

Hazard Elimination Project Evaluation

Project Information

Order ID: 41000032663

Project ID: W-5205B

Location: NC-50 (Creedmoor Rd) @ SR 1844 (Mount Vernon Church Road)

County: Wake

City: North of Raleigh

Division: 5

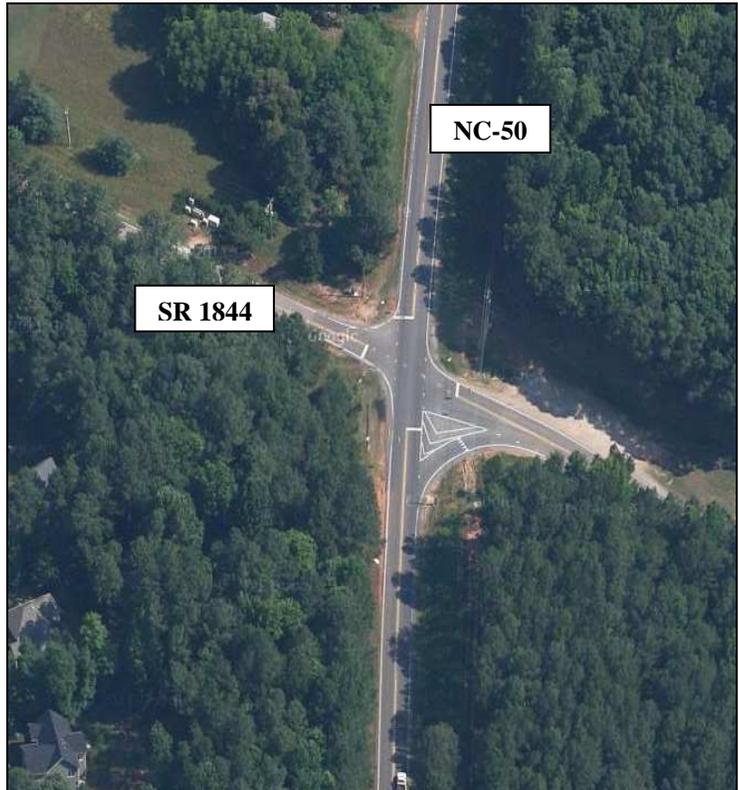
Signal ID: 05-2401

Countermeasure: Install Traffic Signal

Project Completion: December 31, 2010

Project Cost: \$53,500

Map and Aerial (from Google Maps) – Coordinates 35.973849,-78.687118



Naive Before and After Analysis

- Before Period: December 1, 2006 through September 30, 2010 (3 years, 10 months)
- Const. Period: October 1, 2010 through December 31, 2010
- After Period: January 1, 2011 through October 31, 2014 (3 years, 10 months)
- Analysis Criteria: Treatment data consisted of all crashes within 150 feet of the subject intersection for the NC-50 and SR 1844 approaches.
- Target Crashes: Frontal Impact Crashes at the intersection were the selected target crashes, which includes the following: angle, left turn (different, same roadway), and head-on collisions.

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	16	24	50.0 %
Total Severity Index	4.70	7.24	54.0 %
Target Crashes – Frontal Impact	8	7	- 12.5 %
Target Crash Severity Index	6.55	12.89	96.8 %
Volume (2008, 2012)	14,700	15,600	6.1 %

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	0	0	N/A
Class A injury Crashes	0	1	100.0 %
Class B injury Crashes	3	2	- 33.3 %
Class C Injury Crashes	5	8	60.0 %
Property Damage Only	8	13	62.5 %

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Night Crashes	3	3	0.0 %
Wet Roadway Crashes	2	6	200.0 %
Alcohol / Drugs Involvement Crashes	0	1	100.0 %
Mainline (NC-50) Rear-End Crashes	5	15	200.0 %

Overall Summary Results

Total Crashes:	50 %	(increase)
Total Crash Severity:	54 %	(increase)
Target Crashes:	- 13 %	(reduction)
Target Crash Severity:	97 %	(increase)
Volume:	6 %	(increase)

Additional Summary Results

Wet Roadway Crashes:	200 %	(increase)
Mainline (NC-50) Rear-End Crashes:	200 %	(increase)

Items for Discussion/Concerns

Based on the *collision diagrams*, the after period intersection experienced seven (7) frontal impact crashes including four (4) left turn same roadway collisions on permissive green phase, one (1) head-on collision south of the intersection, and two (2) red light violation left turn collisions. One of the red light violations resulted in an A-class injury.

Additionally, rear-end crashes on the NC-50 approaches have increased by 200 percent through the evaluation periods.

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: January 8, 2015

SR 1844
MT. VERNON CHURCH RD
45-MPH

ADT (YEAR)
12,500 (2008)

ADT (YEAR)
1,050 (2008)

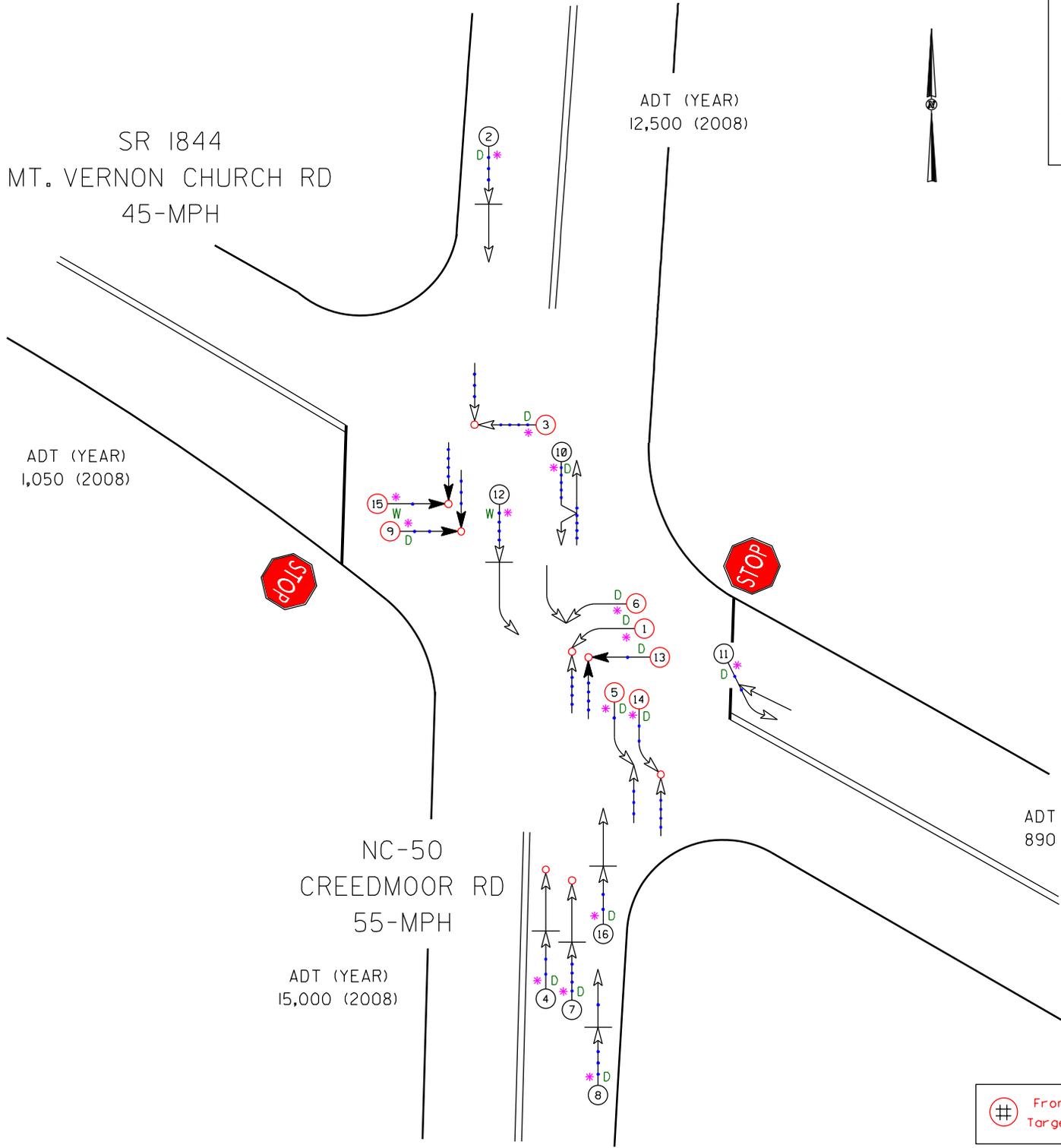
NC-50
CREEDMOOR RD
55-MPH

ADT (YEAR)
15,000 (2008)

ADT (YEAR)
890 (2008)

LEGEND							
	MOVING VEHICLE		ANGLE		9 MPH OR LESS		PEDESTRIAN
	PAIRED VEHICLE		TURNING		10 MPH TO 19		TRAIN
	PARKING VEHICLE		TURNING		20 MPH TO 29		DRIVER AT FAULT
	PARKING VEHICLE		TURNING		30 MPH TO 39		DRY
	FIXED OBJECT		TURNING		40 MPH TO 49		WET
	HEAD ON		TURNING		50 MPH TO 59		ICY OR SNOWY
	REAR END		TURNING		60 MPH TO 69		OTHER
	REAR END		TURNING		70 AND UP		
	RAN OFF ROAD		TURNING		SPEED UNKNOWN		
	RAN OFF ROAD		TURNING				

Hazard W-5205B
Order# 41000032663
Wake County
BEFORE Period
12/1/06 - 9/30/10



Frontal Impact
Target Crashes

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
TRANSPORTATION MOBILITY and
SAFETY DIVISION

TRAFFIC SAFETY UNIT

Date: 12-5-2014 Prepared By: J. Schronce

ADT (YEAR)
1,100 (2011)

ADT (YEAR)
13,000 (2011)



LEGEND

	MOVING VEHICLE		ANGLE		9 MPH OR LESS		PEDESTRIAN
	PAKED VEHICLE		TURNING		10 MPH TO 19		TRAIN
	PARKING VEHICLE		BACKING		20 MPH TO 29		DRIVER AT FAULT
	FIXED OBJECT		SIDESWIPE		30 MPH TO 39		DRY
	HEAD ON		REAR END		40 MPH TO 49		WET
	REAR END		INJURY		50 MPH TO 59		ICY OR SNOWY
	RAN OFF ROAD		FATALITY		60 MPH TO 69		ICY OR SNOWY
			SPEED UNKNOWN		70 AND UP		OTHER

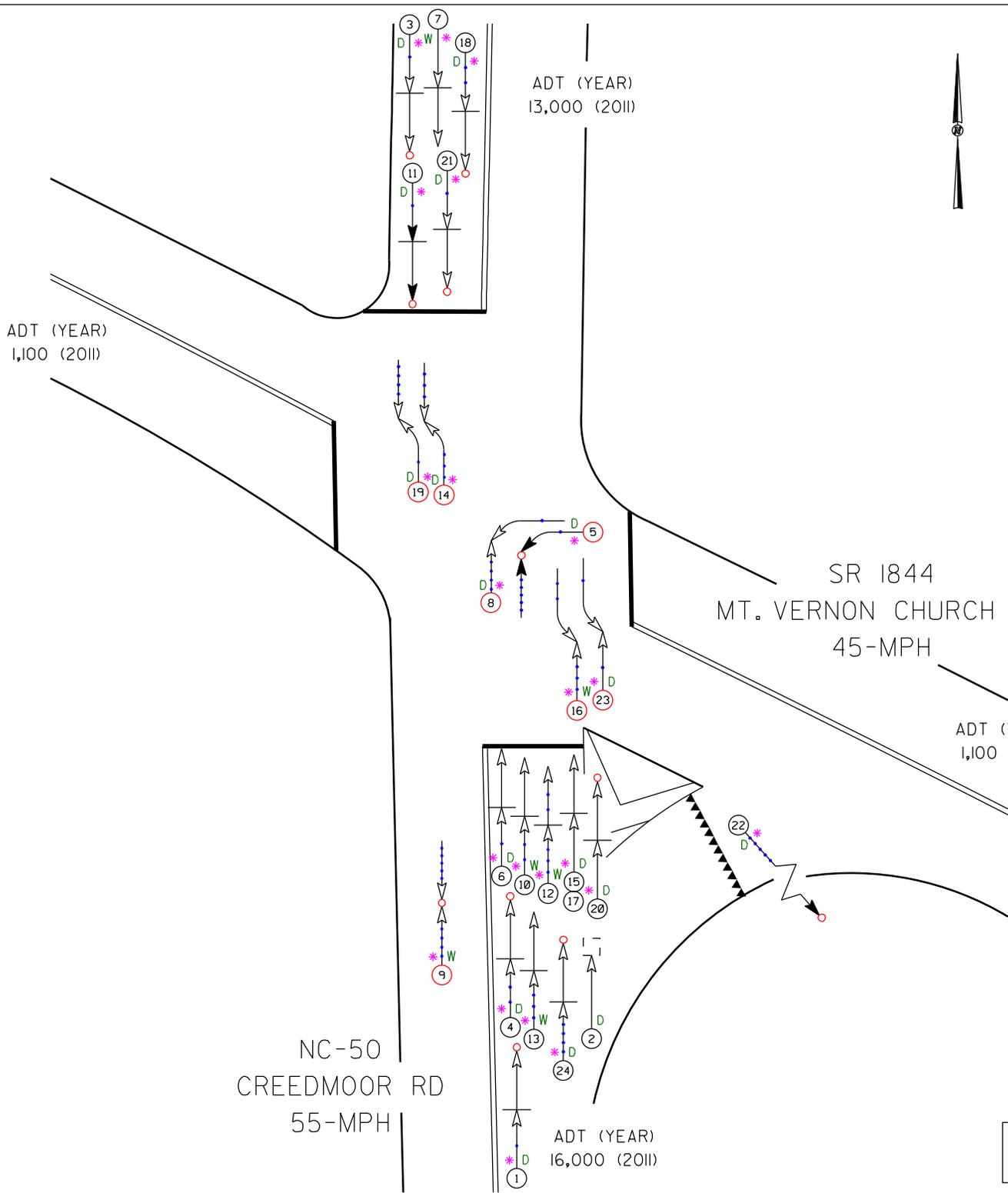
Hazard W-5205B
Order# 41000032663
Wake County
AFTER Period
1/1/11 - 10/31/14

SR 1844
MT. VERNON CHURCH RD
45-MPH

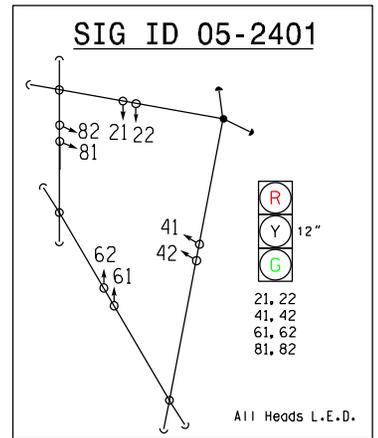
ADT (YEAR)
1,100 (2011)

NC-50
CREEDMOOR RD
55-MPH

ADT (YEAR)
16,000 (2011)



Frontal Impact
Target Crashes



N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
TRANSPORTATION MOBILITY and SAFETY DIVISION

TRAFFIC SAFETY UNIT

Date: 12-10-2014 Prepared By: J. Schronce