crashes. The team concluded that the superstreet is functioning well because of the very small number of crashes. Also, four of the five collisions were rear end related which is generally an indicator of a signalized intersection and not necessarily indicative of a superstreet. The following is a summary of the findings:

- Before scenario
- 36 collisions in 59 months
- 36 percent of collisions were turning related
- 28 percent of collisions were rear end related
- After scenario
- 5 collisions in 10 months
- 80 percent of collisions were rear end related
- 20 percent were turning related


### 3.3.6 Supplemental SSAM Analysis

SSAM is a microsimulation tool that counts the frequency of conflicts within a model run. Conflicts occur when different road users will likely collide without evasive action. SSAM counts four types of conflicts-rear end, lane-change, crossing, and unclassified-based on the angle between the two vehicles involved. A SSAM niche is that it can be applied to designs that have not been built because it does not require the collection or assessment of police-reported crashes. Although not in the project proposal, the team used SSAM to analyze the three
signalized superstreets that were previously calibrated and validated for travel time studies in VISSIM as described in Chapter 2. These superstreets are located at US-15/501 and Erwin Road/Europa Drive, US-17 and the Leland corridor, and US-421 and SR-2501. The team also applied SSAM to the superstreets' conventional counterparts as described in Chapter 2 (conventional signalized intersections that had comparable numbers of lanes to the superstreets).

Applying SSAM to the previously calibrated and validated superstreet VISSIM models was more difficult than the team initially expected. The difficulty was in the way the team coded the VISSIM models. A strong benefit of VISSIM is that it can be coded to produce an unlimited number of design solutions; however, with that freedom, there exist an unlimited number of options for coding. The way the team coded the models was to produce travel time results, but it did not realistically depict the safety of the superstreet because of the location and number of links and connectors. For readers unfamiliar with VISSIM, links are the lanes and roadways that contain vehicles and connectors are short pieces to connect links. From the team's experience with the difficult VISSIM to SSAM crossover, the team recommends that VISSIM models should be coded with any future applications in mind so that driver behavior and crash opportunity are both more realistic.

The team analyzed each of the three sites using a range of volumes for both the conventional and superstreet geometries. The team completed ten runs in VISSIM and then input the files in SSAM to evaluate the number of conflicts. Because of the coding difficulties discussed earlier, the team chose only to evaluate the total number of conflicts and not the types of conflicts because how the team coded the VISSIM models will directly affect the type of conflicts produced. The team hoped that the relative number of conflicts would be illustrative when comparing different designs (superstreet or conventional). The total number of conflicts included all conflicts with a time to collision (TTC) less than or equal to 1.5 seconds, the standard measure for SSAM, and within 500 feet beyond the directional crossovers on the major roadway and 150 feet beyond the intersection on the minor roadway (the distances the team used for collision data collection). The corridor of signalized superstreets at US-17 in Leland was not analyzed for peak plus 40 percent volume because the conventional geometries had significant operational break down at that volume level. Table 3.22 shows the results from SSAM, as well as a ratio of conflicts to compare geometries at each site. Table 3.23 shows the comparison of actual collisions per month in the after period to SSAM conflicts for the peak volume.

Table 3.22. Total Number of Conflicts per Site from SSAM

| Site Volume Level | Peak - <br> $\mathbf{4 0 \%}$ | Peak - <br> $\mathbf{2 0 \%}$ | Peak - <br> $\mathbf{1 0 \%}$ | Peak | Peak <br> $\mathbf{+ 1 0 \%}$ | Peak <br> $\mathbf{+ 2 0 \%}$ | Peak <br> $\mathbf{+ 4 0 \%}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| US-15/501 | 366 | 1272 | 1014 | 1092 | 1832 | 1818 | 3031 |
| Conventional |  |  |  |  |  |  |  |
| US-15/501 Superstreet | 422 | 806 | 1085 | 1405 | 2244 | 2461 | 5359 |
| Ratio of Superstreet to | 1.15 | 0.63 | 1.07 | 1.29 | 1.22 | 1.35 | 1.77 |
| Conventional |  |  |  |  |  |  |  |
| US-17 Conventional | 2307 | 3947 | 4371 | 5459 | 6907 | 9262 | - |
| US-17 Superstreet | 1776 | 3500 | 4229 | 5280 | 5549 | 6581 | - |
| Ratio of Superstreet to | 0.77 | 0.89 | 0.97 | 0.97 | 0.80 | 0.71 | - |
| Conventional |  |  |  |  |  |  |  |
| US-421 Conventional | 564 | 1180 | 1608 | 1017 | 1504 | 1796 | 3438 |
| US-421 Superstreet | 248 | 652 | 743 | 1473 | 1163 | 1416 | 3382 |
| Ratio of Superstreet to | 0.44 | 0.55 | 0.46 | 1.45 | 0.77 | 0.79 | 0.98 |
| Conventional |  |  |  |  |  |  |  |

Table 3.23. Comparison of After Collisions to SSAM Conflicts

| Site | After Period Collisions per Month | SSAM Conflicts at Peak Volume |
| :--- | :---: | :---: |
| US-15/501 | 2.56 | 1405 |
| US-17 | 2.88 | 5280 |
| US-421 | 3.00 | 1473 |

The results from SSAM show that the superstreet implementation was successful in reducing conflicts at US-17 for all volumes and US-421 for most volumes. The US-17 superstreet showed a bigger reduction in conflicts as the volumes increased from the peak period which may be promising for the superstreet as traffic growth occurs. The US-15/501 superstreet did not perform as well with an increase in conflicts compared to the conventional design at most volumes. In general, the results are not consistent with other analyses of signalized superstreets. As discussed previously with the link/connector assignments, the VISSIM models were not designed specifically for SSAM, and the team would change the models if time and cost permitted; therefore, analysts should use these results with caution.

### 4.0 RESIDENT, COMMUTER, AND BUSINESS SURVEYS

Some operational and safety elements of superstreets have been evaluated; however, no information has been gathered on the perceived effects of superstreets on local drivers, commuters, and adjacent businesses. The purpose of this section of the report is to summarize feedback from users of North Carolina superstreets. This section summarizes three surveys: a residential survey to gather opinions of drivers that live near a superstreet, a survey to gather opinions of commuters driving through a superstreet on a daily basis, and a business survey to gather the perceived effects of superstreets on adjacent businesses.

### 4.1 Resident Survey

As mentioned above, one aspect of the superstreet design that has not been researched to this point is the effect on nearby residents. It is important to consider the opinions of those directly affected by the adjacent design because these residents can politically derail a superstreet proposal, and because these effects cannot be captured through traffic simulation or collision analyses. The team conducted a residential survey to gather opinion data from the taxpayers, voters, and frequent users of the adjacent superstreet intersections and corridors. The team chose to survey residents because they provide insight to the effects superstreets have on accessibility and property value. In addition, nearby residents are also frequent users of the facility who can provide insight on the navigability, travel time, and perceived delay associated with superstreets and the conventional intersections they replaced, especially concerning the side street movements. The following sections provide details on the methodology, results, and analysis of the residential opinion survey.

### 4.1.1 Methodology

### 4.1.1.1 Identification and Selection of Sites

The sites selected for the resident survey were taken from a list that included all operating superstreet intersections and corridors located in North Carolina. To get a full understanding of the public's opinion, both signalized and unsignalized sites were included in the list, encompassing both urban and rural areas. There were two major criteria used in the final site selection:

1. The superstreet must have been constructed within the past five years.
2. There must have been a comparable "before" scenario.

The reason for the first criterion was that residents might have difficulty remembering driving conditions of the previous intersection if the superstreet was constructed more than five years prior. The second criterion was imposed because it was important that the residents had something to compare to the superstreet. At a few sites there was no before scenario (i.e. no major intersection prior to the construction of the superstreet). For example, the superstreet corridor on US-17 in the town of Leland was built because of a major boom in land development in the area. This site was eliminated from the survey list because there was little development along that stretch of US-17 prior to the superstreet, so opinions on the superstreet would be difficult to separate from opinions on the new development. After reducing the list based on the
above criteria, the final list totaled ten sites including three signalized superstreets (one corridor and two intersections) and seven unsignalized superstreet intersections. Table 4.1 lists the sites selected for the survey.

Table 4.1. Sites Selected for Resident Survey

| Main Road | Cross street(s) | City | County | Type |
| :--- | :--- | :--- | :--- | :--- |
| US 15-501 | Europa Dr. / Erwin Rd. | Chapel Hill | Orange | Signalized |
| US 17 | Stephens Church <br> Rd. <br> Scotts Hill Loop <br> Rd. <br> Sidbury Rd. | Wilmington | New Hanover | Signalized |
| US 17 | Lanvale Rd. | Pender <br> Pender |  |  |
| US 17 | Mt. Pisgah Rd. / Sellers Rd. | Supply | Brunswick | Unsignalized |
| US 17 | Ocean Isle Beach Rd. | Shallotte | Brunswick | Unsignalized |
| US 74-76 | Blacksmith Rd. | Bolton | Columbus | Unsignalized |
| US 74 | Elmore Rd. | Laurinburg | Scotland | Unsignalized |
| US 74 | Dicks Creek Rd. | Whittier | Jackson | Unsignalized |
| NC 87 | Peanut Plant Rd | Elizabethtown | Bladen | Unsignalized |
| NC 24 | Haw Branch Rd. | Richlands | Onslow | Unsignalized |

### 4.1.1.2 Data Collection

The research team considered three options to collect the resident opinion data: door-to-door interviews, survey by mail to households, or collection of license plate numbers and then survey by mail to vehicle owners. The authors concluded that mail-out surveys to households would reach the greatest number of people and be the most cost effective method to obtain a large sample size. The team used a four-wave mailing method. This technique involved sending mail four different times to each randomly-selected household in approximately one-week intervals. NCDOT personnel expect response rates for mail-out and mail-back surveys with just one mailing to be around ten percent ( $10 \%$ ), but with multiple mailings the response rate should be much larger. The team calculated the required sample size for the mailings using Equation 4.1 (56).

## Equation $4.1 \quad n=t^{2} \mathbf{p q} / \mathbf{d}^{2}$

Where:

$$
\begin{aligned}
& \mathrm{n}=\text { sample size needed, } \\
& \mathrm{t}=\text { constant corresponding to the desired level of confidence, } \alpha, \\
& \mathrm{p}=\text { proportion of units answering "yes", } \\
& \mathrm{q}=\text { proportion of units answering "no", and } \\
& d=\text { percent error. }
\end{aligned}
$$

Assuming a $15 / 85$ response split on a key question in the survey, the researchers needed to receive 196 total responses to achieve a five percent error ( $\mathrm{d}=0.05$ ) at the 95 percent confidence level ( $\mathrm{t}=1.96$ ). The final sample size the team determined as necessary was 500 , which was calculated based on these parameters and an expected $40 \%$ return rate.

The researchers hired a local mailing service contractor to provide the addresses for households near the selected sites. All addresses were within a two-mile radius of the nearest superstreet location, and included both homeowners and renters. The list the researchers received contained addresses for 2,000 households $-1,000$ from the group of signalized sites and 1,000 from the group of unsignalized sites. Each group contained an equal number of addresses from each site within the group. The households receiving the survey were randomly selected using a random number generator to extract 250 names from each group for an even representation of both signalized and unsignalized superstreets. To ensure a good cross-section of the population, the team provided instructions in the mailings to have the licensed driver (at least 16 years of age) within the household who would be celebrating the next birthday to respond to the survey.

The four mailings included an initial letter describing the study, the survey packet, a reminder letter, and a final survey packet. The survey packet included a cover letter explaining the survey with instructions, the survey questions, and a return envelope with pre-paid postage. The researchers mailed the first wave of mailings in mid-June, 2009. The second, third, and fourth wave of mailings followed approximately one week apart. As the surveys were mailed back, the results were recorded in a spreadsheet along with comments expressed by the residents. Addresses were tracked to determine who responded and when the response was received. The survey consisted of twelve questions, four of which the authors identified as key questions. These questions were about perceived navigability, safety, travel time, and number of stopped vehicles. Appendix 10.3 includes sample survey letters.

### 4.1.2 Results

Approximately two months after the initial letters were mailed the team received 145 surveys back from the 500 selected households, for a $29 \%$ response rate. The three signalized sites yielded 92 responses and the eight unsignalized sites combined for 53 responses. Table 4.2 lists the number of responses the team received from each site. Table 4.3 provides the results for each question. It is important to note that not all of question responses total $100 \%$ in Table 4.3 because not all respondents answered every question. It is also likely that those who responded to the survey had strong opinions either for or against the superstreet design.

Table 4.2. Number of Responses from Each Survey Site

| Site | City | State | Type | \# of <br> Responses |
| :--- | :--- | :--- | :--- | :---: |
| US 15-501 \& Europa Dr. / Erwin Rd. | Chapel Hill | NC | Signalized | 37 |
| US 17 \& Scotts Hill Loop Rd. / Sidbury <br> Rd. | Wilmington | NC | Signalized | 38 |
| US 17 \& Lanvale Rd. | Leland | NC | Signalized | 17 |
| US 17 \& Mt. Pisgah Rd. / Sellers Rd. | Supply | NC | Unsignalized | 10 |
| US 17 \& Ocean Isle Beach Rd. | Shallotte | NC | Unsignalized | 9 |
| US 74-76 \& Blacksmith Rd. | Bolton | NC | Unsignalized | 8 |
| US 74 \& Elmore Rd. | Laurinburg | NC | Unsignalized | 3 |
| US 74 \& Dicks Creek Rd. | Whittier | NC | Unsignalized | 6 |
| NC 87 \& Peanut Plant Rd. | Elizabethtown | NC | Unsignalized | 10 |
| NC 24 \& Haw Branch Rd. | Richlands | NC | Unsignalized | 7 |

Table 4.3. Resident Survey Results by Question

| Question | Response | Signalized | Unsignalized | All |
| :---: | :---: | :---: | :---: | :---: |
| 1. How long have you, personally, lived near this intersection? | Less than 1 year 1-3 years 4-10 years More than 10 years | $\begin{gathered} \hline 3 \% \\ 22 \% \\ 43 \% \\ 32 \% \end{gathered}$ | $\begin{gathered} \hline 4 \% \\ 8 \% \\ 17 \% \\ 68 \% \\ \hline \end{gathered}$ | $\begin{gathered} \hline 3 \% \\ 17 \% \\ 34 \% \\ 45 \% \end{gathered}$ |
| 2. How often do you, personally, drive this section of road? | Daily <br> Weekly <br> Monthly <br> Few times a year | $\begin{gathered} 57 \% \\ 26 \% \\ 10 \% \\ 8 \% \end{gathered}$ | $\begin{gathered} 42 \% \\ 42 \% \\ 8 \% \\ 6 \% \end{gathered}$ | $\begin{gathered} 51 \% \\ 32 \% \\ 9 \% \\ 7 \% \end{gathered}$ |
| 3. How does navigation through the superstreet compare to a typical intersection? | Easier/less confusing <br> Same <br> More difficult/more confusing | $\begin{aligned} & 33 \% \\ & 17 \% \\ & 41 \% \end{aligned}$ | $\begin{aligned} & 38 \% \\ & 21 \% \\ & 32 \% \end{aligned}$ | $\begin{aligned} & 35 \% \\ & 19 \% \\ & 38 \% \end{aligned}$ |
| 4. Had you heard about the superstreet concept before it was built at your location? | Yes <br> No | $\begin{aligned} & 34 \% \\ & 66 \% \end{aligned}$ | $\begin{aligned} & 45 \% \\ & 53 \% \end{aligned}$ | $\begin{aligned} & 38 \% \\ & 61 \% \end{aligned}$ |
| 4 a. If yes, what was your opinion on the superstreet concept before it was built at your location? | Positive opinion <br> Neutral opinion <br> Negative opinion <br> Did not know enough | $\begin{aligned} & 26 \% \\ & 23 \% \\ & 29 \% \\ & 23 \% \\ & \hline \end{aligned}$ | $\begin{aligned} & 50 \% \\ & 17 \% \\ & 21 \% \\ & 12 \% \end{aligned}$ | $\begin{aligned} & 36 \% \\ & 10 \% \\ & 26 \% \\ & 18 \% \end{aligned}$ |
| 5. Did you live here and have your driver's license prior to the construction of the superstreet? If no, skip ahead to question 10. If yes, proceed with survey. | Yes <br> No (skip to question 10) | $\begin{gathered} 92 \% \\ 8 \% \end{gathered}$ | $\begin{aligned} & 91 \% \\ & 6 \% \end{aligned}$ | $\begin{gathered} 92 \% \\ 7 \% \end{gathered}$ |
| 6. How do you, personally, feel the superstreet has affected your ability to safely navigate the roadway compared to the previous roadway design? | Positively <br> Same <br> Negatively | $\begin{aligned} & 49 \% \\ & 28 \% \\ & 22 \% \end{aligned}$ | $\begin{aligned} & 56 \% \\ & 17 \% \\ & 23 \% \end{aligned}$ | $\begin{aligned} & 52 \% \\ & 24 \% \\ & 23 \% \end{aligned}$ |
| 7. How do you, personally, feel the superstreet has affected property values in your area? | Positively <br> Same <br> Negatively <br> Don't know - I rent | $\begin{gathered} 9 \% \\ 56 \% \\ 12 \% \\ 20 \% \end{gathered}$ | $\begin{gathered} 15 \% \\ 58 \% \\ 8 \% \\ 10 \% \end{gathered}$ | $\begin{aligned} & 11 \% \\ & 57 \% \\ & 11 \% \\ & 17 \% \end{aligned}$ |
| 8. How was travel time through this section of roadway affected during the construction period? | Less travel time No change <br> More travel time | $\begin{gathered} 1 \% \\ 24 \% \\ 74 \% \end{gathered}$ | $\begin{gathered} 4 \% \\ 44 \% \\ 48 \% \end{gathered}$ | $\begin{gathered} 2 \% \\ 31 \% \\ 65 \% \end{gathered}$ |

Table 4.3. continued

| Question | Response | Signalized | Unsignalized | All |
| :--- | :--- | :---: | :---: | :---: |
| 9. What differences, if any, have | Less travel time | $18 \%$ | $10 \%$ | $15 \%$ |
| you, personally, experienced in |  |  |  |  |
| travel time since the opening of | No change | More travel time | $51 \%$ | $32 \%$ |
| the superstreet? |  |  |  |  |

Most respondents had lived near the superstreet intersection for a long-enough time to remember the previous intersection design. Overall, the responses from males and females were evenly split. The slight difference in male/female responses between signalized and unsignalized sites was not large enough to be statistically significant. The team also received a relatively even split for the age range of respondents, with the 16-29 age group being the only exception. The results confirm there was no over-representation of any particular age group or gender.

The team tested the accuracy provided by the final sample size using Equation 4.1 for simple random sampling of proportional data. Assuming a $95 \%$ confidence level, the achieved percent error ranged from $6 \%$ to just over $8 \%$ for the four key questions in the survey. This is only slightly greater than the team's goal of staying within $5 \%$ of the mean, and still within an acceptable range for the results to show meaningful differences if they existed. Table 4.4 shows the percent error (d) achieved and the sample size that the team would need to achieve results within $5 \%$ of the mean.

Table 4.4. Value of $\mathbf{d}$ Achieved for the Key Questions

|  | Q. 3 | Q. 6 | Q. 9 | Q. 10 |
| :--- | :---: | :---: | :---: | :---: |
| Alpha | 0.05 | 0.05 | 0.05 | 0.05 |
| Actual n | 145 | 133 | 133 | 145 |
| Achieved d | 7.90 | 8.49 | 6.11 | 7.99 |
| n needed for $d=$ |  |  |  |  |
| $5 \%$ | 362 | 383 | 199 | 371 |

### 4.1.3 Analysis

The team identified four key questions from the survey - questions three, six, nine, and ten - on navigation, safety, travel time, and the number of stopped vehicles, respectively. Overall, thirtyfive percent ( $35 \%$ ) of the total respondents found navigation through a superstreet easier and less confusing compared to a typical intersection, while thirty-eight percent ( $38 \%$ ) found it more difficult and more confusing. Over half of the respondents (52\%) reported that the superstreet has a positive effect on their ability to safely navigate through the intersection, while twentythree percent $(23 \%)$ reported a negative effect. Fifteen percent (15\%) of the respondents reported less travel time negotiating the superstreet, while forty-four percent ( $44 \%$ ) reported experiencing an increase in travel time. The team further analyzed the key questions comparing responses from signalized and unsignalized superstreet sites.

### 4.1.3.1 Signalized vs. Unsignalized

The team performed a two-tailed Z-test for proportions at the $95 \%$ confidence level for the four key survey questions to compare the responses from the signalized and unsignalized sites. Table 4.5 shows the results of the tests. It should be noted that not all of the responses in the table sum to $100 \%$ because some respondents chose not to answer all of the questions. The only key question with significant proportional differences between signalized and unsignalized sites was question nine on travel time: just over half of the residents near unsignalized superstreets report no change in travel time, compared to $32 \%$ reporting no change at signalized superstreets.

Table 4.5. Comparison of Signalized and Unsignalized Survey Responses

| KEY QUESTION | Answer | Response |  | Significant difference ? |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Signalized | Unsignalize d |  |
| \#3 - How does navigation through the superstreet compare to a typical intersection? | Easier | 33\% | 38\% | No |
|  | Same | 17\% | 21\% | No |
|  | More difficult | 41\% | 32\% | No |
| \#6 - How do you, personally, feel the superstreet has affected your ability to safely navigate the roadway compared to the previous roadway design? | Positively | 49\% | 56\% | No |
|  | Same | 28\% | 17\% | No |
|  | Negatively | 22\% | 23\% | No |
| \#9 - What differences, if any, have you, personally, experienced in travel time since the opening of the superstreet? | Less TT | 18\% | 10\% | No |
|  | No change | 32\% | 52\% | Yes |
|  | More TT | 51\% | 33\% | No |
| \#10 - What differences, if any, have you, personally, noticed in the number of stopped vehicles waiting to make a safe maneuver since the opening of the superstreet? | Fewer stopped | 36\% | 38\% | No |
|  | No change | 16\% | 26\% | No |
|  | More stopped | 45\% | 28\% | No |

A reason for a high percentage of responses for increased travel time is likely due to the survey responses coming mostly from the neighborhoods located off of the side streets. More complaints regarding travel time came from the signalized superstreets as opposed to the unsignalized superstreets. One of the purposes of signalized superstreets is to improve progression for the major street through movement, and as a result minor road left turn and through traffic is required to make extra maneuvers. It is possible that motorists perceive this as an increase in travel time because of the added movement. There were many comments from the surveyed residents expressing how they feel they have to go out of their way to make a left or through movement from the side road. One of the sites with multiple complaints was the US 15501 site in Chapel Hill, NC where there is no direct left turn from the major road to the minor road (as shown in Figure 1.1).

Although not significant, another large difference in responses between the signalized and unsignalized groups was for the number of stopped vehicles (Question 10). More residents near the signalized sites ( $45 \%$ ) felt there were more stopped vehicles than near the unsignalized sites ( $28 \%$ ). The team received multiple complaints of non-compliance for the "no turn on red" signs and illegal left turns on red at the U-turn crossovers at two of the signalized sites, US-17 at Scotts Hill Loop Road and US-17 at Lanvale Road. Under North Carolina law it is illegal to make a left turn on red; therefore, drivers likely feel they are delayed unnecessarily at signalized U-turn intersections if there are acceptable gaps in the approaching traffic.

### 4.1.3.2 Signalized Sites

The team separately analyzed the answers provided for each question for both signalized and unsignalized sites. As before, a two-tailed Z-test for proportions was conducted at the $95 \%$ confidence level on the same four key questions.

Table 4.6 shows the results for the signalized sites. The responses show that navigation through a superstreet is not significantly easier or harder than a typical intersection (Question 3). However, residents felt the superstreet design positively affected their ability to safely navigate the intersection, with the results showing a significant difference between "positive" responses ( $49 \%$ ) and "negative" responses ( $22 \%$ ), and between "positive" and "the same" responses ( $28 \%$ ).

Table 4.6. Comparison of Key Survey Question Responses for Signalized Sites

| KEY QUESTIONS | Comparison |  |  |  | Significant difference? |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \% response |  | \% response |  |
| \#3 - How does navigation through the superstreet compare to a typical intersection? | Easier | 33\% | More difficult | 41\% | No |
|  | Easier | 33\% | Same | 17\% | Yes |
|  | Same | 17\% | More difficult | 41\% | Yes |
| \#6 - How do you, personally, feel the superstreet has affected your ability to safely navigate the roadway compared to the previous roadway design? | Positively | 49\% | Negatively | 22\% | Yes |
|  | Positively | 49\% | Same | 28\% | Yes |
|  | Same | 28\% | Negatively | 22\% | No |
| \#9 - What differences, if any, have you, personally, experienced in travel time since the opening of the superstreet? | Less TT | 18\% | More TT | 51\% | Yes |
|  | Less TT | 18\% | No change | 32\% | Yes |
|  | No change | 32\% | More TT | 51\% | Yes |
| \#10 - What differences, if any, have you, personally, noticed in the number of stopped vehicles waiting to make a safe maneuver since the opening of the superstreet? | More stopped | 45\% | Fewer stopped | 36\% | No |
|  | More stopped | 45\% | No change | 16\% | Yes |
|  | No change | 16\% | Fewer stopped | 36\% | Yes |

Only 18\% of residents reported a reduction in travel time (question nine), while $51 \%$ reported an increase, and $32 \%$ reported no change. There were statistically significant differences between all these answers. As previously discussed, the reason for the higher responses for increased travel time or no change in travel time is likely because these were surveys of residents who live along the side streets.

### 4.1.3.3 Unsignalized Sites

Table 4.7 displays the results for the two-tailed Z-tests for proportions for responses from unsignalized sites. Similar to the signalized superstreets, the results for question six regarding safe navigation through the superstreet showed significant differences between positive ( $56 \%$ ) and negative ( $23 \%$ ), as well as positive and the same (17\%). Unsignalized superstreets are generally installed as a safety countermeasure, and while this survey is not a safety analysis, the results are clear that nearby residents at least have a feeling of increased safety while traversing the unsignalized superstreet compared to the previous intersection design.

Table 4.7. Comparison of Key Survey Question Responses for Unsignalized Sites

| KEY QUESTIONS | Comparison between response choices |  |  |  | Significant difference? |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \% response |  | \% response |  |
| \#3 - How does navigation through the superstreet compare to a typical intersection? | Easier | 38\% | More difficult | 32\% | No |
|  | Easier | 38\% | The same | 21\% | No |
|  | The same | 21\% | More difficult | 32\% | No |
| \#6 - How do you, personally, feel the superstreet has affected your ability to safely navigate the roadway compared to the previous roadway design? | Positively | 56\% | Negative | 23\% | Yes |
|  | Positively | 56\% | The same | 17\% | Yes |
|  | The same | 17\% | Negative | 23\% | No |
| \#9 - What differences, if any, have you, personally, experienced in travel time since the opening of the superstreet? | Less TT | 10\% | More TT | 33\% | Yes |
|  | Less TT | 10\% | No change | 52\% | Yes |
|  | No change | 52\% | More TT | 33\% | No |
| \#10 - What differences, if any, have you, personally, noticed in the number of stopped vehicles waiting to make a safe maneuver since the opening of the superstreet? | More stopped | 28\% | Fewer stopped | 38\% | No |
|  | More stopped | 28\% | No change | 26\% | No |
|  | No change | 26\% | Fewer stopped | 38\% | No |

### 4.2 Commuter Survey

This study gathered opinions from the University of North Carolina - Chapel Hill (UNC-CH) faculty and staff to determine their perceptions of the superstreet located on US-15/501 in Chapel Hill. The team's intention was to capture the opinions of commuting drivers because the residential survey focused on drivers entering from or exiting to the side streets, which did not include the entire population of drivers utilizing the facility. Commuters were considered to be drivers who only drive though the intersection both into and out of town, without turning onto the side streets (Erwin Road or Europa Drive).

### 4.2.1 Methodology

The team counted on the fact that a large portion of commuting UNC-CH faculty and staff drive through the superstreet at US-15/501 and Europa Drive/Erwin Road from I-40 or Durham because UNC-CH is located nearly three miles from the superstreet, and access into campus from US-15/501 is a primary route because of the interchange at I-40, a major commuter freeway. Figure 4.1 shows the superstreet location relative to the UNC-CH campus (57). Although the faculty and staff population is not equivalent to the through movement population, the faculty and staff population should be representative of any commuters. UNC-CH employs over 17,000 people (58), of which an estimated $75 \%$ have an email address in the campus directory. The immense size of the employee base and the ease of using the publicly available campus directory made the UNC-CH faculty and staff a great resource for the survey.


Figure 4.1. Map of UNC-CH and the Superstreet (57).

To collect the opinions of UNC-CH faculty and staff, the team decided that emailing a survey was the most cost-effective and time-efficient way to reach the greatest number of people. As noted in the previous survey, the sample size calculation for a key question with an $85 / 15$ split on the response shown above produced a target number of responses of just under 200. The team expected a return rate of ten percent, based on opinions expressed for such surveys during a recent webinar (11). Therefore, the team planned to select 2,000 names from the UNC-CH campus directory to obtain the necessary sample. An estimation of the number of people per page with an email address prompted a selection of every ninth person. Choosing every ninth person ensured random selection. This method resulted in an actual selection of 2,520 people.

The email included an introduction explaining the purpose of the survey and the definition of a superstreet. It was important to make sure the survey participants were at UNC-CH long enough before the superstreet was constructed to develop clear opinions on the before and after cases. Faculty and staff were then asked questions about the road design and its effect on travel time, safety, and navigation. Participants were given one week to respond. If they had not submitted the survey after one week, they were sent another reminder survey. The majority of survey questions were the same as the residential survey to facilitate comparisons. Appendix 10.3 includes a sample survey. The team added Questions 3 and 4 to establish through travelers from those who turn at the superstreet. The team also modified the questions to specify the location of the superstreet because the residential survey was generic in location. Otherwise, the survey questions were the same as for the resident survey to allow easy comparison of the results.

### 4.2.2 Results

Seven weeks after the initial surveys were emailed, the team received 513 survey responses from the 2,520 selected faculty and staff, resulting in a $20 \%$ response rate, which was well above the anticipated $10 \%$ response rate and the desired 200 responses for an $85 / 15$ split. Table 4.8 shows the results. Not all of question responses total $100 \%$ because not all respondents answered every question, and despite the instructions, some respondents provided more than one response per question. In the analysis in Table 4.8, the team included multiple responses per question if those were provided.

Table 4.8. Commuter Survey Results by Question

| Question | Response Choice | $\begin{gathered} \% \\ \text { Response } \end{gathered}$ |
| :---: | :---: | :---: |
| 1. How long have you worked in Chapel Hill? | Less than 1 year <br> 1-3 years <br> 4-10 years <br> More than 10 years <br> I don't work in Chapel Hill | $\begin{gathered} \hline 0 \% \\ 18 \% \\ 31 \% \\ 50 \% \\ 1 \% \\ \hline \end{gathered}$ |
| 2. How often do you, personally, drive on US15/501 at Europa Dr./Erwin Rd.? | Daily <br> Weekly <br> Monthly <br> Few times a year <br> Never (skip to Question 11) | $\begin{gathered} 17 \% \\ 38 \% \\ 27 \% \\ 18 \% \\ 0 \% \\ \hline \end{gathered}$ |
| 3. How do you drive through the intersection of US-15/501 and Europa Dr./Erwin Rd. into town most often? | As a through driver on US-15/501 without turning onto Europa Dr. or Erwin Rd. Turning from US-15/501 onto Europa Dr. or Erwin Rd. Turning from Europa Dr. or Erwin Rd. onto US-15/501 | $\begin{aligned} & 74 \% \\ & 11 \% \\ & 15 \% \\ & \hline \end{aligned}$ |
| 4. How do you drive through the intersection of US-15/501 and Europa Dr. / Erwin Rd. out of town most often? | As a through driver on US-15/501 without turning onto Europa Dr. or Erwin Rd. Turning from US-15/501 onto Europa Dr. or Erwin Rd. Turning from Europa Dr. or Erwin Rd. onto US-15/501 | $\begin{gathered} 77 \% \\ 16 \% \\ 6 \% \\ \hline \end{gathered}$ |
| 5. How does navigation through the superstreet compare to a typical intersection? | Easier/less confusing <br> Same <br> More difficult/more confusing | $\begin{aligned} & 18 \% \\ & 33 \% \\ & 48 \% \\ & \hline \end{aligned}$ |
| 6a. Had you heard about the superstreet concept before it was built at US-15/501? | $\begin{array}{\|l\|} \hline \mathrm{Yes} \\ \mathrm{No} \\ \hline \end{array}$ | $\begin{aligned} & 27 \% \\ & 73 \% \end{aligned}$ |
| 6 b. If yes, what was your opinion on the superstreet concept before it was built at US15/501? | Positive opinion <br> Neutral opinion <br> Negative opinion <br> Did not know enough about superstreets to form an opinion | $\begin{aligned} & \hline 11 \% \\ & 29 \% \\ & 17 \% \\ & 43 \% \\ & \hline \end{aligned}$ |
| 7. How do you, personally, feel the superstreet has affected your ability to safely navigate the roadway compared to the previous roadway design? | Positively Same <br> Negatively | $\begin{aligned} & 34 \% \\ & 40 \% \\ & 26 \% \\ & \hline \end{aligned}$ |

Table 4.8. continued

| Question | Response Choice | $\%$ <br> Response |
| :--- | :--- | :---: |
| 8. How was travel time through this section of <br> roadway affected during the superstreet <br> construction period? | Less travel time | $10 \%$ |
| 9. What differences, if any, have you, | No change | $31 \%$ |
| personally, experienced in travel time since the | More travel time | No change time |
| opening of the superstreet? | More travel time | $39 \%$ |
| 10. What differences, if any, have you, | Fewer stopped vehicles | $33 \%$ |
| personally, noticed in the number of stopped |  |  |
| vehicles waiting to make a safe maneuver since | No change | $19 \%$ |
| the opening of the superstreet? | More stopped vehicles | $18-29$ |
| 11. Please select your age range: | $30-49$ | $48 \%$ |
|  | $50-65$ | $31 \%$ |
|  | 66 or above | $21 \%$ |
| 12. Please select your gender: | Male | $6 \%$ |
|  | Female | $48 \%$ |

The age distribution of respondents varied from what was expected, but gender distribution did not. The age range bins were broken into 18-29, 30-49, 50-65, and 66 and older. The youngest and oldest age groups were a minority at $6 \%$ and $4 \%$, respectively. The $18-29$ year-old group and the 66+ group, the groups of most concern, did not have responses that were significantly different from each other.

The researchers compared daily users of the superstreet ( $17 \%$ of respondents) with infrequent users ( $18 \%$ of respondents) to see if daily users of the superstreet have significantly different opinions compared to those who infrequently drive through the superstreet. The team compared the results from Question 2 in Table 4.8 using a two-tailed Z-test for proportions at the $95 \%$ confidence level. The remaining 65\% of respondents drove US-15/501 at Erwin Road/Europa Drive either weekly or monthly. Daily and infrequent users both perceived the same or more difficult navigation through the superstreet. Both types of users generally perceive that the superstreet has not had a large effect on safety or travel time. Noticeable differences between daily and infrequent users occur with respect to the number of stopped vehicles. Nearly $50 \%$ of daily users perceive fewer stopped vehicles whereas half of infrequent users perceive no change in the number of stopped vehicles.

The team compared job titles between respondents and a separate sample of the UNC-CH directory to determine if the survey respondent population was representative of the faculty and staff population. The first 500 individuals listed in the directory comprised the directory sample. The team categorized the participants into five groups: UNC-CH Hospital, medicine-related, academia, facility or maintenance, and other. Any person working at the UNC-CH Hospital, regardless of job title, was included in UNC-CH Hospital set. The team isolated the hospital employees because it was assumed they would be going to the same location on campus. The medicine-related category included people who do not work at UNC-CH Hospital, but whose job title or department is in the field of medicine. Examples include campus health services, family medicine, dermatology, orthodontics, etc. The team grouped medicine-related fields together because they also tend to work on a particular part of campus. The academia category included any other college or institution within the university. Facility or maintenance included building services, ground services, energy services, etc. People whose job title or department could not be placed in the other four categories were lumped into the "Other" category. Table 4.9 shows the results. The percentage of respondents was statistically different than the directory sample using a two-tailed Z-test for proportions at the $95 \%$ confidence level for every group except the medicine-related job group. This could be because the Hospital complex is the furthest part of campus from the superstreet.

Table 4.9. Job Representation

| Job <br> Location/Department | \% Respondents | \% Directory <br> Sample | Significant <br> Difference? |
| :---: | :---: | :---: | :---: |
| UNC-CH Hospital | 21 | 30 | Yes |
| Medicine related | 22 | 26 | No |
| Academia | 28 | 23 | Yes |
| Facility/maintenance | 2 | 4 | Yes |
| Other | 28 | 18 | Yes |

The team tested the accuracy of the final sample size using Equation 4.1 (shown previously) for simple random sampling of proportional data. Assuming a $95 \%$ confidence level, the achieved error in a mean proportion ranged from 3 to $4 \%$ for the four key questions which asked about specific operation and safety issues.

### 4.2.3 Analysis

The team performed a two-tailed Z-test for proportions at the $95 \%$ confidence level for the four key survey questions to analyze the responses from the commuter survey. Nearly all comparisons of the responses for each key question showed significant differences. Approximately half of the surveyed population perceived superstreets to be more difficult to travel through, but the same percentage perceived fewer stopped cars at the intersection. Thirtyfour percent of respondents perceived positive safety effects, compared to $26 \%$ of respondents that perceived negative safety effects.

A major reason for conducting the commuter survey was to gain the opinion of commuting drivers because the residential survey did not capture their opinions. Sixty-seven percent (67\%) of respondents were "commuters" in the sense that they drove straight through the intersection both into and out of town, without turning onto Erwin Road or Europa Drive. Major left turns onto the side streets are not allowed from US-15/501; all left turns are made by making a U-turn. Table 4.10 shows the results for commuters and non-commuters using a two-tailed Z-test for proportions at the $95 \%$ confidence level. It should be noted that not all of the responses in Table 10 sum to $100 \%$ because some respondents chose not to answer all of the questions. Surprisingly, commuters did not find the superstreet to be easier to navigate. Approximately $50 \%$ of commuters perceived no change in safety or travel time. An important difference was noted between commuters and non-commuters for travel time; $35 \%$ of non-commuters believe superstreets take more travel time compared to only $12 \%$ for commuters.

Table 4.10. Analysis of Survey Responses for Through vs. Non-Through Drivers

| KEY QUESTIONS | Answers | Response |  | Significant Difference? |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Commuters | NonCommuters |  |
| \#5 - How does navigation through the superstreet compare to a typical intersection? | Easier | 19\% | 18\% | No |
|  | Same | 36\% | 28\% | No |
|  | More difficult | 45\% | 54\% | No |
| \#7-How do you, personally, feel the superstreet has affected your ability to safely navigate the roadway compared to the previous roadway design? | Positively | 33\% | 36\% | No |
|  | Same | 44\% | 32\% | Yes |
|  | Negatively | 22\% | 32\% | Yes |
| \#9 - What differences, if any, have you, personally, experienced in travel time since the opening of the superstreet? | Less TT | 36\% | 27\% | Yes |
|  | No change | 52\% | 39\% | Yes |
|  | More TT | 12\% | 35\% | Yes |
| \#10 - What differences, if any, have you, personally, noticed in the number of stopped vehicles waiting to make a safe maneuver since the opening of the superstreet? | Fewer stopped | 45\% | 53\% | No |
|  | No change | 36\% | 22\% | Yes |
|  | More stopped | 20\% | 24\% | No |

The team compared the opinions of UNC-CH faculty and staff non-commuters with the respondents from the residential survey in Chapel Hill to determine if the responses would be similar. The team used a two-tailed Z-test for proportions at the $95 \%$ confidence level. Table 4.11 shows the comparison. Only the key question on travel time had a response that was significantly different. Fifty-nine percent (59\%) of residential respondents perceived more travel time compared to only $35 \%$ of UNC-CH faculty and staff non-commuters. In general, both populations of respondents who use the minor street approaches to the superstreet perceive superstreets to be safer, but more difficult to navigate and less efficient.

Table 4.11. Comparison Between UNC-CH Non-Commuters and Residents

| KEY QUESTIONS | Answers | Response |  | Significant Difference? |
| :---: | :---: | :---: | :---: | :---: |
|  |  | UNCCH | Residential |  |
| \#5 - How does navigation through the superstreet compare to a typical intersection? | Easier | 18\% | 22\% | No |
|  | Same | 28\% | 19\% | No |
|  | More Difficult | 54\% | 54\% | No |
| \#7 - How do you, personally, feel the superstreet has affected your ability to safely navigate the roadway compared to the previous roadway design? | Positive | 36\% | $41 \%$ | No |
|  | Same | 32\% | 35\% | No |
|  | Negative | 32\% | 24\% | No |
| \#9 - What differences, if any, have you, personally, experienced in travel time since the opening of the superstreet? | Less | 27\% | 21\% | No |
|  | No Change | 39\% | 21\% | No |
|  | More | 35\% | 59\% | Yes |
| \#10 - What differences, if any, have you, personally, noticed in the number of stopped vehicles waiting to make a safe maneuver since the opening of the superstreet? | More | 24\% | 38\% | No |
|  | No Change | 22\% | 22\% | No |
|  | Fewer | 53\% | 38\% | No |

### 4.3 Business Survey

### 4.3.1 Methodology

The team conducted a survey of business owners and managers to obtain a better understanding of the opinion of those people directly affected by proximity to the superstreet design. The business survey helps evaluate the effect the design has on accessibility and property values of land located near a superstreet intersection or corridor. No such survey on superstreets has been done before, and very little information is known on the business impacts of superstreets, or even conventional widening projects.

The team went door-to-door to conduct personal interviews at businesses along a superstreet intersection or corridor. This process ensured that the team members spoke to a manager or business owner. It also helped limit confusion on the purpose of the survey or questions within the survey and allowed the team to obtain higher response rates on the limited sample of businesses available to survey. The team chose to conduct business surveys for the signalized superstreet intersections on US-15/501in Chapel Hill and on US-421 in Wilmington. The team chose not to survey businesses near the other two signalized superstreet corridors in North Carolina because they did not have adjacent businesses prior to the superstreet implementation.

The team also chose not to conduct surveys at unsignalized superstreets because they are in rural areas with fewer businesses, and that effort would have resulted in only a few responses.

There are approximately 40 businesses near the superstreet at the US-421 site in Wilmington and 15 at the US-15/501 site in Chapel Hill. Because of the small sample size, the team decided a door-to-door visit to each business would provide the best chance to obtain a survey response. It was important to make sure the survey participants were there long enough before the superstreet was constructed to develop clear opinions on the before and after cases. The team went door-todoor to personally conduct the survey. If a manager or business owner was not available a survey was left at the location to be mailed back. The team analyzed the sites separately because of the different geometries. The superstreet in Chapel Hill does not allow left turns from US15/501 but the superstreet in Wilmington does allow left turns from US-17 (both shown in Figure 1.1).

### 4.3.2 Results

The team received responses from ten businesses ( $67 \%$ response) near the superstreet in Chapel Hill and 19 businesses ( $48 \%$ response) in Wilmington. The team members were not able to obtain responses from several businesses because they had strict no solicitation policies, they thought it was against company policy to answer surveys, or they did not mail the survey back if a survey was left at the business.

Businesses varied along the superstreets in both type and size. National chains composed $70 \%$ of respondents along the superstreet in Chapel Hill, but only $42 \%$ in Wilmington. At both locations the team received feedback from hotels, restaurants, and services. The team did not perform statistical analyses on the responses because of the small sample size.

### 4.3.3 Analysis

Table 4.12 shows the business survey results for Chapel Hill. It is important to note that not all percentages add up to $100 \%$ because some respondents did not respond to that question or did not know the answer. Fifty percent (50\%) of managers or business owners have noticed a positive or negative change in their monthly revenue pattern since the opening of the superstreet in 2008. Of the $50 \%$, none of the respondents felt that the change was due to roadway modifications. Negative changes were perceived to be a result of the economy. Some positive changes were perceived as a result of recent interior renovations to the businesses. In general, business owners/managers felt that the superstreet had a positive impact on traffic flow and safety, but a negative or neutral impact on business growth. Some businesses mentioned access problems because major left turns are not allowed at the intersection.

A comment and opinion section concluded each survey. Some business owners/managers made multiple comments. Of all the comments, $30 \%$ of respondents expressed that the superstreet is confusing and $30 \%$ felt it is less safe than a conventional intersection. However, another $30 \%$ of respondents expressed that the superstreet has made a positive impact on safety and traffic flow. Table 4.13 shows the results of the comments section.

Table 4.12. Chapel Hill Business Survey Results

| Question | Response |  |  |
| :--- | :---: | :---: | :---: |
|  | Increase | No change | Decrease |
| 6a - Changes in monthly revenue <br> pattern? | $30 \%$ | $10 \%$ | $20 \%$ |
| 9b - Change in number of regular <br> customers since opening of the <br> superstreet? | $20 \%$ | $40 \%$ | $10 \%$ |
| 10a - How has the superstreet affected <br> traffic congestion? | Better | Stayed the <br> same | Worse |
|  | $40 \%$ | $20 \%$ | $10 \%$ |
|  | $10 \%$ | $20 \%$ | $20 \%$ |
| 10d - How has the superstreet affected <br> gross sales? | $20 \%$ | $30 \%$ | $20 \%$ |
| 10e - How has the superstreet affected <br> property value? | $0 \%$ | $20 \%$ | $20 \%$ |
| 10f - How has the superstreet affected <br> customer satisfaction with access to the <br> store? | $0 \%$ | $30 \%$ | $40 \%$ |
| 10g - How has the superstreet affected <br> delivery convenience? | $0 \%$ | $70 \%$ | $0 \%$ |

Table 4.13. Chapel Hill Business Survey Comments

| Comment | Response |
| :--- | :---: |
| Superstreet is confusing | $30 \%$ |
| Concern with safety | $30 \%$ |
| Overall positive effect | $30 \%$ |

Table 4.14 shows the business survey results for the US-421 site. Not all percentages add up to $100 \%$ because some managers or owners did not respond to that question or did not know the answer. Seventy-four percent (74\%) of managers or business owners/managers have noticed a change in their monthly revenue pattern since the opening of the superstreet in the summer of 2009. Of the $74 \%$, half of the respondents felt roadway modifications had a net effect on revenue patterns. Of that half, most business owners/managers felt the roadway negatively affected revenue. The other half of business owners/managers felt the economy was the cause for decreased revenue. Almost half of the respondents thought there was no change in the
number of regular customers, but nearly $40 \%$ believe that the superstreet has negatively impacted their number of regular customers.

Table 4.14. US-421 Business Survey Results

|  | Response |  |  |
| :--- | :---: | :---: | :---: |
| Question | Increase | No change | Decrease |
| 6a - Changes in monthly revenue <br> pattern? | $16 \%$ | $16 \%$ | $58 \%$ |
| 9b - Change in number of regular <br> customers since opening of the <br> superstreet? | $16 \%$ | $47 \%$ | $37 \%$ |
|  | Better | Same | Worse |
| 10a - How has the superstreet affected <br> traffic congestion? | $26 \%$ | $53 \%$ | $16 \%$ |
| 10b - How has the superstreet affected <br> traffic safety? | $37 \%$ | $11 \%$ | $53 \%$ |
| 10c - How has the superstreet affected <br> number of customers per day? | $11 \%$ | $42 \%$ | $47 \%$ |
| 10d - How has the superstreet affected <br> gross sales? | $11 \%$ | $26 \%$ | $53 \%$ |
| 10 e - How has the superstreet affected <br> property value? | $5 \%$ | $5 \%$ | $16 \%$ |
| 10f - How has the superstreet affected <br> customer satisfaction with access to <br> the store? | $0 \%$ | $37 \%$ | $58 \%$ |
| 10 g - How has the superstreet affected <br> delivery convenience? | $0 \%$ | $37 \%$ | $47 \%$ |

In general, US-421 business owners and managers felt the superstreet had a large negative impact on safety because of the particular operations at the intersection. Major left turns are allowed at this superstreet; however, U-turns at the major intersection are illegal. Sixty-three percent ( $63 \%$ ) of businesses noted the prevalence and danger of illegal U-turns even though it is signed and flagged as illegal. Another operational impact that businesses generally dislike is the flashing yellow arrow signal for left turns at the major intersection and U-turns. They find it confusing and dangerous because, in general, drivers do not use appropriate caution at the signal.

A comment and opinion section concluded each survey. In this comment section, $42 \%$ percent of respondents felt the superstreet is confusing, and $42 \%$ felt it creates poor access for businesses. Twenty-one percent ( $21 \%$ ) thought it takes too long to maneuver from the side road. Only $26 \%$ felt the superstreet created a safer intersection. This safety percentage might be skewed because, as several businesses noted, the superstreet has significantly limited the
frequency of injury and fatal crashes, but the illegal U-turns are creating a separate safety issue involving less serious crashes. Table 4.15 shows the results of the comments section.

Table 4.15. US-421 Business Survey Comments

| Comment |  |
| :--- | :---: |
| Poor access | Response |
| Illegal U-turns | $63 \%$ |
| Confusing | $42 \%$ |
| Longer travel time | $21 \%$ |
| Safer | $26 \%$ |
| Helps congestion | $5 \%$ |

### 5.0 LOS PROGRAM

The North Carolina Level-of-Service (NCLOS) software program was developed through a previous research project (No. 2003-12). It is unique in that it provides a visual depiction of the service volume in relation to the measure of effectiveness (MOE) for four highway systems as defined in the Highway Capacity Manual (2000HCM). The software program utilizes the operational methodologies for basic freeway segments, multilane highways, urban streets, and two-lane highways to back-calculate the service volume (expressed as AADT) against the MOE for that facility type for use in planning applications. The program then provides a visual plot of that relationship for the analyst to see the effect of various inputs, which can be changed. Three curves are provided in the plot: the best case, the default case, and the worst case.

Superstreets are a different facility type than those already programmed into NCLOS. The signalized superstreet (a signalized multilane highway), with a left turn crossover from the major highway, was decided to be programmed within NCLOS. The capacity of the facility is largely dictated by the operation of the signal system. This represents an interrupted flow facility type versus the previous four facility types (freeways, multilane highways, arterials, and two-lane highways). For signalized intersections the MOE is average control delay per vehicle. Table 5.1 shows the 2000 HCM LOS boundary thresholds for signalized intersections.

Table 5.1. 2000HCM LOS Boundary Thresholds

| LOS | Average Control Delay/Vehicle <br> $(\mathbf{s} / \mathbf{v e h})$ |
| :---: | :---: |
| A | $\leq 10$ |
| B | $>10-20$ |
| C | $>20-35$ |
| D | $>35-55$ |
| E | $>55-80$ |
| F | $>80$ |

Another feature of the superstreet is that all side street traffic must turn right prior to the through and left turning vehicles using the downstream U-turn to move "through" the intersection. This activity greatly impacts the average control delay for side street traffic. However, NCLOS is used as a capacity check for the mainline traffic. Hence, the programming for the superstreet within NCLOS is only for the mainline. There is a separate spreadsheet application under development that incorporates the side street movements into the analysis.

With this as background, the capacity of the mainline within a superstreet design will be governed by the delay equation in the 2000 HCM , shown by Equation 5.1.

## Equation $5.1 \quad d=d_{1}(P F)+d_{2}+d_{3}$

Where:
$\mathrm{d}=$ average control delay per vehicle ( $\mathrm{s} / \mathrm{veh}$ ),
$\mathrm{d}_{1}=$ uniform control delay assuming uniform arrivals ( $\mathrm{s} / \mathrm{veh}$ ),
$\mathrm{PF}=$ uniform delay progression adjustment factor to account for effects of signal progression,
$\mathrm{d}_{2}=$ incremental delay to account for effect of random arrivals and oversaturation queues ( $\mathrm{s} / \mathrm{veh}$ ), and
$\mathrm{d}_{3}=$ initial queue delay for delay to all vehicles at the start of any analysis period if queues already present ( $\mathrm{s} / \mathrm{veh}$ ).

For this application, PF is assumed to be 1.0, representing random arrivals at the upstream signal. The $\mathrm{d}_{2}$ and $\mathrm{d}_{3}$ terms are set to zero, assuming superstreets are being considered for locations where arrival patterns and queuing would result in these terms having only a marginal effect on overall control delay per vehicle. It is noted here that the mainline signal controlling the left turns from the main street would provide very high progression for the mainline platoon released from the upstream signal. The capacity at this signal location would be higher than the upstream signal, but this capacity will not be used within NCLOS as the upstream signal will meter the mainline flow.

With the above assumptions then, the calculation of $\mathrm{d}_{1}$ uses Equation 5.2.

Equation 5.2

$$
d_{1}=\frac{0.5 C\left(1-\frac{g}{C}\right)^{2}}{1-\left[\min (1, X) \frac{g}{C}\right]}
$$

Where:
C = cycle length (s),
$\mathrm{g}=$ effective green time for lane group (s), and
$X=v / c$ ratio or degree of saturation for lane group.
Thus, setting $\mathrm{X}=$ volume/capacity, one can solve the above equation for volume:

$$
\text { volume }=\frac{\text { capacity }}{g / C}\left[1-\frac{0.5 C 1-g / C^{2}}{d_{1}}\right]
$$

Now recall that:

$$
\text { capacity }=\text { satflow } \times g / C
$$

which when substituted into the equation gives the following:

$$
\text { volume }=\text { satflow }\left[1-\frac{0.5 C 1-g / C^{2}}{d_{1}}\right]
$$

By setting $\mathrm{d}_{1}$ equal to the threshold values for delay in the LOS table, and providing inputs for satflow, cycle length, and g/C ratio, the volume can be determined for that control delay value. (The program actually calculates the volume for control delay increments from 0.1 to 80.0 in increments of 0.1 for plotting the curves.)

Recall that the volume above would be in $\mathrm{pc} / \mathrm{h} / \mathrm{ln}$ if an ideal satflow value is used. Therefore, some additional corrections are needed to bring this volume to an AADT value. The final equation becomes:

$$
A A D T=\text { satflow }\left[1-\frac{0.5 C 1-g / C^{2}}{d_{1}}\right] \text { \#of lanes } P H F \quad f_{H V}\left(\frac{1}{K \times D}\right)
$$

Where:
AADT = annual average daily traffic (veh/day),
Satflow $=$ saturation flow rate, adjusted to represent local conditions minus the effect of trucks ( $\mathrm{pc} / \mathrm{h} / \mathrm{ln}$ ),
\# of lanes = number of through lanes per direction,
PHF = peak hour factor,
$\mathrm{f}_{\mathrm{HV}}=$ heavy vehicle correction factor,
$\mathrm{K}=$ proportion of daily traffic occurring during the peak hour, and
$\mathrm{D}=$ direction distribution of traffic occurring during the peak hour.
The input values used for best, default, and worst cases are shown in Table 5.2.
Table 5.2. Input Values for Best, Default, and Worst Cases

| Input | Best Case | Default Case | Worst Case |
| :---: | :---: | :---: | :---: |
| Adj. satflow | 1800 | 1700 | 1600 |
| C | 80 | 90 | 120 |
| g/C | 0.80 | 0.70 | 0.65 |
| \# of lanes | 3 | 2 | 2 |
| PHF | 0.95 | 0.90 | 0.80 |
| \% of Trucks | 2 | 5 | 20 |
| K | 0.08 | 0.10 | 0.20 |
| D | 0.50 | 0.55 | 0.70 |

For the calculation of $\mathrm{f}_{\mathrm{HV}}$, the standard equation from the HCM is used, shown in Equation 5.3.

Equation 5.3

$$
f_{H V}=\frac{1}{1+P T E_{T}-1}
$$

Where:
$\mathrm{PT}=$ proportion of trucks (decimal) and
$\mathrm{E}_{\mathrm{T}}=$ passenger car equivalent for trucks and buses.
The 2000 HCM recommends a set value for $\mathrm{E}_{\mathrm{T}}=2.0$ for signalized intersection operations. However, multilane highway analysis procedures offer a range of values for both general terrain and specific grade analyses. NCLOS allows use of the multilane highway general terrain values for $\mathrm{E}_{\mathrm{T}}$ as show in Table 5.3, with 2.0 as the minimum.

Table 5.3. Multilane Highway General Terrain Values

| Vehicle Type | Level | Rolling | Mountainous |
| :---: | :---: | :---: | :---: |
| Trucks/Buses | 2.0 | 2.5 | 4.5 |

Screen shots of the NCLOS superstreet program are shown below.


The screen shot on the previous page shows the display graph along with the roadway factor inputs (target LOS, cycle length, $\mathrm{g} / \mathrm{C}$ ratio, and saturation flow rate). LOS C was selected and a plot of the LOS C range for AADT is shown in the graph with corresponding AADT values displayed just below the graph, including volumes for capacity (veh/day) and in passenger cars per day.


The screen shot above shows the traffic factor inputs (PHF, K factor, D factor, \% truck/bus, and number of lanes per direction).

Using the default values as shown above for both 4-lane and 6-lane facilities, capacities at the five LOS thresholds calculate to the AADT values in Table 5.4.

Table 5.4. AADT Capacity for LOS Boundary Thresholds

|  | AADT (veh/day) |  |  | AADT (veh/day) <br>  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 4-lane Superstreet Highway <br> (Isolated Location) |  | 6-lane Superstreet Highway <br> (Isolated Location) |  |  |  |
| LOS | Level | Rolling | Mountain | Level | Rolling | Mountain |
| A | 32,300 | 30,800 | 28,200 | 48,400 | 46,200 | 42,300 |
| B | 43,300 | 41,300 | 37,800 | 64,900 | 61,900 | 56,600 |
| C | 48,000 | 45,800 | 41,900 | 72,000 | 68,600 | 62,800 |
| D | 50,300 | 47,900 | 43,900 | 75,400 | 71,900 | 65,800 |
| E | 51,500 | 49,100 | 45,000 | 77,300 | 73,700 | 67,400 |

Default inputs: Partial adjusted sat. flow $=1700$ pcphpl; cycle length $=90 \mathrm{sec} ; \mathrm{g} / \mathrm{C}=0.70$; number of lanes $=2 ; \mathrm{PHF}=0.90 ; \%$ of trucks $=5 ; \mathrm{K}=0.10 ; \mathrm{D}=0.55$.

The superstreet analysis for NCLOS covers an isolated superstreet intersection. Similar results can be expected for a superstreet corridor where two or more adjacent intersections are also designed as a superstreet. The mainline flow rate could be thought of as being metered by the upstream signal for each direction. As long as the cycle length and g/C ratio remain constant for all intersections, the results from NCLOS would be representative of the mainline flow rate through the superstreet corridor since there should be better performance in the interior intersections because of superior progression along the mainline in each direction. Another way of stating this is the upstream signals are expected to have random arrivals versus ideal progression for the interior signals. The random arrival pattern for the upstream signals means that they are metering the flow through the superstreet corridor.

The analyst should recognize that speed limit (or free flow speed) is not an input parameter into the superstreet analysis for the mainline flow rate. The signalized intersection delay function does not depend on this input parameter.

Should it be necessary, the adjusted saturation flow rate value can be increased or decreased to account for different regions of the state and different locations in or near urban areas. Local knowledge will be important in selecting the appropriate value.

### 6.0 CONCLUSIONS

### 6.1 Travel Time Experiment

This project investigated the operational effects of superstreets compared to conventional intersections. The team calibrated and validated models of three existing signalized superstreets in VISSIM and compared them to the equivalent conventional intersection using travel time as the measure of effectiveness. All three superstreets, which included two isolated intersections and one five-intersection corridor, performed better than the corresponding conventional intersections when comparing the average travel times per vehicle. The largest travel time savings occurred at the peak, peak+10\%, and peak $+20 \%$ demand levels.

With the superstreet reducing overall travel time through the intersection at peak periods and higher, it means that it can buy an agency more years after the conventional intersection hits capacity before a major upgrade is funded. Using the critical sum as a capacity check, the superstreet was able to provide more capacity beyond what the conventional intersection could provide when it reached high demand levels in these three cases. When agencies are looking to make intersection improvements along their corridors, the superstreet can give them more capacity and at the same time reduce travel time, therefore adding more years to the intersections' useful life before having to make additional improvements, and thus saving money.

The three superstreets modeled were all different from each other. The Chapel Hill site is a single, isolated superstreet that does not allow direct left turns from the major road to the minor road. The Wilmington site is also a single, isolated superstreet but it did allow direct left turns from the major road, and it also allowed permitted and protected movements at the left turn and U-turn crossovers. The Leland superstreet is as example of corridor application, with five adjacent signalized superstreet intersections. At all three of these sites the superstreet required less travel time for the average vehicle than the conventional intersection. This proves that the superstreet design could work well as both an isolated intersection and a corridor. The corridor, however, had a greater reduction in travel time over the conventional compared to the single superstreet intersection locations. The superstreet design allows for perfect progression through the arterial by creating a one-way pair and requiring only two-phase signals. Theory suggests, and these results confirm, that the more superstreet intersections that are back-to-back along a corridor, the better the progression will be relative to a conventional corridor. The Chapel Hill and Wilmington sites both have adjacent conventional intersections, which limit the progression capabilities of the superstreet.

Broken down by movement, the major road through and left movements were positively impacted by the superstreet design, having lower travel times than the conventional comparison intersections. The minor road left and through movements were negatively impacted, with the travel time higher for the superstreet than the conventional. The minor road left and through movements have to travel an extra distance to a downstream crossover, and in doing so pass through two extra signals. The minor movements were affected more during the low volume,
off-peak periods than the peak periods. Along the US-17 corridor the difference in travel time steadily decreased as the demand increased. The minor left and minor through travel times were only $9-18 \%$ higher than the conventional during the peak periods.

The Highway Capacity Manual defines an arterial as "a signalized street that primarily serves through-traffic and that secondarily provides access to abutting properties, with signal spacing of 2.0 miles or less" (59). The positive affect the superstreet has on the arterial through and left movements should prevail over any negative impacts to the minor road movements in many corridors. By definition, the superstreet is helping serve the purpose of the arterial by effectively and efficiently moving vehicles along the corridor.

### 6.2 Safety Analysis

The team investigated the safety effects of signalized and unsignalized superstreets in North Carolina as a part of this project. Geometric, volume, and collision data were collected for sixteen superstreets across the state.

The team conducted different analyses of signalized and unsignalized superstreets because signalized superstreets were implemented for congestion purposes, and therefore, were not affected by RTM. The team analyzed three signalized superstreets - two isolated intersections and one three-intersection corridor - using SSAM and observational naïve and C-G methods. The team analyzed 13 unsignalized superstreets using observational naïve and C-G methods as well as the EB method.

In the EB method, the team used the HSM model for rural multilane highway unsignalized intersections and calculated a calibration factor. The calculated calibration factor indicated that North Carolina collisions occur at a higher rate than the collisions used to develop the base equation for the HSM. The calibration factors for total collisions were 1.57 and 1.39 for threelegged and four-legged unsignalized intersections, respectively. The calibration factors for fatal and injury collisions were 2.05 and 1.74 for three-legged and four-legged unsignalized intersections, respectively.

In the examination of signalized superstreets the team determined that each site had unique characteristics that made its analysis difficult. The US-15/501 superstreet was likely affected by spillback from a downstream intersection and by the fact that it does not allow direct left turns from the major roadway; the US-17 superstreets were implemented in conjunction with signals and a large development that significantly influenced traffic volume and safety; and the US-421 superstreet had flashing yellow arrows for major left turns and U-turns which no other signalized superstreet uses. The SSAM analysis for signalized sites was also difficult because the team coded the VISSIM models to produce travel time results, and this was not helpful in building a realistic safety model. Due to time and cost constraints, the team was unable to code new models; therefore, the SSAM results should not be used confidently.

The safety impacts of signalized superstreets are therefore inconclusive. The collision rate comparison using the HSM model and SSAM results generally showed a reduction in collisions. However, the naïve and C-G methods showed conflicting results. The US-421 superstreet generally showed a reduction in collisions, which is important because the US-421 site is the
most typical signalized superstreet. This site allows direct left turns from the major road and the development adjacent to the superstreet existed prior to superstreet implementation. Although results are inconclusive from all signalized superstreets, the fact that the US-421 site showed positive results is important for future signalized superstreet application because it is the typical situation for implementation - an urban arterial with pre-existing heavy development.

Unsignalized superstreets showed a significant reduction in total, angle and right turn, and left turn collisions in all analyses. All analyses also showed a significant reduction in fatal and injury collisions as well.

Naïve, C-G, and EB analytical methods for unsignalized superstreets showed significant reduction in collisions; however the EB C-G method results were much more optimistic. The EB C-G method was not included in the HSM, and the method described by Hauer was not absolutely clear to the team or other safety professionals the team consulted - of particular concern is the regression calculation used for the variance of $\kappa$. For these reasons, the team does not suggest using the overly optimistic results as provided by the EB C-G method.

The significant collision reduction from unsignalized superstreets is important because it shows the strong success of NCDOT superstreet application. The cost savings from this collision reduction will be enormous. Additionally, the NCDOT can use the information to justify their design decisions to local citizens and business owners.

### 6.3 Resident, Commuter, and Business Survey

Based on the residential survey results, the following summarizes the major conclusions:

- Residents agreed that the superstreet design helps them travel more safely through the intersection.
- Residents near signalized superstreets perceived more travel time through the intersection.
- Residents near signalized superstreets perceived more stopped vehicles at the intersection.

The difference between unsignalized and signalized sites in relation to travel time and the number of stopped vehicles is likely due in part to the nature of the traffic control device (signal versus stop sign), and also to the inability of vehicles at signalized sites to make a legal left turn on red. By surveying residents living near superstreets, the results reflect mostly those drivers coming to and from the side streets, rather than the majority of through travelers. The responses showing perceived increased travel time or no change in travel time are likely a reflection of those making the additional movements of a right turn then U-turn to move in and/or out of the minor roads.

Based on the commuter survey results, the following summarizes the major conclusions:

- Commuters perceived superstreets as more difficult to navigate.
- Commuters perceived savings in travel time and reductions in number of stopped vehicles.
- Commuters perceived the superstreet intersection as safer than the conventional intersection.

As drivers become more familiar with superstreets, the team believes the perceived effects on safety and ease of navigation will improve. The superstreet in Chapel Hill does not allow major left turns onto Erwin Road or Europa Drive which may aid in perceived increases in travel time because of longer queues at crossovers, and therefore a longer delay at those signals.

Based on the business survey results, the following summarizes the major conclusions:

- Respondents from Chapel Hill recognize traffic flow and safety improvements at the intersection.
- Business owners/managers at both locations felt the superstreet negatively impacted business growth and operations.
- Business owners/managers at both locations identified customer access and confusion problems associated with the superstreet design.

The businesses at Chapel Hill and Wilmington had separate issues with their respective superstreet designs. The superstreet in Chapel Hill does not allow major left turns, which creates some access issues, and the superstreet in Wilmington has an illegal U-turn problem at the main intersection which is causing safety and delay concerns. Due to the small sample size, the team recognizes these results may not be applicable to other superstreet locations.

### 6.4 LOS Program

The NCLOS program, version 2.2, has been programmed to include modeling the superstreet using the MOE criteria of average control delay for signalized intersections. The program is based on the delay equation in the 2000 HCM for signalized intersections. Note that the $\mathrm{d}_{2}$ and $\mathrm{d}_{3}$ terms are assumed to have negligible effect on the delay because superstreets are not installed where breakdown conditions are expected to occur during the peak hour.

There are a wide range of AADT outputs for the best, default and worst cases within the NCLOS program. This is primarily because the best case has three lanes per direction (versus two lanes per direction for the default and worst cases) and a favorable cycle length, $\mathrm{g} / \mathrm{C}$ ratio, saturation flow rate, and truck percentage.

As with the previous version of NCLOS, the Department can change the default values in a master spreadsheet if experience shows that adjustments are needed to better match with field AADT values.

### 7.0 RECOMMENDATIONS

### 7.1 Travel Time Experiment

Agencies should consider superstreets as a viable option for upgrading arterials that look like the three cases studied here. These intersections should be where low volume, two-lane roads meet a high-volume, divided, four-, six-, or eight-lane arterial. Building a superstreet instead of upgrading the conventional intersection can save money over the long run because the increasing traffic along the arterial will outgrow the conventional design before it outgrows the superstreet.

The team recommends building superstreets as a corridor rather than a single, isolated intersection where possible. While a single superstreet intersection will improve travel time and reduce congestion, the design works better as a corridor treatment since that allows for perfect progression in both directions at any speed and signal spacing. The team also recommends building them along developing corridors as a preventative measure to increase capacity and reduce congestion before it actually happens, as was the case with the US-17 superstreet corridor in Leland, NC.

The superstreet is best suited for divided arterials with high through and left turn volumes on the major road. The arterial left turn volume per lane should be greater than $80 \%$ of the minor road traffic per lane that moves during the same signal phase. Superstreets are not the optimal choice for minor roads with high left turn and through volumes. The minor road total volume should typically be less than $20 \%$ of the total intersection volume. Another useful rule of thumb, based on Kramer's definition of an arterial receiving at least $2 / 3$ of the green time (12), is that the minor street two-way demand should be less than about 22,000 vehicles per day. The median width should be between 40 and 70 feet to accommodate large trucks. If the median is not wide enough, or there is not enough right-of-way to widen, loons can be built across from the median crossovers for wide-turning vehicles (14).

Multiple residents from each signalized site commented on the disregard for the no left turn on red rule at the U-turn crossovers. With the number of superstreets in North Carolina likely to increase in future years, the team recommends evaluating the possibility of changing this rule so a vehicle could make a left turn on red when entering a one-way street (which is essentially what they are doing when completing the U-turn maneuver). This is allowed in other states at similar locations.

Agencies should be proactive in education and public awareness of the benefits of superstreets. The team suggests showing aerial video of an actual intersection or corridor before and after superstreet implementation to help viewers understand how a superstreet functions compared to a conventional intersection. Simulations are an excellent tool for analyzing designs but may not provide the best visualization for the general public. Instead, a video showing an actual before and after construction from an aerial vantage point may be more convincing. It is also important to understand any perceived negative aspects of the design and mitigate them. As with any intersection treatment, it is important to understand the circumstances where the superstreet will
be most beneficial. Superstreets reroute minor street left turn and through movements, and if the demand for those movements is high, superstreets may not be the optimum design choice. Superstreets are a promising solution for congested arterials, and agencies should seriously consider them for operational and safety improvements.

### 7.2 Safety Analysis

NCDOT should consider unsignalized superstreets as a viable option for rural arterials. These intersections should be where low-volume, two-lane roads meet a high-volume, divided, fourlane arterial. A superstreet will have a higher initial cost than a conventional two-way STOP controlled intersection because of the extra pavement in the directional crossovers and loons, but it can save enormously over the life of the roadway because of the collision savings.

NCDOT should use caution when implementing signalized superstreets because our analyses are inconclusive on their safety effects. However, the safety results from the US-421 site were promising, and the previous travel time analysis indicates that signalized superstreets reduced overall travel time.

As driver behavior changes, the predictive quality of the calibration factor used in the EB method may deteriorate with time. As a result, the collision models should be recalibrated periodically to ensure that they are continuing to adequately predict collisions. The calibration factor also suggests that other state departments of transportation should not use these results directly but rather should recalibrate them with data from their own state.

The team also recommends that NCDOT use the C-G method as the main tool to analyze the safety of superstreets. RTM did not have an important impact as the team discovered when comparing the EB naïve results to the observational naïve results (a 34 percent reduction compared to a 27 percent reduction for total collisions, respectively) This indicates that the effort to use the EB method is likely greater than the improvement in the results the method provided for superstreets in North Carolina. This also shows that the NCDOT was opportunistic in unsignalized superstreet implementation by choosing sites with a poor collision history but not sites significantly affected by RTM. The C-G method is beneficial because it accounts for more factors than the naïve method. The C-G method uses comparison sites to capture other trends that affect crash frequency and severity but whose causes are unknown. These other factors included historical effects, weather conditions, driver behavior, and traffic pattern changes.

With the C-G method as the recommended analysis, the team believes the unsignalized superstreet results should be used as a collision modification factor (CMF). The CMF would allow for other states and agencies to make an estimated effect of unsignalized superstreet implementation. The CMF for total collisions is -0.462 (or a reduction of $46.2 \%$ ).

### 7.3 Resident, Commuter, and Business Survey

Multiple residents from each signalized site commented on the disregard for the no left turn on red rule at the U-turn crossovers. With the number of superstreets in North Carolina likely to increase in future years, the researchers recommend evaluating the possibility of changing this rule so a vehicle could make a left turn on red when entering a one-way street (which is
essentially what they are doing when completing the U-turn maneuver). This is allowed in other states at similar locations.

The team believes that many of the safety and confusion problems associated by the business respondents with their superstreets will resolve themselves in time. Superstreets in these locations are still new and drivers are unfamiliar with their operation. Unfortunately, businesses are forced to experience these growing pains. A follow-up survey in five to ten years is recommended to determine if any opinions have changed. The team recommends that in future superstreet implementation where major left turns are allowed at the main intersection, the engineers design the left turn bay to make illegal U-turns difficult and uninviting. The team also recommends surveying more businesses statewide once more superstreets are in place to better understand the effect superstreets have on adjacent development.

Agencies considering superstreets should take a proactive approach in presenting safety and operational benefits. Agencies should emphasize the safety benefits to the nearby residents and the operational benefits to the commuters. They should pay special attention to businesses and inform them of the benefits of the superstreet design. Benefits for businesses include choosing a progression speed through the intersection and flexibility on location of crossovers. Additional crossovers can be added with no effect on the operations of the intersection.

Planning meetings typically hear the voices from nearby residents and immediate community, but may not hear opinions from the commuters who are benefiting most from the improved operations. Agencies need to represent commuters in the discussions with other stakeholders. In general, agencies need to identify what is of value to the stakeholders (residents, businesses, and commuters). They should be proactive in education and public awareness. The team suggests showing aerial video of an actual intersection or corridor before and after superstreet implementation to help viewers understand how a superstreet functions compared to a conventional intersection. Simulations are an excellent tool for analyzing designs but may not provide the best visualization for the general public. It is also important to understand any perceived negative aspects of the design and mitigate them. As with any intersection treatment, it is important to understand under what circumstances the superstreet will be most beneficial. Superstreets reroute minor street left-turn and through movements, and if the demand for those movements is high, superstreets may not be the optimum design choice (2). Superstreets are a promising solution for congested arterials, and agencies should seriously consider them for safety and operational improvements.

### 7.4 LOS Program

The NCLOS program is available to use for determining the range of AADT volumes for isolated superstreet installations across the state. The program can be helpful for planners when considering various treatment options for arterials and thoroughfares throughout the state. The program only considers the mainline LOS without any analysis provided for the side street traffic. It would be helpful for future alternative considerations for NCLOS to have a superstreet corridor analysis option.

### 7.5 Future Research

### 7.5.1 Travel Time Experiment

For any future research on the operational effects of superstreets, the team has suggestions to consider when collecting data at existing superstreets. Lane utilization studies should be done when collecting data from crossovers. From field observations, team members noted an uneven distribution of vehicles at the two-lane crossovers. The team did not do a full lane utilization study, but were able to look back at the videos and pull data from the Walmart intersection on US-17 where there was an approximate 80/20 split in the lane use. At the rest of the two-lane crossovers the team made assumptions on the lane utilization based on qualitative observations.

Another recommendation when collecting field data is to do a gap study where there are permitted/protected movements at crossovers, as well as for right turn on red (RTOR). The team was able to use the video footage to collect some gap data, but for future studies of superstreets, the team recommends conducting a full-scale gap study in conjunction with VISSIM calibration.

There are many other studies that could be done to assess the operational impact of superstreets that were not within the scope of this research project. Some of these research topics include investigating the impacts:

- Of allowing left turns on red,
- Of not allowing right turns on red,
- On operations with and without the direct left turn from the arterial to the minor road,
- Of different distances to the U-turn crossovers and signal spacing,
- Of driveways along the arterial,
- On emissions and fuel savings, and
- On pedestrians and bicycles.

The safety impact of superstreets is included in the report, but there is also more research beyond operational and safety analyses that can be done to assess the impact of the superstreet design. A benefit/cost analysis and a decision support guideline would help provide assistance to DOTs and other agencies considering the superstreet design.

Superstreets have the ability to be flexible with crossover distances and driveways along the arterial because the road essentially acts as a one-way pair. Studies should be done to investigate the impact of crossover distances and driveway locations on different signal options, such as allowing permissive movements at the crossovers. When studying these effects, the team recommends modeling them using data from existing superstreets and their adjacent intersections. Using data from existing superstreets and modifying the geometry or signals will allow for a good understanding of the effects of these changes on actual intersections.

### 7.5.2 Safety Analysis

Future research on the safety impacts of superstreets should include a SSAM analysis for unsignalized sites using calibrated and validated VISSIM models. The VISSIM models should be designed to realistically depict the safety of the arterial, a common oversight when travel time
or delay are calibrated and validated. Future research should also include validation of SSAM with collision history. This should be done on both signalized and unsignalized superstreets to assess each performance.

The safety effects of signalized superstreets were inconclusive because of the limited sample size and nature of each site. When a larger sample size is available, future research should be conducted to determine their safety impact.

The EB C-G method is not included in the HSM and I had problems using it in my analysis. When this method is included in the HSM, future research should use it to analyze unsignalized superstreets.

### 7.5.3 Resident, Commuter, and Business Survey

Business surveys were only conducted at two superstreet locations - US-15/501 in Chapel Hill and US-17 in Wilmington. The after period at both locations was less than a year when the surveys were conducted. Future research should include surveying those businesses after several years to determine if opinions changed about the superstreet. More superstreet locations should be surveyed as well to gain a larger sample population.

### 7.5.4 LOS Program

As more superstreets are installed across the state, additional calibration of the NCLOS programming to field conditions is needed for the AADT outputs to match actual values.

### 8.0 IMPLEMENTATION AND TECHNOLOGY TRANSFER PLAN

The following outlines how NCDOT and other agencies can use the products developed as part of the research to analyze signalized and unsignalized superstreets in North Carolina and beyond.

### 8.1 Research Products

The project has produced research products in four areas: travel time, safety, perceived effects, and NCLOS. This research report includes a literature summary, the full data sets, and details of the statistical analyses. The research products include:

- Calibrated and validated VISSIM models for three signalized superstreets,
- Calibration factors for HSM collision prediction equations for unsignalized three-leg and four-leg intersections in North Carolina,
- The NCLOS program updated (version 2.2) to make AADT estimates for superstreets, presented in Chapter 5 of this report,
- The set of recommendations given in Chapter 7, and
- Four papers submitted to peer-reviewed journals or conferences:

Ott, S. E., Haley, R. L, Hummer, J. E., Foyle, R. S., and Cunningham, C. M., "Resident, Commuter, and Business Perceptions of New Superstreets," Journal of Transportation Engineering, American Society of Civil Engineers, Submitted 4-19-2010.

Haley, R. L., Ott, S. E, Hummer, J. E., Foyle, R. S., Cunningham, C. M., and Schroeder, B. J., "Operational Effects of Signalized Superstreets in North Carolina," Transportation Research Board, National Research Council, Washington, D. C., Submitted 8-1-2010.

Ott, S. E., Haley, R. L, Hummer, J. E., Foyle, R. S., and Cunningham, C. M., "Safety Effects of Superstreets in North Carolina," Accident Analysis and Prevention, To be submitted.

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### 8.2 Research Products Users

The following groups within the NCDOT can apply the research products to inform and improve their decisions and policies:

- Traffic Management Unit,
- Traffic Systems Operation Unit,
- Traffic Safety Unit,
- Transportation Planning Branch, and
- Strategic Planning Office.

In addition, the research products can be useful to other departments of transportation, the FHWA, other agencies, and consultants interested in the areas of superstreet design, operations and safety.

The authors plan to send the paper on safety effects to the Highway Safety Research Center staff in Chapel Hill who maintain the FHWA's Collision Countermeasure Clearinghouse. Hopefully, the safety results will be accepted by the Clearinghouse and engineers around the country can use the safety results to help judge their own superstreet proposals.

Planners, designers, and local officials can also use the research in public hearings. This information can be used to present the operational and safety benefits, as well as understanding the perceived effects of stakeholders and mitigating them.

### 8.3 Research Products Applications

The NCDOT and others outside the department can use the research products named in Section 8.1 to advance superstreet implementation and other areas. The recommendations in Chapter 7 can be applied across the NCDOT to improve implementation strategies and practical operational and safety results for signalized and unsignalized superstreets.

The turning movement and travel time data collected as part of this research should be valuable to the NCDOT, FHWA, and other agencies that are involved in superstreet, and more generally unconventional intersection, data collection. The calibrated and validated VISSIM models are valuable tools that NCDOT can use to evaluate other signalized superstreet sites.

The NCLOS program was created to meet the needs of NCDOT's planning activities, including travel demand model efforts. The NCLOS program is a user-friendly software program that allows for the determination of service levels and capacities for superstreets from basic roadway, geographic, and traffic data.

Finally, the journal papers written as results of this research project advance the overall knowledge of superstreet performance. The papers disseminate the research findings to transportation agencies and the research community.

Planning, design, safety, and operations professionals should be able to use the products of this research without formal training courses or seminars. Nonetheless, presentations at NCDOT conferences, meetings of the NC Section Institute of Transportation Engineers, MPO meetings, or other meetings may be wise to publicize the findings. The authors will likely be available during the next year or two to make those presentations.

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### 10.0 APPENDICES

### 10.1 Travel Time Experiment

### 10.1.1 Field Data Collection

The field data collection for each signalized superstreet included a travel time study, turning movement counts, and a spot speed study. Figures 10.1 through 10.4 show the travel times for each superstreet. Figures 10.5 through 10.10 show the turning movement counts at each site, and Figures 10.11 through 10.15 show the data from the spot speed studies.

| Scenario | \# <br> runs | Distance <br> (mi) | Avg. \# <br> Stops | Avg <br> Speed <br> (mph) | Avg. Travel <br> Time (min) | St.Dev. <br> Travel <br> Time |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Minor left (EB) | 6 | 0.73 | 2 | 19.6 | 2.38 | 0.634 |
| Minor left (WB) | 6 | 0.64 | 2 | 15.0 | 2.63 | 0.599 |
| Minor right (EB) | 4 | 0.30 | 1 | 11.7 | 1.57 | 0.357 |
| Minor right (WB) | 4 | 0.27 | 1 | 12.2 | 1.42 | 0.417 |
| Minor thru (EB) | 5 | 0.58 | 3 | 15.2 | 2.36 | 0.513 |
| Minor thru (WB) | 6 | 0.40 | 2 | 15.7 | 1.72 | 0.743 |
| Major left (NB) | 5 | 0.34 | 2 | 12.5 | 1.75 | 0.423 |
| Major left (SB) | 6 | 0.28 | 1 | 19.2 | 0.94 | 0.279 |
| Major right (NB) | 4 | 0.31 | 0 | 26.0 | 0.78 | 0.306 |
| Major right (SB) | 4 | 0.26 | 1 | 22.4 | 0.71 | 0.130 |
| Major thru (NB) | 4 | 0.49 | 0 | 38.2 | 0.78 | 0.122 |
| Major thru (SB) | 4 | 0.53 | 1 | 36.8 | 0.92 | 0.297 |

Figure 10.1. Chapel Hill Travel Times

| Scenario | \# <br> runs | Distance <br> (mi) | Avg. \# <br> Stops | Avg <br> Speed <br> (mph) | Avg. Travel <br> Time (min) | St.Dev. <br> Travel <br> Time |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Minor left (EB) | 4 | 0.67 | 2 | 18.5 | 2.76 | 1.560 |
| Minor left (WB) | 4 | 0.63 | 3 | 13.3 | 3.12 | 1.012 |
| Minor right (EB) | 3 | 0.40 | 2 | 18.3 | 1.34 | 0.367 |
| Minor right (WB) | 3 | 0.32 | 1 | 19.7 | 1.12 | 0.433 |
| Minor thru (EB) | 5 | 0.51 | 3 | 12.9 | 2.64 | 0.959 |
| Minor thru (WB) | 4 | 0.51 | 2 | 12.4 | 2.55 | 0.436 |
| Major left (NB) | 5 | 0.73 | 1 | 23.0 | 2.15 | 0.974 |
| Major left (SB) | 4 | 0.63 | 1 | 16.4 | 2.47 | 0.643 |
| Major right (NB) | 3 | 0.34 | 0 | 30.5 | 0.67 | 0.058 |
| Major right (SB) | 3 | 0.34 | 0 | 32.1 | 0.65 | 0.089 |
| Major thru (NB) | 4 | 0.54 | 0 | 40.6 | 0.81 | 0.108 |
| Major thru (SB) | 4 | 0.49 | 0 | 44.3 | 0.82 | 0.320 |

Figure 10.2. Wilmington Travel Times

| Scenario | $\#$ <br> runs | Distance <br> (mi) | Avg. \# <br> Stops | Avg <br> Speed <br> (mph) | Avg. Travel <br> Time (min) | St.Dev. <br> Travel <br> Time |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Minor left (EB) | 5 | 0.54 | 3 | 13.4 | 2.45 | 0.41 |
| Minor left (WB) | 5 | 0.57 | 2 | 18.1 | 2.00 | 0.54 |
| Minor right (EB) | 5 | 0.29 | 2 | 15.5 | 1.38 | 0.97 |
| Minor right (WB) | 6 | 0.22 | 1 | 17.2 | 0.89 | 0.39 |
| Minor thru (EB) | 6 | 0.44 | 2 | 12.7 | 2.25 | 0.76 |
| Minor thru (WB) | 4 | 0.34 | 2 | 11.3 | 2.09 | 0.85 |
| Major left (NB) | 6 | 0.31 | 1 | 17.9 | 1.17 | 0.43 |
| Major left (SB) | 6 | 0.25 | 1 | 12.8 | 1.26 | 0.32 |
| Major right (NB) | 4 | 0.33 | 0 | 31.5 | 0.64 | 0.07 |
| Major right (SB) | 5 | 0.21 | 0 | 31.9 | 0.40 | 0.02 |
| Major thru (NB) | 5 | 0.44 | 0 | 33.0 | 0.81 | 0.13 |
| Major thru (SB) | 5 | 0.43 | 0 | 43.8 | 0.58 | 0.02 |

Figure 10.3. Walmart/Gregory on US-17 Travel Times

| Scenario | \# <br> runs | Distance <br> (mi) | Avg. \# <br> Stops | Avg <br> Speed <br> (mph) | Avg. Travel <br> Time (min) | St.Dev. <br> Travel <br> Time |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Minor left (EB) | 6 | 0.79 | 2 | 18.6 | 2.61 | 0.45 |
| Minor left (WB) | 1 | 0.64 | 2 | 19.9 | 1.93 | - |
| Minor right (EB) | 2 | 0.42 | 1 | 26.3 | 1.03 | 0.39 |
| Minor right (WB) | 2 | 0.38 | 1 | 18.0 | 1.27 | 0.07 |
| Minor thru (EB) | 2 | 0.50 | 2 | 14.6 | 2.08 | 0.39 |
| Minor thru (WB) | 2 | 0.51 | 3 | 11.1 | 2.77 | 0.16 |
| Major left (NB) | 5 | 0.43 | 1 | 17.6 | 1.58 | 0.39 |
| Major left (SB) | 2 | 0.47 | 1 | 16.7 | 1.69 | 0.01 |
| Major right (NB) | 2 | 0.33 | 1 | 26.8 | 0.73 | 0.07 |
| Major right (SB) | 2 | 0.48 | 0 | 40.8 | 0.71 | 0.04 |
| Major thru (SB) | 4 | 0.68 | 0 | 54.1 | 0.75 | 0.02 |

Figure 10.4. Lanvale/Brunswick Forest on US-17 Travel Times

| Time: | 7:30-7:45am |  | 7:45-8:00am |  | 8:00-8:15am |  | 8:15-8:30am |  | 8:30-8:45am |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | cars | trucks | cars | trucks | cars | trucks | cars | trucks | cars | trucks |
| NBT | 312 | 11 | 408 | 7 | 381 | 8 | 321 | 8 | 321 | 8 |
| NBR | 8 | 1 | 11 | 0 | 9 | 1 | 9 | 0 | 11 | 0 |
| NBL | 31 | 2 | 54 | 0 | 53 | 2 | 63 | 5 | 47 | 1 |
| SBT | 313 | 7 | 377 | 10 | 298 | 12 | 365 | 5 | 324 | 11 |
| SBR | 5 | 0 | 14 | 0 | 25 | 0 | 11 | 0 | 7 | 0 |
| SBL | 16 | 0 | 21 | 0 | 30 | 0 | 27 | 0 | 26 | 0 |
| EBT | 3 | 1 | 14 | 0 | 24 | 0 | 6 | 0 | 7 | 0 |
| EBR | 67 | 0 | 87 | 1 | 74 | 0 | 138 | 2 | 105 | 0 |
| EBL | 9 | 0 | 3 | 0 | 9 | 0 | 5 | 0 | 8 | 1 |
| WBT | 2 | 1 | 12 | 0 | 14 | 0 | 28 | 0 | 15 | 0 |
| WBR | 37 | 2 | 22 | 0 | 30 | 0 | 28 | 0 | 33 | 0 |
| WBL | 8 | 1 | 7 | 0 | 7 | 0 | 7 | 0 | 7 | 0 |

Figure 10.5. Chapel Hill Turning Movement Counts: Data Set \#1, Collected on 10/27/2009

| Time: | 11:30-11:45am |  | 11:45-12:00pm |  | 12:00-12:15pm |  | 12:15-12:30pm |  | 12:30-12:45pm |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | cars | trucks | cars | trucks | cars | trucks | cars | trucks | cars | trucks |
| NBT | 308 | 6 | 334 | 6 | 336 | 9 | 358 | 7 | 392 | 8 |
| NBR | 10 | 0 | 14 | 0 | 11 | 0 | 10 | 0 | 15 | 0 |
| NBL | 38 | 4 | 43 | 0 | 39 | 0 | 51 | 0 | 66 | 0 |
| SBT | 343 | 4 | 320 | 12 | 314 | 6 | 290 | 6 | 363 | 7 |
| SBR | 18 | 0 | 12 | 2 | 16 | 0 | 11 | 0 | 12 | 0 |
| SBL | 13 | 0 | 26 | 0 | 17 | 1 | 19 | 0 | 12 | 0 |
| EBT | 12 | 0 | 13 | 0 | 10 | 0 | 16 | 0 | 10 | 0 |
| EBR | 44 | 2 | 49 | 0 | 55 | 0 | 54 | 0 | 57 | 1 |
| EBL | 9 | 0 | 8 | 1 | 8 | 0 | 9 | 1 | 7 | 0 |
| WBT | 11 | 1 | 14 | 2 | 8 | 0 | 17 | 0 | 14 | 0 |
| WBR | 36 | 0 | 29 | 0 | 38 | 1 | 41 | 0 | 29 | 0 |
| WBL | 13 | 0 | 8 | 1 | 13 | 1 | 19 | 0 | 15 | 0 |

Figure 10.6. Chapel Hill Turning Movement Counts: Data Set \#2, Collected on 10/27/2009

| Time: | $\mathbf{1 2 : 0 0 - 1 2 : 1 5 p m}$ |  | $\mathbf{1 2 : 1 5 - 1 2 : 3 0} \mathbf{p m}$ |  | $\mathbf{1 2 : 3 0 - 1 2 : 4 5 p m}$ |  | $\mathbf{1 2 : 4 5 - 1 : 0 0} \mathbf{p m}$ |  | $\mathbf{1 : 0 0 - 1 : 1 5 p m}$ |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | cars | trucks | cars | trucks | cars | trucks | cars | trucks | cars | trucks |
| NBT | 360 | 4 | 330 | 8 | 372 | 3 | 325 | 5 | 321 | 3 |
| NBR | 27 | 0 | 11 | 1 | 21 | 0 | 23 | 0 | 18 | 0 |
| NBL | 23 | 1 | 22 | 0 | 16 | 0 | 18 | 0 | 19 | 0 |
| SBT | 358 | 3 | 412 | 5 | 391 | 2 | 387 | 3 | 382 | 4 |
| SBR | 16 | 0 | 16 | 0 | 17 | 0 | 20 | 1 | 28 | 0 |
| SBL | 35 | 1 | 32 | 1 | 42 | 0 | 33 | 2 | 35 | 0 |
| EBT | 2 | 0 | 4 | 0 | 2 | 0 | 3 | 0 | 2 | 0 |
| EBR | 21 | 0 | 14 | 0 | 13 | 0 | 24 | 0 | 32 | 0 |
| EBL | 18 | 0 | 8 | 0 | 7 | 0 | 13 | 0 | 16 | 0 |
| WBT | 2 | 0 | 4 | 0 | 2 | 0 | 2 | 0 | 4 | 0 |
| WBR | 13 | 0 | 38 | 0 | 17 | 1 | 23 | 0 | 26 | 0 |
| WBL | 18 | 0 | 23 | 0 | 27 | 0 | 38 | 0 | 32 | 1 |

Figure 10.7. Wilmington Turning Movement Counts: Data Set \#1, Collected on 7/17/2009

| Time: | $\mathbf{1 0 : 3 0} \mathbf{- 1 0 : 4 5 a m}$ |  | $\mathbf{1 0 : 4 5 - 1 1 : 0 0 a m}$ |  | $\mathbf{1 1 : 0 0}-\mathbf{1 1 : 1 5 a m}$ |  | $\mathbf{1 1 : 1 5 - 1 1 : 3 0 a m}$ |  | $\mathbf{1 1 : 3 0 - 1 1 : 4 5 a m}$ |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | cars | trucks | cars | trucks | cars | trucks | cars | trucks | cars | trucks |
| NBT | 333 | 2 | 341 | 4 | 334 | 3 | 403 | 3 | 324 | 5 |
| NBR | 20 | 0 | 21 | 0 | 25 | 0 | 31 | 0 | 17 | 0 |
| NBL | 17 | 0 | 14 | 0 | 17 | 0 | 11 | 0 | 18 | 0 |
| SBT | 393 | 4 | 371 | 4 | 412 | 3 | 427 | 2 | 461 | 0 |
| SBR | 19 | 0 | 18 | 0 | 9 | 0 | 13 | 0 | 17 | 0 |
| SBL | 37 | 0 | 33 | 0 | 29 | 0 | 21 | 0 | 33 | 1 |
| EBT | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 0 |
| EBR | 20 | 1 | 18 | 0 | 23 | 0 | 18 | 0 | 19 | 0 |
| EBL | 17 | 0 | 10 | 0 | 7 | 0 | 4 | 0 | 12 | 0 |
| WBT | 5 | 0 | 9 | 0 | 4 | 0 | 3 | 0 | 1 | 0 |
| WBR | 20 | 0 | 16 | 0 | 31 | 0 | 32 | 0 | 46 | 0 |
| WBL | 22 | 0 | 23 | 0 | 25 | 1 | 24 | 0 | 26 | 0 |

Figure 10.8. Wilmington Turning Movement Counts: Data Set \#2, Collected on 7/18/2009

| Time: | $\mathbf{7 : 3 0 - 7 : 4 5}$ |  | $\mathbf{7 : 4 5}-\mathbf{8 : 0 0}$ |  | $\mathbf{8 : 0 0 - 8 : 1 5}$ |  | $\mathbf{8 : 1 5 - 8 : 3 0}$ |  | $\mathbf{8 : 3 0 - 8 : 4 5}$ |  | $\mathbf{8 : 4 5 - 9 : 0 0}$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | cars | trucks | cars | trucks | cars | trucks | cars | trucks | cars | trucks | cars | trucks |  |
| NBT | 278 | 8 | 270 | 8 | 245 | 8 | 222 | 5 | 218 | 9 | 232 | 9 |  |
| NBR | 13 | 0 | 9 | 0 | 12 | 0 | 14 | 0 | 6 | 0 | 7 | 0 |  |
| NBL | 4 | 0 | 6 | 0 | 5 | 0 | 3 | 0 | 2 | 0 | 3 | 0 |  |
| SBT | 148 | 9 | 188 | 14 | 175 | 18 | 189 | 16 | 167 | 20 | 135 | 13 |  |
| SBR | 5 | 2 | 13 | 0 | 8 | 3 | 7 | 0 | 10 | 1 | 6 | 1 |  |
| SBL | 25 | 1 | 36 | 0 | 31 | 0 | 45 | 1 | 43 | 0 | 52 | 2 |  |
| EBT | 0 | 0 | 2 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 3 | 0 |  |
| EBR | 0 | 0 | 3 | 0 | 4 | 0 | 3 | 1 | 7 | 0 | 1 | 0 |  |
| EBL | 3 | 0 | 5 | 2 | 4 | 0 | 1 | 3 | 3 | 2 | 4 | 1 |  |
| WBT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| WBR | 45 | 0 | 47 | 1 | 58 | 0 | 55 | 1 | 50 | 1 | 48 | 1 |  |
| WBL | 5 | 0 | 5 | 0 | 6 | 0 | 4 | 0 | 5 | 0 | 5 | 0 | 0 |

Figure 10.9. Walmart/Gregory onUS-17 Turning Movement Counts: Data Set \#1, Collected on 7/17/2009

| Time: | 1:45-2:00 |  | 2:00-2:15 |  | 2:15-2:30 |  | 2:30-2:45 |  | 2:45-3:00 |  | 3:00-3:15 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | cars | trucks | cars | trucks | cars | trucks | cars | trucks | cars | trucks | cars | trucks |
| NBT | 209 | 2 | 250 | 4 | 210 | 5 | 188 | 4 | 225 | 5 | 165 | 4 |
| NBR | 16 | 0 | 15 | 0 | 15 | 0 | 11 | 0 | 14 | 0 | 12 | 0 |
| NBL | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 |
| SBT | 412 | 2 | 477 | 0 | 428 | 3 | 417 | 2 | 461 | 0 | 393 | 2 |
| SBR | 1 | 0 | 4 | 0 | 6 | 0 | 1 | 0 | 4 | 0 | 1 | 0 |
| SBL | 76 | 0 | 90 | 1 | 93 | 0 | 96 | 0 | 85 | 0 | 65 | 0 |
| EBT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| EBR | 1 | 0 | 1 | 0 | 8 | 0 | 3 | 0 | 2 | 0 | 3 | 0 |
| EBL | 1 | 0 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| WBT | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WBR | 107 | 0 | 86 | 0 | 92 | 0 | 97 | 0 | 106 | 1 | 85 | 0 |
| WBL | 41 | 0 | 32 | 0 | 28 | 0 | 16 | 0 | 15 | 0 | 22 | 0 |

Figure 10.10. Walmart/Gregory onUS-17 Turning Movement Counts: Data Set \#2, Collected on 7/18/2009

| Site | No. Obs. | Mean | St. Dev. | Median | Mode |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Chapel Hill | 359 | 50.2 | 4.50 | 50.3 | 49.4 |
| Wilmington | 291 | 51.8 | 4.85 | 51.4 | 46.2 |
| US-17 | 153 | 57.4 | 4.40 | 58.0 | 59.3 |
| Lanvale Rd. | 308 | 61.7 | 4.23 | 61.3 | 62.6 |

Figure 10.11. Spot Speed Data


Figure 10.12. Chapel Hill Speed Distribution Curve


Figure 10.13. Wilmington Speed Distribution Curve


Figure 10.14. US-17 Speed Distribution Curve


Figure 10.15. Lanvale Road Speed Distribution Curve

### 10.1.2 VISSIM Calibration Parameters

The VISSIM calibration parameters included vehicle inputs, speed distributions, conflict areas, reduced speed areas, and desired speed decisions for each superstreet. Figures 10.16 through 10.18 show the vehicle inputs for each superstreet. Figure 10.19 shows the speed distributions at each site. Figures 10.20 through 10.22 show the conflict area parameters, Figures 10.23 through 10.25 show the reduced speed areas, and Figures 10.26 through 10.28 show the desired speed decisions for each superstreet.

|  | SIMULATION PERIOD (sec) |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $0-900$ | $900-1800$ | $1800-2700$ | $2700-3600$ | $3600-4500$ | $4500-5400$ |
| NB input (TOTAL)* | 1460 | 1460 | 1920 | 1816 | 1624 | 1552 |
| $15-501 \mathrm{NB}$ | 876 | 876 | 1152 | 1090 | 974 | 931 |
| Franklin NB | 292 | 292 | 384 | 363 | 325 | 310 |
| Ephesus Church (WBR) | 292 | 292 | 384 | 363 | 325 | 310 |
| SB input (TOTAL)* | 1364 | 1364 | 1688 | 1460 | 1632 | 1472 |
| 15-501 SB | 1091 | 1091 | 1350 | 1168 | 1306 | 1178 |
| Sage (EBR) | 136 | 136 | 169 | 146 | 163 | 147 |
| Old Durham (WBL) | 136 | 136 | 169 | 146 | 163 | 147 |
| EB input | 320 | 320 | 420 | 428 | 604 | 484 |
| WB input | 204 | 204 | 164 | 204 | 252 | 220 |

* NB assumptions: 60\% US-15/501, 20\% Franklin St, 20\% Ephesus Church Rd.
* SB assumptions: 80\% US-15/501, 10\% Sage Rd, 10\% Old Durham Rd.

Figure 10.16. Vehicle Inputs for US-15/501 Superstreet in Chapel Hill (vph)

| INPUT | SIMULATION PERIOD (sec) |  |  |  |  |  |
| ---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $0-900$ | $900-1800$ | $1800-2700$ | $2700-3600$ | $3600-4500$ | $4500-5400$ |
| NB input (TOTAL)* | 1660 | 1660 | 1488 | 1648 | 1484 | 1444 |
| 421 NB | 1245 | 1245 | 1116 | 1236 | 1113 | 1083 |
| Sanders | 415 | 415 | 372 | 412 | 371 | 361 |
| SB input (TOTAL)* | 1652 | 1652 | 1864 | 1808 | 1784 | 1796 |
| College Rd SB | 1156 | 1156 | 1305 | 1266 | 1249 | 1257 |
| Piner (WBL) | 165 | 165 | 186 | 181 | 178 | 180 |
| US-421 (EBR) | 330 | 330 | 373 | 362 | 357 | 359 |
| EB input | 164 | 164 | 104 | 88 | 160 | 200 |
| WB input | 132 | 132 | 260 | 188 | 252 | 252 |

* NB assumptions: 75\% US-421, 25\% Sanders Dr.
* SB assumptions: 70\% College Rd, 10 \% Piner Rd, $15 \%$ US-421

Figure 10.17. Vehicle Inputs for US-421 Superstreet in Wilmington (vph)

|  | SIMULATION PERIOD (sec) |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $0-900$ | $900-$ <br> 1800 | $1800-$ <br> 2700 | $2700-$ <br> 3600 | $3600-$ <br> 4500 | $4500-$ <br> 5400 | $5400-$ <br> 6300 |
|  | 1212 | 1212 | 1172 | 1080 | 976 | 940 | 1004 |
|  | 1360 | 1360 | 1640 | 1436 | 1404 | 1392 | 1132 |
|  | 12 | 12 | 48 | 44 | 36 | 52 | 36 |
|  | 200 | 200 | 212 | 256 | 240 | 224 | 216 |
|  | 200 | 200 | 212 | 256 | 240 | 224 | 216 |
|  | 12 | 12 | 48 | 44 | 36 | 52 | 36 |
| WB (West Gate) | 200 | 200 | 212 | 256 | 240 | 224 | 216 |
| EB (Grandiflora) | 200 | 200 | 212 | 256 | 240 | 224 | 216 |
| WB (Brunswick Forest Pkwy) | 164 | 164 | 168 | 156 | 196 | 132 | 180 |
| EB (Lanvale) | 164 | 164 | 168 | 156 | 196 | 132 | 180 |
| WB (Brunswick Forest Dr.) | 0 | 0 | 4 | 4 | 8 | 8 | 0 |

Figure 10.18. Vehicle Inputs for US-17 Superstreet Corridor in Leland (vph)

| Name | Input speed points |  |
| :--- | :---: | :---: |
|  | Speed | $\%$ |
| ChapeIHill_mod3. | 27.8 | 0.00 |
| (reduced original speeds by 25\%) | 30.8 | 0.02 |
|  | 33.0 | 0.09 |
|  | 36.0 | 0.32 |
|  | 37.5 | 0.47 |
|  | 39.8 | 0.75 |
|  | 41.3 | 0.88 |
|  | 43.5 | 0.96 |
|  | 48.0 | 1.00 |
| MyrtleGrove_mod2. | 30.3 | 0.00 |
| (reduced original speeds by 25\%) | 36.8 | 0.11 |
|  | 39.2 | 0.30 |
|  | 42.4 | 0.60 |
|  | 45.6 | 0.85 |
|  | 48.0 | 0.95 |
|  | 51.9 | 1.00 |
| Leland_mod3 | 33.0 | 0.00 |
| (reduced original speeds by 25\%) | 39.0 | 0.10 |
|  | 41.3 | 0.31 |
|  | 44.3 | 0.61 |
|  | 46.5 | 0.86 |
|  | 48.8 | 0.95 |
|  | 53.3 | 1.00 |

Figure 10.19. Speed Distributions

| Who yields? | Font Gap | Rear Gap | SF | Add'1 stop <br> dist. | Obsv. Adj. <br> Routes | Anticipate <br> routes | Avoid <br> blocking |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| EBR to SBT | 2 | 3.6 | 10 | 10 | X | 1 | 1 |
| EBR to SBT | 2 | 3.6 | 10 | 10 | X | 1 | 1 |
| WBR to NBT | 2 | 3.6 | 10 | 8 | X | 1 | 1 |
| WBR to NBT | 2 | 3.6 | 10 | 6 | X | 1 | 1 |

Figure 10.20. Chapel Hill Conflict Area Parameters

| Who yields? | Font Gap | Rear Gap | SF | Add'1 stop <br> dist. | Obsv. Adj. <br> Routes | Anticipate <br> routes | Avoid <br> blocking |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| EBR to SBT | 2.0 | 3.6 | 12 | 5 | X | 1 | 1 |
| EBR to SBT | 2.0 | 3.6 | 12 | 5 | X | 1 | 1 |
| NBL to SBT | 2.0 | 5.5 | 15 | 23 | X | 1 | 1 |
| NBR to SBL | 2.0 | 3.6 | 12 | 5 | X | 1 | 1 |
| NUT to SBT | 3.0 | 7.1 | 15 | 23 | X | 1 | 1 |
| SBL to NBT | 2.0 | 5.5 | 15 | 23 | X | 1 | 1 |
| SBR to NBL | 2.0 | 3.6 | 12 | 5 | X | 1 | 1 |
| SUT to NBT | 3.0 | 7.1 | 15 | 20 | X | 1 | 1 |
| WBR to NBT | 2.0 | 3.6 | 12 | 5 | X | 1 | 1 |

Figure 10.21. Wilmington Conflict Area Parameters

| Who yields? | Font <br> Gap | Rear <br> Gap | SF | stop <br> dist. | Obsv. Adj. <br> Routes | Anticipat <br> e routes | Avoid <br> blocking |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| P/P: EBR to SBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| P/P: EBR to SBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| P/P: NBR to SBL | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| P/P: SBR to NBL | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| P/P: WBR to NBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| W/G: EBR to SBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| W/G: NBR to SBL | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| W/G: SBR to NBL | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| W/G: WBR to NBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| W/G: WBR to NBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| G/WG: EBR to SBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| G/WG: NBR to SBL | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| G/WG: SBR to NBL | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| G/WG: WBR to NBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| BF: NBR to SBL | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| BF: WBR to NBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| L/BF: EBR to SBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| L/BF: NBR to SBL | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| L/BF: SBR to NBL | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| L/BF: WBR to NBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |
| L/BF: WBR to NBT | 2.5 | 3.6 | 10 | 8 | X | 1 | 1 |

Figure 10.22. US-17 Conflict Area Parameters

| No. | Name | Speed Dist car <br> (min, max) | Speed Dist <br> HGV <br> (min, max) |
| :--- | :--- | :---: | :---: |
| 1 | NBR | $2(15,20)$ | $2(15,20)$ |
| 2 | NBR(2) | $2(15,20)$ | $2(15,20)$ |
| 3 | WBR_outer | $2(15,20)$ | $2(15,20)$ |
| 4 | WBR_inner | $2(15,20)$ | $2(15,20)$ |
| 5 | NUT_inner approach | $2(15,20)$ | $2(15,20)$ |
| 6 | NUT_outer approach | $2(15,20)$ | $2(15,20)$ |
| 7 | SBR | $2(15,20)$ | $2(15,20)$ |
| 8 | EBR_inner | $2(15,20)$ | $2(15,20)$ |
| 9 | EBR_outer | $2(15,20)$ | $2(15,20)$ |
| 10 | SUT_inner approach | $2(15,20)$ | $2(15,20)$ |
| 11 | SUT_outer approach | $2(15,20)$ | $2(15,20)$ |
| 12 | NUT_inner | $4(9,14)$ | $4(9,14)$ |
| 13 | NUT_outer | $4(9,14)$ | $4(9,14)$ |
| 14 | SUT_inner | $4(9,14)$ | $4(9,14)$ |
| 15 | SUT_outer | $4(9,14)$ | $4(9,14)$ |
| 16 | NUT_inner approach1 | $2(15,20)$ | $2(15,20)$ |
| 17 | NUT_outer approach1 | $2(15,20)$ | $2(15,20)$ |

Figure 10.23. Chapel Hill Reduced Speed Areas

| No. | Name | Speed Dist car <br> (min, max) | Speed Dist <br> HGV <br> (min, max) |
| :--- | :--- | :---: | :---: |
| 1 | NBR | $3(15,20)$ | $3(15,20)$ |
| 2 | NBL | $3(15,20)$ | $3(15,20)$ |
| 3 | SBR | $3(15,20)$ | $3(15,20)$ |
| 4 | SBL | $3(15,20)$ | $3(15,20)$ |
| 5 | North UT | $4(9,14)$ | $4(9,14)$ |
| 6 | South UT | $4(9,14)$ | $4(9,14)$ |
| 7 | WBR | $3(15,20)$ | $3(15,20)$ |
| 8 | WBR-2 | $3(15,20)$ | $3(15,20)$ |
| 9 | EBR | $3(15,20)$ | $3(15,20)$ |
| 10 | EBR-2 | $3(15,20)$ | $3(15,20)$ |
| 11 | Piner-WBL | $3(15,20)$ | $3(15,20)$ |
| 12 | North UT $(1)$ | $3(15,20)$ | $3(15,20)$ |
| 13 | WBR approach | $3(15,20)$ | $3(15,20)$ |
| 14 | WBR-2 approach | $3(15,20)$ | $3(15,20)$ |
| 15 | SBR approach | $3(15,20)$ | $3(15,20)$ |
| 16 | SBL approach | $3(15,20)$ | $3(15,20)$ |
| 17 | NBL approach | $3(15,20)$ | $3(15,20)$ |
| 18 | NBR approach | $3(15,20)$ | $3(15,20)$ |
| 19 | EBR approach | $3(15,20)$ | $3(15,20)$ |
| 20 | EBR-2 approach | $3(15,20)$ | $3(15,20)$ |
| 21 | South UT approach | $3(15,20)$ | $3(15,20)$ |

Figure 10.24. Wilmington Reduced Speed Areas

|  |  | Speed Dist car <br> (min, max) | Speed Dist <br> HGV <br> (min, max) |
| :---: | :--- | :---: | :---: |
| 1 | Name | P/P WBR | $3(15,20)$ |
| 2 | P/P NBR | $3(15,20)$ |  |
| 3 | P/P SBL | $3(15,20)$ | $3(15,20)$ |
| 4 | P/P NBL | $3(15,20)$ | $3(15,20)$ |
| 5 | P/P NBL | $3(15,20)$ | $3(15,20)$ |
| 6 | P/P SBR | $3(15,20)$ | $3(15,20)$ |
| 7 | P/P EBR | $3(15,20)$ | $3(15,20)$ |
| 8 | P/P EBR | $3(15,20)$ | $3(15,20)$ |
| 9 | P/P EBR | $3(15,20)$ | $3(15,20)$ |
| 10 | P/P NUT | $3(15,20)$ | $3(15,20)$ |
| 11 | P/P SUT approach2 | $3(15,20)$ | $3(15,20)$ |
| 12 | P/P SUT approach2 | $3(15,20)$ | $3(15,20)$ |
| 13 | W/G NUT | $3(15,20)$ | $3(15,20)$ |
| 14 | W/G SBR | $3(15,20)$ | $3(15,20)$ |
| 15 | W/G SBL | $3(15,20)$ | $3(15,20)$ |
| 16 | W/G SBL | $3(15,20)$ | $3(15,20)$ |
| 17 | W/G NBL | $3(15,20)$ | $3(15,20)$ |
| 18 | W/G WBR | $3(15,20)$ | $3(15,20)$ |
| 19 | W/G WBR | $3(15,20)$ | $3(15,20)$ |
| 20 | W/G NBR | $3(15,20)$ | $3(15,20)$ |
| 21 | W/G EBR | $3(15,20)$ | $3(15,20)$ |
| 22 | W/G SUT approach | $3(15,20)$ | $3(15,20)$ |
| 23 | G/WG NUT approach | $3(15,20)$ | $3(15,20)$ |
| 24 | G/WG NUT approach | $3(15,20)$ | $3(15,20)$ |
| 25 | G/WG WBR | $3(15,20)$ | $3(15,20)$ |
| 26 | G/WG WBR | $3(15,20)$ | $3(15,20)$ |
| 27 | G/WG SBL | $3(15,20)$ | $3(15,20)$ |
| 28 | G/WG NBR | $3(15,20)$ | $3(15,20)$ |
| 29 | G/WG NBL | $3(15,20)$ | $3(15,20)$ |
| 30 | G/WG SBR | $3(15,20)$ | $3(15,20)$ |
| 31 | G/WG EBR | $3(15,20)$ | $3(15,20)$ |
| 32 | G/WG EBR | $3(15,20)$ | $3(15,20)$ |
| 33 | G/WG SUT approach | $3(15,20)$ | $3(15,20)$ |
| 34 | G/WG SUT approach | $3(15,20)$ | $3(15,20)$ |
| 35 | BF NUT approach | $3(15,20)$ | $3(15,20)$ |
| $36(15,20)$ |  |  |  |


|  |  |  |  |
| :---: | :--- | :---: | :---: |
| No. | Name | Speed Dist car <br> $($ min, max $)$ | Speed Dist <br> HGV <br> $($ min, max $)$ |
| 37 | BF SBL | $3(15,20)$ | $3(15,20)$ |
| 38 | BF WBR | $3(15,20)$ | $3(15,20)$ |
| 39 | BF WBR | $3(15,20)$ | $3(15,20)$ |
| 40 | BF NBR | $3(15,20)$ | $3(15,20)$ |
| 41 | L/BF NUT approach | $3(15,20)$ | $3(15,20)$ |
| 42 | L/BF NUT approach | $3(15,20)$ | $3(15,20)$ |
| 43 | L/BF WBR | $3(15,20)$ | $3(15,20)$ |
| 44 | L/BF WBR | $3(15,20)$ | $3(15,20)$ |
| 45 | L/BF WBR | $3(15,20)$ | $3(15,20)$ |
| 46 | L/BF SBL | $3(15,20)$ | $3(15,20)$ |
| 47 | L/BF SBL | $3(15,20)$ | $3(15,20)$ |
| 48 | L/BF NBR | $3(15,20)$ | $3(15,20)$ |
| 49 | L/BF NBL | $3(15,20)$ | $3(15,20)$ |
| 50 | L/BF SBR | $3(15,20)$ | $3(15,20)$ |
| 51 | L/BF EBR | $3(15,20)$ | $3(15,20)$ |
| 52 | L/BF SUT approach | $3(15,20)$ | $3(15,20)$ |
| 53 | W/G SBR approach | $3(15,20)$ | $3(15,20)$ |
| 54 | W/G NBR approach | $3(15,20)$ | $3(15,20)$ |
| 55 | G/WG NBR approach | $3(15,20)$ | $3(15,20)$ |
| 56 | L/BF SBR approach | $3(15,20)$ | $3(15,20)$ |
| 57 | L/BF SUT | $6(9,14)$ | $6(9,14)$ |
| 58 | L/BF NUT | $6(9,14)$ | $6(9,14)$ |
| 59 | L/BF NUT | $6(9,14)$ | $6(9,14)$ |
| 60 | BF NUT | $6(9,14)$ | $6(9,14)$ |
| 61 | G/WG SUT | $6(9,14)$ | $6(9,14)$ |
| 62 | G/WG SUT | $6(9,14)$ | $6(9,14)$ |
| 63 | G/WG NUT | $6(9,14)$ | $6(9,14)$ |
| 64 | G/WG NUT | $6(9,14)$ | $6(9,14)$ |
| 65 | W/G SUT | $6(9,14)$ | $6(9,14)$ |
| 66 | W/G SBL approach | $3(15,20)$ | $3(15,20)$ |
| 67 | W/G SBL approach | $3(15,20)$ | $3(15,20)$ |
| 68 | P/P SUT approach | $3(15,20)$ | $3(15,20)$ |
| 69 | P/P SUT approach | $3(15,20)$ | $3(15,20)$ |
| 70 | P/P SUT | $6(9,14)$ | $6(9,14)$ |
| 71 | P/P SUT | $6(9,14)$ | $6(9,14)$ |
| 72 | P/P SBL approach | $3(15,20)$ | $3(15,20)$ |
|  |  |  |  |

Figure 10.25. US-17 Reduced Speed Areas

| No. | Name | Speed Dist car <br> $(\mathbf{m i n}, \mathbf{m a x})$ | Speed Dist HGV <br> $(\mathbf{m i n}, \mathbf{m a x})$ |
| :---: | :--- | :---: | :---: |
| 1 | Europa WB | $7(20,30)$ | $7(20,30)$ |
| 2 | Europa EB | $7(20,30)$ | $7(20,30)$ |
| 3 | Europa WBR | $6(29.6,51.2)$ | $6(29.6,51.2)$ |
| 4 | Europa WBR | $6(29.6,51.2)$ | $6(29.6,51.2)$ |
| 5 | Erwin WB | $50(29.8,36.0)$ | $50(29.8,36.0)$ |
| 6 | Erwin EB | $50(29.8,36.0)$ | $50(29.8,36.0)$ |
| 7 | Erwin EBR | $6(29.6,51.2)$ | $6(29.6,51.2)$ |
| 8 | Erwin EBR | $6(29.6,51.2)$ | $6(29.6,51.2)$ |
| 9 | NUT approach | $8(25,35)$ | $8(25,35)$ |
| 10 | NUT approach | $8(25,35)$ | $8(25,35)$ |
| 11 | 15-501SB after NUT | $6(29.6,51.2)$ | $6(29.6,51.2)$ |
| 12 | l5-501SB after NUT | $6(29.6,51.2)$ | $6(29.6,51.2)$ |
| 13 | SUT approach | $8(25,35)$ | $8(25,35)$ |
| 14 | l5-501NB after SUT | $6(29.6,51.2)$ | $6(29.6,51.2)$ |
| 15 | 15-501NB after SUT | $6(29.6,51.2)$ | $6(29.6,51.2)$ |
| 16 | NBR lane | $8(25,35)$ | $8(25,35)$ |

Figure 10.26. Chapel Hill Desired Speed Decisions

| No. | Name | Speed Dist car (min, max) | Speed Dist HGV (min, max) |
| :---: | :---: | :---: | :---: |
| 1 | Myrtle Gardens WB | 30 (18.6, 21.7) | 30 (18.6, 21.7) |
| 2 | Myrtle Gardens WB | 30 (18.6, 21.7) | $30(18.6,21.7)$ |
| 3 | Service Rd EB | $7(25,33)$ | $7(25,33)$ |
| 4 | Piner WB | $60(36,42.3)$ | $60(36,42.3)$ |
| 5 | Sanders EB | $60(36,42.3)$ | $60(36,42.3)$ |
| 6 | MyrtleGardens WBR | MG_mod2 $(30.3,51.9)$ | MG_mod2 $(30.3,51.9)$ |
| 7 | MyrtleGardens WBR | MG_mod2( $30.3,51.9$ ) | MG_mod2 $(30.3,51.9)$ |
| 8 | Piner WBL | MG_mod2( $30.3,51.9$ ) | MG_mod2 $(30.3,51.9)$ |
| 9 | Piner WBL | MG_mod2 $(30.3,51.9)$ | MG_mod2 $(30.3,51.9)$ |
| 10 | Service Rd EBR | MG_mod2 $(30.3,51.9)$ | MG_mod2 $(30.3,51.9)$ |
| 11 | Service Rd EBR | MG_mod2( $30.3,51.9$ ) | MG_mod2 $(30.3,51.9)$ |
| 12 | Sanders EBL | MG_mod2 $(30.3,51.9)$ | MG_mod2 $(30.3,51.9)$ |
| 13 | Sanders EBL | MG_mod2 $(30.3,51.9)$ | MG_mod2 $(30.3,51.9)$ |
| 14 | NUT approach | $8(25,35)$ | $8(25,35)$ |
| 15 | NBL approach | $8(25,35)$ | $8(25,35)$ |
| 16 | SBL approach | $8(25,35)$ | $8(25,35)$ |
| 17 | SUT approach | $8(25,35)$ | $8(25,35)$ |
| 18 | MyrtleGardens EB | $30(18.6,21.7)$ | $30(18.6,21.7)$ |
| 19 | Service Rd WB | $7(25,33)$ | $7(25,33)$ |
| 20 | US 421 after NUT | MG_mod2 $(30.3,51.9)$ | MG_mod2 $(30.3,51.9)$ |
| 21 | US 421 after NUT | MG_mod2( $30.3,51.9$ ) | MG_mod2( $30.3,51.9$ ) |
| 22 | US 421 after NUT | MG_mod2( $30.3,51.9$ ) | MG_mod2( $30.3,51.9$ ) |
| 23 | US 421 after SUT | MG_mod2 $(30.3,51.9)$ | MG_mod2 $(30.3,51.9)$ |
| 24 | US 421 after SUT | MG_mod2( $30.3,51.9$ ) | MG_mod2 $(30.3,51.9)$ |

Figure 10.27. Wilmington Desired Speed Decisions

| No. | Name | Speed Dist car (min, max) | $\begin{aligned} & \hline \text { Speed Dist HGV } \\ & (\min , \text { max }) \end{aligned}$ |
| :---: | :---: | :---: | :---: |
| 1 | Ploof WB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 2 | Poole EB | $50(29.8,36.0)$ | 50 (29.8, 36.0) |
| 3 | Poole EB | $50(29.8,36.0)$ | 50 (29.8, 36.0) |
| 4 | Gregory | $9(25,35)$ | $9(25,35)$ |
| 5 | Grandiflora EB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 6 | Grandiflora EB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 7 | WestGate WB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 8 | WestGate WB | $50(29.8,36.0)$ | 50 (29.8, 36.0) |
| 9 | BrumswickForest WB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 10 | BrumswickForest WB | $50(29.8,36.0)$ | 50 (29.8, 36.0) |
| 11 | BF\#2 WB | 40 (24.9, 28.0) | 40 (24.9, 28.0) |
| 12 | BF\#2 WB | 40 (24.9, 28.0) | 40 (24.9, 28.0) |
| 13 | BF\#2 WB | 40 (24.9, 28.0) | 40 (24.9, 28.0) |
| 14 | Lanvale EB | $50(29.8,36.0)$ | $50(29.8,36.0)$ |
| 15 | Walmart WB | $8(20,25)$ | $8(20,25)$ |
| 16 | Walmart WB | $8(20,25)$ | $8(20,25)$ |
| 17 | Ploof WBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 18 | Ploof WBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 19 | Poole EBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 20 | Poole EBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 21 | P/P SUT | $9(25,35)$ | $9(25,35)$ |
| 22 | P/P SUT | $9(25,35)$ | $9(25,35)$ |
| 23 | Walmart WBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 24 | Walmart WBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 25 | Gregory EBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 26 | Gregory EBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 27 | WestGate WBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 28 | WestGate WBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 29 | Grandiflora EBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 30 | Grandiflora EBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 31 | Brumswicl-Foreset WBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 32 | BF\#2 WBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 33 | BF\#2 WBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 34 | BF\#2 WBR | $9(25,35)$ | $9(25,35)$ |
| 35 | BF\#2 WBR | $9(25,35)$ | $9(25,35)$ |
| 36 | Lanvale EBR | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 37 | Lanvale EBR | Leland_mod2 ( $35.2,56.8$ ) | Leland_mod2 (35.2, 56.8) |
| 38 | Lanvale SUT | $9(25,35)$ | $9(25,35)$ |
| 39 | BF NUT | $9(25,35)$ | $9(25,35)$ |
| 40 | BF NUT to U-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 41 | BF NUT to U-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 42 | L/BF NUT to US-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 43 | L/BF NUT to US-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 44 | L/BF SUT to US-17NB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 45 | L/BF SUT to US-17NB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 46 | G/WG SUT to US-17NB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 47 | G/WG SUT to US-17NB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 48 | G/WG NUT to US-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 49 | G/WG NUT to US-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 50 | W/G SUT to US-17NB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 51 | W/G SUT to US-17NB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |

Figure 10.28. US-17 Desired Speed Decisions

| No. | Name | Speed Dist car (min, max) | $\begin{gathered} \hline \text { Speed Dist HGV } \\ \text { (min, max) } \end{gathered}$ |
| :---: | :---: | :---: | :---: |
| 52 | W/G NUT to US-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 53 | W/G NUT to US-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 54 | P/P SUT to US-17NB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 55 | P/P SUT to US-17NB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 56 | P/P NUT to US-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 57 | P/P NUT to US-17SB | Leland_mod2 (35.2, 56.8) | Leland_mod2 (35.2, 56.8) |
| 58 | P/P NUT | $9(25,35)$ | $9(25,35)$ |
| 59 | W/G NUT | $9(25,35)$ | $9(25,35)$ |
| 60 | W/G SUT | $9(25,35)$ | $9(25,35)$ |
| 61 | G/WG NUT | $9(25,35)$ | $9(25,35)$ |
| 62 | G/WG NUT | $9(25,35)$ | $9(25,35)$ |
| 63 | GWWG SUT | $9(25,35)$ | $9(25,35)$ |
| 64 | GWWG SUT | $9(25,35)$ | $9(25,35)$ |
| 65 | Ploof EB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 66 | Poole WB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 67 | Poole WB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 68 | Walmart EB | $8(20,25)$ | $8(20,25)$ |
| 69 | Walmart EB | $8(20,25)$ | $8(20,25)$ |
| 70 | Gregory WB | $9(25,35)$ | $9(25,35)$ |
| 71 | WestGate EB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 72 | WestGate EB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 73 | Grandiflora WB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 74 | Grandiflora WB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 75 | BrumswickForest EB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 76 | BrumswiclFForest EB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 77 | BF\#2 EB | 40 (24.9, 28.0) | 40 (24.9, 28.0) |
| 78 | BF\#2 EB | 40 (24.9, 28.0) | 40 (24.9, 28.0) |
| 79 | Lanvale WB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 80 | P/P NUT to US-17SB | 50 (29.8, 36.0) | 50 (29.8, 36.0) |
| 81 | W/G NBR | $9(25,35)$ | $9(25,35)$ |
| 82 | W/G SBR | $9(25,35)$ | $9(25,35)$ |
| 83 | P/P NBT | $9(25,35)$ | $9(25,35)$ |
| 84 | P/P SBR | $9(25,35)$ | $9(25,35)$ |
| 85 | G/WG NBR | $9(25,35)$ | $9(25,35)$ |
| 86 | G/WG SBR | $9(25,35)$ | $9(25,35)$ |
| 87 | BF NBR | $9(25,35)$ | $9(25,35)$ |
| 88 | L/BF NBR | $9(25,35)$ | $9(25,35)$ |
| 89 | L/BF SBR | $9(25,35)$ | $9(25,35)$ |
| 90 | L/BF NBL | $9(25,35)$ | $9(25,35)$ |
| 91 | L/BF SBL | $9(25,35)$ | $9(25,35)$ |
| 92 | L/BF SBL | $9(25,35)$ | $9(25,35)$ |
| 93 | BF SBL | $9(25,35)$ | $9(25,35)$ |
| 94 | BF SBL | $9(25,35)$ | $9(25,35)$ |
| 95 | GWG NBL | $9(25,35)$ | $9(25,35)$ |
| 96 | GWG SBL | $9(25,35)$ | $9(25,35)$ |
| 97 | W/G NBL | $9(25,35)$ | $9(25,35)$ |
| 98 | W/G SBL | $9(25,35)$ | $9(25,35)$ |
| 99 | W/G SBL | $9(25,35)$ | $9(25,35)$ |
| 100 | P/P NBL | $9(25,35)$ | $9(25,35)$ |
| 101 | P/P NBL | $9(25,35)$ | $9(25,35)$ |
| 102 | P/P SBL | $9(25,35)$ | $9(25,35)$ |

Figure 10.28. continued

### 10.1.3 VISSIM Calibration and Validation Results

The VISSIM results are split into two parts: calibration and validation. Figure 10.29 shows the calibration results by movement and Figure 10.30 shows the validation results by movement.

| Site | Date | Road | Movement | \#runs | Field | SET 1 |  | SET 2 |  | SET3 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | VISSIM | \% Diff. | VISSIM | \% Diff. | VISSIM | \% Diff. |
| Chapel Hill | $\begin{aligned} & 10 / 27 / 2009 \\ & 7: 30-9: 00 \mathrm{am} \\ & \text { (data set \#1) } \end{aligned}$ | minor | WBL | 2 | 235.2 | 119.1 | -49.3\% | 129.2 | -45.1\% | 137.10 | -41.7\% |
|  |  |  | WBR | 1 | 76.8 | 54.1 | -29.6\% | 56.8 | -26.0\% | 63.31 | -17.6\% |
|  |  |  | WBT | 2 | 168.0 | 118.0 | -29.8\% | 130.6 | -22.3\% | 128.61 | -23.4\% |
|  |  | minor | EBL | 2 | 240.9 | 136.3 | -43.4\% | 141.3 | -41.3\% | 142.04 | -41.0\% |
|  |  |  | EBR | 1 | 78.0 | 63.2 | -18.9\% | 66.6 | -14.7\% | 66.53 | -14.7\% |
|  |  |  | EBT | 2 | 199.2 | 126.3 | -36.6\% | 132.0 | -33.7\% | 124.07 | -37.7\% |
|  |  | major | NBL | 2 | 173.4 | 102.2 | -41.1\% | 112.0 | -35.4\% | 119.19 | -31.3\% |
|  |  |  | NBR | 1 | 42.0 | 27.3 | -35.0\% | 28.0 | -33.3\% | 32.37 | -22.9\% |
|  |  |  | NBT | 2 | 43.5 | 44.0 | 1.2\% | 46.3 | 6.3\% | 51.13 | 17.5\% |
|  |  | major | SBL | 2 | 180.3 | 129.4 | -28.2\% | 133.7 | -25.8\% | 125.54 | -30.4\% |
|  |  |  | SBR | 1 | 34.8 | 52.5 | 50.9\% | 55.1 | 58.4\% | 57.03 | 63.9\% |
|  |  |  | SBT | 2 | 39.0 | 61.5 | 57.6\% | 64.9 | 66.4\% | 64.48 | 65.3\% |
| Myrtle Grove | $\begin{gathered} 7 / 17 / 2009 \\ 12: 00-1: 30 \mathrm{pm} \\ \text { (data set \#1) } \end{gathered}$ | minor | WBL | 6 | 158.0 | 110.8 | -29.9\% | 113.9 | -27.9\% | 126.13 | -20.2\% |
|  |  |  | WBR | 2 | 89.4 | 41.0 | -54.2\% | 40.9 | -54.2\% | 47.01 | -47.4\% |
|  |  |  | WBT |  |  |  |  |  |  |  |  |
|  |  | minor | EBL |  |  |  |  |  |  |  |  |
|  |  |  | EBR | 2 | 78.0 | 51.8 | -33.6\% | 50.9 | -34.7\% | 55.46 | -28.9\% |
|  |  |  | EBT | 5 | 141.8 | 103.0 | -27.4\% | 102.8 | -27.6\% | 102.58 | -27.7\% |
|  |  | major | NBL | 5 | 105.0 | 53.9 | -48.7\% | 53.1 | -49.4\% | 51.59 | -50.9\% |
|  |  |  | NBR | 2 | 39.9 | 39.8 | -0.2\% | 39.4 | -1.2\% | 37.15 | -6.9\% |
|  |  |  | NBT | 2 | 45.9 | 55.3 | 20.5\% | 54.5 | 18.8\% | 50.51 | 10.0\% |
|  |  | major | SBL |  |  |  |  |  |  |  |  |
|  |  |  | SBR | 2 | 42.0 | 33.8 | -19.5\% | 34.9 | -16.9\% | 35.07 | -16.5\% |
|  |  |  | SBT | 2 | 58.2 | 53.6 | -7.8\% | 52.9 | -9.1\% | 53.02 | -8.9\% |
| US-17 corridor Walmart | $\begin{gathered} \text { 7/17/2009 } \\ 7: 30-9: 00 \mathrm{am} \\ \text { (data set \#1) } \end{gathered}$ | minor | WBL | 5 | 124.8 | 82.0 | -34.3\% | 91.9 | -26.3\% | 124.32 | -0.4\% |
|  |  |  | WBR | 4 | 49.4 | 39.8 | -19.4\% | 42.6 | -13.6\% | 48.44 | -1.8\% |
|  |  |  | WBT |  |  |  |  |  |  |  |  |
|  |  | minor | EBL |  |  |  |  |  |  |  |  |
|  |  |  | EBR | 2 | 42.0 | 32.8 | -21.9\% | 34.1 | -18.8\% | 31.03 | -26.1\% |
|  |  |  | EBT | 6 | 139.0 | 76.7 | -44.9\% | 81.9 | -41.1\% | 105.67 | -24.0\% |
|  |  | major | NBL | 5 | 75.7 | 54.3 | -28.3\% | 59.3 | -21.7\% | 80.21 | 5.9\% |
|  |  |  | NBR | 2 | 38.4 | 24.0 | -37.6\% | 26.9 | -30.1\% | 27.39 | -28.7\% |
|  |  |  | NBT | 2 | 41.1 | 38.8 | -5.5\% | 43.6 | 6.0\% | 37.67 | -8.3\% |
|  |  | major | SBL | 1 | 78.0 | 48.7 | -37.6\% | 52.8 | -32.3\% | 65.89 | -15.5\% |
|  |  |  | SBR | 3 | 24.0 | 22.6 | -5.8\% | 24.2 | 1.0\% | 23.32 | -2.8\% |
|  |  |  | SBT | 2 | 34.2 | 30.9 | -9.5\% | 36.8 | 7.6\% | 34.89 | 2.0\% |
| US-17 corridor Lanvale Rd. | $\begin{gathered} 7 / 17 / 2009 \\ 5: 00-6: 30 \mathrm{pm} \\ \text { (data set \#1) } \end{gathered}$ | minor | WBL | 1 | 115.8 | 0.0 |  | 90.7 | -21.7\% | 61.83 | -46.6\% |
|  |  |  | WBR | 2 | 76.2 | 0.0 |  | 40.6 | -46.7\% | 38.89 | -49.0\% |
|  |  |  | WBT | 2 | 165.9 | 0.0 |  | 56.8 | -65.8\% | 104.08 | -37.3\% |
|  |  | minor | EBL | 6 | 156.8 | 86.2 | -45.0\% | 98.6 | -37.1\% | 127.27 | -18.8\% |
|  |  |  | EBR | 2 | 61.5 | 43.5 | -29.3\% | 48.1 | -21.8\% | 49.18 | -20.0\% |
|  |  |  | EBT | 2 | 124.5 | 66.9 | -46.3\% | 68.4 | -45.1\% | 94.36 | -24.2\% |
|  |  | major | NBL | 5 | 94.9 | 60.9 | -35.8\% | 67.6 | -28.7\% | 90.38 | -4.8\% |
|  |  |  | NBR | 2 | 43.8 | 0.0 |  | 32.0 | -27.0\% | 36.19 | -17.4\% |
|  |  |  | NBT |  |  |  |  |  |  |  |  |
|  |  | major | SBL | 2 | 101.4 | 43.6 | -57.0\% | 50.7 | -50.0\% | 77.8 | -23.3\% |
|  |  |  | SBR | 2 | 42.3 | 28.0 | -33.8\% | 33.8 | -20.2\% | 28.12 | -33.5\% |
|  |  |  | SBT | 4 | 45.2 | 43.3 | -4.1\% | 52.2 | 15.5\% | 51.16 | 13.3\% |
|  |  | total no. field runs: 110 mean difference: $-23.7 \%$ |  |  |  |  |  |  | -20.6\% |  | -16.0\% |
|  |  | *Very low input volumes <br> *excluding values because no $T$ runs conducted in field for data set \#1 |  |  |  |  |  |  |  |  |  |

Figure 10.29. Calibration Results by Movement

| Site | Date | Road | Movement | \# runs | Field | SET 4 |  | SET 5 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | VISSIM | \% Diff. | VISSIM | \% Diff. |
| Chapel Hill | $\begin{aligned} & \text { 10/27/2009 } \\ & \text { 7:30-9:00am } \\ & \text { (data set \#1) } \end{aligned}$ | minor | WBL | 2 | 235.2 | 137.10 | -41.7\% | 138.92 | -40.9\% |
|  |  |  | WBR | 1 | 76.8 | 63.31 | -17.6\% | 63.85 | -16.9\% |
|  |  |  | WBT | 2 | 168.0 | 128.61 | -23.4\% | 128.93 | -23.3\% |
|  |  | minor | EBL | 2 | 240.9 | 142.04 | -41.0\% | 143.82 | -40.3\% |
|  |  |  | EBR | 1 | 78.0 | 66.53 | -14.7\% | 67.58 | -13.4\% |
|  |  |  | EBT | 2 | 199.2 | 124.07 | -37.7\% | 124.24 | -37.6\% |
|  |  | major | NBL | 2 | 173.4 | 119.19 | -31.3\% | 119.36 | -31.2\% |
|  |  |  | NBR | 1 | 42.0 | 32.37 | -22.9\% | 32.31 | -23.1\% |
|  |  |  | NBT | 2 | 43.5 | 51.13 | 17.5\% | 51.32 | 18.0\% |
|  |  | major | SBL | 2 | 180.3 | 125.54 | -30.4\% | 126.26 | -30.0\% |
|  |  |  | SBR | 1 | 34.8 | 57.03 | 63.9\% | 56.77 | 63.1\% |
|  |  |  | SBT | 2 | 39.0 | 64.48 | 65.3\% | 64.52 | 65.4\% |
| Myrtle Grove | $\begin{gathered} \text { 7/17/2009 } \\ \text { 12:00-1:30pm } \\ \text { (data set \#1) } \end{gathered}$ | minor | WBL | 6 | 158.0 | 126.13 | -20.2\% | 132.56 | -16.1\% |
|  |  |  | WBR | 2 | 89.4 | 47.01 | -47.4\% | 46.86 | -47.6\% |
|  |  |  | WBT |  |  |  |  |  |  |
|  |  | minor | EBL |  |  |  |  |  |  |
|  |  |  | EBR | 2 | 78.0 | 55.46 | -28.9\% | 55.07 | -29.4\% |
|  |  |  | EBT | 5 | 141.8 | 102.58 | -27.7\% | 111.60 | -21.3\% |
|  |  | major | NBL | 5 | 105.0 | 51.59 | -50.9\% | 58.36 | -44.4\% |
|  |  |  | NBR | 2 | 39.9 | 37.15 | -6.9\% | 39.58 | -0.8\% |
|  |  |  | NBT | 2 | 45.9 | 50.51 | 10.0\% | 50.9 | 10.9\% |
|  |  | major | SBL |  |  |  |  |  |  |
|  |  |  | SBR | 2 | 42.0 | 35.07 | -16.5\% | 36.92 | -12.1\% |
|  |  |  | SBT | 2 | 58.2 | 53.02 | -8.9\% | 53.89 | -7.4\% |
| US-17 corridor Walmart | $\begin{gathered} \text { 7/17/2009 } \\ \text { 7:30-9:00am } \\ \text { (data set \#1) } \end{gathered}$ | minor | WBL | 5 | 124.8 | 123.92 | -0.7\% | 129.71 | 3.9\% |
|  |  |  | WBR | 4 | 49.4 | 48.71 | -1.3\% | 48.84 | -1.0\% |
|  |  |  | WBT |  |  |  |  |  |  |
|  |  | minor | EBL |  |  |  |  |  |  |
|  |  |  | EBR | 2 | 42.0 | 31.67 | -24.6\% | 34.8 | -17.1\% |
|  |  |  | EBT | 6 | 139.0 | 105.19 | -24.3\% | 106.17 | -23.6\% |
|  |  | major | NBL | 5 | 75.7 | 80.56 | 6.4\% | 79.24 | 4.6\% |
|  |  |  | NBR | 2 | 38.4 | 28.58 | -25.6\% | 27.22 | -29.1\% |
|  |  |  | NBT | 2 | 41.1 | 37.77 | -8.1\% | 38.25 | -6.9\% |
|  |  | major | SBL | 1 | 78.0 | 65.92 | -15.5\% | 65.6 | -15.9\% |
|  |  |  | SBR | 3 | 24.0 | 22.86 | -4.8\% | 23.67 | -1.4\% |
|  |  |  | SBT | 2 | 34.2 | 34.94 | 2.2\% | 34.86 | 1.9\% |
| US-17 corridor Lanvale Rd. | $\begin{gathered} \text { 7/17/2009 } \\ \text { 5:00-6:30pm } \\ \text { (data set \#1) } \end{gathered}$ | minor | WBL | 1 | 115.8 | 61.3 | -47.1\% | 60.54 | -47.7\% |
|  |  |  | WBR | 2 | 76.2 | 40.31 | -47.1\% | 40.28 | -47.1\% |
|  |  |  | WBT | 2 | 165.9 | 102.33 | -38.3\% | 102.78 | -38.0\% |
|  |  | minor | EBL | 6 | 156.8 | 127.21 | -18.9\% | 117.87 | -24.8\% |
|  |  |  | EBR | 2 | 61.5 | 50.29 | -18.2\% | 50.26 | -18.3\% |
|  |  |  | EBT | 2 | 124.5 | 93.48 | -24.9\% | 85.58 | -31.3\% |
|  |  | major | NBL | 5 | 94.9 | 90.81 | -4.3\% | 88.54 | -6.7\% |
|  |  |  | NBR | 2 | 43.8 | 35.59 | -18.7\% | 33.76 | -22.9\% |
|  |  |  | NBT |  |  |  |  |  |  |
|  |  | major | SBL | 2 | 101.4 | 79.97 | -21.1\% | 81.27 | -19.9\% |
|  |  |  | SBR | 2 | 42.3 | 28.65 | -32.3\% | 27.8 | -34.3\% |
|  |  |  | SBT | 4 | 45.2 | 51.26 | 13.5\% | 52.64 | 16.6\% |
|  |  | total no. field runs: 110 |  |  |  |  | -15.8\% |  | -15.2\% |
|  |  | *exclu | s be | cause | T | d | field for | ata |  |

Figure 10.29. continued

*excluding values because no TT runs conducted in field for data set \#1
Figure 10.30. Validation Results by Movement

### 10.2 Safety Analysis

### 10.2.1 Site Information

Table 10.1 shows the location of each superstreet site and its respective comparison sites.
Table 10.1. Comparison Sites

| Intersection | Main Road | Cross Street(s) | County |
| :---: | :---: | :---: | :---: |
| Signalized sites |  |  |  |
| Superstreet <br> Comparison <br> Comparison | $\begin{aligned} & \text { US-15/501 } \\ & \text { US-15/501 } \\ & \text { US-15/501 } \end{aligned}$ | Erwin Rd./Europa Dr. <br> S. Estes Dr./SR-1750 <br> Sage Rd./Old Durham Rd. | Orange <br> Orange <br> Orange |
| Superstreet <br> Comparison <br> Comparison <br> Comparison | $\begin{aligned} & \hline \text { US-17 } \\ & \text { NC-132 } \\ & \text { NC-132 } \\ & \text { US-117 } \\ & \hline \end{aligned}$ | Leland corridor (Ploof Rd./Olde Waterford Way, West Gate Dr./Grandiflora Dr., Gregory Rd.) Bragg Dr. <br> Pinecliff Dr. <br> Holly Tree Rd. | Brunswick <br> New Hanover <br> New Hanover <br> New Hanover |
| Superstreet <br> Comparison <br> Comparison | $\begin{aligned} & \hline \text { US-421 } \\ & \text { US-421 } \\ & \text { US-421 } \\ & \hline \end{aligned}$ | SR-2501/Carolina Beach Rd. <br> Sanders Rd./SR-1187 <br> Halyburton Memorial Pkwy./Veterans. Dr. | New Hanover New Hanover New Hanover |
| Unsignalized <br> Superstreet <br> Comparison <br> Comparison | $\begin{aligned} & \text { les } \\ & \text { US-17 } \\ & \text { US-17 } \\ & \text { US-17 } \end{aligned}$ | Mt. Pisgah Rd. (SR-1130)/Sellers Rd. (SR-1344) Smith Ave./SR-1357 NC-211/Green Swamp Rd. | Brunswick Brunswick Brunswick |
| Superstreet <br> Comparison <br> Comparison <br> Comparison | $\begin{aligned} & \hline \text { US-17 } \\ & \text { US-17 } \\ & \text { US-17 } \\ & \text { US-17 } \end{aligned}$ | Ocean Isle Beach Rd./SR-1184 <br> Mintz Cemetery Rd./SR-1318 <br> Cumbee Rd./SR-1131 <br> Red Bug Rd./SR-1136 | Brunswick <br> Brunswick <br> Brunswick <br> Brunswick |
| Superstreet <br> Comparison <br> Comparison | $\begin{aligned} & \text { US-74/23 } \\ & \text { US-74/23 } \\ & \text { US-74/23 } \end{aligned}$ | Red Bank Rd. (SR-1155)/Walker Rd. (SR-1157) and Old Balsam Rd. (SR-1243)/Balsam Ridge <br> Rd. (SR-1158) <br> Mineral Springs Rd./SR-1456 <br> Hidden Valley Rd./SR-1788 | Haywood <br> Jackson <br> Jackson |
| Superstreet <br> Comparison <br> Comparison | $\begin{aligned} & \hline \text { US-74/441 } \\ & \text { US-74/23 } \\ & \text { US-23/441 } \end{aligned}$ | Barkers Creek Rd. (SR-1392)/Wilmont Rd. <br> Timberlake Rd./SR-1156 <br> Mockingbird Ln. (SR-1360)/Macktown Gap Rd. (SR-1377) | Jackson <br> Haywood <br> Jackson |
| Superstreet <br> Comparison <br> Comparison <br> Comparison | US-74/441 <br> US-74/23 <br> US-74/441 <br> US-74/441 | Dicks Creek Rd./SR-1388 <br> Blanton Branch Rd./SR-1709 <br> Wilmont Cemetery Rd./SR-1534 <br> Bradley Branch Rd./SR-1404 | Jackson <br> Jackson <br> Jackson <br> Jackson |

Table 10.1. continued

| Intersection | Main Road | Cross Street(s) | County |
| :--- | :--- | :--- | :--- |
| Superstreet | US-74 | Elmore Rd./SR-1321 | Scotland |
| Comparison | US-74 | Murdock St. (SR-1251)/Church St. (SR-1312) | Scotland |
| Comparison | US-401 | Orlando St. | Scotland |
| Superstreet | US-74/76 | Blacksmith Rd./SR-1800 | Columbus |
| Comparison | NC-214 | Spearman Rd./SR-1806 | Columbus |
| Comparison | NC-214 | $9^{\text {th }}$ St. | Columbus |
| Superstreet | NC-24 | Haw Branch Rd. (SR-1230) | Onslow |
| Comparison | NC-24 | Koonce Fork Rd./SR-1238 | Onslow |
| Comparison | NC-24 | Blizzardtown Rd./SR-1702 | Duplin |
| Superstreet | US-1 | Camp Easter Rd./Aiken Rd. (SR-1853) | Moore |
| Comparison | US-1 | Causey Rd. (SR-2025)/Grant Rd. (SR-1869) | Moore |
| Comparison | US-1 | Valleyview Rd./SR-1857 | Moore |
| Superstreet | NC-87 | Peanut Plant Rd. (SR-1150) | Bladen |
| Comparison | NC-87 | Cromartie Rd./SR-1155 | Bladen |
| Comparison | NC-87 | Martin Luther King Dr./SR-1145 | Bladen |
| Superstreet | NC-87/24 | N. 2 ${ }^{\text {nd }}$ St. | Cumberland |
| Comparison | NC-210 | Weaver St. | Cumberland |
| Comparison | NC-210 | N. 5t St. | Cumberland |
| Superstreet | NC-87 | School Rd./Butler Nursery Rd. (SR-2233) | Cumberland |
| Comparison | NC-87 | County Line Rd./SR-2257 | Cumberland |
| Comparison | NC-87 | Tobermory Rd./SR-1303 | Bladen |
| Comparison | NC-24 | Downing Rd./SR-1834 | Cumberland |
| Superstreet | NC-87 | Alderman Rd. (SR-2261)/Grays Creek Church <br> Rd. (SR-2235) <br> Thrower Rd./SR-2245 | Cumberland |
| Comparison | NC-87 |  |  |
| Comparison | NC-87 | Doc Bennett Rd. (SR-2212)/Wilmington Hwy | Cumberland |
| (SR-2337) | Cumberland |  |  |

Table 10.2 shows the dates of data collection for each superstreet. The team used one month of burning period before and after construction to account for driver adjustment, as well as give a buffer for approximate construction dates.

Table 10.2. Superstreet Dates of Data Collection

| Superstreet | Before Period Collection |  |  | After Period Collection |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Start Date | End Date | $\begin{gathered} \text { Total } \\ \text { (months) } \end{gathered}$ | Start Date | End Date | Total (months) |
| Signalized superstreets |  |  |  |  |  |  |
| US-15/501 and Erwin/Europa | 1/1/1999 | 6/31/2006 | 90 | 8/1/2008 | 1/31/2010 | 18 |
| US-17 and Leland corridor | 4/1/2001 | 2/30/2006 | 59 | 10/1/2006 | 7/31/2009 | 34 |
| $\begin{aligned} & \text { US-421 and SR- } \\ & 2501 \end{aligned}$ | 10/1/2003 | 9/30/2008 | 60 | 8/1/2009 | 6/30/2010 | 11 |
| Unsignalized superstreets |  |  |  |  |  |  |
| US-17 and Mt. Pisgah | 5/1/2003 | 3/31/2008 | 59 | 10/1/2008 | 7/31/2009 | 10 |
| US-17 and Ocean Isle Beach | 6/1/2003 | 4/30/2008 | 59 | 1/1/2009 | 7/31/2009 | 11 |
| US-74 and Red Bank/Old Balsam corridor | 1/1/1991 | 12/31/1998 | 96 | 1/1/2000 | 7/31/2009 | 115 |
| US-74/441 and Barkers Creek | 9/1/2002 | 6/30/2007 | 58 | 12/1/2008 | 7/31/2009 | 8 |
| US-74/441 and Dicks Creek | 9/1/2002 | 6/30/2007 | 58 | 12/1/2008 | 7/31/2009 | 8 |
| US-74 and Elmore | 1/1/2003 | 10/31/2007 | 58 | 7/1/2008 | 7/31/2009 | 13 |
| US-74/76 and Blacksmith | 8/1/2001 | 6/30/2006 | 59 | 12/1/2006 | 7/31/2009 | 32 |
| NC-24 and Haw Branch | 6/1/2002 | 4/30/2007 | 59 | 1/1/2008 | 9/30/2009 | 21 |
| US-1 and Camp Easter | 9/1/2000 | 7/31/2005 | 59 | 5/1/2006 | 9/30/2009 | 41 |
| NC-87 and Peanut Plant | 4/1/2001 | 1/31/2006 | 58 | 10/1/2006 | 9/30/2009 | 36 |
| $\begin{aligned} & \text { NC- } 87 / 24 \text { and } 2^{\text {nd }} \\ & \text { St. } \end{aligned}$ | 4/1/2001 | 2/30/2006 | 59 | 12/1/2006 | 9/30/2009 | 34 |
| NC-87 and School Rd. | 9/1/2003 | 8/31/2008 | 60 | 6/1/2009 | 6/30/2010 | 13 |
| NC-87 and Grays Creek Church | 9/1/2003 | 8/31/2008 | 60 | 6/1/2009 | 6/30/2010 | 13 |

Table 10.3 shows the intersection location by milepost (MP), number of legs, and distances to crossovers for each superstreet. The MP location is for the arterial with the lowest route number if coinciding routes exist. Coinciding routes are when a road or segment of road has dual names (e.g. US-15/501 or Ocean Isle Beach Rd./SR-1184). The distances to the crossover(s) are also shown; however, in the collection the team included an additional 500 feet beyond each crossover to include collisions related to the nearby intersection.

Table 10.3. Superstreet Geometric Details and Milepost Location
$\left.\begin{array}{|l|ccc|}\hline \text { Superstreet } & \text { Legs } & \begin{array}{c}\text { Distance to Crossover(s) } \\ \text { (ft) }\end{array} & \begin{array}{c}\text { MP } \\ \text { Location }\end{array} \\ \hline \text { Signalized superstreets } \\ \text { US-15/501 and Erwin/Europa } & 4 & & \\ \text { US-17 and Leland corridor } & 4 & \begin{array}{c}\text { 700N, 800S } \\ \text { (ends of corridor) }\end{array} & 7.41 \\ \text { US-421 and SR-2501 } & & 900 \mathrm{~N}, 1300 \mathrm{~S}\end{array}\right]$

Tables 10.4 and 10.5 show the annual average daily traffic (AADT) for the major and minor roadway, respectively, for each superstreet in the study years. The AADT was taken from NCDOT AADT maps. In cases where AADTs are given on either side of the intersection, the larger of the two AADTs was used, per NCDOT and HSM guidelines. Three minor roadways did not have AADTs, and in two cases the team used AADTs from nearby, similar intersections. These sites included US-74/441 and Dicks Creek and NC-87/24 and $2^{\text {nd }}$ Street. The other site, US-421 and Carolina Beach Road, did not have a comparable nearby intersection so in that case the team used hourly distribution factors (K factors) for North Carolina freeways as developed by Asad Khattak et al (60). Also, some sites did not have traffic volumes in either before years or after years, so in those cases the team used a linear regression to obtain traffic volumes. AADTs that were not directly provided by NCDOT AADT maps are italicized in Tables 10.4 and 10.5 .

Table 10.4. Superstreet Major Roadway AADTs

| Superstreet | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Signalized superstreets |  |  |  |  |  |  |  |  |  |  |  |  |
| US-15/501 and | 41000 |  | 40000 |  |  | 44000 | 42000 |  |  | 44080 | 44490 |  |
| Erwin/Europa |  |  |  |  |  |  |  |  |  |  |  |  |
| US-17 and Leland corridor |  |  | 21000 |  | 27000 |  | 33000 |  | 39000 |  | 45000 |  |
| US-421 and SR-2501 |  |  |  |  | 35000 |  | 37000 |  | 38000 |  |  |  |
| Unsignalized superstreets |  |  |  |  |  |  |  |  |  |  |  |  |
| US-17 and Mt. Pisgah |  |  |  |  |  |  | 26000 | 28000 | 31000 | 31000 | 33500 |  |
| US-17 and Ocean Isle |  |  |  |  | 19000 | 21000 | 20000 | 24000 | 25000 | 23000 | 25600 |  |
| Beach |  |  |  |  |  |  |  |  |  |  |  |  |
| US-74 and Red Bank/Old |  | 21000 | 21000 | 21000 | 19000 | 23000 | 22000 | 21000 | 22000 | 22000 |  |  |
| Balsam corridor |  |  |  |  |  |  |  |  |  |  |  |  |
| US-74/441 and Barkers |  |  |  | 21000 | 21000 | 21000 | 22000 | 20000 | 23000 | 22000 | 22285 |  |
| Creek |  |  |  |  |  |  |  |  |  |  |  |  |
| US-74/441 and Dicks |  |  |  | 21000 | 21000 | 21000 | 22000 | 20000 | 23000 | 22000 | 22285 |  |
| Creek |  |  |  |  |  |  |  |  |  |  |  |  |
| US-74 and Elmore |  |  |  |  | 22000 | 20000 | 22000 | 19000 |  | 18000 | 17500 |  |
| US-74/76 and Blacksmith |  |  | 9000 | 9200 | 9500 | 12000 | 12000 | 13000 | 10000 | 8400 |  |  |
| NC-24 and Haw Branch |  |  |  | 8100 | 7800 | 8400 | 7900 | 8400 | 8400 | 9300 |  |  |
| US-1 and Camp Easter |  |  | 14000 |  | 16000 | 15000 | 16000 | 17000 | 17000 | 16000 |  |  |
| NC-87 and Peanut Plant |  |  |  | 8000 | 6600 | 8300 | 6700 | 6900 | 6200 | 5900 |  |  |
| NC-87/24 and $2^{\text {nd }}$ St. |  |  |  |  |  |  |  | 31000 |  | 32000 |  |  |
| NC-87 and School Rd. |  |  |  |  |  | 8400 |  | 9200 |  | 9400 | 9750 | 10000 |
| NC-87 and Grays Creek Church |  |  |  |  |  | 8400 |  | 9200 |  | 9400 | 9750 | 10000 |

Table 10.5. Superstreet Minor Roadway AADTs

| Superstreet | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Signalized superstreets |  |  |  |  |  |  |  |  |  |  |  |  |
| US-15/501 and | 13000 |  | 13000 |  |  | 12000 | 10000 |  | 12000 | 10820 | 10575 |  |
| Erwin/Europa |  |  |  |  |  |  |  |  |  |  |  |  |
| US-17 and Leland corridor |  |  |  |  |  |  |  |  | 1800 |  |  |  |
| US-421 and SR-2501 |  |  |  |  |  |  |  |  |  |  |  | 17250 |
| Unsignalized superstreets |  |  |  |  |  |  |  |  |  |  |  |  |
| US-17 and Mt. Pisgah |  |  |  |  | 5000 |  |  |  |  |  |  |  |
| US-17 and Ocean Isle Beach |  |  |  |  | 5000 |  |  |  |  |  |  |  |
| US-74 and Red Bank/Old |  |  | 630 |  | 550 |  |  |  | 650 |  |  |  |
| Balsam corridor |  |  |  |  |  |  |  |  |  |  |  |  |
| US-74/441 and Barkers |  |  |  |  | 1600 |  | 1500 |  | 1600 |  |  |  |
| Creek |  |  |  |  |  |  |  |  |  |  |  |  |
| US-74/441 and Dicks Creek |  |  |  |  | 1600 |  | 1500 |  | 1600 |  |  |  |
| US-74 and Elmore |  |  |  |  | 430 |  | 330 | 570 |  | 550 | 590 |  |
| US-74/76 and Blacksmith |  |  |  |  |  |  |  | 820 |  |  |  |  |
| NC-24 and Haw Branch |  |  |  | 1300 |  | 1500 |  | 1500 |  | 1500 |  |  |
| US-1 and Camp Easter |  |  |  |  | 470 |  | 510 |  | 520 |  |  |  |
| NC-87 and Peanut Plant |  |  |  | 3200 |  | 3200 |  | 3400 |  | 2600 |  |  |
| NC-87/24 and $2^{\text {nd }} \mathrm{St}$. |  |  |  |  |  |  |  |  |  | 1000 |  |  |
| NC-87 and School Rd. |  |  |  |  |  | 900 |  | 1200 |  | 1200 | 1325 | 1400 |
| NC-87 and Grays Creek Church |  |  |  |  |  | 1700 |  | 1600 |  | 1600 | 1560 | 1530 |

### 10.2.2 Crash Data

The following tables show the crash data, obtained through TEAAS, for each superstreet and comparison site. Each table includes the time of the crash (month, day, year), collision type, crash severity level (F, A, B, C), conditions (R, L, W), crash ID, and MP. The features of each crash are described below by the North Carolina Department of Transportation Division of Motor Vehicles Crash Report Instruction Manual.

Crash severity level is the most severe injury sustained to a person involved in the crash. Severity level can be one of the following:

1. F - A death that occurs within 12 months after the crash.
2. A injury type (disabling) - Injury obviously serious enough to prevent the person injured from performing his normal activities for at least one day beyond the day of the collision. Massive blood loss, broken bone, unconsciousness of more than momentary duration are examples.
3. B injury type (evident) - Obvious injury, other than killed or disabling, which is evident at the scene. Bruises, swelling, limping, soreness, are examples. Class B injury would not necessarily prevent the person from carrying on his normal activities.
4. C injury type (possible) - No visible injury, but person complains for pain or has been momentarily unconscious.

Road surface condition (R) describes the roadway surface conditions at the time and place of the crash, and can be the following:

1. Dry
2. Wet
3. Water (standing, moving)
4. Ice
5. Snow
6. Slush
7. Sand, mud, dirt, gravel
8. Fuel, oil
9. Other
10. Unknown

Ambient light condition (L) is the type of light that existed at the time of the crash. Light conditions are described as follows:

1. Daylight
2. Dusk
3. Dawn
4. Darkness (lighted roadway)

Weather condition (W) is the general atmospheric conditions that existed at the time of the crash. Weather conditions include the following:

1. Clear
2. Cloudy
3. Raining
4. Snowing
5. Fog, smog, smoke
6. Sleet, hail, freezing rain/drizzle
7. Severe crosswinds
8. Blowing sand, dirt, snow
9. Other

Tables 10.6 through 10.8 show the crashes for the three signalized superstreets, and Tables 10.9 through 10.21 show the crashes for the 13 unsignalized superstreets. Tables 10.22 through 10.28 show the crashes for the signalized comparison sites. Tables 10.29 through 10.57 show the crashes for unsignalized comparison sites.

Table 10.6. US-15/501 and Erwin Road/Europa Drive Crash Data

| Month | Day | Year | Collision Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 21 | 1999 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 99012989 | 7.395 |
| 1 | 22 | 1999 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 99013807 | 7.419 |
| 2 | 20 | 1999 | REAR END, SLOW OR STOP | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 99033750 | 7.42 |
| 3 | 11 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 99046604 | 7.51 |
| 3 | 18 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 99050943 | 7.17 |
| 4 | 8 | 1999 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99065636 | 7.41 |
| 4 | 16 | 1999 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 99070948 | 7.41 |
| 4 | 30 | 1999 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 99081534 | 7.41 |
| 5 | 12 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 99089734 | 7.406 |
| 6 | 9 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 99109460 | 7.408 |
| 6 | 23 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99119289 | 7.41 |
| 6 | 30 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 99124459 | 7.51 |
| 7 | 10 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 99131126 | 7.438 |
| 7 | 12 | 1999 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 99132620 | 7.41 |
| 7 | 30 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99144575 | 7.31 |
| 8 | 6 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 6 | 1 | 1 | 99149277 | 7.39 |
| 8 | 9 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 99151153 | 7.17 |
| 8 | 20 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 99158882 | 7.51 |
| 8 | 21 | 1999 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99159635 | 7.415 |
| 8 | 23 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99160701 | 7.406 |
| 8 | 30 | 1999 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 99165971 | 7.42 |
| 9 | 14 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 99177875 | 7.41 |
| 9 | 18 | 1999 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 99181773 | 7.41 |
| 9 | 30 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 99191078 | 7.391 |
| 10 | 26 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99211952 | 7.406 |
| 12 | 21 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 99258791 | 7.414 |
| 1 | 12 | 2000 | OTHER NON-COLLISION | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100006968 | 7.401 |

Table 10.6. continued (US-15/501 and Erwin Road/Europa Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 14 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 100008712 | 7.206 |
| 2 | 3 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100024046 | 7.406 |
| 2 | 13 | 2000 | BACKING UP | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 100030427 | 7.41 |
| 4 | 15 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100074113 | 7.17 |
| 4 | 25 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100081058 | 7.41 |
| 5 | 13 | 2000 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100094166 | 7.41 |
| 5 | 21 | 2000 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 100099750 | 7.41 |
| 6 | 14 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100117027 | 7.523 |
| 6 | 26 | 2000 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100126078 | 7.41 |
| 6 | 28 | 2000 | RAN OFF ROAD - LEFT | 0 | 0 | 2 | 0 | 2 | 4 | 3 | 100127674 | 7.271 |
| 6 | 30 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100129724 | 7.41 |
| 7 | 25 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 100145882 | 7.41 |
| 8 | 20 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100164571 | 7.41 |
| 9 | 22 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 100188577 | 7.473 |
| 10 | 10 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100202155 | 7.372 |
| 10 | 28 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100215368 | 7.398 |
| 11 | 3 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 100220898 | 7.51 |
| 11 | 28 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100241033 | 7.419 |
| 12 | 5 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100246577 | 7.41 |
| 12 | 18 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100255824 | 7.28 |
| 12 | 20 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 100257656 | 7.22 |
| 12 | 28 | 2000 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100263015 | 7.406 |
| 12 | 28 | 2000 | ANGLE | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 100263088 | 7.41 |
| 1 | 4 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100266892 | 7.42 |
| 1 | 8 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 100269726 | 7.473 |
| 1 | 18 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100276107 | 7.51 |
| 2 | 15 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100295583 | 7.506 |

Table 10.6. continued (US-15/501 and Erwin Road/Europa Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 2 | 20 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100298829 | 7.419 |
| 2 | 26 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100303100 | 7.41 |
| 3 | 16 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100314700 | 7.438 |
| 4 | 20 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100339651 | 7.41 |
| 5 | 2 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100347648 | 7.552 |
| 5 | 15 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 100356939 | 7.415 |
| 5 | 15 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100356565 | 7.53 |
| 6 | 12 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100375887 | 7.41 |
| 6 | 23 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100380250 | 7.53 |
| 7 | 7 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100392530 | 7.55 |
| 8 | 30 | 2001 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 100428827 | 7.406 |
| 9 | 11 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100438520 | 7.51 |
| 9 | 13 | 2001 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100439467 | 7.369 |
| 9 | 20 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 2 | 2 | 2 | 100444099 | 7.523 |
| 10 | 12 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100461740 | 7.41 |
| 11 | 7 | 2001 | ANIMAL | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100482863 | 7.51 |
| 11 | 11 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100487005 | 7.443 |
| 11 | 14 | 2001 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100489698 | 7.41 |
| 11 | 15 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100489430 | 7.406 |
| 11 | 16 | 2001 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100490425 | 7.41 |
| 11 | 19 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100492640 | 7.256 |
| 12 | 5 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100505313 | 7.51 |
| 12 | 16 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100515657 | 7.466 |
| 1 | 7 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 100532186 | 7.41 |
| 1 | 7 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 100532185 | 7.41 |
| 1 | 7 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100532183 | 7.466 |
| 1 | 10 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100535162 | 7.41 |

Table 10.6. continued (US-15/501 and Erwin Road/Europa Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 13 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100541673 | 7.41 |
| 1 | 22 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100543546 | 7.41 |
| 1 | 27 | 2002 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100546442 | 7.41 |
| 1 | 29 | 2002 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100547671 | 7.41 |
| 3 | 23 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 100584453 | 7.404 |
| 4 | 27 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100609161 | 7.504 |
| 4 | 30 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100611126 | 7.22 |
| 5 | 28 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100630976 | 7.42 |
| 5 | 31 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100634027 | 7.38 |
| 8 | 5 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100679464 | 7.556 |
| 8 | 13 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100685024 | 7.463 |
| 9 | 14 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100708916 | 7.558 |
| 9 | 21 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100714883 | 7.51 |
| 10 | 10 | 2002 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100728741 | 7.21 |
| 11 | 11 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100756127 | 7.406 |
| 1 | 11 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100804170 | 7.25 |
| 3 | 22 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100856225 | 7.221 |
| 3 | 30 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100861470 | 7.406 |
| 4 | 7 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100867593 | 7.51 |
| 4 | 12 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100872096 | 7.553 |
| 5 | 7 | 2003 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100890991 | 7.406 |
| 5 | 22 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100902849 | 7.41 |
| 6 | 2 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100911566 | 7.553 |
| 8 | 1 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100968037 | 7.41 |
| 8 | 8 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100963375 | 7.467 |
| 9 | 5 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100985355 | 7.353 |
| 9 | 18 | 2003 | ANGLE | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100994722 | 7.41 |

Table 10.6. continued (US-15/501 and Erwin Road/Europa Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 19 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100995578 | 7.21 |
| 9 | 19 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100995588 | 7.421 |
| 9 | 27 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101002065 | 7.372 |
| 10 | 18 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101019115 | 7.51 |
| 10 | 20 | 2003 | ANGLE | 0 | 0 | 1 | 2 | 1 | 4 | 1 | 101021199 | 7.41 |
| 12 | 10 | 2003 | BACKING UP | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101065658 | 7.41 |
| 12 | 13 | 2003 | REAR END, SLOW OR STOP | 1 | 1 | 0 | 0 | 1 | 4 | 1 | 101136882 | 7.48 |
| 12 | 23 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101077363 | 7.506 |
| 1 | 5 | 2004 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101086218 | 7.406 |
| 1 | 16 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101094301 | 7.372 |
| 3 | 6 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101135784 | 7.41 |
| 4 | 20 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101168147 | 7.41 |
| 4 | 29 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101175368 | 7.41 |
| 4 | 30 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 101175730 | 7.51 |
| 5 | 11 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101184986 | 7.457 |
| 5 | 27 | 2004 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101197576 | 7.25 |
| 6 | 18 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101214856 | 7.41 |
| 6 | 29 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 1 | 2 | 5 | 1 | 101223292 | 7.542 |
| 7 | 12 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101233143 | 7.429 |
| 7 | 25 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101242739 | 7.42 |
| 8 | 17 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101258806 | 7.408 |
| 8 | 23 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101265460 | 7.41 |
| 9 | 16 | 2004 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101285050 | 7.51 |
| 9 | 17 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101286118 | 7.53 |
| 10 | 7 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101302917 | 7.277 |
| 10 | 11 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 101306047 | 7.41 |
| 10 | 14 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101308750 | 7.456 |

Table 10.6. continued (US-15/501 and Erwin Road/Europa Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 21 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101341939 | 7.41 |
| 11 | 24 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 3 | 5 | 101344871 | 7.406 |
| 1 | 6 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 4 | 2 | 101380120 | 7.21 |
| 1 | 16 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101387547 | 7.41 |
| 1 | 19 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101389685 | 7.41 |
| 1 | 19 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 4 | 1 | 4 | 101389020 | 7.41 |
| 1 | 24 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 101394195 | 7.429 |
| 2 | 1 | 2005 | UNKNOWN | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101401376 | 7.406 |
| 2 | 4 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101403116 | 7.53 |
| 2 | 21 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101416394 | 7.51 |
| 3 | 4 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101425454 | 7.399 |
| 3 | 25 | 2005 | ANGLE | 0 | 0 | 1 | 1 | 1 | 4 | 1 | 101440903 | 7.41 |
| 3 | 31 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101444734 | 7.51 |
| 4 | 2 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101446692 | 7.387 |
| 4 | 5 | 2005 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101448689 | 7.41 |
| 4 | 15 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101455749 | 7.41 |
| 4 | 21 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101459720 | 7.406 |
| 4 | 21 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101459718 | 7.41 |
| 4 | 25 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101462572 | 7.419 |
| 5 | 7 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101471435 | 7.41 |
| 5 | 13 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101475574 | 7.406 |
| 5 | 23 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101482086 | 7.399 |
| 6 | 30 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101419785 | 7.41 |
| 7 | 14 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101518739 | 7.51 |
| 7 | 26 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101526052 | 7.505 |
| 8 | 22 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101546543 | 7.429 |
| 8 | 23 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101547724 | 7.482 |

Table 10.6. continued (US-15/501 and Erwin Road/Europa Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 3 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 101600414 | 7.32 |
| 12 | 10 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101569823 | 7.397 |
| 12 | 20 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101638944 | 7.41 |
| 12 | 23 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101641252 | 7.397 |
| 12 | 27 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101644281 | 7.467 |
| 12 | 28 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 101644761 | 7.413 |
| 12 | 30 | 2005 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101646411 | 7.41 |
| 1 | 5 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101650032 | 7.41 |
| 1 | 16 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101657782 | 7.41 |
| 2 | 5 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101671304 | 7.41 |
| 3 | 3 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101687660 | 7.412 |
| 3 | 22 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101700009 | 7.41 |
| 3 | 31 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 101707145 | 7.41 |
| 5 | 24 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101739209 | 7.457 |
| 5 | 25 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101739400 | 7.407 |
| 6 | 21 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101766571 | 7.41 |
| 6 | 22 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101766822 | 7.457 |
| 6 | 28 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101770910 | 7.403 |
| 8 | 4 | 2008 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102367697 | 7.41 |
| 8 | 5 | 2008 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102381288 | 7.41 |
| 8 | 17 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102389751 | 7.4 |
| 8 | 17 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102390206 | 7.429 |
| 8 | 21 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102391433 | 7.485 |
| 8 | 25 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102393101 | 7.17 |
| 9 | 10 | 2008 | BACKING UP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102407791 | 7.41 |
| 9 | 15 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 102408589 | 7.41 |
| 9 | 19 | 2008 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102410016 | 7.405 |

Table 10.6. continued (US-15/501 and Erwin Road/Europa Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 8 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 102420648 | 7.41 |
| 10 | 11 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 102421645 | 7.467 |
| 10 | 17 | 2008 | OTHER NON-COLLISION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102437463 | 7.372 |
| 10 | 24 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102453186 | 7.363 |
| 11 | 8 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102460662 | 7.457 |
| 11 | 10 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102460570 | 7.41 |
| 11 | 17 | 2008 | RAN OFF ROAD - STRAIGHT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102466623 | 7.353 |
| 11 | 22 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102468242 | 7.46 |
| 11 | 22 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 102468239 | 7.46 |
| 11 | 24 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 102473816 | 7.372 |
| 11 | 24 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102468251 | 7.41 |
| 12 | 2 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102478749 | 7.446 |
| 12 | 10 | 2008 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 102487953 | 7.406 |
| 12 | 19 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102492343 | 7.41 |
| 12 | 19 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 102494011 | 7.457 |
| 12 | 22 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102495218 | 7.448 |
| 12 | 26 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 102502751 | 7.448 |
| 1 | 16 | 2009 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 102517456 | 7.41 |
| 1 | 20 | 2009 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 102521086 | 7.41 |
| 2 | 17 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102538505 | 7.51 |
| 2 | 20 | 2009 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102540434 | 7.41 |
| 3 | 11 | 2009 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102553848 | 7.505 |
| 4 | 7 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102572690 | 7.438 |
| 4 | 18 | 2009 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102576801 | 7.36 |
| 4 | 25 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102581026 | 7.31 |
| 6 | 10 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102618280 | 7.41 |
| 6 | 10 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102618284 | 7.429 |

Table 10.6. continued (US-15/501 and Erwin Road/Europa Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 11 | 2009 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 102618318 | 7.41 |
| 6 | 22 | 2009 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102625076 | 7.46 |
| 7 | 2 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102636929 | 7.41 |
| 7 | 30 | 2009 | RAN OFF ROAD - STRAIGHT | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102652395 | 7.31 |
| 8 | 17 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102669286 | 7.31 |
| 8 | 19 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102662595 | 7.32 |
| 10 | 27 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102713078 | 7.413 |
| 12 | 2 | 2009 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102756484 | 7.41 |
| 12 | 22 | 2009 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102771122 | 7.41 |
| 1 | 12 | 2010 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102782552 | 7.41 |

Table 10.7. US-17 and the Leland Corridor Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 29 | 2003 | Other Non-Collision | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 100817833 | 42.45 |
| 3 | 7 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101135103 | 42.45 |
| 3 | 19 | 2007 | Sideswipe, Opposite Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101988118 | 42.45 |
| 3 | 23 | 2007 | Rear End, Slow or Stop | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 102580148 | 42.5 |
| 9 | 1 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101553094 | 42.55 |
| 10 | 4 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101575241 | 42.55 |
| 2 | 2 | 2002 | Overturn/Rollover | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100550198 | 42.59 |
| 10 | 11 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101854317 | 42.6 |
| 3 | 29 | 2005 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101443195 | 42.64 |
| 11 | 29 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101348488 | 42.69 |
| 3 | 16 | 2008 | Ran Off Road - Right | 0 | 0 | 1 | 0 | 2 | 5 | 2 | 102284250 | 42.7 |
| 5 | 29 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102314171 | 42.7 |
| 9 | 13 | 2001 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100439148 | 42.75 |
| 12 | 21 | 2002 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100789908 | 42.75 |
| 10 | 4 | 2003 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101007187 | 42.75 |
| 5 | 12 | 2004 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101185753 | 42.75 |
| 10 | 21 | 2004 | Angle | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101313695 | 42.75 |
| 5 | 18 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101478644 | 42.75 |
| 7 | 11 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101516236 | 42.75 |
| 9 | 1 | 2005 | Right Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101553110 | 42.75 |
| 12 | 20 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101916658 | 42.75 |
| 1 | 3 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101928019 | 42.75 |
| 3 | 13 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101982421 | 42.75 |
| 3 | 19 | 2007 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101988114 | 42.75 |
| 11 | 21 | 2007 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102197649 | 42.75 |
| 7 | 27 | 2008 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102399684 | 42.75 |
| 10 | 1 | 2008 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102436691 | 42.75 |

Table 10.7. continued (US-17 and the Leland Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 5 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102436707 | 42.75 |
| 2 | 24 | 2009 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102555065 | 42.75 |
| 7 | 18 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102643782 | 42.75 |
| 10 | 28 | 2006 | Rear End, Slow or Stop | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101870565 | 42.752 |
| 1 | 4 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102232671 | 42.752 |
| 2 | 14 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101409665 | 42.755 |
| 12 | 29 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102228364 | 42.755 |
| 11 | 8 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101603357 | 42.84 |
| 11 | 22 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 5 | 2 | 101893886 | 42.85 |
| 9 | 23 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102146869 | 42.85 |
| 9 | 26 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102149112 | 42.85 |
| 3 | 16 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101984510 | 42.89 |
| 10 | 15 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101857155 | 42.93 |
| 1 | 30 | 2007 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101948426 | 42.93 |
| 3 | 10 | 2002 | Jackknife | 0 | 0 | 4 | 0 | 1 | 5 | 1 | 100574818 | 42.939 |
| 8 | 27 | 2004 | Overturn/Rollover | 0 | 1 | 0 | 0 | 1 | 5 | 1 | 101267969 | 42.943 |
| 3 | 8 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101978803 | 43.03 |
| 4 | 26 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101462953 | 43.09 |
| 4 | 16 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102013303 | 43.09 |
| 9 | 10 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102134917 | 43.107 |
| 10 | 11 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101854328 | 43.13 |
| 3 | 14 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101983977 | 43.13 |
| 4 | 6 | 2007 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102004297 | 43.13 |
| 6 | 29 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102077065 | 43.13 |
| 11 | 11 | 2007 | Angle | 0 | 0 | 2 | 4 | 1 | 1 | 1 | 102189776 | 43.13 |
| 1 | 5 | 2008 | Rear End, Turn | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 102268693 | 43.13 |
| 4 | 10 | 2008 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102259673 | 43.13 |

Table 10.7. continued (US-17 and the Leland Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 22 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102310334 | 43.13 |
| 5 | 3 | 2008 | Angle | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 102317907 | 43.13 |
| 6 | 13 | 2008 | Angle | 0 | 0 | 0 | 0 | 10 | 1 | 1 | 102345712 | 43.13 |
| 6 | 15 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102348063 | 43.13 |
| 6 | 20 | 2008 | Angle | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 102350434 | 43.13 |
| 8 | 23 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102399819 | 43.13 |
| 9 | 19 | 2008 | Rear End, Turn | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102420547 | 43.13 |
| 12 | 31 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102511192 | 43.13 |
| 2 | 18 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 2 | 1 | 2 | 102538731 | 43.13 |
| 3 | 13 | 2009 | Left Turn, Same Roadway | 0 | 0 | 1 | 2 | 1 | 5 | 1 | 102553596 | 43.13 |
| 5 | 31 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102608001 | 43.13 |
| 11 | 15 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102464105 | 43.135 |
| 2 | 21 | 2004 | Fixed Object | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 101123724 | 43.14 |
| 4 | 14 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101163255 | 43.14 |
| 12 | 7 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102210278 | 43.14 |
| 5 | 8 | 2009 | Rear End, Slow or Stop | 0 | 0 | 1 | 5 | 1 | 1 | 1 | 102600979 | 43.14 |
| 3 | 13 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102553100 | 43.149 |
| 10 | 6 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102436717 | 43.18 |
| 7 | 17 | 2009 | Rear End, Slow or Stop | 0 | 0 | 4 | 1 | 1 | 1 | 1 | 102644408 | 43.188 |
| 4 | 27 | 2002 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100608853 | 43.19 |
| 4 | 27 | 2002 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100608854 | 43.19 |
| 9 | 4 | 2002 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100911868 | 43.19 |
| 5 | 8 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101471817 | 43.19 |
| 8 | 9 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101536495 | 43.24 |
| 5 | 14 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101733427 | 43.25 |
| 5 | 20 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101480139 | 43.29 |
| 11 | 16 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101609712 | 43.29 |

Table 10.7. continued (US-17 and the Leland Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 24 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102171338 | 43.29 |
| 1 | 10 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 102511183 | 43.295 |
| 1 | 3 | 2009 | Rear End, Slow or Stop | 0 | 1 | 0 | 2 | 1 | 1 | 2 | 102511249 | 43.345 |
| 5 | 23 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102019335 | 43.352 |
| 7 | 23 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102096511 | 43.352 |
| 9 | 21 | 2003 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 100996766 | 43.371 |
| 4 | 7 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102579195 | 43.371 |
| 1 | 14 | 2002 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 100536808 | 43.383 |
| 10 | 13 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101854887 | 43.386 |
| 10 | 22 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101314197 | 43.39 |
| 2 | 11 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101407702 | 43.39 |
| 2 | 18 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101412360 | 43.39 |
| 3 | 25 | 2005 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101440693 | 43.39 |
| 5 | 29 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101486425 | 43.39 |
| 2 | 9 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101673339 | 43.39 |
| 10 | 28 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101870577 | 43.39 |
| 12 | 22 | 2006 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101918489 | 43.39 |
| 2 | 28 | 2007 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101971259 | 43.39 |
| 3 | 27 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101956327 | 43.39 |
| 4 | 10 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102007223 | 43.39 |
| 4 | 16 | 2007 | Backing Up | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102012616 | 43.39 |
| 5 | 17 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102041165 | 43.39 |
| 7 | 20 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102093420 | 43.39 |
| 8 | 18 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102116195 | 43.39 |
| 11 | 14 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 102190997 | 43.39 |
| 1 | 9 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102352404 | 43.39 |
| 6 | 22 | 2008 | Rear End, Slow or Stop | 0 | 0 | 2 | 0 | 1 | 1 | 3 | 102353510 | 43.39 |

Table 10.7. continued (US-17 and the Leland Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 11 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102366118 | 43.39 |
| 8 | 23 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102399819 | 43.39 |
| 8 | 26 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102399807 | 43.39 |
| 8 | 26 | 2008 | Angle | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 102399801 | 43.39 |
| 9 | 8 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102408994 | 43.39 |
| 10 | 25 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102435248 | 43.39 |
| 12 | 8 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102493166 | 43.39 |
| 12 | 16 | 2008 | Angle | 0 | 0 | 0 | 3 | 1 | 1 | 2 | 102493160 | 43.39 |
| 12 | 22 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102510097 | 43.39 |
| 12 | 31 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102510078 | 43.39 |
| 6 | 10 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102616156 | 43.39 |
| 6 | 26 | 2009 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102631102 | 43.39 |
| 7 | 12 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102643785 | 43.39 |
| 6 | 24 | 2007 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 102073294 | 43.391 |
| 4 | 14 | 2008 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102305124 | 43.395 |
| 12 | 21 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101367731 | 43.397 |
| 6 | 6 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102620085 | 43.4 |
| 6 | 26 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101506027 | 43.409 |
| 6 | 30 | 2007 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102078049 | 43.409 |
| 11 | 12 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 102189292 | 43.409 |
| 4 | 14 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102579008 | 43.409 |
| 6 | 9 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102620079 | 43.409 |
| 6 | 30 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102078054 | 43.418 |
| 9 | 26 | 2008 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 3 | 5 | 3 | 102410122 | 43.42 |
| 8 | 24 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102409260 | 43.428 |
| 11 | 14 | 2007 | Fixed Object | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 102191018 | 43.44 |
| 12 | 6 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101905598 | 43.49 |

Table 10.7. continued (US-17 and the Leland Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 2 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102056340 | 43.49 |
| 4 | 1 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102294849 | 43.49 |
| 5 | 27 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102598496 | 43.49 |
| 10 | 28 | 2001 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100474008 | 43.54 |
| 8 | 16 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101464423 | 43.59 |

Table 10.8. US-421 and SR-2501/Carolina Beach Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 14 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101454908 | 13.08 |
| 3 | 16 | 2010 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102816477 | 13.08 |
| 4 | 17 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102841755 | 13.08 |
| 10 | 26 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102713448 | 13.09 |
| 8 | 8 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101535388 | 13.12 |
| 5 | 16 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101734143 | 13.12 |
| 3 | 31 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102294320 | 13.12 |
| 3 | 6 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102822464 | 13.12 |
| 5 | 30 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101200275 | 13.22 |
| 7 | 24 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 101242080 | 13.22 |
| 4 | 30 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101465939 | 13.22 |
| 6 | 25 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101505673 | 13.22 |
| 7 | 30 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101529202 | 13.22 |
| 8 | 22 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101546513 | 13.22 |
| 9 | 9 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101558831 | 13.22 |
| 6 | 8 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101754000 | 13.22 |
| 12 | 7 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101906741 | 13.22 |
| 1 | 24 | 2007 | PEDALCYCLIST | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101944564 | 13.22 |
| 1 | 24 | 2007 | PEDALCYCLIST | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101944570 | 13.22 |
| 3 | 27 | 2008 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102292050 | 13.22 |
| 5 | 18 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102327531 | 13.22 |
| 9 | 26 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 102413706 | 13.22 |
| 11 | 1 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101597954 | 13.25 |
| 9 | 21 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101566544 | 13.26 |
| 4 | 14 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101454898 | 13.27 |
| 3 | 2 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101974286 | 13.27 |
| 5 | 10 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102035191 | 13.27 |

Table 10.8. continued (US-421 and SR-2501/Carolina Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 5 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102032425 | 13.28 |
| 5 | 6 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102857021 | 13.311 |
| 3 | 8 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101136448 | 13.32 |
| 3 | 13 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101140203 | 13.32 |
| 8 | 16 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101259938 | 13.32 |
| 9 | 9 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101279526 | 13.32 |
| 11 | 29 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 101348758 | 13.32 |
| 11 | 29 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 2 | 101348752 | 13.32 |
| 3 | 3 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101424237 | 13.32 |
| 6 | 11 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101496327 | 13.32 |
| 6 | 29 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101508750 | 13.32 |
| 6 | 30 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101509347 | 13.32 |
| 5 | 5 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 5 | 3 | 101728326 | 13.32 |
| 7 | 10 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101782300 | 13.32 |
| 7 | 11 | 2006 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101780812 | 13.32 |
| 8 | 11 | 2006 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101805417 | 13.32 |
| 2 | 16 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101961735 | 13.32 |
| 11 | 12 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102189554 | 13.32 |
| 12 | 27 | 2007 | PEDALCYCLIST | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102226508 | 13.32 |
| 3 | 16 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102284408 | 13.32 |
| 1 | 13 | 2010 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102783127 | 13.32 |
| 1 | 21 | 2004 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101097619 | 13.344 |
| 3 | 26 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102291147 | 13.37 |
| 5 | 8 | 2008 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102321218 | 13.37 |
| 11 | 22 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101343173 | 13.385 |
| 4 | 4 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101447567 | 13.39 |
| 10 | 28 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 2 | 1 | 2 | 101594837 | 13.39 |

Table 10.8. continued (US-421 and SR-2501/Carolina Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 28 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102672228 | 13.39 |
| 10 | 31 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102179197 | 13.408 |
| 12 | 3 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101352272 | 13.409 |
| 4 | 14 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101163629 | 13.411 |
| 1 | 26 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 102250075 | 13.411 |
| 2 | 7 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101954828 | 13.413 |
| 9 | 10 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 102684494 | 13.413 |
| 5 | 4 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102318269 | 13.414 |
| 12 | 19 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102220948 | 13.415 |
| 6 | 27 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102356136 | 13.415 |
| 10 | 30 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101029684 | 13.416 |
| 5 | 31 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102054162 | 13.416 |
| 11 | 30 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102205084 | 13.416 |
| 11 | 16 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 2 | 1 | 2 | 101610596 | 13.417 |
| 6 | 23 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101218620 | 13.418 |
| 11 | 14 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101886511 | 13.418 |
| 10 | 8 | 2003 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101010714 | 13.42 |
| 10 | 17 | 2003 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101018525 | 13.42 |
| 10 | 31 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 101033331 | 13.42 |
| 11 | 11 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101040434 | 13.42 |
| 11 | 14 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101043204 | 13.42 |
| 11 | 23 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101051081 | 13.42 |
| 12 | 17 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101072781 | 13.42 |
| 1 | 28 | 2004 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101105226 | 13.42 |
| 1 | 29 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101106088 | 13.42 |
| 2 | 12 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101116293 | 13.42 |
| 2 | 16 | 2004 | MOVABLE OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101120031 | 13.42 |

Table 10.8. continued (US-421 and SR-2501/Carolina Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 3 | 14 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101140998 | 13.42 |
| 3 | 15 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101141569 | 13.42 |
| 3 | 15 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101141554 | 13.42 |
| 4 | 11 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101161112 | 13.42 |
| 4 | 25 | 2004 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101172239 | 13.42 |
| 4 | 26 | 2004 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101173284 | 13.42 |
| 5 | 4 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101179615 | 13.42 |
| 5 | 8 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101183183 | 13.42 |
| 5 | 21 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101192973 | 13.42 |
| 5 | 28 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101198216 | 13.42 |
| 5 | 29 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 101199335 | 13.42 |
| 6 | 6 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101205479 | 13.42 |
| 6 | 27 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101221876 | 13.42 |
| 7 | 3 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 1 | 1 | 5 | 2 | 101226548 | 13.42 |
| 7 | 6 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 101228781 | 13.42 |
| 7 | 24 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101241845 | 13.42 |
| 7 | 26 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 3 | 1 | 1 | 2 | 101243293 | 13.42 |
| 8 | 27 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 101268346 | 13.42 |
| 10 | 13 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101307249 | 13.42 |
| 10 | 15 | 2004 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101309483 | 13.42 |
| 11 | 18 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101339417 | 13.42 |
| 12 | 2 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101351388 | 13.42 |
| 12 | 4 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101352913 | 13.42 |
| 1 | 7 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101381605 | 13.42 |
| 1 | 7 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101381072 | 13.42 |
| 1 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101388074 | 13.42 |
| 2 | 15 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 5 | 101410653 | 13.42 |

Table 10.8. continued (US-421 and SR-2501/Carolina Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 3 | 14 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101393297 | 13.42 |
| 3 | 29 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101443501 | 13.42 |
| 4 | 10 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101452450 | 13.42 |
| 4 | 26 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101463192 | 13.42 |
| 5 | 12 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101475001 | 13.42 |
| 5 | 12 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101475002 | 13.42 |
| 6 | 29 | 2005 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101508569 | 13.42 |
| 7 | 4 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101511948 | 13.42 |
| 7 | 17 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101520247 | 13.42 |
| 7 | 22 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101524262 | 13.42 |
| 9 | 17 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101564279 | 13.42 |
| 11 | 9 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101604676 | 13.42 |
| 1 | 4 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101649432 | 13.42 |
| 1 | 25 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101663578 | 13.42 |
| 2 | 10 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101674201 | 13.42 |
| 3 | 4 | 2006 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101688238 | 13.42 |
| 3 | 9 | 2006 | SIDESWIPE, OPPOSITE DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 101691538 | 13.42 |
| 3 | 15 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101696087 | 13.42 |
| 3 | 16 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101696517 | 13.42 |
| 4 | 4 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101707331 | 13.42 |
| 4 | 15 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101715164 | 13.42 |
| 4 | 27 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101722812 | 13.42 |
| 5 | 5 | 2006 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101728331 | 13.42 |
| 5 | 8 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101729835 | 13.42 |
| 5 | 19 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101735956 | 13.42 |
| 3 | 20 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101765871 | 13.42 |
| 7 | 21 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101790417 | 13.42 |

Table 10.8. continued (US-421 and SR-2501/Carolina Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 27 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101794759 | 13.42 |
| 8 | 30 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101820201 | 13.42 |
| 9 | 2 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101822861 | 13.42 |
| 9 | 12 | 2006 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101829738 | 13.42 |
| 9 | 13 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101830499 | 13.42 |
| 9 | 17 | 2006 | ANGLE | 0 | 0 | 4 | 4 | 1 | 1 | 1 | 101834125 | 13.42 |
| 10 | 9 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101851675 | 13.42 |
| 10 | 31 | 2006 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101873155 | 13.42 |
| 10 | 31 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 5 | 1 | 4 | 1 | 101873160 | 13.42 |
| 11 | 10 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101882926 | 13.42 |
| 11 | 22 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101894424 | 13.42 |
| 1 | 7 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101931887 | 13.42 |
| 2 | 23 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101967669 | 13.42 |
| 3 | 3 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 1 | 1 | 4 | 1 | 101975223 | 13.42 |
| 3 | 6 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101953666 | 13.42 |
| 3 | 8 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101979006 | 13.42 |
| 3 | 22 | 2007 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101990346 | 13.42 |
| 3 | 28 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101994892 | 13.42 |
| 4 | 16 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102013421 | 13.42 |
| 5 | 24 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102047945 | 13.42 |
| 6 | 4 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102058066 | 13.42 |
| 6 | 27 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102075857 | 13.42 |
| 7 | 3 | 2007 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 102080802 | 13.42 |
| 7 | 29 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 4 | 1 | 102101358 | 13.42 |
| 7 | 29 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102101359 | 13.42 |
| 8 | 2 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102104155 | 13.42 |
| 8 | 12 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102111389 | 13.42 |

Table 10.8. continued (US-421 and SR-2501/Carolina Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 27 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102123249 | 13.42 |
| 9 | 7 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102132745 | 13.42 |
| 10 | 4 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102156075 | 13.42 |
| 10 | 7 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102158850 | 13.42 |
| 10 | 9 | 2007 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102160202 | 13.42 |
| 10 | 14 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102164208 | 13.42 |
| 10 | 24 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102171670 | 13.42 |
| 10 | 28 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102176409 | 13.42 |
| 11 | 12 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102189533 | 13.42 |
| 12 | 3 | 2007 | ANGLE | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102208240 | 13.42 |
| 12 | 7 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 2 | 1 | 2 | 1 | 102210866 | 13.42 |
| 12 | 9 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102213609 | 13.42 |
| 12 | 12 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102214770 | 13.42 |
| 1 | 3 | 2008 | MOVABLE OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102232338 | 13.42 |
| 1 | 23 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102247188 | 13.42 |
| 2 | 7 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 102257513 | 13.42 |
| 2 | 12 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102263095 | 13.42 |
| 2 | 13 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 2 | 1 | 2 | 102261218 | 13.42 |
| 3 | 17 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102285033 | 13.42 |
| 3 | 26 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102291152 | 13.42 |
| 3 | 26 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102291151 | 13.42 |
| 3 | 30 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102293805 | 13.42 |
| 5 | 4 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102318259 | 13.42 |
| 5 | 12 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102323997 | 13.42 |
| 6 | 23 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 102356942 | 13.42 |
| 6 | 29 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102357171 | 13.42 |
| 7 | 20 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102372138 | 13.42 |

Table 10.8. continued (US-421 and SR-2501/Carolina Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 24 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102374817 | 13.42 |
| 8 | 7 | 2009 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102658986 | 13.42 |
| 8 | 19 | 2009 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102656121 | 13.42 |
| 10 | 7 | 2009 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102701084 | 13.42 |
| 1 | 22 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 102773441 | 13.42 |
| 3 | 16 | 2010 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102816418 | 13.42 |
| 4 | 1 | 2010 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102830003 | 13.42 |
| 4 | 13 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102838448 | 13.42 |
| 4 | 21 | 2010 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102851961 | 13.42 |
| 5 | 11 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102860786 | 13.42 |
| 5 | 13 | 2010 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102862594 | 13.42 |
| 6 | 9 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102899992 | 13.42 |
| 6 | 11 | 2010 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102886084 | 13.42 |
| 11 | 4 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101601909 | 13.426 |
| 10 | 15 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 101309478 | 13.49 |
| 2 | 12 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101408678 | 13.49 |
| 7 | 11 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101516438 | 13.49 |
| 10 | 28 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101594373 | 13.49 |
| 1 | 30 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101667189 | 13.49 |
| 2 | 3 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101669469 | 13.49 |
| 3 | 10 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102280041 | 13.49 |
| 12 | 17 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102762336 | 13.49 |
| 1 | 23 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102793134 | 13.49 |
| 2 | 16 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102793433 | 13.49 |
| 11 | 12 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101040809 | 13.52 |
| 4 | 13 | 2010 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102838442 | 13.54 |
| 9 | 11 | 2003 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100989300 | 13.59 |

Table 10.8. continued (US-421 and SR-2501/Carolina Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 30 | 2004 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101106719 | 13.59 |
| 4 | 14 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101163634 | 13.59 |
| 5 | 3 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101178859 | 13.59 |
| 5 | 28 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101198614 | 13.59 |
| 7 | 15 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101235696 | 13.59 |
| 9 | 11 | 2005 | PEDALCYCLIST | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101560088 | 13.59 |
| 11 | 11 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101606491 | 13.59 |
| 12 | 8 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 101628486 | 13.59 |
| 12 | 20 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101638955 | 13.59 |
| 3 | 10 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101692548 | 13.59 |
| 4 | 28 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 101723606 | 13.59 |
| 6 | 13 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101759999 | 13.59 |
| 9 | 11 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101829066 | 13.59 |
| 10 | 17 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101859181 | 13.59 |
| 5 | 28 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102051427 | 13.59 |
| 7 | 28 | 2007 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102100521 | 13.59 |
| 8 | 14 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102113271 | 13.59 |
| 6 | 10 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102343480 | 13.59 |
| 7 | 5 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102361441 | 13.59 |
| 8 | 27 | 2008 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102395736 | 13.59 |
| 8 | 29 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102397409 | 13.59 |
| 8 | 23 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102658316 | 13.59 |
| 11 | 6 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102728876 | 13.59 |
| 3 | 24 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102831676 | 13.59 |
| 4 | 21 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102844609 | 13.59 |
| 5 | 8 | 2010 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102872668 | 13.59 |
| 5 | 10 | 2010 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102869380 | 13.59 |

Table 10.8. continued (US-421 and SR-2501/Carolina Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 24 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102847279 | 13.595 |
| 4 | 14 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101714364 | 13.64 |
| 8 | 9 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101804064 | 13.64 |
| 3 | 8 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101979017 | 13.652 |
| 4 | 30 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101176180 | 13.658 |
| 1 | 21 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101391397 | 13.66 |
| 9 | 28 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102690204 | 13.663 |
| 4 | 6 | 2010 | OVERTURN/ROLLOVER | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 102840593 | 13.664 |

Table 10.9. US-17 and Mt. Pisgah Road/Sellers Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 23 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 100903687 | 19.87 |
| 6 | 19 | 2003 | Angle | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 100924587 | 20.17 |
| 6 | 25 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 100929141 | 20.17 |
| 7 | 25 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100951635 | 19.97 |
| 7 | 26 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100952496 | 20.47 |
| 8 | 19 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100971687 | 19.97 |
| 2 | 9 | 2004 | Left Turn, Different Roadways | 0 | 0 | 2 | 1 | 1 | 1 | 3 | 101113762 | 20.17 |
| 2 | 20 | 2004 | Left Turn, Different Roadways | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101122671 | 20.17 |
| 2 | 20 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101122668 | 20.27 |
| 3 | 10 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 101137812 | 20.17 |
| 3 | 10 | 2004 | Parked Motor Vehicl | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101137826 | 20.17 |
| 3 | 23 | 2004 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101147187 | 20.37 |
| 4 | 5 | 2004 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101156458 | 20.17 |
| 4 | 13 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101162304 | 20.17 |
| 4 | 10 | 2004 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101160225 | 20.175 |
| 5 | 7 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101181900 | 20.17 |
| 6 | 23 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101217929 | 20.174 |
| 7 | 16 | 2004 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101235867 | 20.17 |
| 7 | 20 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101238682 | 20.17 |
| 10 | 18 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 3 | 1 | 1 | 2 | 101311310 | 20.17 |
| 10 | 19 | 2004 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101312155 | 20.17 |
| 11 | 19 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101340109 | 20.17 |
| 12 | 9 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101356781 | 20.17 |
| 12 | 10 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 101320635 | 20.22 |
| 12 | 3 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101351667 | 20.47 |
| 1 | 10 | 2005 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101382914 | 20.17 |
| 2 | 16 | 2005 | Rear End, Turn | 0 | 0 | 2 | 0 | 1 | 5 | 5 | 101411148 | 20.17 |
| 2 | 24 | 2005 | Angle | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 101418515 | 20.17 |
| 4 | 12 | 2005 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101453401 | 20.17 |
| 5 | 12 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101474675 | 20.17 |

Table 10.9. continued (US-17 and Mt. Pisgah Road/Sellers Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 18 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101501053 | 20.17 |
| 6 | 23 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101504187 | 20.37 |
| 7 | 25 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101525587 | 20.37 |
| 8 | 10 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101537630 | 20.17 |
| 10 | 2 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101573895 | 20.07 |
| 11 | 12 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101606744 | 19.97 |
| 11 | 11 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101606171 | 20.17 |
| 12 | 10 | 2005 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101630042 | 20.37 |
| 1 | 29 | 2006 | Angle | 0 | 1 | 1 | 0 | 2 | 5 | 2 | 101666315 | 20.17 |
| 2 | 3 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 3 | 1 | 1 | 2 | 101669167 | 20.17 |
| 5 | 5 | 2006 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101744726 | 19.97 |
| 7 | 9 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101778669 | 20.17 |
| 8 | 24 | 2006 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101815317 | 20.165 |
| 8 | 4 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101800677 | 20.17 |
| 8 | 14 | 2006 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101807637 | 20.17 |
| 10 | 21 | 2006 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101862362 | 19.97 |
| 10 | 15 | 2006 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101857144 | 20.07 |
| 10 | 16 | 2006 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101857636 | 20.17 |
| 1 | 21 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101942534 | 19.87 |
| 1 | 4 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101929065 | 20.17 |
| 2 | 23 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101967527 | 20.17 |
| 3 | 20 | 2007 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101988790 | 19.83 |
| 3 | 15 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101983614 | 20.17 |
| 3 | 30 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101998552 | 20.17 |
| 4 | 5 | 2007 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102003354 | 20.07 |
| 4 | 19 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102014856 | 20.17 |
| 5 | 2 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102028225 | 20.17 |
| 5 | 15 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102042064 | 20.17 |
| 5 | 30 | 2007 | Angle | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102053160 | 20.17 |

Table 10.9. continued (US-17 and Mt. Pisgah Road/Sellers Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 23 | 2007 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102095934 | 20.17 |
| 8 | 11 | 2007 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102110381 | 20.17 |
| 9 | 5 | 2007 | Angle | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 102130011 | 20.17 |
| 9 | 11 | 2007 | Left Turn, Same Roadway | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 102136142 | 20.17 |
| 9 | 22 | 2007 | Left Turn, Same Roadway | 0 | 0 | 2 | 3 | 1 | 1 | 1 | 102146035 | 20.17 |
| 10 | 25 | 2007 | Fixed Object | 1 | 0 | 0 | 0 | 2 | 5 | 2 | 102172338 | 19.97 |
| 10 | 9 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102159790 | 20.17 |
| 11 | 14 | 2007 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102191000 | 20.17 |
| 11 | 26 | 2007 | Left Turn, Same Roadway | 0 | 0 | 0 | 4 | 1 | 1 | 2 | 102142917 | 20.17 |
| 11 | 28 | 2007 | Angle | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102203136 | 20.17 |
| 11 | 28 | 2007 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102203128 | 20.198 |
| 12 | 11 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102213765 | 20.17 |
| 12 | 20 | 2007 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102221411 | 20.17 |
| 2 | 7 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102257157 | 20.17 |
| 2 | 7 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102257159 | 20.17 |
| 2 | 5 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 5 | 5 | 102255594 | 20.27 |
| 3 | 23 | 2008 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102289118 | 20.17 |
| 11 | 8 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102438245 | 19.87 |
| 11 | 17 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102466442 | 19.97 |
| 12 | 18 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102476740 | 20.07 |
| 2 | 17 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102521352 | 20.34 |
| 4 | 2 | 2009 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 102564819 | 20.17 |
| 6 | 15 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102613726 | 20.17 |
| 7 | 6 | 2009 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102627499 | 20.37 |

Table 10.10. US-17 and Ocean Isle Beach Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 18 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100923819 | 10.21 |
| 6 | 18 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100923829 | 10.21 |
| 6 | 21 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100926435 | 10.21 |
| 6 | 22 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100927025 | 10.21 |
| 7 | 5 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100936960 | 10.21 |
| 7 | 11 | 2003 | Angle | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 100941024 | 10.21 |
| 8 | 31 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100980867 | 10.21 |
| 10 | 14 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101015300 | 10.21 |
| 10 | 26 | 2003 | Angle | 0 | 0 | 1 | 2 | 1 | 5 | 1 | 101025655 | 10.21 |
| 10 | 29 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101028198 | 10.21 |
| 11 | 29 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101055842 | 10.21 |
| 1 | 30 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101106433 | 10.21 |
| 2 | 5 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101110561 | 10.21 |
| 3 | 4 | 2004 | Rear End, Turn | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101132772 | 10.21 |
| 5 | 18 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101190094 | 10.21 |
| 5 | 26 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101196418 | 10.21 |
| 6 | 29 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101222733 | 10.21 |
| 7 | 2 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101225066 | 10.21 |
| 7 | 8 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101229651 | 10.21 |
| 7 | 30 | 2004 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101246074 | 10.21 |
| 8 | 7 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101252812 | 10.21 |
| 9 | 1 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101272267 | 10.21 |
| 10 | 27 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101318822 | 10.21 |
| 1 | 14 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101385634 | 10.21 |
| 2 | 20 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101415507 | 10.21 |
| 2 | 23 | 2005 | Angle | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 101417985 | 10.21 |
| 4 | 27 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101463785 | 10.21 |
| 5 | 27 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101484657 | 10.21 |
| 7 | 17 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101520274 | 10.21 |
| 7 | 29 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101528169 | 10.21 |

Table 10.10. continued (US-17 and Ocean Isle Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 20 | 2005 | Left Turn, Different Roadways | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101565943 | 10.21 |
| 9 | 26 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101569541 | 10.21 |
| 11 | 17 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101610650 | 10.21 |
| 1 | 4 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101648804 | 10.21 |
| 3 | 31 | 2006 | Left Turn, Same Roadway | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 101704777 | 10.21 |
| 4 | 12 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101718572 | 10.21 |
| 6 | 22 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101767098 | 10.21 |
| 7 | 6 | 2006 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101774779 | 10.21 |
| 7 | 7 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101779661 | 10.21 |
| 7 | 12 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101782318 | 10.21 |
| 8 | 1 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101797578 | 10.21 |
| 8 | 5 | 2006 | Left Turn, Same Roadway | 0 | 1 | 2 | 1 | 1 | 1 | 2 | 101800369 | 10.21 |
| 8 | 20 | 2006 | Overturn/Rollover | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101808257 | 10.21 |
| 8 | 25 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101815946 | 10.21 |
| 11 | 14 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101886222 | 10.21 |
| 12 | 28 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101922696 | 10.21 |
| 2 | 22 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101966701 | 10.21 |
| 3 | 6 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101978100 | 10.21 |
| 3 | 26 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101995848 | 10.21 |
| 5 | 17 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102041172 | 10.21 |
| 5 | 24 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101993938 | 10.21 |
| 5 | 27 | 2007 | Left Turn, Different Roadways | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 102051049 | 10.21 |
| 5 | 28 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102051249 | 10.21 |
| 6 | 10 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102062434 | 10.21 |
| 6 | 21 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102070065 | 10.21 |
| 7 | 6 | 2007 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102082205 | 10.21 |
| 8 | 1 | 2007 | Left Turn, Different Roadways | 1 | 0 | 2 | 0 | 1 | 1 | 1 | 102102847 | 10.21 |
| 8 | 2 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102103402 | 10.21 |
| 8 | 6 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102106970 | 10.21 |

Table 10.10. continued (US-17 and Ocean Isle Beach Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 3 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102127845 | 10.21 |
| 9 | 26 | 2007 | Left Turn, Different Roadways | 0 | 1 | 0 | 2 | 1 | 5 | 1 | 102149123 | 10.21 |
| 10 | 11 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102161238 | 10.21 |
| 11 | 2 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102180604 | 10.21 |
| 12 | 27 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102226923 | 10.21 |
| 1 | 2 | 2008 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102231237 | 10.21 |
| 2 | 22 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102267792 | 10.21 |
| 4 | 18 | 2008 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102265929 | 10.21 |
| 1 | 1 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102484267 | 10.21 |
| 1 | 16 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102497784 | 10.21 |
| 1 | 26 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102523720 | 10.21 |
| 2 | 11 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102516737 | 10.21 |
| 2 | 13 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102518962 | 10.21 |
| 3 | 7 | 2009 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102550076 | 10.21 |
| 5 | 2 | 2009 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102586416 | 10.21 |
| 7 | 9 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102929575 | 10.21 |
| 7 | 27 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101243649 | 10.211 |
| 7 | 5 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100936947 | 10.219 |
| 9 | 18 | 2007 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102143129 | 10.219 |
| 10 | 18 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101586476 | 10.31 |
| 11 | 8 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101603365 | 10.31 |
| 6 | 28 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102076189 | 10.31 |
| 1 | 7 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101380771 | 10.41 |
| 2 | 21 | 2006 | Rear End, Slow or Stop | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 101680848 | 10.41 |
| 2 | 18 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102265222 | 10.41 |

Table 10.11. US-74/23 and Red Bank Road and Old Balsam Road Corridor Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 3 | 1 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 102546617 | 0.84 |
| 7 | 13 | 2000 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100137213 | 0.88 |
| 9 | 22 | 1992 | Rear End, Slow or Stop | 0 | 0 | 2 | 0 | 2 | 1 | 3 | 92139351 | 0.91 |
| 10 | 6 | 1992 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 92148471 | 0.91 |
| 9 | 16 | 1994 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 94161068 | 0.91 |
| 10 | 14 | 1994 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 94180662 | 0.91 |
| 7 | 23 | 1995 | Angle | 0 | 0 | 1 | 4 | 1 | 1 | 1 | 95136878 | 0.91 |
| 9 | 21 | 1996 | Angle | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 96180048 | 0.91 |
| 9 | 22 | 1996 | Left Turn, Different Roadways | 0 | 3 | 2 | 0 | 1 | 1 | 1 | 96180660 | 0.91 |
| 12 | 16 | 1997 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 97245995 | 0.91 |
| 10 | 9 | 2000 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100201181 | 0.91 |
| 8 | 31 | 2001 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100429825 | 0.91 |
| 7 | 5 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100657786 | 0.91 |
| 10 | 15 | 2002 | Backing Up | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100733168 | 0.91 |
| 10 | 12 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101306638 | 0.91 |
| 10 | 26 | 1998 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 98205563 | 0.92 |
| 7 | 1 | 1997 | Rear End, Turn | 0 | 0 | 3 | 0 | 2 | 1 | 3 | 97124007 | 0.93 |
| 10 | 24 | 1994 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 94188141 | 0.94 |
| 3 | 1 | 1996 | Left Turn, Different Roadways | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 96043632 | 0.94 |
| 5 | 24 | 1997 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 97097809 | 0.94 |
| 10 | 13 | 2000 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100204512 | 0.94 |
| 11 | 4 | 2001 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100480522 | 0.94 |
| 10 | 15 | 1995 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 95197182 | 0.95 |
| 5 | 23 | 1996 | Left Turn, Different Roadways | 1 | 2 | 0 | 1 | 1 | 1 | 1 | 96097108 | 0.95 |
| 2 | 5 | 1997 | Angle | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 97022870 | 0.96 |
| 7 | 10 | 1994 | Ran Off Road - Right | 0 | 2 | 0 | 0 | 2 | 1 | 3 | 94116485 | 0.97 |
| 7 | 29 | 1995 | Left Turn, Different Roadways | 0 | 4 | 0 | 0 | 1 | 1 | 2 | 95141272 | 0.97 |
| 4 | 26 | 1997 | Angle | 0 | 5 | 0 | 0 | 1 | 1 | 1 | 97077967 | 0.97 |
| 5 | 13 | 2000 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100093991 | 0.99 |
| 6 | 2 | 2003 | Rear End, Turn | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 100911045 | 0.99 |

Table 10.11. continued (US-74/23 and Red Bank Road and Old Balsam Road Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 3 | 11 | 1994 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 94042398 | 1 |
| 2 | 10 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 100826898 | 1 |
| 6 | 9 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100917389 | 1 |
| 6 | 23 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101218195 | 1 |
| 7 | 7 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102638221 | 1 |
| 6 | 6 | 1993 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 93086667 | 1.01 |
| 7 | 4 | 1993 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 93102345 | 1.01 |
| 9 | 16 | 1995 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 2 | 1 | 3 | 95174921 | 1.01 |
| 9 | 9 | 1997 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 97169653 | 1.01 |
| 10 | 6 | 1997 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 97188009 | 1.01 |
| 11 | 23 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100495612 | 1.01 |
| 5 | 15 | 2004 | Rear End, Slow or Stop | 1 | 0 | 0 | 2 | 1 | 5 | 1 | 101188297 | 1.01 |
| 10 | 24 | 2008 | Animal | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102453146 | 1.01 |
| 9 | 23 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100998432 | 1.04 |
| 11 | 20 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102449598 | 1.04 |
| 10 | 1 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101004922 | 1.091 |
| 7 | 3 | 1997 | Angle | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 97125474 | 1.095 |
| 9 | 9 | 1994 | Head On | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 94156812 | 1.1 |
| 5 | 8 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100616704 | 1.1 |
| 11 | 22 | 2003 | Left Turn, Different Roadways | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101050523 | 1.1 |
| 9 | 29 | 1998 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 98185407 | 1.101 |
| 9 | 16 | 2000 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100183651 | 1.101 |
| 1 | 25 | 1998 | Pedestrian | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 98016442 | 1.104 |
| 12 | 6 | 2000 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100247052 | 1.106 |
| 5 | 24 | 1991 | Angle | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 91070932 | 1.11 |
| 7 | 20 | 1991 | Angle | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 91100399 | 1.11 |
| 8 | 24 | 1992 | Left Turn, Different Roadways | 0 | 0 | 5 | 0 | 1 | 1 | 1 | 92123678 | 1.11 |
| 3 | 15 | 1993 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 93039132 | 1.11 |
| 7 | 7 | 1993 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 93103914 | 1.11 |

Table 10.11. continued (US-74/23 and Red Bank Road and Old Balsam Road Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 18 | 1994 | Angle | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 94084074 | 1.11 |
| 2 | 23 | 1995 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 95034561 | 1.11 |
| 6 | 20 | 1995 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 95114394 | 1.11 |
| 9 | 1 | 1995 | Right Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 5 | 2 | 95165077 | 1.11 |
| 1 | 4 | 1996 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 96002538 | 1.11 |
| 7 | 9 | 1996 | Ran Off Road - Left | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 96127820 | 1.11 |
| 11 | 24 | 1996 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 96229788 | 1.11 |
| 4 | 3 | 1997 | Left Turn, Different Roadways | 0 | 0 | 3 | 4 | 1 | 2 | 1 | 97061909 | 1.11 |
| 8 | 5 | 1997 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 97147016 | 1.11 |
| 1 | 20 | 1998 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 98012948 | 1.11 |
| 8 | 22 | 1998 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 98158939 | 1.11 |
| 2 | 25 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100565958 | 1.11 |
| 5 | 15 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101188272 | 1.11 |
| 3 | 3 | 2001 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 100306191 | 1.111 |
| 8 | 25 | 2007 | Overturn/Rollover | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 102121881 | 1.114 |
| 4 | 29 | 2000 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100084049 | 1.116 |
| 7 | 28 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102100843 | 1.14 |
| 8 | 24 | 1993 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 93132101 | 1.179 |
| 12 | 6 | 1992 | Ran Off Road - Right | 0 | 2 | 0 | 0 | 4 | 5 | 6 | 92186997 | 1.21 |
| 9 | 16 | 2004 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 101284949 | 1.23 |
| 11 | 13 | 2008 | Fixed Object | 0 | 0 | 3 | 0 | 1 | 5 | 2 | 102442650 | 1.29 |
| 7 | 24 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102640466 | 1.29 |
| 12 | 6 | 1992 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 4 | 4 | 6 | 92186992 | 1.31 |
| 8 | 6 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102112779 | 1.37 |
| 4 | 30 | 1993 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 93065533 | 1.39 |
| 3 | 28 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101994812 | 1.39 |
| 3 | 13 | 2001 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100312727 | 1.4 |
| 1 | 9 | 2005 | Right Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 2 | 1 | 101382172 | 1.4 |
| 4 | 10 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101452427 | 1.4 |

Table 10.11. continued (US-74/23 and Red Bank Road and Old Balsam Road Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 25 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101896545 | 1.4 |
| 12 | 11 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102487577 | 1.4 |
| 1 | 30 | 1995 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 95012467 | 1.41 |
| 10 | 23 | 1995 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 95203609 | 1.41 |
| 7 | 3 | 2000 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100131011 | 1.41 |
| 3 | 1 | 2009 | Fixed Object | 1 | 0 | 3 | 0 | 6 | 1 | 4 | 102534253 | 1.41 |
| 12 | 4 | 1991 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 4 | 5 | 1 | 91175445 | 1.49 |
| 12 | 4 | 1991 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 4 | 5 | 1 | 91175446 | 1.49 |
| 12 | 4 | 1991 | Angle | 0 | 0 | 1 | 1 | 4 | 5 | 1 | 91175448 | 1.49 |
| 5 | 14 | 1995 | Ran Off Road - Right | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 95087318 | 1.49 |
| 1 | 26 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100903390 | 1.49 |
| 4 | 6 | 2004 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101157371 | 1.49 |
| 12 | 4 | 1993 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 93198587 | 1.51 |
| 2 | 7 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100824895 | 1.51 |
| 9 | 9 | 1995 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 95170316 | 1.54 |
| 7 | 3 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 97125470 | 1.59 |
| 7 | 24 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101241723 | 1.59 |
| 8 | 3 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101249507 | 1.59 |
| 5 | 11 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101474240 | 1.6 |
| 1 | 6 | 1994 | Ran Off Road - Left | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 94002948 | 1.61 |
| 6 | 12 | 2000 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100115558 | 1.65 |
| 11 | 18 | 1993 | Rear End, Turn | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 93187992 | 1.662 |
| 5 | 2 | 1997 | Ran Off Road - Left | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 97082678 | 1.67 |
| 10 | 4 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 100724364 | 1.676 |
| 8 | 4 | 1991 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 91108942 | 1.69 |
| 7 | 25 | 1992 | Ran Off Road - Left | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 92107509 | 1.69 |
| 10 | 9 | 1992 | Angle | 0 | 1 | 2 | 0 | 1 | 1 | 1 | 92150306 | 1.69 |
| 11 | 23 | 1994 | Left Turn, Different Roadways | 0 | 3 | 0 | 0 | 1 | 5 | 1 | 94210919 | 1.69 |
| 5 | 3 | 1995 | Left Turn, Different Roadways | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 95079707 | 1.69 |

Table 10.11. continued (US-74/23 and Red Bank Road and Old Balsam Road Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 5 | 1996 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 96105523 | 1.69 |
| 9 | 22 | 1996 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 96180658 | 1.69 |
| 8 | 16 | 1997 | Angle | 0 | 0 | 2 | 2 | 1 | 1 | 1 | 97154223 | 1.69 |
| 10 | 5 | 1997 | Left Turn, Different Roadways | 1 | 6 | 0 | 0 | 1 | 5 | 1 | 97187522 | 1.69 |
| 10 | 10 | 1997 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 97192429 | 1.69 |
| 10 | 21 | 1997 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 97199815 | 1.69 |
| 10 | 24 | 1997 | Angle | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 97202243 | 1.69 |
| 4 | 17 | 1998 | Left Turn, Different Roadways | 0 | 1 | 0 | 4 | 1 | 1 | 2 | 98071979 | 1.69 |
| 7 | 16 | 1998 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 98132304 | 1.69 |
| 9 | 25 | 1998 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 98182803 | 1.69 |
| 10 | 16 | 1998 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 98197998 | 1.69 |
| 2 | 4 | 2000 | Rear End, Turn | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100024737 | 1.69 |
| 11 | 16 | 2000 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100231721 | 1.69 |
| 4 | 8 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100595236 | 1.69 |
| 7 | 13 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100662872 | 1.69 |
| 7 | 26 | 2002 | Rear End, Slow or Stop | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 100672816 | 1.69 |
| 9 | 7 | 2002 | Left Turn, Same Roadway | 1 | 1 | 3 | 1 | 1 | 1 | 1 | 100704039 | 1.69 |
| 11 | 7 | 2002 | Overturn/Rollover | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100752483 | 1.69 |
| 7 | 2 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101225354 | 1.69 |
| 10 | 10 | 2004 | Right Turn, Different Roadways | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 101305224 | 1.69 |
| 5 | 31 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101487496 | 1.69 |
| 8 | 9 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101535622 | 1.69 |
| 10 | 16 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101857795 | 1.69 |
| 1 | 24 | 2008 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102247446 | 1.69 |
| 5 | 10 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102329196 | 1.69 |
| 5 | 20 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102312710 | 1.69 |
| 5 | 10 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102586945 | 1.69 |
| 7 | 4 | 2007 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102081208 | 1.709 |
| 3 | 10 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100847027 | 1.713 |

Table 10.11. continued (US-74/23 and Red Bank Road and Old Balsam Road Corridor Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 31 | 2003 | Left Turn, Different Roadways | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101030695 | 1.72 |
| 3 | 31 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102568818 | 1.79 |
| 2 | 28 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 6 | 1 | 4 | 101421827 | 1.8 |
| 4 | 17 | 2006 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101716129 | 1.8 |
| 12 | 25 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 100793196 | 1.88 |
| 3 | 6 | 1992 | Ran Off Road - Right | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 92031906 | 1.89 |
| 12 | 6 | 1992 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 4 | 5 | 6 | 92186993 | 1.89 |
| 9 | 6 | 1995 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 95168095 | 1.89 |
| 10 | 5 | 2000 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100198506 | 1.9 |
| 9 | 14 | 1992 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 92134800 | 1.94 |
| 8 | 3 | 1993 | Sideswipe, Same Direction | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 93119504 | 1.99 |
| 3 | 1 | 1994 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 94035865 | 1.99 |
| 12 | 23 | 2007 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102224501 | 1.99 |
| 9 | 20 | 1993 | Rear End, Slow or Stop | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 93148029 | 2 |
| 6 | 22 | 2004 | Fixed Object | 0 | 0 | 2 | 0 | 1 | 1 | 2 | 101217656 | 2 |
| 12 | 13 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102216022 | 2 |
| 12 | 1 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 102472812 | 2 |
| 4 | 10 | 2009 | Movable Object | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 102564994 | 2 |
| 10 | 10 | 1997 | Angle | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 97192428 | 2.07 |
| 10 | 29 | 2000 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100216398 | 2.07 |
| 8 | 29 | 2001 | Right Turn, Same Roadway | 0 | 0 | 1 | 2 | 1 | 5 | 2 | 100428178 | 2.07 |
| 4 | 11 | 1994 | Ran Off Road - Right | 0 | 0 | 2 | 1 | 2 | 1 | 3 | 94062544 | 2.11 |
| 4 | 11 | 1998 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 98068087 | 2.16 |

Table 10.12. US-74/441 and Barkers Creek Road/Wilmont Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 28 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101002696 | 6.19 |
| 4 | 6 | 2005 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101413031 | 6.19 |
| 11 | 26 | 2005 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101618264 | 6.22 |
| 12 | 9 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 2 | 1 | 2 | 101357131 | 6.23 |
| 12 | 9 | 2004 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101357130 | 6.23 |
| 7 | 7 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100938034 | 6.33 |
| 12 | 15 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101070990 | 6.33 |
| 11 | 24 | 2003 | Overturn/Rollover | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101051978 | 6.362 |
| 8 | 25 | 2003 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100976306 | 6.39 |
| 10 | 26 | 2002 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 100741946 | 6.43 |
| 6 | 17 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102622641 | 6.43 |
| 12 | 28 | 2006 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101922841 | 6.455 |
| 4 | 12 | 2003 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100871956 | 6.53 |
| 1 | 26 | 2004 | Angle | 0 | 1 | 0 | 2 | 1 | 1 | 1 | 101103047 | 6.53 |
| 9 | 10 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101280370 | 6.53 |
| 7 | 10 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 8 | 1 | 1 | 2 | 101515862 | 6.53 |
| 10 | 14 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101583824 | 6.53 |
| 4 | 9 | 2006 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101711123 | 6.53 |
| 4 | 24 | 2007 | Angle | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 102021039 | 6.53 |
| 6 | 17 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102622616 | 6.53 |
| 11 | 18 | 2003 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101046830 | 6.545 |
| 5 | 13 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102038089 | 6.59 |
| 8 | 8 | 2005 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 101535640 | 6.63 |
| 2 | 17 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 101962459 | 6.63 |
| 5 | 12 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102608763 | 6.69 |
| 6 | 30 | 2004 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101223901 | 6.71 |
| 8 | 6 | 2006 | Overturn/Rollover | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 101801380 | 6.71 |
| 8 | 7 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100962160 | 6.73 |
| 8 | 27 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101550296 | 6.78 |
| 12 | 15 | 2003 | Overturn/Rollover | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101070096 | 6.83 |
| 6 | 30 | 2005 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101509306 | 6.83 |

Table 10.13. US-74/441 and Dicks Creek Road/SR-1388 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 5 | 2003 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 5 | 5 | 101008335 | 7.73 |
| 10 | 30 | 2005 | Fixed Object | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101596013 | 7.81 |
| 12 | 8 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 101355970 | 7.91 |
| 6 | 9 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101494291 | 8.01 |
| 9 | 15 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101562252 | 8.01 |
| 11 | 1 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101597900 | 8.01 |
| 7 | 24 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 101791756 | 8.01 |
| 3 | 14 | 2009 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102553189 | 8.01 |
| 5 | 11 | 2007 | Fixed Object | 0 | 0 | 0 | 1 | 3 | 1 | 3 | 102036092 | 8.015 |
| 3 | 20 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 3 | 5 | 3 | 101145374 | 8.06 |
| 5 | 5 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102031401 | 8.072 |
| 6 | 12 | 2005 | Angle | 0 | 1 | 2 | 0 | 2 | 1 | 3 | 101496521 | 8.076 |
| 2 | 18 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101679637 | 8.091 |
| 11 | 29 | 2003 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101056087 | 8.11 |
| 6 | 8 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101206823 | 8.11 |
| 6 | 25 | 2004 | Angle | 0 | 1 | 0 | 1 | 2 | 1 | 2 | 101220207 | 8.11 |
| 8 | 9 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101254266 | 8.11 |
| 6 | 20 | 2005 | Left Turn, Different Roadways | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 101502438 | 8.11 |
| 10 | 28 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101595450 | 8.11 |
| 11 | 13 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101885445 | 8.11 |
| 5 | 10 | 2009 | Left Turn, Same Roadway | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 102606287 | 8.11 |
| 8 | 20 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100972688 | 8.117 |
| 7 | 3 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101511683 | 8.19 |
| 5 | 26 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 102608780 | 8.193 |

Table 10.14. US-74 and Elmore Road/SR-1321 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 15 | 2004 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 5 | 2 | 101309577 | 7.68 |
| 3 | 22 | 2004 | Rear End, Turn | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101146896 | 7.75 |
| 9 | 25 | 2008 | Overturn/Rollover | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 102415671 | 7.75 |
| 3 | 16 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 2 | 1 | 2 | 102549567 | 7.75 |
| 6 | 10 | 2006 | Pedestrian | 0 | 1 | 0 | 0 | 1 | 5 | 2 | 101759361 | 7.8 |
| 1 | 26 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 4 | 5 | 6 | 101103506 | 7.85 |
| 2 | 22 | 2003 | Angle | 0 | 0 | 1 | 2 | 1 | 5 | 2 | 100836526 | 7.95 |
| 12 | 8 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101063761 | 7.95 |
| 12 | 12 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101067533 | 7.95 |
| 1 | 31 | 2004 | Angle | 0 | 0 | 4 | 3 | 1 | 1 | 2 | 101110175 | 7.95 |
| 11 | 12 | 2004 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101334043 | 7.95 |
| 5 | 17 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101478426 | 7.95 |
| 11 | 13 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101607996 | 7.95 |
| 2 | 10 | 2006 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101674286 | 7.95 |
| 2 | 25 | 2006 | Movable Object | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101683972 | 7.95 |
| 8 | 26 | 2006 | Angle | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 101817054 | 7.95 |
| 9 | 19 | 2006 | Angle | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101835392 | 7.95 |
| 9 | 26 | 2006 | Angle | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101839914 | 7.95 |
| 8 | 7 | 2007 | Ran Off Road - Right | 0 | 0 | 0 | 3 | 1 | 5 | 2 | 102107899 | 8.05 |
| 12 | 25 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101921657 | 8.15 |

Table 10.15. US-74/76 and Blacksmith Road/SR-1800 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 21 | 2001 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100422245 | 35.33 |
| 4 | 15 | 2005 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101413162 | 35.33 |
| 8 | 12 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 3 | 1 | 102385479 | 35.33 |
| 8 | 2 | 2008 | Rear End, Turn | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102379303 | 35.43 |
| 3 | 29 | 2005 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101443282 | 35.519 |
| 2 | 4 | 2002 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100551390 | 35.53 |
| 2 | 28 | 2002 | Angle | 0 | 0 | 2 | 1 | 1 | 2 | 1 | 100567565 | 35.53 |
| 7 | 16 | 2002 | Angle | 0 | 0 | 3 | 0 | 1 | 1 | 2 | 100664802 | 35.53 |
| 7 | 21 | 2003 | Angle | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 100948552 | 35.53 |
| 10 | 18 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101019234 | 35.53 |
| 5 | 6 | 2004 | Angle | 2 | 0 | 0 | 1 | 1 | 1 | 1 | 101181137 | 35.53 |
| 1 | 11 | 2005 | Angle | 0 | 0 | 2 | 0 | 1 | 1 | 2 | 101342462 | 35.53 |
| 1 | 12 | 2005 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 5 | 101384605 | 35.53 |
| 1 | 12 | 2005 | Angle | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 101384149 | 35.53 |
| 8 | 24 | 2005 | Angle | 0 | 0 | 3 | 0 | 1 | 1 | 2 | 101547871 | 35.53 |
| 1 | 13 | 2002 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 100536403 | 35.6 |
| 12 | 10 | 2006 | Fixed Object | 0 | 0 | 2 | 0 | 1 | 5 | 1 | 101909079 | 35.63 |
| 2 | 5 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 102255727 | 35.73 |
| 3 | 5 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102549210 | 35.73 |

Table 10.16. NC-24 and Haw Branch Road/SR-1230 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 2 | 27 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101421222 | 0.81 |
| 3 | 13 | 2007 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101982651 | 1 |
| 12 | 31 | 2002 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100796929 | 1.01 |
| 11 | 26 | 2004 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101346660 | 1.01 |
| 11 | 4 | 2006 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101877123 | 1.01 |
| 4 | 16 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 102306402 | 1.209 |
| 6 | 23 | 2002 | Angle | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100649169 | 1.21 |
| 10 | 15 | 2002 | Angle | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100733462 | 1.21 |
| 3 | 2 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100842200 | 1.21 |
| 10 | 12 | 2003 | Angle | 1 | 0 | 2 | 1 | 1 | 1 | 2 | 101014340 | 1.21 |
| 11 | 7 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101037437 | 1.21 |
| 2 | 8 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 101113503 | 1.21 |
| 3 | 12 | 2004 | Left Turn, Same Roadway | 0 | 0 | 2 | 0 | 1 | 2 | 1 | 101139828 | 1.21 |
| 4 | 21 | 2004 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101168952 | 1.21 |
| 6 | 2 | 2004 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101202227 | 1.21 |
| 6 | 11 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101209322 | 1.21 |
| 7 | 15 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101235349 | 1.21 |
| 8 | 1 | 2004 | Angle | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 101247852 | 1.21 |
| 10 | 16 | 2004 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101310427 | 1.21 |
| 11 | 23 | 2004 | Animal | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 101344160 | 1.21 |
| 4 | 7 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101450059 | 1.21 |
| 8 | 8 | 2005 | Angle | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 101535723 | 1.21 |
| 9 | 1 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101553347 | 1.21 |
| 11 | 3 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101600410 | 1.21 |
| 7 | 15 | 2006 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101785639 | 1.21 |
| 9 | 4 | 2006 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101824058 | 1.21 |
| 1 | 17 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101939334 | 1.21 |
| 6 | 27 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102621740 | 1.21 |
| 7 | 25 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102640492 | 1.21 |
| 8 | 18 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102658073 | 1.21 |
| 7 | 14 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100944324 | 1.31 |


| 10 | 25 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101591553 | 1.31 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Table 10.16. continued (NC-24 and Haw Branch Road/SR-1230 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 5 | 2006 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101847841 | 1.31 |
| 1 | 9 | 2007 | Animal | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101934775 | 1.31 |
| 1 | 22 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101392634 | 1.38 |
| 9 | 24 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101568951 | 1.41 |
| 2 | 18 | 2009 | Fixed Object | 0 | 0 | 0 | 1 | 3 | 1 | 3 | 102538619 | 1.41 |
| 5 | 27 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101740096 | 1.51 |
| 6 | 2 | 2006 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101742601 | 1.51 |
| 11 | 1 | 2002 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 100747500 | 1.54 |
| 3 | 25 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 102293794 | 1.55 |
| 2 | 25 | 2007 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 3 | 1 | 101972351 | 1.65 |

Table 10.17. US-1 and Camp Easter Road/Aiken Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 10 | 2008 | Overturn/Rollover | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102237340 | 17.23 |
| 10 | 30 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102105892 | 17.27 |
| 8 | 6 | 2009 | Rear End, Slow or Stop | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 102649859 | 17.31 |
| 9 | 28 | 2006 | Parked Motor Vehicl | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101831913 | 17.33 |
| 11 | 21 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 101893306 | 17.33 |
| 11 | 21 | 2006 | Jackknife | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101874393 | 17.33 |
| 11 | 28 | 2006 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101863313 | 17.33 |
| 2 | 4 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102255252 | 17.33 |
| 11 | 13 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102441266 | 17.33 |
| 3 | 30 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101998133 | 17.354 |
| 1 | 27 | 2002 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100546435 | 17.405 |
| 11 | 17 | 2007 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102195315 | 17.416 |
| 4 | 12 | 2001 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100334395 | 17.43 |
| 9 | 16 | 2002 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100711181 | 17.43 |
| 3 | 10 | 2003 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100847472 | 17.43 |
| 6 | 19 | 2003 | Angle | 1 | 3 | 2 | 1 | 1 | 1 | 1 | 100924530 | 17.43 |
| 2 | 22 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101124192 | 17.43 |
| 3 | 19 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101144787 | 17.43 |
| 11 | 2 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101324552 | 17.43 |
| 11 | 10 | 2004 | Sideswipe, Opposite Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101331927 | 17.43 |
| 1 | 18 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101388664 | 17.43 |
| 1 | 24 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101394168 | 17.43 |
| 12 | 29 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101924250 | 17.43 |
| 11 | 15 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102192510 | 17.43 |
| 5 | 10 | 2008 | Left Turn, Different Roadways | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 102322499 | 17.43 |
| 1 | 29 | 2001 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100283962 | 17.433 |
| 11 | 14 | 2008 | Right Turn, Different Roadways | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 102453760 | 17.436 |
| 7 | 22 | 2005 | Movable Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101524212 | 17.439 |
| 9 | 15 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101284217 | 17.53 |
| 2 | 28 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100840798 | 17.55 |
| 2 | 23 | 2001 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100301251 | 17.59 |

Table 10.17. continued (US-1 and Camp Easter Road/Aiken Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 21 | 2002 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100764999 | 17.63 |
| 4 | 13 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 5 | 1 | 101162639 | 17.63 |
| 8 | 20 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100690379 | 17.69 |
| 9 | 18 | 2000 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 100185332 | 17.73 |
| 2 | 6 | 2004 | Jackknife | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101111169 | 17.73 |
| 3 | 24 | 2004 | Sideswipe, Opposite Direction | 0 | 0 | 1 | 1 | 1 | 5 | 1 | 101148155 | 17.73 |
| 3 | 17 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101434906 | 17.73 |

Table 10.18. NC-87 and Peanut Plant Road/SR-1150 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 13 | 2007 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101933735 | 26.8 |
| 12 | 14 | 2001 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100513449 | 26.9 |
| 1 | 22 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 102245805 | 26.9 |
| 3 | 28 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 102561911 | 26.9 |
| 5 | 5 | 2008 | Fixed Object | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 102318835 | 26.957 |
| 4 | 2 | 2001 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100327203 | 27 |
| 5 | 3 | 2001 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100348332 | 27 |
| 5 | 24 | 2001 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100362924 | 27 |
| 5 | 26 | 2001 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100364602 | 27 |
| 6 | 28 | 2001 | Angle | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 100386748 | 27 |
| 9 | 2 | 2001 | Angle | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 100431271 | 27 |
| 10 | 25 | 2001 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100471450 | 27 |
| 12 | 21 | 2001 | Angle | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 100519254 | 27 |
| 2 | 22 | 2002 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100563864 | 27 |
| 2 | 28 | 2002 | Angle | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 100567498 | 27 |
| 5 | 17 | 2002 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100623260 | 27 |
| 6 | 13 | 2002 | Angle | 1 | 0 | 2 | 0 | 1 | 1 | 1 | 100641902 | 27 |
| 9 | 21 | 2002 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100714460 | 27 |
| 1 | 27 | 2003 | Angle | 1 | 0 | 2 | 1 | 1 | 1 | 1 | 100816501 | 27 |
| 3 | 31 | 2003 | Angle | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 100861816 | 27 |
| 4 | 17 | 2003 | Angle | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 100875214 | 27 |
| 10 | 2 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101005674 | 27 |
| 11 | 22 | 2003 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101049850 | 27 |
| 1 | 2 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101083625 | 27 |
| 3 | 15 | 2004 | Angle | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101141133 | 27 |
| 5 | 27 | 2004 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101197120 | 27 |

Table 10.18. continued (NC-87 and Peanut Plant Road/SR-1150 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 31 | 2004 | Angle | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 101200355 | 27 |
| 7 | 10 | 2004 | Angle | 0 | 0 | 0 | 2 | 1 | 2 | 1 | 101231304 | 27 |
| 7 | 10 | 2004 | Angle | 0 | 0 | 0 | 2 | 1 | 2 | 1 | 101231363 | 27 |
| 8 | 3 | 2004 | Angle | 0 | 0 | 2 | 0 | 1 | 1 | 2 | 101249277 | 27 |
| 8 | 7 | 2004 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101252650 | 27 |
| 8 | 24 | 2004 | Movable Object | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101265790 | 27 |
| 9 | 4 | 2004 | Angle | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 101274671 | 27 |
| 9 | 28 | 2004 | Angle | 0 | 0 | 1 | 4 | 1 | 1 | 1 | 101295042 | 27 |
| 10 | 20 | 2004 | Angle | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 101313066 | 27 |
| 6 | 27 | 2005 | Angle | 1 | 2 | 0 | 0 | 1 | 1 | 1 | 101425349 | 27 |
| 7 | 20 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101438431 | 27 |
| 4 | 2 | 2005 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101446356 | 27 |
| 4 | 10 | 2005 | Angle | 0 | 0 | 1 | 4 | 1 | 1 | 1 | 101452275 | 27 |
| 10 | 21 | 2005 | Angle | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101587483 | 27 |
| 11 | 14 | 2005 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101608061 | 27 |
| 7 | 31 | 2007 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102102121 | 27 |
| 4 | 4 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102561125 | 27 |
| 3 | 6 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102276697 | 27.006 |
| 2 | 10 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102534511 | 27.019 |
| 10 | 7 | 2005 | Fixed Object | 0 | 0 | 0 | 2 | 3 | 1 | 3 | 101578431 | 27.08 |
| 12 | 20 | 2006 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101916656 | 27.1 |
| 10 | 24 | 2007 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 102171334 | 27.2 |

Table 10.19. NC-87/24 and $2^{\text {nd }}$ Street Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 6 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101337061 | 3.05 |
| 1 | 5 | 2007 | Sideswipe, Opposite Direction | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101880308 | 3.055 |
| 1 | 2 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 5 | 4 | 8 | 100535086 | 3.062 |
| 4 | 12 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 102252435 | 3.062 |
| 8 | 18 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100420972 | 3.065 |
| 3 | 9 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101315462 | 3.067 |
| 2 | 4 | 2004 | Left Turn, Different Roadways | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101110245 | 3.071 |
| 12 | 14 | 2004 | Pedestrian | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101233641 | 3.071 |
| 1 | 15 | 2002 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100537902 | 3.075 |
| 8 | 9 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101447127 | 3.079 |
| 6 | 5 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 100370871 | 3.081 |
| 7 | 30 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 7 | 2 | 100955274 | 3.081 |
| 6 | 26 | 2005 | Right Turn, Different Roadways | 0 | 0 | 0 | 2 | 2 | 4 | 2 | 101413705 | 3.084 |
| 12 | 26 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 4 | 4 | 6 | 101242334 | 3.087 |
| 12 | 22 | 2004 | Other Collision With Vehicle | 0 | 0 | 0 | 2 | 1 | 4 | 2 | 101238534 | 3.089 |
| 1 | 30 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100547846 | 3.09 |
| 2 | 4 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100551240 | 3.09 |
| 11 | 29 | 2002 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100770663 | 3.09 |
| 3 | 20 | 2004 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101145638 | 3.09 |
| 4 | 5 | 2005 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101346346 | 3.09 |
| 1 | 5 | 2006 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 101620129 | 3.09 |
| 2 | 15 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102183863 | 3.09 |
| 8 | 17 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100687849 | 3.092 |
| 12 | 9 | 2001 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100510859 | 3.094 |
| 5 | 12 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101185603 | 3.094 |
| 3 | 26 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100858081 | 3.096 |
| 1 | 31 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101904606 | 3.096 |
| 10 | 29 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100500069 | 3.099 |
| 10 | 11 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101498997 | 3.102 |
| 7 | 10 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102346356 | 3.102 |
| 4 | 9 | 2005 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101335638 | 3.104 |
| 6 | 8 | 2007 | Sideswipe, Opposite Direction | 0 | 0 | 0 | 1 | 3 | 1 | 3 | 101995688 | 3.105 |

Table 10.19. continued (NC-87/24 and $2^{\text {nd }}$ Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 12 | 2002 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100604690 | 3.112 |
| 9 | 22 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102692803 | 3.13 |
| 9 | 1 | 2008 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102382388 | 3.134 |
| 10 | 27 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101514192 | 3.137 |
| 3 | 15 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100578406 | 3.14 |
| 6 | 22 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100926981 | 3.14 |
| 9 | 17 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100993343 | 3.14 |
| 4 | 17 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101165926 | 3.14 |
| 5 | 22 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 101193213 | 3.14 |
| 8 | 27 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 3 | 2 | 101129549 | 3.14 |
| 7 | 10 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102020031 | 3.14 |
| 6 | 27 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102334886 | 3.14 |
| 2 | 22 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100904110 | 3.143 |
| 1 | 15 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100806604 | 3.144 |
| 5 | 6 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102281044 | 3.147 |
| 8 | 2 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102370790 | 3.147 |
| 5 | 23 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100362062 | 3.149 |
| 12 | 13 | 2001 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 4 | 5 | 100512318 | 3.149 |
| 6 | 25 | 2002 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100650730 | 3.149 |
| 6 | 9 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101998358 | 3.15 |
| 4 | 27 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100608788 | 3.158 |
| 4 | 4 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102567163 | 3.16 |
| 12 | 23 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100791227 | 3.161 |
| 8 | 19 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102058920 | 3.168 |
| 4 | 26 | 2004 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101172389 | 3.17 |
| 9 | 22 | 2007 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102068914 | 3.178 |
| 12 | 23 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102141943 | 3.178 |
| 1 | 25 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100815451 | 3.18 |
| 5 | 16 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100897590 | 3.18 |
| 5 | 23 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100903304 | 3.197 |
| 5 | 3 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102290361 | 3.197 |
| 2 | 1 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100550053 | 3.211 |

Table 10.19. continued (NC-87/24 and $2^{\text {nd }}$ Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 3 | 4 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100570515 | 3.215 |
| 7 | 3 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100389958 | 3.225 |
| 11 | 27 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102455405 | 3.23 |
| 12 | 24 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 100792102 | 3.232 |
| 8 | 31 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102070456 | 3.235 |
| 10 | 22 | 2008 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102438087 | 3.235 |
| 11 | 18 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101045645 | 3.24 |
| 1 | 16 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101093840 | 3.254 |
| 10 | 14 | 2005 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101502043 | 3.28 |
| 1 | 2 | 2007 | Ran Off Road - Right | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 101892154 | 3.28 |
| 3 | 25 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102249074 | 3.28 |
| 2 | 13 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101116596 | 3.293 |
| 6 | 9 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 4 | 1 | 1 | 2 | 100373263 | 3.33 |
| 1 | 24 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 101263744 | 3.33 |
| 8 | 8 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101447121 | 3.341 |
| 8 | 8 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101447121 | 3.341 |
| 12 | 20 | 2003 | Right Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101074975 | 3.36 |
| 12 | 6 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101596377 | 3.39 |
| 12 | 12 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101230828 | 3.4 |
| 4 | 17 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101961068 | 3.416 |

Table 10.20. NC-87 and School Road/Butler Nursery Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 23 | 2003 | ANIMAL | 0 | 0 | 0 | 0 | 2 | 5 | 1 | 101077525 | 2.84 |
| 11 | 16 | 2006 | OTHER NON-COLLISION | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101890235 | 2.84 |
| 1 | 27 | 2004 | ANGLE | 0 | 0 | 0 | 1 | 4 | 5 | 1 | 101103830 | 3.04 |
| 1 | 28 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 4 | 4 | 5 | 1 | 101105004 | 3.04 |
| 2 | 28 | 2004 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 101129663 | 3.04 |
| 4 | 3 | 2004 | ANGLE | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101155248 | 3.04 |
| 11 | 26 | 2004 | OTHER NON-COLLISION | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101346250 | 3.04 |
| 12 | 7 | 2004 | OVERTURN/ROLLOVER | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101355030 | 3.04 |
| 10 | 16 | 2005 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101585156 | 3.04 |
| 12 | 21 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101640357 | 3.04 |
| 11 | 9 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101881708 | 3.04 |
| 12 | 2 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 6 | 1 | 5 | 1 | 101904132 | 3.04 |
| 1 | 23 | 2007 | ANGLE | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 101926038 | 3.04 |
| 2 | 7 | 2007 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101954636 | 3.04 |
| 2 | 8 | 2007 | FIXED OBJECT | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101955466 | 3.04 |
| 3 | 14 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102282912 | 3.04 |
| 3 | 31 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 2 | 2 | 5 | 2 | 102294717 | 3.04 |
| 6 | 20 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102350454 | 3.04 |
| 6 | 26 | 2009 | FIXED OBJECT | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102621568 | 3.04 |
| 7 | 22 | 2009 | FIXED OBJECT | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 102644665 | 3.04 |
| 8 | 2 | 2009 | FIXED OBJECT | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102652527 | 3.04 |
| 9 | 3 | 2009 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102667833 | 3.04 |
| 10 | 25 | 2009 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102718857 | 3.04 |
| 11 | 26 | 2009 | OVERTURN/ROLLOVER | 0 | 0 | 1 | 0 | 1 | 5 | 2 | 102730541 | 3.04 |
| 2 | 13 | 2010 | FIXED OBJECT | 0 | 0 | 0 | 0 | 5 | 5 | 2 | 102802248 | 3.04 |
| 3 | 22 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102820303 | 3.04 |

Table 10.20. continued (NC-87 and School Road/Butler Nursery Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 4 | 2010 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102840091 | 3.04 |
| 6 | 10 | 2010 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102885297 | 3.04 |
| 11 | 6 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101602256 | 3.135 |
| 12 | 16 | 2004 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101363307 | 3.14 |
| 8 | 20 | 2005 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101544892 | 3.14 |
| 7 | 9 | 2006 | OVERTURN/ROLLOVER | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101778656 | 3.14 |
| 1 | 17 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101934512 | 3.14 |
| 4 | 21 | 2007 | ANGLE | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 102021782 | 3.14 |
| 6 | 8 | 2007 | ANGLE | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 102061036 | 3.14 |
| 3 | 19 | 2008 | ANGLE | 0 | 1 | 2 | 3 | 1 | 1 | 1 | 102286723 | 3.14 |
| 6 | 6 | 2008 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 102340371 | 3.14 |
| 10 | 14 | 2003 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101015381 | 3.24 |
| 4 | 15 | 2007 | FIXED OBJECT | 0 | 0 | 1 | 2 | 2 | 1 | 2 | 102011724 | 3.42 |
| 7 | 1 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101224446 | 3.64 |
| 10 | 8 | 2003 | FIXED OBJECT | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 101010092 | 3.67 |
| 12 | 15 | 2005 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101633423 | 3.67 |
| 8 | 5 | 2006 | FIXED OBJECT | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 101800443 | 3.69 |
| 1 | 5 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 2 | 2 | 5 | 3 | 101927309 | 3.72 |

Table 10.21. NC-87 and Grays Creek Church Road/Alderman Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 1 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101224446 | 3.64 |
| 10 | 8 | 2003 | FIXED OBJECT | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 101010092 | 3.67 |
| 12 | 15 | 2005 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101633423 | 3.67 |
| 8 | 5 | 2006 | FIXED OBJECT | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 101800443 | 3.69 |
| 1 | 5 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 2 | 2 | 5 | 3 | 101927309 | 3.72 |
| 7 | 23 | 2008 | FIXED OBJECT | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 102366897 | 3.74 |
| 7 | 23 | 2008 | FIXED OBJECT | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102366902 | 3.74 |
| 4 | 16 | 2008 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102306057 | 3.77 |
| 10 | 10 | 2004 | OTHER NON-COLLISION | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101305116 | 3.84 |
| 2 | 26 | 2007 | ANIMAL | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 101970289 | 3.84 |
| 1 | 17 | 2005 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101387930 | 3.908 |
| 11 | 8 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101037764 | 3.94 |
| 9 | 28 | 2004 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101295100 | 3.94 |
| 3 | 28 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102292394 | 3.94 |
| 8 | 26 | 2007 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102122349 | 3.945 |
| 6 | 11 | 2004 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101208817 | 3.97 |
| 6 | 11 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101208821 | 3.97 |
| 6 | 30 | 2004 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101223652 | 3.97 |
| 10 | 30 | 2005 | ANGLE | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 101596617 | 3.97 |
| 11 | 23 | 2005 | ANGLE | 1 | 0 | 2 | 2 | 1 | 5 | 1 | 101616656 | 3.97 |
| 11 | 18 | 2005 | ANGLE | 0 | 0 | 2 | 3 | 1 | 1 | 1 | 101616873 | 3.97 |
| 2 | 8 | 2006 | ANGLE | 3 | 0 | 0 | 0 | 1 | 1 | 1 | 101672815 | 3.97 |
| 11 | 5 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102183436 | 3.97 |
| 7 | 26 | 2009 | FIXED OBJECT | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102645295 | 3.97 |
| 8 | 27 | 2004 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101268073 | 4.04 |
| 1 | 7 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101931731 | 4.17 |
| 10 | 11 | 2006 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101846916 | 4.33 |

Table 10.22. US-15/501 and Sage Road/Old Durham Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 28 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99239601 | 7.573 |
| 12 | 13 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 100783481 | 7.573 |
| 5 | 22 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100361879 | 7.58 |
| 6 | 15 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100378150 | 7.58 |
| 5 | 6 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100890253 | 7.58 |
| 7 | 15 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100944577 | 7.58 |
| 11 | 5 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101035396 | 7.58 |
| 12 | 4 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101060365 | 7.58 |
| 5 | 10 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101184583 | 7.58 |
| 11 | 21 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101615151 | 7.58 |
| 6 | 27 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100386464 | 7.591 |
| 2 | 21 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101680971 | 7.591 |
| 12 | 13 | 2000 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100252103 | 7.595 |
| 10 | 20 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100210275 | 7.606 |
| 5 | 27 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 2 | 100906569 | 7.606 |
| 6 | 26 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101221551 | 7.606 |
| 10 | 17 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100465602 | 7.61 |
| 2 | 12 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100557277 | 7.61 |
| 5 | 14 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100621445 | 7.61 |
| 8 | 2 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100676794 | 7.61 |
| 1 | 29 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100818306 | 7.61 |
| 7 | 28 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100148256 | 7.623 |
| 3 | 27 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 99056400 | 7.625 |
| 5 | 11 | 2000 | RAN OFF ROAD - STRAIGHT | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100092373 | 7.63 |
| 8 | 2 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 100151581 | 7.63 |
| 3 | 29 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100860423 | 7.63 |
| 12 | 15 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100514956 | 7.64 |
| 6 | 9 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100114107 | 7.65 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 17 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 99115330 | 7.656 |
| 7 | 25 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101525826 | 7.659 |
| 6 | 9 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100114126 | 7.66 |
| 11 | 25 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101052741 | 7.66 |
| 6 | 12 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102616343 | 7.66 |
| 9 | 10 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100988588 | 7.666 |
| 11 | 12 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101333898 | 7.666 |
| 4 | 1 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 99061305 | 7.673 |
| 12 | 4 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 99244113 | 7.673 |
| 10 | 31 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 100218246 | 7.673 |
| 12 | 23 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101077791 | 7.673 |
| 1 | 24 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101099719 | 7.673 |
| 9 | 17 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101286099 | 7.673 |
| 10 | 29 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101321306 | 7.673 |
| 11 | 28 | 2004 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101348046 | 7.673 |
| 3 | 4 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101688267 | 7.673 |
| 11 | 17 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100232825 | 7.679 |
| 3 | 15 | 1999 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99048831 | 7.68 |
| 12 | 3 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 99243164 | 7.68 |
| 7 | 3 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100131139 | 7.68 |
| 11 | 9 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 100225165 | 7.68 |
| 10 | 3 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100454091 | 7.68 |
| 11 | 21 | 2001 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100494288 | 7.68 |
| 10 | 12 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100731241 | 7.68 |
| 2 | 27 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100839671 | 7.68 |
| 12 | 8 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101063695 | 7.68 |
| 3 | 26 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101149556 | 7.68 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 9 | 2004 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101332842 | 7.68 |
| 12 | 1 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101351325 | 7.68 |
| 6 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101500865 | 7.68 |
| 1 | 26 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101664282 | 7.68 |
| 2 | 3 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101669498 | 7.68 |
| 8 | 17 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 102669292 | 7.68 |
| 10 | 30 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102719387 | 7.68 |
| 7 | 27 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102646916 | 7.683 |
| 6 | 1 | 1999 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99104021 | 7.685 |
| 8 | 27 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100695583 | 7.685 |
| 10 | 31 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101597049 | 7.685 |
| 5 | 14 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101733639 | 7.685 |
| 8 | 16 | 2003 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100969329 | 7.688 |
| 1 | 11 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100541967 | 7.694 |
| 11 | 5 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101328045 | 7.695 |
| 3 | 5 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 100045599 | 7.7 |
| 12 | 22 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100520799 | 7.706 |
| 2 | 20 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99033756 | 7.707 |
| 10 | 10 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100459731 | 7.717 |
| 10 | 25 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102444400 | 7.718 |
| 2 | 6 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100289329 | 7.723 |
| 4 | 9 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100869282 | 7.723 |
| 7 | 12 | 2000 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 100136691 | 7.73 |
| 11 | 24 | 2000 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100238166 | 7.73 |
| 12 | 5 | 2002 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 4 | 1 | 2 | 100776553 | 7.73 |
| 4 | 30 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101176273 | 7.73 |
| 12 | 2 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101623311 | 7.73 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 3 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102419543 | 7.73 |
| 11 | 17 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102467327 | 7.73 |
| 5 | 6 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102587308 | 7.73 |
| 9 | 1 | 1999 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99167399 | 7.733 |
| 1 | 13 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101385095 | 7.733 |
| 11 | 19 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101613002 | 7.733 |
| 9 | 9 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100178937 | 7.736 |
| 9 | 24 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100191749 | 7.736 |
| 2 | 17 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100297325 | 7.736 |
| 1 | 31 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 5 | 2 | 100819971 | 7.738 |
| 11 | 17 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101338031 | 7.742 |
| 2 | 9 | 2006 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101673675 | 7.742 |
| 7 | 29 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102652403 | 7.742 |
| 1 | 25 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100545330 | 7.745 |
| 7 | 12 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101517199 | 7.745 |
| 9 | 17 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99180987 | 7.749 |
| 4 | 21 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100605062 | 7.752 |
| 3 | 6 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101689397 | 7.752 |
| 2 | 20 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100298658 | 7.76 |
| 1 | 30 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100819011 | 7.76 |
| 11 | 10 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99224381 | 7.761 |
| 10 | 21 | 2002 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 100738289 | 7.761 |
| 9 | 15 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100182499 | 7.762 |
| 6 | 12 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100397279 | 7.762 |
| 5 | 14 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 99091295 | 7.764 |
| 6 | 4 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99106153 | 7.767 |
| 9 | 23 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100998586 | 7.767 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 13 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 99177109 | 7.77 |
| 2 | 3 | 2000 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100023912 | 7.77 |
| 1 | 28 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 100283039 | 7.77 |
| 6 | 14 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100642818 | 7.771 |
| 10 | 31 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101323066 | 7.771 |
| 4 | 5 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99063712 | 7.773 |
| 5 | 22 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99096991 | 7.773 |
| 6 | 4 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99106154 | 7.773 |
| 7 | 27 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 99142427 | 7.773 |
| 7 | 19 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100141559 | 7.773 |
| 11 | 14 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100230246 | 7.773 |
| 10 | 26 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100472893 | 7.773 |
| 3 | 23 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100584446 | 7.773 |
| 3 | 26 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 4 | 2 | 100858603 | 7.773 |
| 6 | 7 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 100915431 | 7.773 |
| 7 | 15 | 2003 | BACKING UP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100944568 | 7.773 |
| 11 | 16 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 101610181 | 7.773 |
| 5 | 9 | 2009 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102590007 | 7.773 |
| 7 | 20 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100141821 | 7.774 |
| 10 | 3 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101299550 | 7.774 |
| 2 | 8 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100555021 | 7.776 |
| 8 | 24 | 2003 | SIDESWIPE, OPPOSITE DIRECTION | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 100975824 | 7.776 |
| 2 | 10 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100292099 | 7.777 |
| 4 | 18 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101166617 | 7.777 |
| 10 | 30 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99215443 | 7.778 |
| 6 | 1 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101201375 | 7.778 |
| 8 | 27 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 99164293 | 7.78 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 11 | 1999 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99250224 | 7.78 |
| 1 | 7 | 2000 | ANGLE | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 100003508 | 7.78 |
| 1 | 13 | 2000 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100008307 | 7.78 |
| 6 | 9 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100114109 | 7.78 |
| 9 | 10 | 2000 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 100204793 | 7.78 |
| 11 | 14 | 2000 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100230209 | 7.78 |
| 11 | 16 | 2000 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100231875 | 7.78 |
| 12 | 19 | 2000 | MOVABLE OBJECT | 0 | 0 | 1 | 0 | 2 | 5 | 2 | 100257367 | 7.78 |
| 3 | 2 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100310420 | 7.78 |
| 3 | 24 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100321069 | 7.78 |
| 4 | 27 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100343997 | 7.78 |
| 5 | 10 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100353500 | 7.78 |
| 10 | 25 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100471390 | 7.78 |
| 10 | 29 | 2001 | ANGLE | 1 | 0 | 0 | 2 | 1 | 1 | 1 | 100475214 | 7.78 |
| 11 | 7 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100482345 | 7.78 |
| 2 | 11 | 2002 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100556616 | 7.78 |
| 4 | 28 | 2002 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100609750 | 7.78 |
| 1 | 13 | 2003 | ANIMAL | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 100819018 | 7.78 |
| 3 | 12 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100849043 | 7.78 |
| 8 | 17 | 2003 | UNKNOWN | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 100971466 | 7.78 |
| 10 | 12 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101014191 | 7.78 |
| 10 | 22 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101022589 | 7.78 |
| 4 | 18 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101166884 | 7.78 |
| 7 | 12 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101233162 | 7.78 |
| 3 | 2 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101423354 | 7.78 |
| 8 | 27 | 2005 | UNKNOWN | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101550361 | 7.78 |
| 10 | 13 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101583197 | 7.78 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 25 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 102438626 | 7.78 |
| 12 | 23 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102501864 | 7.78 |
| 3 | 23 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102557095 | 7.78 |
| 1 | 9 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100585821 | 7.781 |
| 4 | 25 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101171642 | 7.782 |
| 11 | 6 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 101036432 | 7.783 |
| 1 | 13 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100008302 | 7.784 |
| 6 | 14 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101761950 | 7.784 |
| 1 | 13 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101385118 | 7.786 |
| 2 | 13 | 2004 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101116695 | 7.788 |
| 4 | 16 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100074806 | 7.791 |
| 7 | 29 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102652400 | 7.792 |
| 9 | 13 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 100991035 | 7.793 |
| 8 | 23 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 100975157 | 7.8 |
| 7 | 7 | 2009 | REAR END, SLOW OR STOP | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 102634381 | 7.806 |
| 3 | 23 | 2001 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100584472 | 7.808 |
| 11 | 19 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101613004 | 7.808 |
| 3 | 25 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 102561681 | 7.808 |
| 9 | 1 | 2000 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100173318 | 7.81 |
| 9 | 16 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100992904 | 7.818 |
| 8 | 9 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102658657 | 7.818 |
| 5 | 27 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100630135 | 7.825 |
| 11 | 20 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100490428 | 7.83 |
| 1 | 27 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100816869 | 7.83 |
| 4 | 13 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101314483 | 7.83 |
| 5 | 31 | 2003 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100910201 | 7.831 |
| 3 | 27 | 2009 | PEDESTRIAN | 0 | 0 | 1 | 0 | 2 | 4 | 3 | 102579027 | 7.831 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 18 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100358550 | 7.836 |
| 9 | 21 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 100714894 | 7.837 |
| 4 | 7 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101157909 | 7.837 |
| 9 | 27 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100718838 | 7.84 |
| 12 | 13 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100783472 | 7.84 |
| 10 | 17 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 102462235 | 7.846 |
| 7 | 20 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100401040 | 7.855 |
| 5 | 25 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100905360 | 7.873 |
| 9 | 1 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100173276 | 7.874 |
| 1 | 8 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100269665 | 7.875 |
| 1 | 30 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101107162 | 7.875 |
| 7 | 6 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 99128349 | 7.88 |
| 12 | 17 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100786217 | 7.88 |
| 4 | 12 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101161953 | 7.88 |
| 2 | 27 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101685248 | 7.88 |
| 9 | 6 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100704169 | 7.883 |
| 1 | 22 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100543075 | 7.89 |
| 8 | 15 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 101259045 | 7.89 |
| 2 | 23 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100036635 | 7.906 |
| 1 | 19 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100043607 | 7.925 |
| 6 | 6 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100914529 | 7.93 |
| 10 | 1 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100195244 | 7.94 |
| 9 | 24 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100716772 | 7.94 |
| 3 | 13 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101694010 | 7.94 |
| 11 | 15 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100488933 | 7.951 |
| 1 | 23 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101099411 | 7.951 |
| 8 | 9 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100414495 | 7.969 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 31 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100956466 | 7.973 |
| 4 | 13 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100335165 | 7.975 |
| 3 | 16 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100579682 | 7.975 |
| 12 | 5 | 2009 | BACKING UP | 0 | 0 | 1 | 1 | 2 | 4 | 3 | 102757785 | 7.98 |
| 9 | 25 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 100447984 | 7.99 |
| 5 | 6 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101181392 | 7.998 |
| 1 | 15 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99009425 | 8 |
| 3 | 17 | 1999 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99050305 | 8 |
| 7 | 9 | 1999 | MOVABLE OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99130474 | 8 |
| 8 | 20 | 1999 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 99158884 | 8 |
| 9 | 10 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 99175247 | 8 |
| 10 | 20 | 1999 | SIDESWIPE, OPPOSITE DIRECTION | 0 | 0 | 1 | 0 | 2 | 4 | 3 | 99206871 | 8 |
| 10 | 29 | 1999 | RAN OFF ROAD - STRAIGHT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 99214489 | 8 |
| 11 | 23 | 1999 | ANGLE | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 99235552 | 8 |
| 11 | 29 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 99240250 | 8 |
| 12 | 8 | 1999 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99246649 | 8 |
| 7 | 16 | 2000 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100139710 | 8 |
| 11 | 2 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100219940 | 8 |
| 2 | 28 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100304300 | 8 |
| 11 | 26 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100498240 | 8 |
| 12 | 3 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100504037 | 8 |
| 3 | 19 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100581493 | 8 |
| 4 | 19 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 2 | 1 | 2 | 100603970 | 8 |
| 6 | 1 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 10 | 4 | 1 | 100634347 | 8 |
| 6 | 12 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100656216 | 8 |
| 9 | 2 | 2002 | RAN OFF ROAD - STRAIGHT | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 100700537 | 8 |
| 9 | 20 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100714174 | 8 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 11 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100781402 | 8 |
| 12 | 14 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100784415 | 8 |
| 2 | 11 | 2003 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 1 | 4 | 1 | 1 | 100827789 | 8 |
| 3 | 19 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100853694 | 8 |
| 4 | 11 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100871400 | 8 |
| 4 | 13 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100872429 | 8 |
| 5 | 12 | 2003 | RAN OFF ROAD - STRAIGHT | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100894882 | 8 |
| 7 | 7 | 2003 | SIDESWIPE, OPPOSITE DIRECTION | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100938445 | 8 |
| 11 | 8 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101037978 | 8 |
| 12 | 29 | 2003 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101081323 | 8 |
| 8 | 5 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101252025 | 8 |
| 8 | 27 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101269038 | 8 |
| 9 | 27 | 2004 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101294719 | 8 |
| 10 | 19 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101312466 | 8 |
| 1 | 13 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101385094 | 8 |
| 4 | 20 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101458914 | 8 |
| 4 | 28 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101464729 | 8 |
| 5 | 16 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101477583 | 8 |
| 5 | 21 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101481310 | 8 |
| 6 | 6 | 2005 | HEAD ON | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101492334 | 8 |
| 6 | 14 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101498344 | 8 |
| 10 | 18 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101586748 | 8 |
| 4 | 16 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101715671 | 8 |
| 5 | 18 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101735534 | 8 |
| 8 | 18 | 2008 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102390323 | 8 |
| 9 | 6 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 2 | 4 | 1 | 102403069 | 8 |
| 10 | 17 | 2008 | HEAD ON | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 102429394 | 8 |

Table 10.22. continued (US-15/501 and Sage Road/Old Durham Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 26 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102438607 | 8 |
| 11 | 14 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 102465633 | 8 |
| 12 | 10 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102486486 | 8 |
| 6 | 8 | 2005 | RAN OFF ROAD - RIGHT | 0 | 0 | 1 | 0 | 2 | 4 | 2 | 101493890 | 8.006 |
| 4 | 1 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 99061304 | 8.025 |
| 11 | 19 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99231890 | 8.025 |
| 11 | 30 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 99240884 | 8.025 |
| 9 | 8 | 2005 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101558125 | 8.025 |

Table 10.23. US-15/501 and S. Estes Drive/SR-1750 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 11 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102658652 | 5.867 |
| 12 | 9 | 1999 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99248091 | 5.87 |
| 12 | 10 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 99249136 | 5.874 |
| 12 | 20 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 99257865 | 5.91 |
| 4 | 30 | 2000 | OTHER NON-COLLISION | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100084668 | 5.91 |
| 12 | 4 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100266195 | 5.91 |
| 4 | 11 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101711446 | 5.91 |
| 10 | 21 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102710760 | 5.91 |
| 11 | 19 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102739772 | 5.91 |
| 12 | 7 | 2004 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101355314 | 5.921 |
| 2 | 4 | 2002 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 100551834 | 5.923 |
| 11 | 14 | 2000 | ANGLE | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100260100 | 5.946 |
| 6 | 22 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100382762 | 5.96 |
| 11 | 16 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100761030 | 6 |
| 3 | 2 | 2003 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 100842220 | 6 |
| 9 | 21 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101566566 | 6 |
| 7 | 30 | 2000 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100149545 | 6.01 |
| 2 | 18 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100561448 | 6.01 |
| 3 | 22 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100583741 | 6.01 |
| 6 | 22 | 2005 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101503692 | 6.01 |
| 1 | 16 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100274895 | 6.022 |
| 6 | 30 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100932928 | 6.022 |
| 6 | 9 | 2005 | PEDALCYCLIST | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101494360 | 6.028 |
| 12 | 9 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101066058 | 6.057 |
| 12 | 20 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101639281 | 6.063 |
| 1 | 15 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 99009423 | 6.077 |
| 3 | 7 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101135385 | 6.077 |
| 6 | 14 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100117022 | 6.091 |

Table 10.23. continued (US-15/501 and S. Estes Drive/SR-1750 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 4 | 2000 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100110433 | 6.092 |
| 6 | 4 | 2000 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100110011 | 6.092 |
| 7 | 18 | 2009 | MOVABLE OBJECT | 0 | 0 | 1 | 0 | 2 | 5 | 2 | 102640847 | 6.096 |
| 4 | 9 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101159733 | 6.101 |
| 4 | 2 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102566859 | 6.101 |
| 9 | 12 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102686103 | 6.101 |
| 12 | 28 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102774429 | 6.102 |
| 11 | 21 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102471809 | 6.105 |
| 1 | 18 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 100276106 | 6.106 |
| 10 | 8 | 2005 | PEDALCYCLIST | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101580036 | 6.106 |
| 2 | 14 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100294883 | 6.107 |
| 9 | 24 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100447132 | 6.107 |
| 4 | 2 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101154537 | 6.108 |
| 1 | 19 | 2005 | ANGLE | 0 | 0 | 0 | 1 | 6 | 1 | 2 | 101389677 | 6.109 |
| 1 | 2 | 1999 | LEFT TURN, SAME ROADWAY | 0 | 1 | 2 | 0 | 2 | 5 | 3 | 99001102 | 6.11 |
| 2 | 3 | 1999 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99021987 | 6.11 |
| 4 | 20 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99073384 | 6.11 |
| 5 | 20 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 99095461 | 6.11 |
| 8 | 20 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 99158883 | 6.11 |
| 1 | 20 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100013710 | 6.11 |
| 2 | 12 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100029894 | 6.11 |
| 4 | 6 | 2000 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100067237 | 6.11 |
| 4 | 19 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 100076794 | 6.11 |
| 4 | 25 | 2000 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100080479 | 6.11 |
| 5 | 21 | 2000 | PEDALCYCLIST | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100099414 | 6.11 |
| 10 | 7 | 2000 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100200210 | 6.11 |
| 10 | 20 | 2000 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100210253 | 6.11 |

Table 10.23. continued (US-15/501 and S. Estes Drive/SR-1750 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 8 | 2000 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100248604 | 6.11 |
| 3 | 5 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100307848 | 6.11 |
| 6 | 18 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100379834 | 6.11 |
| 7 | 23 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100402734 | 6.11 |
| 9 | 7 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100434744 | 6.11 |
| 10 | 14 | 2001 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100463350 | 6.11 |
| 10 | 26 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100472896 | 6.11 |
| 12 | 1 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100502565 | 6.11 |
| 1 | 15 | 2002 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100537993 | 6.11 |
| 4 | 5 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100593558 | 6.11 |
| 8 | 7 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100680846 | 6.11 |
| 10 | 12 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100731243 | 6.11 |
| 10 | 18 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100736039 | 6.11 |
| 10 | 24 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100740361 | 6.11 |
| 11 | 13 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100759028 | 6.11 |
| 1 | 14 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100805768 | 6.11 |
| 1 | 23 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 100813611 | 6.11 |
| 1 | 23 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 100813615 | 6.11 |
| 4 | 4 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100865237 | 6.11 |
| 4 | 24 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100880591 | 6.11 |
| 8 | 20 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 100972787 | 6.11 |
| 9 | 3 | 2003 | REAR END, TURN | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 100985361 | 6.11 |
| 10 | 4 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101007537 | 6.11 |
| 10 | 28 | 2003 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101027807 | 6.11 |
| 11 | 3 | 2003 | ANGLE | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101041760 | 6.11 |
| 1 | 10 | 2004 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101090502 | 6.11 |
| 4 | 5 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101156750 | 6.11 |

Table 10.23. continued (US-15/501 and S. Estes Drive/SR-1750 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 24 | 2004 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 101171622 | 6.11 |
| 5 | 15 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101188359 | 6.11 |
| 6 | 30 | 2004 | REAR END, TURN | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101224025 | 6.11 |
| 7 | 28 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101244662 | 6.11 |
| 10 | 7 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 10 | 8 | 9 | 101302936 | 6.11 |
| 11 | 13 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101335268 | 6.11 |
| 12 | 20 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101367217 | 6.11 |
| 2 | 24 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101418978 | 6.11 |
| 2 | 28 | 2005 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101421942 | 6.11 |
| 4 | 13 | 2005 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101455236 | 6.11 |
| 4 | 17 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101457624 | 6.11 |
| 4 | 26 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101595009 | 6.11 |
| 5 | 13 | 2005 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101475590 | 6.11 |
| 5 | 15 | 2005 | REAR END, TURN | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101476997 | 6.11 |
| 6 | 6 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101492312 | 6.11 |
| 7 | 4 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101512222 | 6.11 |
| 7 | 25 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101525534 | 6.11 |
| 8 | 9 | 2005 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101536842 | 6.11 |
| 11 | 8 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101603891 | 6.11 |
| 2 | 9 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101673662 | 6.11 |
| 2 | 11 | 2006 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101675005 | 6.11 |
| 2 | 22 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101682418 | 6.11 |
| 2 | 24 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101683474 | 6.11 |
| 3 | 25 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101704173 | 6.11 |
| 6 | 19 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101764889 | 6.11 |
| 6 | 22 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101766816 | 6.11 |
| 8 | 8 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102383030 | 6.11 |

Table 10.23. continued (US-15/501 and S. Estes Drive/SR-1750 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 11 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102487716 | 6.11 |
| 3 | 8 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 5 | 1 | 5 | 1 | 102550834 | 6.11 |
| 5 | 6 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102587307 | 6.11 |
| 5 | 29 | 2009 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102607879 | 6.11 |
| 6 | 24 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102625492 | 6.11 |
| 7 | 12 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102638916 | 6.11 |
| 9 | 5 | 2009 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102678835 | 6.11 |
| 11 | 9 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102729167 | 6.11 |
| 12 | 31 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 102775273 | 6.11 |
| 6 | 19 | 2009 | ANGLE | 0 | 0 | 1 | 2 | 1 | 5 | 1 | 102626868 | 6.112 |
| 5 | 2 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 100086015 | 6.114 |
| 12 | 30 | 2008 | PEDESTRIAN | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 102504778 | 6.116 |
| 9 | 15 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100183059 | 6.117 |
| 3 | 20 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 100055722 | 6.119 |
| 5 | 22 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 100100331 | 6.119 |
| 1 | 21 | 2002 | FIXED OBJECT | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100542552 | 6.119 |
| 9 | 16 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99180125 | 6.12 |
| 9 | 28 | 2001 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100450858 | 6.12 |
| 12 | 31 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100526055 | 6.12 |
| 8 | 1 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 100957573 | 6.122 |
| 2 | 1 | 1999 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 99020582 | 6.123 |
| 6 | 17 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 99115329 | 6.123 |
| 8 | 19 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99157905 | 6.123 |
| 3 | 4 | 2000 | PEDESTRIAN | 0 | 1 | 0 | 0 | 2 | 1 | 2 | 100045127 | 6.123 |
| 6 | 2 | 2000 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100108730 | 6.123 |
| 11 | 25 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100239073 | 6.123 |
| 3 | 28 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100323402 | 6.123 |

Table 10.23. continued (US-15/501 and S. Estes Drive/SR-1750 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 11 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100333307 | 6.123 |
| 6 | 1 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100369945 | 6.123 |
| 8 | 21 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100422624 | 6.123 |
| 2 | 6 | 2002 | PEDESTRIAN | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 100553454 | 6.123 |
| 3 | 16 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100851611 | 6.123 |
| 3 | 18 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100853083 | 6.123 |
| 2 | 4 | 2005 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101403105 | 6.123 |
| 1 | 30 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101667202 | 6.123 |
| 11 | 25 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 102468259 | 6.123 |
| 8 | 26 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101549936 | 6.124 |
| 7 | 26 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100672444 | 6.126 |
| 5 | 14 | 2000 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100094363 | 6.128 |
| 12 | 16 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101363631 | 6.131 |
| 4 | 19 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99072706 | 6.134 |
| 6 | 16 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 99114673 | 6.16 |
| 5 | 1 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102585989 | 6.16 |
| 9 | 26 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101001298 | 6.167 |
| 12 | 11 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101066785 | 6.167 |
| 12 | 12 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100511926 | 6.168 |
| 5 | 25 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102606960 | 6.237 |
| 4 | 2 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100327568 | 6.26 |
| 1 | 14 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101093543 | 6.26 |
| 2 | 14 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100558569 | 6.271 |
| 11 | 19 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 101047501 | 6.271 |
| 9 | 12 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 99176380 | 6.306 |
| 9 | 15 | 1999 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 99179132 | 6.306 |
| 7 | 27 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100953344 | 6.323 |

Table 10.24. NC-132 and Bragg Drive Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 30 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100675246 | 2.571 |
| 8 | 26 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100977530 | 2.571 |
| 3 | 14 | 2004 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101140979 | 2.571 |
| 9 | 30 | 2004 | HEAD ON | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101296920 | 2.571 |
| 11 | 8 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 101926320 | 2.571 |
| 4 | 8 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102300804 | 2.571 |
| 8 | 11 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102386683 | 2.571 |
| 2 | 7 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 4 | 3 | 100554006 | 2.572 |
| 8 | 18 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100688914 | 2.572 |
| 5 | 1 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102027581 | 2.572 |
| 2 | 23 | 2008 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102269246 | 2.572 |
| 4 | 15 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100600580 | 2.573 |
| 6 | 28 | 2009 | RAN OFF ROAD - RIGHT | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 102644910 | 2.573 |
| 4 | 13 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101454082 | 2.574 |
| 2 | 2 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101400957 | 2.575 |
| 4 | 10 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102571838 | 2.576 |
| 10 | 26 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100742073 | 2.578 |
| 2 | 12 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 102260962 | 2.578 |
| 2 | 25 | 2006 | ANGLE | 0 | 0 | 2 | 0 | 2 | 4 | 3 | 101684371 | 2.579 |
| 2 | 13 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102261962 | 2.579 |
| 7 | 25 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101242726 | 2.58 |
| 2 | 1 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101950269 | 2.58 |
| 1 | 17 | 2004 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 101095120 | 2.586 |
| 4 | 28 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100345192 | 2.588 |
| 1 | 7 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101087148 | 2.589 |
| 11 | 3 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102182734 | 2.589 |
| 1 | 10 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102514711 | 2.589 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 2 | 6 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102532135 | 2.589 |
| 5 | 6 | 2008 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102320515 | 2.594 |
| 7 | 6 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100937879 | 2.598 |
| 7 | 11 | 2001 | PEDALCYCLIST | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 100395156 | 2.607 |
| 12 | 16 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100785880 | 2.608 |
| 12 | 20 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100789470 | 2.608 |
| 11 | 13 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101886163 | 2.608 |
| 3 | 9 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101980532 | 2.608 |
| 5 | 6 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102597942 | 2.608 |
| 8 | 2 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100677377 | 2.61 |
| 1 | 25 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101395001 | 2.615 |
| 11 | 4 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101600951 | 2.615 |
| 11 | 4 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101600969 | 2.615 |
| 12 | 2 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101623295 | 2.615 |
| 7 | 19 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100667254 | 2.617 |
| 3 | 2 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100569248 | 2.626 |
| 2 | 9 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101406541 | 2.627 |
| 4 | 16 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102307485 | 2.627 |
| 1 | 23 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 102522898 | 2.627 |
| 6 | 10 | 2005 | PEDALCYCLIST | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101494963 | 2.634 |
| 7 | 30 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102377619 | 2.634 |
| 12 | 8 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101629012 | 2.646 |
| 10 | 26 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 102174951 | 2.65 |
| 2 | 23 | 2008 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 102269238 | 2.663 |
| 7 | 17 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102642776 | 2.663 |
| 10 | 13 | 2001 | MOVABLE OBJECT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100462499 | 2.664 |
| 1 | 3 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101929010 | 2.665 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 9 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101557770 | 2.67 |
| 2 | 9 | 2004 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 101114445 | 2.672 |
| 6 | 15 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101497677 | 2.672 |
| 7 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101520661 | 2.672 |
| 3 | 16 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102284869 | 2.677 |
| 5 | 27 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100907084 | 2.682 |
| 7 | 15 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101549113 | 2.682 |
| 8 | 17 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101260818 | 2.683 |
| 12 | 6 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100777549 | 2.691 |
| 12 | 3 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 4 | 1 | 101059285 | 2.691 |
| 8 | 13 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101540113 | 2.691 |
| 12 | 10 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102487432 | 2.691 |
| 2 | 18 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102537074 | 2.691 |
| 4 | 5 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101448723 | 2.695 |
| 7 | 21 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100949046 | 2.7 |
| 7 | 22 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100949278 | 2.7 |
| 12 | 7 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101064412 | 2.7 |
| 8 | 11 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101538652 | 2.7 |
| 11 | 1 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 101876308 | 2.7 |
| 4 | 17 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102578316 | 2.7 |
| 3 | 30 | 2002 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 100589272 | 2.701 |
| 6 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101500118 | 2.701 |
| 1 | 8 | 2009 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102512722 | 2.701 |
| 8 | 14 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100418000 | 2.702 |
| 6 | 1 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101488149 | 2.704 |
| 4 | 1 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101153638 | 2.706 |
| 11 | 8 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102186990 | 2.706 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 15 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100944553 | 2.708 |
| 11 | 22 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101894925 | 2.708 |
| 3 | 27 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 6 | 2 | 1 | 3 | 102562688 | 2.708 |
| 11 | 30 | 2004 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101349660 | 2.709 |
| 4 | 25 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100342906 | 2.71 |
| 10 | 29 | 2001 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100475177 | 2.71 |
| 12 | 14 | 2001 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100514133 | 2.71 |
| 4 | 24 | 2002 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100606979 | 2.71 |
| 4 | 28 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100610425 | 2.71 |
| 5 | 22 | 2002 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100627010 | 2.71 |
| 7 | 1 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 2 | 3 | 1 | 1 | 100655075 | 2.71 |
| 7 | 18 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100666431 | 2.71 |
| 9 | 13 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100708600 | 2.71 |
| 1 | 22 | 2003 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100811789 | 2.71 |
| 3 | 4 | 2003 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100843491 | 2.71 |
| 3 | 19 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100853673 | 2.71 |
| 7 | 12 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100943302 | 2.71 |
| 8 | 8 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100964279 | 2.71 |
| 8 | 13 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100967149 | 2.71 |
| 8 | 28 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100978825 | 2.71 |
| 9 | 3 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100983320 | 2.71 |
| 9 | 4 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100984480 | 2.71 |
| 11 | 4 | 2003 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101034390 | 2.71 |
| 12 | 4 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101059608 | 2.71 |
| 2 | 1 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101107869 | 2.71 |
| 3 | 2 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101132988 | 2.71 |
| 5 | 18 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101190963 | 2.71 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 21 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101192965 | 2.71 |
| 6 | 16 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101284676 | 2.71 |
| 6 | 17 | 2004 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101213898 | 2.71 |
| 6 | 18 | 2004 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101214292 | 2.71 |
| 9 | 3 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101274627 | 2.71 |
| 9 | 27 | 2004 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101294693 | 2.71 |
| 11 | 2 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101326335 | 2.71 |
| 11 | 12 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101333868 | 2.71 |
| 5 | 5 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 1 | 1 | 2 | 1 | 3 | 101469179 | 2.71 |
| 10 | 15 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101584687 | 2.71 |
| 11 | 29 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 2 | 4 | 1 | 101621171 | 2.71 |
| 12 | 2 | 2005 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101623296 | 2.71 |
| 12 | 17 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 3 | 0 | 1 | 1 | 2 | 101638061 | 2.71 |
| 1 | 5 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 101650611 | 2.71 |
| 1 | 6 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 1 | 2 | 101650783 | 2.71 |
| 10 | 2 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101845618 | 2.71 |
| 2 | 11 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101958047 | 2.71 |
| 2 | 24 | 2007 | ANGLE | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101969264 | 2.71 |
| 5 | 3 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102030308 | 2.71 |
| 7 | 20 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 8 | 2 | 102094238 | 2.71 |
| 11 | 8 | 2007 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102187657 | 2.71 |
| 1 | 4 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102233333 | 2.71 |
| 4 | 3 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 2 | 1 | 2 | 102296165 | 2.71 |
| 5 | 6 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 102320504 | 2.71 |
| 5 | 13 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102324736 | 2.71 |
| 8 | 1 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102379238 | 2.71 |
| 9 | 28 | 2008 | ANGLE | 1 | 0 | 2 | 0 | 1 | 5 | 1 | 102425174 | 2.71 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 4 | 2008 | MOVABLE OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102426057 | 2.71 |
| 12 | 26 | 2008 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102503188 | 2.71 |
| 4 | 17 | 2009 | LEFT TURN, SAME ROADWAY | 0 | 0 | 2 | 2 | 1 | 1 | 1 | 102590586 | 2.71 |
| 5 | 1 | 2009 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102593329 | 2.71 |
| 5 | 6 | 2009 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102594953 | 2.71 |
| 5 | 28 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 102612118 | 2.71 |
| 6 | 6 | 2009 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102618072 | 2.71 |
| 6 | 30 | 2009 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 102633283 | 2.71 |
| 7 | 6 | 2009 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102634295 | 2.71 |
| 7 | 27 | 2009 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102653985 | 2.71 |
| 4 | 29 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102589641 | 2.715 |
| 12 | 20 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101639254 | 2.719 |
| 5 | 4 | 2007 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 102029839 | 2.722 |
| 10 | 31 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101030089 | 2.723 |
| 7 | 29 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101245447 | 2.724 |
| 4 | 1 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 101445342 | 2.734 |
| 7 | 2 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101226854 | 2.75 |
| 10 | 9 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101851687 | 2.75 |
| 9 | 21 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101566859 | 2.761 |
| 8 | 22 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102118751 | 2.761 |
| 6 | 22 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100382743 | 2.8 |
| 3 | 7 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101135886 | 2.817 |
| 5 | 20 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101191789 | 2.817 |
| 8 | 5 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100679443 | 2.82 |
| 3 | 2 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101974295 | 2.82 |
| 4 | 8 | 2003 | ANGLE | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100868439 | 2.836 |
| 10 | 31 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101030123 | 2.85 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 2 | 5 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101953604 | 2.85 |
| 5 | 23 | 2009 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102615659 | 2.85 |
| 11 | 11 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101040143 | 2.855 |
| 6 | 28 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 101222680 | 2.855 |
| 1 | 14 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101386171 | 2.855 |
| 1 | 3 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101648414 | 2.855 |
| 12 | 11 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101910063 | 2.855 |
| 3 | 31 | 2007 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101999989 | 2.855 |
| 8 | 8 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102108904 | 2.855 |
| 4 | 18 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102308520 | 2.855 |
| 11 | 4 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102452523 | 2.855 |
| 3 | 18 | 2009 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102556867 | 2.855 |
| 6 | 27 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100651760 | 2.856 |
| 10 | 11 | 2006 | UNKNOWN | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101853160 | 2.857 |
| 9 | 25 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101000016 | 2.865 |
| 10 | 26 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101592865 | 2.865 |
| 10 | 12 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101306829 | 2.874 |
| 1 | 21 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101391390 | 2.874 |
| 3 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101435293 | 2.874 |
| 5 | 6 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101470123 | 2.874 |
| 11 | 5 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100481221 | 2.875 |
| 7 | 15 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 101519497 | 2.887 |
| 7 | 31 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 100956716 | 2.893 |
| 7 | 17 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101237105 | 2.893 |
| 1 | 9 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 102236435 | 2.893 |
| 3 | 1 | 2008 | ANGLE | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 102274849 | 2.893 |
| 8 | 26 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102395103 | 2.893 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 27 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100426814 | 2.894 |
| 4 | 29 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102315730 | 2.898 |
| 3 | 4 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101424975 | 2.907 |
| 10 | 28 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 5 | 3 | 101027780 | 2.912 |
| 1 | 16 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101094719 | 2.912 |
| 1 | 28 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 5 | 101105225 | 2.912 |
| 9 | 21 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102147938 | 2.912 |
| 11 | 25 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 100497418 | 2.913 |
| 1 | 16 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100807450 | 2.922 |
| 4 | 12 | 2005 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101453874 | 2.926 |
| 7 | 22 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101240276 | 2.929 |
| 5 | 12 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100894868 | 2.93 |
| 11 | 11 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100756598 | 2.94 |
| 2 | 5 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100822973 | 2.94 |
| 2 | 22 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 1 | 2 | 4 | 3 | 100836476 | 2.94 |
| 10 | 10 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 101012938 | 2.94 |
| 11 | 18 | 2004 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101339438 | 2.94 |
| 11 | 30 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 100501685 | 2.941 |
| 5 | 20 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100901460 | 2.941 |
| 9 | 22 | 2007 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 102146764 | 2.941 |
| 12 | 12 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 102492410 | 2.942 |
| 11 | 13 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102465559 | 2.945 |
| 3 | 28 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100587278 | 2.949 |
| 3 | 3 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101423963 | 2.949 |
| 9 | 2 | 2007 | REAR END, TURN | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102127813 | 2.949 |
| 5 | 30 | 2001 | ANGLE | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 100367066 | 2.95 |
| 9 | 2 | 2001 | ANGLE | 0 | 0 | 1 | 4 | 1 | 2 | 1 | 100431259 | 2.95 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 3 | 2001 | ANGLE | 0 | 0 | 7 | 0 | 1 | 1 | 2 | 100432131 | 2.95 |
| 9 | 26 | 2001 | ANGLE | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 100449234 | 2.95 |
| 10 | 3 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100454515 | 2.95 |
| 11 | 2 | 2001 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100478564 | 2.95 |
| 2 | 17 | 2002 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 100560931 | 2.95 |
| 2 | 26 | 2002 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100567360 | 2.95 |
| 4 | 14 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 100600206 | 2.95 |
| 5 | 10 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 1 | 2 | 100618993 | 2.95 |
| 6 | 23 | 2002 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100649170 | 2.95 |
| 8 | 9 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100682361 | 2.95 |
| 9 | 1 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 100700100 | 2.95 |
| 9 | 26 | 2002 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 2 | 0 | 1 | 1 | 2 | 100717779 | 2.95 |
| 11 | 17 | 2002 | ANGLE | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 100761324 | 2.95 |
| 2 | 17 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100832396 | 2.95 |
| 5 | 3 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100888013 | 2.95 |
| 8 | 12 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100966502 | 2.95 |
| 10 | 17 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101018533 | 2.95 |
| 10 | 22 | 2003 | HEAD ON | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101022199 | 2.95 |
| 10 | 31 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101031749 | 2.95 |
| 12 | 1 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101057416 | 2.95 |
| 2 | 5 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101111605 | 2.95 |
| 2 | 28 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101130473 | 2.95 |
| 6 | 26 | 2004 | ANGLE | 0 | 2 | 0 | 3 | 1 | 4 | 2 | 101221068 | 2.95 |
| 7 | 2 | 2004 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101225434 | 2.95 |
| 8 | 6 | 2004 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101252659 | 2.95 |
| 12 | 4 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101353409 | 2.95 |
| 1 | 11 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101383729 | 2.95 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 2 | 4 | 2005 | ANGLE | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 101402952 | 2.95 |
| 3 | 5 | 2005 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101426089 | 2.95 |
| 3 | 24 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101441462 | 2.95 |
| 7 | 3 | 2005 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101511750 | 2.95 |
| 7 | 16 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101520137 | 2.95 |
| 12 | 26 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 101643189 | 2.95 |
| 2 | 12 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 101675723 | 2.95 |
| 2 | 28 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 4 | 1 | 101686534 | 2.95 |
| 2 | 14 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101960708 | 2.95 |
| 5 | 16 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 102041122 | 2.95 |
| 8 | 8 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102108616 | 2.95 |
| 9 | 20 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 102145126 | 2.95 |
| 9 | 28 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102151627 | 2.95 |
| 10 | 30 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102178821 | 2.95 |
| 4 | 25 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102313272 | 2.95 |
| 5 | 20 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102329032 | 2.95 |
| 5 | 22 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102330234 | 2.95 |
| 6 | 2 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 102341354 | 2.95 |
| 7 | 17 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102370315 | 2.95 |
| 8 | 30 | 2008 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102398398 | 2.95 |
| 10 | 11 | 2008 | SIDESWIPE, OPPOSITE DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102427009 | 2.95 |
| 10 | 25 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102442276 | 2.95 |
| 11 | 14 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102467232 | 2.95 |
| 2 | 3 | 2009 | LEFT TURN, SAME ROADWAY | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 102528592 | 2.95 |
| 12 | 10 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101065640 | 2.952 |
| 2 | 17 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 2 | 1 | 2 | 101122309 | 2.953 |
| 5 | 3 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101179007 | 2.954 |

Table 10.24. continued (NC-132 and Bragg Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 4 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 101326422 | 2.958 |
| 2 | 24 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101419202 | 2.959 |
| 1 | 9 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101935143 | 2.969 |
| 8 | 31 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102126659 | 2.969 |
| 10 | 2 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102419426 | 2.969 |
| 5 | 1 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100885951 | 2.983 |
| 5 | 1 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 100885963 | 2.984 |
| 7 | 31 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101530288 | 2.988 |
| 3 | 31 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102568445 | 2.988 |
| 2 | 7 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101671944 | 2.997 |
| 9 | 21 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101290680 | 3.003 |
| 1 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101388090 | 3.026 |
| 2 | 18 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101121484 | 3.045 |
| 1 | 19 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101389653 | 3.05 |
| 1 | 3 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102232616 | 3.06 |
| 2 | 1 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100820681 | 3.083 |
| 7 | 10 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102365237 | 3.103 |
| 2 | 16 | 2004 | ANGLE | 0 | 0 | 0 | 2 | 2 | 4 | 1 | 101120975 | 3.147 |
| 8 | 25 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100976447 | 3.15 |
| 1 | 18 | 2005 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101388684 | 3.15 |
| 11 | 13 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101885524 | 3.159 |
| 5 | 5 | 2007 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102031424 | 3.171 |
| 10 | 3 | 2002 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100723705 | 3.2 |
| 10 | 23 | 2008 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102441765 | 3.265 |
| 12 | 27 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100794681 | 3.303 |
| 9 | 24 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100999855 | 3.322 |
| 3 | 21 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102556827 | 3.322 |

Table 10.25. NC-132 and Pinecliff Drive Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 15 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 101071710 | 1.81 |
| 2 | 7 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100553993 | 1.825 |
| 11 | 13 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100758461 | 1.9 |
| 8 | 1 | 2004 | OTHER NON-COLLISION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101247827 | 1.9 |
| 11 | 18 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101339436 | 1.9 |
| 7 | 4 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 102637256 | 1.911 |
| 4 | 23 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100341304 | 1.963 |
| 12 | 31 | 2005 | REAR END, SLOW OR STOP | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 101646648 | 1.963 |
| 1 | 12 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101654905 | 1.98 |
| 1 | 27 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 102525010 | 1.98 |
| 5 | 1 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102585978 | 1.995 |
| 2 | 9 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101406514 | 1.998 |
| 9 | 30 | 2001 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100452223 | 2 |
| 2 | 18 | 2002 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100561456 | 2 |
| 3 | 21 | 2002 | FIXED OBJECT | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100584174 | 2 |
| 6 | 4 | 2003 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100913350 | 2 |
| 2 | 5 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101111644 | 2 |
| 6 | 5 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101204840 | 2 |
| 6 | 23 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101218267 | 2 |
| 1 | 4 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101378985 | 2 |
| 6 | 23 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101504114 | 2 |
| 7 | 25 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101527066 | 2 |
| 8 | 24 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101547784 | 2 |
| 12 | 19 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101638166 | 2 |
| 1 | 16 | 2007 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 101934283 | 2 |
| 3 | 30 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101999154 | 2 |
| 4 | 22 | 2007 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102036706 | 2 |

Table 10.25. continued (NC-132 and Pinecliff Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 31 | 2007 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 102054173 | 2 |
| 1 | 5 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102233565 | 2 |
| 5 | 19 | 2008 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102328367 | 2 |
| 9 | 12 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 102407563 | 2 |
| 11 | 26 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102474584 | 2 |
| 1 | 16 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102517648 | 2 |
| 5 | 6 | 2009 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102591692 | 2 |
| 3 | 30 | 2002 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100589262 | 2.001 |
| 12 | 7 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101628190 | 2.002 |
| 11 | 18 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 100762142 | 2.004 |
| 8 | 4 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 102105456 | 2.005 |
| 1 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101388085 | 2.012 |
| 8 | 6 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 100961111 | 2.012 |
| 1 | 29 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102251087 | 2.012 |
| 2 | 2 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101680467 | 2.019 |
| 5 | 14 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 100356237 | 2.029 |
| 8 | 24 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 101548046 | 2.03 |
| 11 | 13 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100487818 | 2.056 |
| 4 | 12 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100598384 | 2.056 |
| 6 | 23 | 2008 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102354541 | 2.057 |
| 8 | 18 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100971114 | 2.08 |
| 9 | 1 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101272561 | 2.08 |
| 12 | 12 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102214767 | 2.08 |
| 6 | 23 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102353865 | 2.08 |
| 2 | 2 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 5 | 1 | 102528117 | 2.08 |
| 10 | 18 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101311782 | 2.085 |
| 1 | 28 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101947027 | 2.11 |

Table 10.25. continued (NC-132 and Pinecliff Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 22 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102046179 | 2.14 |
| 5 | 14 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102324894 | 2.17 |
| 7 | 9 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100660812 | 2.171 |
| 12 | 16 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102472438 | 2.171 |
| 12 | 15 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101071702 | 2.173 |
| 6 | 3 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 2 | 0 | 1 | 5 | 1 | 100635496 | 2.18 |
| 4 | 28 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 100883773 | 2.18 |
| 7 | 10 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101231263 | 2.18 |
| 5 | 5 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101469193 | 2.18 |
| 10 | 1 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101573721 | 2.18 |
| 12 | 5 | 2005 | ANGLE | 0 | 0 | 0 | 2 | 1 | 2 | 2 | 101625588 | 2.18 |
| 12 | 3 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102207193 | 2.18 |
| 12 | 30 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102504766 | 2.18 |
| 4 | 20 | 2009 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102579321 | 2.18 |
| 4 | 29 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102585773 | 2.182 |
| 5 | 2 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100348080 | 2.188 |
| 12 | 17 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102491805 | 2.189 |
| 1 | 9 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101089141 | 2.192 |
| 9 | 13 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 102137983 | 2.199 |
| 11 | 16 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100490422 | 2.2 |
| 2 | 7 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 102532289 | 2.204 |
| 7 | 2 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100389801 | 2.208 |
| 8 | 27 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101550368 | 2.208 |
| 11 | 18 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100762607 | 2.218 |
| 12 | 7 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101355729 | 2.22 |
| 5 | 2 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100887132 | 2.23 |
| 6 | 26 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100385873 | 2.236 |

Table 10.25. continued (NC-132 and Pinecliff Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 31 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101667763 | 2.25 |
| 4 | 7 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101159135 | 2.254 |
| 1 | 4 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101378986 | 2.264 |
| 4 | 10 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102007408 | 2.27 |
| 8 | 31 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102126612 | 2.272 |
| 1 | 9 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100534024 | 2.28 |
| 1 | 25 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100545314 | 2.28 |
| 10 | 31 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100746576 | 2.28 |
| 8 | 3 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100959150 | 2.28 |
| 5 | 12 | 2004 | REAR END, TURN | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101186108 | 2.28 |
| 11 | 12 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 101334450 | 2.28 |
| 1 | 9 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101965411 | 2.28 |
| 2 | 22 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101967083 | 2.28 |
| 6 | 10 | 2003 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100918350 | 2.284 |
| 4 | 25 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101173258 | 2.295 |
| 9 | 28 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101295383 | 2.298 |
| 5 | 24 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100905137 | 2.304 |
| 6 | 20 | 2002 | UNKNOWN | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100647586 | 2.307 |
| 12 | 24 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101371233 | 2.308 |
| 11 | 29 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101621146 | 2.311 |
| 11 | 1 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100477126 | 2.312 |
| 8 | 8 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 3 | 1 | 101535408 | 2.312 |
| 9 | 25 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102148700 | 2.317 |
| 7 | 28 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102100523 | 2.32 |
| 1 | 23 | 2008 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102246882 | 2.32 |
| 2 | 22 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101124186 | 2.322 |
| 5 | 28 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102333973 | 2.322 |

Table 10.25. continued (NC-132 and Pinecliff Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 26 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100882301 | 2.327 |
| 4 | 1 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 5 | 3 | 101445655 | 2.33 |
| 5 | 28 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101486095 | 2.33 |
| 6 | 13 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102065379 | 2.33 |
| 3 | 18 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102301628 | 2.33 |
| 5 | 9 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100892158 | 2.334 |
| 6 | 9 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101207424 | 2.336 |
| 1 | 26 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 2 | 2 | 4 | 2 | 102249386 | 2.339 |
| 8 | 3 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101249901 | 2.34 |
| 7 | 12 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100395828 | 2.345 |
| 4 | 5 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100593517 | 2.345 |
| 8 | 20 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100690397 | 2.346 |
| 8 | 6 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100961106 | 2.349 |
| 2 | 21 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101682119 | 2.349 |
| 7 | 2 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100935101 | 2.354 |
| 10 | 8 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102425992 | 2.358 |
| 6 | 7 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102617246 | 2.365 |
| 12 | 13 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102489464 | 2.368 |
| 10 | 4 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101575186 | 2.382 |
| 7 | 3 | 2005 | FIXED OBJECT | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101511751 | 2.402 |
| 10 | 14 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101308758 | 2.42 |
| 6 | 2 | 2001 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100369581 | 2.424 |
| 8 | 31 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100430139 | 2.47 |
| 2 | 13 | 2009 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102536211 | 2.475 |
| 9 | 7 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101556915 | 2.483 |
| 10 | 2 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 10 | 8 | 9 | 101574105 | 2.494 |
| 5 | 1 | 2001 | PEDALCYCLIST | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100347396 | 2.509 |

Table 10.25. continued (NC-132 and Pinecliff Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 27 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102099198 | 2.513 |
| 11 | 7 | 2002 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100752157 | 2.521 |
| 5 | 11 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100354249 | 2.523 |
| 3 | 3 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100842372 | 2.523 |
| 7 | 26 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101242986 | 2.523 |
| 2 | 5 | 2002 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100552490 | 2.532 |
| 12 | 20 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100788691 | 2.532 |
| 12 | 12 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101067446 | 2.532 |
| 12 | 18 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101637568 | 2.532 |
| 9 | 21 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102145443 | 2.532 |
| 1 | 28 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 6 | 1 | 1 | 1 | 101349110 | 2.542 |
| 1 | 24 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101941835 | 2.542 |
| 4 | 6 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100330291 | 2.55 |
| 9 | 18 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 4 | 2 | 100712744 | 2.55 |
| 7 | 20 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102088952 | 2.55 |
| 9 | 6 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100986267 | 2.551 |
| 5 | 8 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101183188 | 2.551 |
| 11 | 28 | 2008 | ANGLE | 0 | 0 | 0 | 2 | 1 | 4 | 1 | 102474927 | 2.551 |
| 4 | 3 | 2002 | MOVABLE OBJECT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100592083 | 2.552 |
| 10 | 17 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 2 | 1 | 2 | 101859501 | 2.556 |

Table 10.26. US-117 and Holly Tree Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 13 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102325261 | 2.78 |
| 4 | 28 | 2009 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102589615 | 2.826 |
| 8 | 21 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100422470 | 2.83 |
| 12 | 28 | 2001 | ANGLE | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100523980 | 2.83 |
| 2 | 4 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100551812 | 2.83 |
| 11 | 13 | 2002 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100758144 | 2.83 |
| 5 | 9 | 2003 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100892784 | 2.83 |
| 3 | 16 | 2005 | ANGLE | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101433632 | 2.83 |
| 12 | 24 | 2006 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101921113 | 2.83 |
| 1 | 24 | 2008 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102247740 | 2.83 |
| 9 | 25 | 2008 | ANGLE | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 102412529 | 2.83 |
| 1 | 26 | 2009 | ANGLE | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 102524029 | 2.83 |
| 5 | 7 | 2009 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102601389 | 2.83 |
| 12 | 4 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100504870 | 2.835 |
| 2 | 1 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100549682 | 2.848 |
| 3 | 17 | 2002 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100580237 | 2.886 |
| 12 | 12 | 2002 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100782138 | 2.887 |
| 3 | 17 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 102285683 | 2.887 |
| 2 | 18 | 2009 | RAN OFF ROAD - LEFT | 1 | 0 | 0 | 0 | 1 | 4 | 1 | 102537071 | 2.904 |
| 10 | 25 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 102173578 | 2.906 |
| 6 | 17 | 2007 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102068059 | 2.925 |
| 10 | 24 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100461368 | 2.98 |
| 8 | 19 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101262290 | 2.98 |
| 6 | 20 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102071351 | 2.994 |
| 9 | 20 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100444489 | 3 |
| 9 | 6 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100703555 | 3 |
| 3 | 11 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100859045 | 3 |

Table 10.26. continued (US-117 and Holly Tree Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 6 | 2006 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101849556 | 3 |
| 11 | 7 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101928299 | 3 |
| 3 | 20 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101989514 | 3 |
| 2 | 2 | 2008 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102255685 | 3 |
| 10 | 29 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100475179 | 3.017 |
| 4 | 3 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100592343 | 3.027 |
| 12 | 12 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102489362 | 3.037 |
| 2 | 25 | 2002 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100565807 | 3.08 |
| 10 | 8 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101304244 | 3.112 |
| 1 | 11 | 2002 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100535576 | 3.113 |
| 4 | 17 | 2003 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100875639 | 3.131 |
| 8 | 15 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102114532 | 3.141 |
| 1 | 4 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 101649756 | 3.146 |
| 1 | 17 | 2003 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100808456 | 3.149 |
| 5 | 28 | 2001 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100365620 | 3.15 |
| 12 | 5 | 2001 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100505797 | 3.15 |
| 2 | 28 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 100567825 | 3.15 |
| 3 | 3 | 2002 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 100570352 | 3.15 |
| 4 | 16 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100601357 | 3.15 |
| 4 | 24 | 2002 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100606981 | 3.15 |
| 6 | 29 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100653878 | 3.15 |
| 7 | 12 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 100661996 | 3.15 |
| 10 | 10 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100728714 | 3.15 |
| 1 | 14 | 2003 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100805401 | 3.15 |
| 7 | 21 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 100948983 | 3.15 |
| 8 | 12 | 2003 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100966476 | 3.15 |
| 8 | 31 | 2003 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100980850 | 3.15 |

Table 10.26. continued (US-117 and Holly Tree Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 10 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101012378 | 3.15 |
| 10 | 10 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101012332 | 3.15 |
| 11 | 24 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101051411 | 3.15 |
| 9 | 30 | 2004 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101299808 | 3.15 |
| 6 | 12 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101497991 | 3.15 |
| 9 | 15 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101562626 | 3.15 |
| 10 | 2 | 2005 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101574333 | 3.15 |
| 11 | 3 | 2005 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101599974 | 3.15 |
| 1 | 15 | 2006 | ANGLE | 0 | 0 | 3 | 2 | 1 | 1 | 1 | 101656956 | 3.15 |
| 2 | 5 | 2006 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101676778 | 3.15 |
| 10 | 12 | 2006 | ANGLE | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 101855099 | 3.15 |
| 11 | 29 | 2006 | ANGLE | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 101899739 | 3.15 |
| 12 | 13 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101912251 | 3.15 |
| 1 | 7 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101932019 | 3.15 |
| 2 | 8 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101955972 | 3.15 |
| 4 | 24 | 2007 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102021198 | 3.15 |
| 10 | 5 | 2007 | ANGLE | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 102158267 | 3.15 |
| 11 | 15 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102193124 | 3.15 |
| 3 | 31 | 2008 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 102294802 | 3.15 |
| 4 | 28 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 102315146 | 3.15 |
| 5 | 10 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102323846 | 3.15 |
| 8 | 31 | 2008 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102400799 | 3.15 |
| 9 | 7 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102403467 | 3.15 |
| 9 | 26 | 2008 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102414519 | 3.15 |
| 9 | 30 | 2008 | ANGLE | 0 | 0 | 2 | 1 | 1 | 1 | 2 | 102418155 | 3.15 |
| 10 | 31 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102445894 | 3.15 |
| 12 | 31 | 2008 | ANGLE | 0 | 0 | 0 | 2 | 1 | 4 | 1 | 102506392 | 3.15 |

Table 10.26. continued (US-117 and Holly Tree Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 12 | 2009 | ANGLE | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102516510 | 3.15 |
| 3 | 12 | 2009 | ANGLE | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 102556849 | 3.15 |
| 6 | 12 | 2009 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102620077 | 3.15 |
| 7 | 14 | 2009 | ANGLE | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 102669810 | 3.15 |
| 1 | 2 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102507830 | 3.152 |
| 5 | 21 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100901785 | 3.154 |
| 2 | 19 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102544450 | 3.154 |
| 5 | 26 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101196705 | 3.158 |
| 2 | 13 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101409276 | 3.16 |
| 7 | 3 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102369608 | 3.16 |
| 9 | 13 | 2001 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100439452 | 3.162 |
| 12 | 2 | 2002 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100773042 | 3.165 |
| 4 | 25 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100607725 | 3.168 |
| 5 | 23 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100627782 | 3.168 |
| 10 | 30 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102445604 | 3.169 |
| 5 | 1 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100885949 | 3.17 |
| 3 | 14 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100850291 | 3.178 |
| 1 | 24 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 100544601 | 3.18 |
| 9 | 13 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101561537 | 3.191 |
| 8 | 5 | 2003 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100961000 | 3.197 |
| 1 | 16 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101093947 | 3.197 |
| 11 | 29 | 2001 | HEAD ON | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100500552 | 3.206 |
| 2 | 21 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100563429 | 3.225 |
| 6 | 26 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101506252 | 3.226 |
| 10 | 4 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100724657 | 3.245 |
| 5 | 24 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102332139 | 3.245 |
| 6 | 28 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101222653 | 3.25 |

Table 10.26. continued (US-117 and Holly Tree Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 14 | 2001 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100440160 | 3.27 |
| 11 | 14 | 2007 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102192089 | 3.27 |
| 8 | 31 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102126611 | 3.3 |
| 8 | 9 | 2003 | OTHER NON-COLLISION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100964066 | 3.35 |
| 5 | 7 | 2004 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101182342 | 3.37 |
| 11 | 22 | 2002 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100766009 | 3.381 |
| 9 | 14 | 2001 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 4 | 0 | 1 | 1 | 1 | 100439706 | 3.4 |
| 8 | 26 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101267899 | 3.4 |
| 7 | 13 | 2005 | UNKNOWN | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101517463 | 3.4 |
| 7 | 30 | 2007 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 102102053 | 3.4 |
| 2 | 10 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100826634 | 3.434 |
| 10 | 20 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101021437 | 3.437 |
| 12 | 6 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101626521 | 3.437 |
| 2 | 14 | 2009 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102537561 | 3.456 |
| 3 | 29 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100860838 | 3.47 |
| 5 | 19 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101479868 | 3.47 |
| 6 | 29 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101508315 | 3.475 |
| 3 | 12 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102556853 | 3.475 |
| 5 | 1 | 2002 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100611634 | 3.476 |
| 11 | 30 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101621365 | 3.494 |
| 1 | 4 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101085689 | 3.513 |
| 5 | 10 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101473776 | 3.513 |

Table 10.27. US-421 and Sanders Road/SR-1187 Crash Data

| Month | Day | Year | Crash Type |  |  |  |  |  |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 9 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102061931 | 12.442 |
| 2 | 21 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101416374 | 12.47 |
| 4 | 14 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101454901 | 12.47 |
| 11 | 28 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101619493 | 12.47 |
| 2 | 8 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101673291 | 12.47 |
| 4 | 18 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102014499 | 12.47 |
| 11 | 19 | 2004 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101340396 | 12.48 |
| 2 | 22 | 2010 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102815304 | 12.48 |
| 11 | 30 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101349661 | 12.57 |
| 1 | 6 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101086587 | 12.58 |
| 7 | 17 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101236849 | 12.58 |
| 6 | 23 | 2005 | MOVABLE OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101504352 | 12.58 |
| 11 | 12 | 2005 | RAN OFF ROAD - RIGHT | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101607245 | 12.58 |
| 8 | 7 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102658989 | 12.66 |
| 3 | 26 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101149509 | 12.68 |
| 4 | 1 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 101445649 | 12.68 |
| 6 | 15 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101499676 | 12.68 |
| 3 | 21 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101990009 | 12.68 |
| 9 | 24 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102120151 | 12.68 |
| 5 | 26 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102332686 | 12.68 |
| 2 | 5 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102801373 | 12.68 |
| 3 | 19 | 2010 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102820849 | 12.68 |
| 10 | 15 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101309484 | 12.685 |
| 4 | 10 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102007396 | 12.739 |
| 9 | 17 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102142481 | 12.761 |
| 12 | 31 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102229876 | 12.771 |
| 6 | 24 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102897788 | 12.771 |

Table 10.27. continued (US-421 and Sanders Road/SR-1187 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 2 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101845603 | 12.773 |
| 1 | 14 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101092850 | 12.78 |
| 1 | 25 | 2004 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101101638 | 12.78 |
| 12 | 18 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101365312 | 12.78 |
| 7 | 6 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101513422 | 12.78 |
| 8 | 1 | 2005 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101530822 | 12.78 |
| 9 | 10 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101559414 | 12.78 |
| 11 | 6 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101878764 | 12.78 |
| 3 | 26 | 2007 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101993552 | 12.78 |
| 11 | 13 | 2007 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102190357 | 12.78 |
| 11 | 18 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102195951 | 12.78 |
| 12 | 19 | 2007 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 102220968 | 12.78 |
| 3 | 13 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102283146 | 12.78 |
| 4 | 18 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102309226 | 12.78 |
| 4 | 21 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 0 | 1 | 2 | 2 | 102309869 | 12.78 |
| 9 | 26 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102681476 | 12.78 |
| 3 | 11 | 2010 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 102822197 | 12.78 |
| 5 | 8 | 2010 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102858595 | 12.78 |
| 5 | 23 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101194338 | 12.782 |
| 6 | 25 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101220279 | 12.785 |
| 2 | 22 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101682398 | 12.785 |
| 8 | 10 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101804788 | 12.786 |
| 8 | 10 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102662698 | 12.786 |
| 1 | 13 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101385772 | 12.789 |
| 10 | 15 | 2009 | ANIMAL | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 102696260 | 12.794 |
| 3 | 31 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101445002 | 12.799 |
| 7 | 31 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 102102333 | 12.818 |

Table 10.27. continued (US-421 and Sanders Road/SR-1187 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 5 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102361671 | 12.82 |
| 6 | 4 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101491311 | 12.827 |
| 3 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 1 | 1 | 5 | 2 | 101435309 | 12.832 |
| 11 | 25 | 2009 | ANIMAL | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 102732542 | 12.837 |
| 5 | 2 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102028419 | 12.843 |
| 3 | 7 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101978746 | 12.861 |
| 12 | 18 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101073730 | 12.88 |
| 1 | 20 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101097120 | 12.88 |
| 5 | 7 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101197573 | 12.88 |
| 6 | 28 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101222347 | 12.88 |
| 8 | 24 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101266374 | 12.88 |
| 8 | 8 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 101535703 | 12.88 |
| 8 | 23 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101547107 | 12.88 |
| 4 | 16 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101715661 | 12.88 |
| 6 | 17 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101763921 | 12.88 |
| 7 | 1 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101773890 | 12.88 |
| 6 | 2 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102055985 | 12.88 |
| 6 | 16 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102067661 | 12.88 |
| 8 | 24 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102120519 | 12.88 |
| 8 | 30 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102126760 | 12.88 |
| 9 | 1 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102127113 | 12.88 |
| 9 | 4 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102129080 | 12.88 |
| 9 | 20 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 102144602 | 12.88 |
| 9 | 28 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102079443 | 12.88 |
| 4 | 29 | 2008 | RAN OFF ROAD - LEFT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102315352 | 12.88 |
| 6 | 20 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102624221 | 12.88 |
| 2 | 16 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102794070 | 12.88 |

Table 10.27. continued (US-421 and Sanders Road/SR-1187 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 25 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102898254 | 12.88 |
| 6 | 6 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101205176 | 12.89 |
| 10 | 2 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102153904 | 12.9 |
| 7 | 31 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102378992 | 12.9 |
| 8 | 9 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102110788 | 12.91 |
| 11 | 16 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101610208 | 12.92 |
| 11 | 16 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 101611593 | 12.92 |
| 9 | 26 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101841224 | 12.92 |
| 9 | 30 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101844310 | 12.92 |
| 5 | 21 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102045768 | 12.92 |
| 7 | 4 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102081641 | 12.92 |
| 1 | 18 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102243625 | 12.92 |
| 3 | 23 | 2007 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101991509 | 12.93 |
| 4 | 6 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102005026 | 12.93 |
| 10 | 24 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102711958 | 12.93 |
| 2 | 11 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101408046 | 12.98 |
| 2 | 26 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101420283 | 12.98 |
| 6 | 25 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101505381 | 12.98 |
| 7 | 2 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101510911 | 12.98 |
| 9 | 24 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101569011 | 12.98 |
| 4 | 14 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101714052 | 12.98 |
| 5 | 2 | 2006 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101725904 | 12.98 |
| 1 | 15 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101938346 | 12.98 |
| 1 | 15 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101938353 | 12.98 |
| 7 | 20 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102093895 | 12.98 |
| 2 | 7 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102257511 | 12.98 |
| 6 | 24 | 2010 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102902394 | 12.98 |

Table 10.27. continued (US-421 and Sanders Road/SR-1187 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 20 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101522443 | 12.999 |
| 6 | 8 | 2004 | SIDESWIPE, OPPOSITE DIRECTION | 0 | 1 | 1 | 0 | 1 | 1 | 5 | 101206420 | 13.02 |
| 6 | 25 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101768991 | 13.02 |
| 8 | 18 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102116814 | 13.02 |
| 8 | 15 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 1 | 1 | 2 | 102670056 | 13.02 |

Table 10.28. US-421 and Halyburton Memorial Parkway/Veterans Drive Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 28 | 2006 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101770893 | 10.8 |
| 5 | 12 | 2005 | ANGLE | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101474996 | 10.82 |
| 9 | 24 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101568678 | 10.82 |
| 12 | 23 | 2005 | FIXED OBJECT | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101641241 | 10.82 |
| 5 | 18 | 2007 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102042603 | 10.82 |
| 10 | 26 | 2003 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101025994 | 10.86 |
| 7 | 31 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101246969 | 10.87 |
| 11 | 9 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101331389 | 10.88 |
| 8 | 30 | 2008 | REAR END, TURN | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 102397811 | 10.88 |
| 11 | 25 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 1 | 1 | 5 | 1 | 101896611 | 10.9 |
| 11 | 25 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 101896691 | 10.9 |
| 4 | 23 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101170500 | 10.92 |
| 10 | 22 | 2005 | LEFT TURN, SAME ROADWAY | 1 | 0 | 0 | 2 | 1 | 1 | 1 | 101589000 | 10.92 |
| 4 | 1 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101734333 | 10.92 |
| 5 | 26 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102332682 | 10.92 |
| 2 | 27 | 2010 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102803067 | 10.92 |
| 7 | 20 | 2008 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102372133 | 10.959 |
| 3 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101434937 | 10.987 |
| 8 | 11 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101805422 | 10.995 |
| 8 | 12 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101807050 | 11 |
| 8 | 30 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102398399 | 11.018 |
| 7 | 11 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 101232131 | 11.02 |
| 7 | 11 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101232393 | 11.02 |
| 1 | 3 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101377868 | 11.02 |
| 6 | 11 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101496052 | 11.02 |
| 5 | 29 | 2006 | REAR END, TURN | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101740980 | 11.02 |
| 7 | 15 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101785624 | 11.02 |

Table 10.28. continued (US-421 and Halyburton Memorial Parkway/Veterans Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 13 | 2007 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102196274 | 11.02 |
| 8 | 29 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102667883 | 11.02 |
| 4 | 24 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102311336 | 11.05 |
| 1 | 3 | 2008 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102232334 | 11.06 |
| 4 | 6 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102301662 | 11.06 |
| 9 | 1 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102680585 | 11.093 |
| 5 | 21 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 2 | 0 | 1 | 5 | 1 | 101481299 | 11.1 |
| 5 | 12 | 2005 | OTHER NON-COLLISION | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101474997 | 11.101 |
| 2 | 5 | 2010 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102784609 | 11.106 |
| 8 | 31 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102126238 | 11.107 |
| 5 | 30 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102875411 | 11.107 |
| 8 | 7 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101801985 | 11.11 |
| 7 | 8 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101514878 | 11.111 |
| 7 | 30 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101245979 | 11.114 |
| 7 | 3 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101511736 | 11.115 |
| 5 | 6 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101728520 | 11.115 |
| 4 | 9 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 4 | 2 | 102838444 | 11.115 |
| 7 | 13 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101517922 | 11.116 |
| 9 | 15 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101558873 | 11.117 |
| 9 | 16 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101564213 | 11.117 |
| 4 | 23 | 2005 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101461235 | 11.118 |
| 5 | 12 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101732431 | 11.118 |
| 8 | 31 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 102665796 | 11.118 |
| 8 | 31 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102665802 | 11.119 |
| 10 | 8 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101010662 | 11.12 |
| 11 | 3 | 2003 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101033620 | 11.12 |
| 12 | 9 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101064701 | 11.12 |

Table 10.28. continued (US-421 and Halyburton Memorial Parkway/Veterans Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 13 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101186700 | 11.12 |
| 10 | 22 | 2004 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101299414 | 11.12 |
| 10 | 28 | 2004 | HEAD ON | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101320172 | 11.12 |
| 11 | 2 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101326337 | 11.12 |
| 12 | 13 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101360791 | 11.12 |
| 1 | 28 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101397564 | 11.12 |
| 2 | 10 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101407085 | 11.12 |
| 2 | 15 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 5 | 101410662 | 11.12 |
| 3 | 18 | 2005 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101435712 | 11.12 |
| 3 | 2 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101686851 | 11.12 |
| 4 | 8 | 2006 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101709928 | 11.12 |
| 8 | 5 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101800873 | 11.12 |
| 11 | 12 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101884823 | 11.12 |
| 7 | 18 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102092196 | 11.12 |
| 11 | 30 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102205078 | 11.12 |
| 12 | 18 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 102220228 | 11.12 |
| 3 | 6 | 2008 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102277261 | 11.12 |
| 6 | 19 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102349611 | 11.12 |
| 2 | 17 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102795228 | 11.12 |
| 3 | 29 | 2010 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102833652 | 11.12 |
| 11 | 25 | 2005 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101617741 | 11.122 |
| 7 | 25 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101792593 | 11.122 |
| 8 | 17 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 101810101 | 11.122 |
| 11 | 3 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102711794 | 11.123 |
| 1 | 10 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101382958 | 11.124 |
| 1 | 1 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101647233 | 11.124 |
| 3 | 26 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101993567 | 11.127 |

Table 10.28. continued (US-421 and Halyburton Memorial Parkway/Veterans Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 20 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102196828 | 11.127 |
| 4 | 16 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102307513 | 11.13 |
| 11 | 24 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101344861 | 11.131 |
| 9 | 16 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101563422 | 11.131 |
| 8 | 8 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101253964 | 11.15 |
| 8 | 27 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101550344 | 11.158 |
| 9 | 29 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102152358 | 11.165 |
| 7 | 22 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102367227 | 11.175 |
| 1 | 29 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102778620 | 11.2 |
| 1 | 17 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101388076 | 11.22 |
| 4 | 5 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101448158 | 11.22 |
| 6 | 6 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101492338 | 11.22 |
| 5 | 7 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101729440 | 11.22 |
| 6 | 23 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101767842 | 11.22 |
| 8 | 19 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101811626 | 11.22 |
| 10 | 13 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 2 | 101855358 | 11.22 |
| 1 | 9 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101934770 | 11.22 |
| 9 | 28 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102151349 | 11.22 |
| 8 | 1 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102648399 | 11.22 |
| 1 | 13 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101092382 | 11.25 |
| 7 | 4 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 5 | 1 | 1 | 2 | 101226994 | 11.25 |
| 9 | 8 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102134134 | 11.25 |
| 2 | 21 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102268874 | 11.25 |
| 8 | 14 | 2008 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102386975 | 11.25 |
| 3 | 2 | 2010 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102819602 | 11.25 |
| 8 | 28 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101818626 | 11.27 |
| 12 | 12 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 102215142 | 11.312 |

Table 10.28. continued (US-421 and Halyburton Memorial Parkway/Veterans Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 2 | 2004 | PEDESTRIAN | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101202111 | 11.318 |
| 4 | 24 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101171212 | 11.32 |
| 8 | 21 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 102391271 | 11.338 |
| 1 | 24 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 102790020 | 11.341 |
| 5 | 12 | 2010 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102862796 | 11.341 |
| 6 | 27 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101507037 | 11.346 |
| 1 | 10 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101383518 | 11.347 |
| 8 | 23 | 2008 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102391873 | 11.348 |
| 4 | 17 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101165751 | 11.35 |
| 7 | 1 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101224658 | 11.35 |
| 9 | 18 | 2004 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101286988 | 11.35 |
| 10 | 4 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101300452 | 11.35 |
| 1 | 12 | 2005 | ANGLE | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 101384719 | 11.35 |
| 2 | 21 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101416365 | 11.35 |
| 8 | 31 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101552738 | 11.35 |
| 9 | 29 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101572190 | 11.35 |
| 9 | 30 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101572795 | 11.35 |
| 10 | 6 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 4 | 2 | 1 | 2 | 101577188 | 11.35 |
| 2 | 7 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101672690 | 11.35 |
| 2 | 24 | 2006 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101682925 | 11.35 |
| 6 | 8 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101754002 | 11.35 |
| 6 | 28 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101770888 | 11.35 |
| 8 | 3 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101799198 | 11.35 |
| 3 | 22 | 2007 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101990367 | 11.35 |
| 8 | 26 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102122569 | 11.35 |
| 5 | 18 | 2008 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101478846 | 11.35 |
| 7 | 18 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102371164 | 11.35 |

Table 10.28. continued (US-421 and Halyburton Memorial Parkway/Veterans Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 4 | 2008 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102381111 | 11.35 |
| 8 | 23 | 2009 | PEDALCYCLIST | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102661085 | 11.35 |
| 12 | 9 | 2009 | FIXED OBJECT | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102759101 | 11.35 |
| 2 | 9 | 2010 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102787019 | 11.35 |
| 3 | 1 | 2010 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102805502 | 11.35 |
| 4 | 26 | 2010 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 102855557 | 11.35 |
| 6 | 23 | 2010 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102896591 | 11.35 |
| 4 | 11 | 2005 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101453046 | 11.352 |
| 9 | 27 | 2008 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102413715 | 11.353 |
| 11 | 3 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101599560 | 11.354 |
| 12 | 6 | 2004 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101354556 | 11.355 |
| 1 | 28 | 2008 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102250611 | 11.355 |
| 8 | 12 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101539304 | 11.365 |
| 10 | 29 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102177346 | 11.37 |

Table 10.29. US-17 and NC-211/Green Swamp Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 18 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 5 | 3 | 100970714 | 21.57 |
| 5 | 27 | 2003 | Jackknife | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100906634 | 21.64 |
| 8 | 10 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101804531 | 21.64 |
| 6 | 16 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102066802 | 21.73 |
| 10 | 16 | 2004 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101309974 | 21.74 |
| 1 | 24 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101393912 | 21.74 |
| 8 | 1 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101534208 | 21.74 |
| 12 | 6 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102209689 | 21.74 |
| 2 | 29 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102272513 | 21.74 |
| 3 | 4 | 2005 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101424650 | 21.77 |
| 10 | 4 | 2006 | Left Turn, Different Roadways | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101846996 | 21.77 |
| 10 | 6 | 2006 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101848012 | 21.77 |
| 7 | 26 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100952416 | 21.84 |
| 2 | 21 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101123247 | 21.84 |
| 4 | 29 | 2004 | Fixed Object | 0 | 0 | 3 | 2 | 1 | 1 | 1 | 101174887 | 21.84 |
| 11 | 18 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 101611959 | 21.84 |
| 2 | 13 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101633643 | 21.84 |
| 6 | 25 | 2009 | Overturn/Rollover | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 102625660 | 21.84 |
| 8 | 15 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 101259071 | 21.845 |
| 7 | 16 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101519674 | 21.881 |
| 7 | 8 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102635695 | 21.892 |
| 4 | 9 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101451353 | 21.897 |
| 10 | 22 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101314195 | 21.904 |
| 2 | 7 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101404553 | 21.921 |
| 10 | 21 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102442367 | 21.921 |
| 10 | 12 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101854679 | 21.931 |
| 9 | 25 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102148399 | 21.931 |
| 7 | 28 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102647678 | 21.931 |
| 12 | 31 | 2004 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101375628 | 21.932 |
| 1 | 12 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101933245 | 21.933 |
| 4 | 16 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102012603 | 21.934 |

Table 10.29. continued US-17 and NC-211/Green Swamp Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 6 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102588506 | 21.934 |
| 6 | 18 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100923831 | 21.937 |
| 9 | 26 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101840336 | 21.937 |
| 10 | 29 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101282498 | 21.938 |
| 7 | 4 | 2003 | Angle | 0 | 0 | 3 | 1 | 1 | 5 | 1 | 100936368 | 21.94 |
| 8 | 3 | 2003 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100958662 | 21.94 |
| 8 | 3 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100958656 | 21.94 |
| 10 | 7 | 2003 | Angle | 0 | 0 | 0 | 1 | 1 | 5 | 2 | 101009441 | 21.94 |
| 11 | 8 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101037718 | 21.94 |
| 11 | 28 | 2003 | Angle | 0 | 0 | 2 | 0 | 2 | 5 | 5 | 101054926 | 21.94 |
| 1 | 22 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101098253 | 21.94 |
| 4 | 14 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101163264 | 21.94 |
| 4 | 28 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101174245 | 21.94 |
| 5 | 6 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101181704 | 21.94 |
| 8 | 15 | 2004 | Rear End, Turn | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101259068 | 21.94 |
| 10 | 2 | 2004 | Overturn/Rollover | 0 | 0 | 1 | 5 | 1 | 5 | 1 | 101298615 | 21.94 |
| 10 | 19 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101312146 | 21.94 |
| 10 | 22 | 2004 | Left Turn, Different Roadways | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101314212 | 21.94 |
| 10 | 28 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101319825 | 21.94 |
| 11 | 5 | 2004 | Angle | 0 | 0 | 0 | 4 | 1 | 5 | 1 | 101327341 | 21.94 |
| 2 | 8 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 101405421 | 21.94 |
| 5 | 6 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101470185 | 21.94 |
| 5 | 7 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101471136 | 21.94 |
| 5 | 16 | 2005 | Angle | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 101477310 | 21.94 |
| 6 | 24 | 2005 | Angle | 0 | 0 | 2 | 0 | 1 | 4 | 1 | 101504828 | 21.94 |
| 7 | 1 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101509810 | 21.94 |
| 11 | 15 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101609170 | 21.94 |
| 12 | 14 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101570703 | 21.94 |
| 3 | 30 | 2006 | Angle | 0 | 0 | 1 | 2 | 1 | 5 | 1 | 101704298 | 21.94 |
| 5 | 27 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101739887 | 21.94 |
| 7 | 4 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101775222 | 21.94 |
| 8 | 4 | 2006 | Left Turn, Different Roadways | 0 | 0 | 1 | 4 | 1 | 5 | 1 | 101799888 | 21.94 |

Table 10.29. continued US-17 and NC-211/Green Swamp Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 26 | 2006 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101816694 | 21.94 |
| 9 | 6 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101825637 | 21.94 |
| 9 | 16 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101833220 | 21.94 |
| 2 | 9 | 2007 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101956022 | 21.94 |
| 2 | 21 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101964909 | 21.94 |
| 7 | 17 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102091280 | 21.94 |
| 9 | 30 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102087035 | 21.94 |
| 10 | 24 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102171359 | 21.94 |
| 12 | 2 | 2007 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102206447 | 21.94 |
| 1 | 18 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102243005 | 21.94 |
| 12 | 6 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 5 | 2 | 102483915 | 21.94 |
| 3 | 21 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102558621 | 21.94 |
| 7 | 15 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102634798 | 21.94 |
| 8 | 10 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101537624 | 21.942 |
| 10 | 17 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101585849 | 21.944 |
| 2 | 17 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101678210 | 21.944 |
| 4 | 30 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101175782 | 21.948 |
| 3 | 23 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102289102 | 21.948 |
| 1 | 5 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101379324 | 21.949 |
| 2 | 12 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102260439 | 21.949 |
| 4 | 14 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 2 | 1 | 2 | 102571501 | 21.949 |
| 3 | 31 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102294049 | 21.951 |
| 7 | 4 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101512022 | 21.954 |
| 7 | 10 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101515724 | 21.959 |
| 10 | 5 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101575680 | 21.959 |
| 12 | 27 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101923961 | 21.959 |
| 10 | 14 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101015313 | 21.963 |
| 3 | 18 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102558439 | 21.973 |
| 10 | 2 | 2003 | Right Turn, Different Roadways | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 101007817 | 21.978 |
| 3 | 7 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101427254 | 22.04 |
| 4 | 2 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101446384 | 22.04 |
| 7 | 30 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 101529687 | 22.04 |

Table 10.29. continued US-17 and NC-211/Green Swamp Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 23 | 2007 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102046824 | 22.04 |
| 1 | 23 | 2008 | Fixed Object | 0 | 0 | 1 | 0 | 2 | 5 | 2 | 102246609 | 22.04 |
| 11 | 27 | 2004 | Overturn/Rollover | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 101346891 | 22.07 |
| 1 | 2 | 2006 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101647583 | 22.07 |
| 11 | 7 | 2003 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101036993 | 22.14 |
| 4 | 6 | 2005 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101449016 | 22.14 |
| 1 | 29 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102525543 | 22.14 |
| 6 | 3 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102612228 | 22.14 |
| 7 | 28 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 102100381 | 22.17 |
| 7 | 2 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102633474 | 22.196 |
| 9 | 10 | 2004 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101280088 | 22.22 |
| 2 | 9 | 2006 | Left Turn, Same Roadway | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 101673327 | 22.22 |
| 2 | 9 | 2009 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102532726 | 22.226 |
| 3 | 15 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101141145 | 22.229 |
| 2 | 27 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102271195 | 22.232 |
| 9 | 22 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101290195 | 22.24 |
| 2 | 8 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 101405415 | 22.24 |
| 8 | 13 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 3 | 1 | 2 | 100966834 | 22.27 |
| 7 | 9 | 2005 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101515227 | 22.27 |
| 8 | 6 | 2006 | Fixed Object | 0 | 0 | 1 | 0 | 3 | 1 | 3 | 101801230 | 22.27 |

Table 10.30. US-17 and SR-1357/Smith Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 11 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101208663 | 14.595 |
| 11 | 18 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101722875 | 14.6 |
| 6 | 19 | 2007 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102071081 | 14.6 |
| 10 | 10 | 2007 | Left Turn, Different Roadways | 1 | 0 | 4 | 0 | 1 | 1 | 2 | 102234041 | 14.6 |
| 6 | 26 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101769248 | 14.619 |
| 6 | 4 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 5 | 5 | 101744708 | 14.66 |
| 5 | 8 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100891244 | 14.687 |
| 9 | 2 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101272927 | 14.7 |
| 1 | 20 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101378433 | 14.7 |
| 11 | 4 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101600571 | 14.7 |
| 11 | 25 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101896391 | 14.754 |
| 1 | 11 | 2009 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 102492525 | 14.755 |
| 8 | 19 | 2003 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100971672 | 14.756 |
| 7 | 22 | 2003 | Angle | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 100949358 | 14.76 |
| 11 | 14 | 2003 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101042813 | 14.76 |
| 12 | 17 | 2003 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101072419 | 14.76 |
| 5 | 3 | 2004 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101263188 | 14.76 |
| 6 | 30 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101223561 | 14.76 |
| 8 | 22 | 2004 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101263207 | 14.76 |
| 10 | 25 | 2004 | Angle | 0 | 0 | 1 | 4 | 1 | 1 | 1 | 101317484 | 14.76 |
| 3 | 15 | 2005 | Head On | 0 | 1 | 0 | 1 | 1 | 5 | 1 | 101433499 | 14.76 |
| 4 | 21 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101459512 | 14.76 |
| 6 | 28 | 2005 | Angle | 0 | 0 | 2 | 1 | 2 | 1 | 3 | 101507939 | 14.76 |
| 8 | 8 | 2005 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101535464 | 14.76 |
| 12 | 9 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101629098 | 14.76 |
| 12 | 30 | 2005 | Left Turn, Same Roadway | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 101645616 | 14.76 |
| 4 | 3 | 2006 | Ran Off Road - Right | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 101722901 | 14.76 |
| 5 | 11 | 2006 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101731127 | 14.76 |
| 5 | 12 | 2006 | Angle | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 101732199 | 14.76 |
| 6 | 3 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101744516 | 14.76 |
| 6 | 24 | 2006 | Ran Off Road - Left | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101813610 | 14.76 |

Table 10.30. continued US-17 and SR-1357/Smith Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 4 | 2006 | Left Turn, Different Roadways | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101799889 | 14.76 |
| 8 | 17 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101809867 | 14.76 |
| 3 | 5 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101976653 | 14.76 |
| 10 | 9 | 2007 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102159782 | 14.76 |
| 1 | 27 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102249519 | 14.76 |
| 2 | 8 | 2008 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102258595 | 14.76 |
| 2 | 27 | 2009 | Left Turn, Same Roadway | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 102531232 | 14.76 |
| 10 | 25 | 2008 | Animal | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 102443523 | 14.96 |
| 12 | 19 | 2006 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101915911 | 15.06 |
| 10 | 20 | 2003 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101020493 | 15.1 |

Table 10.31. US-17 and SR-1318/Mintz Cemetery Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 28 | 2003 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101027388 | 8.71 |
| 10 | 11 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101853073 | 8.71 |
| 12 | 12 | 2007 | Movable Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102214563 | 8.71 |
| 6 | 4 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102604445 | 8.71 |
| 6 | 12 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 102611439 | 8.71 |
| 8 | 5 | 2003 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100960259 | 8.81 |
| 8 | 23 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 3 | 1 | 1 | 2 | 101814544 | 8.81 |
| 1 | 7 | 2007 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101931660 | 8.81 |
| 4 | 5 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102567601 | 8.81 |
| 7 | 28 | 2003 | Overturn/Rollover | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 100953630 | 8.91 |
| 7 | 28 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101527245 | 8.91 |

Table 10.32. US-17 and SR-1131/Cumbee Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 9 | 2004 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101304583 | 18.73 |
| 10 | 24 | 2005 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101590485 | 18.73 |
| 10 | 6 | 2003 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101008549 | 18.83 |
| 6 | 24 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101218685 | 18.83 |
| 3 | 22 | 2005 | FIXED OBJECT | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 101438101 | 18.83 |
| 4 | 6 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101449033 | 18.83 |
| 12 | 21 | 2007 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102222750 | 18.83 |
| 2 | 10 | 2007 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101956937 | 18.93 |

Table 10.33. US-17 and SR-1136/Red Bug Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 19 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101659275 | 16.61 |
| 7 | 4 | 2007 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102081129 | 16.611 |
| 9 | 6 | 2004 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 101276315 | 16.625 |
| 11 | 21 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101341657 | 16.626 |
| 1 | 20 | 2005 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101390344 | 16.626 |
| 4 | 4 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102297192 | 16.628 |
| 10 | 9 | 2003 | LEFT TURN, SAME ROADWAY | 0 | 0 | 1 | 2 | 1 | 5 | 1 | 101011500 | 16.63 |
| 7 | 30 | 2004 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101246065 | 16.63 |
| 11 | 2 | 2004 | ANGLE | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101324251 | 16.63 |
| 1 | 18 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101388423 | 16.63 |
| 4 | 22 | 2005 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 101460320 | 16.63 |
| 12 | 8 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101628244 | 16.63 |
| 6 | 9 | 2006 | SIDESWIPE, OPPOSITE DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101754991 | 16.63 |
| 7 | 5 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101778146 | 16.63 |
| 10 | 6 | 2006 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101848018 | 16.63 |
| 10 | 10 | 2006 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101852221 | 16.63 |
| 10 | 4 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102155613 | 16.63 |
| 11 | 16 | 2007 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102193288 | 16.63 |
| 12 | 3 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102207600 | 16.63 |
| 12 | 14 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102216489 | 16.63 |
| 3 | 3 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102274513 | 16.63 |
| 3 | 13 | 2008 | SIDESWIPE, OPPOSITE DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102282264 | 16.63 |
| 3 | 2 | 2009 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102533062 | 16.63 |
| 7 | 20 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101788335 | 16.73 |
| 3 | 20 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102558102 | 16.73 |
| 3 | 20 | 2009 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102558105 | 16.73 |
| 7 | 21 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102094317 | 16.76 |
| 9 | 28 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101500828 | 16.86 |
| 4 | 19 | 2008 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102308561 | 16.86 |

Table 10.34. US-74/23 and Hidden Valley Road/SR-1788 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 3 | 20 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 101698913 | 14.38 |
| 7 | 21 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 97136752 | 14.39 |
| 1 | 20 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 4 | 5 | 6 | 102501823 | 14.41 |
| 9 | 21 | 1995 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 95178083 | 14.42 |
| 12 | 21 | 1993 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 93211819 | 14.424 |
| 4 | 14 | 1996 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 96071177 | 14.44 |
| 12 | 12 | 1997 | Ran Off Road - Left | 0 | 1 | 0 | 0 | 1 | 5 | 2 | 97243311 | 14.445 |
| 3 | 3 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101132370 | 14.446 |
| 1 | 31 | 2000 | Ran Off Road - Left | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100021704 | 14.45 |
| 3 | 31 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101153108 | 14.458 |
| 5 | 29 | 2003 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 100908391 | 14.49 |
| 2 | 21 | 2000 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100035343 | 14.501 |
| 11 | 21 | 1991 | Ran Off Road - Right | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 91167853 | 14.52 |
| 4 | 14 | 2005 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101455180 | 14.52 |
| 4 | 4 | 2006 | Fixed Object | 0 | 1 | 0 | 0 | 1 | 5 | 1 | 101706972 | 14.52 |
| 4 | 10 | 1993 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 93053818 | 14.53 |
| 10 | 8 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102414688 | 14.56 |
| 8 | 25 | 2004 | Other Non-Collision | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101266775 | 14.59 |
| 5 | 16 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102591231 | 14.62 |
| 8 | 25 | 2001 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100425552 | 14.64 |
| 1 | 22 | 1994 | Ran Off Road - Right | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 94013626 | 14.67 |
| 9 | 24 | 1996 | Rear End, Slow or Stop | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 96182041 | 14.67 |
| 5 | 25 | 2001 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100363618 | 14.67 |
| 4 | 6 | 1997 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 97064067 | 14.69 |
| 8 | 25 | 2007 | Parked Motor Vehicl | 0 | 0 | 1 | 1 | 1 | 5 | 1 | 102122226 | 14.71 |
| 2 | 6 | 2003 | Head On | 0 | 0 | 0 | 1 | 5 | 5 | 2 | 100824033 | 14.72 |
| 1 | 16 | 2000 | Fixed Object | 0 | 0 | 0 | 1 | 4 | 1 | 3 | 100010018 | 14.81 |
| 7 | 18 | 2007 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 102029076 | 14.81 |
| 11 | 3 | 2004 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101325748 | 14.82 |
| 2 | 15 | 1996 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 96034400 | 14.89 |
| 7 | 1 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102352415 | 14.89 |

Table 10.34. continued (US-74/23 and Hidden Valley Road/SR-1788 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 15 | 1991 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 91147655 | 14.94 |
| 10 | 11 | 1994 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 94178024 | 14.94 |
| 11 | 6 | 1996 | Ran Off Road - Right | 0 | 0 | 2 | 1 | 1 | 1 | 2 | 96215055 | 14.94 |
| 12 | 20 | 2005 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101638849 | 14.94 |
| 9 | 12 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100990068 | 14.983 |
| 2 | 27 | 1998 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 98038522 | 14.997 |
| 1 | 13 | 2006 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101655896 | 15 |
| 10 | 29 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101028515 | 15.002 |
| 5 | 27 | 2004 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101197367 | 15.002 |
| 3 | 14 | 1994 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 94043848 | 15.01 |
| 6 | 27 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101506952 | 15.012 |
| 9 | 7 | 2002 | Sideswipe, Same Direction | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 100704056 | 15.016 |
| 3 | 7 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101427597 | 15.019 |
| 7 | 7 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102363078 | 15.019 |
| 5 | 4 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101727357 | 15.02 |
| 6 | 23 | 2001 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100383267 | 15.026 |
| 11 | 4 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101535861 | 15.035 |
| 6 | 24 | 1998 | Rear End, Turn | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 98118851 | 15.038 |
| 6 | 20 | 1991 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 91084781 | 15.04 |
| 9 | 20 | 1991 | Left Turn, Same Roadway | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 91133495 | 15.04 |
| 11 | 25 | 1991 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 91170290 | 15.04 |
| 3 | 6 | 1992 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 92031927 | 15.04 |
| 5 | 19 | 1992 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 92071059 | 15.04 |
| 8 | 10 | 1992 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 92115480 | 15.04 |
| 12 | 23 | 1992 | Angle | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 92198050 | 15.04 |
| 1 | 28 | 1993 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 93013938 | 15.04 |
| 4 | 28 | 1993 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 93064183 | 15.04 |
| 5 | 7 | 1993 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 93069849 | 15.04 |
| 7 | 14 | 1993 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 93107721 | 15.04 |
| 7 | 27 | 1993 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 93115436 | 15.04 |
| 11 | 16 | 1993 | Angle | 0 | 0 | 0 | 1 | 1 | 5 | 2 | 93186651 | 15.04 |
| 4 | 4 | 1994 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 94056803 | 15.04 |

Table 10.34. continued (US-74/23 and Hidden Valley Road/SR-1788 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 16 | 1994 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 94064381 | 15.04 |
| 9 | 11 | 1994 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 94158063 | 15.04 |
| 9 | 30 | 1994 | Angle | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 94170607 | 15.04 |
| 11 | 24 | 1994 | Angle | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 94211595 | 15.04 |
| 12 | 12 | 1994 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 94224266 | 15.04 |
| 8 | 14 | 1995 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 95151597 | 15.04 |
| 11 | 23 | 1995 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 95229162 | 15.04 |
| 3 | 25 | 1996 | Angle | 0 | 0 | 1 | 1 | 1 | 5 | 1 | 96058256 | 15.04 |
| 10 | 7 | 1996 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 96161579 | 15.04 |
| 12 | 22 | 1996 | Not Available | 0 | 2 | 0 | 1 |  |  |  | 96253310 | 15.04 |
| 1 | 16 | 1997 | Head On | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 97010260 | 15.04 |
| 4 | 6 | 1997 | Angle | 0 | 1 | 2 | 2 | 1 | 1 | 2 | 97064065 | 15.04 |
| 4 | 18 | 1997 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 97072295 | 15.04 |
| 6 | 8 | 1997 | Angle | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 97108580 | 15.04 |
| 7 | 3 | 1997 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 97125497 | 15.04 |
| 9 | 20 | 1997 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 97177565 | 15.04 |
| 12 | 23 | 1997 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 5 | 97251770 | 15.04 |
| 1 | 30 | 1998 | Angle | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 98020126 | 15.04 |
| 3 | 27 | 1998 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 98057336 | 15.04 |
| 6 | 26 | 1998 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 98120311 | 15.04 |
| 10 | 14 | 1998 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 98196396 | 15.04 |
| 11 | 23 | 1998 | Angle | 0 | 0 | 2 | 1 | 1 | 1 | 2 | 98228354 | 15.04 |
| 11 | 21 | 2001 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100494125 | 15.04 |
| 7 | 3 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100657105 | 15.04 |
| 1 | 9 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100802477 | 15.04 |
| 5 | 21 | 2003 | Other Collision With Vehicle | 1 | 1 | 1 | 0 | 1 | 1 | 2 | 100901627 | 15.04 |
| 7 | 30 | 2003 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100955614 | 15.04 |
| 9 | 8 | 2003 | Left Turn, Same Roadway | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100987238 | 15.04 |
| 10 | 16 | 2003 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101017624 | 15.04 |
| 2 | 26 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 101127311 | 15.04 |
| 4 | 15 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101164259 | 15.04 |
| 8 | 2 | 2004 | Head On | 0 | 0 | 0 | 3 | 2 | 1 | 3 | 101248381 | 15.04 |

Table 10.34. continued (US-74/23 and Hidden Valley Road/SR-1788 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 13 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101360718 | 15.04 |
| 3 | 10 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101429676 | 15.04 |
| 4 | 21 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101459662 | 15.04 |
| 5 | 19 | 2006 | Right Turn, Different Roadways | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101735962 | 15.04 |
| 12 | 10 | 2006 | Left Turn, Same Roadway | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 101909215 | 15.04 |
| 12 | 18 | 2006 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101915392 | 15.04 |
| 12 | 28 | 2006 | Right Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101922829 | 15.04 |
| 2 | 20 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101964603 | 15.04 |
| 2 | 24 | 2008 | Left Turn, Same Roadway | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 102269781 | 15.04 |
| 5 | 19 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102328318 | 15.04 |
| 6 | 27 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102351537 | 15.04 |
| 8 | 29 | 2008 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102405733 | 15.04 |
| 12 | 8 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102486228 | 15.04 |
| 4 | 30 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102587420 | 15.04 |
| 5 | 11 | 2009 | Left Turn, Same Roadway | 0 | 0 | 2 | 0 | 1 | 5 | 2 | 102591420 | 15.04 |
| 5 | 28 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102599949 | 15.04 |
| 4 | 22 | 1992 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 92056217 | 15.042 |
| 9 | 18 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 97155244 | 15.046 |
| 1 | 23 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 100543635 | 15.07 |
| 5 | 23 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101194251 | 15.08 |
| 7 | 30 | 2007 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102101652 | 15.097 |
| 4 | 22 | 1992 | Ran Off Road - Left | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 92056216 | 15.14 |
| 2 | 8 | 1993 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 93019683 | 15.14 |
| 7 | 31 | 2003 | Overturn/Rollover | 0 | 0 | 2 | 0 | 2 | 1 | 2 | 100956309 | 15.14 |
| 2 | 18 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 5 | 2 | 101965580 | 15.14 |
| 7 | 14 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102642063 | 15.14 |
| 7 | 26 | 2007 | Ran Off Road - Left | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102098399 | 15.145 |
| 3 | 20 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101988947 | 15.159 |
| 10 | 23 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 102170591 | 15.16 |
| 2 | 6 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102256855 | 15.18 |
| 6 | 21 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 102347086 | 15.185 |
| 7 | 21 | 1991 | Ran Off Road - Right | 0 | 1 | 1 | 0 | 2 | 1 | 3 | 91100908 | 15.189 |

Table 10.34. continued (US-74/23 and Hidden Valley Road/SR-1788 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 27 | 1994 | Parked Motor Vehicl | 0 | 1 | 2 | 0 | 1 | 5 | 1 | 94148109 | 15.19 |
| 10 | 12 | 2000 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100203569 | 15.19 |
| 4 | 30 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100610967 | 15.2 |
| 11 | 14 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101336143 | 15.21 |
| 5 | 11 | 2008 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102323679 | 15.21 |
| 5 | 9 | 2003 | Left Turn, Same Roadway | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 100892642 | 15.217 |
| 4 | 17 | 1993 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 93058135 | 15.22 |
| 8 | 7 | 1998 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 98148089 | 15.22 |
| 12 | 9 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101064655 | 15.22 |
| 7 | 30 | 2004 | Rear End, Turn | 0 | 0 | 0 | 1 | 3 | 1 | 3 | 101246360 | 15.22 |
| 7 | 6 | 2006 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101779042 | 15.22 |
| 1 | 29 | 2009 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102525632 | 15.22 |
| 12 | 22 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101640485 | 15.231 |
| 1 | 4 | 1998 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 98001775 | 15.25 |
| 1 | 16 | 1998 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 98010174 | 15.26 |
| 11 | 19 | 1994 | Pedestrian | 0 | 1 | 0 | 0 | 1 | 5 | 1 | 94107780 | 15.264 |
| 11 | 6 | 1993 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 5 | 2 | 93180205 | 15.29 |
| 11 | 11 | 2002 | Jackknife | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100755901 | 15.29 |
| 10 | 15 | 1994 | Ran Off Road - Right | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 94181788 | 15.31 |
| 2 | 28 | 1994 | Angle | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 94035272 | 15.32 |
| 12 | 7 | 2000 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100247666 | 15.32 |
| 11 | 12 | 2003 | Sideswipe, Same Direction | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 101042288 | 15.32 |
| 12 | 2 | 2006 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101902218 | 15.33 |
| 8 | 9 | 1998 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 98149688 | 15.34 |
| 11 | 18 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 5 | 3 | 101046267 | 15.38 |
| 10 | 26 | 1991 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 91153780 | 15.4 |
| 8 | 16 | 1994 | Ran Off Road - Right | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 94140836 | 15.4 |
| 7 | 28 | 2000 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100148052 | 15.4 |
| 5 | 8 | 2002 | Overturn/Rollover | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100616722 | 15.4 |
| 8 | 20 | 2000 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 100164497 | 15.42 |
| 12 | 12 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101067381 | 15.42 |
| 3 | 22 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101146693 | 15.42 |

Table 10.34. continued (US-74/23 and Hidden Valley Road/SR-1788 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 12 | 2007 | Fixed Object | 2 | 0 | 0 | 0 | 1 | 5 | 2 | 102136370 | 15.44 |
| 11 | 9 | 2007 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102187304 | 15.45 |
| 6 | 1 | 2001 | Fixed Object | 0 | 0 | 0 | 2 | 2 | 5 | 3 | 100368516 | 15.47 |
| 12 | 25 | 2004 | Overturn/Rollover | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101371588 | 15.47 |
| 12 | 16 | 1995 | Animal | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 95247124 | 15.5 |
| 9 | 2 | 1993 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 93137000 | 15.54 |
| 7 | 30 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101246341 | 15.54 |
| 7 | 18 | 1994 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 94124380 | 15.57 |
| 3 | 7 | 2001 | Overturn/Rollover | 0 | 1 | 0 | 1 | 1 | 5 | 1 | 100308898 | 15.66 |
| 12 | 8 | 1997 | Angle | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 97239814 | 15.732 |
| 2 | 27 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102535455 | 15.761 |
| 1 | 8 | 2003 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100801933 | 15.766 |
| 12 | 17 | 1991 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 91182352 | 15.77 |
| 6 | 17 | 1998 | Left Turn, Same Roadway | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 98114070 | 15.77 |
| 5 | 31 | 2001 | Left Turn, Different Roadways | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 100367545 | 15.77 |
| 3 | 9 | 2003 | Right Turn, Different Roadways | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 100846645 | 15.77 |
| 9 | 6 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101556585 | 15.77 |
| 6 | 13 | 2001 | Overturn/Rollover | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100373273 | 15.82 |
| 4 | 8 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100868300 | 15.87 |
| 7 | 18 | 2004 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101237398 | 15.87 |
| 9 | 15 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101562249 | 15.87 |
| 11 | 17 | 2005 | Fixed Object | 0 | 1 | 0 | 0 | 1 | 5 | 1 | 101610860 | 15.87 |
| 9 | 15 | 2007 | Overturn/Rollover | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102140725 | 15.88 |
| 8 | 25 | 2008 | Overturn/Rollover | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 102393973 | 15.89 |
| 11 | 3 | 1992 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 92165827 | 15.9 |
| 5 | 4 | 1998 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 98083958 | 15.95 |
| 1 | 19 | 1994 | Ran Off Road - Right | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 94011511 | 15.97 |
| 9 | 12 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 100995449 | 15.97 |
| 8 | 11 | 2007 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 102110892 | 15.97 |
| 12 | 25 | 2002 | Parked Motor Vehicl | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 100793205 | 15.98 |
| 8 | 31 | 2001 | Jackknife | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100429946 | 16.02 |
| 10 | 24 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 97202277 | 16.05 |

Table 10.34. continued (US-74/23 and Hidden Valley Road/SR-1788 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 29 | 2007 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102025510 | 16.05 |
| 10 | 2 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101574051 | 16.07 |
| 11 | 25 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102456707 | 16.07 |
| 3 | 14 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102553188 | 16.07 |
| 7 | 8 | 2009 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102638230 | 16.07 |

Table 10.35. US-74/23 and Mineral Springs Road/SR-1456 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 14 | 2000 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100229925 | 16.14 |
| 3 | 30 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 101152377 | 16.17 |
| 1 | 6 | 2005 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 5 | 2 | 101380060 | 16.17 |
| 7 | 5 | 2005 | Angle | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 101512675 | 16.17 |
| 6 | 10 | 1998 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 98109571 | 16.19 |
| 12 | 29 | 1997 | Parked Motor Vehicl | 0 | 0 | 0 | 1 | 5 | 5 | 4 | 97256359 | 16.2 |
| 5 | 6 | 1996 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 96085901 | 16.24 |
| 6 | 27 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100652005 | 16.25 |
| 12 | 4 | 2004 | Head On | 0 | 3 | 0 | 0 | 1 | 1 | 1 | 101352856 | 16.25 |
| 9 | 14 | 1998 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 98175127 | 16.26 |
| 12 | 12 | 1996 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 96244682 | 16.28 |
| 4 | 14 | 1996 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 96071178 | 16.3 |
| 5 | 2 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 97082705 | 16.3 |
| 8 | 27 | 1997 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 97161721 | 16.3 |
| 8 | 21 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 100973349 | 16.3 |
| 6 | 1 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102336493 | 16.359 |
| 2 | 17 | 2001 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 5 | 3 | 100297196 | 16.37 |
| 1 | 16 | 2003 | Rear End, Slow or Stop | 0 | 0 | 1 | 1 | 5 | 1 | 2 | 100822655 | 16.37 |
| 9 | 18 | 1996 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 3 | 5 | 96177742 | 16.39 |
| 6 | 19 | 1998 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 98115236 | 16.4 |
| 9 | 8 | 1998 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 98170732 | 16.4 |
| 5 | 8 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102033619 | 16.4 |
| 7 | 20 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 102637795 | 16.4 |
| 7 | 28 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 97141557 | 16.41 |
| 11 | 18 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101046256 | 16.41 |
| 9 | 16 | 2004 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 101284962 | 16.44 |
| 3 | 14 | 2008 | Overturn/Rollover | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102283008 | 16.45 |
| 6 | 13 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 97111830 | 16.47 |
| 6 | 13 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 97111829 | 16.47 |
| 1 | 16 | 2003 | Angle | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 100807296 | 16.47 |
| 1 | 17 | 2004 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 5 | 2 | 101095080 | 16.47 |

Table 10.35. continued (US-74/23 and Mineral Springs Road/SR-1456 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 9 | 2004 | Jackknife | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 101315573 | 16.47 |
| 5 | 28 | 2009 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102600833 | 16.47 |
| 10 | 24 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 97202278 | 16.49 |
| 1 | 10 | 1997 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 97005804 | 16.5 |
| 3 | 24 | 1997 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 97055394 | 16.5 |
| 2 | 17 | 1998 | Ran Off Road - Left | 0 | 0 | 0 | 1 | 2 | 3 | 3 | 98032011 | 16.5 |
| 3 | 20 | 1998 | Ran Off Road - Left | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 98052961 | 16.5 |
| 5 | 27 | 1998 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 98099340 | 16.5 |
| 12 | 29 | 2001 | Overturn/Rollover | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100524950 | 16.5 |
| 6 | 14 | 2003 | Fixed Object | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 100921275 | 16.5 |
| 11 | 18 | 2003 | Jackknife | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101046242 | 16.5 |
| 5 | 8 | 2004 | Jackknife | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101183132 | 16.5 |
| 8 | 12 | 2004 | Fixed Object | 1 | 5 | 2 | 0 | 2 | 1 | 3 | 101256203 | 16.5 |
| 6 | 12 | 2005 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101496501 | 16.5 |
| 1 | 11 | 2006 | si | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101653839 | 16.5 |
| 8 | 31 | 2006 | Movable Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101820649 | 16.5 |
| 7 | 13 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 102349318 | 16.5 |
| 6 | 11 | 2006 | Fixed Object | 0 | 0 | 1 | 0 | 3 | 1 | 3 | 101757984 | 16.51 |
| 12 | 28 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102227677 | 16.51 |
| 12 | 28 | 1998 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 98255889 | 16.52 |
| 12 | 12 | 2006 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101910601 | 16.52 |
| 7 | 10 | 1995 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 95128136 | 16.53 |
| 10 | 15 | 2002 | Fixed Object | 0 | 0 | 0 | 2 | 3 | 5 | 3 | 100733200 | 16.6 |
| 11 | 15 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 101887309 | 16.6 |
| 4 | 18 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101166823 | 16.672 |
| 2 | 26 | 2002 | Fixed Object | 0 | 0 | 2 | 0 | 2 | 1 | 2 | 100566477 | 16.689 |
| 8 | 17 | 2002 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100688205 | 16.691 |
| 4 | 2 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100327444 | 16.7 |
| 8 | 3 | 2001 | Angle | 0 | 0 | 0 | 5 | 1 | 3 | 2 | 100410508 | 16.7 |
| 10 | 22 | 2002 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100738530 | 16.7 |
| 5 | 14 | 2005 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 101476304 | 16.7 |
| 12 | 22 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101918603 | 16.7 |

Table 10.35. continued (US-74/23 and Mineral Springs Road/SR-1456 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 11 | 2007 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 102007809 | 16.7 |
| 3 | 4 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102275644 | 16.7 |
| 8 | 26 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 102393963 | 16.7 |
| 6 | 25 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101220202 | 16.709 |
| 9 | 13 | 1998 | Ran Off Road - Right | 0 | 0 | 2 | 0 | 1 | 3 | 1 | 98174504 | 16.78 |
| 8 | 18 | 1996 | Ran Off Road - Right | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 96155226 | 16.8 |
| 3 | 30 | 2001 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 100325399 | 16.8 |
| 1 | 29 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 101397956 | 16.8 |
| 5 | 20 | 2005 | Overturn/Rollover | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101480623 | 16.8 |
| 5 | 26 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101484268 | 16.8 |
| 3 | 20 | 2007 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101988959 | 16.8 |
| 9 | 2 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102127525 | 16.8 |
| 11 | 9 | 2000 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100225647 | 16.81 |
| 5 | 8 | 2002 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100616730 | 16.81 |
| 12 | 9 | 1997 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 5 | 5 | 3 | 97240758 | 16.82 |
| 4 | 29 | 1997 | Ran Off Road - Right | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 97080515 | 16.85 |
| 4 | 29 | 1997 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 97080514 | 16.87 |
| 11 | 23 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101051034 | 16.87 |
| 5 | 15 | 1996 | Ran Off Road - Left | 0 | 0 | 1 | 0 | 2 | 5 | 3 | 96091820 | 16.9 |
| 12 | 23 | 1998 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 98252429 | 16.9 |
| 8 | 17 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102115507 | 16.9 |
| 4 | 13 | 2004 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101162575 | 16.961 |
| 12 | 12 | 2005 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101631464 | 16.97 |
| 1 | 19 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 102518607 | 16.97 |
| 4 | 1 | 2009 | Head On | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102561362 | 16.97 |
| 11 | 21 | 2003 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101049373 | 16.979 |
| 10 | 26 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101592465 | 16.989 |
| 11 | 24 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101051984 | 17.22 |
| 1 | 3 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101648357 | 17.22 |
| 11 | 21 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101615004 | 17.22 |
| 9 | 10 | 2007 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102135069 | 17.257 |
| 11 | 4 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102182988 | 17.311 |

Table 10.35. continued (US-74/23 and Mineral Springs Road/SR-1456 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 9 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102513620 | 17.311 |
| 7 | 4 | 1997 | Left Turn, Same Roadway | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 97126189 | 17.32 |
| 9 | 24 | 1997 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 97180178 | 17.32 |
| 4 | 4 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102568906 | 17.32 |
| 6 | 12 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100919712 | 17.42 |
| 10 | 18 | 2003 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101019491 | 17.42 |
| 1 | 2 | 2009 | Fixed Object | 0 | 0 | 1 | 0 | 5 | 5 | 4 | 102506859 | 17.54 |
| 7 | 11 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100661594 | 17.6 |
| 4 | 24 | 2009 | Other Non-Collision | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102582673 | 17.635 |
| 7 | 9 | 2002 | Left Turn, Same Roadway | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 100660230 | 17.72 |
| 10 | 25 | 2002 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100740637 | 17.73 |
| 10 | 24 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101865266 | 17.73 |
| 2 | 26 | 2007 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101972551 | 17.73 |
| 11 | 22 | 2008 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102526955 | 17.73 |
| 12 | 31 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 5 | 2 | 100796807 | 17.77 |
| 8 | 13 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101539816 | 17.81 |

Table 10.36. US-23/441 and Mockingbird Lane/Macktown Gap Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 31 | 2002 | Overturn/Rollover | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100746401 | 9.3 |
| 6 | 24 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100928702 | 9.35 |
| 7 | 6 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100937643 | 9.35 |
| 8 | 29 | 2003 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100979503 | 9.4 |
| 10 | 6 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101848110 | 9.4 |
| 3 | 3 | 2007 | Overturn/Rollover | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101975149 | 9.4 |
| 9 | 26 | 2002 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100718268 | 9.5 |
| 10 | 24 | 2002 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100740227 | 9.5 |
| 10 | 10 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101012816 | 9.5 |
| 2 | 15 | 2004 | Backing Up | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101119004 | 9.5 |
| 6 | 21 | 2004 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101216727 | 9.5 |
| 2 | 12 | 2005 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101408639 | 9.5 |
| 6 | 14 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102065586 | 9.5 |
| 4 | 11 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101161067 | 9.613 |
| 5 | 9 | 2003 | Rear End, Turn | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100892480 | 9.614 |
| 9 | 14 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100709262 | 9.615 |
| 5 | 9 | 2006 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101720438 | 9.616 |
| 3 | 7 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101690343 | 9.618 |
| 9 | 5 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100702549 | 9.62 |
| 10 | 7 | 2002 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100726472 | 9.62 |
| 12 | 30 | 2002 | Angle | 0 | 1 | 1 | 0 | 1 | 4 | 1 | 100796128 | 9.62 |
| 7 | 14 | 2003 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 100943641 | 9.62 |
| 8 | 8 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100962972 | 9.62 |
| 9 | 9 | 2003 | Left Turn, Same Roadway | 0 | 0 | 2 | 1 | 1 | 1 | 2 | 100987873 | 9.62 |
| 11 | 17 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 4 | 2 | 101045342 | 9.62 |
| 5 | 8 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101183133 | 9.62 |
| 5 | 9 | 2004 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101183732 | 9.62 |
| 5 | 11 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101185319 | 9.62 |
| 9 | 8 | 2004 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101278716 | 9.62 |
| 1 | 13 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 2 | 3 | 2 | 101384999 | 9.62 |
| 3 | 23 | 2005 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101440229 | 9.62 |

Table 10.36. continued (US-23/441 and Mockingbird Lane/Macktown Gap Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 13 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101475390 | 9.62 |
| 6 | 26 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101506187 | 9.62 |
| 7 | 19 | 2005 | Left Turn, Same Roadway | 0 | 0 | 1 | 0 | 1 | 4 | 2 | 101522083 | 9.62 |
| 7 | 30 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101529145 | 9.62 |
| 9 | 10 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101559367 | 9.62 |
| 11 | 10 | 2005 | Angle | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 101605645 | 9.62 |
| 11 | 23 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101616958 | 9.62 |
| 7 | 28 | 2006 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101795455 | 9.62 |
| 7 | 29 | 2006 | Backing Up | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101795805 | 9.62 |
| 10 | 21 | 2006 | Left Turn, Same Roadway | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 101862572 | 9.62 |
| 11 | 15 | 2006 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 2 | 4 | 2 | 101867233 | 9.62 |
| 4 | 14 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102578040 | 9.62 |
| 7 | 16 | 2009 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102642069 | 9.62 |
| 9 | 14 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100709255 | 9.623 |
| 12 | 22 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101640493 | 9.626 |
| 10 | 20 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 100737324 | 9.627 |
| 12 | 23 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 101077701 | 9.628 |
| 3 | 27 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101694721 | 9.634 |
| 8 | 2 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101798458 | 9.639 |
| 9 | 17 | 2002 | Jackknife | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100711885 | 9.644 |
| 7 | 9 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 101230710 | 9.667 |
| 5 | 28 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101198121 | 9.677 |
| 4 | 4 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 3 | 100865038 | 9.72 |
| 9 | 9 | 2003 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100987872 | 9.72 |
| 6 | 8 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101206839 | 9.72 |
| 1 | 4 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102498299 | 9.72 |

Table 10.37. US-23/74 and SR-1156/Timberlake Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 10 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 5 | 3 | 100940638 | 23.002 |
| 1 | 15 | 2005 | Left Turn, Different Roadways | 0 | 0 | 1 | 0 | 1 | 2 | 2 | 101386904 | 23.01 |
| 2 | 9 | 2005 | Angle | 1 | 0 | 0 | 2 | 2 | 1 | 2 | 101406420 | 23.01 |
| 10 | 7 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 101578790 | 23.01 |
| 11 | 12 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101607095 | 23.01 |
| 5 | 21 | 2006 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 101737148 | 23.01 |
| 6 | 11 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102063610 | 23.01 |
| 10 | 28 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 100743564 | 23.12 |
| 5 | 21 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102044156 | 23.12 |
| 12 | 2 | 2002 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100772891 | 23.15 |
| 11 | 29 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 101056039 | 23.21 |
| 4 | 2 | 2005 | Fixed Object | 0 | 0 | 0 | 1 | 5 | 1 | 2 | 101446552 | 23.21 |
| 11 | 11 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101332326 | 23.25 |
| 8 | 19 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101544104 | 23.25 |
| 12 | 18 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 6 | 2 | 4 | 101073654 | 23.348 |
| 11 | 24 | 2002 | Left Turn, Same Roadway | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 100767343 | 23.41 |
| 2 | 7 | 2003 | Left Turn, Same Roadway | 0 | 0 | 3 | 0 | 5 | 1 | 2 | 100826329 | 23.41 |
| 4 | 2 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 101446560 | 23.41 |
| 7 | 21 | 2005 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101522993 | 23.41 |
| 4 | 29 | 2006 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101724058 | 23.41 |
| 6 | 18 | 2007 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102068469 | 23.42 |
| 12 | 4 | 2003 | Sideswipe, Opposite Direction | 0 | 0 | 0 | 0 | 6 | 1 | 4 | 101059898 | 23.45 |
| 9 | 25 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101840145 | 23.45 |
| 5 | 23 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101997361 | 23.45 |
| 11 | 29 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 4 | 1 | 2 | 101056034 | 23.51 |
| 11 | 29 | 2003 | Parked Motor Vehicl | 0 | 1 | 1 | 0 | 5 | 1 | 2 | 101056048 | 23.51 |
| 1 | 15 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101386897 | 23.52 |
| 1 | 18 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101388603 | 23.61 |
| 1 | 17 | 2009 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 4 | 5 | 6 | 102497697 | 23.62 |
| 3 | 1 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 102546617 | 23.65 |
| 10 | 15 | 2002 | Backing Up | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100733168 | 23.72 |

Table 10.38. US-74/441 and Bradley Branch Road/SR-1404 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 20 | 2003 | Overturn/Rollover | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 100996313 | 5.03 |
| 5 | 9 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100892486 | 5.13 |
| 5 | 19 | 2004 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101190919 | 5.13 |
| 7 | 17 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101786761 | 5.13 |
| 1 | 23 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 5 | 1 | 4 | 100813083 | 5.21 |
| 1 | 23 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 100813081 | 5.23 |
| 1 | 23 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 100813085 | 5.23 |
| 4 | 29 | 2003 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100884240 | 5.23 |
| 9 | 20 | 2003 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100996319 | 5.23 |
| 4 | 11 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101161074 | 5.23 |
| 4 | 3 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 101706453 | 5.23 |
| 10 | 1 | 2006 | Overturn/Rollover | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101844946 | 5.23 |
| 10 | 8 | 2005 | Overturn/Rollover | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101579929 | 5.273 |
| 7 | 15 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 101519398 | 5.3 |
| 5 | 22 | 2005 | Left Turn, Same Roadway | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 101481711 | 5.33 |

Table 10.39. US-74/441 and Wilmont Cemetery Road/SR-1534 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 27 | 2002 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 100742652 | 3.86 |
| 4 | 16 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 4 | 1 | 5 | 1 | 100874775 | 3.901 |
| 6 | 3 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101202707 | 3.902 |
| 5 | 15 | 2003 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100897127 | 3.94 |
| 7 | 5 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 100937172 | 3.94 |
| 7 | 27 | 2003 | Left Turn, Same Roadway | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 100953821 | 3.94 |
| 9 | 21 | 2003 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100996949 | 3.94 |
| 1 | 3 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101380488 | 3.94 |
| 1 | 19 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101389555 | 3.94 |
| 4 | 9 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101451706 | 3.94 |
| 4 | 23 | 2005 | Backing Up | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101461197 | 3.94 |
| 4 | 28 | 2005 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101464671 | 3.94 |
| 6 | 22 | 2005 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101503616 | 3.94 |
| 3 | 9 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 101691479 | 3.94 |
| 7 | 27 | 2006 | Overturn/Rollover | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101793786 | 3.94 |
| 3 | 5 | 2007 | Ran Off Road - Right | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101977072 | 3.94 |
| 1 | 2 | 2009 | Angle | 0 | 0 | 0 | 2 | 4 | 1 | 3 | 102506900 | 3.94 |
| 6 | 4 | 2009 | Right Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102617822 | 3.94 |
| 5 | 20 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101736750 | 3.949 |
| 10 | 27 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101868544 | 3.978 |
| 6 | 25 | 2007 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102073578 | 4.016 |
| 8 | 22 | 2003 | Fixed Object | 0 | 0 | 0 | 2 | 3 | 1 | 3 | 100974237 | 4.04 |
| 8 | 22 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100974238 | 4.19 |
| 9 | 23 | 2002 | Overturn/Rollover | 0 | 2 | 0 | 0 | 1 | 1 | 2 | 100715888 | 4.24 |
| 4 | 6 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100866675 | 4.24 |
| 4 | 17 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102578035 | 4.33 |

Table 10.40. US-23/74 and Blanton Branch Road/SR-1709 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 18 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101166823 | 16.672 |
| 5 | 14 | 2005 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 101476304 | 16.7 |
| 12 | 22 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101918603 | 16.7 |
| 4 | 11 | 2007 | Fixed Object | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 102007809 | 16.7 |
| 6 | 25 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101220202 | 16.709 |
| 1 | 29 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 101397956 | 16.8 |
| 5 | 20 | 2005 | Overturn/Rollover | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101480623 | 16.8 |
| 5 | 26 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101484268 | 16.8 |
| 3 | 20 | 2007 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101988959 | 16.8 |
| 11 | 23 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101051034 | 16.87 |
| 4 | 13 | 2004 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101162575 | 16.961 |
| 12 | 12 | 2005 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101631464 | 16.97 |
| 1 | 19 | 2009 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 102518607 | 16.97 |
| 4 | 1 | 2009 | Head On | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102561362 | 16.97 |
| 11 | 21 | 2003 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101049373 | 16.979 |
| 10 | 26 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101592465 | 16.989 |

Table 10.41. US-74 and Murdock Street/Church Street Crash Data

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Month | Day | Year | Crash Type | F | A | B | C | R | L | W | Crash ID | MP |
| 10 | 31 | 2006 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101873260 | 5.66 |
| 2 | 12 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 5 | 2 | 100828505 | 5.681 |
| 9 | 29 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101844002 | 5.685 |
| 6 | 24 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102632744 | 5.686 |
| 6 | 9 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 101494422 | 5.695 |
| 8 | 9 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101536903 | 5.695 |
| 6 | 25 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101768876 | 5.695 |
| 8 | 31 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102126644 | 5.696 |
| 2 | 19 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100834603 | 5.7 |
| 4 | 19 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100877390 | 5.7 |
| 5 | 1 | 2004 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101177134 | 5.7 |
| 6 | 16 | 2004 | PEDALCYCLIST | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101212945 | 5.7 |
| 7 | 11 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101232431 | 5.7 |
| 8 | 15 | 2004 | ANGLE | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 101259486 | 5.7 |
| 9 | 3 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101274239 | 5.7 |
| 6 | 3 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101490511 | 5.7 |
| 8 | 30 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101552219 | 5.7 |
| 2 | 11 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 1 | 2 | 1 | 2 | 101675399 | 5.7 |
| 5 | 26 | 2006 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101739805 | 5.7 |
| 8 | 23 | 2006 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101799763 | 5.7 |
| 10 | 24 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101865555 | 5.7 |
| 11 | 17 | 2006 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101890398 | 5.7 |
| 3 | 7 | 2007 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101978403 | 5.7 |
| 5 | 8 | 2007 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 102033758 | 5.7 |
| 9 | 16 | 2007 | ANGLE | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 102141522 | 5.7 |
| 9 | 19 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102075402 | 5.7 |
| 10 | 1 | 2007 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102153626 | 5.7 |
| 10 | 13 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 102163386 | 5.7 |
| 8 | 7 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 102365398 | 5.7 |
| 8 | 14 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102393939 | 5.7 |
| 8 | 21 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102391346 | 5.7 |

Table 10.41. continued (US-74 and Murdock Street/Church Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 9 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 3 | 1 | 2 | 101089702 | 5.705 |
| 7 | 1 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101773978 | 5.708 |
| 3 | 28 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101994976 | 5.709 |
| 10 | 23 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102427265 | 5.715 |
| 8 | 30 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102125211 | 5.724 |
| 7 | 23 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 102353917 | 5.8 |
| 8 | 12 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 101257078 | 5.83 |
| 4 | 24 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 3 | 1 | 3 | 101723207 | 5.83 |
| 10 | 26 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101592584 | 5.921 |
| 8 | 28 | 2004 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101269510 | 5.93 |
| 9 | 10 | 2004 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101280521 | 5.93 |
| 11 | 27 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 2 | 5 | 2 | 101324210 | 5.93 |
| 11 | 28 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 101348085 | 5.93 |
| 11 | 29 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101348871 | 5.93 |
| 4 | 13 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101454527 | 5.93 |
| 5 | 17 | 2005 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101478431 | 5.93 |
| 6 | 2 | 2005 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 101489868 | 5.93 |
| 6 | 17 | 2005 | ANGLE | 0 | 1 | 0 | 2 | 1 | 1 | 1 | 101500550 | 5.93 |
| 10 | 1 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101573779 | 5.93 |
| 11 | 23 | 2005 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101617100 | 5.93 |
| 6 | 15 | 2006 | ANGLE | 0 | 2 | 0 | 1 | 1 | 1 | 1 | 101763436 | 5.93 |
| 8 | 30 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 101819844 | 5.93 |
| 10 | 27 | 2006 | ANGLE | 0 | 0 | 1 | 1 | 2 | 1 | 3 | 101868809 | 5.93 |
| 12 | 21 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101918001 | 5.93 |
| 12 | 28 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101923690 | 5.93 |
| 7 | 13 | 2007 | PEDESTRIAN | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102088045 | 5.93 |
| 8 | 1 | 2007 | LEFT TURN, SAME ROADWAY | 0 | 1 | 0 | 2 | 1 | 1 | 1 | 102103171 | 5.93 |
| 10 | 1 | 2007 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 102153618 | 5.93 |
| 7 | 2 | 2008 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102359302 | 5.93 |
| 11 | 6 | 2008 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102481354 | 5.93 |
| 12 | 16 | 2008 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 102473429 | 5.93 |
| 1 | 17 | 2009 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 102518094 | 5.93 |

Table 10.41. continued (US-74 and Murdock Street/Church Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 7 | 2003 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101009422 | 5.968 |
| 5 | 6 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101181460 | 6.03 |
| 8 | 3 | 2005 | OTHER NON-COLLISION | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101458835 | 6.03 |
| 3 | 16 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 102558716 | 6.03 |

Table 10.42. US-401 and Orlando Street Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 21 | 2005 | ANGLE | 0 | 0 | 0 | 1 | 2 | 5 | 3 | 101566602 | 9.18 |
| 2 | 2 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 6 | 1 | 100820886 | 9.338 |
| 11 | 6 | 2004 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101329003 | 9.34 |
| 3 | 8 | 2006 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101690964 | 9.34 |
| 5 | 10 | 2006 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101730894 | 9.34 |
| 12 | 23 | 2003 | ANGLE | 0 | 1 | 1 | 3 | 1 | 1 | 1 | 101077873 | 9.363 |

Table 10.43. NC-214 and Spearman Road/SR-1806 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 7 | 2004 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101324200 | 16.97 |
| 6 | 9 | 2009 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 5 | 102608171 | 17.132 |
| 8 | 9 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100682001 | 17.14 |
| 6 | 17 | 2008 | Rear End, Slow or Stop | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 102348995 | 17.14 |
| 4 | 1 | 2009 | Angle | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 102561147 | 17.14 |
| 2 | 4 | 2004 | Rear End, Slow or Stop | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101109841 | 17.21 |

Table 10.44. NC-214 and $9^{\text {th }}$ Street Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 5 | 2001 | Left Turn, Same Roadway | 0 | 0 | 1 | 2 | 1 | 4 | 1 | 100480732 | 14.97 |
| 5 | 31 | 2009 | Left Turn, Different Roadways | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 102601758 | 14.97 |
| 3 | 31 | 2003 | Pedestrian | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 100861884 | 15.31 |
| 8 | 17 | 2007 | Left Turn, Same Roadway | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102115367 | 15.32 |
| 3 | 11 | 2006 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101692783 | 15.37 |
| 9 | 13 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 102392303 | 15.37 |
| 2 | 11 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102533835 | 15.37 |
| 12 | 9 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102485418 | 15.413 |

Table 10.45. NC-24 and Blizzardtown Road/SR-1702 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 29 | 2002 | ANGLE | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 100770909 | 22.18 |
| 4 | 29 | 2003 | OVERTURN/ROLLOVER | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 100884053 | 22.18 |
| 1 | 16 | 2004 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101094141 | 22.18 |
| 9 | 19 | 2004 | ANGLE | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101287405 | 22.18 |
| 1 | 14 | 2006 | ANGLE | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 101656445 | 22.18 |
| 6 | 28 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101770789 | 22.18 |
| 4 | 11 | 2009 | ANGLE | 0 | 0 | 2 | 2 | 1 | 1 | 1 | 102565481 | 22.18 |
| 12 | 8 | 2004 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101355895 | 22.28 |
| 11 | 10 | 2005 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101605457 | 22.28 |
| 11 | 10 | 2006 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101882706 | 22.38 |
| 12 | 23 | 2003 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101077553 | 22.48 |

Table 10.46. NC-24 and Koonce Fork Road/SR-1238 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 29 | 2005 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101486658 | 3.19 |
| 4 | 30 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102026333 | 3.19 |
| 2 | 4 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 7 | 101670541 | 3.284 |
| 10 | 22 | 2003 | Parked Motor Vehicl | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 101034400 | 3.29 |
| 11 | 4 | 2003 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101034532 | 3.3 |
| 8 | 14 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 101258745 | 3.3 |
| 6 | 28 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101770912 | 3.39 |
| 6 | 19 | 2002 | Rear End, Turn | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100646437 | 3.44 |
| 9 | 17 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100993422 | 3.46 |
| 7 | 19 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100667311 | 3.54 |
| 11 | 17 | 2002 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100761749 | 3.64 |
| 2 | 15 | 2003 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100830783 | 3.64 |
| 5 | 15 | 2003 | Angle | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 100897291 | 3.64 |
| 12 | 2 | 2003 | Angle | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 101058349 | 3.64 |
| 11 | 25 | 2004 | Angle | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 101345868 | 3.64 |
| 7 | 19 | 2006 | Backing Up | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101787990 | 3.64 |
| 11 | 26 | 2006 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101897637 | 3.64 |
| 3 | 6 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102549926 | 3.7 |
| 7 | 11 | 2002 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 100661690 | 3.8 |
| 9 | 16 | 2002 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100711378 | 3.8 |
| 10 | 12 | 2002 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100731120 | 3.8 |
| 12 | 1 | 2002 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100772395 | 3.8 |
| 5 | 21 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 1 | 4 | 1 | 100901791 | 3.8 |
| 8 | 1 | 2003 | Rear End, Turn | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100956857 | 3.8 |
| 8 | 22 | 2003 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100974423 | 3.8 |
| 6 | 29 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101223273 | 3.8 |
| 7 | 8 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101229952 | 3.8 |
| 11 | 14 | 2004 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101336174 | 3.8 |
| 11 | 24 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101301084 | 3.8 |
| 6 | 18 | 2005 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101501809 | 3.8 |
| 12 | 25 | 2005 | Left Turn, Same Roadway | 0 | 0 | 2 | 2 | 2 | 2 | 1 | 101643224 | 3.8 |

Table 10.46. continued (NC-24 and Koonce Fork Road/SR-1238 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 15 | 2006 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 101914212 | 3.8 |
| 4 | 11 | 2008 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 102301741 | 3.8 |
| 7 | 19 | 2008 | Right Turn, Same Roadway | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 102371609 | 3.8 |
| 10 | 15 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102442270 | 3.8 |
| 11 | 22 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102468277 | 3.8 |
| 2 | 17 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102538339 | 3.8 |
| 5 | 14 | 2009 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102591497 | 3.8 |
| 6 | 12 | 2009 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102611458 | 3.8 |
| 3 | 30 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 100861467 | 3.819 |
| 7 | 18 | 2008 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 102371177 | 3.851 |
| 8 | 1 | 2008 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102378614 | 3.859 |
| 7 | 3 | 2002 | Angle | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 100656667 | 3.9 |
| 6 | 30 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101509376 | 3.9 |
| 3 | 21 | 2008 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102287440 | 3.9 |
| 3 | 25 | 2008 | Fixed Object | 0 | 0 | 2 | 0 | 1 | 5 | 1 | 102290651 | 3.9 |
| 9 | 30 | 2008 | Rear End, Turn | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102406822 | 4 |
| 7 | 8 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 102630594 | 4 |

Table 10.47. US-1 and ValleyviewRoad/SR-1857 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 14 | 2002 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100758888 | 14.11 |
| 7 | 28 | 2004 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101244584 | 14.11 |
| 11 | 4 | 2006 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101877091 | 14.11 |
| 12 | 7 | 2007 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102210815 | 14.11 |
| 6 | 9 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102342706 | 14.11 |
| 1 | 25 | 2009 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102501758 | 14.11 |
| 2 | 19 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102541160 | 14.11 |
| 7 | 18 | 2009 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 102636026 | 14.11 |
| 11 | 23 | 2003 | Left Turn, Same Roadway | 0 | 0 | 6 | 1 | 1 | 5 | 1 | 101051757 | 14.21 |
| 4 | 14 | 2004 | Fixed Object | 0 | 0 | 1 | 0 | 2 | 5 | 2 | 101163610 | 14.21 |
| 1 | 10 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102237339 | 14.21 |
| 11 | 30 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 102456100 | 14.21 |
| 10 | 3 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102154980 | 14.22 |
| 12 | 14 | 2000 | Ran Off Road - Right | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 100243037 | 14.223 |
| 5 | 26 | 2009 | Sideswipe, Opposite Direction | 0 | 0 | 0 | 3 | 2 | 1 | 3 | 102607408 | 14.23 |
| 12 | 16 | 2003 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101071800 | 14.31 |
| 12 | 30 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101375239 | 14.31 |
| 3 | 25 | 2005 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101440874 | 14.31 |
| 5 | 29 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102303818 | 14.31 |
| 11 | 1 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102432977 | 14.31 |
| 11 | 18 | 2001 | Fixed Object | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 100491925 | 14.4 |
| 11 | 3 | 2008 | Sideswipe, Same Direction | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 102451748 | 14.4 |
| 7 | 3 | 2001 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100390386 | 14.41 |
| 11 | 5 | 2003 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101035369 | 14.41 |
| 2 | 14 | 2005 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 2 | 1 | 3 | 101410002 | 14.41 |
| 10 | 30 | 2006 | Movable Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101871865 | 14.41 |
| 11 | 18 | 2007 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102195924 | 14.41 |
| 6 | 11 | 2003 | Other Non-Collision | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 100919539 | 14.428 |
| 4 | 7 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102005250 | 14.43 |
| 11 | 14 | 2006 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101886474 | 14.51 |
| 12 | 10 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 102468002 | 14.51 |

Table 10.47. continued (US-1 and ValleyviewRoad/SR-1857 Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 13 | 2000 | Ran Off Road - Right | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 100181554 | 14.65 |
| 10 | 6 | 2001 | Other Non-Collision | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 100456776 | 14.71 |
| 2 | 25 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 100838281 | 14.71 |

Table 10.48. US-1 and Causey Road/Grant Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 11 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100871357 | 16.97 |
| 5 | 15 | 2003 | Animal | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100897259 | 16.97 |
| 12 | 11 | 2007 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102213931 | 16.97 |
| 11 | 26 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102455080 | 16.97 |
| 12 | 26 | 2008 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102501346 | 16.97 |
| 6 | 20 | 2003 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100925981 | 17.01 |
| 4 | 1 | 2005 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101445637 | 17.086 |
| 8 | 11 | 2004 | Fixed Object | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101255921 | 17.098 |
| 11 | 13 | 2006 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101885500 | 17.108 |
| 4 | 18 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102014495 | 17.11 |
| 8 | 19 | 2007 | Overturn/Rollover | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 102116947 | 17.11 |
| 11 | 13 | 2002 | Animal | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 100758097 | 17.13 |

Table 10.49. NC-87 and SR-1145/Martin Luther King Drive Crash Data

| Month | Day | Year | Crash Type |  |  | Crash ID | MP |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | $\mathbf{L}$ | W |  |  |
| 11 | 3 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101875833 | 25.824 |
| 4 | 19 | 2001 | Angle | 0 | 1 | 0 | 3 | 1 | 1 | 1 | 100338641 | 25.83 |
| 4 | 26 | 2001 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100343278 | 25.83 |
| 9 | 30 | 2001 | Angle | 0 | 0 | 1 | 4 | 1 | 1 | 1 | 100451966 | 25.83 |
| 4 | 5 | 2002 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 100593032 | 25.83 |
| 7 | 27 | 2002 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100672966 | 25.83 |
| 4 | 2 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100863188 | 25.83 |
| 5 | 4 | 2003 | Angle | 9 | 9 | 9 | 1 | 1 | 1 | 1 | 100888243 | 25.83 |
| 11 | 3 | 2003 | Angle | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101032898 | 25.83 |
| 4 | 9 | 2004 | Angle | 0 | 1 | 2 | 0 | 1 | 1 | 1 | 101159364 | 25.83 |
| 5 | 4 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101179278 | 25.83 |
| 6 | 26 | 2004 | Angle | 0 | 1 | 0 | 1 | 2 | 1 | 3 | 101220732 | 25.83 |
| 8 | 4 | 2004 | Angle | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101250791 | 25.83 |
| 1 | 20 | 2005 | Angle | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101390333 | 25.83 |
| 3 | 8 | 2005 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101428085 | 25.83 |
| 3 | 11 | 2005 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101430062 | 25.83 |
| 3 | 14 | 2005 | Animal | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101431945 | 25.83 |
| 4 | 8 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101450268 | 25.83 |
| 7 | 11 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101517542 | 25.83 |
| 9 | 27 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101570844 | 25.83 |
| 10 | 12 | 2005 | Angle | 0 | 0 | 2 | 0 | 1 | 1 | 2 | 101582440 | 25.83 |
| 11 | 27 | 2006 | Angle | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 101908654 | 25.83 |
| 12 | 1 | 2006 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101902967 | 25.83 |
| 12 | 1 | 2006 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101903086 | 25.83 |
| 4 | 4 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101968422 | 25.83 |
| 4 | 27 | 2007 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102024119 | 25.83 |
| 5 | 14 | 2007 | Angle | 0 | 0 | 1 | 6 | 1 | 1 | 1 | 102038401 | 25.83 |
| 6 | 20 | 2007 | Angle | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 102069717 | 25.83 |
| 7 | 3 | 2007 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102089105 | 25.83 |
| 7 | 16 | 2007 | Angle | 0 | 0 | 1 | 7 | 1 | 1 | 1 | 102090465 | 25.83 |
| 9 | 3 | 2007 | Angle | 0 | 0 | 1 | 6 | 1 | 1 | 1 | 102131736 | 25.83 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

Table 10.49. continued (NC-87 and SR-1145/Martin Luther King Drive Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 12 | 8 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 102211740 | 25.83 |
| 2 | 25 | 2008 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102269840 | 25.83 |
| 10 | 5 | 2008 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102423021 | 25.83 |
| 1 | 27 | 2009 | Angle | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 102504007 | 25.83 |
| 2 | 20 | 2009 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102540358 | 25.83 |
| 4 | 9 | 2009 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102564786 | 25.83 |
| 6 | 18 | 2009 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102615732 | 25.83 |
| 6 | 1 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101200925 | 25.865 |

Table 10.50. NC-87 and SR-1155/Cromartie Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 10 | 2002 | Rear End, Turn | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100728262 | 27.88 |
| 1 | 10 | 2005 | Angle | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 101382906 | 27.88 |
| 11 | 3 | 2006 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101875834 | 27.88 |
| 4 | 21 | 2007 | Angle | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 102017651 | 27.88 |
| 2 | 21 | 2008 | Angle | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 102267145 | 27.88 |
| 2 | 26 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102270548 | 27.88 |
| 10 | 3 | 2008 | Angle | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102419579 | 27.88 |
| 12 | 28 | 2008 | Angle | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 102503607 | 27.88 |
| 9 | 28 | 2007 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102150655 | 28.08 |
| 8 | 26 | 2008 | Fixed Object | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102393273 | 28.08 |

Table 10.51. NC-210 and 5th Street Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 3 | 19 | 2005 | Angle | 0 | 0 | 1 | 1 | 1 | 5 | 1 | 101346348 | 37.815 |
| 8 | 28 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101130199 | 37.817 |
| 12 | 3 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102146340 | 37.819 |
| 1 | 23 | 2002 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100543990 | 37.83 |
| 8 | 24 | 2002 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100692903 | 37.832 |
| 10 | 24 | 2008 | Right Turn, Same Roadway | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 102430630 | 37.84 |
| 11 | 12 | 2008 | Angle | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 102442529 | 37.845 |
| 10 | 24 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 102172120 | 37.86 |
| 6 | 26 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 101220558 | 37.87 |
| 12 | 9 | 2006 | Pedestrian | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101862901 | 37.882 |
| 3 | 21 | 2002 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100582397 | 37.892 |
| 1 | 28 | 2004 | Overturn/Rollover | 0 | 0 | 0 | 0 | 4 | 4 | 9 | 101104764 | 37.901 |
| 12 | 5 | 2006 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101859094 | 37.908 |
| 11 | 12 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 2 | 1 | 3 | 101222089 | 37.91 |
| 5 | 20 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 4 | 3 | 102318362 | 37.91 |
| 6 | 14 | 2008 | Ran Off Road - Left | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102339620 | 37.91 |
| 6 | 5 | 2009 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102614436 | 37.91 |
| 6 | 9 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102623314 | 37.91 |
| 2 | 26 | 2004 | Fixed Object | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 101126085 | 37.926 |
| 1 | 4 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 2 | 1 | 101259267 | 37.929 |
| 1 | 23 | 2003 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 100812015 | 37.938 |
| 9 | 2 | 2002 | Other Non-Collision | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100702217 | 37.949 |
| 1 | 19 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101982864 | 37.96 |
| 12 | 27 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 4 | 1 | 2 | 101239482 | 38.03 |
| 12 | 27 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 4 | 4 | 4 | 101242338 | 38.03 |
| 12 | 27 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 101242343 | 38.03 |
| 2 | 17 | 2006 | Backing Up | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101637944 | 38.03 |
| 2 | 20 | 2006 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101628752 | 38.03 |
| 12 | 20 | 2006 | Left Turn, Same Roadway | 0 | 0 | 4 | 0 | 1 | 4 | 1 | 101871091 | 38.03 |
| 8 | 24 | 2007 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102047268 | 38.03 |
| 11 | 27 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102117149 | 38.03 |
| 12 | 2 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 102122415 | 38.03 |

Table 10.51. continued (NC-210 and $5^{\text {th }}$ Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 30 | 2008 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102166910 | 38.03 |
| 3 | 6 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102210368 | 38.03 |
| 6 | 21 | 2008 | Backing Up | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102333824 | 38.03 |
| 7 | 9 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 2 | 3 | 102343910 | 38.03 |
| 2 | 14 | 2009 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102524661 | 38.03 |
| 3 | 19 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102556506 | 38.06 |
| 7 | 5 | 2008 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102340573 | 38.062 |

Table 10.52. NC-210 and Weaver Street Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 7 | 17 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 102643891 | 3.73 |
| 11 | 12 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 101239013 | 3.739 |
| 1 | 30 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102511464 | 37.49 |
| 3 | 1 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100841077 | 37.493 |
| 2 | 11 | 2005 | RIGHT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101282224 | 37.493 |
| 10 | 9 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100727479 | 37.502 |
| 4 | 14 | 2003 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 100872832 | 37.502 |
| 3 | 22 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101318016 | 37.502 |
| 12 | 15 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101594939 | 37.502 |
| 2 | 20 | 2008 | BACKING UP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102189004 | 37.502 |
| 7 | 8 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102344661 | 37.502 |
| 6 | 27 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100651709 | 37.503 |
| 1 | 27 | 2009 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102510837 | 37.51 |
| 4 | 5 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100329782 | 37.512 |
| 11 | 2 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100747796 | 37.512 |
| 10 | 22 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101556043 | 37.512 |
| 7 | 6 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102627109 | 37.513 |
| 11 | 12 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 2 | 4 | 2 | 101238154 | 37.521 |
| 1 | 26 | 2006 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101637938 | 37.521 |
| 12 | 18 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102138831 | 37.521 |
| 12 | 20 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102139788 | 37.521 |
| 7 | 23 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100669456 | 37.522 |
| 11 | 18 | 2003 | ANGLE | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101045649 | 37.522 |
| 5 | 31 | 2005 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101386549 | 37.523 |
| 12 | 22 | 2001 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100530705 | 37.526 |
| 12 | 27 | 2004 | OTHER COLLISION WITH VEHICLE | 0 | 0 | 0 | 0 | 4 | 5 | 4 | 101258600 | 37.526 |
| 4 | 18 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101343588 | 37.526 |
| 1 | 14 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 3 | 2 | 1 | 4 | 1 | 101591180 | 37.526 |
| 3 | 22 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102222004 | 37.53 |
| 7 | 28 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102360084 | 37.53 |
| 7 | 28 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102360083 | 37.53 |
| 6 | 13 | 2009 | PARKED MOTOR VEHICLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102619927 | 37.53 |

Table 10.52. continued (NC-210 and Weaver Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 23 | 2002 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100627202 | 37.531 |
| 6 | 21 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100647403 | 37.531 |
| 8 | 17 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100687845 | 37.531 |
| 10 | 24 | 2002 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100739886 | 37.531 |
| 10 | 18 | 2003 | ANGLE | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101014486 | 37.531 |
| 5 | 27 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101249647 | 37.531 |
| 1 | 11 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101253741 | 37.531 |
| 7 | 13 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102633001 | 37.537 |
| 11 | 12 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 2 | 4 | 2 | 101238154 | 37.541 |
| 1 | 26 | 2006 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101637938 | 37.541 |
| 12 | 20 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102139788 | 37.541 |
| 5 | 31 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101386549 | 37.543 |
| 12 | 22 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100530705 | 37.546 |
| 12 | 27 | 2004 | Other Collision With Vehicle | 0 | 0 | 0 | 0 | 4 | 5 | 4 | 101258600 | 37.546 |
| 8 | 17 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 100687841 | 37.547 |
| 3 | 22 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102222004 | 37.55 |
| 6 | 21 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100647331 | 37.551 |
| 6 | 21 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100647403 | 37.551 |
| 8 | 17 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100687845 | 37.551 |
| 10 | 24 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100739886 | 37.551 |
| 5 | 27 | 2004 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101249647 | 37.551 |
| 1 | 11 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101253741 | 37.551 |
| 3 | 27 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101320464 | 37.551 |
| 4 | 2 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 100863083 | 37.552 |
| 12 | 18 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101234258 | 37.555 |
| 1 | 10 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100535166 | 37.556 |
| 2 | 14 | 2006 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101626427 | 37.556 |
| 7 | 4 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102021439 | 37.556 |
| 9 | 9 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102057391 | 37.556 |
| 9 | 12 | 2004 | Rear End, Slow or Stop | 0 | 0 | 1 | 2 | 1 | 4 | 1 | 101141880 | 37.557 |
| 10 | 17 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101222094 | 37.557 |
| 8 | 15 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102039249 | 37.557 |

Table 10.52. continued (NC-210 and Weaver Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 8 | 26 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102674515 | 37.557 |
| 10 | 14 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100732065 | 37.558 |
| 12 | 26 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 101246608 | 37.558 |
| 1 | 31 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101270503 | 37.558 |
| 5 | 29 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101383984 | 37.558 |
| 1 | 30 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101274441 | 37.559 |
| 6 | 27 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102007525 | 37.559 |
| 9 | 26 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102074900 | 37.559 |
| 5 | 2 | 2001 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100347573 | 37.56 |
| 5 | 19 | 2001 | Pedalcyclist | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100359273 | 37.56 |
| 5 | 28 | 2001 | Angle | 1 | 0 | 1 | 3 | 2 | 1 | 2 | 100365612 | 37.56 |
| 6 | 20 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100380774 | 37.56 |
| 9 | 28 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100465015 | 37.56 |
| 10 | 27 | 2001 | Angle | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 100498577 | 37.56 |
| 10 | 28 | 2001 | Head On | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100499318 | 37.56 |
| 11 | 3 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 9 | 100487040 | 37.56 |
| 11 | 29 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100510830 | 37.56 |
| 12 | 4 | 2001 | Left Turn, Different Roadways | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 100510866 | 37.56 |
| 12 | 13 | 2001 | Left Turn, Different Roadways | 0 | 0 | 0 | 2 | 2 | 4 | 5 | 100512335 | 37.56 |
| 3 | 3 | 2002 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 1 | 4 | 1 | 100911260 | 37.56 |
| 3 | 29 | 2002 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100599187 | 37.56 |
| 5 | 23 | 2002 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100627202 | 37.56 |
| 5 | 24 | 2002 | Angle | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 101195194 | 37.56 |
| 6 | 1 | 2002 | Unknown | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100633803 | 37.56 |
| 7 | 23 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100669456 | 37.56 |
| 8 | 3 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100677638 | 37.56 |
| 10 | 24 | 2002 | Backing Up | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100739874 | 37.56 |
| 10 | 25 | 2002 | Left Turn, Different Roadways | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 100740594 | 37.56 |
| 11 | 4 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 100749247 | 37.56 |
| 12 | 21 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100789797 | 37.56 |
| 1 | 13 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100804695 | 37.56 |
| 1 | 23 | 2003 | Angle | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 100812007 | 37.56 |

Table 10.52. continued (NC-210 and Weaver Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 1 | 23 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 100812013 | 37.56 |
| 1 | 23 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 100812012 | 37.56 |
| 4 | 4 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100865462 | 37.56 |
| 5 | 24 | 2003 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100904649 | 37.56 |
| 8 | 11 | 2003 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100965530 | 37.56 |
| 8 | 16 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 100969278 | 37.56 |
| 8 | 21 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100972992 | 37.56 |
| 9 | 7 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 100986285 | 37.56 |
| 9 | 25 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 100999889 | 37.56 |
| 10 | 16 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101016827 | 37.56 |
| 10 | 18 | 2003 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 101014486 | 37.56 |
| 11 | 2 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101032116 | 37.56 |
| 11 | 3 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101032714 | 37.56 |
| 11 | 14 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101042627 | 37.56 |
| 11 | 18 | 2003 | Angle | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101045649 | 37.56 |
| 11 | 23 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101050749 | 37.56 |
| 12 | 4 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101059502 | 37.56 |
| 12 | 11 | 2003 | Other Collision With Vehicle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101066269 | 37.56 |
| 12 | 30 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101081486 | 37.56 |
| 1 | 3 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101084063 | 37.56 |
| 1 | 23 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 101098675 | 37.56 |
| 1 | 28 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 4 | 4 | 4 | 1 | 101105761 | 37.56 |
| 3 | 9 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101137149 | 37.56 |
| 3 | 10 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101138366 | 37.56 |
| 3 | 11 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101138570 | 37.56 |
| 3 | 12 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101139323 | 37.56 |
| 4 | 8 | 2004 | Rear End, Slow or Stop | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101159072 | 37.56 |
| 4 | 15 | 2004 | Other Collision With Vehicle | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101163868 | 37.56 |
| 5 | 18 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101189835 | 37.56 |
| 5 | 18 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101189842 | 37.56 |
| 6 | 20 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 101217465 | 37.56 |
| 6 | 26 | 2004 | Left Turn, Different Roadways | 0 | 0 | 1 | 0 | 2 | 4 | 2 | 101220562 | 37.56 |

Table 10.52. continued (NC-210 and Weaver Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 6 | 27 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101221588 | 37.56 |
| 7 | 6 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101228690 | 37.56 |
| 8 | 2 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101130201 | 37.56 |
| 8 | 8 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101147992 | 37.56 |
| 10 | 1 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101213027 | 37.56 |
| 10 | 3 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101167557 | 37.56 |
| 10 | 13 | 2004 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101174567 | 37.56 |
| 10 | 18 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101195575 | 37.56 |
| 11 | 14 | 2004 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101217362 | 37.56 |
| 11 | 17 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101206509 | 37.56 |
| 12 | 14 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 101230075 | 37.56 |
| 12 | 26 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 4 | 4 | 6 | 101261612 | 37.56 |
| 12 | 26 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 4 | 4 | 1 | 101242333 | 37.56 |
| 12 | 31 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101242949 | 37.56 |
| 1 | 3 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101260355 | 37.56 |
| 2 | 12 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101282226 | 37.56 |
| 2 | 15 | 2005 | Ran Off Road - Left | 0 | 0 | 0 | 0 | 1 | 4 | 5 | 101291236 | 37.56 |
| 2 | 15 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101287493 | 37.56 |
| 2 | 21 | 2005 | Angle | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101294221 | 37.56 |
| 2 | 23 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101295559 | 37.56 |
| 3 | 11 | 2005 | Head On | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 101307766 | 37.56 |
| 3 | 14 | 2005 | Left Turn, Different Roadways | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101346337 | 37.56 |
| 3 | 16 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 101314465 | 37.56 |
| 3 | 20 | 2005 | Head On | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 101327665 | 37.56 |
| 4 | 4 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 1 | 4 | 1 | 101331259 | 37.56 |
| 4 | 18 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101343588 | 37.56 |
| 4 | 22 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101349027 | 37.56 |
| 5 | 24 | 2005 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101382466 | 37.56 |
| 6 | 11 | 2005 | Angle | 0 | 0 | 1 | 2 | 1 | 4 | 1 | 101397495 | 37.56 |
| 6 | 23 | 2005 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101428855 | 37.56 |
| 7 | 10 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101424979 | 37.56 |
| 7 | 10 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101421081 | 37.56 |

Table 10.52. continued (NC-210 and Weaver Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 9 | 20 | 2005 | Left Turn, Same Roadway | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 101481334 | 37.56 |
| 10 | 8 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101499657 | 37.56 |
| 10 | 15 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101544273 | 37.56 |
| 11 | 9 | 2005 | Backing Up | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101532585 | 37.56 |
| 11 | 11 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 4 | 1 | 4 | 1 | 101541280 | 37.56 |
| 12 | 24 | 2005 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101570572 | 37.56 |
| 1 | 9 | 2006 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101594941 | 37.56 |
| 1 | 13 | 2006 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101591178 | 37.56 |
| 1 | 14 | 2006 | Left Turn, Same Roadway | 0 | 0 | 3 | 2 | 1 | 4 | 1 | 101591180 | 37.56 |
| 2 | 1 | 2006 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101613990 | 37.56 |
| 2 | 25 | 2006 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101640881 | 37.56 |
| 1 | 18 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 3 | 2 | 4 | 3 | 101899012 | 37.56 |
| 1 | 22 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101898977 | 37.56 |
| 3 | 1 | 2007 | lef | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 101935838 | 37.56 |
| 4 | 22 | 2007 | Left Turn, Different Roadways | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 101986016 | 37.56 |
| 5 | 26 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101984724 | 37.56 |
| 6 | 17 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102007519 | 37.56 |
| 6 | 17 | 2007 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 101996320 | 37.56 |
| 8 | 2 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102030057 | 37.56 |
| 8 | 6 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102032669 | 37.56 |
| 8 | 11 | 2007 | Left Turn, Different Roadways | 1 | 0 | 0 | 0 | 1 | 4 | 1 | 102040709 | 37.56 |
| 8 | 20 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102107366 | 37.56 |
| 9 | 25 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102073685 | 37.56 |
| 11 | 1 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102099280 | 37.56 |
| 11 | 13 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102110495 | 37.56 |
| 12 | 13 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102133150 | 37.56 |
| 12 | 18 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102138831 | 37.56 |
| 12 | 29 | 2007 | Angle | 0 | 0 | 0 | 4 | 1 | 2 | 1 | 102141968 | 37.56 |
| 1 | 7 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 102151904 | 37.56 |
| 2 | 27 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102196929 | 37.56 |
| 3 | 28 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102247936 | 37.56 |
| 4 | 10 | 2008 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102272462 | 37.56 |

Table 10.52. continued (NC-210 and Weaver Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 4 | 14 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102266605 | 37.56 |
| 5 | 18 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102304841 | 37.56 |
| 7 | 8 | 2008 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 102355524 | 37.56 |
| 7 | 25 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102355526 | 37.56 |
| 7 | 28 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102360084 | 37.56 |
| 7 | 28 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102360083 | 37.56 |
| 8 | 7 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102372926 | 37.56 |
| 8 | 13 | 2008 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 102369053 | 37.56 |
| 10 | 3 | 2008 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102410560 | 37.56 |
| 11 | 1 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 102464948 | 37.56 |
| 11 | 7 | 2008 | Left Turn, Same Roadway | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102438088 | 37.56 |
| 11 | 30 | 2008 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 102460467 | 37.56 |
| 12 | 6 | 2008 | Left Turn, Same Roadway | 0 | 0 | 1 | 0 | 2 | 4 | 3 | 102473954 | 37.56 |
| 1 | 16 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102497849 | 37.56 |
| 3 | 4 | 2009 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102537878 | 37.56 |
| 3 | 21 | 2009 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102553631 | 37.56 |
| 3 | 27 | 2009 | Angle | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 102556513 | 37.56 |
| 3 | 28 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102558912 | 37.56 |
| 4 | 8 | 2009 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102566801 | 37.56 |
| 7 | 6 | 2009 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102636141 | 37.56 |
| 7 | 14 | 2009 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102635931 | 37.56 |
| 8 | 6 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102671954 | 37.56 |
| 8 | 21 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102674361 | 37.56 |
| 9 | 1 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102674034 | 37.56 |
| 12 | 29 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 4 | 1 | 101242335 | 37.562 |
| 7 | 26 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 100672804 | 37.563 |
| 8 | 2 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100676706 | 37.564 |
| 6 | 3 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100635084 | 37.565 |
| 7 | 16 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100945473 | 37.568 |
| 9 | 18 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101147993 | 37.569 |
| 12 | 9 | 2004 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101238537 | 37.569 |
| 3 | 18 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101315466 | 37.569 |

Table 10.52. continued (NC-210 and Weaver Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 12 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101973073 | 37.569 |
| 7 | 3 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100389956 | 37.571 |
| 10 | 10 | 2003 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101012155 | 37.574 |
| 4 | 14 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101343585 | 37.574 |
| 1 | 14 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102497790 | 37.575 |
| 4 | 26 | 2002 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100607905 | 37.578 |
| 4 | 22 | 2005 | Ran Off Road - Right | 0 | 0 | 1 | 0 | 2 | 4 | 2 | 101349030 | 37.598 |
| 11 | 5 | 2004 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101197405 | 37.6 |
| 12 | 18 | 2004 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101234244 | 37.6 |
| 5 | 31 | 2005 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101386551 | 37.6 |
| 7 | 12 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101419742 | 37.607 |
| 9 | 17 | 2009 | Sideswipe, Same Direction | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102674938 | 37.617 |
| 9 | 20 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102692798 | 37.617 |
| 11 | 16 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102114696 | 37.625 |
| 4 | 23 | 2004 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101170828 | 37.636 |
| 10 | 17 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102089698 | 37.653 |
| 1 | 14 | 2009 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102497791 | 37.655 |
| 9 | 23 | 2003 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100999265 | 37.66 |
| 9 | 18 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102676142 | 37.66 |
| 9 | 18 | 2009 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102684370 | 37.66 |
| 5 | 28 | 2004 | Left Turn, Same Roadway | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101198485 | 37.682 |
| 5 | 24 | 2004 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101195204 | 37.692 |
| 10 | 10 | 2001 | Fixed Object | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100485025 | 37.702 |
| 2 | 18 | 2002 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100561080 | 37.702 |
| 11 | 9 | 2008 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 102443761 | 37.71 |
| 8 | 7 | 2001 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100420456 | 37.711 |
| 10 | 24 | 2003 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101023635 | 37.711 |
| 1 | 12 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101258599 | 37.711 |
| 12 | 22 | 2004 | Angle | 0 | 0 | 0 | 1 | 1 | 4 | 1 | 101238541 | 37.712 |
| 4 | 30 | 2003 | Rear End, Turn | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100884688 | 37.716 |
| 8 | 13 | 2004 | Angle | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 101148002 | 37.717 |
| 8 | 22 | 2003 | Left Turn, Different Roadways | 0 | 0 | 1 | 1 | 1 | 4 | 1 | 100973719 | 37.72 |

Table 10.52. continued (NC-210 and Weaver Street Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 19 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 2 | 2 | 2 | 3 | 101046559 | 37.72 |
| 9 | 8 | 2004 | Right Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 101233644 | 37.72 |
| 1 | 27 | 2005 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101270495 | 37.72 |
| 5 | 30 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101983757 | 37.72 |
| 7 | 13 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102036582 | 37.72 |
| 7 | 13 | 2007 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102015103 | 37.72 |
| 11 | 27 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102134775 | 37.72 |
| 2 | 12 | 2008 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 102189009 | 37.72 |
| 3 | 27 | 2008 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102228597 | 37.72 |
| 5 | 18 | 2008 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102294379 | 37.72 |
| 10 | 24 | 2008 | Angle | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102431005 | 37.72 |
| 12 | 31 | 2008 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102482855 | 37.72 |
| 1 | 10 | 2002 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100537009 | 37.722 |
| 2 | 10 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 100826592 | 37.722 |
| 5 | 30 | 2003 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 100908758 | 37.722 |
| 2 | 5 | 2009 | Ran Off Road - Right | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102521224 | 37.722 |
| 3 | 14 | 2005 | Angle | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 101314454 | 37.723 |
| 2 | 23 | 2009 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102527221 | 37.724 |
| 8 | 29 | 2009 | Angle | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102672669 | 37.726 |
| 3 | 23 | 2007 | Sideswipe, Same Direction | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 101951923 | 37.727 |
| 11 | 21 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102126418 | 37.727 |
| 7 | 7 | 2001 | Pedalcyclist | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 100392514 | 37.729 |
| 11 | 20 | 2005 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101591177 | 37.729 |
| 2 | 5 | 2009 | Movable Object | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102521225 | 37.729 |
| 10 | 19 | 2004 | Rear End, Slow or Stop | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101180241 | 37.731 |
| 9 | 6 | 2007 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102071912 | 37.757 |
| 11 | 8 | 2003 | Rear End, Slow or Stop | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 101038206 | 37.759 |
| 11 | 18 | 2007 | Left Turn, Different Roadways | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102114703 | 37.76 |
| 11 | 19 | 2007 | Angle | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102113950 | 37.76 |
| 3 | 22 | 2008 | Left Turn, Same Roadway | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 102288715 | 37.76 |
| 10 | 29 | 2008 | Left Turn, Same Roadway | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102446845 | 37.764 |

Table 10.53. NC-87 and County Line Road/SR-2257 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 3 | 23 | 2008 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102289111 | 48.73 |
| 1 | 6 | 2010 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102759913 | 48.75 |
| 2 | 8 | 2006 | FIXED OBJECT | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101633659 | 48.83 |
| 5 | 29 | 2008 | OTHER NON-COLLISION | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102334230 | 48.85 |
| 2 | 17 | 2004 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101120461 | 0 |
| 12 | 14 | 2005 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101632986 | 0 |
| 4 | 15 | 2007 | FIXED OBJECT | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 102011720 | 0 |
| 2 | 17 | 2004 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 0 | 6 | 5 | 6 | 101120470 | 0.04 |
| 2 | 7 | 2010 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 4 | 5 | 1 | 102784556 | 0.04 |
| 1 | 7 | 2007 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101931718 | 0.133 |
| 4 | 30 | 2008 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102315825 | 0.14 |
| 10 | 30 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101322146 | 0.6 |

Table 10.54. NC-87 and Tobermory Road/SR-1303 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 21 | 2005 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 101587476 | 47.93 |
| 7 | 5 | 2009 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102635370 | 47.93 |
| 2 | 25 | 2005 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101419482 | 48.03 |
| 1 | 16 | 2004 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101093991 | 48.13 |
| 1 | 21 | 2006 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101661133 | 48.13 |
| 8 | 22 | 2006 | ANGLE | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 101814120 | 48.23 |
| 3 | 16 | 2007 | REAR END, TURN | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 101984514 | 48.23 |
| 11 | 18 | 2007 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102195090 | 48.33 |
| 7 | 18 | 2008 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102370340 | 48.43 |
| 4 | 18 | 2010 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102843872 | 48.53 |
| 6 | 6 | 2006 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101758904 | 48.63 |

Table 10.55. NC-24 and Downing Road/SR-1834 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 5 | 23 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 3 | 2 | 1 | 2 | 101194177 | 17.02 |
| 7 | 25 | 2006 | FIXED OBJECT | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101792419 | 17.22 |
| 12 | 20 | 2009 | FIXED OBJECT | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 102754821 | 17.251 |
| 10 | 19 | 2004 | LEFT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 101312196 | 17.33 |
| 10 | 28 | 2004 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 3 | 1 | 5 | 1 | 101319920 | 17.33 |
| 1 | 25 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101394767 | 17.33 |
| 6 | 27 | 2005 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101506803 | 17.33 |
| 11 | 7 | 2005 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 1 | 5 | 101602968 | 17.33 |
| 1 | 15 | 2006 | ANGLE | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 101656836 | 17.33 |
| 8 | 17 | 2006 | RIGHT TURN, DIFFERENT ROADWAYS | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 101809894 | 17.33 |
| 9 | 21 | 2006 | ANGLE | 0 | 0 | 2 | 3 | 1 | 1 | 1 | 101837244 | 17.33 |
| 6 | 3 | 2007 | ANGLE | 0 | 0 | 0 | 4 | 1 | 1 | 2 | 102053937 | 17.33 |
| 6 | 15 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102066020 | 17.33 |
| 8 | 25 | 2007 | ANGLE | 1 | 0 | 3 | 0 | 1 | 5 | 1 | 102121808 | 17.33 |
| 8 | 27 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 102122956 | 17.33 |
| 9 | 18 | 2007 | ANGLE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102143179 | 17.33 |
| 8 | 30 | 2008 | REAR END, TURN | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 102397726 | 17.33 |
| 10 | 7 | 2006 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 101849787 | 17.43 |
| 3 | 25 | 2008 | OVERTURN/ROLLOVER | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 102238033 | 17.63 |

Table 10.56. NC-87 and Wilmington Highway/Doc Bennett Road Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 2 | 26 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 1 | 5 | 1 | 4 | 101126893 | 8.02 |
| 3 | 25 | 2007 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101992728 | 8.02 |
| 7 | 5 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 101227648 | 8.04 |
| 12 | 13 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 101912330 | 8.04 |
| 7 | 14 | 2009 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102635658 | 8.04 |
| 12 | 26 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 4 | 5 | 2 | 101372044 | 8.046 |
| 11 | 13 | 2003 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101042595 | 8.06 |
| 10 | 18 | 2007 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102166392 | 8.068 |
| 2 | 1 | 2007 | FIXED OBJECT | 0 | 0 | 0 | 1 | 5 | 1 | 4 | 101949844 | 8.116 |
| 12 | 26 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 4 | 5 | 2 | 101372013 | 8.14 |
| 12 | 26 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 4 | 5 | 2 | 101372014 | 8.14 |
| 8 | 5 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 5 | 5 | 101533483 | 8.14 |
| 8 | 13 | 2009 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 3 | 1 | 3 | 102652751 | 8.14 |
| 9 | 14 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102140481 | 8.19 |
| 1 | 27 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 4 | 5 | 2 | 101103800 | 8.23 |
| 4 | 12 | 2008 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102303439 | 8.28 |
| 2 | 17 | 2004 | ANIMAL | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 101120479 | 8.36 |
| 11 | 24 | 2007 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102199866 | 8.38 |
| 9 | 28 | 2006 | ANGLE | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 101827707 | 8.48 |
| 10 | 23 | 2006 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 5 | 1 | 101864406 | 8.48 |
| 3 | 27 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101993869 | 8.48 |
| 10 | 18 | 2007 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102166399 | 8.48 |
| 8 | 7 | 2009 | ANGLE | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102658449 | 8.48 |
| 9 | 5 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102675406 | 8.48 |
| 10 | 2 | 2009 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102694703 | 8.48 |
| 10 | 24 | 2009 | FIXED OBJECT | 0 | 2 | 0 | 1 | 1 | 5 | 1 | 102705152 | 8.48 |
| 2 | 26 | 2004 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 5 | 1 | 4 | 101126839 | 8.487 |
| 1 | 5 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 2 | 5 | 3 | 101085748 | 8.489 |
| 2 | 3 | 2005 | ANIMAL | 0 | 0 | 0 | 1 | 2 | 5 | 2 | 101401935 | 8.53 |
| 11 | 21 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101341761 | 8.58 |
| 11 | 24 | 2009 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102746774 | 8.58 |
| 12 | 31 | 2009 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102758274 | 8.594 |

Table 10.56. continued (NC-87 and Wilmington Highway/Doc Bennett Road Crash Data)

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 10 | 3 | 2005 | REAR END, SLOW OR STOP | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 101501857 | 8.93 |

Table 10.57. NC-87 and Thrower Road/SR-2245 Crash Data

| Month | Day | Year | Crash Type | Injury |  |  |  | Condition |  |  | Crash ID | MP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | F | A | B | C | R | L | W |  |  |
| 11 | 11 | 2009 | ANGLE | 0 | 0 | 0 | 1 | 2 | 5 | 3 | 102718812 | 3.94 |
| 5 | 28 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 102874894 | 3.94 |
| 3 | 23 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 102821237 | 3.97 |
| 3 | 7 | 2010 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102809458 | 4.07 |
| 8 | 27 | 2009 | ANGLE | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 102665051 | 4.33 |
| 12 | 26 | 2006 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101921766 | 4.69 |
| 1 | 22 | 2008 | ANGLE | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102172645 | 4.69 |
| 2 | 25 | 2008 | ANGLE | 0 | 0 | 0 | 2 | 1 | 2 | 1 | 102269896 | 4.69 |
| 3 | 5 | 2008 | SIDESWIPE, SAME DIRECTION | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102276165 | 4.69 |
| 4 | 12 | 2008 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 102303474 | 4.69 |
| 6 | 7 | 2008 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 102344291 | 4.69 |
| 7 | 20 | 2005 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101522260 | 4.719 |
| 7 | 4 | 2008 | FIXED OBJECT | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 102361099 | 4.73 |
| 5 | 22 | 2007 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102045994 | 4.79 |
| 8 | 18 | 2008 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 102390224 | 4.79 |
| 12 | 14 | 2007 | FIXED OBJECT | 0 | 0 | 1 | 0 | 1 | 5 | 1 | 102216557 | 4.797 |
| 11 | 13 | 2003 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101042600 | 4.8 |
| 10 | 26 | 2009 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102703068 | 4.802 |
| 8 | 31 | 2006 | OVERTURN/ROLLOVER | 0 | 0 | 0 | 0 | 2 | 5 | 2 | 101820452 | 4.827 |
| 9 | 30 | 2004 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 0 | 1 | 3 | 5 | 101296726 | 4.83 |
| 11 | 9 | 2004 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 101330970 | 4.83 |
| 12 | 24 | 2004 | FIXED OBJECT | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 101371041 | 4.83 |
| 9 | 17 | 2005 | LEFT TURN, SAME ROADWAY | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 101563765 | 4.83 |
| 4 | 1 | 2010 | ANIMAL | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 102842672 | 4.89 |
| 3 | 3 | 2010 | REAR END, SLOW OR STOP | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 102814664 | 4.93 |

### 10.3 Resident, Commuter, and Business Survey

### 10.3.1 Resident Survey

Figure 10.31 shows the initial letter mailed to residents explaining the survey, Figure 10.32 shows the cover letter that accompanied the survey packet, and Figure 10.33 shows the residential survey. Figure 10.31 shows the reminder letter for those residents who did not complete the initial survey.

## CURRENT RESIDENT

## 123.Main St.

Somewhere, NC 12345


## Greetings,

North Carolina State University is conducting research sponsored by the North Carolina Department of Transportation to evaluate the effects of superstreets. A superstreet is an intersection designthat prohibits directleft-turn and through movements from the side streets. Instead, the left turns from the side streets are made by turning right onto the main road then making a u-turn using a one-way median opening, as shown by the dotted line in the diagram below; through movements across the main road are done in a similar manner, as shown by the dashed line in the diagram.


Figure 1, Basic superstreet design
We are gathering opinions from residents that live near a superstreet to better understand how well the design is working. A superstreet is located near you at the intersection of [insert road name] and [insert road name]. A short, one-page questionnaire will be arriving in the mail shortly, and will include a return envelope with pre-paid postage for your convenience. You have been selected to represent your neighbors in this survey - your opinion is of great value.

Please help us by taking a few minutes to participate in this study by completing and returning the survey form when you receive it. All participants and responses will remain anonymous. If, you have any questions please contact the study director. Dr . Joseph Hummer at (919) 5157733 or hummer@ncsy.edu.

Thank you!

Figure 10.31. Initial Letter Mailed to Residents Explaining the Survey

## CURRENT RESIDENT 123. Main St. <br> City, NC 12345



Greetings,
North Carolina State University is conducting research sponsored by the North Carolina Department of Transportation to evaluate the effects of superstreets. A superstreet is an intersection designthat prohibits direct left-turn and through movements from the side streets. Instead, the left turns from the side streets are made by turning right onto the main road then making a u-turn using a one-way median opening, as shown by the dotted line in the diagram below; through movements across the main road are done in a similar manner, as shown by the dashed line in the diagram.


As you may recall from our previous letter, we are gathering opinions from nearby residents to better understand how well the design is working. A superstreet is located near you at the intersection of [insert road name] and [insert road name]. To ensure we have a good crosssection of the population, please help us by having the licensed driver - at least 16 years of age - within the household who will be celebrating the next birthday answer the following brief survey questions found on the back of this letter.

When you are finished please place this survey in the mail using the enclosed envelope and pre-paid postage. If you have any questions contact the study director, Dr. Joseph Hummer at (919)515-7733 or hummer@ncsu.edu. All participants and responses will remain anonymous.

Thank you for your help with this important research!

Figure 10.32. Cover Letter that Accompanied the Survey Packet

## RESIDENT SURVEY

1. How long have you, personally, lived near this intersection?

$$
\text { Z Less than } 1 \text { year } \quad=1-3 \text { years }=4-10 \text { years More than } 10 \text { years }
$$

2. How often do you, personally, drive this section of road?
Z Daily Z Weekly _ Monthly _ Few times a year
3. How does navigation through the superstreet compare to a typical intersection?

- Essier/less confusing
- The same
- More difficult/more confusing

4. Had you heard about the superstreet concept before it was built at your location?

ZYes Z No
If yes, what was your opinion on the superstreet concept before it was build at your location?
Z Positive opinion Z Neutral opinion _ Negative opinion
a Did, not know enough about superstreets to form an opinion
5. Did you live here and have your driver's license prior to the construction of the superstreet? If no, skip ahead to question 10. If yes, proceed with survey.

च Yes $\quad 二$ No (skip to question 10)
6. How do you, personally, feel the superstreet has affected your ability to safely navigate the roadway compared to the previous roadway design?
Z Positively

- Negatively
- Same

7. How do you, personally, feel the superstreet has affected property values in your area?

- Positively.
z Negatively
- Same
-Don't know - I rent

8. How was travel time through this section of roadway affected during the construction period?

Z Less travel time Z No change Z More travel time
9. What differences, if any, have you, personally, experienced in travel time since the opening of the superstreet?

Z Less travel time Z No change Z More travel time
10. What differences, if any, have you, personally, noticed in the number of stopped vehicles waiting to make a safe maneuver since the opening of the superstreet?

Z More stopped vehicles Z No change Z Fewer stopped vehicles
11. Please select your age range:

- $16-29$
- 30-49
- 50-65
z 66 or above

12. Plesse select your gender:

Z Male _ Femsle
In the space below, please provide any additional thoughts you may have regarding superstreets. This may include comments related to topics covered in this questionnaire or you may address topics not covered in this survey.

Please place this form in the enclosed envelope and mail it back to us. Thank you!

Figure 10.33. Survey Mailed to Residents Living Near Superstreets

## CURRENT RESIDENT

123 Main St.
City, NC 12345


## Greetings,

By now you should have received notice of a research study North Carolina State University is doing for the North Carolina Department of Transportation on the effects of superstreets. To remind you, a superstreet is an intersection design that prohibits direct left-turn and through movements from the side streets. Instead, the left turns from the side streets are made by turning right onto the main road then making a u-turn using a one-way median opening, as shown by the dotted line in the diagram below; through movements across the main road are done in a similar manner, as shown by the dashed line in the diagram.


Figure-1, Basic superstreet design

Our records show that you have not returned our survey. We would like to remind you that you have been selected to represent your neighbors in the study, and your opinion is very important in helping us understand how well the design is working. If in fact you have returned the survey, we thank you for your participation!

For your convenience, we will be mailing you another survey packet. Please take the time to fill out the short questionnaire. As a reminder, a superstreet is located near you at the intersection of [insert road name] and [insert road name]. All participants and responses will remain anonymous. If yoy have any guestipns, plegse contact the study director, Rr Joseph Hummer, st (919) 515-7733. or hummer@ncs.

Thank you for your help with this important research!

Figure 10.34. Reminder Letter Mailed to Residents Who had Not Responded to the Initial Survey

### 10.3.2 Commuter Survey

Figure 10.35 shows the initial introductory statement emailed to UNC-CH faculty and staff explaining the survey, and Figure 10.36 shows the commuter survey. Figure 10.37 shows the reminder email for those faculty and staff that did not complete the initial survey.

## Greetings,

North Carolina State University is conducting research sponsored by the North Carolina Department of Transportation to evaluate the effects of superstreets. A superstreet is an intersection design that prohibits direct left-turn and through movements from the side streets. Instead, the left turns from the side streets are made by turning right onto the main road then making a U-turn using a one-way median opening; through movements across the main road are done in a similar manner.

The team are gathering opinions from University of North Carolina faculty and staff to better understand how well the design is working. A superstreet is located near the UNC-CH campus at the intersection of US-15/501 and Europa Dr. / Erwin Rd. This intersection is located just north of the Franklin St./US-15/501 split and 1.2 miles west of I-40. Many UNC-CH faculty and staff commute to work through that intersection. Please help us evaluate the superstreet by answering the following brief survey questions found below. It will take approximately 3 minutes to complete this survey.

Please fill out the survey using the following steps:

1. Reply to this email by clicking "Reply"
2. Place an " $X$ " before the answer that best fits your opinion for each question
3. When you are finished please email this survey back to Sarah Ott at seott@ncsu.edu

If you have any questions about the survey or superstreets contact the study director, Dr. Joseph Hummer at (919) 515-7733 or hummer@ncsu.edu. All participant identification and particular responses will remain anonymous in our reports and publications.

Thank you for your help with this important research!
Figure 10.35. Initial Introductory Statement Emailed to UNC-CH Faculty and Staff

## UNC-CH FACULTY AND STAFF SURVEY

1. How long have you worked in Chapel Hill?
_ Less than 1 year
_ 1 - 3 years
_ 4-10 years
_ More than 10 years
_ I don't work in Chapel Hill
2. How often do you, personally, drive on US-15/501 at Europa Dr. / Erwin Rd.?
_ Daily
_ Weekly
_ Monthly
_ Few times a year
_ Never
If your answer to Question 2 is "Never", please skip to Question 11
3. How do you drive through the intersection of US-15/501 and Europa Dr./Erwin Rd. into town most often?
_ As a through driver on US-15/501 without turning onto Europa Dr. or Erwin Rd.
_ Turning from US-15/501 onto Europa Dr. or Erwin Rd.
_ Turning from Europa Dr. or Erwin Rd. onto US-15/501
4. How do you drive through the intersection of US-15/501 and Europa Dr./Erwin Rd. out of town most often?
_ As a through driver on US-15/501 without turning onto Europa Dr. or Erwin Rd.
_ Turning from US-15/501 onto Europa Dr. or Erwin Rd.
_ Turning from Europa Dr. or Erwin Rd. onto US-15/501
5. How does navigation through the superstreet compare to a typical intersection?
_ Easier/less confusing

- The same
_ More difficult/more confusing

6. Had you heard about the superstreet concept before it was built at US-15/501?

Yes
_ No
If yes, what was your opinion on the superstreet concept before it was built at US-15/501?
_ Positive opinion
_ Neutral opinion
_ Negative opinion
_ Did not know enough about superstreets to form an opinion

Figure 10.36. Survey Emailed to UNC-CH Faculty and Staff
7. How do you, personally, feel the superstreet has affected your ability to safely navigate the roadway compared to the previous roadway design?
_ Positively
_ Negatively
_ Same
8. How was travel time through this section of roadway affected during the superstreet construction period?
_ Less travel time
_ No change
_ More travel time
9. What differences, if any, have you, personally, experienced in travel time since the opening of the superstreet?
_ Less travel time
_ No change
_ More travel time
10. What differences, if any, have you, personally, noticed in the number of stopped vehicles waiting to make a safe maneuver since the opening of the superstreet?
_ More stopped vehicles
_ No change
_ Fewer stopped vehicles
11. Please select your age range:

- 18-29
$-30-49$
$-50-65$
-66 or above

12. Please select your gender:
_ Male
_ Female
In the space below, please provide any additional thoughts you may have regarding superstreets. This may include comments related to topics covered in this questionnaire or you may address topics not covered in this survey.

## Thank you!

Figure 10.36. continued

Greetings,
By now you should have received notice of a research study North Carolina State University is doing for the North Carolina Department of Transportation on the effects of superstreets. To remind you, a superstreet is an intersection design that prohibits direct left-turn and through movements from the side streets. Instead, the left turns from the side streets are made by turning right onto the main road then making a U-turn using a one-way median opening; through movements across the main road are done in a similar manner.

Our records show that you have not returned our survey. The team would like to remind you that you have been selected to represent your fellow commuters in the study, and your opinion is very important in helping us understand how well the design is working. If in fact you have returned the survey, the team thank you for your participation! For your convenience, another survey is included in this email. Please take the time to fill out the short questionnaire. As a reminder, a superstreet is located near the UNC-CH campus at the intersection of US-15/501 and Europa Dr./Erwin Rd. This intersection is located just north of the Franklin St. / US-15/501 split and 1.2 miles west of I-40.

Please fill out the survey using the following steps:

1. Reply to this email by clicking "Reply"
2. Place an " $X$ " before the answer that best fits your opinion for each question
3. When you are finished please email this survey back to Sarah Ott at seott@ncsu.edu

If you have any questions about the survey or superstreets contact the study director, Dr. Joseph Hummer at (919) 515-7733 or hummer@ncsu.edu. All participant identification and particular responses will remain anonymous in our reports and publications.

Thank you for your help with this important research!

Figure 10.37. Reminder Email Sent to Faculty and Staff Who had not Responded to the Initial Survey

### 10.3.3 Business Survey

The team conducted business surveys at two signalized superstreet locations through personal interviews. Figure 10.38 shows the business survey.


Figure 10.38. Business Survey

5 What are your approximate number of sales transactions/patrons ${ }^{\text {s }}$
For an average week $\qquad$ sales transactions / patrons (please circle which value you reported)

For an average Satur $\qquad$ sales transactions / patrons (please circle which value you reported)

6 Has your expected monthly revenue pattern changed since 2008 ?
_ Yes _ No
If you answered YES, please describe why you think the fluctuation occurred (List all applicable reasons).

Are you familiar with the fact that the median design of the main roadway alongside your business changed 7 in 2008?
_ Yes _ No

If yes, please turn to the next page to complete the survey.
If no, please return the survey, thank you for your time and effort.
8 Were you in favor of the roadway modifications before construction?
_ Yes _ No
Why or Why Not?:

9 Did your business experience a change in the number of regular customers during construction on the project?

Decrease _ No Change _ Increase

Following the completion of the project, has your business experienced a change in the number of regular customers?
-
Decrease _ No Change _ Increase

10 Do you feel that the installation of the raised median has made the following parameters better, worse, or about the same as before the median project was constructed?

Figure 10.38. continued

```
a. Traffic Congestion
b. Traffic Safety
c. Number of Customers per Day
d. Gross Sales
e. Property Value
f. Customer Satisfaction with Access to Store
g. Delivery Convenience
```

_ Better _ Worse _ Stayed about the same
_ Better _ Worse _ Stayed about the same
_ Better _ Worse _ Stayed about the same
_ Better _ Worse _ Stayed about the same
_ Better _ Worse _ Stayed about the same
_ Better _ Worse _ Stayed about the same
_ Better _ Worse _ Stayed about the same

11 What was your involvement in the public hearing and public meeting process for this median project?
_ Attended several meetings _ Attended one meeting _ No involvement
_ Not aware of any public hearings or meetings

12 Please share any additional thoughts on the median project adjacent to your business. This may include thoughts on the survey questions or other thoughts on median treaments and their impacts you might have.

Please return this completed form to Daniel Findley via one of the following methods:
Email: Daniel_Findley@ncsu.edu
Fax: 919-515-8898
Mail: ITRE
Access Management Survey
Centennial Campus Box 8601
Raleigh, NC 27695-8601

If you have any questions, comments or concerns regarding this study please call Mr. Bob Foyle with the Institute for Transportation Research and Education at NC State at (919) 515-8580.

End of Survey - Thank you for taking the time to complete this survey!
Figure 10.38. continued

