

Hazard Elimination Project Evaluation

Project Information

Order ID: 41000030149

Project ID: W-5131

Location: I-40/I-85 Business from 0.7 mile west to 0.75 mile east of SR 3000 (McConnell)

County: Guilford

City: Greensboro

Division: 7

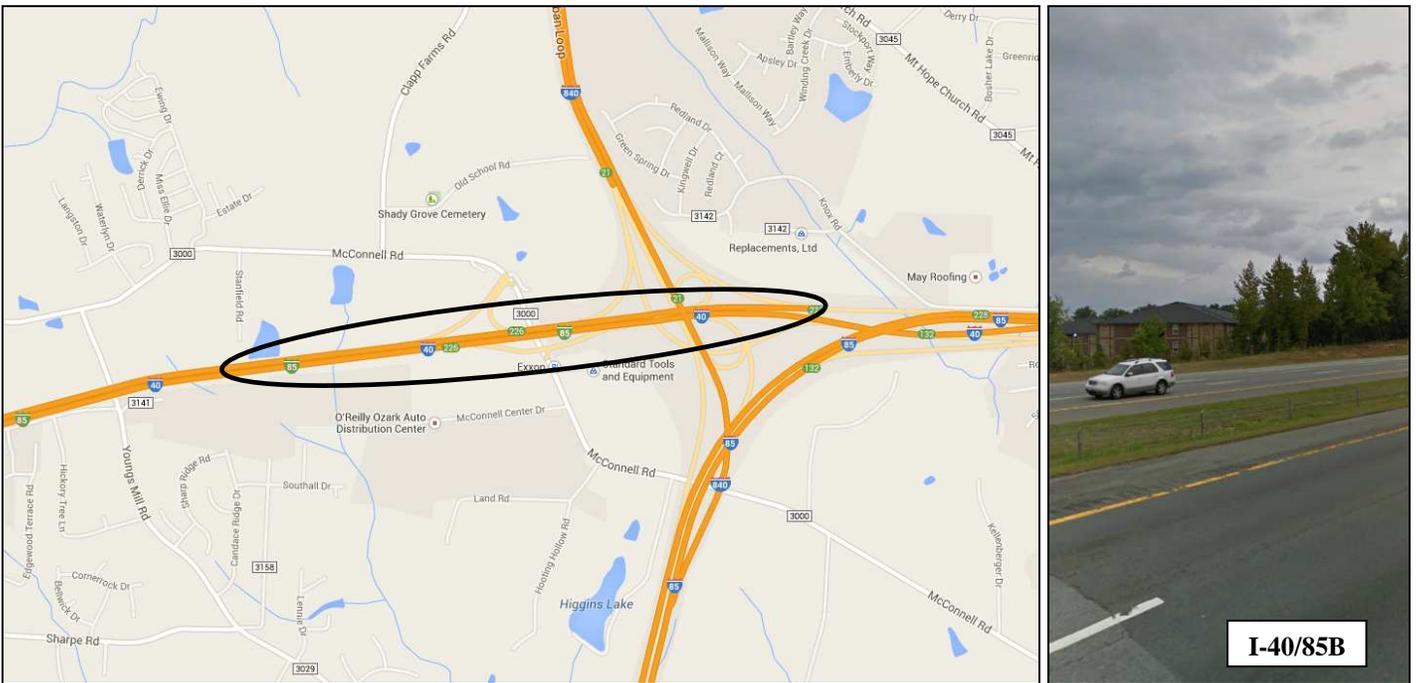
Signal ID: N/A

Countermeasure: Fill in median guardrail gaps with a single strand of cable guardrail

Project Completion: September 22, 2010

Project Cost: \$130,000

Map and Aerial (from Google Maps) – Coordinates: 36.05906,-79.692861



Naive Before and After Analysis

Before Period: November 1, 2006 through June 30, 2010 (3 years, 8 months)

Const. Period: July 1, 2010 through September 30, 2010

After Period: October 1, 2010 through May 31, 2014 (3 years, 8 months)

Analysis Criteria: Treatment data consisted of all crashes on I-40/I-85B from 0.7 mile west of SR 3000 (McConnell Road) to 0.75 mile east of SR 3000 (McConnell Road) with a 0-foot y-line (No Ramp Crashes) – I-40 Milepost Range 20.259 to 21.709.

Target Crashes: Cross Median Crashes – additionally Lane Departure Crashes and Median Guardrail Hit Crashes are highlighted in the following tables and on the GIS Collision Diagrams.

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	29	36	24.1 %
Total Severity Index	2.79	3.26	16.8 %
Lane Departure Crashes	12	12	0.0 %
Lane Departure Crash Severity Index	2.85	2.85	0.0 %
Cross Median Crashes	0	1	100.0 %
Cross Median Crash Severity Index	0.00	8.40	100.0 %
Median Guardrail Hit Crashes	8	15	87.5 %
Median Guardrail Crash Severity Index	3.78	3.96	4.8 %
Volume (2008, 2012)	60,500	64,000	5.8 %
Total Crash Rate (100 Million Veh Miles)	24.71	28.97	17.2 %

<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	2	2	0.0 %
Class C Injury Crashes	5	9	80.0 %
Property Damage Only	22	25	13.6 %

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Night Crashes	13	15	15.4 %
Wet Roadway Crashes (Codes 1-3)	8	10	25.0 %
Alcohol/Drugs Involvement Crashes	0	1	100.0 %
Animal Crashes	4	8	100.0 %
Sideswipe Same Direction (Merge)	5	11	120.0 %

Overall Summary Results

Total Crashes:	24 %	(increase)
Total Crash Severity:	17 %	(increase)
Lane Departure Crashes:	0 %	(no change)
LD Crash Severity:	0 %	(no change)
Volume:	6 %	(increase)

Additional Summary Results

Struck Median Guardrail:	88 %	(increase)
Sideswipe-Same (Merge Crash):	120 %	(increase)

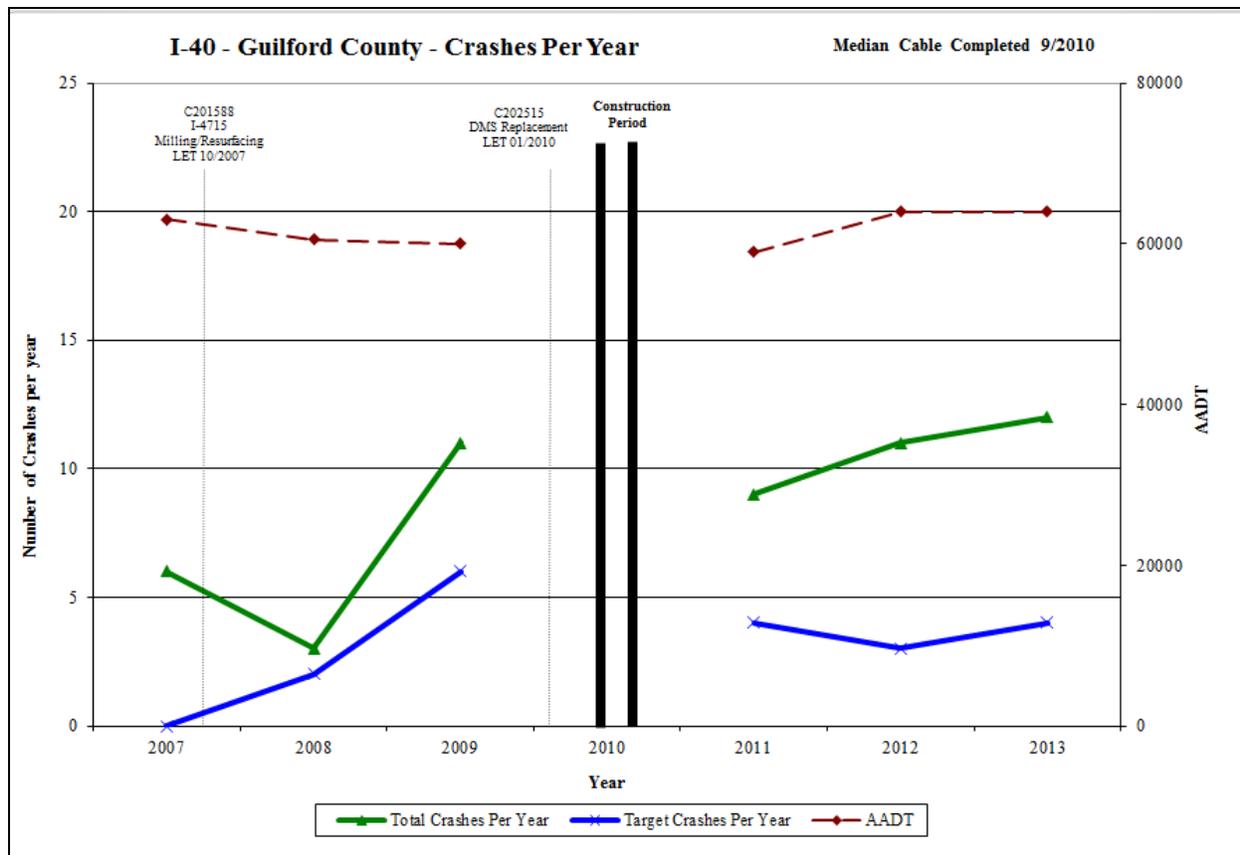
Items for Discussion/Concerns

Referencing the data tables above and the provided GIS Diagrams, crash patterns along this route remained consistent through the evaluation. There was an 88 percent increase in median guardrail hits in the after period with no change of lane departure collisions. Median guardrail provides protection from severe injury crashes by protecting against head-on collisions but often experiences a frequency increase of low severity after period collisions. This segment did experience a 120 percent increase of merge (sideswipe-same direction) throughout the evaluation.

There was one after period cross median crash (Crash ID 103848856) from a motorist that fell-asleep and potentially crossed between the cable and w-beam guardrail sections surrounding the SR 3000 overpass. The crash resulted in a c-class injury.

The Safety Evaluation Group did discover, through a search of the Archived Letting List, this this roadway was resurfaced during the evaluation period in October 2007. The effects of this resurfacing project were not accounted for in this evaluation. Also, Dynamic Signs were replaced along this route in January 2010.

The trend in total crashes has been displayed below (in crashes per year) to attempt to account for the effects of various other projects along the study corridor. There appears to be a spike in total and lane departure crash per year during the calendar year 2009 and a steady climb of after period total crashes per year from 2011 to 2013.



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: Jason B. Schronce, EI
 Work Group/Consultant: NCDOT - Safety Evaluation Group
 Date: December 12, 2014

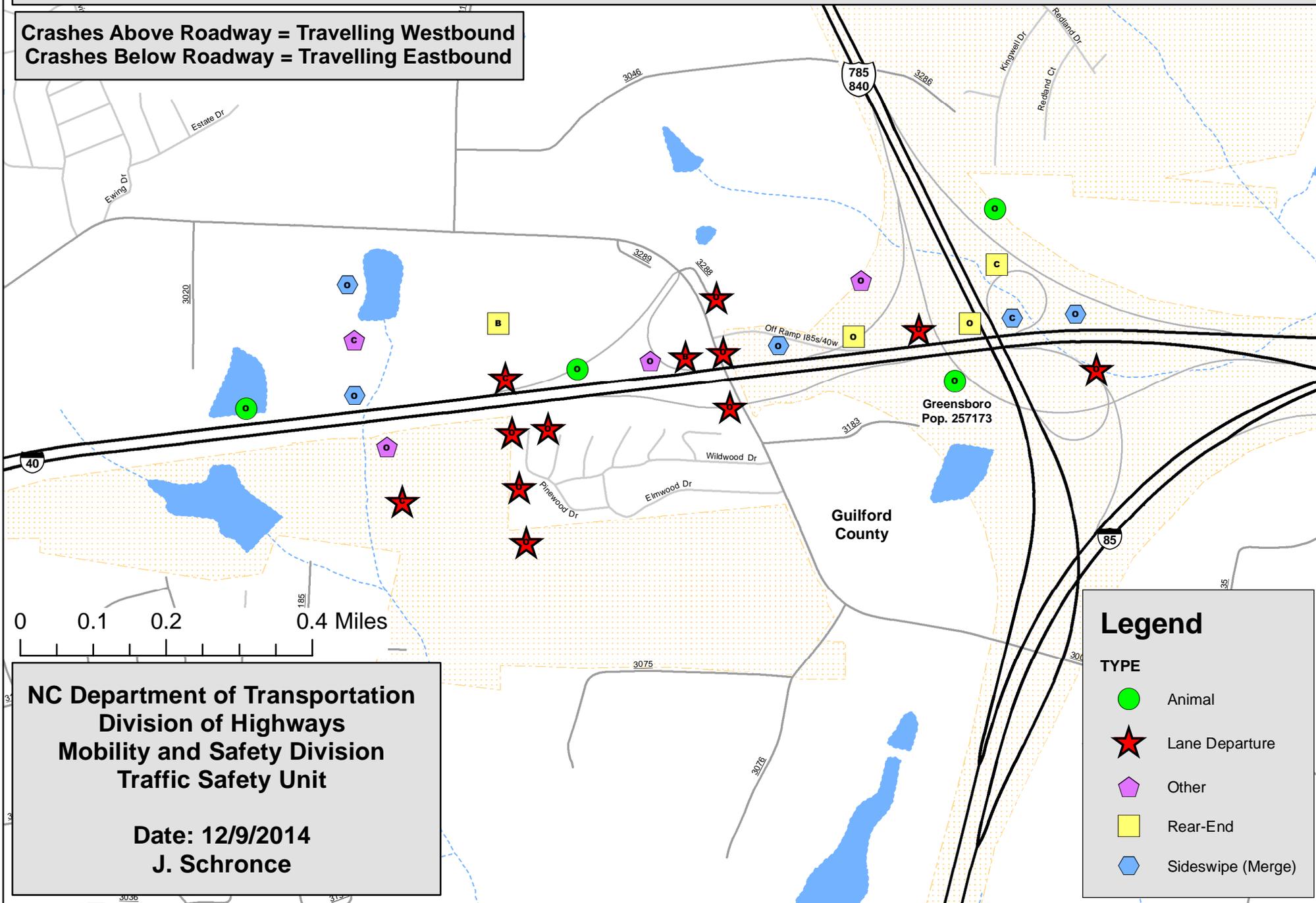
W-5131 - GUILFORD County

I-40/I-85B from 0.7 mile west to 0.75 mile east of SR 3000 (MP 20.259-21.709)

BEFORE PERIOD - 11/1/2006 to 6/30/2010 (3.67 Yrs)



Crashes Above Roadway = Travelling Westbound
Crashes Below Roadway = Travelling Eastbound



0 0.1 0.2 0.4 Miles

NC Department of Transportation
Division of Highways
Mobility and Safety Division
Traffic Safety Unit

Date: 12/9/2014
J. Schronce

Legend

TYPE

- Animal
- Lane Departure
- Other
- Rear-End
- Sideswipe (Merge)

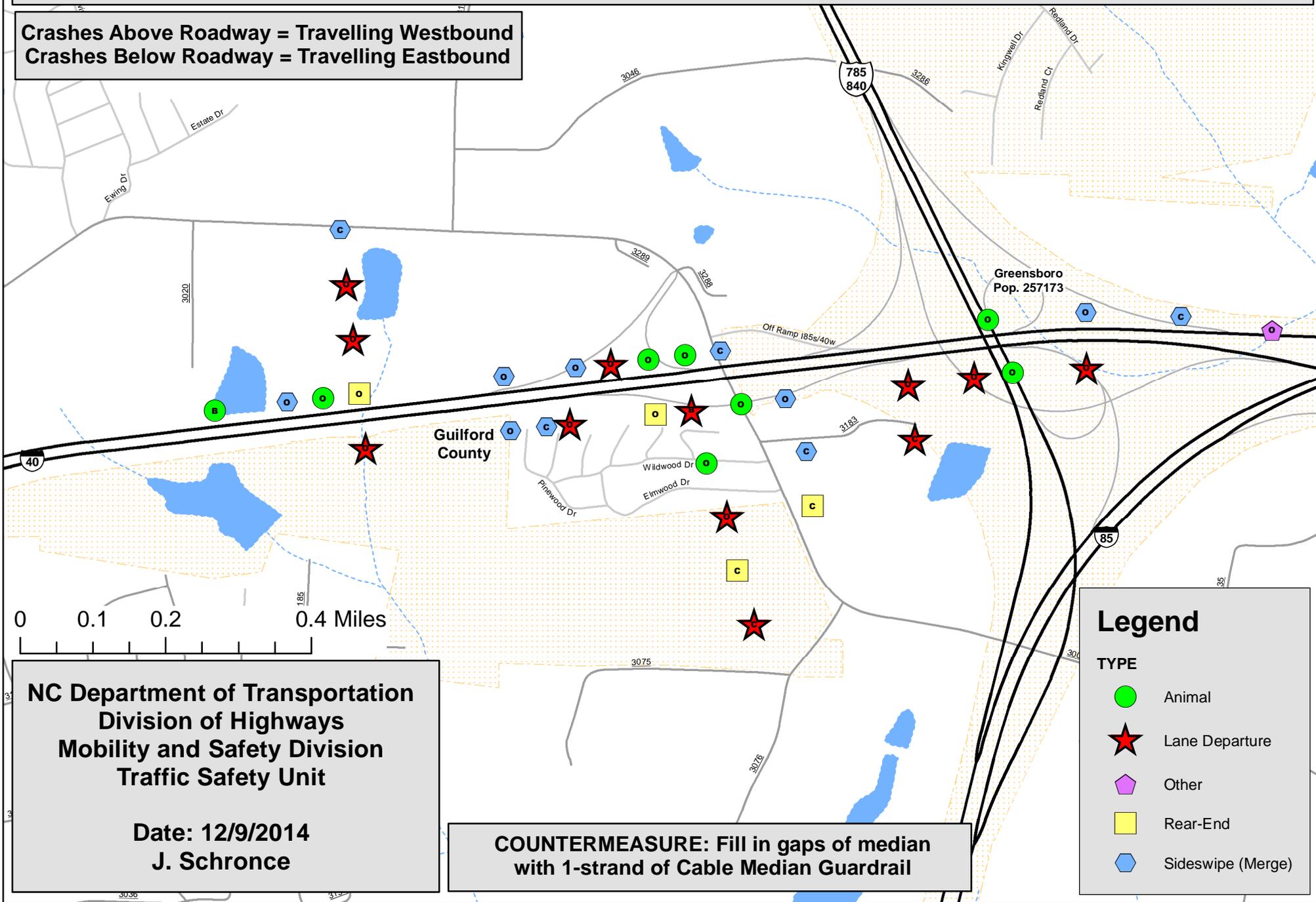
W-5131 - GUILFORD County

I-40/I-85B from 0.7 mile west to 0.75 mile east of SR 3000 (MP 20.259-21.709)

AFTER PERIOD - 10/1/2010 to 5/31/2014 (3.67 Yrs)



Crashes Above Roadway = Travelling Westbound
Crashes Below Roadway = Travelling Eastbound



NC Department of Transportation
Division of Highways
Mobility and Safety Division
Traffic Safety Unit

Date: 12/9/2014
J. Schronce

COUNTERMEASURE: Fill in gaps of median
with 1-strand of Cable Median Guardrail

Legend

TYPE

- Animal (Green circle)
- Lane Departure (Red star)
- Other (Purple pentagon)
- Rear-End (Yellow square)
- Sideswipe (Merge) (Blue hexagon)