

Spot Safety Project Evaluation

Project Log # 200512195

Spot Safety Project # 02-98-231

Spot Safety Project Evaluation of the Overhead Lane Control Sign on US 70 at NC 101 in Carteret County

Documents Prepared By:

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10/20/06
Date

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Spot Safety Project Evaluation Documentation

Subject Location

Evaluation of Spot Safety Project Number 02-98-231 – Overhead Lane Control Sign on US 70 at NC 101 in Carteret County.

Project Information and Background from the Project File Folder

US 70 is a 4-lane facility with a dedicated left turn lane and a speed limit of 35 mph. NC 101 intersects US 70 at a slight skew and has a speed limit of 35 mph. The intersection is controlled by a stop sign on NC 101.

The problem statement was US 70 did not have adequate advance warning that the inside travel lane changes to a left turn lane at the intersection with NC 101. It was also noted there was a significant amount of foreign traffic at this location. The improvement chosen for the subject location was to install overhead lane control signs before the intersection. The final completion date for the improvements at the subject location was on October 6, 2000 at a cost of \$5,000.

Naive Before and After Analysis

After reviewing the spot safety project file folder along with all the crashes along the subject road, the crash data omitted from this analysis to consider for an adequate construction period was from September 2000 through November 2000. The before period consisted of reported crashes from March 1, 1995 through August 31, 2000 (5 years, 6 Months) and the after period consisted of reported crashes from December 1, 2000 through May 31, 2006 (5 Years, 6 Months). The ending date for this analysis was determined by the available crash data at the time the crash analysis was completed.

The treatment data consisted of all crashes 1500 feet west from NC 101 in the eastbound lanes with a 0' y-line. The following data table depicts the Naive Before and After Analysis for the above information. Please note the following crash types were the target crashes for the applied countermeasure: Sideswipe, same direction; Sideswipe, opposite direction; Ran Off Road, left; Ran Off Road, right; Ran Off Road, straight and Rear-End.

| <u>Treatment Information</u> | | | |
|------------------------------|---------------|--------------|---|
| | Before | After | Percent Reduction (-) Percent Increase (+) |
| Total Crashes | 7 | 21 | 200.0 |
| Total Severity Index | 6.3 | 3.1 | -50.5 |
| Target Crashes | 4 | 7 | 75.0 |
| Target Severity Index | 4.7 | 3.1 | -34.0 |
| Volume | 15000 | 16000 | 6.7 |

Table 1.

The naive before and after analysis at the treatment location resulted in a 200 percent increase in Total Crashes, a 75 percent increase in Target Crashes, and a 7 percent increase in Average Daily Traffic (ADT). The before period ADT year was 1997 and the after period ADT year was 2003.

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 200 percent increase in Total Crashes and a 75 percent increase in Target Crashes. The summary results above demonstrate that the treatment location appears to have had an increase in the number of Total Crashes and an increase in the number of Target Crashes from the before to the after period.

Referring to Table 2 and the collision diagrams, there is an increase in frontal impact crashes. During the field investigation for this evaluation there were no sight distance issues noted. The intersection was observed for approximately 15 minutes without any interruption of traffic flow. There were no skid marks on the roadway or other physical evidence to support any patterns or the increase in crashes.

| Frontal Impact Information | Before | After | Percent Reduction (-) Percent Increase (+) |
|----------------------------|--------|-------|---|
| Frontal Impact Crashes | 2 | 13 | 550.0 |
| Frontal Severity Index | 8.4 | 3.3 | -61.0 |

Table 2.

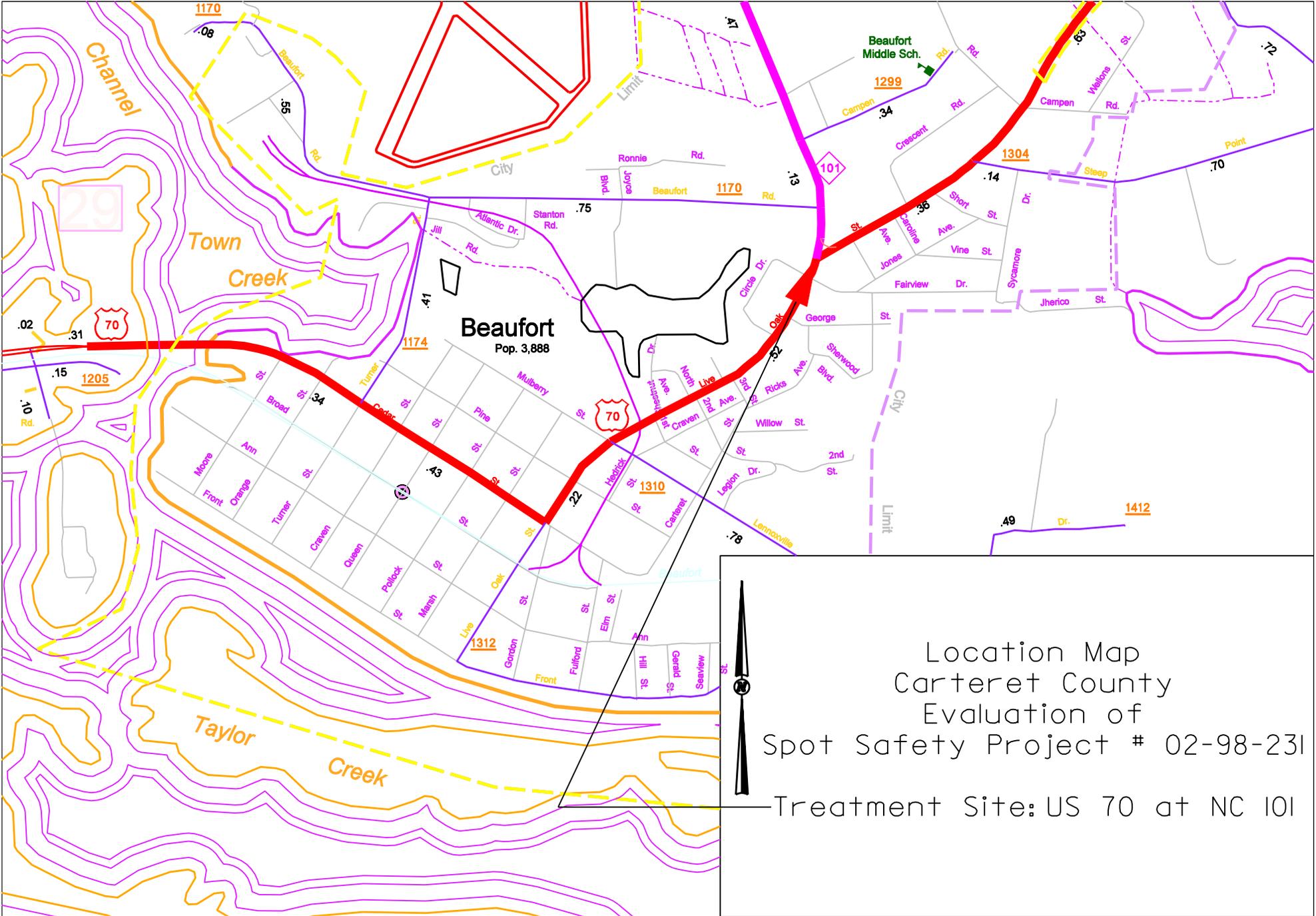
The Before and After period crash reports show a concentration of crashes for the latter part of the week (see Table 3).

| Day | Before | After | Percent Reduction (-) Percent Increase (+) |
|-----------|--------|-------|---|
| Monday | 0 | 1 | N/A |
| Tuesday | 2 | 2 | 0.0 |
| Wednesday | 0 | 3 | N/A |
| Thursday | 0 | 4 | N/A |
| Friday | 2 | 9 | 350.0 |
| Saturday | 3 | 1 | -66.7 |
| Sunday | 0 | 1 | N/A |

Table 3.

This information may show there is a significant influx of weekend travelers to this area. There may be more signage or some form of channelization needed in addition to the countermeasures already in place to help drivers make safe decisions.

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 road.



Location Map
Carteret County
Evaluation of
Spot Safety Project # 02-98-231
Treatment Site: US 70 at NC 101

Treatment Site Photos Taken July 18, 2006



Driving west on US 70



Driving west on US 70



Driving east on US 70



Driving east on US 70



Driving east on US 70



Driving east on US 70

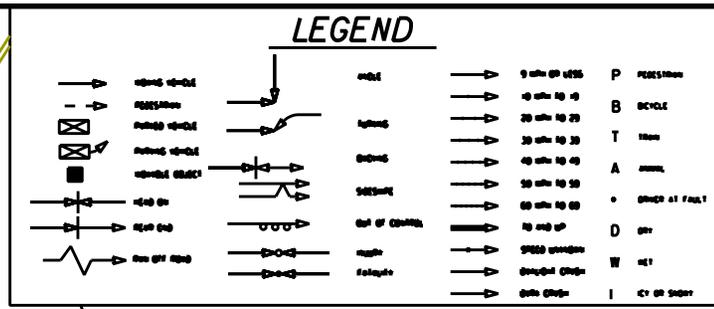


Driving east at NC 101

Carteret County
 Treatment Site - Total Crashes
 Before Period
 March 1, 1995 - August 31, 2000
 (5 years 6 months)

NC 101
 35 MPH

US 70
 35 MPH



Carteret County
Treatment Site - Total Crashes
After Period
December 1, 2000 - May 31, 2006
(5 years 6 months)

NC 101
35 MPH

US 70
35 MPH

LEGEND

| | | | | | |
|--|-------|--|----------------|---|----------------|
| | CRASH | | 9 MPH OR LESS | P | PEDESTRIAN |
| | CRASH | | 10 MPH TO 19 | B | BIKE |
| | CRASH | | 20 MPH TO 29 | T | TIR |
| | CRASH | | 30 MPH TO 39 | A | ADULT |
| | CRASH | | 40 MPH TO 49 | * | OTHER AT FAULT |
| | CRASH | | 50 MPH TO 59 | D | DRIVER |
| | CRASH | | 60 MPH TO 69 | W | WALKER |
| | CRASH | | 70 MPH OR MORE | I | ICV OR OTHER |
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