

Spot Safety Project Evaluation

Spot Safety Project # 04-07-216

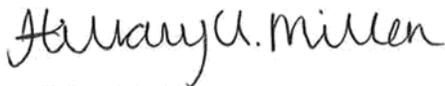
**Spot Safety Project Evaluation of Crosswalk and Pedestrian Signal Heads
The Intersection of
US 301/NC 96 (Brightleaf Boulevard) and North Street
Johnston County**

Documents Prepared By:

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Safety Evaluation Group
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10-10-2013

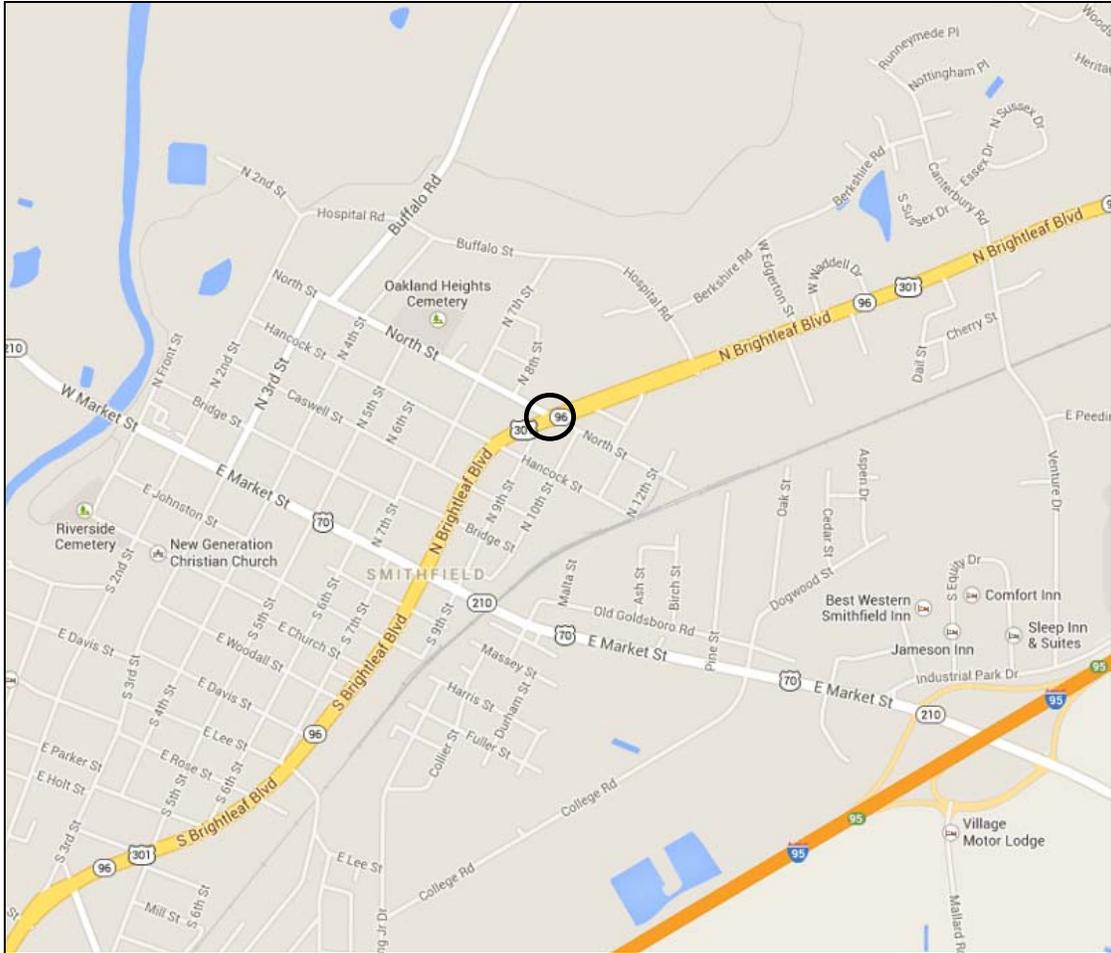
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Spot Safety Project Evaluation Documentation

Subject Location

Evaluation of Spot Safety Project Number 04-07-216 located at the intersection of US 301/NC 96 (Brightleaf Boulevard) at North Street in Johnston County.

The Signal Inventory Number is 04-0215 for this modified Six-Phase fully actuated traffic signal.



Location Map Provided from Google Maps



Aerial Provided from Google Maps

Project Information and Background from the Project File Folder

The spot safety project improvement countermeasure chosen for the subject location was the installation of countdown pedestrian signal heads and a crosswalk across the northeast leg of the intersection.

US 301/NC 96 (Brightleaf Blvd.) is a five-lane facility having a center left-turn lane. North Street is a two-lane facility that widens for a right-turn lane on the southeast bound approach. The northwest bound approach of North Street has a channelized right-turn lane which must yield to pedestrians and northeast bound traffic on US 301/NC 96 (Brightleaf Blvd.). Speed limits around the intersection range from 25 mph to 35 mph. The subject location is a four-leg crossroads intersection, which is controlled by an existing traffic signal. The intersection also has skewed approaches.

The original statement of problem was pedestrians crossing US 301/NC 96 (Brightleaf Blvd.) in order to go to and from Johnston Memorial Hospital, State Employees' Credit Union, and the Health Quest Medical Mall. The initial crash analysis was completed including data from February 1, 2002 to January 31, 2007 with two (2) reported pedestrian crashes during that time frame. The final completion date for the improvement at the subject intersection was on April 7, 2008 with a total cost of \$12,000.00.

Naïve Before and After Analysis

After reviewing the spot safety project file folder along with all the crashes at the subject location, the crash data omitted from this analysis to consider for an adequate construction period includes the months of March through April 2008. The before period consists of reported crashes from December 1, 2002 through February 29, 2008 (5 years, 3 months). The after period consists of reported crashes from May 1, 2008 through July 31, 2013 (5 years, 3 months). The ending date for the analysis was determined by the date of the most recent available crash data at the time of analysis.

The treatment data consists of all crashes within 150 feet of the subject intersection. *Please see the above location map and aerial photo for further details.*

The following data table depicts the Naïve Before and After Analysis for the treatment location. Please note pedestrian and bicycle crashes within 150 feet of the intersection were the target crashes for the applied countermeasure.

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	34	22	-35.3%
Total Severity Index	3.6	2.3	-35.0%
Target Crashes	1	0	-100.0%
Target Crash Severity Index	1.0	N/A	N/A
Volume (2005, 2010)	22,900	20,300	-11.4%

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	0	0	N/A
Class A injury Crashes	0	0	N/A
Class B injury Crashes	2	1	-50.0%
Class C Injury Crashes	10	3	-70.0%
Property Damage Only	22	18	-18.2%

The Naïve Before and After Analysis at the treatment location shows a 35.3 percent reduction in the total crashes and a 100 percent reduction in target crashes. The total severity index decreased from the before period to the after period by 35 percent. The before period ADT year was 2005 and the after period ADT year was 2010.

To further analyze the intersection crash patterns, the following chart shows additional types of crashes and the change in crash totals through the study:

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Pedestrian Crashes on US 301 within 500 ft of North Street	2	0	-100.0%
Rear End Type Crashes	16	12	-25.0%
Frontal Impact Crashes	15	5	-66.7%

Results and Discussion

Referencing the *Collision Diagrams*, the target crashes (pedestrian or bicycle) were eliminated from one crash in the before period to zero in the after period. In order to capture more mid-block pedestrian crossings, the number of pedestrian and bicycle crashes within 500 feet of the intersection were included in the *Additional Information* table above. This table shows that there were two pedestrian and bicycle crashes within 500 feet in the before period and zero in the after period. Also shown in the *Additional Information* table above, rear end type crashes experienced a 25 percent decrease and frontal impact crashes experienced a 66.7 percent decrease.

Please see the attached *Treatment Site Photos*. Photos are provided from Google Street View for all four approaches to the treatment intersection. As the Safety Evaluation Group facilitates additional spot safety review for these types of countermeasures, it is the goal to be able to provide objective and definite information regarding actual crash reduction factors for these types of treatments.

Treatment Site Photos from Google Street View



Google Maps (June 2013) – Looking Northeast on US 301



Google Maps (June 2013) – Looking Southwest on US 301



Google Maps (January 2008) – Looking Southeast on North St.



Google Maps (January 2008) – Looking Northwest on North St.

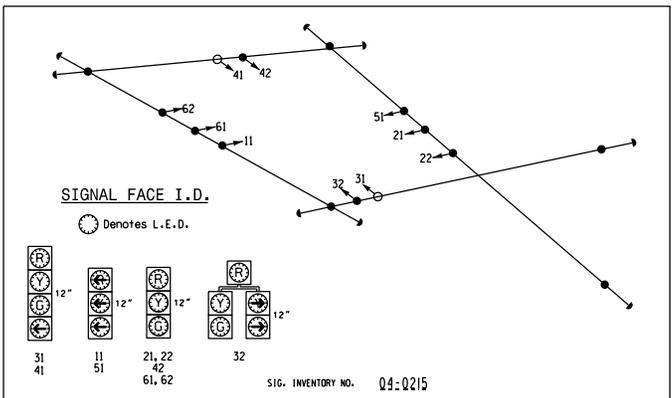
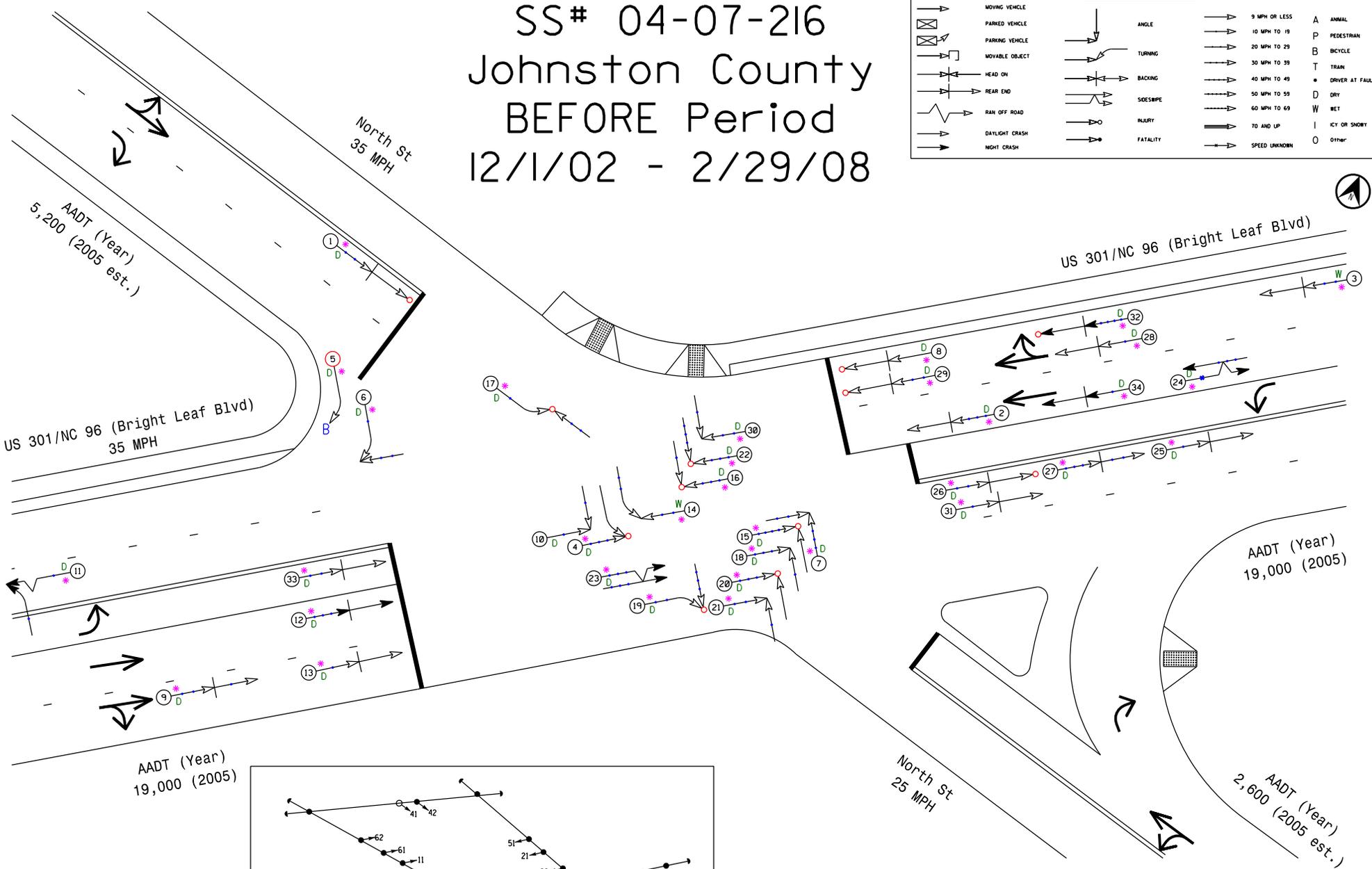
SS# 04-07-216

Johnston County

BEFORE Period

12/1/02 - 2/29/08

LEGEND							
	MOVING VEHICLE		ANGLE		9 MPH OR LESS		A ANIMAL
	PARKED VEHICLE		TURNING		10 MPH TO 19		P PEDESTRIAN
	PARKING VEHICLE		BACKING		20 MPH TO 29		B BICYCLE
	MOVABLE OBJECT		SIDESWIPE		30 MPH TO 39		T TRUCK
	HEAD ON		INJURY		40 MPH TO 49		• DRIVER AT FAULT
	REAR END		FATALITY		50 MPH TO 59		D DRY
	RAN OFF ROAD		W WET		60 MPH TO 69		I ICY OR SNOW
	DAYLIGHT CRASH		SPEED UNKNOWN		70 AND UP		O OTHER
	NIGHT CRASH						



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

TRAFFIC SAFETY UNIT

Date: 10-02-2013

Prepared By: Hillary Millen

