

# Spot Safety Project Evaluation

## Project Information

Order ID: 41000030182

Project ID: 09-05-205

Location: SR 2747 (Clemmonsville Road) at US 52 Northbound On/Off Ramps

County: Forsyth

City: Winston-Salem

Division: 9

Signal ID: 09-1329

Countermeasure: Install a new traffic signal with wood poles, and coordinate with the existing signal located at SR 2747 and the US 52 Southbound Ramps.

Project Completion: May 28, 2010

Project Cost: \$31,037

## Map and Image (from Google Maps – Coordinates are 36.0477,-80.235732)



## Naive Before and After Analysis

- Before Period: February 1, 2002 through December 31, 2007 (5.92 years)
- Const. Period: January 1, 2008 through June 30, 2008
- After Period: July 1, 2008 through May 31, 2014 (5.92 years)
- Analysis Criteria: Treatment data consists of all crashes within 150 feet of the subject intersection.
- Target Crashes: Frontal Impact Crashes are the target crashes for the applied countermeasure. The Frontal Impact Crash types considered are as follows: Left turn, same roadway (LTSR); Left turn, different roadways (LTDR); Right turn, same roadway (RTSR); Right turn, different roadways (RTDR); Head on; and Angle.

<u>Treatment Information</u>	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Total Crashes	16	31	+ 93.8 %
Total Severity Index	3.31	4.34	+ 31.1 %
Target Crashes	11	18	+ 63.6 %
Target Crash Severity Index	4.36	5.11	+ 17.2 %
Volume (2005, 2011)	21,900	22,400	+ 2.3 %

<u>Injury Crash Summary</u>	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Fatal injury Crashes	0	0	N/A
Class A injury Crashes	0	0	N/A
Class B injury Crashes	2	2	0.0 %
Class C Injury Crashes	3	12	+ 300.0 %
Property Damage Only	11	17	+ 54.5 %

<u>Additional Information</u>	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Angle/LTDR Crashes (Target)	10	13	+ 30.0 %
LTSR Crashes (Target)	1	5	+ 400.0 %
Rear End Crashes	1	11	+ 1,000.0 %

## **Overall Summary Results**

Total Crashes:	+ 94 %	(increase)
Total Crash Severity:	+ 31 %	(increase)
Target Crashes:	+ 64 %	(increase)
Target Crash Severity:	+ 17 %	(increase)
Volume:	+ 2 %	(increase)

## **Additional Summary Results**

Angle/LTDR Crashes - Target:	+ 30 %	(increase)
LTSR Crashes - Target:	+ 400 %	(increase)
Rear End Crashes:	+ 1,000 %	(increase)

## **Items for Discussion/Concerns**

Total crashes and target crashes increased after the traffic signal was installed. There were increases in Angle/LTDR crashes, LTSR crashes, and Rear End crashes. The crash type with the largest frequency in the after period was Angle/LTDR crashes (note that LTDR crashes are drawn as Angle crashes on the attached collision diagrams). The majority of after period Angle/LTDR crashes (12 of 13) occurred between vehicles on eastbound Clemmons Rd and the Northbound off-ramp. The majority of Rear End crashes (10 of 11) involved vehicles on eastbound Clemmons Rd.

## **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: Carrie L. Simpson, PE  
Work Group/Consultant: NCDOT - Safety Evaluation Group  
Date: December 4, 2014

SS #09-05-205  
 Order # 41000030183  
 FORSYTH County  
 Before Period  
 2/1/2002 - 12/31/2007

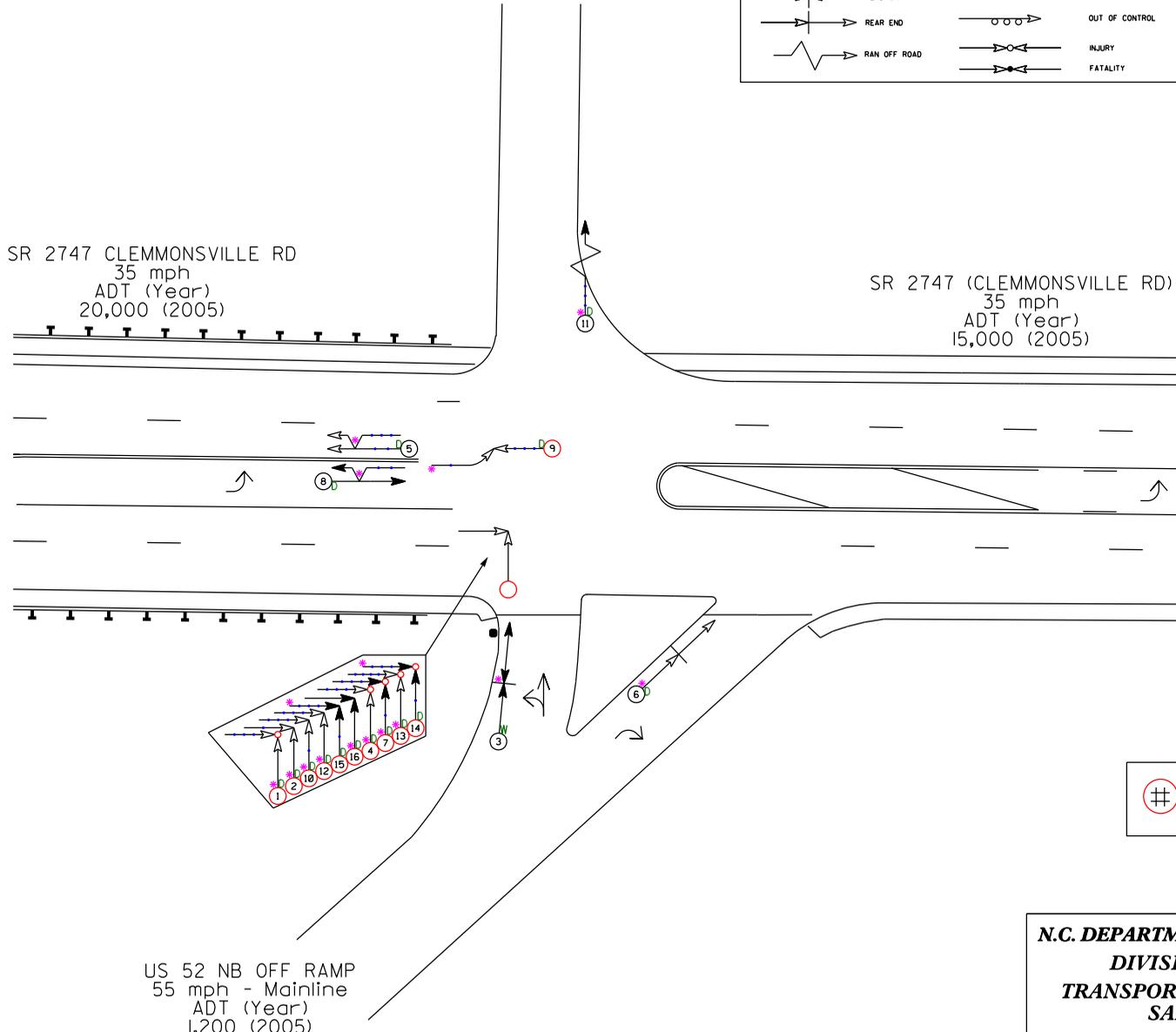
US 52 NB ON RAMP  
 55 mph - Mainline  
 ADT (Year)  
 7,600 (2005)

SR 2747 CLEMMONSVILLE RD  
 35 mph  
 ADT (Year)  
 20,000 (2005)

SR 2747 (CLEMMONSVILLE RD)  
 35 mph  
 ADT (Year)  
 15,000 (2005)

US 52 NB OFF RAMP  
 55 mph - Mainline  
 ADT (Year)  
 1,200 (2005)

LEGEND							
	MOVING VEHICLE		ANGLE		9 MPH OR LESS		P PEDESTRIAN
	PEDESTRIAN		TURNING		10 MPH TO 19		A ANIMAL
	PARKED VEHICLE		BACKING		20 MPH TO 29		* DRIVER AT FAULT
	PARKING VEHICLE		SIDESWIPE		30 MPH TO 39		D DRY
	FIXED OBJECT		OUT OF CONTROL		40 MPH TO 49		W WET
	HEAD ON		INJURY		50 MPH TO 59		I ICY OR SNOWY
	REAR END		FATALITY		60 MPH TO 69		70 AND UP
	RAN OFF ROAD		SPEED UNKNOWN		9 MPH OR LESS		O ONLY



Target Crash

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

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**TRAFFIC SAFETY UNIT**

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Date: 10-14-2014      Prepared By: Troy S Finn

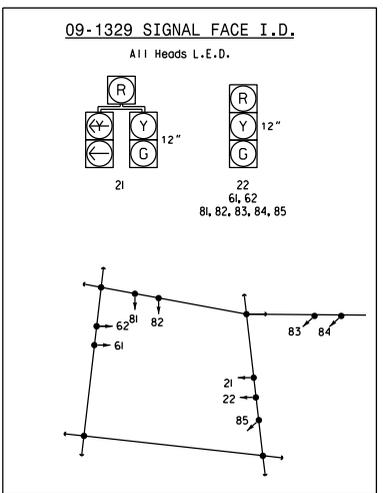
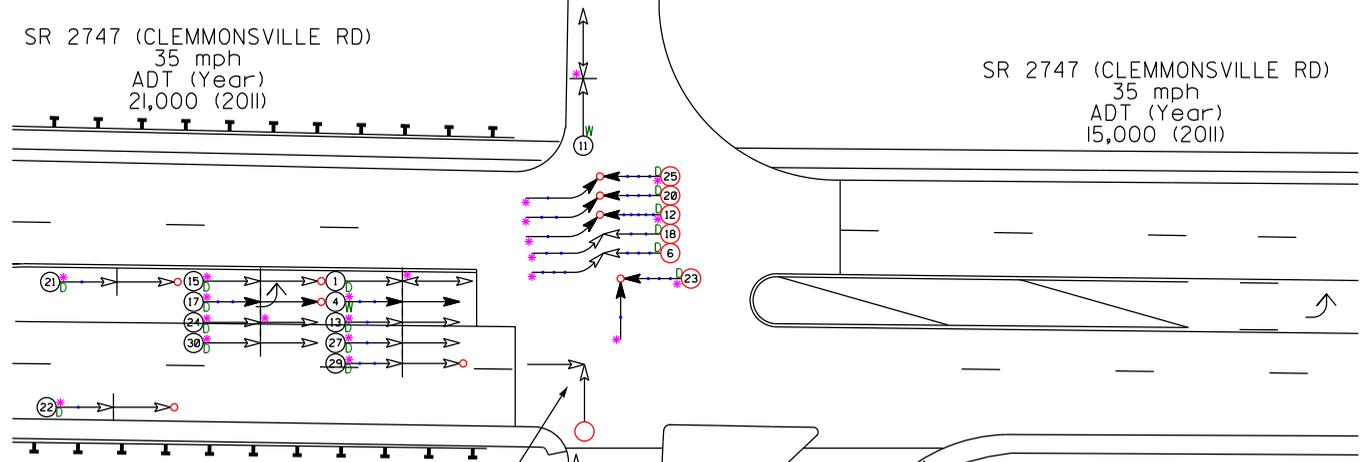
SS #09-05-205  
 Order # 41000030183  
 FORSYTH County  
 AFTER Period  
 7/1/2008 - 5/31/2014

US 52 NB ON RAMP  
 55 mph - Mainline  
 ADT (Year)  
 7,500 (2011)

SR 2747 (CLEMMONSVILLE RD)  
 35 mph  
 ADT (Year)  
 21,000 (2011)

SR 2747 (CLEMMONSVILLE RD)  
 35 mph  
 ADT (Year)  
 15,000 (2011)

LEGEND							
	MOVING VEHICLE		ANGLE		9 MPH OR LESS		PEDESTRIAN
	PEDESTRIAN		TURNING		10 MPH TO 19		ANIMAL
	PARKED VEHICLE		BACKING		20 MPH TO 29		DRIVER AT FAULT
	PARKING VEHICLE		SIDESWIPE		30 MPH TO 39		DRY
	FIXED OBJECT		OUT OF CONTROL		40 MPH TO 49		WET
	HEAD ON		INJURY		50 MPH TO 59		ICY OR SNOWY
	REAR END		FATALITY		60 MPH TO 69		OILY
	RAN OFF ROAD		SPEED UNKNOWN				



US 52 NB OFF RAMP  
 55 mph - Mainline  
 ADT (Year)  
 1,200 (2011)

Target Crash

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

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**TRAFFIC SAFETY UNIT**

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Date: 09-03-2014      Prepared By: Troy S Finn