

Naive Before and After Analysis

Before Period: June 1, 2004 through March 31, 2009 (4.83 years)

Const. Period: April 1, 2009 through June 30, 2009

After Period: July 1, 2009 through April 30, 2014 (4.83 years)

Analysis Criteria: Treatment data consists of all crashes on US 64 from 150' west of SR 1451-S. Park St to 150' east of SR 2237-E. Salisbury St. with a 0' y-line

Target Crashes: (1) Angle Crashes at signalized intersections involving a red light runner on US 64 (including crashes with fault unknown)
(2) Rear End Crashes on US 64 within 150' of (and approaching) signalized intersections

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	796	760	- 4.5%
Total Severity Index	4.08	3.51	- 14.0%
Target Crash 1 (Angle)	47	42	- 10.6%
Target Crash 1 Severity Index	4.94	4.17	- 15.6%
Target Crash 2 (Rear End)	147	140	- 4.8%
Target Crash 2 Severity Index	4.44	3.64	- 18.0%
Volume (2006, 2011)	30,300	27,300	- 9.9%

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	2	0	- 100.0%
Class A injury Crashes	4	2	- 50.0%
Class B injury Crashes	40	29	- 27.5%
Class C Injury Crashes	230	208	- 9.6%
Property Damage Only	520	521	+ 0.2%

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Target Crash 1 (Angle) - Sunrise/Sunset Hours*	23	19	- 17.4%
Target Crash 2 (Rear End) - Sunrise/Sunset Hours*	62	57	- 8.1%

*Crashes surrounding sunrise (6-9 am) and sunset (4-9 pm) hours when there is a potential for sun glare.

Overall Summary Results

Total Crashes:	- 5%	(reduction)
Total Crash Severity:	- 14%	(reduction)
Target Crash 1 (Angle):	- 11%	(reduction)
Target Crash 1 Severity:	- 16%	(reduction)
Target Crash 2 (Rear Ends):	- 5%	(reduction)
Target Crash 2 Severity:	- 18%	(reduction)
Volume:	- 10%	(reduction)

Additional Summary Results

Target Crash 1 (Angle) - Sunrise/Sunset Hours*:	- 17%	(reduction)
Target Crash 2 (Rear End) - Sunrise/Sunset Hours*:	- 8%	(reduction)

Items for Discussion/Concerns

Back plates help improve the visual contrast between signal heads and the surrounding background. Target crashes include those that may be impacted by improved signal visibility and conspicuity on US 64 during all hours of the day.

US 64 is an east-west roadway, which creates the potential for sun glare along the corridor. The use of back plates is a mitigation strategy to reduce the effect of sun glare, which occurs surrounding sunrise and sunset hours. Target crashes were disaggregated by time of day to pin point crashes that occurred specifically when there is a potential for sun glare. The results show small reductions in both target crash groups, with small but slightly larger reductions in target crashes specifically during the sunrise and sunset hours.

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: Carrie L. Simpson, PE

Work Group/Consultant: NCDOT - Safety Evaluation Group

Date: September 8, 2014