

# Spot Safety Project Evaluation

## Project Information

Order ID: 41000030918

Project ID: 04-08-204

Location: US-70 from 1.68 mile west of the Railroad Overpass Bridge to the RR-Bridge

County: Johnston

City: Princeton

Division: 4

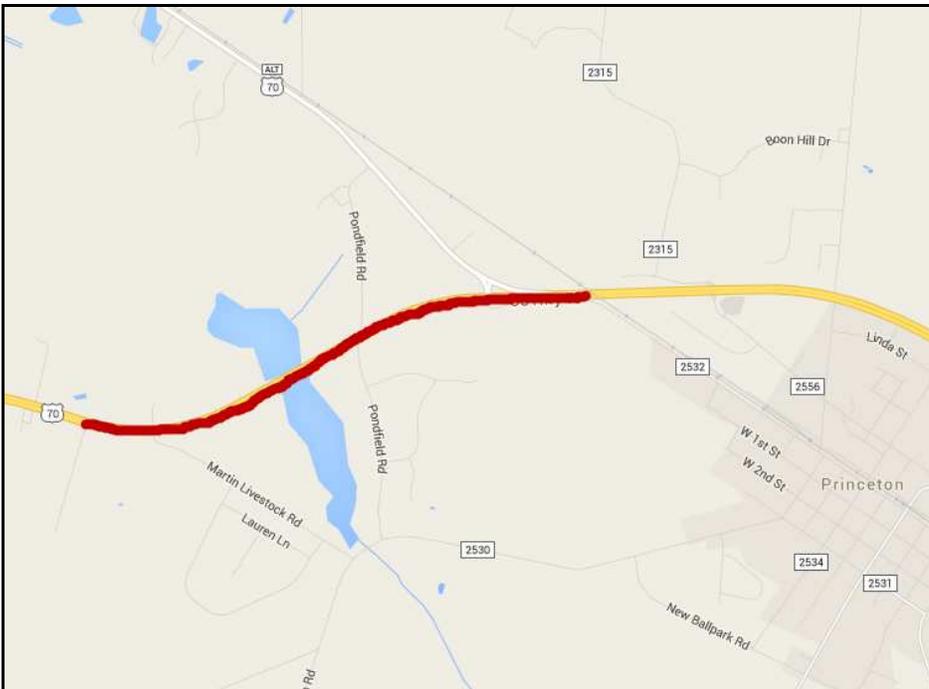
Signal ID: N/A

Countermeasure: Overlay the 1.68 mile segment with an Open-Graded Asphalt Friction Course. The project also constructed a right turn lane on US-70 Westbound at the SR 2522 Intersection (to serve a business) and revised the existing warning and regulatory signing to current roadway standards.

Project Completion: October 4, 2010

Project Cost: \$315,000

## Map and Aerial (from Google Maps) – Coordinates: 35.470258, -78.188752



## Naive Before and After Analysis

Before Period: October 1, 2005 through May 31, 2010 (4 years, 8 months)

Const. Period: June 1, 2010 through October 30, 2010

After Period: November 1, 2010 through June 30, 2015 (4 years, 8 months)

Analysis Criteria: Treatment data consisted of all crashes from Milepost 25.127 to 26.367 (1.24 miles) with a 0-foot y-line. The evaluation limits were shortened from the original limits west of the SR 2522 intersection to 150-feet west of the US-70 Alternate intersection due to multiple projects including a temporary signal at US-70Alt and the Railroad bridge replacement starting in 2012. The shortened limits include both sweeping curves that contain the wet roadway crash concern.

Target Crashes: The project concern was the over-represented wet roadway lane departure crashes along this section. The tables below identify lane departure, lane departure wet (codes 2-3), and lane departure winter (codes 4-6) independently. Lane departure crash types include: Ran-off Road (Left, Right, and Straight); Fixed Object; Jackknife; Roll-over; and Head-On.

<b><u>Treatment Information (1.24 Miles Section)</u></b>	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Total Crashes	51	46	- 9.8 %
Total Severity Index	9.41	3.57	- 62.1 %
Lane Departure Crashes	30	17	- 43.3 %
Lane Departure Crash Severity Index	11.05	4.48	- 59.5 %
Lane Departure Wet Crashes (Codes 2-3)	17	6	- 64.7 %
LD-Wet Crash Severity Index	12.53	3.47	- 72.3 %
Lane Departure Winter Crashes (Codes 4-6)	2	2	0.0 %
LD-Winter Crash Severity Index	1.00	8.40	100+ %
Volume (2008, 2013)	20,000	19,000	- 5.0 %

<b><u>Injury Crash Summary</u></b>	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Fatal injury Crashes	1	0	- 100.0 %
Class A injury Crashes	3	0	- 100.0 %
Class B injury Crashes	5	6	20.0 %
Class C Injury Crashes	12	10	- 16.7%
Property Damage Only	30	30	0.0 %

<b><u>Additional Information</u></b>	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Night Crashes	22	15	- 31.8 %
Total Wet Roadway Crashes	18	7	- 61.1 %
Alcohol/Drugs Involvement Crashes	1	1	0.0 %

<b><u>Crash Type Summary</u></b>	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Animal Hit	7	4	- 42.9 %
Debris Hit	1	7	100+ %
Frontal Impact (Intersection)	8	4	- 50.0 %
Lane Departure	30	17	- 43.3 %
Merge / Sideswipe	3	8	100+ %
Rear-End	2	6	100+ %

### **Overall Summary Results**

Total Crashes:	- 10 %	(reduction)
Total Crash Severity:	- 62 %	(reduction)
LD-Wet Target Crashes:	- 65 %	(reduction)
LD-Wet Target Crash Severity:	- 72 %	(reduction)
Volume:	- 5 %	(reduction)

### **Additional Summary Results**

Total Frontal Impact:	- 50 %	(reduction)
Animal Hit Crashes:	- 43 %	(reduction)

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

The open-grade asphalt friction course appears effective with a 65 percent reduction in lane departure wet crashes. Severe Injury (Fatals & A-Injuries) crashes were eliminated in the after period.

Total crashes only reduced by 10 percent through the evaluation and the roadway experienced crash increases in debris, rear-end, and merge type collisions. This segment of roadway has an upcoming project to install directional crossovers at the SR 2522 (Martin Livestock Rd) and SR 2314 (Pondfield Road) intersections.

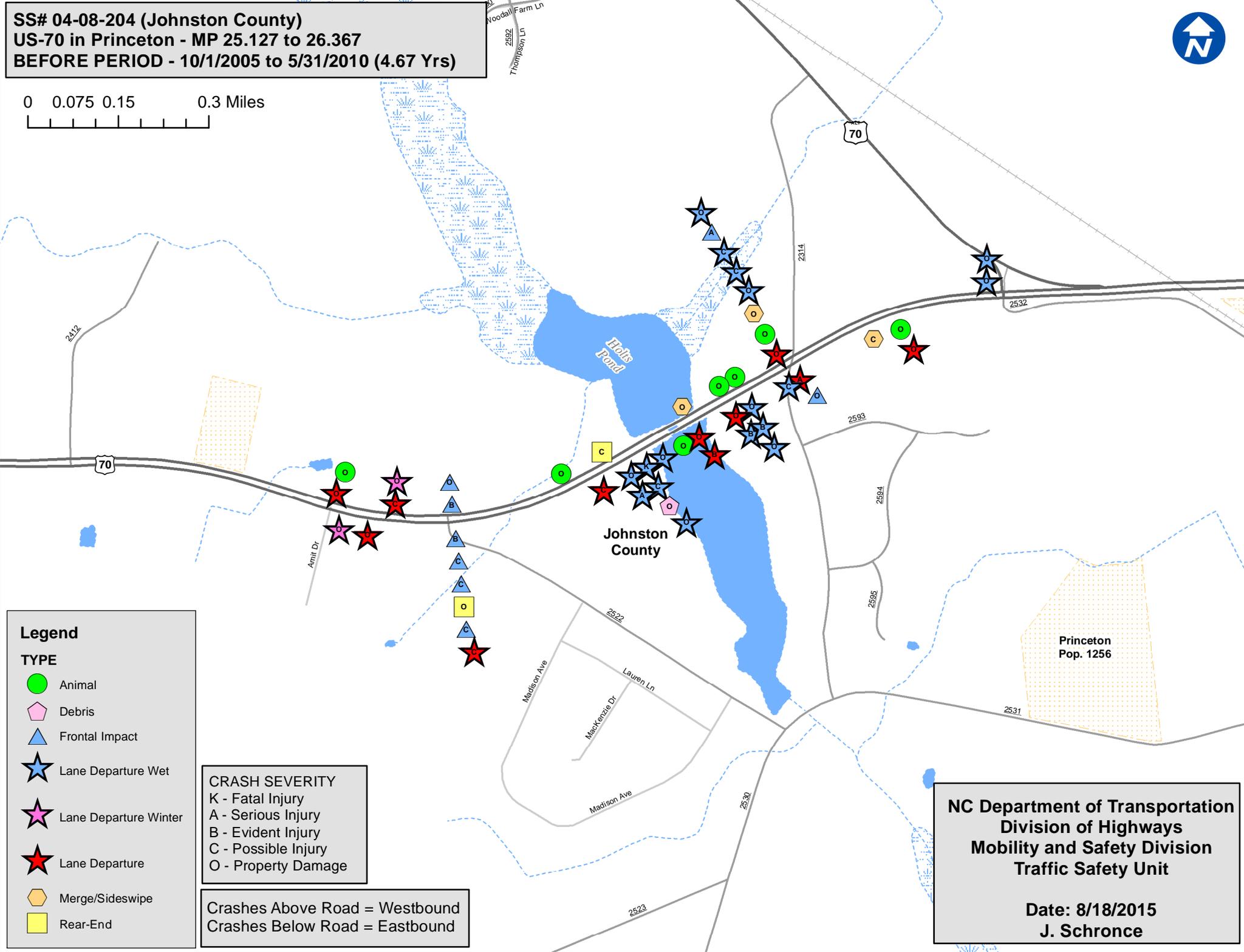
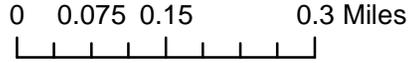
**Data Prepared For**

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, PE  
Work Group/Consultant: NCDOT - Safety Evaluation Group  
Date: August 28, 2015

**SS# 04-08-204 (Johnston County)**  
**US-70 in Princeton - MP 25.127 to 26.367**  
**BEFORE PERIOD - 10/1/2005 to 5/31/2010 (4.67 Yrs)**



**Legend**

**TYPE**

- Animal
- Debris
- Frontal Impact
- Lane Departure Wet
- Lane Departure Winter
- Lane Departure
- Merge/Sideswipe
- Rear-End

**CRASH SEVERITY**

- K - Fatal Injury
- A - Serious Injury
- B - Evident Injury
- C - Possible Injury
- O - Property Damage

Crashes Above Road = Westbound  
 Crashes Below Road = Eastbound

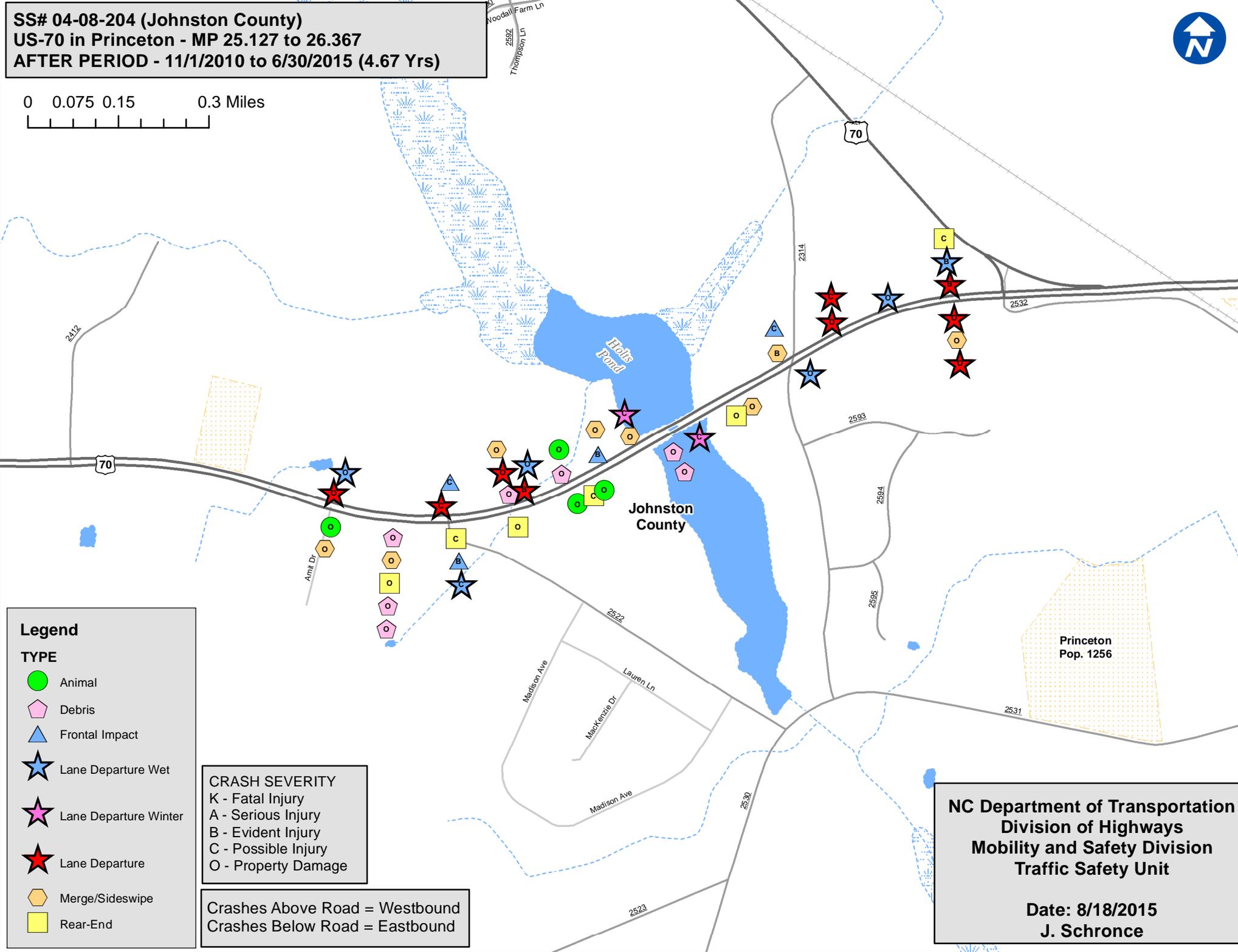
**NC Department of Transportation**  
**Division of Highways**  
**Mobility and Safety Division**  
**Traffic Safety Unit**

**Date: 8/18/2015**  
**J. Schronce**

**SS# 04-08-204 (Johnston County)**  
**US-70 in Princeton - MP 25.127 to 26.367**  
**AFTER PERIOD - 11/1/2010 to 6/30/2015 (4.67 Yrs)**



0 0.075 0.15 0.3 Miles



**Legend**

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