

# Spot Safety Project Evaluation

Order # 41000025890

Spot Safety Project # 08-04-217

**Spot Safety Project Evaluation of the  
“Vehicle Entering When Flashing” Sign and Flasher  
US 64 at SR 2469 (Browns Crossroads Rd)/SR 2628 (Parks Crossroads Church Rd)  
Randolph County**

Documents Prepared By:

Safety Evaluation Group  
Traffic Safety Systems Management Section  
Transportation Mobility and Safety Division  
North Carolina Department of Transportation

**Principal Investigator**



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Justin Green

11-6-2013

Date

Traffic Safety Project Engineer

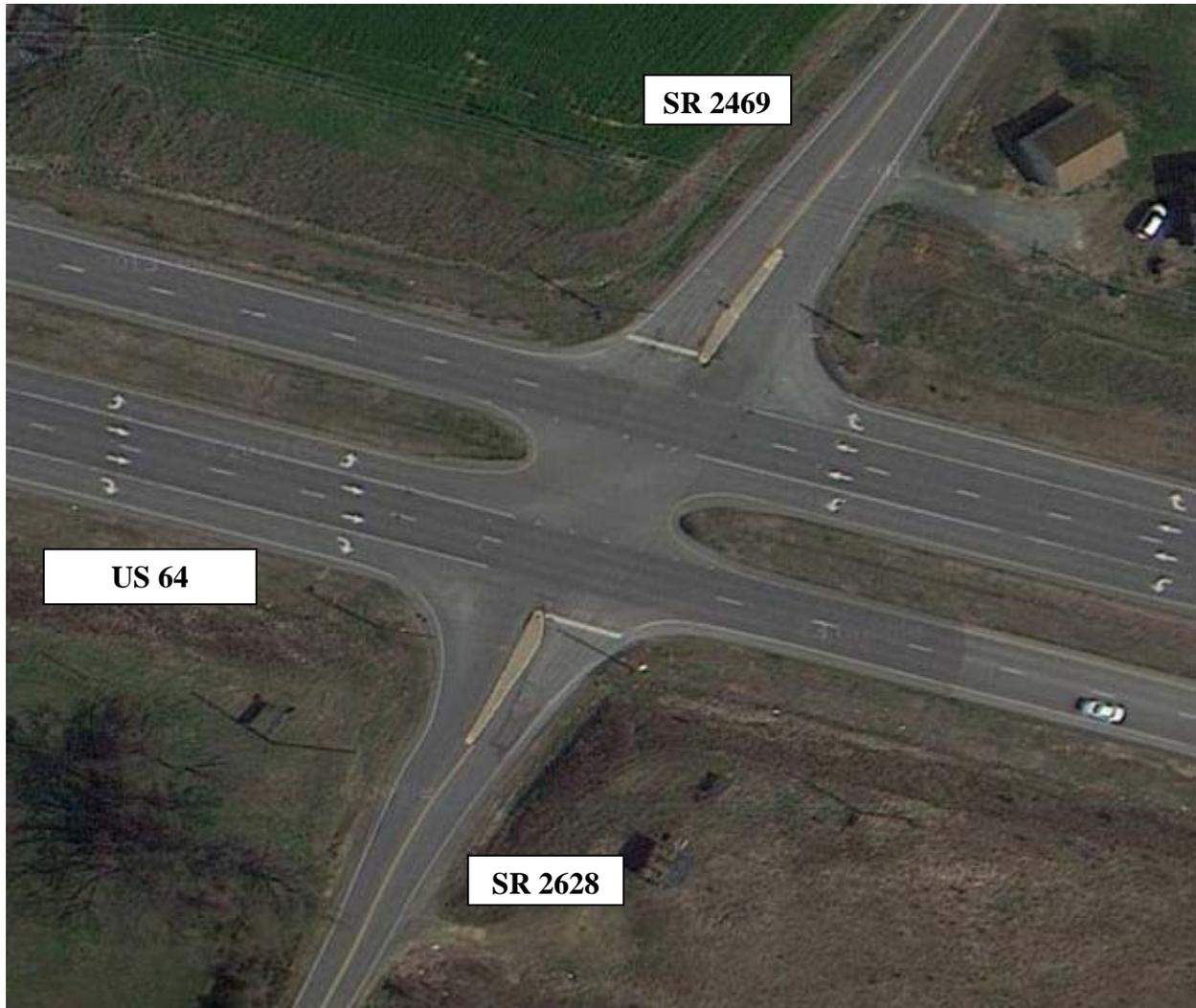
# *Spot Safety Project Evaluation Documentation*

## **Subject Location**

Evaluation of Spot Safety Project Number 08-04-217 located at the Intersection of US 64 at SR 2469 (Browns Crossroads Rd)/SR 2628 (Parks Crossroads Church Rd) in Randolph County.

The Sig ID is 08-0626 for this two circuit actuated flasher.





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 to install “Vehicle Entering When Flashing” signs and flashers on metal strain poles. From the signal id # 08-0626 diagram the VEWf signs on metal strain poles will be placed approximately 950 feet from studied intersection.

The subject location is a four-leg crossroads intersection, which is controlled by dual mounted stop signs on SR 2469/SR 2628 and intersects US 64. Both approaches of US 64 maintain right and left turn lanes at the intersection. The posted speed limit for all legs is 55 mph.

The original statement of problem stated there was an angle type pattern that existed due to vehicles failing to yield to motorists on US 64. The initial crash analysis was completed from September 1, 1999 to August 31, 2004 with fourteen (14) reported crashes including one fatality. The final completion date for the improvement at the subject intersection was on July 24, 2008 with a total cost of \$45,000.

## Naive 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 were the months of May through July 2008. The before period consisted of reported crashes from June 1, 2003 through April 30, 2008 (4 years and 11 months); and the after period consisted of reported crashes from August 1, 2008 through June 30, 2013 (4 years and 11 months). The ending date for this analysis was determined by the date of available crash data at the time of analysis.

The treatment data consisted of all crashes within 150 feet of the subject intersection for the US 64 and SR 2469/SR 2628 approaches. *Please see attached location map and aerial map for further details.*

The following data table depicts the Naive Before and After Analysis for the treatment location. Please note that Frontal Impact Crashes were the target crashes for the applied countermeasure. The Frontal Impact Crash Types considered are as follows: Left-turn, same roadway; left-turn, different roadways; Right-turn, same roadway; Right-turn, different roadways; Head-on; and Angle.

<u>Treatment Information</u>	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Total Crashes	16	14	- 12.5 %
Total Severity Index	9.44	16.06	+ 70.1 %
Target Crashes	14	9	- 35.7 %
Target Crash Severity Index	10.11	14.36	+ 42.0 %
Volume (2005, 2011)	10,000	9,000	- 10.0 %

<u>Injury Crash Summary</u>	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Fatal injury Crashes	1	1	N/A
Class A injury Crashes	0	1	+ 100.0 %
Class B injury Crashes	5	3	- 40.0 %
Class C Injury Crashes	3	5	+ 66.7 %
Property Damage Only	7	4	- 42.9 %

The naive before and after analysis at the treatment location resulted in a 13 percent reduction in Total Crashes and a 36 percent reduction in Target Crashes. There was a 70 percent increase in the Total Severity Index. The before period ADT year was 2005 and the after period ADT year was 2011.

## **Results and Discussion**

Referencing the *Collision Diagrams*, vehicles traveling northbound and southbound on SR 2469/SR 2628 are failing to yield the right of way to vehicles traveling eastbound and westbound on US 64. This pattern resulted in eleven (11) of the fourteen (14) total target crashes during the before period. During the after period there was a total of eight (8) target crashes displaying the pattern described in the before period.

Overall target crashes were reduced from fourteen (14) crashes at the intersection during the before period to nine (9) total crashes in the after period. This evaluation displays a 36 percent reduction in total target crashes at the intersection of US 64 at SR 2469/SR 2628 in Randolph County.

It should be noted the fatal crash (ID# 101184619) that occurred during the before period was described in the crash report as “failed to yield right of way”. The fatal crash (ID# 103738034) during the after period was described as a rear end crash which involved a tractor trailer truck and a sport utility vehicle. The driver of the sport utility vehicle was in an accident (ID# 103738051) just prior to this crash.

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 completes additional spot safety reviews for this type of countermeasure, we will be able to provide objective and definite information regarding actual crash reduction factors for this type of intersection.

**Treatment Site Photos from Google Street View**



**Google Maps (December 2007) – Looking North from SR 2628**



**Google Maps (December 2007) – Looking South from SR 2469**



**Google Maps (April 2013) – Looking East from US 64**



**Google Maps (April 2013) – Looking West from US 64**



Google Maps (April 2013) – Looking West from US 64 (Aprox. 900 feet from intersection)



Google Maps (April 2013) – Looking West from US 64 (Aprox. 900 feet from intersection)

SS# 08-04-217  
 Order# 41000025890  
 Randolph County  
 BEFORE Period  
 6/1/03 - 4/30/08

SR 2469 (Browns Crossroads Rd)  
 55 MPH  
 ADT (Year)  
 1,000 (2005)

LEGEND

	MOVING VEHICLE		ANGLE		9 MPH OR LESS		PEDESTRIAN
	PEDESTRIAN		TURNING		10 MPH TO 19		TRAIN
	PAKED VEHICLE		BACKING		20 MPH TO 29		DRIVER AT FAULT
	PAKED VEHICLE		SIDESWIPE		30 MPH TO 39		DRY
	FIXED OBJECT		REAR END		40 MPH TO 49		WET
	HEAD ON		HIT AND RUN		50 MPH TO 59		ICE OR SNOW
	REAR END		FATALITY		60 MPH TO 69		TO AND UP
	RAN OFF ROAD		SPEED UNKNOWN		70 MPH TO 79		ONLY



US 64  
 55 MPH  
 ADT (Year)  
 8,800 (2005)

Grass Median

Grass Median

US 64  
 55 MPH  
 ADT (Year)  
 9,100 (2005)

SR 2628 (Parks Crossroads Church Rd)  
 55 MPH  
 ADT (Year)  
 1,000 (2005)

Frontal  
 Impact  
 Crashes

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

TRAFFIC SAFETY UNIT

Date: October 2013

Prepared By: J. Green

SS# 08-04-217  
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 Randolph County  
 AFTER Period  
 8/1/08 - 6/30/13

SR 2469 (Browns Crossroads Rd)  
 55 MPH  
 ADT (Year)  
 1,000 (2011)

**LEGEND**



US 64  
 55 MPH  
 ADT (Year)  
 8,000 (2011)

Grass Median

Grass Median

ROLLOVER

US 64  
 55 MPH  
 ADT (Year)  
 8,200 (2011)

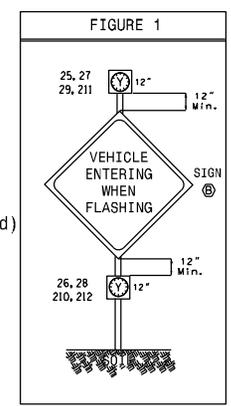
Frontal  
 Impact  
 Crashes

**N.C. DEPARTMENT of TRANSPORTATION**  
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**SAFETY DIVISION**

**TRAFFIC SAFETY UNIT**

Date: October 2013      Prepared By: J. Green

SR 2628 (Parks Crossroads Church Rd)  
 55 MPH  
 ADT (Year)  
 890 (2011)



**SIG ID 08-0626 (Actuated Flasher)**

Denotes L.E.D.

SIGNAL FACE	INTERVAL	
	1	2
11,13	ON	OFF
12,14	OFF	ON
*21,22,23,24	ON	OFF
*25,27,29,211	ON	OFF
*26,28,210,212	OFF	ON

\*SEE NOTE 6

6. Beacons 21,22,23,24,25,26,27,28, 29,210,211,212 to flash when actuated by loops 1A,1B,1C, and/or 1D.