

Spot Safety Project Evaluation

Order # 41000002842

Spot Safety Project # 02-02-229

Spot Safety Project Evaluation of the Installation of Left and Right Turn Lanes at the Intersection of US 17 and SR 1344 (Hughes Farm Rd) Jones County

Documents Prepared By:

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

Principal Investigator



Brad Robinson, PE

11/20/2009

Date

Traffic Safety Project Engineer

The subject location is a three-leg intersection which is controlled by a stop sign on SR 1344. The original statement of problem was that the lack of turn lanes on US 17 was adding to congestion on a heavily traveled route. The condition was expected to worsen as businesses developed along SR 1344.

The initial crash analysis was conducted from February 1, 1999 to January 31, 2002 with a total of three reported crashes, none of which were considered correctable by the chosen countermeasure. The final completion date for the improvements at the subject intersection was on November 1, 2004 with a total cost of \$150,000.00.

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 was from September 1, 2004 to November 30, 2004. The before period consisted of reported crashes from November 1, 1999 through August 31, 2004 (4 years and 10 months) and the after period consisted of reported crashes from December 1, 2004 through September 30, 2009 (4 years and 10 months). The ending date for this analysis was limited by the available crash data at the time the analysis was conducted.

The treatment data consisted of all reported crashes within 150 feet of the subject intersection. The following data table depicts the Naive Before and After Analysis for the treatment location. Please note both Rear-End Crashes on US 17 and Left Turn-Same Roadway Crashes on US 17 were the Target Crashes for the applied countermeasure.

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	3	0	-100.0
Total Severity Index	3.47	0	-100.0
Target Crashes	0	0	N/A
Target Crash Severity Index	0	0	N/A
Volume	8,900	10,000	12.4
<u>Crash Severity Summary</u>	0	0	N/A
Fatal Crashes	0	0	N/A
Class A Crashes	0	0	N/A
Class B Crashes	0	0	N/A
Class C Crashes	1	0	-100.0
PDO Crashes	2	0	-100.0

The naive before and after analysis at the treatment location resulted in a 100 percent decrease in Total Crashes, no change in Target Crashes, and a 12 percent increase in Average Daily Traffic (ADT). The before period ADT year was 2002 and the after period ADT year was 2007.

Results and Discussion

The naïve before and after analysis involving the comparison of treatment actual before data versus treatment actual after data resulted in a 100 percent decrease in Total Crashes. There were no Target Crashes in either the before or the after period. The summary results above demonstrate that Total Crashes appear to have decreased at the treatment location from the before to the after period, although Target Crashes appear unaffected.

The calculated benefit to cost ratio for this project is 0.37 considering total crashes. The benefits are calculated using the change in annual crash costs from the before to the after period. Operational and other benefits related to the project are not considered in this analysis. The costs of the project include the actual construction costs as well as the increase in annual maintenance and utility costs.

There were no Target Crashes in either the before or the after period. As stated in the *Project Background* section, the project was constructed more to reduce congestion than for a safety benefit. The naïve before and after analysis does not measure any operational benefits that might have resulted from this project.

Please see the attached *Treatment Site Photos*. Photos were obtained from Google Street-view. 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



Looking North on US 17

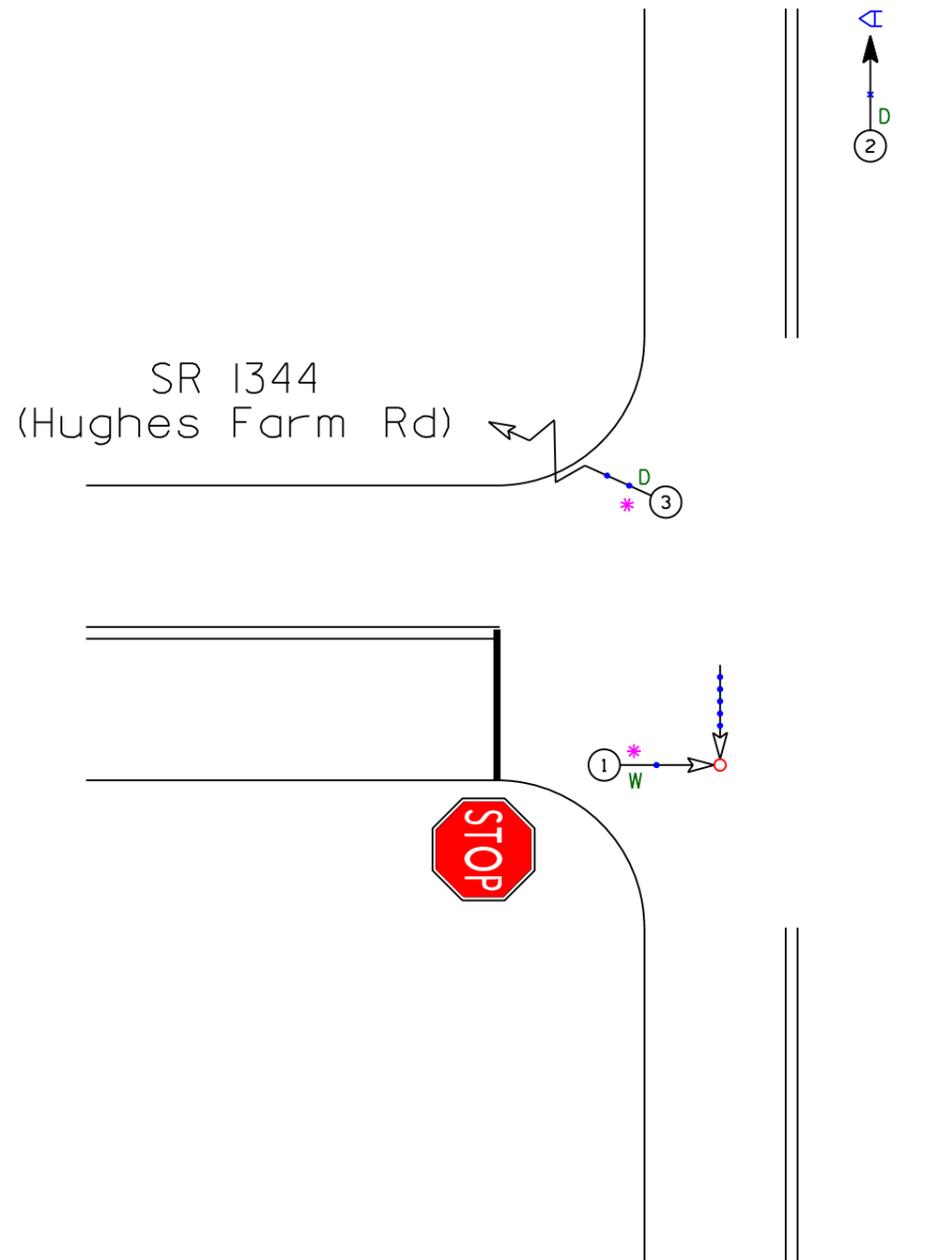


Looking South on US 17



Looking East on SR 1344 (Hughes Farm Rd)

Beaufort County
 US 17 at SR 1344 (Hughes Farm)
 BEFORE Period
 11/1/1999-8/31/2004



LEGEND

MOVING VEHICLE		ANGLE		9 MPH OR LESS	P PEDESTRIAN
PEDESTRIAN		TURNING		10 MPH TO 19	T TRAIN
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	O OILY
RAN OFF ROAD				70 AND UP	
				SPEED UNKNOWN	

US 17
 55 MPH

TRAFFIC SAFETY SYSTEMS MANAGEMENT UNIT



COLLISION DIAGRAM	
DIVISION: 2	AREA:
STUDY PERIOD: 11/1/99-8/31/04	
DISTANCE: Y-LINE = 200FT	
ANALYSIS PREPARED BY: BDR	
ANALYSIS CHECKED BY:	
DIAGRAM PREPARED BY: BDR	
DIAGRAM REVIEWED BY:	
SCALE: NOT TO SCALE	
DATE: November 2009	
ORDER NUMBER: 4000002842	

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

Beaufort County
 US 17 at SR 1344 (Hughes Farm)
 AFTER Period
 12/1/2004-9/30/2009

SR 1344
 (Hughes Farm Rd)

No Reported
 Crashes in Time Period

US 17
 55 MPH



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	*	DRIVER AT FAULT
FIXED OBJECT	SIDESWIPE	30 MPH TO 39	D	DRY
	OUT OF CONTROL	40 MPH TO 49	W	WET
RAN OFF ROAD	INJURY	50 MPH TO 59	I	ICY OR SNOWY
	FATALITY	60 MPH TO 69	O	ONLY
		70 AND UP		
		SPEED UNKNOWN		



TRAFFIC SAFETY SYSTEMS MANAGEMENT UNIT

	COLLISION DIAGRAM	
	DIVISION: 2	AREA:
	STUDY PERIOD: 12/1/04-9/30/09	
	DISTANCE: Y-LINE = 200F1	
	ANALYSIS PREPARED BY: BDR	
	ANALYSIS CHECKED BY:	
	DIAGRAM PREPARED BY: BDR	
	DIAGRAM REVIEWED BY:	
	SCALE: NOT TO SCALE	
	DATE: November 2009	
	ORDER NUMBER: 4000002842	

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