

# Spot Safety Project Evaluation

## Project Information

Order ID: 41000028327

Project ID: 06-07-202

Location: US 74-76 at NC 211 (Green Swamp Rd)

County: Columbus

City: Northwest of Bolton

Division: 6

Signal ID: 06-0721

Countermeasure: Installation of shoulder mounted flashers with “Be Prepared to Stop” signage.

Project Completion: February 20, 2008

Project Cost: \$29,500

## Map and Aerial (from Google Maps & Columbus Co. GIS – Coordinates are 34.329297,-78.419037)



## Naive Before and After Analysis

Before Period: October 1, 2003 through November 30, 2007 (4 years, 2 Months)

Const. Period: December 1, 2007 through February 29, 2008

After Period: March 1, 2008 through April 30, 2012 (4 years, 2 Months)

Analysis Criteria: Treatment data consisted of all crashes within 150 feet of the subject intersection.

Target Crashes: - Frontal Impact Crashes where mainline thru vehicle ran the red light.  
- Rear-End Crashes on mainline approaching signal.

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	26	24	- 7.7 %
Total Crash Severity Index	17.22	11.02	- 36.0 %
Volume (2006, 2010)	14,300	11,700	- 18.2 %

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	3	0	- 100.0 %
Class A injury Crashes	1	2	+ 100.0 %
Class B injury Crashes	6	1	- 83.3 %
Class C Injury Crashes	10	11	+ 10.0 %
Property Damage Only	6	10	+ 66.7 %

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Frontal Impact Target Crashes	6	8	+ 33.3 %
Frontal Impact Target Crash Severity Index	17.33	14.18	- 18.2 %
Rear-End Target Crashes	6	3	- 50.0 %
Rear-End Target Crash Severity Index	16.10	3.47	- 78.4 %

## **Overall Summary Results**

Total Crashes:	- 8 %	(reduction)
Total Crash Severity:	- 36 %	(reduction)
Frontal Impact Target Crashes:	+ 33 %	(increase)
Frontal Impact Target Crash Severity:	- 18 %	(reduction)
Rear-End Target Crashes:	- 50 %	(reduction)
Rear-End Target Crash Severity:	- 78 %	(reduction)
Volume:	- 18 %	(reduction)

## **Items for Discussion/Concerns**

- Project R-0061C completed construction in December 2012 at this location. This project converted the at grade intersection to an interchange. The end date of April 30, 2012 was established for this evaluation due to road closure for the offsite detour.
- Crash Data was analyzed through January 31, 2014 for potential crash problems at the ramps of this interchange. One reported crash was found at the US 74 exit ramp onto NC 211 Southbound. One other reported crash was found at the NC 211 exit ramp onto US 74 Westbound.

## **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: Justin Green, EI  
Work Group/Consultant: NCDOT - Safety Evaluation Group  
Date: April 8, 2014

NC 211 (Green Swamp Rd)  
55 MPH  
ADT (Year)  
2,100 (2005)

SS# 06-07-202  
Order# 41000028327  
Columbus County  
BEFORE Period  
10/1/03 - 11/30/07

### 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		OUT OF CONTROL		40 MPH TO 49		WET
	HEAD ON		REAR END		50 MPH TO 59		ICE OR SNOW
	REAR END		RAN OFF ROAD		60 MPH TO 69		SPEED UNKNOWN
	RAN OFF ROAD		HAIRY		TO AND UP		OTHER
			FATALITY				

### SIGNAL FACE I. D.

Denotes L.E.D.

R
Y 12"
G

21, 22, 23  
41, 42  
61, 62, 63  
81, 82, 83

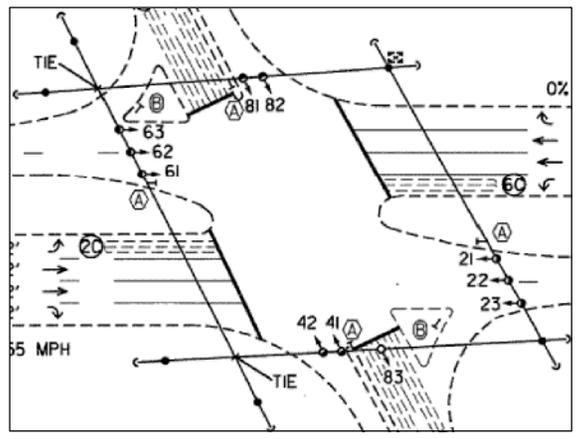
### TABLE OF OPERATION

SIGNAL FACE	PHASE		
	0 2 + 6	0 4 + 8	F L A S H
21, 22, 23	G	R	Y
41, 42	R	G	R
61, 62, 63	G	R	Y
81, 82, 83	R	G	R

US 74-76  
55 MPH  
ADT (Year)  
12,000 (2005)

US 74-76  
55 MPH  
ADT (Year)  
12,000 (2005)

NC 211 (Green Swamp Rd)  
55 MPH  
ADT (Year)  
2,400 (2005)



	Frontal Impact Target Crashes		Rear-End Target Crashes
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**N.C. DEPARTMENT of TRANSPORTATION**  
**DIVISION of HIGHWAYS**  
**TRANSPORTATION MOBILITY and SAFETY DIVISION**

**TRAFFIC SAFETY UNIT**

Date: March 2014

Prepared By: J. Green

NC 211 (Green Swamp Rd)  
55 MPH  
ADT (Year)  
1,800 (2010)

SS# 06-07-202  
Order# 41000028327  
Columbus County  
AFTER Period  
3/1/08 - 4/30/12

**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
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	RAN OFF ROAD		HAIRY		TO AND UP		OTHER
			FATALITY				

**SIGNAL FACE I.D.**

Denotes L.E.D.

	12"	
	12"	24, 25
		26, 27
		64, 65
		66, 67

21, 22, 23  
41, 42  
61, 62, 63  
81, 82, 83

**TABLE OF OPERATION**

SIGNAL FACE	PHASE		
	02+6	04+8	F LIGHT
21, 22, 23	G	R	Y
41, 42	R	G	R
61, 62, 63	G	R	Y
81, 82, 83	R	G	R
24, 25	DRK	F	DRK
64, 65	DRK	F	DRK
26, 27	DRK	F	DRK
66, 67	DRK	F	DRK

US 74-76  
55 MPH  
ADT (Year)  
9,400 (2010)

FROM STOPBAR

← ± 450'

← ± 450'

FROM STOPBAR

FROM STOPBAR

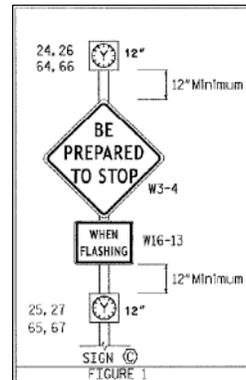
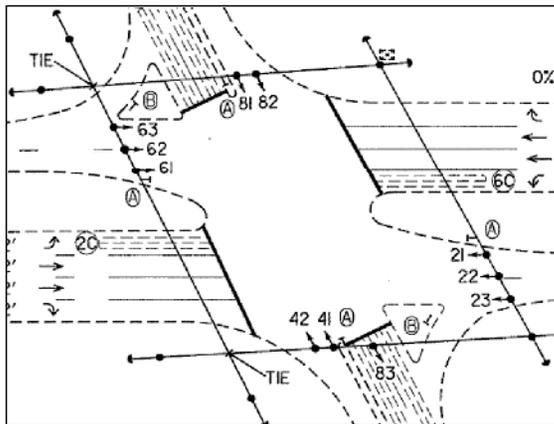
← ± 450'

FROM STOPBAR

← ± 450'

US 74-76  
55 MPH  
ADT (Year)  
9,800 (2010)

Note Crash #20: The right rear tire and rim detached from Vehicle 1 striking Vehicle 2 in the left turn lane of NB NC 211



NC 211 (Green Swamp Rd)  
55 MPH  
ADT (Year)  
2,400 (2010)

	Frontal Impact Target Crashes		Rear-End Target Crashes
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**DIVISION of HIGHWAYS**  
**TRANSPORTATION MOBILITY and SAFETY DIVISION**

**TRAFFIC SAFETY UNIT**

Date: March 2014      Prepared By: J. Green