
Bridge Design Speed Investigation

980109

Structure #109 on SR 1502 (Country Club Road) over North Deep Creek

Yadkin County



Document Prepared By:

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Project Manager

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Principal Investigator

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Traffic Engineer



Bridge and Approach Investigation Checklist

Project W02881

Description Bridge # 109 over North Deep Creek

Route SR 1502 (Country Club Road)

Division 11

County Yadkin

Existing Speed Limit 55 ☐ Posted ☒ Statutory

Reasonable & Comfortable Passenger Car Speed 50

Speed Data Estimated 40-50 mph

Ball Bank Speed Study 30 mph: NB Approach - 5, NB Departure - 5, SB App - 10, SB Dep - 5
35 mph: NB App - 8, NB Dep - 9, SB App - 15, SB Dep - 11
40 mph: NB App - 10, NB Dep - 10, SB App - 20, SB Dep - 14

Warning Signs at Bridge 3x Bridge End Delineators, 2x Weight Limit (25 ton SV, 32 ton TTST),
2x Winding Road (30 mph and 35 mph)

Roadside Development Residential

ADT History 2400 vpd (From NCDOT TEAAS); 2000 vpd (2011)

Pedestrian/Bicycle Traffic Minimal Expected

Bridge and Approach Digital Photos Attached

Approach Lane Width 10 ft

Approach Shoulder Width: 6 ft
Shoulder Type grass

Lane Width (existing bridge) 9.5 ft

Shoulder width (existing bridge) 2.5 ft (~24 ft total width)

Strategic Corridor / Thoroughfare Designation and Recommended Cross Section SR 1502 is classified as a major collector in the Statewide Functional
Classification System. 2-lane cross-section recommended.

Crash History and Safety Considerations Crash analysis completed for 7/1/2003 to 6/30/2013. One collision
reported. A vehicle ran off the road and struck a catch basin or culvert.

Comments Bridge is in a tangent with curves on both sides of bridge. Curves are far
enough away from bridge to allow acceleration to approximately 50 mph.
Reasonable bridge speed 50 mph.

Reasonable Bridge Speed 50

Investigated by: J. Andrew Eagle, PE, PTOE

Reviewed by: 

County: Yadkin

Bridge and Route: 980109 – SR 1502 Country Club Rd.

Date: 9/16/13

Northbound



Northbound

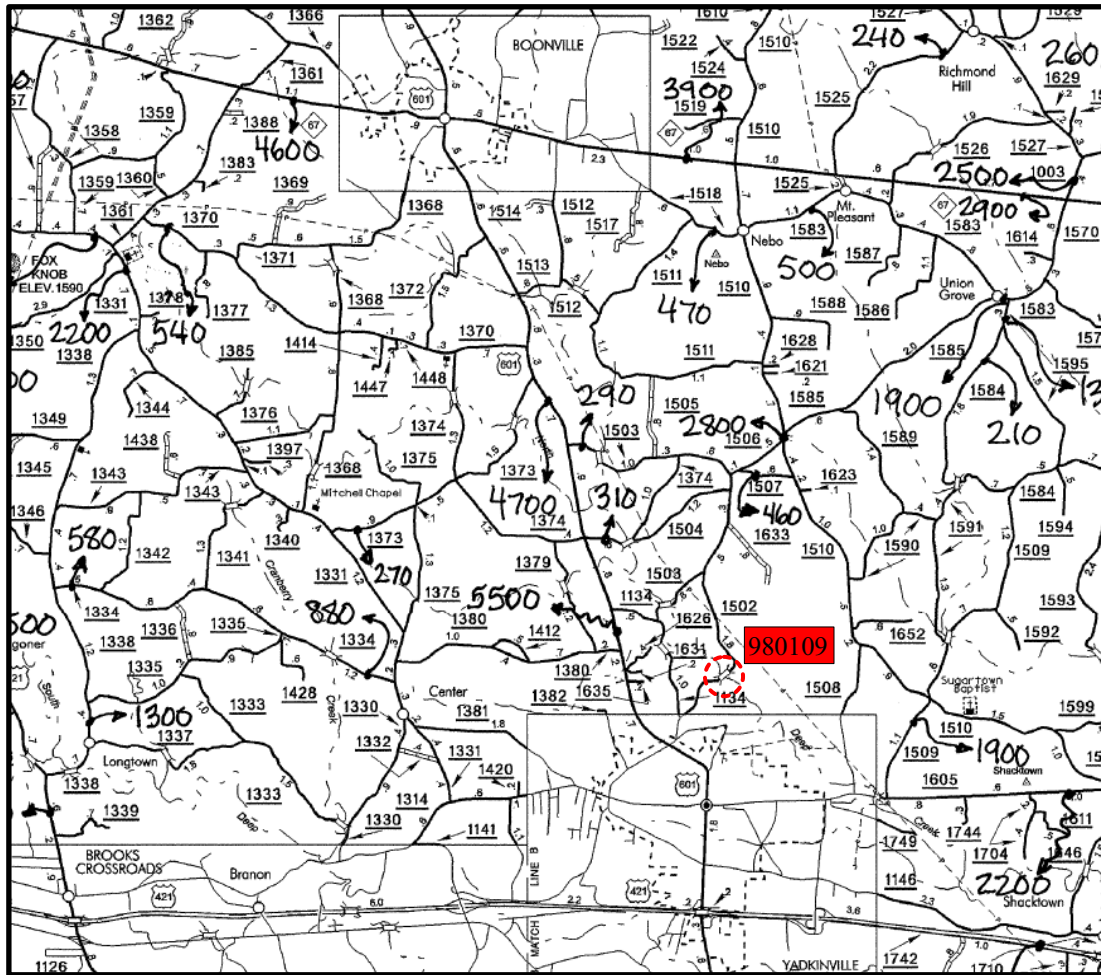


Southbound



Southbound





Bridge Location Map - Bridge #980109

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

Study Criteria Summary

County: YADKIN **City:** All and Rural
Date: 7/1/2008 to 6/30/2013 **Study:** YADKINBRIDGE109
Location: SR 1502 (Country Club Rd), 500 feet either side of Bridge 109

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	102688969	0.577	09/13/2009 17:20	RAN OFF ROAD - RIGHT	\$ 7500	0	0	1	1	1	1	1	7	0	0	
Unit 1 : 4 Alchl/Drgs: 0 Speed: 60 MPH Dir: E Veh Mnvr/Ped Actn: 4 Obj Strk: 56																

**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

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Summary Statistics

High Level Crash Summary

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

Crash Severity Summary

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

Vehicle Exposure Statistics

Annual ADT = 2400

Total Length = 0.212 (Miles) 0.341 (Kilometers)

Total Vehicle Exposure = 0.93 (MVMT) 1.5 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	107.63	66.88
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	107.63	66.88
Night Crash Rate	0.00	0.00
Wet Crash Rate	0.00	0.00
EPDO Rate	904.13	561.80

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Miscellaneous Statistics

Severity Index =	8.40
EPDO Crash Index =	8.40
Estimated Property Damage Total = \$	7500.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
RAN OFF ROAD - RIGHT	1	100.00

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	50.00
Class C Injuries	1	50.00
Total Non-Fatal Injuries	2	100.00
Total Injuries	2	100.00

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Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	0	0.00
Feb	0	0.00
Mar	0	0.00
Apr	0	0.00
May	0	0.00
Jun	0	0.00
Jul	0	0.00
Aug	0	0.00
Sep	1	100.00
Oct	0	0.00
Nov	0	0.00
Dec	0	0.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	0	0.00
Tue	0	0.00
Wed	0	0.00
Thu	0	0.00
Fri	0	0.00
Sat	0	0.00
Sun	1	100.00

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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	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
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	1	100.00
1800-1859	0	0.00
1900-1959	0	0.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

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Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	1	0	0	1
Dark	0	0	0	0
Other	0	0	0	0
Total	1	0	0	1

Object Struck Summary

Object Type	Times Struck	Percent of Total
CATCH BASIN OR CULVERT ON SHOULDER	1	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
SPORT UTILITY	1	100.00

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Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2008	0	0	0	0
2009	1	0	1	0
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
Total	1	0	1	0

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2008	0	0
2009	0	2
2010	0	0
2011	0	0
2012	0	0
2013	0	0
Total	0	2

Miscellaneous Totals

Year	Property Damage	EPDO Index
2008	\$ 0	0.00
2009	\$ 7500	8.40
2010	\$ 0	0.00
2011	\$ 0	0.00
2012	\$ 0	0.00
2013	\$ 0	0.00
Total	\$ 7500	8.40

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2008	0	0	0	0	0	0	0
2009	0	0	0	1	0	0	0

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Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2010	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0

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Strip Diagram

Features	Milepost	Crash IDs
Structure:980109	0.50	
	0.51	
	0.52	
	0.53	
	0.54	
	0.55	
	0.56	
	0.57	
	0.58	102688969
	0.59	
	0.60	
	0.61	
	0.62	
	0.63	
	0.64	
	0.65	
	0.66	
	0.67	
	0.68	
	0.69	
	0.70	
	0.71	

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Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
YADKINBRIDGE109				76.8	8.4	2400	40001502

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
YADKIN	98	11	All and Rural		0	7/1/2008	6/30/2013	5.00

Location Text	Requestor
SR 1502 (Country Club Rd), 500 feet either side of Bridge 109	

Included Accidents	Old MP	New MP	Type
102688969		0.577	I

Fiche Roads	
Name	Code
SR 1502	40001502
COUNTRY CLUB	50007073

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1502	40001502	0.501	0.713	0.212	0.341