

Spot Safety Project Evaluation

Spot Safety Project # 01-02-257

**Spot Safety Project Evaluation of the Signal Revision
(Pedestrian Signal, Metal Poles, and Mast Arms Addition at Existing Signal)
NC 34 (Water St) at Main St
Pasquotank County**

Documents Prepared By:

Stantec Consulting Ltd.
for
Safety Evaluation Group
Traffic Safety Systems Management Section
Transportation Mobility and Safety Division
North Carolina Department of Transportation

Principal Investigator

A handwritten signature in blue ink, appearing to read "E. S. Scott", is written over a horizontal line.

Elizabeth S. Scott
Transportation Designer

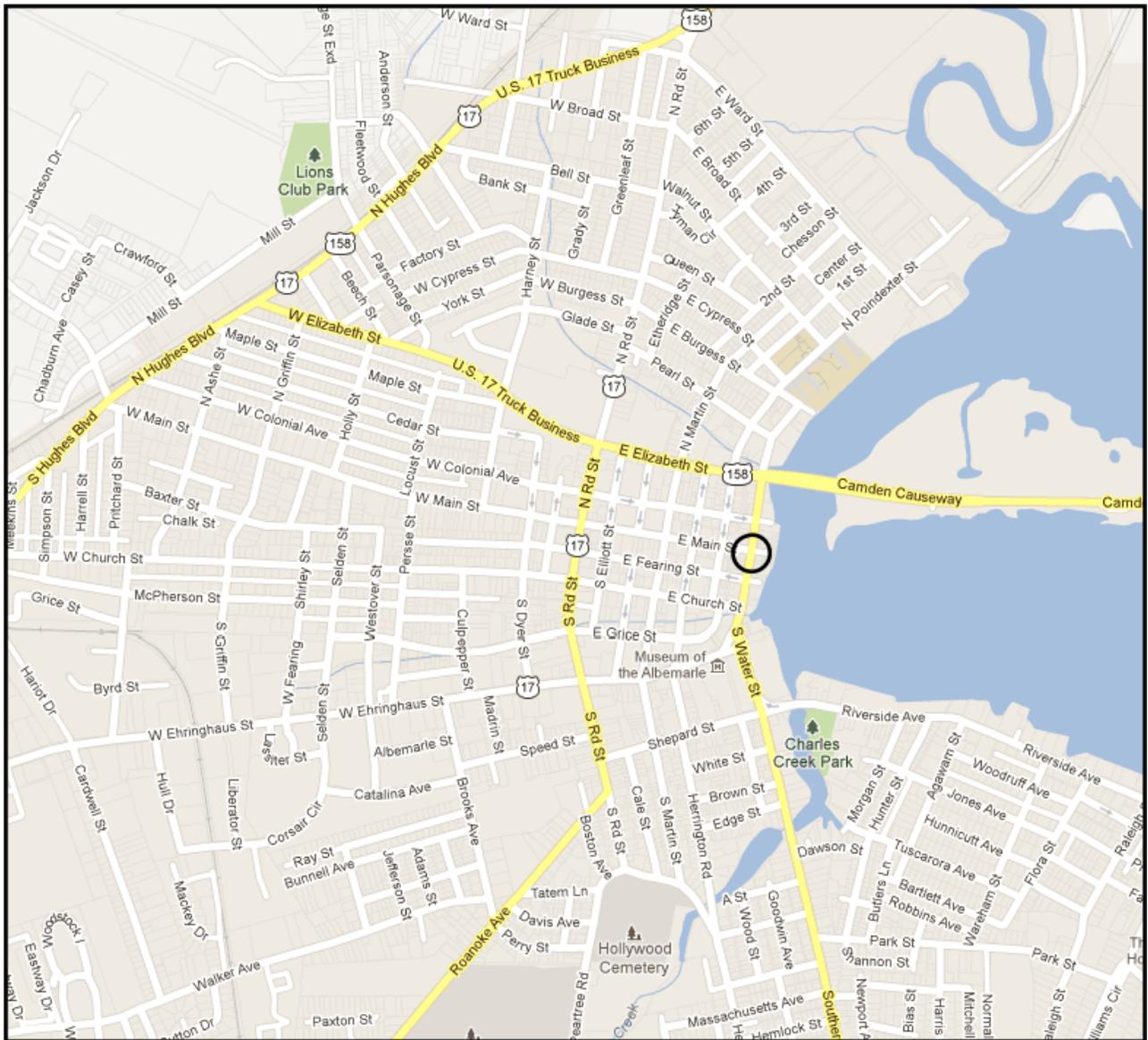
3-29-2013
Date

Spot Safety Project Evaluation Documentation

Subject Location

Evaluation of Spot Safety Project Number 01-02-257 located at the Intersection of NC 34 - SR 1268 (Water Street) at Main Street in Pasquotank County, Elizabeth City.

The Sig ID is 01-0011 for this 3-Phase Actuated Traffic Signal.





Aerial Provided from Google Maps

Project Information and Background from the Project File Folder

The spot safety project improvement countermeasure chosen for the subject location was the installation of the pedestrian signal and an update of the wooden poles to metal poles and mast arms.

NC 34- SR 1268 (Water Street) is a 2-lane facility with on-street parallel parking that widens for left turn lanes at the intersection. Main Street is a two-lane road on the eastbound approach with a shared left and through lane, and an exclusive right turn lane. On the westbound approach of Main Street, there are two lanes with perpendicular on-street parking. The speed limit on all approaches is 20-mph. The subject location is a four-leg intersection, which is controlled by an existing traffic signal.

The original statement of problem was the high volume of pedestrians travelling through the intersection. The initial crash analysis was completed from September 1, 1999 to August 31, 2002 with five (5) total reported crashes. The final completion date for the improvement at the subject intersection was on October 22, 2008 with a total cost of \$100,000.00.

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 allow for an adequate construction period were the months of August through November 2008. The before period consisted of reported crashes from June 1, 2004 through July 31, 2008 (4 years, 2 months); and the after period consisted of reported crashes from December 1, 2008 through January 31, 2013 (4 years, 2 months). The ending date for this analysis was determined by the date of available crash data at the time of analysis.

The treatment data consisted of all crashes within 150 feet of the subject intersection for the NC 34 -SR 1268 and Main St approaches. *Please see attached location map and aerial map for further details.*

The following data table depicts the Naive Before and After Analysis for the treatment location. Please note that Pedestrian Crashes were the target crashes for the applied countermeasure.

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	7	2	- 71.4 %
Total Severity Index	2.06	1.00	- 51.5 %
Target Crashes	0	0	N/A
Target Crash Severity Index	0	0	N/A
Volume (2006, 2011)	14,700	9,900	- 32.7%

<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	1	0	- 100.0 %
Class C Injury Crashes	0	0	N/A
Property Damage Only	6	2	- 66.7 %

The naive before and after analysis at the treatment location resulted in a 71.4 percent reduction in Total Crashes and a 51.5 percent reduction in the Total Severity Index. The before period ADT year was 2006 and the after period ADT year was 2011.

To further analyze the intersection crash patterns, the following chart shows different traffic movements and the change in crash totals through the study:

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Backing Up	5	0	- 500.00 %

Results and Discussion

Referencing the *Collision Diagrams*, there were no target (pedestrian) crashes in the after period. There were also no target crashes in the before period. The total number of crashes and the severity index were both reduced in the after period.

The westbound leg of Main St with on-street parking had five (5) backing up crashes in the before period which went down to zero crashes in the after period. Vehicle traffic in this intersection has also decreased in the after period.

Please see the attached *Treatment Site Photos*. Photos are provided from Google Street View for all four approaches to the treatment intersection. 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



Google Maps – Looking East on Main St Approach



Google Maps – Looking West on Main St Approach



Google Maps – Looking South from NC 34 – SR 1268 Approach



Google Maps – Looking North on NC 34 – SR 1268 Approach

SS# 01-02-257
 Pasquotank County
 BEFORE Period
 6/1/04 - 7/31/08

LEGEND

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



ADT (Year) NC 34/SR 1268 (WATER ST.)
 13,000 (2006)

ADT (Year) estimated (2006)
 3000

MAIN ST.

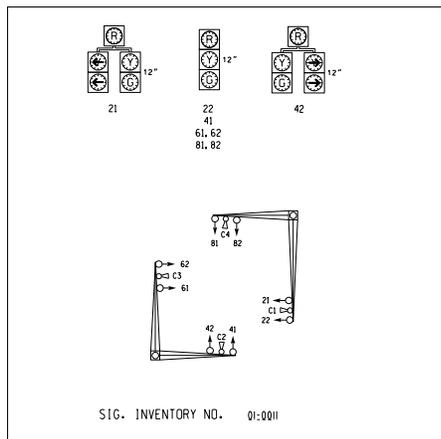
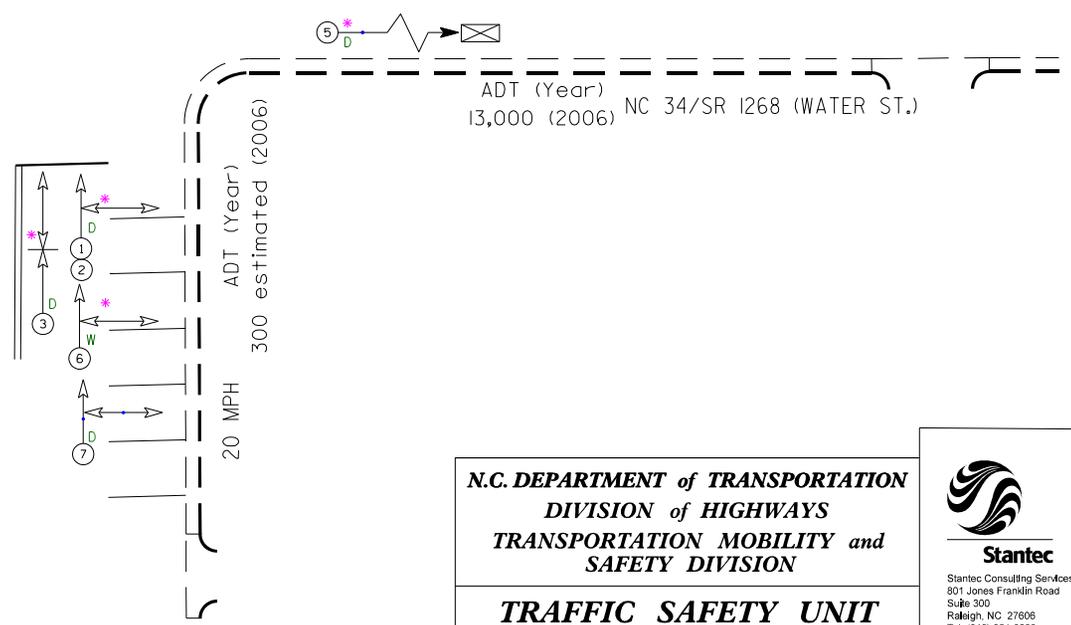
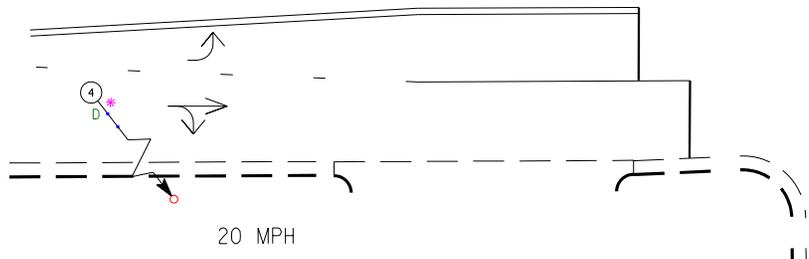
20 MPH

ADT (Year) NC 34/SR 1268 (WATER ST.)
 13,000 (2006)

ADT (Year) estimated (2006)
 300

20 MPH

MAIN ST.



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

TRAFFIC SAFETY UNIT

Date: 3-27-2013

Prepared By: ESS

Stantec
 Stantec Consulting Services Inc.
 801 Jones Franklin Road
 Suite 300
 Raleigh, NC 27606
 Tel. (919) 851-6886
 Fax. (919) 851-7024
 www.stantec.com
 License No. F-6672

SS# 01-02-257
 Pasquotank County
 AFTER Period
 12/1/08 -1/31/13

LEGEND

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



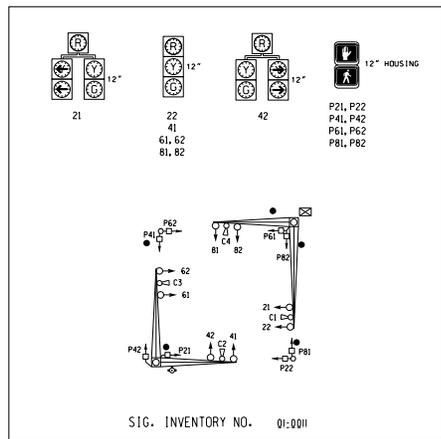
ADT (Year)
 9,000 (2011) NC 34/SR 1268 (WATER ST.)

ADT (Year)
 1500 estimated (2011)

NC 34/SR 1268 (WATER ST.) 20 MPH

ADT (Year)
 9,000 (2011)

ADT (Year)
 300 estimated (2011)



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

Stantec
 Stantec Consulting Services Inc.
 801 Jones Franklin Road
 Suite 300
 Raleigh, NC 27606
 Tel. (919) 851-6866
 Fax. (919) 851-7024
 www.stantec.com
 License No. F-0672

TRAFFIC SAFETY UNIT

Date: 3-27-2013 Prepared By: ESS