

Spot Safety Project Evaluation

Project Information

Order ID: 41000033829

Project ID: 01-06-210

Location: US 158 (Croatan Highway) at SR 1206 (Kitty Hawk Road)

County: Dare

City: Kitty Hawk

Division: 1

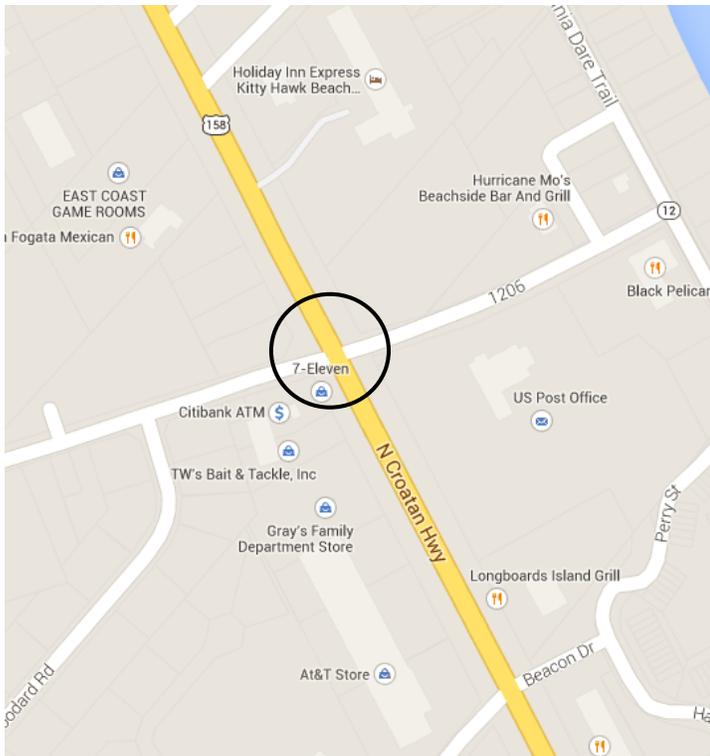
Signal ID: 01-0260

Countermeasure: Revise existing protected/permitted left-turn green ball with flashing yellow arrow on both US 158 approaches, revise clearance timing, upgrade pedestrian heads to pedestrian countdown heads, and replace wood poles with metal poles

Project Completion: April 22, 2009

Project Cost: \$328,000

Map and Aerial (from Google Maps – Coordinates are 36.066426, -75.693492)



Naive Before and After Analysis

Before Period: August 1, 2003 through February 28, 2009 (5 years 7 months)

Const. Period: March 1, 2009 through May 31, 2009

After Period: June 1, 2009 through December 31, 2014 (5 years 7 months)

Analysis Criteria: Treatment data consisted of all crashes within 150 feet of the subject intersection for the US 158 and SR 1206 approaches.

Target Crashes: Frontal Impact Crashes (left-turn, same roadway; left-turn, different roadway; right-turn, same roadway; right-turn, different roadway; head-on; and angle crashes) in the intersection

Table 1: Treatment Information – Countermeasure Signal Phase Upgrades			
<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	74	79	+ 6.6 %
Total Severity Index	5.35	4.61	- 13.8 %
Target Crashes	21	14	- 33.3 %
Target Crash Severity Index	8.49	8.53	+ 0.47 %
Volume (2006, 2012)	39,900	30,300	- 24.1 %

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	1	0	- 100.0 %
Class A injury Crashes	1	2	+ 100.0 %
Class B injury Crashes	11	2	- 81.8 %
Class C Injury Crashes	12	16	+ 33.3 %
Property Damage Only	49	59	+ 20.4 %

Table 2: 7 - Eleven Entrances			
<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	11	11	N/A
Total Severity Index	3.02	5.04	+ 66.9 %

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	0	0	N/A
Class A injury Crashes	0	0	N/A
Class B injury Crashes	3	1	- 66.7 %
Class C Injury Crashes	0	5	+ 100.0 %
Property Damage Only	8	5	- 37.5 %

Additional Information	Before	After	Percent Reduction (-) Percent Increase (+)
Frontal Impact Crashes (Target)	21	14	- 33.3 %
Rear end, slow or stop Crashes	25	36	+ 44.0 %
Left-turn same roadway Crashes	18	14	- 22.2 %
Angle Crashes	8	3	- 62.5 %
Night Time Crashes	17	16	- 5.9 %
Pedestrian Crashes	7	4	- 42.9 %

Table 1 Summary Results

Total Crashes:	+ 7 %	(increase)
Total Crash Severity:	- 14 %	(reduction)
Target Crashes:	- 33 %	(reduction)
Target Crash Severity:	+ 0.5 %	(increase)
Volume:	- 24 %	(reduction)

Table 2 Summary Results

Total Crashes:	0 %	(no change)
Total Crash Severity:	+ 67 %	(increase)

Additional Summary Results

Frontal Impact Crashes (Target):	- 33 %	(reduction)
Rear end, slow or stop Crashes:	+ 44 %	(increase)
Left-turn, same roadway Crashes:	- 22 %	(reduction)
Angle Crashes:	- 63 %	(reduction)
Night time Crashes:	- 6 %	(reduction)
Pedestrian Crashes:	- 43 %	(reduction)

Items for Discussion/Concerns

The study intersection experienced a 7 % increase in total crashes (74 to 79 crashes).

The target crashes (Frontal Impact Crashes) experienced a 33 % reduction (21 to 14 crashes).

The intersection experienced an increase in Rear end, slow or stop crashes (25 to 36 crashes).

The intersection experienced a decrease in Left-turn, same roadway crashes (18 to 14), angle crashes (8 to 3), night time crashes (17 to 16), and pedestrian crashes (7 to 4).

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: Austin Bell, EI

Work Group/Consultant: AECOM

Date: March 13, 2015

SS# 01-06-210
 Order # 41000033829
 Dare County
 BEFORE Period
 8/1/03 - 2/28/09

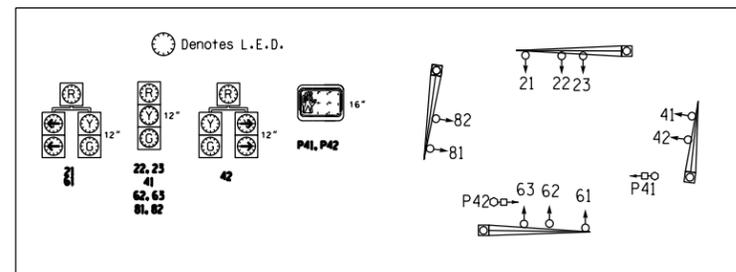
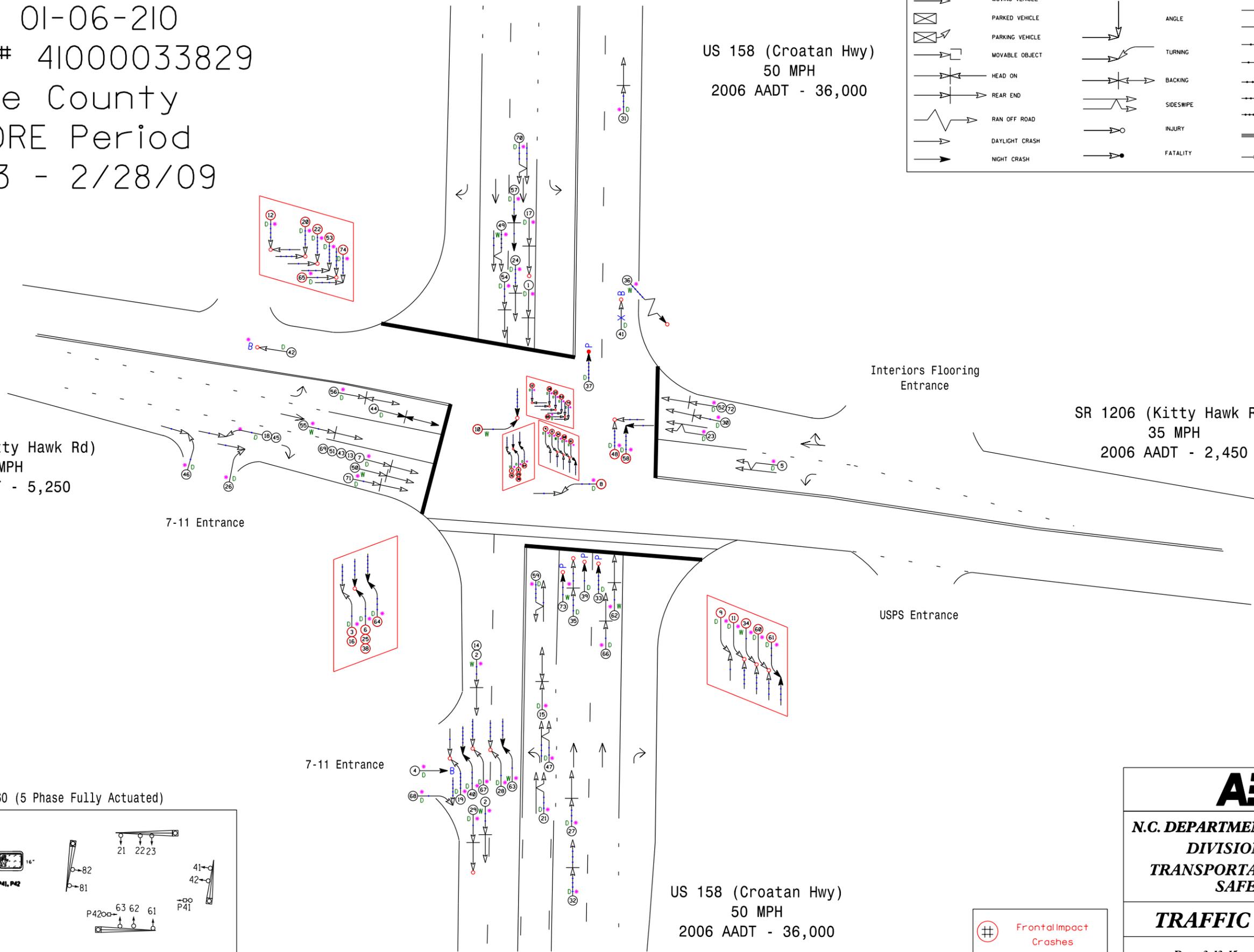
US 158 (Croatan Hwy)
 50 MPH
 2006 AADT - 36,000

SR 1206 (Kitty Hawk Rd)
 35 MPH
 2006 AADT - 5,250

SR 1206 (Kitty Hawk Rd)
 35 MPH
 2006 AADT - 2,450

US 158 (Croatan Hwy)
 50 MPH
 2006 AADT - 36,000

LEGEND							
	MOVING VEHICLE		ANGLE		9 MPH OR LESS		A ANIMAL
	PARKED VEHICLE		10 MPH TO 19		P PEDESTRIAN		
	PARKING VEHICLE		20 MPH TO 29		B BICYCLE		
	MOVABLE OBJECT		30 MPH TO 39		T TRAIN		
	HEAD ON		40 MPH TO 49		* DRIVER AT FAULT		
	REAR END		50 MPH TO 59		D DRY		
	RAN OFF ROAD		60 MPH TO 69		W WET		
	DAYLIGHT CRASH		INJURY		I ICY OR SNOWY		
	NIGHT CRASH		FATALITY		O Other		
			70 AND UP				
			SPEED UNKNOWN				



AECOM

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

TRAFFIC SAFETY UNIT

Date: 3-13-15 Prepared By: Austin Bell, EI

Frontal Impact Crashes

SS# 01-06-210
 Order # 41000033829
 Dare County
 AFTER Period
 6/1/09 - 12/31/14

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



SR 1206 (Kitty Hawk Rd)
 35 MPH
 2012 AADT - 4,850

SR 1206 (Kitty Hawk Rd)
 35 MPH
 2012 AADT - 1,800

US 158 (Croatan Hwy)
 50 MPH
 2012 AADT - 27,000

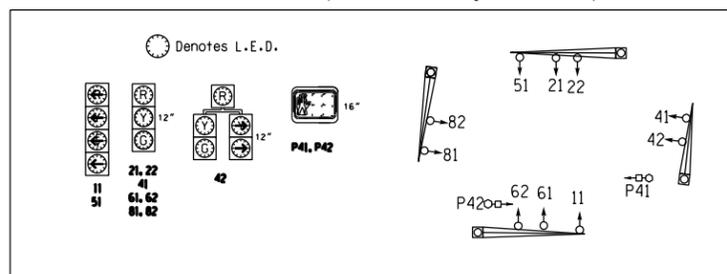
Interiors Flooring Entrance

USPS Entrance

7-11 Entrance

7-11 Entrance

SIG ID 01-0260 (5 Phase Fully Actuated)



⊕ Frontal Impact Crashes

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