

# Spot Safety Project Evaluation

## Project Information

Order ID: 41000033836

Project ID: 05-08-215

Location: US 64 Business (Wendell Blvd) at NC 97/SR 2366 (Old Battle Bridge Rd)

County: Wake

City: Wendell

Division: 5

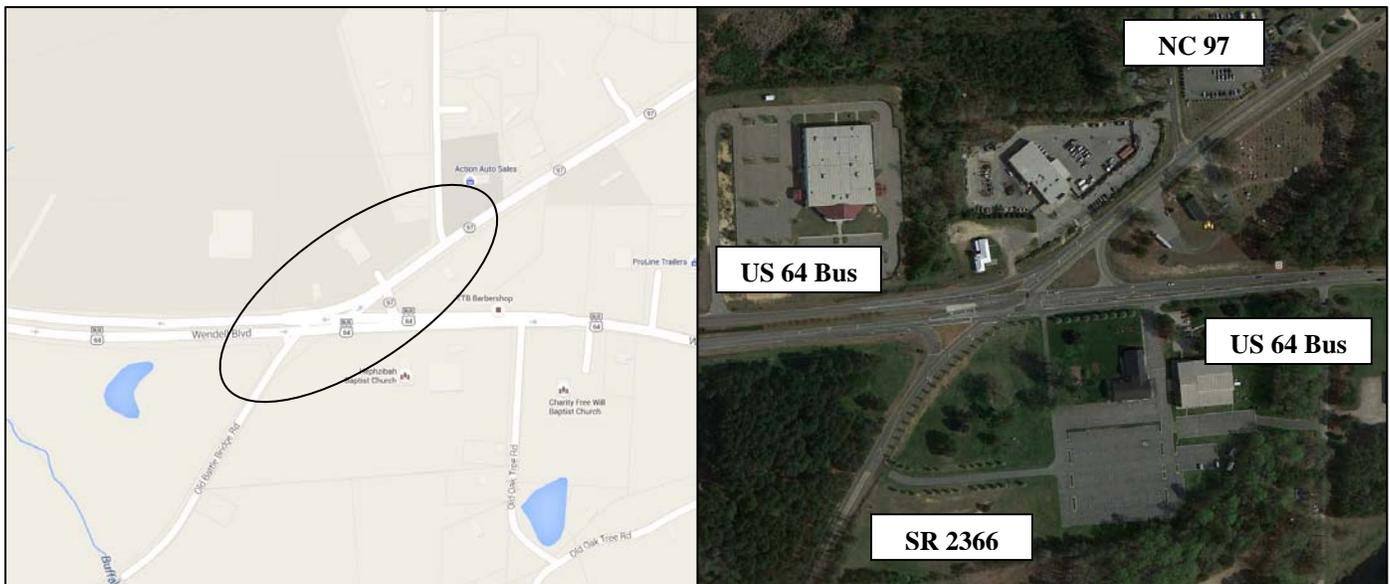
Signal ID: 05-0240

Countermeasure: Realign SR 2366 so that it intersects US 64 Business at NC 97, and lengthen the westbound left-turn lane on US 64 Business

Project Completion: November, 2011

Project Cost: \$600,000

## Map and Aerial (from Google Maps – Coordinates are 35.802146, -78.401341)



## Naive Before and After Analysis

- Before Period: April 1, 2008 through September 30, 2011 (3 years 6 months)
- Const. Period: October 1, 2011 through December 31, 2011
- After Period: January 1, 2012 through June 30, 2015 (3 years 6 months)
- Analysis Criteria: Treatment data consisted of all crashes within 150 feet of the subject intersection for the US 64 Business and NC 97/SR 2366 approaches and 150 feet north of SR 2300 on NC 97.
- Target Crash 1: Left-turn same roadway crashes onto SR 2366 (Old Battle Bridge Rd)
- Target Crash 2: Left-turn same roadway/rear end crashes at SR 2300 (Edgemont Rd)
- Target Crash 3: Crashes involving the median opening east of the intersection

| <b><u>Treatment Information – Countermeasure Realign Intersection</u></b> |               |              |   |
|---|---------------|--------------|---|
| <b><u>Treatment Information</u></b>                                       | <b>Before</b> | <b>After</b> | <b>Percent Reduction (-)<br/>Percent Increase (+)</b> |
| Total Crashes   | 45            | 23           | - 48.9 %  |
| Total Severity Index  | 3.96          | 3.57         | - 9.8 %   |
| Target 1 Crashes  | 9             | 0            | - 100.0 %   |
| Target 1 Crash Severity Index   | 5.93          | 0.00         | - 100.0 %   |
| Target 2 Crashes  | 13            | 1            | - 92.3 %  |
| Target 2 Crash Severity Index   | 3.28          | 8.40         | + 156.1 %   |
| Target 3 Crashes  | 5             | 0            | - 100.0 %   |
| Target 3 Crash Severity Index   | 5.44          | 0.00         | - 100.0 %   |
| Total Target Crashes  | 27            | 1            | - 96.3 %  |
| Total Target Crashes Severity Index                                       | 4.56          | 8.4          | + 84.2 %  |
| Volume (2009, 2013)   | 20,100        | 23,500       | + 16.9 %  |

| <b><u>Injury Crash Summary</u></b> | <b>Before</b> | <b>After</b> | <b>Percent Reduction (-)<br/>Percent Increase (+)</b> |
|------------------------------------|---------------|--------------|---|
| Fatal injury Crashes               | 0             | 0            | N/A   |
| Class A injury Crashes             | 0             | 0            | N/A   |
| Class B injury Crashes             | 10            | 2            | - 80.0 %  |
| Class C Injury Crashes             | 8             | 6            | + 25.0 %  |
| Property Damage Only               | 27            | 15           | - 44.4 %  |

| <b>Additional Information</b>        | <b>Before</b> | <b>After</b> | <b>Percent Reduction (-)<br/>Percent Increase (+)</b> |
|--------------------------------------|---------------|--------------|---|
| LTSR Crashes onto SR 2366 (Target 1) | 9             | 0            | - 100.0 %   |
| LTSR Crashes onto SR 2300 (Target 2) | 13            | 1            | - 92.3 %  |
| Median Opening Crashes (Target 3)    | 5             | 0            | - 100.0 %   |
|                                      |               |              |   |
| US 64 Bus EB Rear-End Crashes        | 8             | 7            | - 12.5 %  |
| US 64 Bus WB Rear-End Crashes        | 0             | 5            | + 100.0 %   |
| SR 2366 NB Rear-End Crashes          | 2             | 0            | - 100.0 %   |
| Total Rear-End Crashes               | 12            | 12           | 0.00 %  |

### **Table 1 Summary Results**

|                              |         |             |
|------------------------------|---------|-------------|
| Total Crashes:               | - 49 %  | (reduction) |
| Total Crash Severity:        | - 10 %  | (reduction) |
| Target 1 Crashes:            | - 100 % | (reduction) |
| Target 1 Crash Severity:     | - 100 % | (reduction) |
| Target 2 Crashes:            | - 92 %  | (reduction) |
| Target 2 Crash Severity:     | + 156 % | (increase)  |
| Target 3 Crashes:            | - 100 % | (reduction) |
| Target 3 Crash Severity:     | - 100 % | (reduction) |
| Total Target Crashes:        | - 96 %  | (reduction) |
| Total Target Crash Severity: | + 84 %  | (increase)  |
| Volume:                      | + 17 %  | (increase)  |

### **Additional Summary Results**

|                                |         |             |
|--------------------------------|---------|-------------|
| US 64 Bus EB Rear-End Crashes: | - 13 %  | (reduction) |
| US 64 Bus WB Rear-End Crashes: | + 100 % | (increase)  |
| SR 2366 NB Rear-End Crashes:   | - 100 % | (reduction) |
| Total Rear-End Crahes:         | 0 %     | (no change) |

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

The study intersection experienced a 49 % reduction in Total Crashes (45 to 23 crashes).

The Target 1 Crashes (LTSR Crashes onto SR 2366) experienced a 100 % reduction (9 to 0 crashes).

The Target 2 Crashes (LTSR Crashes onto SR 2300) experienced a 92 % reduction (13 to 1 crashes).

The Target 3 Crashes (Median opening related crashes) experienced a 100 % reduction (5 to 0 crashes).

The study intersection experienced no change in Total Rear-End Crashes (12 to 12 crashes).

### **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: Andrew Covington, EI

Work Group/Consultant: AECOM

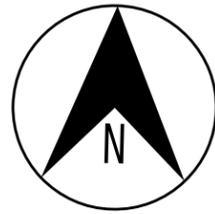
Date: August 28, 2015

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

SS# 05-08-215  
 Order # 41000033836  
 Wake County  
 Before Period  
 4/1/08 - 9/30/11

NC 97  
 55 MPH  
 2009 ADT 9,000

SR 2300  
 (Edgemont Rd)



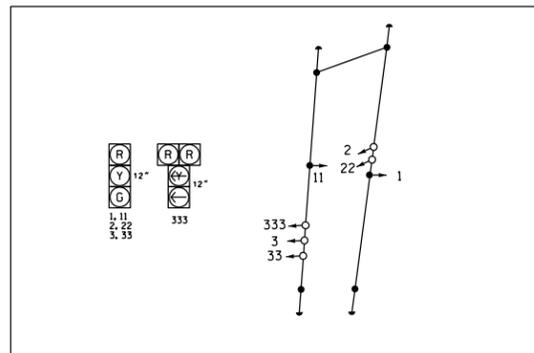
US 64 Business  
 (Wendell Blvd)  
 55 MPH  
 2009 ADT 17,000

US 64 Business  
 (Wendell Blvd)  
 55 MPH  
 2009 ADT 13,000

SR 2366 (Old Battle Bridge Rd)  
 35 MPH  
 2009 ADT 1,200

Hephzibah  
 Baptist  
 Church

SIG ID 05-0240 (2 Phase Fully Actuated)



- Target 1 - LTSR Crashes onto SR 2366
- Target 2 - LTSR/Rear End Crashes onto SR 2300
- Target 3 - Crashes involving median opening east of intersection

**AECOM**

Prepared For:  
 N.C. DEPARTMENT of TRANSPORTATION  
 DIVISION of HIGHWAYS  
 TRANSPORTATION MOBILITY and  
 SAFETY DIVISION

**TRAFFIC SAFETY UNIT**

Date: 8-28-2015

Prepared By: Andrew Covington, EI

LEGEND

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

SS# 05-08-215  
 Order # 41000033836  
 Wake County  
 After Period  
 1/1/12 - 6/30/15

SR 2300  
 (Edgemont Rd)

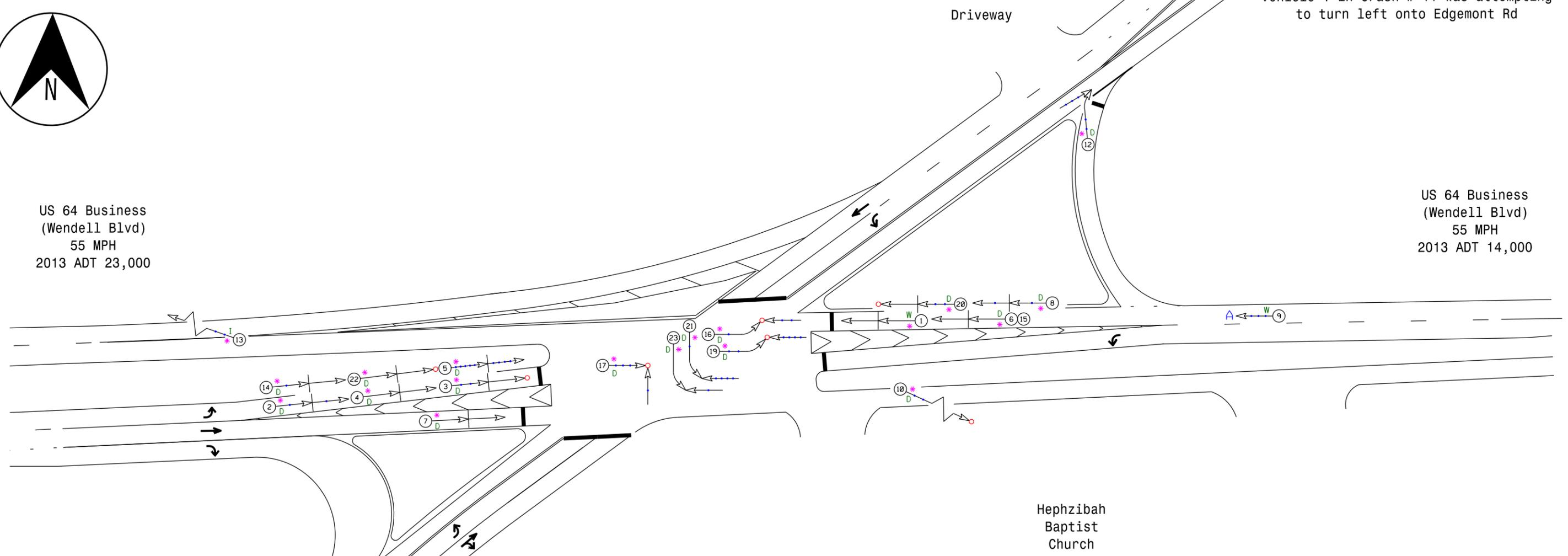
NC 97  
 55 MPH  
 2013 ADT 8,000



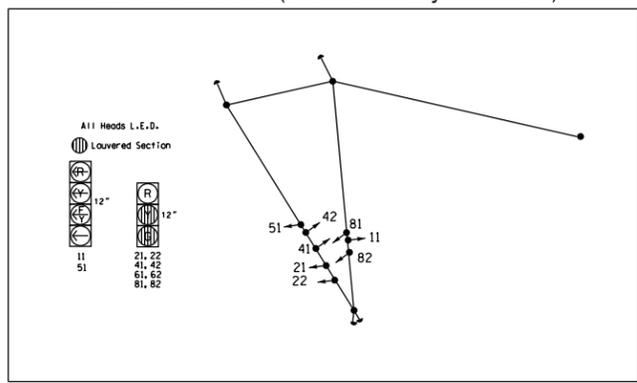
US 64 Business  
 (Wendell Blvd)  
 55 MPH  
 2013 ADT 23,000

US 64 Business  
 (Wendell Blvd)  
 55 MPH  
 2013 ADT 14,000

Note:  
 Vehicle 1 in Crash # 11 was attempting  
 to turn left onto Edgemont Rd



SIG ID 05-0240 (5 Phase Fully Actuated)



- Target 1 - LTSR Crashes onto SR 2366
- Target 2 - LTSR/Rear End Crashes onto SR 2300
- Target 3 - Crashes involving median opening east of intersection

SR 2366 (Old Battle Bridge Rd)  
 35 MPH  
 2013 ADT 1,200

Hephzibah  
 Baptist  
 Church



Prepared For:  
 N.C. DEPARTMENT of TRANSPORTATION  
 DIVISION of HIGHWAYS  
 TRANSPORTATION MOBILITY and  
 SAFETY DIVISION

**TRAFFIC SAFETY UNIT**

Date: 8-28-2015 Prepared By: Andrew Covington, EI