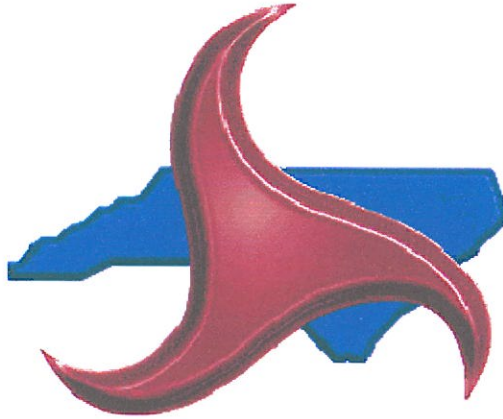


17BP.7.R.86 Bridge Design Speed Study

Bridge #400431 on SR 2719 (High Rock Road)

Guilford County

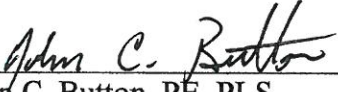


Document Prepared By:

Regional Traffic Office – Triad Region
Traffic Safety Unit
Transportation Mobility and Safety Division
North Carolina Department of Transportation

September 30, 2014

Principal Investigator:



John C. Button, PE, PLS
Triad Regional Traffic Safety Engineer



Bridge and Approach Investigation Checklist

Project 17BP.7.R.86
Description Bridge # 400431 over Unnamed Tributary of Reedy Fork Creek
Route SR 2719 (High Rock Road)
Division 7
County Guilford

Existing Speed Limit 55 mph ☐ Posted ☒ Statutory

Reasonable & Comfortable Passenger Car Speed 55 mph

Speed Data 20 Speed Data Points Obtained.
Range from 39 mph to 65 mph.
Mean = 52 mph.
85th percentile = 57 mph
Mode = 47, 57 mph

Ball Bank Speed Study No ball bank study performed. Bridge is in tangent section.

Warning Signs at Bridge W23-10 object markers, one at each corner of bridge.
Regulatory 39 ton single vehicle weight limit sign on each approach.

Roadside Development Rural

ADT History 2003 AADT = 920 vpd per NCDOT Traffic Map.
2013 AADT = 820 vpd per NCDOT Traffic Map.

Pedestrian/Bicycle Traffic No bike or pedestrian traffic observed during site visit.
Little bike or ped traffic expected. The Greensboro Urban Area
Comprehensive Transportation Plan Bicycle Map shows SR 2719
as a bicycle route that need improvement.

Bridge and Approach Digital Photos See attached photos.

Approach Lane Width 20'-4" overall pavement width with 8'-10"/8'-6" lane widths.

Approach Shoulder Width: Varies from 4' to 6'.
Shoulder Type Grass

Lane Width (existing bridge) 8'-10"/8'-6" lane widths.

Shoulder width (existing bridge) 29"/31"

Strategic Corridor / Thoroughfare Designation and Recommended Cross Section This section of SR 2719 is designated as a local route
on the NCDOT Functional Classification Route Map.
The NCDOT "R-R-R Guide" recommends a minimum of 10 foot lane
widths and 3 foot shoulder widths (6 foot shoulder widths where
guardrail is to be installed) on local routes.

Crash History and Safety Considerations 4 crashes occurred in vicinity of bridge from 07/01/2004 to 06/30/2014.

Comments _____

Reasonable Bridge Speed 60 mph

A detailed map of a road network, likely a cadastral or engineering plan. The map features a complex web of roads and paths, many of which are labeled with numbers. A specific location is highlighted with a thick black circle and an arrow pointing to it from the text 'Bridge Location'. The map includes various geographical features such as rivers, streams, and small ponds. The overall layout is a technical drawing with precise lines and labels.



Guilford County



SR 2719 (High Rock Road) Northbound $\pm$ 0 feet south of Bridge #431

Guilford County



SR 2719 (High Rock Road) Northbound $\pm$ 50 feet south of Bridge #431

Guilford County



SR 2719 (High Rock Road) Northbound $\pm$ 100 feet south of Bridge #431

Guilford County



SR 2719 (High Rock Road) Northbound $\pm$ 150 feet south of Bridge #431

Guilford County



SR 2719 (High Rock Road) Northbound $\pm$ 200 feet south of Bridge #431

Guilford County



SR 2719 (High Rock Road) Southbound $\pm$ 0 feet north of Bridge #431

Guilford County



SR 2719 (High Rock Road) Southbound $\pm$ 50 feet north of Bridge #431

Guilford County



SR 2719 (High Rock Road) Southbound $\pm$ 100 feet north of Bridge #431

Guilford County



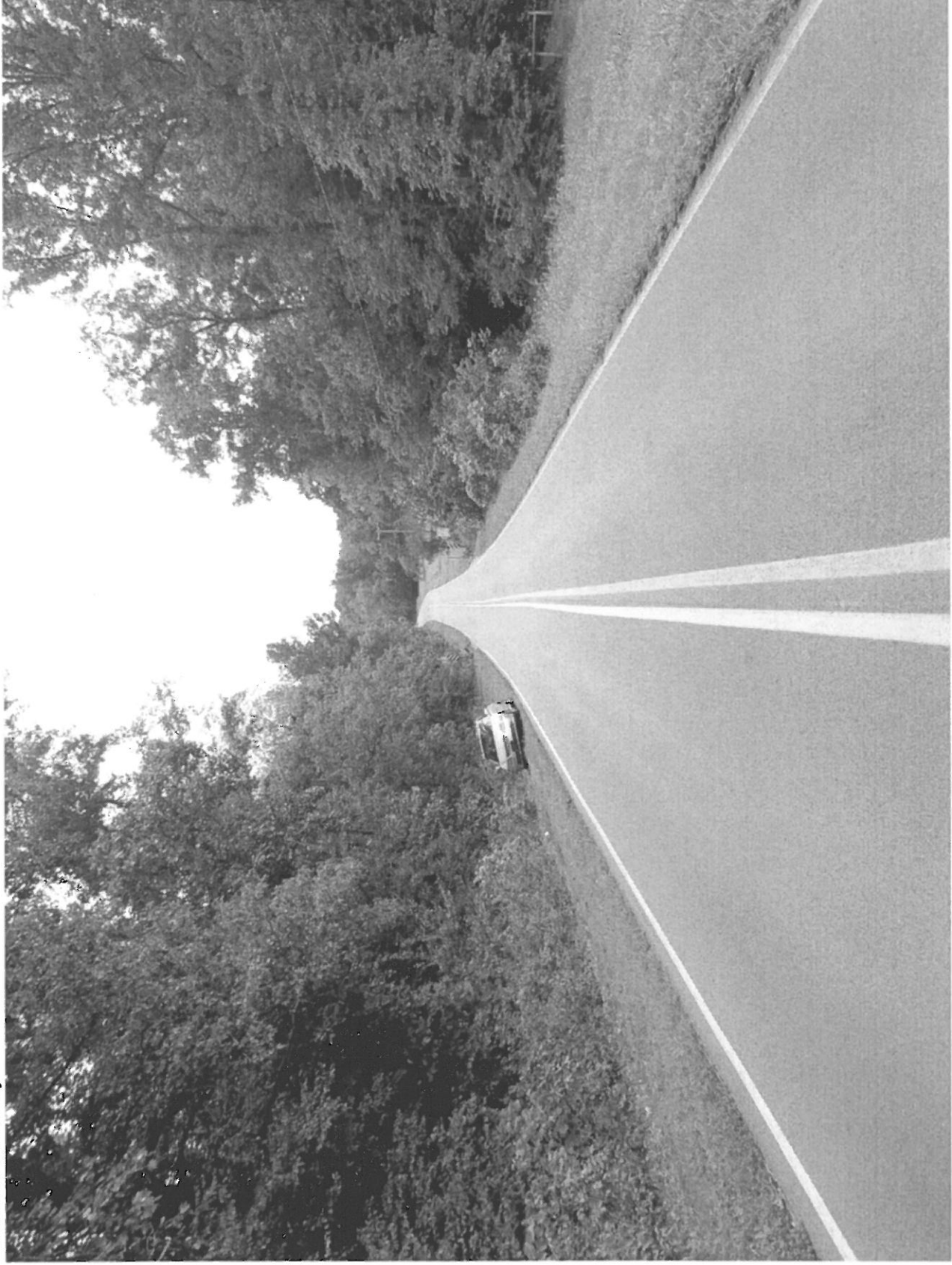
SR 2719 (High Rock Road) southbound $\pm$ 150 feet north of Bridge #431

Guilford County



SR 2719 (High Rock Road) southbound $\pm$ 200 feet north of Bridge #431

Guilford County



SR 2719 (High Rock Road) southbound $\pm$ 250 feet north of Bridge #431

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Study Criteria Summary

County: GUILFORD City: All and Rural
Date: 07/01/2004 to 06/30/2014 Study: GUILFORDBRIDGE400431
Location: 500 feet on either side of bridge 400431 on SR 2719 (High Rock Rd)

Report Details

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	101441325	2.920	03/26/2005 05:31	FIXED OBJECT	\$ 5000	0	0	0	0	1	5	2	1	0	13	1
Unit	1 : 4	Alchl/Drgs:	7	Speed: 70 MPH Dir: S	Veh Mnvr/Ped Actn: 4					Obj Strk: 58						
2	102668238	2.920	08/27/2009 06:50	SIDESWIPE, OPPOSITE DIRECTION	\$ 300	0	0	1	0	1	3	1	4	0	13	1
Unit	1 : 14	Alchl/Drgs:	0	Speed: 50 MPH Dir: S	Veh Mnvr/Ped Actn: 4					Obj Strk:						
Unit	2 : 7	Alchl/Drgs:	0	Speed: 45 MPH Dir: N	Veh Mnvr/Ped Actn: 4					Obj Strk:						
3	102228454	3.013	12/29/2007 22:11	ANIMAL	\$ 1200	0	0	0	0	2	5	2		0		
Unit	1 : 2	Alchl/Drgs:	0	Speed: 0 MPH Dir: N	Veh Mnvr/Ped Actn: 4					Obj Strk: 17						
4	103530438	3.020	08/22/2012 03:40	RAN OFF ROAD - LEFT	\$ 6800	0	0	0	0	1	5	1	7	0	13	1
Unit	1 : 1	Alchl/Drgs:	1	Speed: 45 MPH Dir: SW	Veh Mnvr/Ped Actn: 4					Obj Strk: 60						

**Legend for
Report Details:**

Acc No - Accident Number
Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
Condition: R - Road Surface, L - Ambient Light, W - Weather
Rd Ch - Road Character
Rd Ci - Roadway Contributing Circumstances
Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
Alchl/Drgs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	4	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	1	25.00
Total Injury Crashes	1	25.00
Property Damage Only Crashes	3	75.00
Night Crashes	3	75.00
Wet Crashes	1	25.00
Alcohol/Drugs Involvement Crashes	1	25.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	4	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	1	25.00
Class C Crashes	0	0.00
Property Damage Only Crashes	3	75.00

Vehicle Exposure Statistics

Annual ADT = 800

Total Length = 0.196 (Miles) 0.315 (Kilometers)

Total Vehicle Exposure = 0.57 (MVMT) 0.92 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	698.53	434.04
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	174.63	108.51
Night Crash Rate	523.89	325.53
Wet Crash Rate	174.63	108.51
EPDO Rate	1990.80	1237.03

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Miscellaneous Statistics

Severity Index =	2.85
EPDO Crash Index =	11.40
Estimated Property Damage Total = \$	13300.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANIMAL	1	25.00
FIXED OBJECT	1	25.00
RAN OFF ROAD - LEFT	1	25.00
SIDESWIPE, OPPOSITE DIRECTION	1	25.00

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	1	100.00
Class C Injuries	0	0.00
Total Non-Fatal Injuries	1	100.00
Total Injuries	1	100.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	0	0.00
Feb	0	0.00
Mar	1	25.00
Apr	0	0.00
May	0	0.00
Jun	0	0.00
Jul	0	0.00
Aug	2	50.00
Sep	0	0.00
Oct	0	0.00
Nov	0	0.00
Dec	1	25.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	0	0.00
Tue	0	0.00
Wed	1	25.00
Thu	1	25.00
Fri	0	0.00
Sat	2	50.00
Sun	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	1	25.00
0400-0459	0	0.00
0500-0559	1	25.00
0600-0659	1	25.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	0	0.00
1000-1059	0	0.00
1100-1159	0	0.00
1200-1259	0	0.00
1300-1359	0	0.00
1400-1459	0	0.00
1500-1559	0	0.00
1600-1659	0	0.00
1700-1759	0	0.00
1800-1859	0	0.00
1900-1959	0	0.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	1	25.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	0	0	0	0
Dark	2	1	0	3
Other	1	0	0	1
Total	3	1	0	4

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	1	33.33
DITCH	1	33.33
MAILBOX	1	33.33

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	1	20.00
PICKUP	1	20.00
SCHOOL BUS	1	20.00
SPORT UTILITY	1	20.00
TRACTOR/SEMI-TRAILER	1	20.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2004	0	0	0	0
2005	1	0	0	1
2006	0	0	0	0
2007	1	0	0	1
2008	0	0	0	0
2009	1	0	1	0
2010	0	0	0	0
2011	0	0	0	0
2012	1	0	0	1
2013	0	0	0	0
2014	0	0	0	0
Total	4	0	1	3

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2004	0	0
2005	0	0
2006	0	0
2007	0	0
2008	0	0
2009	0	1
2010	0	0
2011	0	0
2012	0	0
2013	0	0
2014	0	0
Total	0	1

Miscellaneous Totals

Year	Property Damage	EPDO Index
2004	\$ 0	0.00
2005	\$ 5000	1.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Year	Property Damage	EPDO Index
2006	\$ 0	0.00
2007	\$ 1200	1.00
2008	\$ 0	0.00
2009	\$ 300	8.40
2010	\$ 0	0.00
2011	\$ 0	0.00
2012	\$ 6800	1.00
2013	\$ 0	0.00
2014	\$ 0	0.00
Total	\$ 13300	11.40

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2004	0	0	0	0	0	0	0
2005	0	0	0	1	0	0	0
2006	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	1
2008	0	0	0	0	0	0	0
2009	0	0	0	0	0	1	0
2010	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0
2012	0	0	0	1	0	0	0
2013	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0
Total	0	0	0	2	0	1	1

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Strip Diagram

Features	Milepost	Crash IDs
Structure:400431	2.87	
	2.88	
	2.89	
	2.90	
	2.91	
	2.92	101441325 102668238
	2.93	
	2.94	
	2.95	
	2.96	
	2.97	
	2.98	
	2.99	
	3.00	
	3.01	102228454
	3.02	103530438
	3.03	
	3.04	
	3.05	
	3.06	

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Strip Analysis Report

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
GUILFORDBRIDGE400431				76.8	8.4	800	40002719

Request Date	Courier Service	Phone No.	Ext.	Fax No.
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County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
GUILFORD	40	7	All and Rural		0	07/01/2004	06/30/2014	10.00

Location Text	Requestor
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500 feet on either side of bridge 400431 on SR
2719 (High Rock Rd)

Included Accidents	Old MP	New MP	Type
102228454		3.013	I

Fiche Roads

Name	Code
SR 2719	40002719
HIGH ROCK	50013958

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
SR 2719	40002719	2.866	3.062	0.196	0.315