

# Bridge Design Speed Study

Bridge # 000135 over Reedy Branch on SR 2356 (Holman Mill Rd)  
Alamance County  
WBS Element # 17BP.7.R.47



Document Prepared By:

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May 1, 2012

**Principal Investigator**

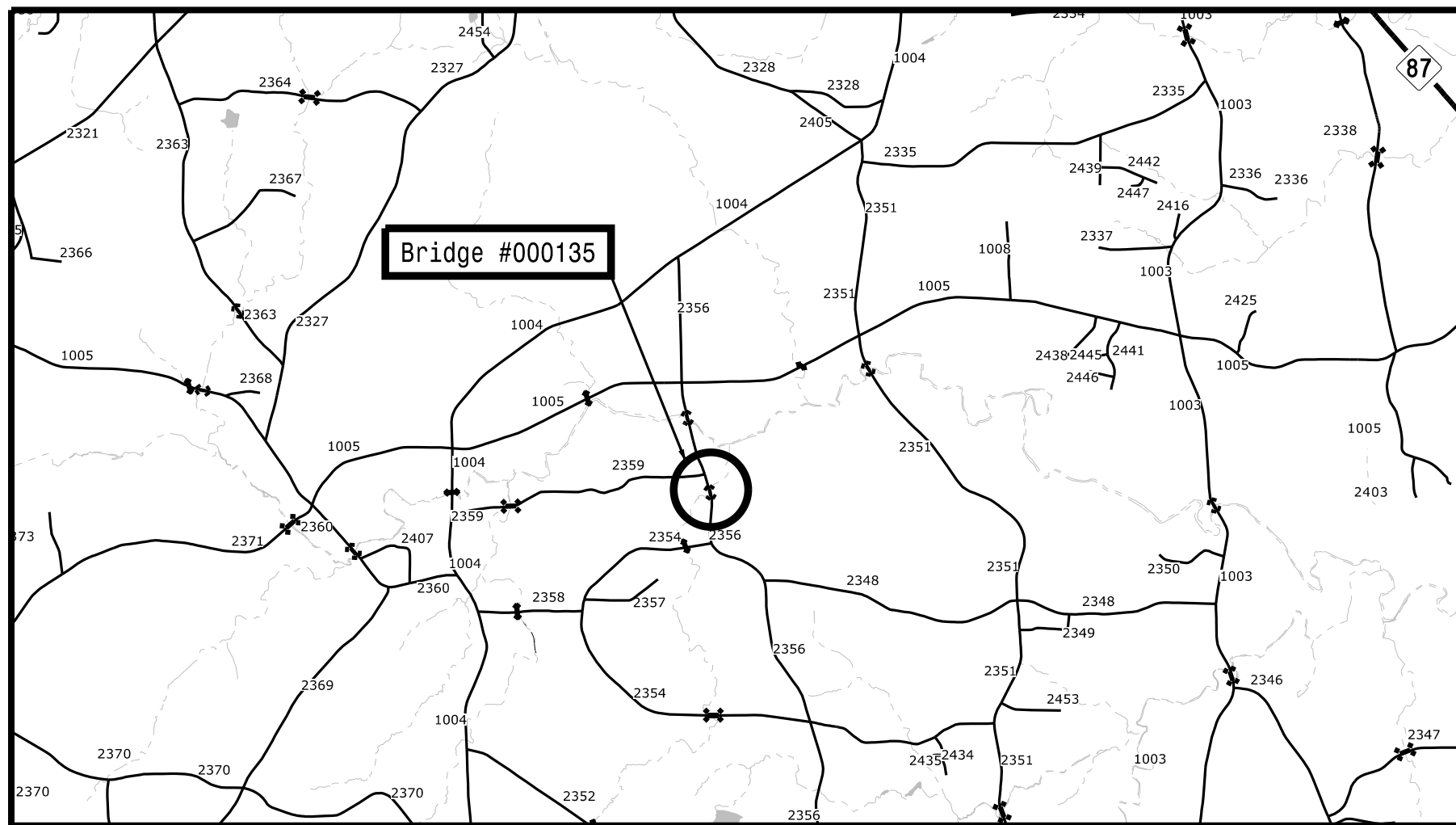
*Elizabeth A. Harris*  
\_\_\_\_\_  
Elizabeth A. Harris, PhD, EI

**Project Manager**

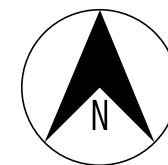
*Bradley Reynolds*  
\_\_\_\_\_  
Bradley A. Reynolds, PE  
Project Manager



Bridge locations plotted based on coordinates provided by Bridge Management



| Division | County   | Structure Number | Structure Description              | Latitude    | Longitude   |
|----------|----------|------------------|------------------------------------|-------------|-------------|
| 7        | Alamance | 000135           | Bridge #135 over branch on SR 2356 | 35.88979267 | -79.4015908 |



1" = 5000'  
SCALE

# Bridge and Approach Investigation Checklist

Project 17BP.7.R.47

Description Bridge #135 over Reedy Branch on SR 2356

Route SR 2356 (Holman Mill Rd)

Division 7

County Alamance

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Existing Speed Limit 55 ☐ Posted ☒ Statutory

Reasonable & Comfortable  
Passenger Car Speed 50-55 mph

Speed Data Only 9 speed data points collected due to sparseness of traffic.  
47 mph, 49 mph, 63 mph, 37 mph, 48 mph, 47 mph, 48 mph, 48 mph,  
42 mph

Ball Bank Speed Study Curve on south side of bridge ball banks at 7 degrees at 45 mph,  
10 degrees at 50 mph, and 15 degrees at 55 mph.

Warning Signs at Bridge W23-10 object markers, one located at each corner of the bridge.  
Regulatory 16 ton/22 ton weight limit sign on each approach.  
W5-2a Narrow Bridge on both approaches.  
W2-2L Side Road northbound immediately after the bridge.

Roadside Development Rural/Agricultural

ADT History 460 vpd from 2010 NCDOT Traffic Survey Map  
440 vpd from 2002 NCDOT Traffic Survey Map

Pedestrian/Bicycle Traffic No bike or ped traffic observed during investigation. Little bike or ped traffic  
is expected on SR 2356.

Bridge and Approach  
Digital Photos See attached photos.

Approach Lane Width 19' overall pavement width with 9.5' lanes

Approach Shoulder Width:  
Shoulder Type Varies from 7' to 12'±  
Grass

Lane Width (existing bridge) 19' overall pavement width with 8.5' lanes

Shoulder width (existing bridge) 1' /1'

Strategic Corridor / Thoroughfare  
Designation and Recommended  
Cross Section SR 2356 is classified as a local roadway, therefore it is recommended that  
the minimum cross section follow the NCDOT "R-R-R Guide" with a  
minimum of 10 foot lane widths and 3 foot shoulder widths (6 foot graded  
shoulder width where guardrail is to be installed).

Crash History and  
Safety Considerations Three crashes have been reported in the vicinity of the bridge from 1/1/2002  
to 12/31/2011 (10 years). Two of the crashes involved the bridge  
structure itself. The Type B crash into the bridge involved alcohol  
impairment. The second bridge crash was PDO and in wet conditions.

Comments None.

**Reasonable Bridge Speed** 55 mph

Investigated by: Elizabeth Harris, PhD, EI

Reviewed by: Bradley Reynolds, PE



**County:** Alamance

**Description:** Bridge #135 over Reedy Branch

**Route:** SR 2356

SR 2356 (Holman Hill Rd) NB  $\pm 50'$  from Bridge #135



SR 2356 (Holman Hill Rd) NB  $\pm 150'$  from Bridge #135



SR 2356 (Holman Hill Rd) NB  $\pm 100'$  from Bridge #135



SR 2356 (Holman Hill Rd) NB  $\pm 200'$  from Bridge #135





**County:** Alamance

**Description:** Bridge #135 over Reedy Branch

**Route:** SR 2356

SR 2356 (Holman Hill Rd) NB  $\pm 250'$  from Bridge #135



SR 2356 (Holman Hill Rd) SB  $\pm 50'$  from Bridge #135



SR 2356 (Holman Hill Rd) SB  $\pm 100'$  from Bridge #135



SR 2356 (Holman Hill Rd) SB  $\pm 150'$  from Bridge #135





**County:** Alamance

**Description:** Bridge #135 over Reedy Branch

**Route:** SR 2356

SR 2356 (Holman Hill Rd) SB ±200' from Bridge #135



SR 2356 (Holman Hill Rd) SB ±250' from Bridge #135



# **Bridge Approach Speed Crash Analysis Request**

Order # 41000018175

**500 feet on Both Sides of Bridge Number 135 on Secondary Route 2356 (Holman Hill Road) over Branch in Alamance County**

Document Prepared By:

Safety Planning Group  
Traffic Safety Systems Management Unit  
Transportation Mobility and Safety Division  
North Carolina Department of Transportation

**Note:** The crash statistics have been generated and are available through North Carolina's Crash Database. This database provides an inventory of **reported** crashes on record that have occurred at this location. Please note that many traffic crashes go unreported for a variety of reasons, and this report simply provides a listing of all crashes on record that occurred within 0 feet of the section described above.

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Traffic Engineering Accident Analysis System  
Strip Analysis Report**

**Study Criteria Summary**

**County:** ALAMANCE      **City:** All and Rural  
**Date:** 01/01/2002 to 12/31/2011      **Study:** 41000018175  
**Location:** 500 feet on Both Sides of Bridge Number 135 on Secondary Route 2356 (Holman Hill Road) over Branch

**Report Details**

| Acc No            | Crash ID  | Milepost              | Date                 | Accident Type | Total Damage | Injuries                    |   |   |   | Condition           |   |   | Road |    | Trfc Ctl |    |
|-------------------|-----------|-----------------------|----------------------|---------------|--------------|-----------------------------|---|---|---|---------------------|---|---|------|----|----------|----|
|                   |           |                       |                      |               |              | F                           | A | B | C | R                   | L | W | Ch   | Ci | Dv       | Op |
| 1                 | 101199626 | 1.470                 | 05/30/2004<br>09:40  | FIXED OBJECT  | \$ 5500      | 0                           | 0 | 1 | 0 | 1                   | 1 | 2 | 7    | 0  | 13       | 1  |
| <b>Unit 1 : 1</b> |           | <b>Alchl/Drugs:</b> 1 | <b>Speed:</b> 65 MPH | <b>Dir:</b> N |              | <b>Veh Mnvr/Ped Actn:</b> 4 |   |   |   | <b>Obj Strk:</b> 50 |   |   |      |    |          |    |
| 2                 | 101792364 | 1.470                 | 07/25/2006<br>16:15  | FIXED OBJECT  | \$ 2300      | 0                           | 0 | 0 | 0 | 2                   | 1 | 2 | 3    | 0  | 13       | 1  |
| <b>Unit 1 : 2</b> |           | <b>Alchl/Drugs:</b> 0 | <b>Speed:</b> 55 MPH | <b>Dir:</b> N |              | <b>Veh Mnvr/Ped Actn:</b> 4 |   |   |   | <b>Obj Strk:</b> 49 |   |   |      |    |          |    |
| 3                 | 100815903 | 1.550                 | 01/25/2003<br>04:10  | FIXED OBJECT  | \$ 2500      | 0                           | 0 | 0 | 0 | 4                   | 5 | 1 | 3    | 1  | 13       | 1  |
| <b>Unit 1 : 1</b> |           | <b>Alchl/Drugs:</b> 0 | <b>Speed:</b> 40 MPH | <b>Dir:</b> S |              | <b>Veh Mnvr/Ped Actn:</b> 4 |   |   |   | <b>Obj Strk:</b> 34 |   |   |      |    |          |    |

**Legend for  
Report Details:**

Acc No - Accident Number  
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C  
Condition: R - Road Surface, L - Ambient Light, W - Weather  
Rd Ch - Road Character  
Rd Ci - Roadway Contributing Circumstances  
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating  
Alchl/Drugs - Alcohol Drugs Suspected  
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action  
Obj Strk - Object Struck



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**Summary Statistics**

**High Level Crash Summary**

| <b>Crash Type</b>                 | <b>Number of<br/>Crashes</b> | <b>Percent<br/>of Total</b> |
|-----------------------------------|------------------------------|-----------------------------|
| Total Crashes                     | 3                            | 100.00                      |
| Fatal Crashes                     | 0                            | 0.00                        |
| Non-Fatal Injury Crashes          | 1                            | 33.33                       |
| Total Injury Crashes              | 1                            | 33.33                       |
| Property Damage Only Crashes      | 2                            | 66.67                       |
| Night Crashes                     | 1                            | 33.33                       |
| Wet Crashes                       | 1                            | 33.33                       |
| Alcohol/Drugs Involvement Crashes | 1                            | 33.33                       |

**Crash Severity Summary**

| <b>Crash Type</b>            | <b>Number of<br/>Crashes</b> | <b>Percent<br/>of Total</b> |
|------------------------------|------------------------------|-----------------------------|
| Total Crashes                | 3                            | 100.00                      |
| Fatal Crashes                | 0                            | 0.00                        |
| Class A Crashes              | 0                            | 0.00                        |
| Class B Crashes              | 1                            | 33.33                       |
| Class C Crashes              | 0                            | 0.00                        |
| Property Damage Only Crashes | 2                            | 66.67                       |

**Vehicle Exposure Statistics**

Annual ADT = 450

Total Length = 0.194 (Miles)                      0.312 (Kilometers)

Total Vehicle Exposure = 0.32 (MVMT)                      0.51 (MVKMT)

| <b>Crash Rate</b>    | <b>Crashes Per 100 Million<br/>Vehicle Miles</b> | <b>Crashes Per 100 Million<br/>Vehicle Kilometers</b> |
|----------------------|--------------------------------------------------|-------------------------------------------------------|
| Total Crash Rate     | 940.97                                           | 584.69                                                |
| Fatal Crash Rate     | 0.00                                             | 0.00                                                  |
| Non Fatal Crash Rate | 313.66                                           | 194.90                                                |
| Night Crash Rate     | 313.66                                           | 194.90                                                |
| Wet Crash Rate       | 313.66                                           | 194.90                                                |
| EPDO Rate            | 3262.03                                          | 2026.93                                               |

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**Miscellaneous Statistics**

|                                      |          |
|--------------------------------------|----------|
| Severity Index =                     | 3.47     |
| EPDO Crash Index =                   | 10.40    |
| Estimated Property Damage Total = \$ | 10300.00 |

**Accident Type Summary**

| <b>Accident Type</b> | <b>Number of<br/>Crashes</b> | <b>Percent<br/>of Total</b> |
|----------------------|------------------------------|-----------------------------|
| FIXED OBJECT         | 3                            | 100.00                      |

**Injury Summary**

| <b>Injury Type</b>       | <b>Number of<br/>Injuries</b> | <b>Percent<br/>of Total</b> |
|--------------------------|-------------------------------|-----------------------------|
| Fatal Injuries           | 0                             | 0.00                        |
| Class A Injuries         | 0                             | 0.00                        |
| Class B Injuries         | 1                             | 100.00                      |
| Class C Injuries         | 0                             | 0.00                        |
| Total Non-Fatal Injuries | 1                             | 100.00                      |
| Total Injuries           | 1                             | 100.00                      |



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**Monthly Summary**

| <b>Month</b> | <b>Number of<br/>Crashes</b> | <b>Percent<br/>of Total</b> |
|--------------|------------------------------|-----------------------------|
| Jan          | 1                            | 33.33                       |
| Feb          | 0                            | 0.00                        |
| Mar          | 0                            | 0.00                        |
| Apr          | 0                            | 0.00                        |
| May          | 1                            | 33.33                       |
| Jun          | 0                            | 0.00                        |
| Jul          | 1                            | 33.33                       |
| Aug          | 0                            | 0.00                        |
| Sep          | 0                            | 0.00                        |
| Oct          | 0                            | 0.00                        |
| Nov          | 0                            | 0.00                        |
| Dec          | 0                            | 0.00                        |

**Daily Summary**

| <b>Day</b> | <b>Number of<br/>Crashes</b> | <b>Percent<br/>of Total</b> |
|------------|------------------------------|-----------------------------|
| Mon        | 0                            | 0.00                        |
| Tue        | 1                            | 33.33                       |
| Wed        | 0                            | 0.00                        |
| Thu        | 0                            | 0.00                        |
| Fri        | 0                            | 0.00                        |
| Sat        | 1                            | 33.33                       |
| Sun        | 1                            | 33.33                       |

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**Hourly Summary**

| <b>Hour</b> | <b>Number of<br/>Crashes</b> | <b>Percent<br/>of Total</b> |
|-------------|------------------------------|-----------------------------|
| 0000-0059   | 0                            | 0.00                        |
| 0100-0159   | 0                            | 0.00                        |
| 0200-0259   | 0                            | 0.00                        |
| 0300-0359   | 0                            | 0.00                        |
| 0400-0459   | 1                            | 33.33                       |
| 0500-0559   | 0                            | 0.00                        |
| 0600-0659   | 0                            | 0.00                        |
| 0700-0759   | 0                            | 0.00                        |
| 0800-0859   | 0                            | 0.00                        |
| 0900-0959   | 1                            | 33.33                       |
| 1000-1059   | 0                            | 0.00                        |
| 1100-1159   | 0                            | 0.00                        |
| 1200-1259   | 0                            | 0.00                        |
| 1300-1359   | 0                            | 0.00                        |
| 1400-1459   | 0                            | 0.00                        |
| 1500-1559   | 0                            | 0.00                        |
| 1600-1659   | 1                            | 33.33                       |
| 1700-1759   | 0                            | 0.00                        |
| 1800-1859   | 0                            | 0.00                        |
| 1900-1959   | 0                            | 0.00                        |
| 2000-2059   | 0                            | 0.00                        |
| 2100-2159   | 0                            | 0.00                        |
| 2200-2259   | 0                            | 0.00                        |
| 2300-2359   | 0                            | 0.00                        |

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**Light and Road Conditions Summary**

| Condition | Dry | Wet | Other | Total |
|-----------|-----|-----|-------|-------|
| Day       | 1   | 1   | 0     | 2     |
| Dark      | 0   | 0   | 1     | 1     |
| Other     | 0   | 0   | 0     | 0     |
| Total     | 1   | 1   | 1     | 3     |

**Object Struck Summary**

| Object Type      | Times Struck | Percent of Total |
|------------------|--------------|------------------|
| BRIDGE RAIL END  | 1            | 33.33            |
| BRIDGE RAIL FACE | 1            | 33.33            |
| UTILITY POLE     | 1            | 33.33            |

**Vehicle Type Summary**

| Vehicle Type  | Number Involved | Percent of Total |
|---------------|-----------------|------------------|
| PASSENGER CAR | 2               | 66.67            |
| PICKUP        | 1               | 33.33            |



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**Yearly Totals Summary**

**Accident Totals**

| <b>Year</b> | <b>Total<br/>Accidents</b> | <b>Fatal<br/>Accidents</b> | <b>Injury<br/>Accidents</b> | <b>Property Damage<br/>Only Accidents</b> |
|-------------|----------------------------|----------------------------|-----------------------------|-------------------------------------------|
| 2002        | 0                          | 0                          | 0                           | 0                                         |
| 2003        | 1                          | 0                          | 0                           | 1                                         |
| 2004        | 1                          | 0                          | 1                           | 0                                         |
| 2005        | 0                          | 0                          | 0                           | 0                                         |
| 2006        | 1                          | 0                          | 0                           | 1                                         |
| 2007        | 0                          | 0                          | 0                           | 0                                         |
| 2008        | 0                          | 0                          | 0                           | 0                                         |
| 2009        | 0                          | 0                          | 0                           | 0                                         |
| 2010        | 0                          | 0                          | 0                           | 0                                         |
| 2011        | 0                          | 0                          | 0                           | 0                                         |
| Total       | 3                          | 0                          | 1                           | 2                                         |

**Injury Totals**

| <b>Year</b> | <b>Fatal Injuries</b> | <b>Class A, B,<br/>or C Injuries</b> |
|-------------|-----------------------|--------------------------------------|
| 2002        | 0                     | 0                                    |
| 2003        | 0                     | 0                                    |
| 2004        | 0                     | 1                                    |
| 2005        | 0                     | 0                                    |
| 2006        | 0                     | 0                                    |
| 2007        | 0                     | 0                                    |
| 2008        | 0                     | 0                                    |
| 2009        | 0                     | 0                                    |
| 2010        | 0                     | 0                                    |
| 2011        | 0                     | 0                                    |
| Total       | 0                     | 1                                    |

**Miscellaneous Totals**

| <b>Year</b> | <b>Property Damage</b> | <b>EPDO Index</b> |
|-------------|------------------------|-------------------|
| 2002        | \$ 0                   | 0.00              |
| 2003        | \$ 2500                | 1.00              |
| 2004        | \$ 5500                | 8.40              |
| 2005        | \$ 0                   | 0.00              |
| 2006        | \$ 2300                | 1.00              |

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| <b>Year</b>  | <b>Property Damage</b> | <b>EPDO Index</b> |
|--------------|------------------------|-------------------|
| 2007         | \$ 0                   | 0.00              |
| 2008         | \$ 0                   | 0.00              |
| 2009         | \$ 0                   | 0.00              |
| 2010         | \$ 0                   | 0.00              |
| 2011         | \$ 0                   | 0.00              |
| <b>Total</b> | <b>\$ 10300</b>        | <b>10.40</b>      |

**Type of Accident Totals**

| <b>Year</b>  | <b>Left Turn</b> | <b>Right Turn</b> | <b>Rear End</b> | <b>Run Off Road &amp;<br/>Fixed Object</b> | <b>Angle</b> | <b>Side Swipe</b> | <b>Other</b> |
|--------------|------------------|-------------------|-----------------|--------------------------------------------|--------------|-------------------|--------------|
| 2002         | 0                | 0                 | 0               | 0                                          | 0            | 0                 | 0            |
| 2003         | 0                | 0                 | 0               | 1                                          | 0            | 0                 | 0            |
| 2004         | 0                | 0                 | 0               | 1                                          | 0            | 0                 | 0            |
| 2005         | 0                | 0                 | 0               | 0                                          | 0            | 0                 | 0            |
| 2006         | 0                | 0                 | 0               | 1                                          | 0            | 0                 | 0            |
| 2007         | 0                | 0                 | 0               | 0                                          | 0            | 0                 | 0            |
| 2008         | 0                | 0                 | 0               | 0                                          | 0            | 0                 | 0            |
| 2009         | 0                | 0                 | 0               | 0                                          | 0            | 0                 | 0            |
| 2010         | 0                | 0                 | 0               | 0                                          | 0            | 0                 | 0            |
| 2011         | 0                | 0                 | 0               | 0                                          | 0            | 0                 | 0            |
| <b>Total</b> | <b>0</b>         | <b>0</b>          | <b>0</b>        | <b>3</b>                                   | <b>0</b>     | <b>0</b>          | <b>0</b>     |

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Strip Analysis Report

Strip Diagram

| Features         | Milepost | Crash IDs             |
|------------------|----------|-----------------------|
| Structure:000135 | 1.370    |                       |
|                  | 1.380    |                       |
|                  | 1.390    |                       |
|                  | 1.400    |                       |
|                  | 1.410    |                       |
|                  | 1.420    |                       |
|                  | 1.430    |                       |
|                  | 1.440    |                       |
|                  | 1.450    |                       |
|                  | 1.460    |                       |
|                  | 1.470    | 101199626   101792364 |
|                  | 1.480    |                       |
|                  | 1.490    |                       |
|                  | 1.500    |                       |
|                  | 1.510    |                       |
|                  | 1.520    |                       |
|                  | 1.530    |                       |
|                  | 1.540    |                       |
|                  | 1.550    | 100815903             |
|                  | 1.560    |                       |
|                  | 1.570    |                       |

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Strip Analysis Report**

**Study Criteria**

| Study Name  | Log No.     | PH No. | TIP No. | K/A Cf. | B/C Cf. | ADT | ADT Route |
|-------------|-------------|--------|---------|---------|---------|-----|-----------|
| 41000018175 | 41000018175 |        |         | 76.8    | 8.4     | 450 | 40002356  |

| Request Date | Courier Service | Phone No.     | Ext. | Fax No. |
|--------------|-----------------|---------------|------|---------|
| 02/28/2012   |                 | (336)896-7037 |      |         |

| County   |      |      | Municipality  |      |            |            |            |       |
|----------|------|------|---------------|------|------------|------------|------------|-------|
| Name     | Code | Div. | Name          | Code | Y-Line Ft. | Begin Date | End Date   | Years |
| ALAMANCE | 0    | 7    | All and Rural |      | 0          | 01/01/2002 | 12/31/2011 | 10.00 |

| Location Text                                                                                      | Requestor                                                      |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| 500 feet on Both Sides of Bridge Number 135 on Secondary Route 2356 (Holman Hill Road) over Branch | Vickie L. Embry, PE<br>Triad Safety Region<br>Winston Salem NC |

| Included Accidents | Old MP | New MP | Type |
|--------------------|--------|--------|------|
| 101792364          |        | 1.47   | I    |

| Fiche Roads |          |
|-------------|----------|
| Name        | Code     |
| SR 2356     | 40002356 |
| HOLMAN HILL | 50014280 |

| Strip Road |          |          |        |       |            |
|------------|----------|----------|--------|-------|------------|
| Name       | Code     | Begin MP | End MP | Miles | Kilometers |
| SR 2356    | 40002356 | 1.373    | 1.567  | 0.194 | 0.312      |



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Traffic Engineering Accident Analysis System  
Fiche, Intersection, and Strip Reports Code Index**

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**T - Type of Accident Codes**

0 = UNKNOWN  
1 = RAN OFF ROAD - RIGHT  
2 = RAN OFF ROAD - LEFT  
3 = RAN OFF ROAD - STRAIGHT  
4 = JACKKNIFE  
5 = OVERTURN/ROLLOVER  
13 = OTHER NON-COLLISION  
14 = PEDESTRIAN  
15 = PEDALCYCLIST  
16 = RR TRAIN, ENGINE  
17 = ANIMAL  
18 = MOVABLE OBJECT  
19 = FIXED OBJECT  
20 = PARKED MOTOR VEHICLE  
21 = REAR END, SLOW OR STOP  
22 = REAR END, TURN  
23 = LEFT TURN, SAME ROADWAY  
24 = LEFT TURN, DIFFERENT ROADWAYS  
25 = RIGHT TURN, SAME ROADWAY  
26 = RIGHT TURN, DIFFERENT ROADWAYS  
27 = HEAD ON  
28 = SIDESWIPE, SAME DIRECTION  
29 = SIDESWIPE, OPPOSITE DIRECTION  
30 = ANGLE  
31 = BACKING UP  
32 = OTHER COLLISION WITH VEHICLE

**F - Road Feature Codes**

0 = NO SPECIAL FEATURE  
1 = BRIDGE  
2 = BRIDGE APPROACH  
3 = UNDERPASS  
4 = DRIVEWAY, PUBLIC  
5 = DRIVEWAY, PRIVATE  
6 = ALLEY INTERSECTION  
7 = FOUR-WAY INTERSECTION  
8 = T-INTERSECTION  
9 = Y-INTERSECTION  
10 = TRAFFIC CIRCLE/ROUNDBOUT  
11 = FIVE-POINT, OR MORE  
12 = RELATED TO INTERSECTION  
13 = NON-INTERSECTION MEDIAN CROSSING  
14 = END OR BEGINNING - DIVIDED HIGHWAY  
15 = OFF RAMP ENTRY  
16 = OFF RAMP PROPER  
17 = OFF RAMP TERMINAL ON CROSSROAD  
18 = MERGE LANE BETWEEN ON AND OFF RAMP  
19 = ON RAMP ENTRY  
20 = ON RAMP PROPER  
21 = ON RAMP TERMINAL ON CROSSROAD  
22 = RAILROAD CROSSING  
23 = TUNNEL  
24 = SHARED-USE PATHS OR TRAILS  
25 = OTHER

**R - Road Condition Codes**

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

**L - Light Condition Codes**

1 = DAYLIGHT  
2 = DUSK  
3 = DAWN  
4 = DARK - LIGHTED ROADWAY  
5 = DARK - ROADWAY NOT LIGHTED  
6 = DARK - UNKNOWN LIGHTING  
7 = OTHER  
8 = UNKNOWN

**W - Weather Condition Codes**

1 = CLEAR  
2 = CLOUDY  
3 = RAIN  
4 = SNOW  
5 = FOG, SMOG, SMOKE  
6 = SLEET, HAIL, FREEZING RAIN/DRIZZLE  
7 = SEVERE CROSSWINDS  
8 = BLOWING SAND, DIRT, SNOW  
9 = OTHER

**S - Accident Severity Codes**

K = FATAL  
A = A-LEVEL INJURY  
B = B-LEVEL INJURY  
C = C-LEVEL INJURY  
O = PROPERTY DAMAGE ONLY

**Ch - Road Character**

1 = STRAIGHT, LEVEL  
2 = STRAIGHT, HILLCREST  
3 = STRAIGHT, GRADE  
4 = STRAIGHT, BOTTOM (SAG)  
5 = CURVE, LEVEL  
6 = CURVE, HILLCREST  
7 = CURVE, GRADE  
8 = CURVE, BOTTOM (SAG)  
9 = OTHER

**Op - Traffic Control Operating**

1 = YES  
2 = NO  
3 = UNKNOWN

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**Veh Mnvr - Vehicle Maneuver Codes**

1 = STOPPED IN TRAVEL LANE  
2 = PARKED OUT OF TRAVEL LANES  
3 = PARKED IN TRAVEL LANES  
4 = GOING STRAIGHT AHEAD  
5 = CHANGING LANES OR MERGING  
6 = PASSING  
7 = MAKING RIGHT TURN  
8 = MAKING LEFT TURN  
9 = MAKING U-TURN  
10 = BACKING  
11 = SLOWING OR STOPPING  
12 = STARTING IN ROADWAY  
13 = PARKING  
14 = LEAVING PARKED POSITION  
15 = AVOIDING OBJECT IN ROAD

**Dv - Traffic Control Device**

0 = NO CONTROL PRESENT  
1 = STOP SIGN  
2 = YIELD SIGN  
3 = STOP AND GO SIGNAL  
4 = FLASHING SIGNAL WITH STOP SIGN  
5 = FLASHING SIGNAL WITHOUT STOP SIGN  
6 = RR GATE AND FLASHER  
7 = RR FLASHER  
8 = RR CROSSBUCKS ONLY  
9 = HUMAN CONTROL  
10 = WARNING SIGN  
11 = SCHOOL ZONE SIGNS  
12 = FLASHING STOP AND GO SIGNAL  
13 = DOUBLE YELLOW LINE, NO PASSING ZONE  
14 = OTHER

**Alchl/Drugs - Driver Alcohol/Drugs Suspected Status Codes**

0 = NO  
1 = YES - ALCOHOL, IMPAIRMENT SUSPECTED  
2 = YES - ALCOHOL, NO IMPAIRMENT DETECTED  
3 = YES - OTHER DRUGS, IMPAIRMENT SUSPECTED  
4 = YES - OTHER DRUGS, NO IMPAIRMENT DETECTED  
5 = YES - ALCOHOL AND OTHER DRUGS, IMPAIRMENT SUSPECTED  
6 = YES - ALCOHOL AND OTHER DRUGS, NO IMPAIRMENT DETECTED  
7 = UNKNOWN

**Ped Actn - Pedestrian Action Codes**

1 = ENTERING OR CROSSING SPECIFIED LOCATION  
2 = WALKING, RIDING, RUNNING/JOGGING WITH TRAFFIC  
3 = WALKING, RIDING, RUNNING/JOGGING AGAINST TRAFFIC  
4 = WORKING  
5 = PUSHING VEHICLE  
6 = APPROACHING OR LEAVING VEHICLE  
7 = PLAYING  
8 = STANDING  
9 = OTHER

**Ci - Roadway Contributing Circumstances**

0 = NONE (NO UNUSUAL CONDITIONS)  
1 = ROAD SURFACE CONDITION  
2 = DEBRIS  
3 = RUT, HOLES, BUMPS  
4 = WORK ZONE (CONSTRUCTION, MAINTENANCE, UTILITY)  
5 = WORN TRAVEL-POLISHED SURFACE  
6 = OBSTRUCTION IN ROADWAY  
7 = TRAFFIC CONTROL DEVICE INOPERATIVE, NOT VISIBLE OR MISSING  
8 = SHOULDERS LOW, SOFT OR HIGH  
9 = NO SHOULDERS  
10 = NON-HIGHWAY WORK  
11 = OTHER  
12 = UNKNOWN

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**Obj Strk - Object Struck Codes**

14 = PEDESTRIAN  
15 = PEDALCYCLIST  
17 = ANIMAL  
18 = MOVABLE OBJECT  
20 = PARKED MOTOR VEHICLE  
33 = TREE  
34 = UTILITY POLE  
35 = LUMINAIRE POLE NON-BREAKAWAY  
36 = LUMINAIRE POLE BREAKAWAY  
37 = OFFICIAL HIGHWAY SIGN NON-BREAKAWAY  
38 = OFFICIAL HIGHWAY SIGN BREAKAWAY  
39 = OVERHEAD SIGN SUPPORT  
40 = COMMERCIAL SIGN  
41 = GUARDRAIL END ON SHOULDER  
42 = GUARDRAIL FACE ON SHOULDER  
43 = GUARDRAIL END IN MEDIAN  
44 = GUARDRAIL FACE IN MEDIAN  
45 = SHOULDER BARRIER END  
46 = SHOULDER BARRIER FACE  
47 = MEDIAN BARRIER END  
48 = MEDIAN BARRIER FACE  
49 = BRIDGE RAIL END  
50 = BRIDGE RAIL FACE  
51 = OVERHEAD PART UNDERPASS  
52 = PIER ON SHOULDER OF UNDERPASS  
53 = PIER IN MEDIAN OF UNDERPASS  
54 = ABUTMENT OF UNDERPASS  
55 = TRAFFIC ISLAND CURB OR MEDIAN  
56 = CATCH BASIN OR CULVERT ON SHOULDER  
57 = CATCH BASIN OR CULVERT ON MEDIAN  
58 = DITCH  
59 = EMBANKMENT  
60 = MAILBOX  
61 = FENCE OR FENCE POST  
62 = CONTRUCTION BARRIER  
63 = CRASH CUSHION  
64 = OTHER FIXED OBJECT

**Unit # - Vehicle Style Codes**

1 = PASSENGER CAR  
2 = PICKUP  
3 = LIGHT TRUCK (MINI-VAN, PANEL)  
4 = SPORT UTILITY  
5 = VAN  
6 = COMMERCIAL BUS  
7 = SCHOOL BUS  
8 = ACTIVITY BUS  
9 = OTHER BUS  
10 = SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)  
11 = SINGLE UNIT TRUCK (3 OR MORE AXLES)  
12 = TRUCK/TRAILER  
13 = TRUCK/TRACTOR  
14 = TRACTOR/SEMI-TRAILER  
15 = TRACTOR/DOULBES  
16 = UNKNOWN HEAVY TRUCK  
17 = TAXICAB  
18 = FARM EQUIPMENT  
19 = FARM TRACTOR  
20 = MOTORCYCLE  
21 = MOPED  
22 = MOTOR SCOOTER OR MOTOR BIKE  
23 = PEDALCYCLE  
24 = PEDESTRIAN  
25 = MOTOR HOME/RECREATIONAL VEHICLE  
26 = OTHER  
27 = ALL TERRAIN VEHICLE (ATV)  
28 = FIRETRUCK  
29 = EMS VEHICLE, AMBULANCE, RESCUE SQUAD  
30 = MILITARY  
31 = POLICE  
32 = UNKNOWN