

Spot Safety Project Evaluation

Project Information

Order ID: 41000033901

Project ID: 03-07-231

Location: I-40 westbound ramp terminal and NC 210

County: Pender

City: Burgaw

Division: 3

Signal ID: 03-0657

Countermeasure: Install traffic signal to help alleviate the congestion of traffic backing up down the I-40 westbound ramp.

Project Completion: Between June 1, 2010 and July 31, 2010

Project Cost: \$185,000.00

Map and Aerial (from Google maps – Coordinates are 34.441225,-77.873159)



Naive Before and After Analysis

Before Period: November 01, 2005 to May 31, 2010 (4 years, 7 months)

Const. Period: June 01, 2010 to July 31, 2010 (2 months)

After Period: August 01, 2010 to February 28, 2015 (4 years, 7 months)

Analysis Criteria: Treatment data consisted of all crashes within 150 feet of the subject intersection for the I-40 westbound ramp terminal and NC 210 approaches.

Target Crashes: Frontal Impact Crashes involving vehicles on NC 210 and the westbound I-40 ramp, including angle; left-turn, different roadways; right-turn, same roadway; and right-turn, different roadways.

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	13	9	-30.8%
Total Severity Index	3.28	4.29	30.8%
Target Crashes	7	6	-14.3%
Target Crash Severity Index	5.23	5.93	13.4%
Volume (2008, 2012)	10,500	9,900	-5.7%

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	0	0	0.0%
Class A injury Crashes	0	0	0.0%
Class B injury Crashes	2	2	0.0%
Class C Injury Crashes	2	2	0.0%
Property Damage Only	9	5	-44.4%

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Left-turn same roadway (target crashes)	0	2	+ 200.00%
Left-turn different roadway (target crashes)	7	4	-42.9%
Rear-end crashes I-40 WB off ramp	5	1	-80.0%

Overall Summary Results

Total Crashes:	-30.8 %	(Reduction)
Total Crash Severity:	30.8 %	(Increase)
Target Crashes:	-14.3 %	(Reduction)
Target Crash Severity:	13.4 %	(Increase)
Volume:	-5.7 %	(Reduction)

Additional Summary Results

Left-turn Same Roadway:	+200.0 %	(Increase)
Left-turn Different Roadway:	-42.9 %	(Reduction)
Rear End Crashes on I 40 WB off-ramp:	-80.0 %	(Reduction)

Items for Discussion/Concerns

The total crashes experienced a decrease of 30.8 % (13 to 9 crashes) between the before and after periods. The frontal impact target crashes experienced a decrease of 14.3% (7 to 6 crashes) between the before and after periods. The total crash severity experienced an increase of 30.8% between the before and after periods. The frontal impact target crashes target crash severity experienced an increase of 13.4% between the before and after periods.

Additionally, left-turn different roadway target crashes experienced a decrease of 42.9% (7 to 4 crashes) between the before and after periods. All left-turn, different roadway crashes in the after period were red-light run crashes by vehicles on NC 210. Rear-end crashes on the I-40 westbound off-ramp experienced a significant decrease of 80% (5 to 1 crashes) between the before and after periods.

Data Prepared For

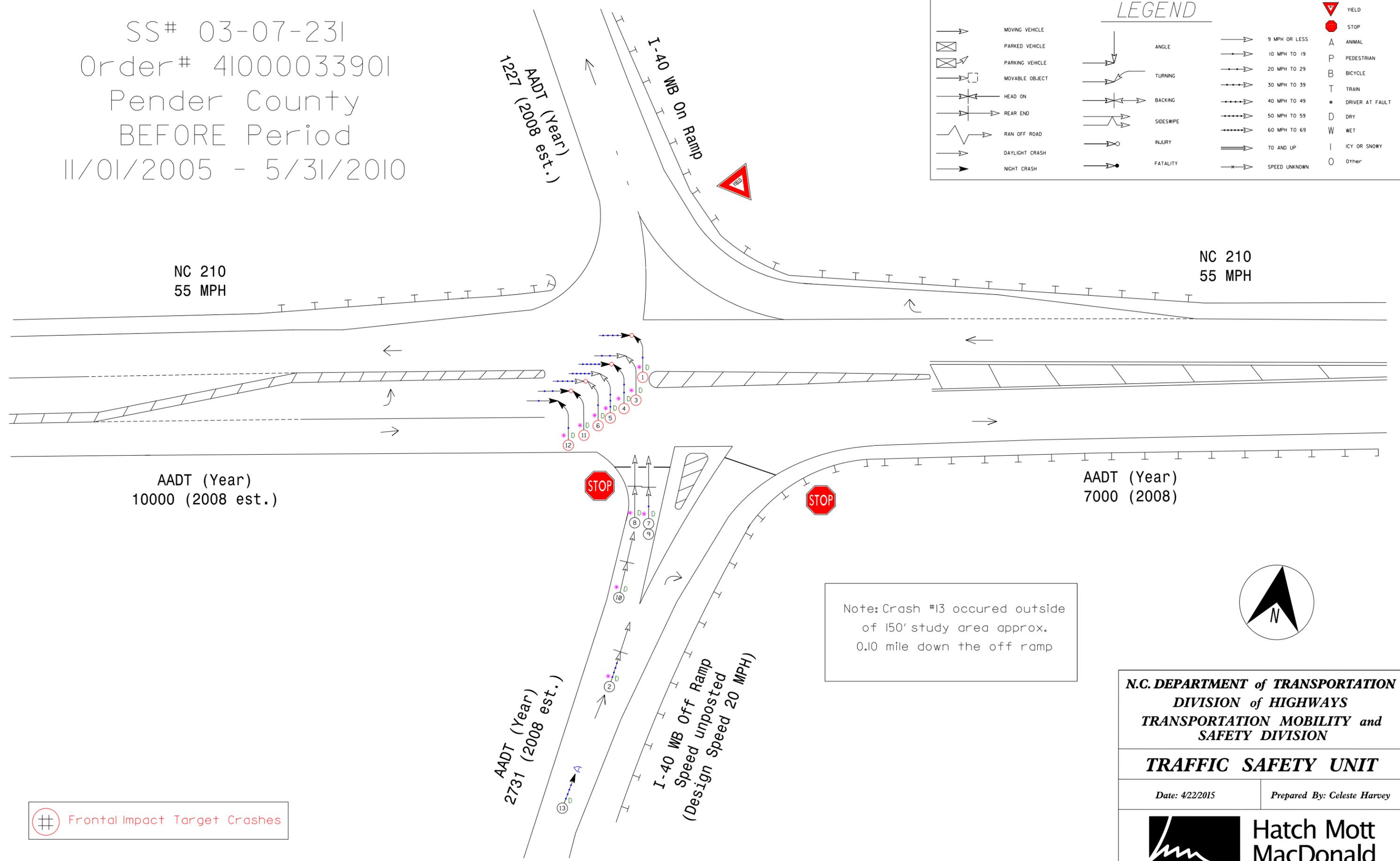
The Traffic Safety Unit *of the*
Transportation Mobility and Safety Division *of the*
Division of Highways *of the*
North Carolina Department of Transportation

Data Prepared By

Principal Investigator: Celeste M. Harvey
Work Group/Consultant: Hatch Mott MacDonald
Date: April 30, 2015

SS# 03-07-231
 Order# 41000033901
 Pender County
 BEFORE Period
 11/01/2005 - 5/31/2010

LEGEND			
	MOVING VEHICLE		ANGLE
	PARKED VEHICLE		TURNING
	PARKING VEHICLE		BACKING
	MOVABLE OBJECT		SIDESWIPE
	HEAD ON		INJURY
	REAR END		FATALITY
	RAN OFF ROAD		9 MPH OR LESS
	DAYLIGHT CRASH		10 MPH TO 19
	NIGHT CRASH		20 MPH TO 29
			30 MPH TO 39
			40 MPH TO 49
			50 MPH TO 59
			60 MPH TO 69
			70 AND UP
			SPEED UNKNOWN
	YIELD		STOP
	ANIMAL		PEDESTRIAN
	BICYCLE		TRAIN
	DRIVER AT FAULT		DRY
	WET		ICY OR SNOWY
	Other		



Note: Crash #13 occurred outside of 150' study area approx. 0.10 mile down the off ramp

Frontal Impact Target Crashes

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

TRAFFIC SAFETY UNIT

Date: 4/22/2015 Prepared By: Celeste Harvey

Hatch Mott MacDonald

SS# 03-07-231
 Order# 41000033901
 Pender County
 AFTER Period
 8/1/2010 - 2/28/2015

LEGEND			
	MOVING VEHICLE		ANGLE
	PARKED VEHICLE		TURNING
	PARKING VEHICLE		BACKING
	MOVABLE OBJECT		SIDESWIPE
	HEAD ON		INJURY
	REAR END		FATALITY
	RAN OFF ROAD		9 MPH OR LESS
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			70 AND UP
			SPEED UNKNOWN
			YIELD
			A ANIMAL
			P PEDESTRIAN
			B BICYCLE
			T TRAIN
			* DRIVER AT FAULT
			D DRY
			W WET
			I ICY OR SNOWY
			O Other

NC 210
55 MPH

NC 210
55 MPH

AADT (Year)
9200 (2012 est.)

AADT (Year)
6300 (2012 est.)

Note: Crash #2 object struck was a tire that came off another vehicle.

SIGNAL FACE I.D.
All Heads L.E.D.

21, 22
61, 62
81, 82

AADT (Year)
2850 (2012 est.)

I-40 WB Off Ramp
Speed unposted
(Design Speed 20 MPH)

Frontal Impact Target Crashes



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 SAFETY DIVISION

TRAFFIC SAFETY UNIT

Date: 4/22/2015

Prepared By: Celeste Harvey

