

Hazard Elimination Project Evaluation

Project Information

Order ID: 41000032563

Project ID: W-5002

Location: Site-1: NC-87 Bypass at SR 1700 (Mercer Mill Road)
Site-2: NC-87 Bypass at SR 1145 (Martin Luther King Drive)

County: Bladen

City: Elizabethtown

Division: 6

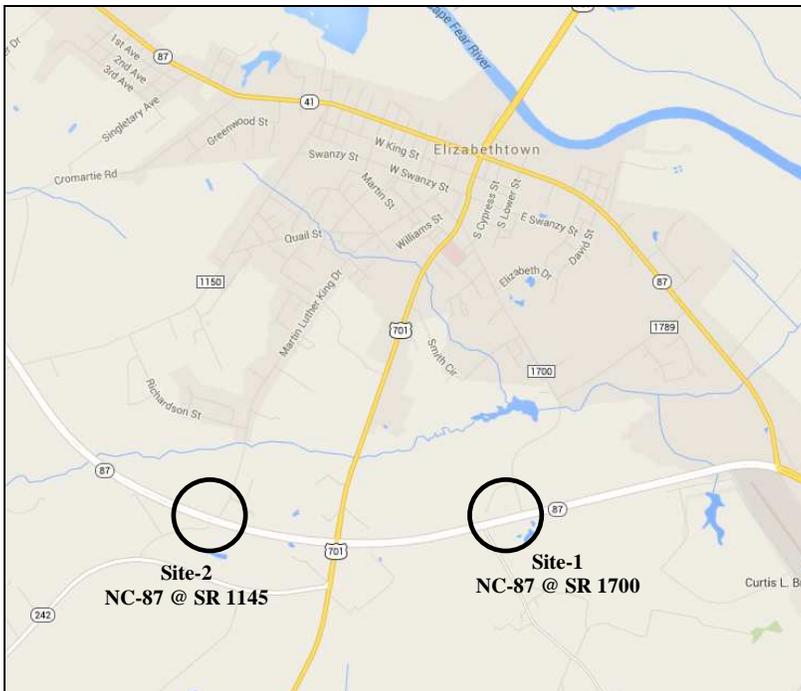
Signal ID: N/A

Countermeasure: Convert each 4-Leg intersection into two 3-Leg Intersections approximately 950-foot apart with median directional crossovers

Project Completion: November 4, 2009

Project Cost: \$1,415,000

Map and Aerial (from Google Maps) – Coordinates 34.605064, -78.604098



Naive Before and After Analysis

- Before Period: November 1, 2003 through September 30, 2008 (4 years, 11 months)
- Const. Period: October 1, 2008 through November 30, 2009
- After Period: December 1, 2009 through October 31, 2014 (4 years, 11 months)
- Analysis Criteria: Treatment data consisted of all crashes within 150 feet of each subject intersections with NC-87.
- Target Crashes: Frontal Impact Crashes were the selected target crashes, which includes the following: Angle; Head-On; Left Turn (Different and Same Roadway); and Right Turn (Different Roadway).

| <u>Site-1: NC-87 @ SR 1700</u> | Before | After | Percent Reduction (-) Percent Increase (+) |
|---------------------------------------|---------------|--------------|---|
| Total Crashes | 35 | 3 | - 91.4 % |
| Total Severity Index | 9.09 | 5.93 | - 34.8 % |
| | | | |
| Target Crashes – Frontal Impact | 35 | 1 | - 97.1 % |
| Target Crash Severity Index | 9.09 | 8.40 | - 7.6 % |
| | | | |
| Volume (2006, 2012) | 8,700 | 8,300 | - 4.6 % |
| | | | |
| Fatal injury Crashes | 1 | 0 | - 100.0 % |
| Class A injury Crashes | 0 | 0 | N/A |
| Class B injury Crashes | 12 | 2 | - 83.3 % |
| Class C Injury Crashes | 16 | 0 | - 100.0 % |
| Property Damage Only | 6 | 1 | - 83.3 % |

| <u>Site-2: NC-87 @ SR 1145</u> | Before | After | Percent Reduction (-) Percent Increase (+) |
|---------------------------------------|---------------|--------------|---|
| Total Crashes | 33 | 1 | - 97.0 % |
| Total Severity Index | 10.30 | 8.40 | - 18.4 % |
| | | | |
| Target Crashes – Frontal Impact | 31 | 0 | - 100.0 % |
| Target Crash Severity Index | 10.90 | 0.00 | - 100.0 % |
| | | | |
| Volume (2006, 2012) | 8,000 | 7,800 | - 2.5 % |
| | | | |
| Fatal injury Crashes | 0 | 0 | N/A |
| Class A injury Crashes | 2 | 0 | - 100.0 % |
| Class B injury Crashes | 12 | 0 | - 100.0 % |
| Class C Injury Crashes | 9 | 1 | - 88.9 % |
| Property Damage Only | 10 | 0 | - 100.0 % |

Overall Summary Results – Site 1 (SR 1700 – Mercer Mill Road)

| | | |
|------------------------|--------|-------------|
| Total Crashes: | - 91 % | (reduction) |
| Total Crash Severity: | - 35 % | (reduction) |
| Target Crashes: | - 97 % | (reduction) |
| Target Crash Severity: | - 8 % | (reduction) |
| Volume: | - 5 % | (reduction) |

Overall Summary Results – Site 2 (SR 1145 – Martin Luther King Drive)

| | | |
|------------------------|---------|-------------|
| Total Crashes: | - 97 % | (reduction) |
| Total Crash Severity: | - 18% | (reduction) |
| Target Crashes: | - 100 % | (reduction) |
| Target Crash Severity: | - 100 % | (reduction) |
| Volume: | - 3 % | (reduction) |

Items for Discussion/Concerns

None – both intersections were significantly impacted with a reduction in the frequency and severity of before period crash patterns.

Data Prepared For

The Traffic Safety Unit *of the*
Transportation Mobility and Safety Division *of the*
Division of Highways *of the*
North Carolina Department of Transportation

Data Prepared By

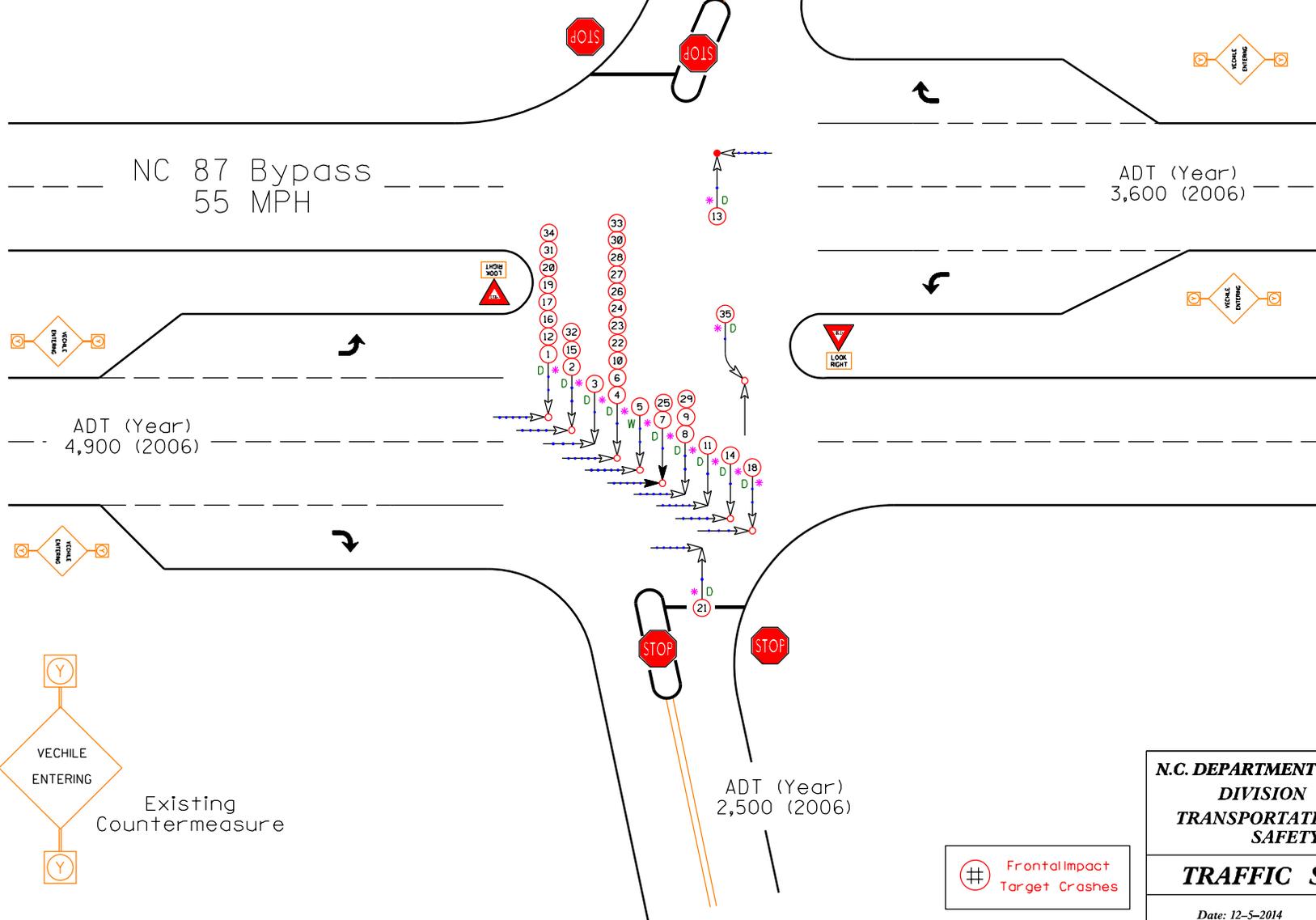
Principal Investigator: Jason B. Schronce, EI
Work Group/Consultant: NCDOT - Safety Evaluation Group
Date: December 12, 2014

W-5002 Site-1
 Order# 41000032563
 Bladen County
 NC-87 @ SR 1700
 BEFORE Period
 11/1/2003-9/30/2008

SR 1700
 Mercer Mill Rd
 55 MPH
 ADT (Year)
 6,300 (2006)

LEGEND

| | | | | | | | |
|--|-----------------|--|---------|--|---------------|--|-------------------|
| | MOVING VEHICLE | | ANGLE | | 9 MPH OR LESS | | P PEDESTRIAN |
| | PAIRED VEHICLE | | TURNING | | 10 MPH TO 19 | | T TRAIN |
| | PARKING VEHICLE | | TURNING | | 20 MPH TO 29 | | * DRIVER AT FAULT |
| | FIXED OBJECT | | TURNING | | 30 MPH TO 39 | | D DRY |
| | HEAD ON | | TURNING | | 40 MPH TO 49 | | W WET |
| | HEAD END | | TURNING | | 50 MPH TO 59 | | I ICT OR SHOWY |
| | HEAD END | | TURNING | | 60 MPH TO 69 | | S SPEED UNKNOWN |
| | HEAD END | | TURNING | | 70 AND UP | | O OTHER |
| | RAN OFF ROAD | | TURNING | | SPEED UNKNOWN | | |

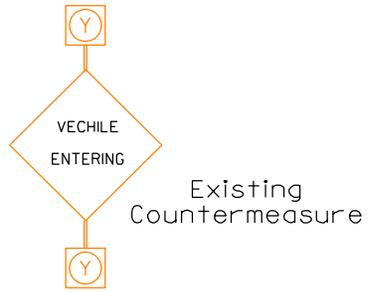


NC 87 Bypass
 55 MPH

ADT (Year)
 3,600 (2006)

ADT (Year)
 4,900 (2006)

ADT (Year)
 2,500 (2006)



Frontal Impact Target Crashes

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
TRANSPORTATION MOBILITY and SAFETY DIVISION

TRAFFIC SAFETY UNIT

Date: 12-5-2014 Prepared By: J. Schronce

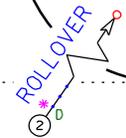
LEGEND

| | | | | | | | |
|--|-----------------|--|---------------|--|---------------|---|-----------------|
| | MOVING VEHICLE | | ANGLE | | 9 MPH OR LESS | P | PEDESTRIAN |
| | PARKED VEHICLE | | TURNING | | 10 MPH TO 19 | T | TRAIN |
| | PARKING VEHICLE | | BACKING | | 20 MPH TO 29 | D | DRIVER AT FAULT |
| | FREED OBJECT | | SIDESWIPE | | 30 MPH TO 39 | D | DRY |
| | HEAD ON | | INJURY | | 40 MPH TO 49 | W | WET |
| | REAR END | | FATALITY | | 50 MPH TO 59 | I | ICY OR SNOWY |
| | RAN OFF ROAD | | SPEED UNKNOWN | | 60 MPH TO 69 | O | OTHER |

W-5002 Site-1
 Order# 41000032563
 Bladen County
 NC-87 @ SR 1700
 AFTER Period
 12/1/2009-10/31/2014

SR 1700
 Mercer Mill Rd
 55 MPH

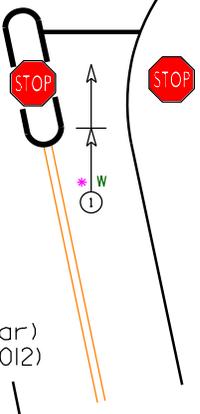
ADT (Year)
 5,000 (2012)



NC 87 Bypass
 55 MPH

ADT (Year)
 3,800 (2012)

ADT (Year)
 4,800 (2012)



ADT (Year)
 3,000 (2012)



Frontal Impact
 Target Crashes

N.C. DEPARTMENT of TRANSPORTATION
 DIVISION of HIGHWAYS
 TRANSPORTATION MOBILITY and
 SAFETY DIVISION

TRAFFIC SAFETY UNIT

Date: 12-5-2014

Prepared By: J. Schronce

W-5002 Site-2
 Order# 41000032563
 Bladen County
 NC-87 @ SR 1145
 BEFORE Period
 11/1/2003-9/30/2008

SR 1145
 MLK Blvd
 55 MPH

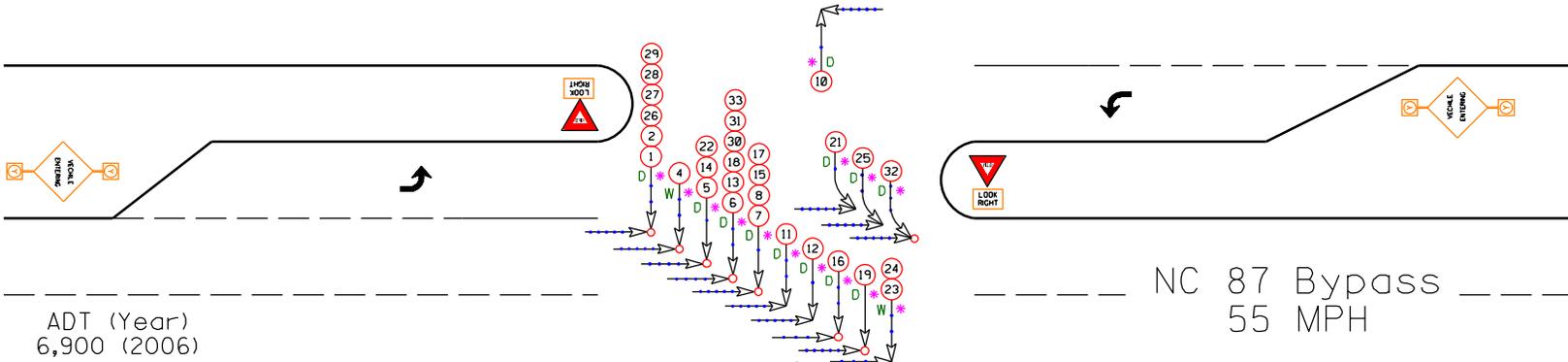
ADT (Year)
 1,550 (2006)

LEGEND

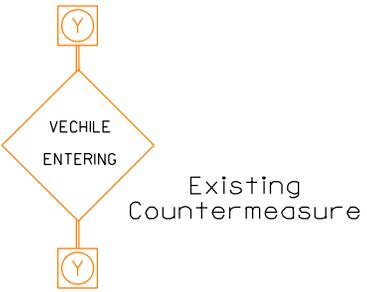
| | | | | | | | |
|--|-----------------|--|------------|--|---------------|--|-------------------|
| | MOVING VEHICLE | | ANGLE | | 9 MPH OR LESS | | PEDESTRIAN |
| | PAKED VEHICLE | | TURNING | | 10 MPH TO 19 | | TRAIN |
| | PARKING VEHICLE | | BACKING | | 20 MPH TO 29 | | * DRIVER AT FAULT |
| | FIXED OBJECT | | HEAD ON | | 30 MPH TO 39 | | D DRY |
| | HEAD ON | | SIDE SWIPE | | 40 MPH TO 49 | | W WET |
| | REAR END | | REAR END | | 50 MPH TO 59 | | I ICE OR SNOW |
| | RAN OFF ROAD | | REAR END | | 60 MPH TO 69 | | SPEED UNKNOWN |
| | | | REAR END | | 70 AND UP | | O OTHER |
| | | | FATALITY | | | | |



ADT (Year)
 6,500 (2006)



NC 87 Bypass
 55 MPH



Frontal Impact Target Crashes

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
TRANSPORTATION MOBILITY and SAFETY DIVISION

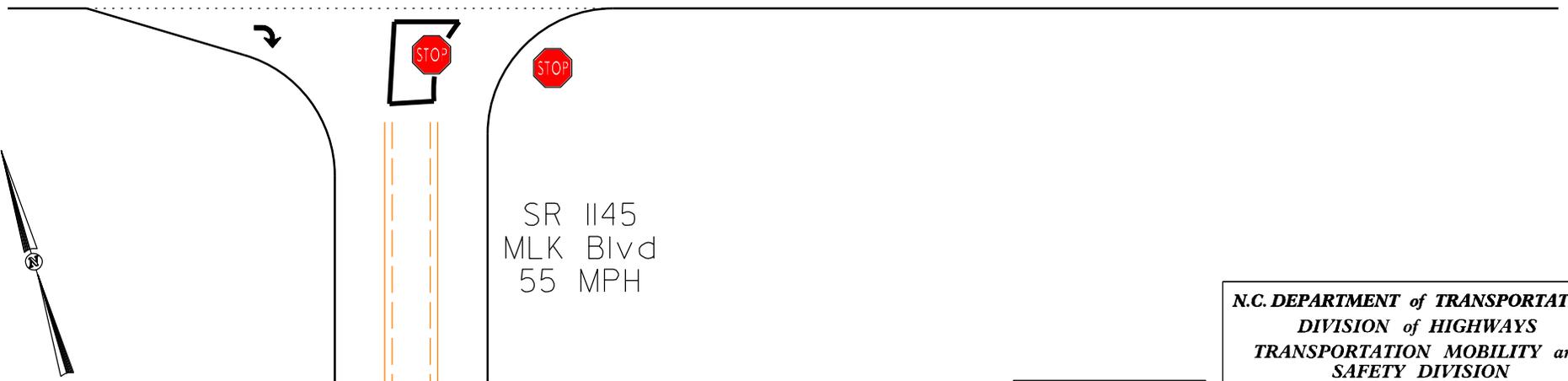
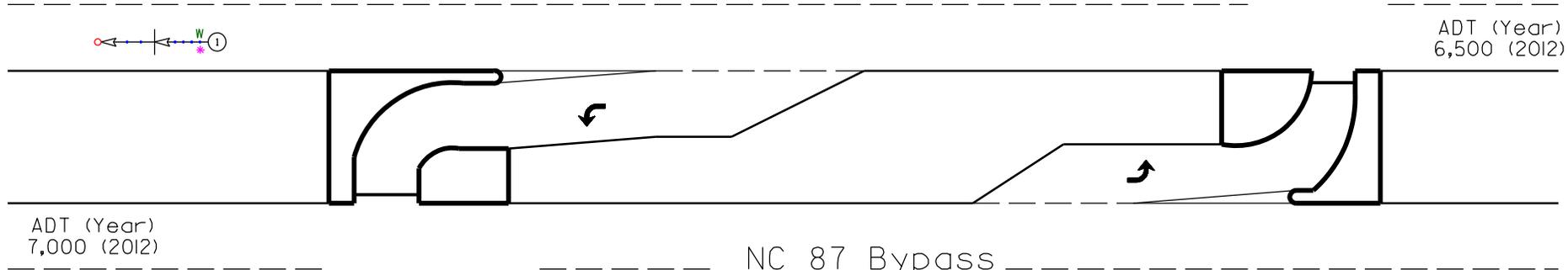
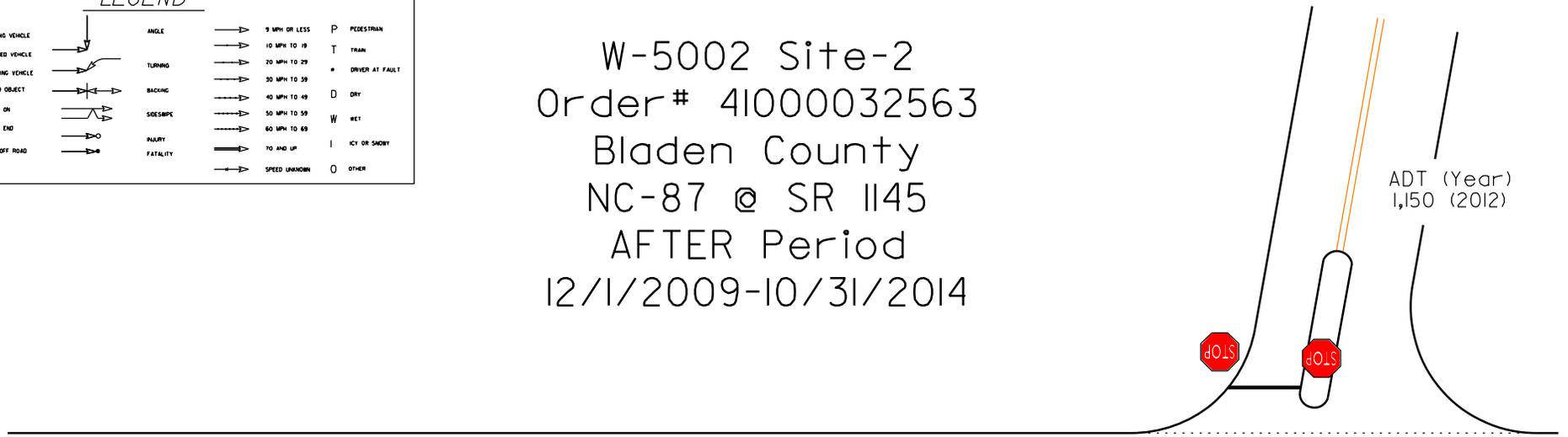
TRAFFIC SAFETY UNIT

Date: 12-5-2014 Prepared By: J. Schronce

LEGEND

| | | | | | | | |
|--|-----------------|--|---------------|--|---------------|--|-------------------|
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| | NEAR END | | FATALITY | | 50 MPH TO 59 | | I Icy OR SNOWY |
| | RAN OFF ROAD | | SPEED UNKNOWN | | 60 MPH TO 69 | | O OTHER |

W-5002 Site-2
 Order# 41000032563
 Bladen County
 NC-87 @ SR 1145
 AFTER Period
 12/1/2009-10/31/2014



N.C. DEPARTMENT of TRANSPORTATION
 DIVISION of HIGHWAYS
 TRANSPORTATION MOBILITY and
 SAFETY DIVISION

TRAFFIC SAFETY UNIT

Date: 12-5-2014

Prepared By: J. Schronce

