

Spot Safety Project Evaluation

Project Information

Order ID: 41000029843

Project ID: 02-07-222

Location: (1) SR 1708 (Firetower Rd) at SR 1725 (County Home Rd)/Arlington Blvd;
(2) SR 1708 (Firetower Rd) at NC 43 (Charles Blvd)

County: Pitt

City: Greenville

Division: 2

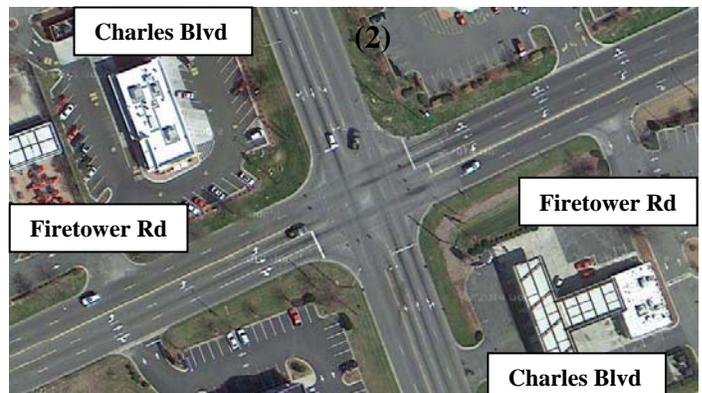
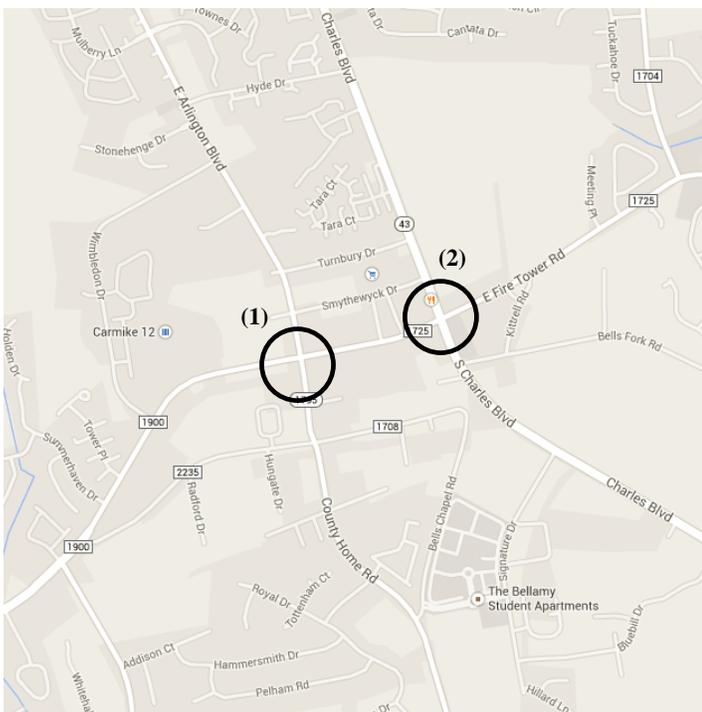
Signal ID: (1) 02-0493; (2) 02-0354

Countermeasure: Replace the 5-section protected/permissive left turn signal heads with 4-section Flashing Yellow Arrow (FYA) heads on all approaches and update signal timing to current standards

Project Completion: September 15, 2009

Project Cost: \$107,000

Map and Aerial (from Google Maps – Coordinates: 35.566187,-77.353508)



Naive Before and After Analysis

Before Period: February 1, 2005 through July 31, 2009 (4 years, 6 Months)

Const. Period: August 1, 2009 through October 31, 2009

After Period: November 1, 2009 through April 30, 2014 (4 years, 6 Months)

Analysis Criteria: Treatment data consists of all crashes within 150 feet of the subject intersections.

Target Crashes: Left Turn Same Roadway (LTSR) Crashes are the target crashes for the applied countermeasure. Target crashes are only on the approaches where the FYA was installed in the after period which includes all approaches for this project.

<u>Treatment Information</u> <u>Intersection 1</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	97	120	+ 23.7 %
Total Crash Severity Index	3.82	2.79	- 27.0 %
Target Crashes	34	26	- 23.5 %
Target Crash Severity Index	4.92	3.56	- 27.6 %
Volume (2007, 2012)	46,000	51,000	+ 10.9 %

<u>Injury Crash Summary</u> <u>Intersection 1</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	0	0	N/A
Class A injury Crashes	0	0	N/A
Class B injury Crashes	8	9	+12.5 %
Class C Injury Crashes	29	20	- 31.0 %
Property Damage Only	60	91	+ 51.7 %

<u>Treatment Information</u> <u>Intersection 2</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	69	116	+ 68.1 %
Total Crash Severity Index	4.99	3.17	- 36.5 %
Target Crashes	30	36	+ 20.0 %
Target Crash Severity Index	6.98	3.88	- 44.4 %
Volume (2007, 2012)	45,500	49,500	+ 8.8 %

<u>Injury Crash Summary</u> <u>Intersection 2</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	1	0	- 100.0 %
Class A injury Crashes	0	0	N/A
Class B injury Crashes	5	2	- 60.0%
Class C Injury Crashes	22	32	+ 45.5 %
Property Damage Only	41	82	+ 100.0 %

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Intersection 1 – Target Crashes			
Northbound Left Turner	4	7	+ 75.0 %
Southbound Left Turner	10	8	- 20.0%
Westbound Left Turner	10	2	- 80.0 %
Eastbound Left Turner	10	9	- 10.0 %
Intersection 2 – Target Crashes			
Northbound Left Turner	11	10	- 9.1 %
Southbound Left Turner	8	10	+ 25.0 %
Westbound Left Turner	4	6	+ 50.0 %
Eastbound Left Turner	7	10	+ 42.9%

Overall Summary Results

Intersection (1): SR 1708 (Firetower Rd) at SR 1725 (County Home Rd)/Arlington Blvd

Total Crashes:	+ 24 %	(increase)
Total Crash Severity:	- 27 %	(reduction)
Target Crashes:	- 24 %	(reduction)
Target Crash Severity:	- 28 %	(reduction)
Volume:	+ 11 %	(increase)

Intersection (2): SR 1708 (Firetower Rd) at NC 43 (Charles Blvd)

Total Crashes:	+ 68 %	(increase)
Total Crash Severity:	- 37 %	(reduction)
Target Crashes:	+ 20 %	(increase)
Target Crash Severity:	- 44 %	(reduction)
Volume:	+ 9 %	(increase)

Items for Discussion/Concerns

The study intersections experienced an increase in total crashes. Both experienced increases in already heavy intersection volumes from the before to the after period. The frequency of rear end crashes increased the most of all crash types. Rear end crashes at the intersection of Firetower Rd at County Home Rd (Intersection 1) and Firetower Rd at Charles Blvd (Intersection 2) increased by 65% and 150%, respectively.

The change in target crashes varied between the intersections, and between the approaches of each intersection. The largest concentration of target crashes in the after period occurred in the PM peak period. For Intersection 1, 42% of target crashes occurred between 5-7 pm. For Intersection 2, 44% of target crashes occurred between 5-9 pm.

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 30, 2014

SS #02-07-222
 Order # 41000029844
 PITT County
 Before Period
 2/1/2005 - 07/31/2009

E Arlington Blvd
 45 MPH
 ADT (Year)
 20,000 (2007)

LEGEND

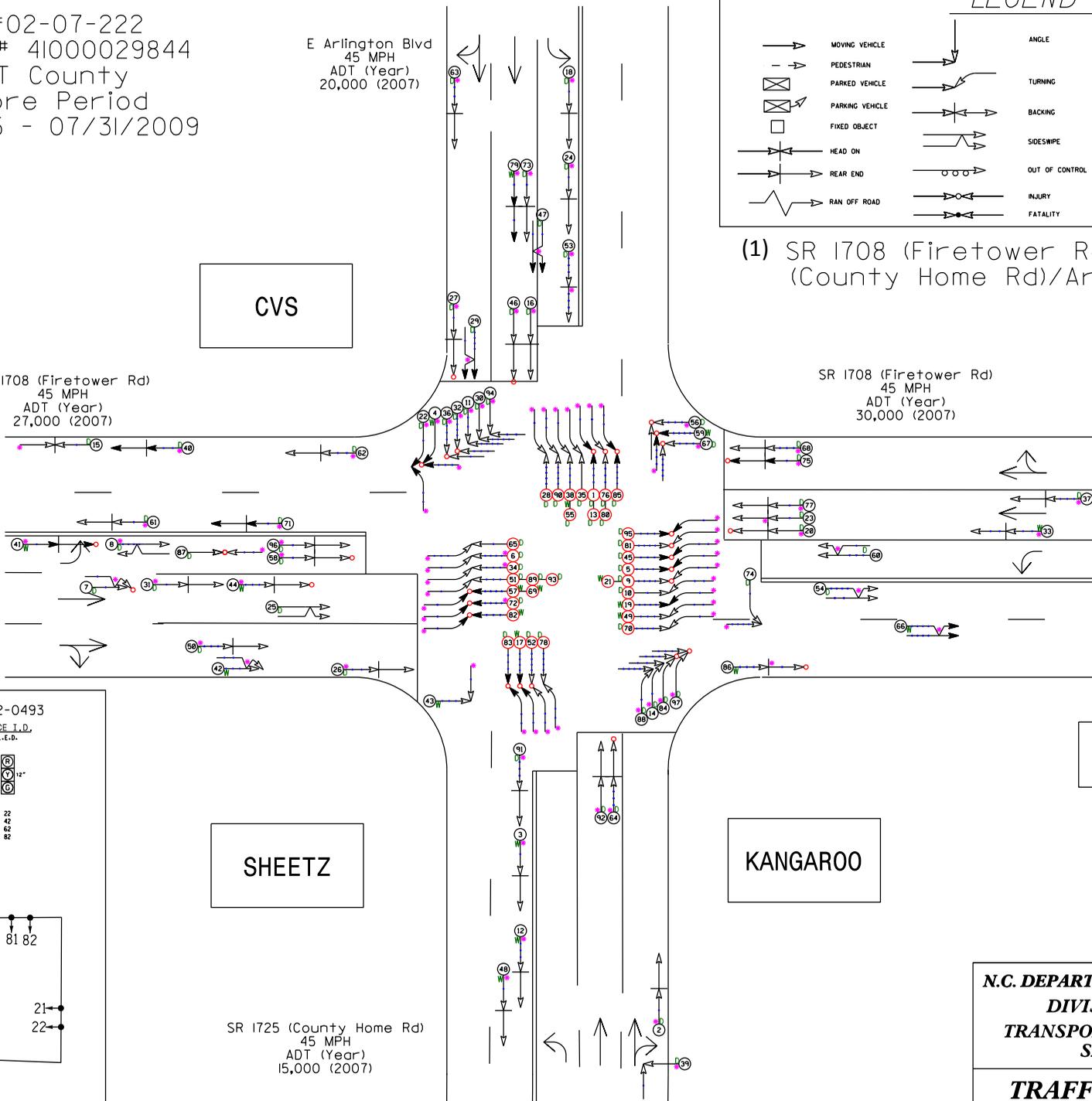
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	PEDESTRIAN		TURNING		10 MPH TO 19		ANIMAL
	PARKED VEHICLE		BACKING		20 MPH TO 29		DRIVER AT FAULT
	PARKING VEHICLE		SIDESWIPE		30 MPH TO 39		DRY
	FIXED OBJECT		OUT OF CONTROL		40 MPH TO 49		WET
	HEAD ON		INJURY		50 MPH TO 59		ICY OR SNOWY
	REAR END		FATALITY		60 MPH TO 69		SPEED UNKNOWN
	RAN OFF ROAD				70 AND UP		ONLY

(1) SR 1708 (Firetower Rd) at SR 1725 (County Home Rd)/Arlington Blvd

CVS

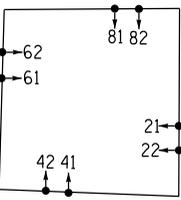
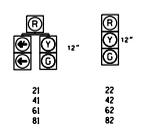
SR 1708 (Firetower Rd)
 45 MPH
 ADT (Year)
 27,000 (2007)

SR 1708 (Firetower Rd)
 45 MPH
 ADT (Year)
 30,000 (2007)



Target Crash

SIGNAL 02-0493
 SIGNAL FACE I.D.
 ALL HEADS L.E.D.



SHEETZ

KANGAROO

SR 1725 (County Home Rd)
 45 MPH
 ADT (Year)
 15,000 (2007)

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

TRAFFIC SAFETY UNIT

Date: 09-15-2014
 Prepared By: Troy S Fimm

SS #02-07-222
 Order # 41000029844
 PITT County
 AFTER Period
 11/1/2009 - 04/30/2014

E Arlington Blvd
 45 MPH
 ADT (Year)
 22,000 (2012)

CVS

SR 1708 (Firetower Rd)
 45 MPH
 ADT (Year)
 32,000 (2012)

SR 1708 (Firetower Rd)
 45 MPH
 ADT (Year)
 33,000 (2012)

SHEETZ

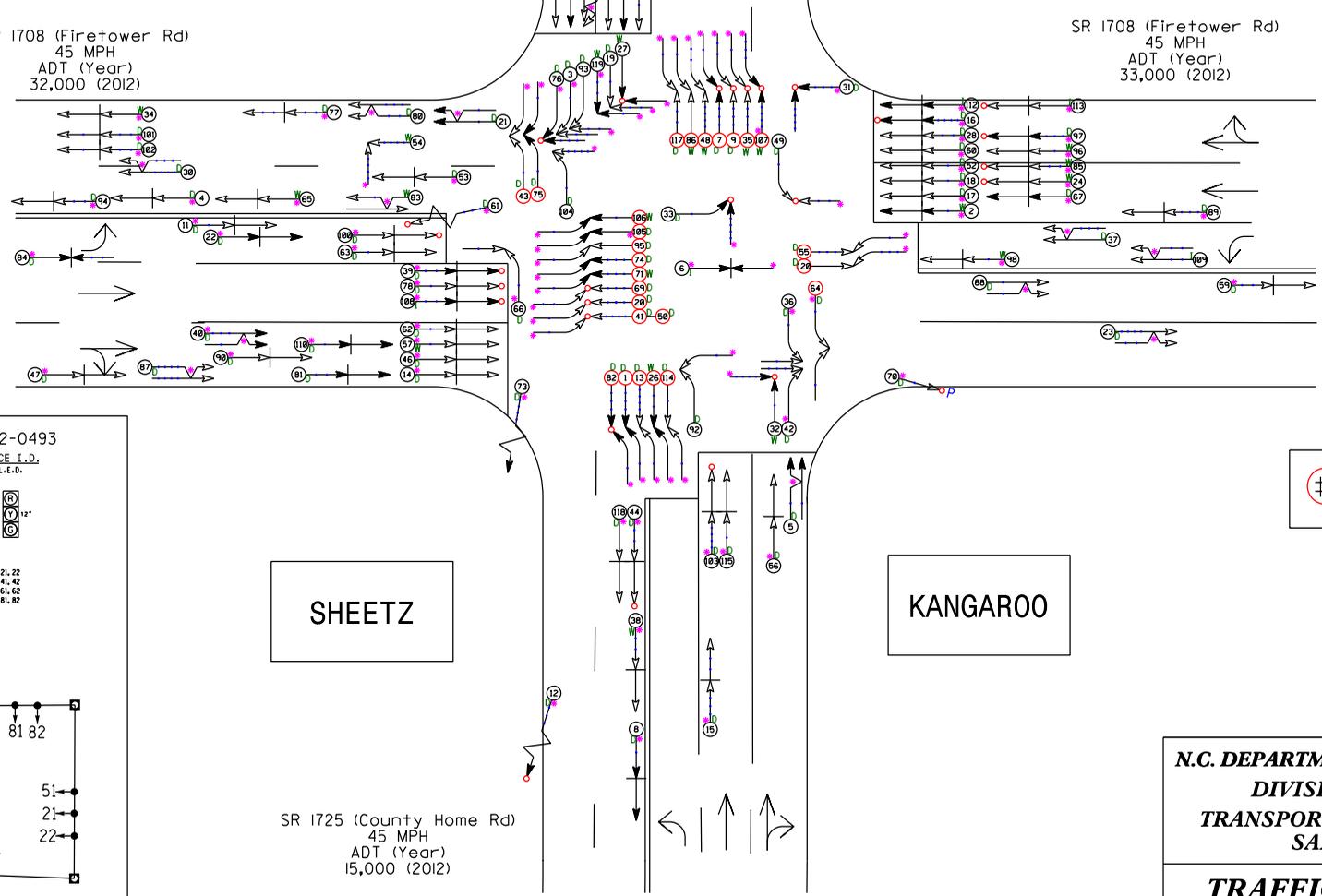
KANGAROO

SR 1725 (County Home Rd)
 45 MPH
 ADT (Year)
 15,000 (2012)

LEGEND

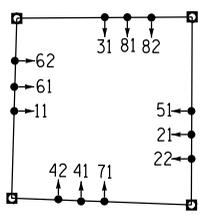
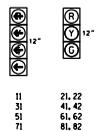
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	PEDESTRIAN		TURNING		10 MPH TO 19		ANIMAL
	PARKED VEHICLE		BACKING		20 MPH TO 29		DRIVER AT FAULT
	PARKING VEHICLE		SIDESWIPE		30 MPH TO 39		DRY
	FIXED OBJECT		OUT OF CONTROL		40 MPH TO 49		WET
	HEAD ON		INJURY		50 MPH TO 59		ICY OR SNOWY
	REAR END		FATALITY		60 MPH TO 69		ONLY
	RAN OFF ROAD				70 AND UP		
					SPEED UNKNOWN		

(1) SR 1708 (Firetower Rd) at SR 1725 (County Home Rd)/Arlington Blvd



SIGNAL 02-0493

SIGNAL FACE I.D.
 ALL HEADS L.E.D.



Target Crash

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

TRAFFIC SAFETY UNIT

Date: 09-15-2014

Prepared By: Troy S Finn

SS #02-07-222
 Order # 41000029844
 PITT County
 Before Period
 2/1/2005 - 07/31/2009

NC 43 (Charles Blvd)
 45 MPH
 ADT (Year)
 23,000 (2007)

SR 1708 (E Firetower)
 45 MPH
 ADT (Year)
 30,000 (2007)

SR 1708 (E Firetower)
 45 MPH
 ADT (Year)
 20,000 (2007)

NC 43 (Charles Blvd)
 45 MPH
 ADT (Year)
 18,000 (2007)

LEGEND

	MOVING VEHICLE		ANGLE		9 MPH OR LESS		P PEDESTRIAN
	PEDESTRIAN		TURNING		10 MPH TO 19		A ANIMAL
	PARKED VEHICLE		BACKING		20 MPH TO 29		• DRIVER AT FAULT
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	HEAD ON		INJURY		50 MPH TO 59		I ICY OR SNOWY
	REAR END		FATALITY		60 MPH TO 69		O OILY
	RAN OFF ROAD				70 AND UP		
					SPEED UNKNOWN		

(2) NC 43 (Charles Blvd) at SR 1708 (E. Firetower Rd)

McDonalds

Walgreens

Rite Aid

BP Gas

Target Crash

NOTE: 2' concrete islands were installed on Firetower Rd in April 2006 to restrict left turns into and out of the business driveways, which are allocated greater than 150' from intersection.

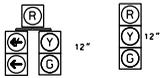
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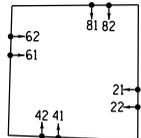
Prepared By: Troy S Fim

SIGNAL 02-0354
 SIGNAL FACE I.D.
 All Heads L.E.D.



21
41
61
81

22
42
62
82



21
22

42 41



SS #02-07-222
 Order # 41000029844
 PITT County
 AFTER Period
 11/1/2009 - 04/30/2014

NC 43 (Charles Blvd)
 45 MPH
 ADT (Year)
 24,000 (2012)

SR 1708 (E Firetower)
 45 MPH
 ADT (Year)
 33,000 (2012)

SR 1708 (E Firetower)
 45 MPH
 ADT (Year)
 22,000 (2012)

NC 43 (Charles Blvd)
 45 MPH
 ADT (Year)
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LEGEND

	MOVING VEHICLE		ANGLE		9 MPH OR LESS		PEDESTRIAN
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(2) NC 43 (Charles Blvd) at SR 1708 (E. Firetower Rd)

McDonalds

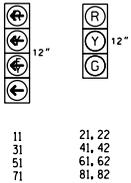
Walgreens

Rite Aid

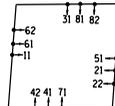
BP Gas

Target Crash

SIGNAL 02-0354
 SIGNAL FACE I.D.
 All Heads L.E.D.



11 21, 22
 31 41, 42
 51 61, 62
 71 81, 82



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