

Spot Safety Project Evaluation

Project Information

Order ID: 41000030280

Project ID: 09-07-217

Location: SR 1221 (Old Beatty's Ford Road) at SR 1002 (Old Concord Road)

County: Rowan

City: China Grove

Division: 9

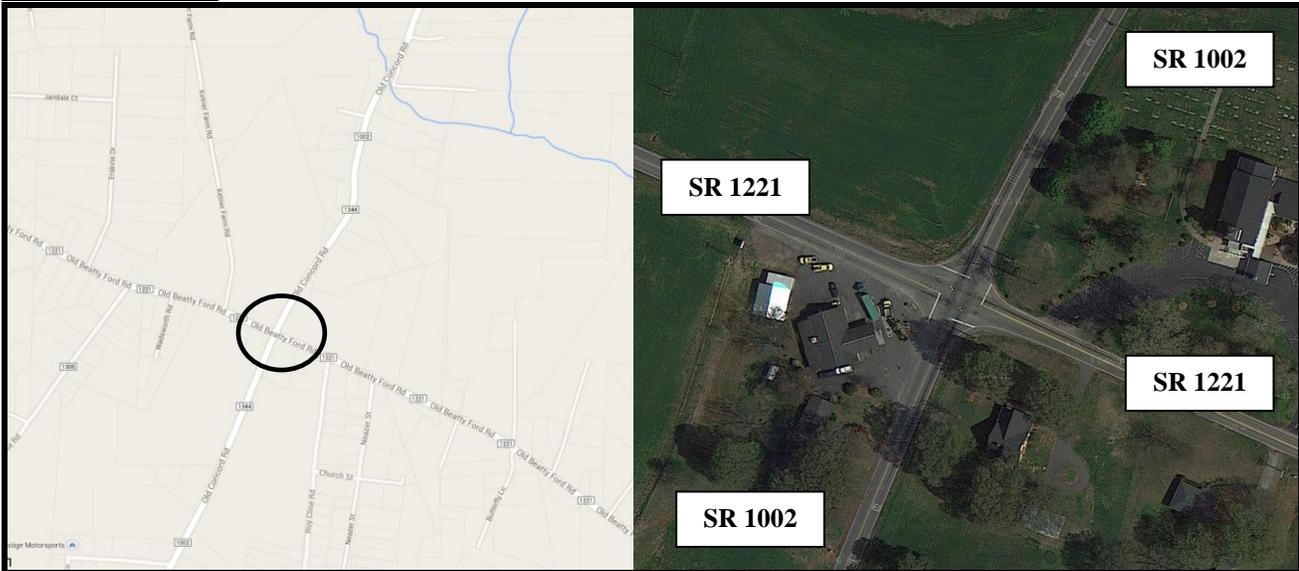
Signal ID: 09-1184 (flasher)

Countermeasure: Improve sight distance at intersection by vertical and horizontal realignment and cutting bank back in northeast quadrant; convert to Four-way stop.

Project Completion: Between February 1, 2010 – March 31, 2010

Project Cost: \$151,000.00

Map and Aerial (from Google maps – Coordinates are 35.521585,-80.532266)



Naive Before and After Analysis

- Before Period: September 1, 2005 through January 31, 2010 (4 years 5 months)
- Const. Period: February 1, 2010 through March 31, 2010 (2 months)
- After Period: April 1, 2010 through August 31, 2014 (4 years 5 months)
- Analysis Criteria: Treatment data consisted of all crashes within 150 feet of the subject intersection for the SR 1221 and SR 1002 approaches.
- Target Crashes: Target crashes were considered to be all Frontal impact crashes including angle; left-turn, same roadway; left-turn, different roadways; right-turn, different roadways; right-turn, same roadway; and head-on.

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	31	7	-77.4%
Total Severity Index	14.1	5.2	-63.0%
Target Crashes	22	5	-77.3%
Target Crash Severity Index	18.2	6.9	-62.0%
Volume (2007, 2012)	8,000	6,800	-15.0%

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	2	0	-100.0%
Class A injury Crashes	2	0	-100.0%
Class B injury Crashes	1	0	-100.0%
Class C Injury Crashes	12	4	-69.2%
Property Damage Only	13	3	-76.9%

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Northbound SR 1002 Frontal Impact (Target)	3	0	-100.0%
Southbound SR 1002 Frontal Impact (Target)	0	4	400.0%
Eastbound SR 1221 Frontal Impact (Target)	13	1	-92.3%
Westbound SR 1221 Frontal Impact (Target)	6	0	-100.0%
Rear-end Crashes	7	2	-71.4%

Overall Summary Results

Total Crashes:	-77.4 %	(reduction)
Total Crash Severity:	-63.0 %	(reduction)
Target Crashes:	-77.3 %	(reduction)
Target Crash Severity:	-62.0 %	(reduction)
Volume:	-15.0 %	(reduction)

Additional Summary Results

Northbound SR 1002 Frontal Impact (Target):	-100.0 %	(reduction)
Southbound SR 1002 Frontal Impact (Target):	400.0 %	(increase)
Eastbound SR 1221 Frontal Impact (Target):	-92.3 %	(reduction)
Westbound SR 1221 Frontal Impact (Target):	-100.0 %	(reduction)
Rear-end crashes:	-71.4 %	(reduction)

Items for Discussion/Concerns

Both the total crashes and target crashes experienced a significant decrease of over 75% between the before and after periods. The total crash severity experienced a reduction of 63.0% while the target crash severity experienced a reduction of 62% between the before and after periods.

The before period included 2 fatal crashes, 2 disabling injury crashes (class A) and 1 evident injury crash (class B), each of which were target crashes. In the after period these fatal and severe injury crashes were eliminated, with only possible injury crashes (class C) and property damage only crashes.

Target crashes were eliminated on the northbound and westbound approaches while the eastbound approach experienced a decrease of 92.3% (13 to 1 crashes) between the before and after periods. The southbound approach experienced zero (0) crashes in the before period; however there were four (4) crashes on this approach in the after period.

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

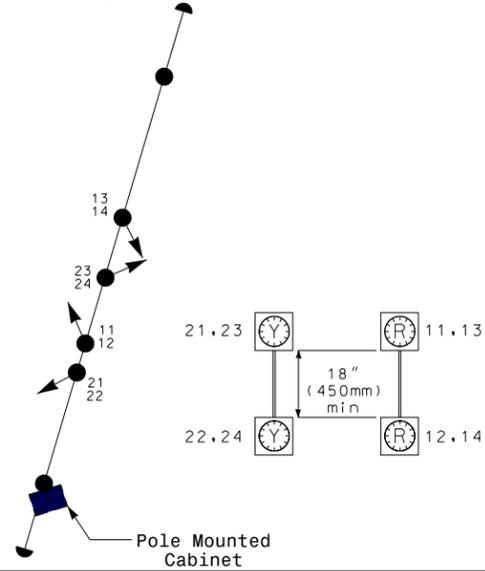
Principal Investigator: Celeste Harvey

Work Group/Consultant: Hatch Mott MacDonald

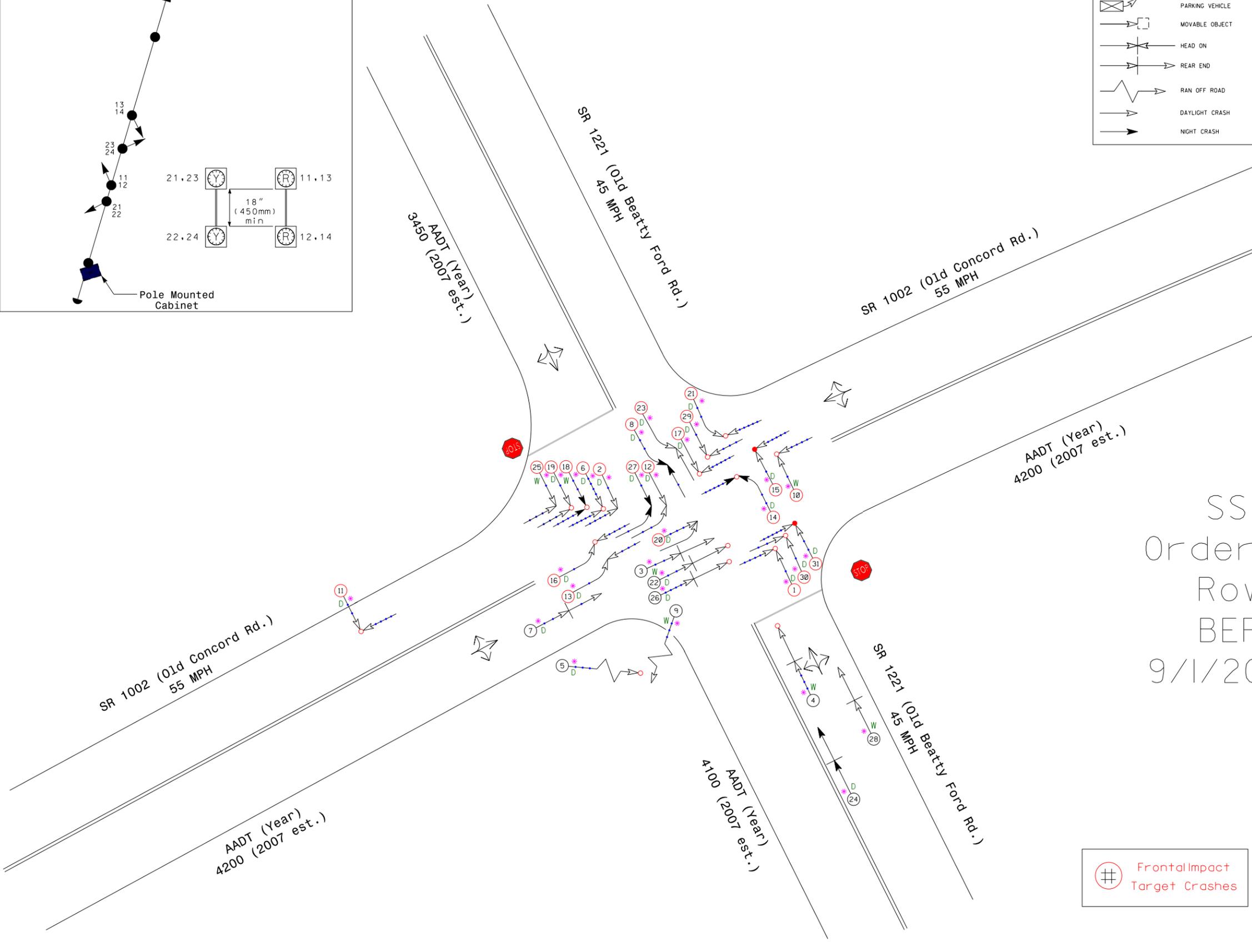
Date: November 6, 2014

SIGNAL FACE I.D.

Denotes L.E.D.



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



SS# 09-07-217
 Order# 41000030280
 Rowan County
 BEFORE Period
 9/1/2005 - 1/31/2010

Frontal Impact Target Crashes

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

TRAFFIC SAFETY UNIT

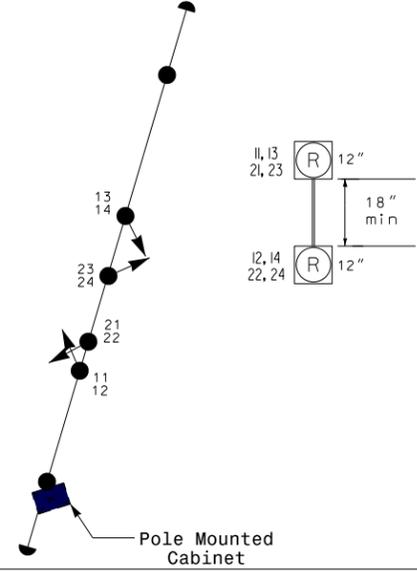
Date: 10/15/2014

Prepared By: Celeste Harvey



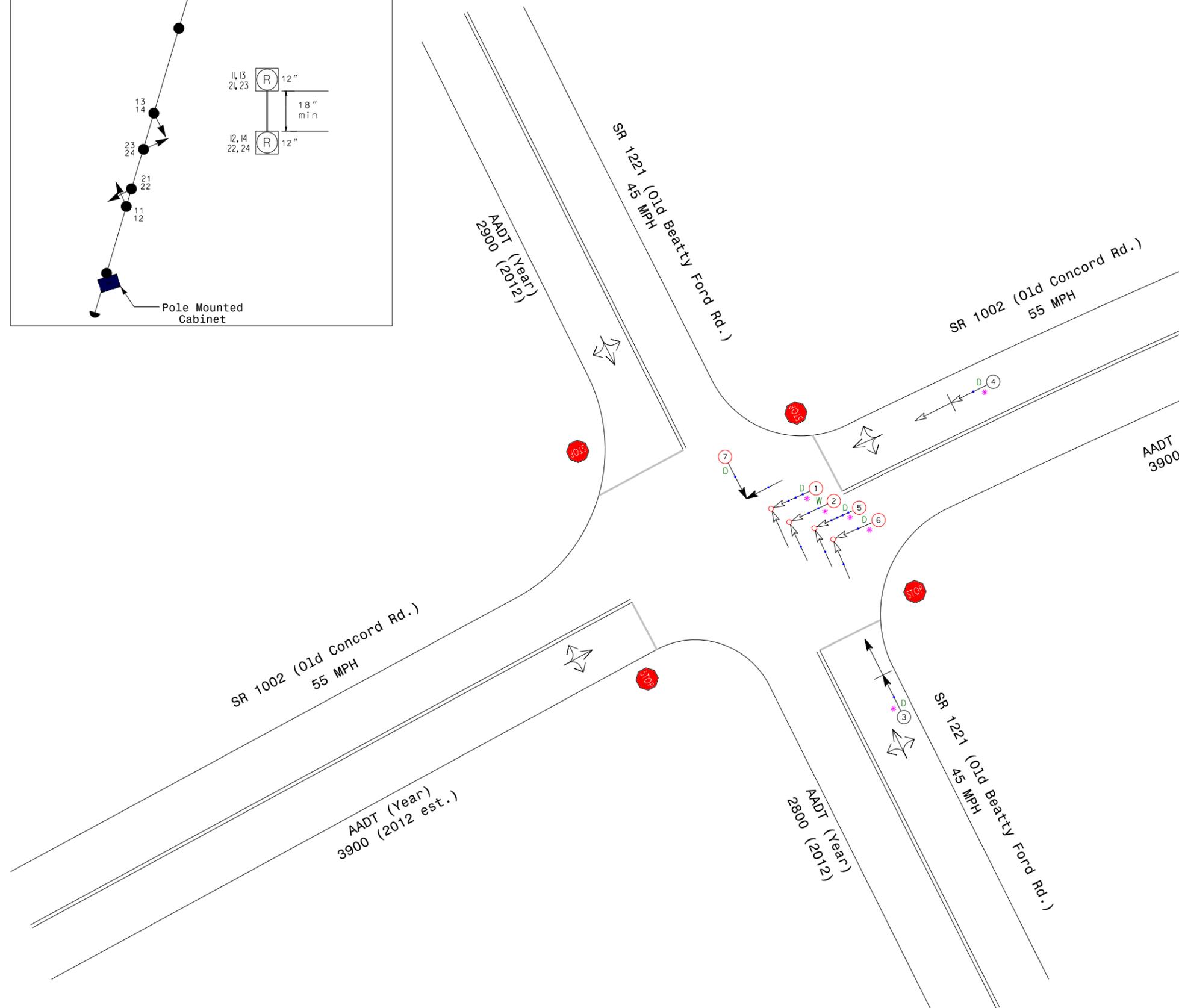
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LEGEND

	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
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	HEAD ON		INJURY		40 MPH TO 49		* DRIVER AT FAULT
	REAR END		FATALITY		50 MPH TO 59		D DRY
	RAN OFF ROAD				60 MPH TO 69		W WET
	DAYLIGHT CRASH				70 AND UP		I ICY OR SNOWY
	NIGHT CRASH				SPEED UNKNOWN		O Other



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 Rowan County
 AFTER Period
 4/1/2010 - 8/31/2014

Frontal Impact
Target Crashes

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

TRAFFIC SAFETY UNIT

Date: 10/15/2014 Prepared By: Celeste Harvey

Hatch Mott MacDonald