

Spot Safety Project Evaluation

Project Information

Order ID: 41000028783

Project ID: 06-02-208

Location: US-401 Bypass (Pamalee Drive / Skibo Road) at NC-24/87 (Bragg Blvd)
Northbound Ramp Terminal (also labeled as Swain Street)

County: Cumberland

City: Fayetteville

Division: 6

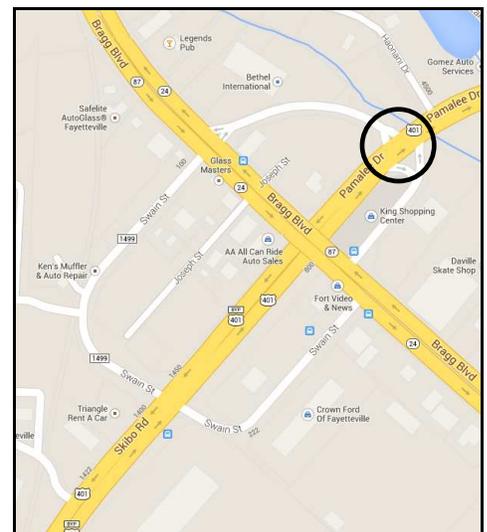
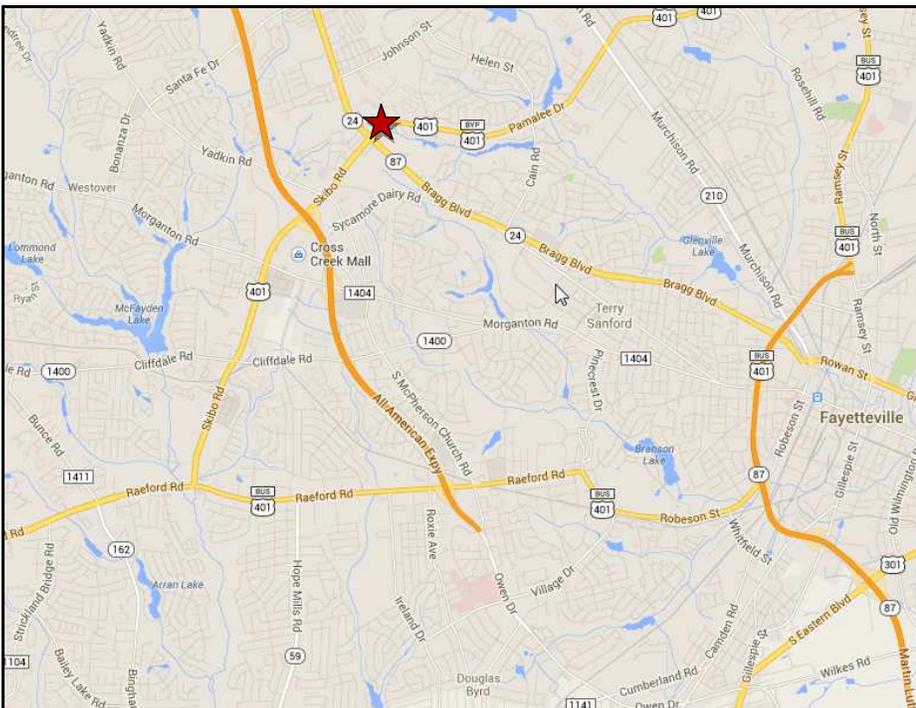
Signal ID: 06-0083 (Before Period Only)

Countermeasure: Removal of Traffic Signal and Concrete Median Island Extension

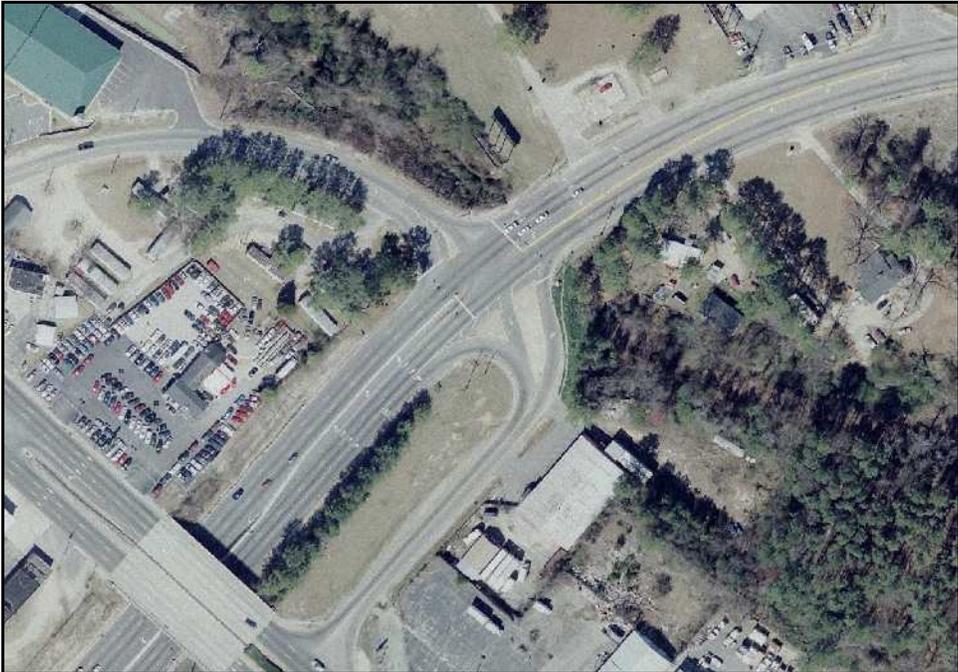
Project Completion: October 3, 2003

Project Cost: \$93,500

Map and Aerial Roadway Comparison (from Google Maps) – Coordinates: 35.087242,-78.948945



2001 – Cumberland County GIS



2008 – Cumberland County GIS



Naive Before and After Analysis

Before Period: January 1, 1999 through September 30, 2003 (4 years, 9 months)

Const. Period: October 1, 2003

After Period: November 1, 2003 through July 31, 2008 (4 years, 9 months)

Extra Period: August 1, 2008 through March 31, 2014 (5 years, 8 months)

Analysis Criteria: Treatment data consisted of all crashes within 150 feet of the subject ramp intersection on US-401 (Pamalee Drive)

Target Crashes: Cross Median Crash Types which include traffic movements that were permitted with the before period traffic signal and prevented in the after period with the raised median channelization island. Cross Median crash types include: left turn same roadway collisions and u-turn movements on US-401.

<u>Treatment Information</u>	Before 4.75 Yrs	After 4.75 Yrs	Percent Reduction (-) Percent Increase (+)
Total Crashes	39	11	- 71.8 %
Total Severity Index	4.04	3.69	- 8.7 %
Target Crashes (Cross Median)	3	0	- 100.0 %
Target Crash Severity Index	5.93	0.00	- 100.0 %
Volume (2001, 2006)	33,000	31,000	- 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	0	N/A
Class B injury Crashes	5	0	- 100.0 %
Class C Injury Crashes	11	4	- 63.6 %
Property Damage Only	23	7	- 69.6 %

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
US-401 approach Rear-End Crashes	9	2	- 77.8 %
US-401 approach Sideswipe Crashes	5	1	- 80.0 %
NB US-401 Exclusive Right Ran-Off Rd	3	2	- 33.3 %
Bragg Ramp Rear-End Crashes	6	2	- 66.7 %
Right Turn Different Road (from Ramps)	4	2	- 50.0 %

Overall Summary Results

Total Crashes:	- 72 %	(reduction)
Total Crash Severity:	- 9 %	(reduction)
Target Crashes:	- 100 %	(reduction)
Target Crash Severity:	- 100 %	(reduction)
Volume:	- 6 %	(reduction)

Additional Summary Results

Since the before-after analysis ended in 2008, the following table displays crash information for this location through current available crash data (March 2014) as compared to the After Period Data. Note that information is shown in “Crashes per Year” since the time periods are not equal. Collision Diagrams are available for all three (Before, After, Extra) analysis periods.

<u>Treatment Information</u>	After 4.75 Yrs	Extra 5.67 Yrs	Percent Reduction (-) Percent Increase (+)
Total Crashes	11	27	N/A
Total Severity Index	3.69	5.73	55.3 %
Total Crashes per Year (CPY)	2.32 CPY	4.76 CPY	105.2 %
Target Crashes (Cross Median)	0	0	N/A
Target Crash Severity Index	0.00	0.00	0.0 %
Volume (2006, 2011)	31,000	34,000	9.7 %
Bragg Ramp Rear-End Crashes	2	11	N/A
Bragg Ramp Rear-End Crashes per Yr	0.42 CPY	1.94 CPY	200+ %
Right Turn Different Road (from Ramps)	2	6	N/A
Right Turn Diff-Rd (from Ramps) Crashes per Yr	0.42 CPY	1.06 CPY	152.4 %

Items for Discussion/Concerns

The Extra Period did present one A-injury collision (Crash #9), where a northbound US-401 vehicle failed to make the ramp curve in the exclusive right turn lane and struck the ramp raised concrete barrier then overturned into the ditch.

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, EI
Work Group/Consultant: NCDOT - Safety Evaluation Group
Date: July 10, 2014



NC-24 (BRAGG)
NB RAMPS
35-MPH

ADT (YEAR)
33,000 (2001)

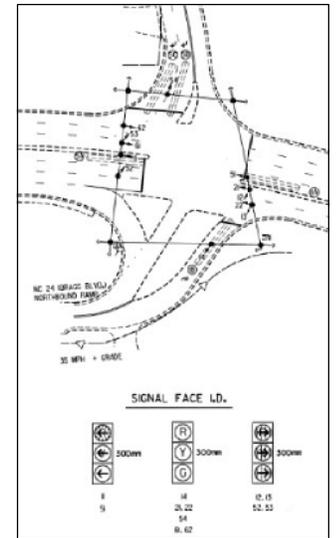
LEGEND							
	MOVING VEHICLE		ANGLE		9 MPH OR LESS		PEDESTRIAN
	PAKED VEHICLE		TURNING		10 MPH TO 19		TRAIN
	PARKING VEHICLE		TURNING		20 MPH TO 29		DRIVER AT FAULT
	FIXED OBJECT		TURNING		30 MPH TO 39		DRY
	HEAD ON		TURNING		40 MPH TO 49		WET
	REAR END		TURNING		50 MPH TO 59		ICY OR SNOWY
	RAN OFF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

SS# 06-02-208
Order# 41000028783
Cumberland County
City of Fayetteville
BEFORE Period
1/1/99 - 9/30/03
4.75 Years

SigID
06-0083

US-401 BYPASS
PAMALEE DRIVE
SKIBO ROAD
45-MPH

NC-24 (BRAGG)
NB RAMPS
35-MPH



Cross Median
Target Crashes

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

TRAFFIC SAFETY UNIT

Date: 6-17-2014

Prepared By: J. Schronce

COUNTERMEASURE:
 Traffic Signal 06-0083
 Removed on 10/3/2003

ADT (YEAR)
 33,000 (2001)

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		REAR END		50 MPH TO 59		ICY OR SNOWY
	RAN OFF ROAD		FATALITY		60 MPH TO 69		SPEED UNKNOWN
			OTHER		70 AND UP		OTHER

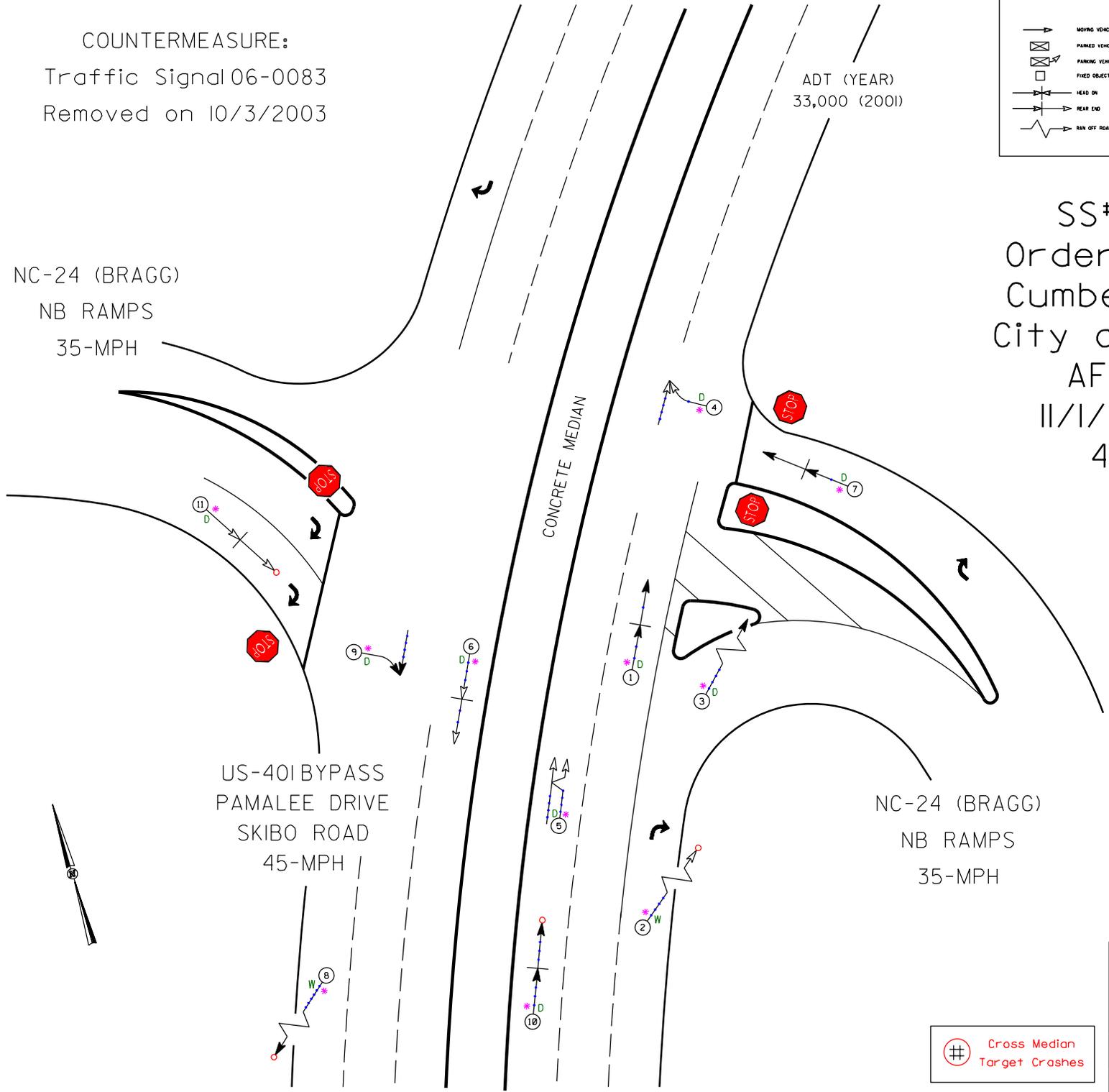
SS# 06-02-208
 Order# 41000028783
 Cumberland County
 City of Fayetteville
 AFTER Period
 11/1/03 - 7/31/08
 4.75 Years

NC-24 (BRAGG)
 NB RAMPS
 35-MPH

US-401 BYPASS
 PAMALEE DRIVE
 SKIBO ROAD
 45-MPH

NC-24 (BRAGG)
 NB RAMPS
 35-MPH

CONCRETE MEDIAN



Cross Median
 Target Crashes

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
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TRAFFIC SAFETY UNIT

Date: 6-17-2014 Prepared By: J. Schronce

NC-24 (BRAGG)
NB RAMPS
35-MPH

US-401 BYPASS
PAMALEE DRIVE
SKIBO ROAD
45-MPH

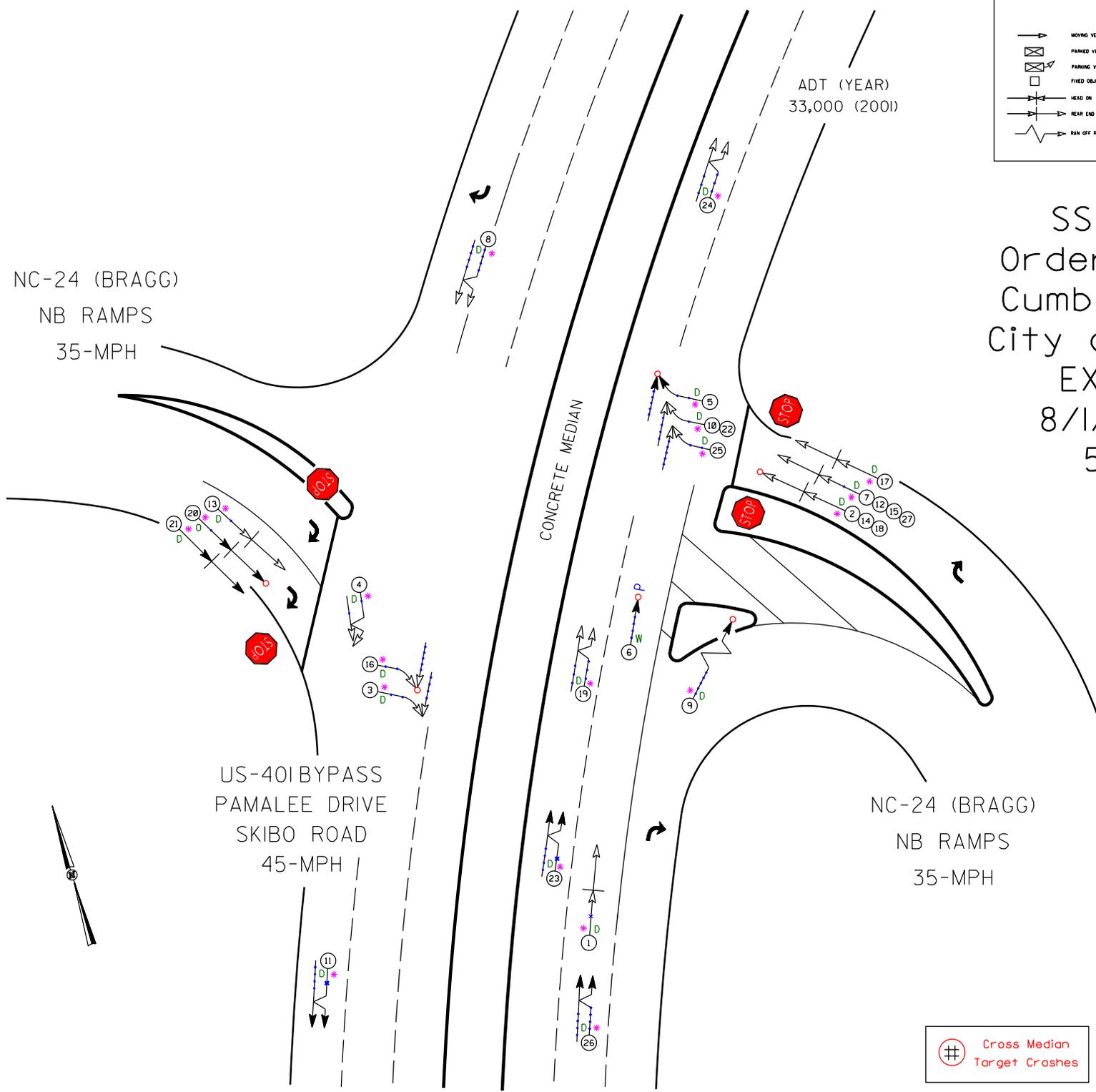
ADT (YEAR)
33,000 (2001)

CONCRETE MEDIAN

NC-24 (BRAGG)
NB RAMPS
35-MPH

SS# 06-02-208
Order# 41000028783
Cumberland County
City of Fayetteville
EXTRA Period
8/1/08 - 3/31/14
5.67 Years

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



Cross Median
Target Crashes

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

TRAFFIC SAFETY UNIT

Date: 6-17-2014 Prepared By: J. Schronce