

Bridge Design Speed Investigation

Bridge #76 on SR 1318 (Big Laurel Road) over Big Laurel Creek
Madison County



Document Prepared By:

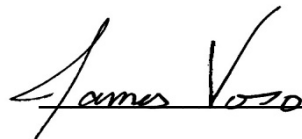
Mattern & Craig, Inc.
Consulting Engineers - Surveyors
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Commission No: 3350

July 22, 2013



Investigating Engineer


James Voso, PE

Bridge and Approach Investigation Checklist

Project 17BP.13.PE.1
Description Replace Bridge #76 on SR 1318 (Big Laurel Road) over Big Laurel Creek
Route SR 1318 (Big Laurel Rd)
Division 13
County Madison

Existing Speed Limit 55 mph ☐ Posted ☒ Statutory

Reasonable & Comfortable
Passenger Car Speed 20 mph

Speed Data N/A

Ball Bank Speed Study Curve north of Bridge #76 had a ball bank indication of 15 at 20 mph.

Warning Signs at Bridge 4 Bridge End Delineators, Weight Limit not posted

Roadside Development Wooded north of bridge and farm land south of bridge.

ADT History 330 (2010), 370 (2008), 290 (2006), 320 (2004), 350 (2002), 280 (2001),
370 (1999)

Pedestrian/Bicycle Traffic None

Bridge and Approach
Digital Photos (attached)

Approach Lane Width 9'

Approach Shoulder Width: 5'
Shoulder Type grass

Lane Width (existing bridge) 7.5'

Shoulder width (existing bridge) 2.5'

Strategic Corridor / Thoroughfare
Designation and Recommended
Cross Section Not a Strategic Corridor/Thoroughfare. Two lane cross section at 20
mph based on 3R guidelines.

Crash History and
Safety Considerations One "Ran Off Road - Right" crash reported near bridge (5/1/2003 -
4/30/2013, 10 years)

Comments Bridge number not posted on bridge.

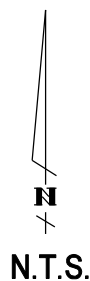
Reasonable Bridge Speed 20 mph

Investigated by: Mathew Bolden Reviewed by: James Voso

Bridge #76

Madison County

Division 13



VICINITY MAP

Bridge #76 on SR 1318
(Big Laurel Road)
over Big Laurel Creek



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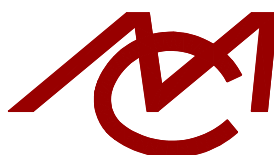


Northbound Approach



Northbound Approach at bridge

**Bridge #76 on SR 1318
(Big Laurel Road)
over Big Laurel Creek**



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Bridge #76
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Southbound Approach



Southbound Approach at bridge

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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	1	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	0	0.00
Total Injury Crashes	0	0.00
Property Damage Only Crashes	1	100.00
Night Crashes	1	100.00
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	0	0.00
Class C Crashes	0	0.00
Property Damage Only Crashes	1	100.00

Vehicle Exposure Statistics

Annual ADT = 370

Total Length = 0.204 (Miles) 0.328 (Kilometers)

Total Vehicle Exposure = 0.28 (MVMT) 0.44 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	362.68	225.36
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	0.00	0.00
Night Crash Rate	362.68	225.36
Wet Crash Rate	0.00	0.00
EPDO Rate	362.68	225.36

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Miscellaneous Statistics

Severity Index =	1.00
EPDO Crash Index =	1.00
Estimated Property Damage Total = \$	3500.00

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	0	0.00
Class C Injuries	0	0.00
Total Non-Fatal Injuries	0	0.00
Total Injuries	0	0.00

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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	0	0.00
Oct	0	0.00
Nov	0	0.00
Dec	1	100.00

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	1	100.00
Sun	0	0.00

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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	1	100.00
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	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	0	0.00
2300-2359	0	0.00

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Light and Road Conditions Summary

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

Object Struck Summary

Object Type	Times Struck	Percent of Total
EMBANKMENT	1	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PICKUP	1	100.00

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Strip Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	0	0	0
2010	0	0	0	0
2011	0	0	0	0
2012	1	0	0	1
2013	0	0	0	0
Total	1	0	0	1

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2003	0	0
2004	0	0
2005	0	0
2006	0	0
2007	0	0
2008	0	0
2009	0	0
2010	0	0
2011	0	0
2012	0	0
2013	0	0
Total	0	0

Miscellaneous Totals

Year	Property Damage	EPDO Index
2003	\$ 0	0.00
2004	\$ 0	0.00

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Year	Property Damage	EPDO Index
2005	\$ 0	0.00
2006	\$ 0	0.00
2007	\$ 0	0.00
2008	\$ 0	0.00
2009	\$ 0	0.00
2010	\$ 0	0.00
2011	\$ 0	0.00
2012	\$ 3500	1.00
2013	\$ 0	0.00
Total	\$ 3500	1.00

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2003	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	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
Total	0	0	0	1	0	0	0

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Strip Analysis Report

Strip Diagram

Features	Milepost	Crash IDs
Structure:560076	13.85	
	13.86	
	13.87	
	13.88	
	13.89	
	13.90	
	13.91	
	13.92	
	13.93	
	13.94	
	13.95	
	13.96	
	13.97	
	13.98	
	13.99	
	14.00	
	14.01	
	14.02	
	14.03	
	14.04	
	14.05	103614456
	14.06	

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Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
MADISONBRIDGE76				76.8	8.4	370	40001318

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
MADISON	56	13	All and Rural		0	5/1/2003	4/30/2013	10.00

Location Text	Requestor
SR 1318 (Big Laurel Road) from 500 feet West of Bridge 76 to 500 feet East of Bridge 76	

Included Accidents	Old MP	New MP	Type
103614456	16.252	14.052	I

Fiche Roads	
Name	Code
SR 1318	40001318
BIG LAUREL	50002617

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1318	40001318	13.854	14.058	0.204	0.328