

# Hazard Elimination Project Evaluation

## Project Information

Order ID: 41000030377

Project ID: W-5212C

Location: US-321 from SR 1367 (Roechling Street) north to NC-275/279 Overpass

County: Gaston

City: Gastonia

Division: 12

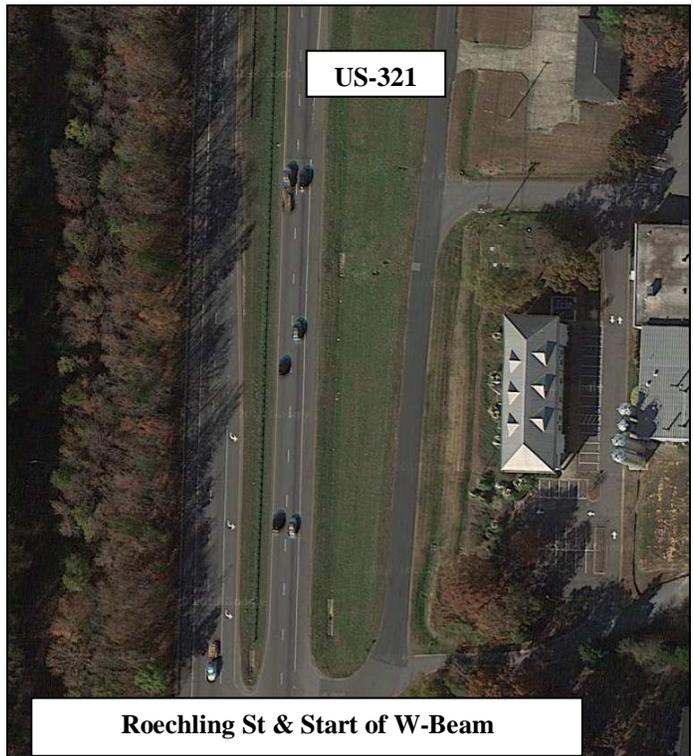
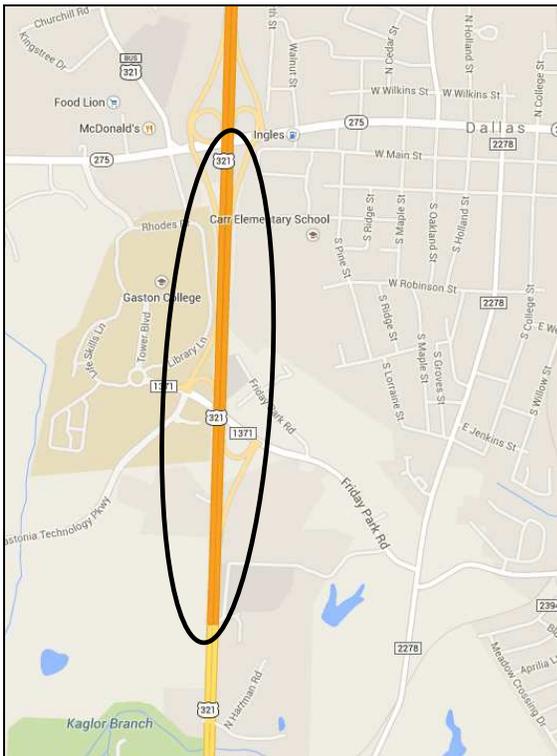
Signal ID: N/A

Countermeasure: 2 Lines of W-Beam Median Guardrail

Project Completion: August 6, 2010

Project Cost: \$353,000

## Map and Aerial (from Google Maps) – Coordinates: 35.29993,-81.187825



## Naive Before and After Analysis

- Before Period: September 1, 2006 through May 31, 2010 (3 years, 9 months)
- Const. Period: June 1, 2010 through August 31, 2010
- After Period: September 1, 2010 through May 31, 2014 (3 years, 9 months)
- Analysis Criteria: Treatment data consisted of all crashes on US-321 (Gastonia-Dallas Highway) between the SR 1367 (Roechling Street) intersection and the NC 275/279 overpass bridge with a 0-foot y-line (No Ramp Crashes).
- 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	30	41	36.7 %
Total Severity Index	3.96	8.53	115.4 %
Lane Departure Crashes	10	8	- 20.0 %
Lane Departure Crash Severity Index	2.48	1.00	- 59.7 %
Cross Median Crashes	1	0	- 100.0 %
Cross Median Crash Severity Index	8.40	0.00	- 100.0 %
Median Guardrail Hit Crashes	2	6	200.0 %
Median Guardrail Crash Severity Index	1.00	13.63	200+ %
Volume (2008, 2012)	39,700	40,600	2.3 %
Total Crash Rate (100 Million Veh Miles)	48.42	64.71	33.6 %

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	0	2	200.0 %
Class A injury Crashes	0	1	100.0 %
Class B injury Crashes	3	3	0.0 %
Class C Injury Crashes	9	8	- 11.1 %
Property Damage Only	18	27	50.0 %

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Night Crashes	8	15	87.5 %
Wet Roadway Crashes (Codes 2-4)	7	6	- 14.3 %
Alcohol / Drug Involvement	2	2	0.0 %
Animal Crashes	1	3	200.0 %

### **Overall Summary Results**

Total Crashes:	37 %	(increase)
Total Crash Severity:	115 %	(increase)
Lane Departure Crashes:	- 20 %	(reduction)
LD Crash Severity:	- 60 %	(reduction)
Volume:	2 %	(increase)

### **Additional Summary Results**

Cross Median Crashes (Target):	- 100 %	(reduction)
Struck Median Guardrail:	200%	(increase)

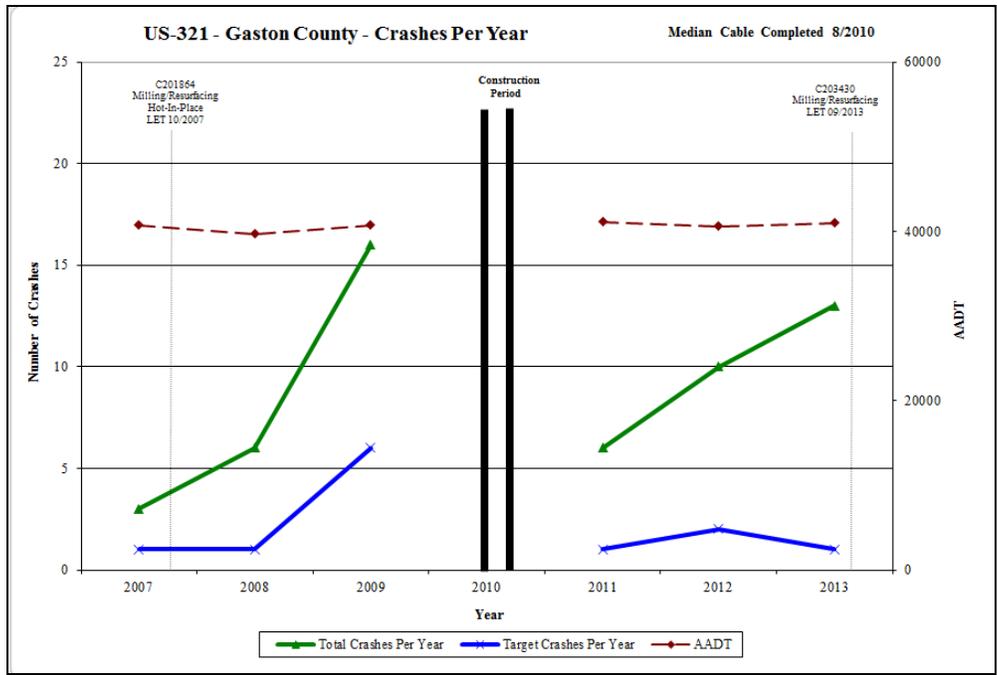
### **Items for Discussion/Concerns**

There were six (6) median guardrail strikes in the after period including four (4) lane departure crashes, a rear-end tractor-trailer A-injury collision, and a sideswipe merge crash.

Additionally, this 1.14 mile segment of US-321 experienced two (2) fatal pedestrian collisions in the after period. Due to the nature of these collisions, independent fatal investigations were not completed by the NCDOT on these crashes.

The Safety Evaluation Group did discover, through a search of the Archived Letting List, this this roadway was resurfaced twice during the evaluation period (October 2007 and September 2013). The effects of these resurfacing projects were not accounted for in this evaluation.

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.



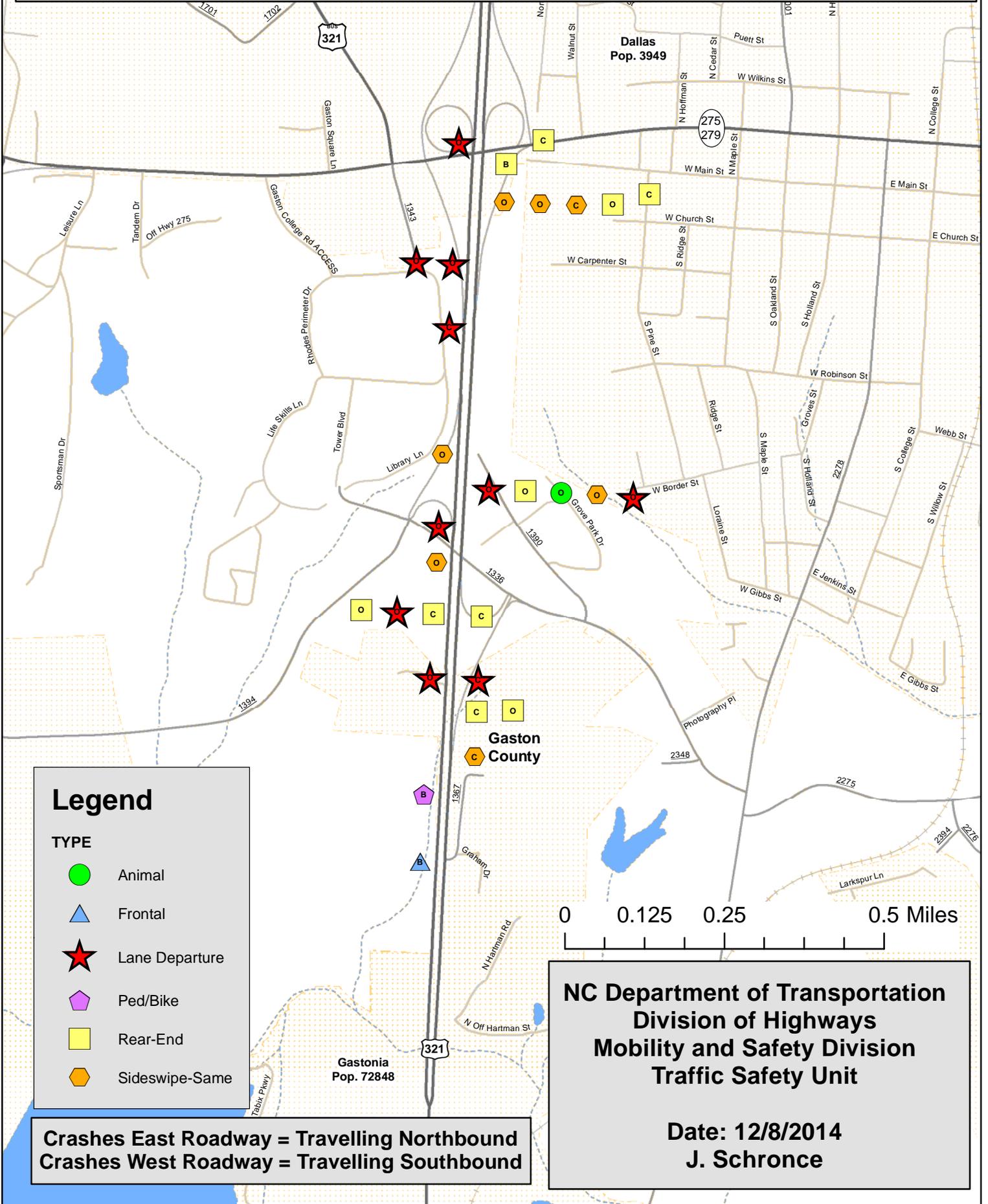
**Data Prepared For**

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 9, 2014

**W-5212C - GASTON County**  
**US-321 from NC-275/279 Overpass south to SR 1367 (MP 10.720-11.860)**  
**BEFORE PERIOD - 9/1/2006 to 5/31/2010 (3.75 Yrs)**



**Legend**

**TYPE**

-  Animal
-  Frontal
-  Lane Departure
-  Ped/Bike
-  Rear-End
-  Sideswipe-Same

**Crashes East Roadway = Travelling Northbound**  
**Crashes West Roadway = Travelling Southbound**

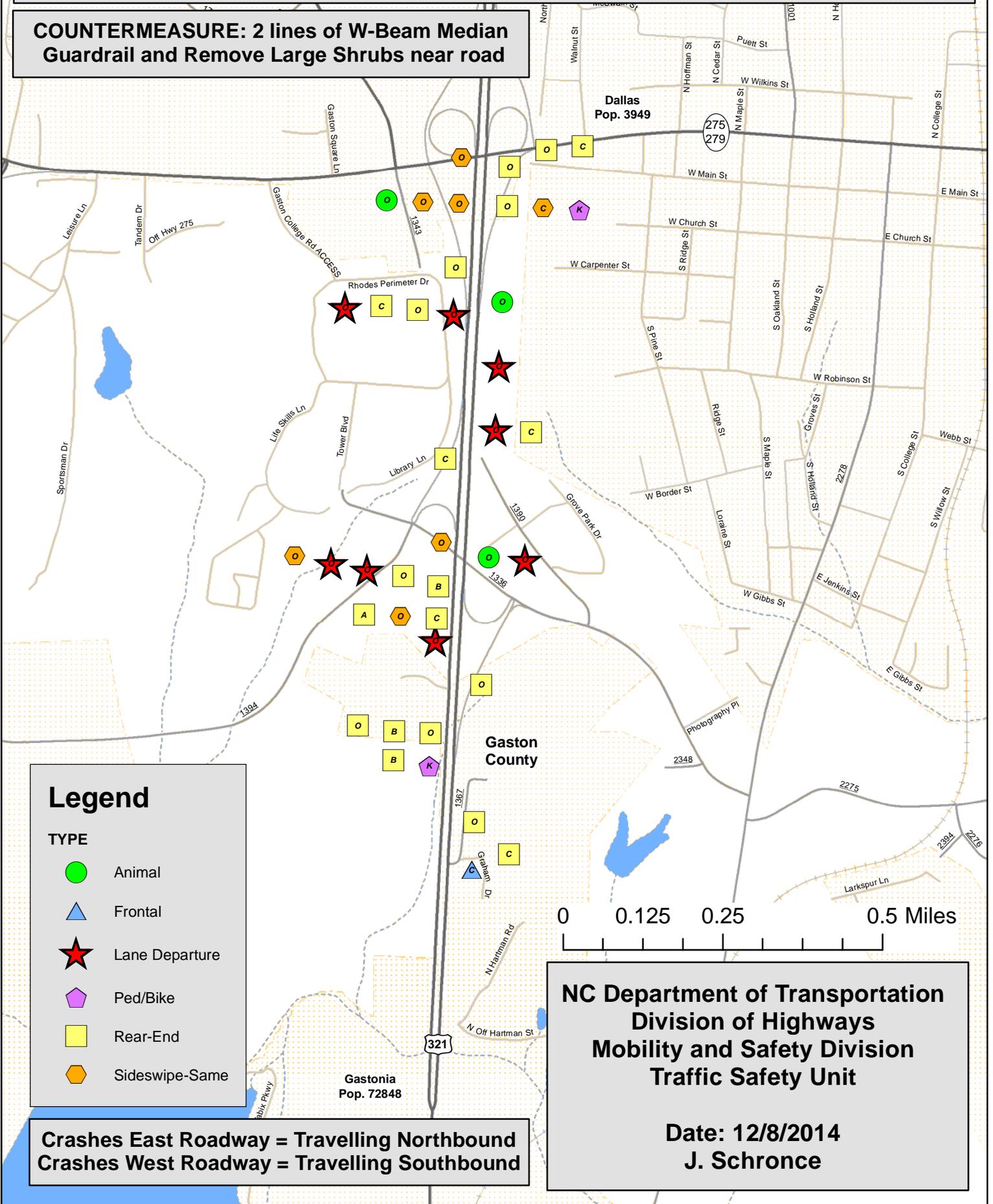
**NC Department of Transportation**  
**Division of Highways**  
**Mobility and Safety Division**  
**Traffic Safety Unit**

**Date: 12/8/2014**  
**J. Schronce**

**W-5212C - GASTON County**  
**US-321 from NC-275/279 Overpass south to SR 1367 (MP 10.720-11.860)**  
**AFTER PERIOD - 9/1/2010 to 5/31/2014 (3.75 Yrs)**



**COUNTERMEASURE: 2 lines of W-Beam Median  
 Guardrail and Remove Large Shrubs near road**



**Legend**

**TYPE**

- Animal
- Frontal
- Lane Departure
- Ped/Bike
- Rear-End
- Sideswipe-Same

**Crashes East Roadway = Travelling Northbound**  
**Crashes West Roadway = Travelling Southbound**

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

**Date: 12/8/2014**  
**J. Schronce**