

Bridge Design Speed Investigation

Bridge #15 on SR 1793 (Nobby Lail Road) over Cub Creek
Burke County



Document Prepared By:

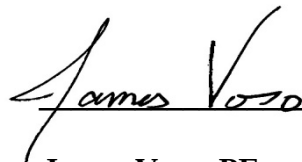
Mattern & Craig, Inc.
Consulting Engineers - Surveyors
12 Broad Street
Asheville, NC 28801
(828) 254-2201
FAX: (828) 254-4562

Commission No: 3350

July 18, 2013



Investigating Engineer


James Voso, PE

Bridge and Approach Investigation Checklist

Project 17BP.13.PE.1
Description Replace Bridge #15 on SR 1793 (Nobby Lail Road) over Cub Creek
Route SR 1793 (Nobby Lail Road)
Division 13
County Burke

Existing Speed Limit 55 mph ☐ Posted ☒ Statutory

Reasonable & Comfortable
Passenger Car Speed 35 mph

Speed Data N/A

Ball Bank Speed Study Curve west of Bridge #15 had a ball bank indication of 12 at 30 mph.

Warning Signs at Bridge 4 Bridge End Delineators, Weight Limit (15 tons - single vehicle,
19 tons - truck tractor semitrailer), Narrow Bridge warning sign

Roadside Development Wooded in all quadrants of bridge.

ADT History Not available

Pedestrian/Bicycle Traffic Low

Bridge and Approach
Digital Photos (attached)

Approach Lane Width 8'

Approach Shoulder Width: 9'
Shoulder Type grass

Lane Width (existing bridge) 9'

Shoulder width (existing bridge) 2'

Strategic Corridor / Thoroughfare
Designation and Recommended
Cross Section Not a Strategic Corridor/Thoroughfare. Two lane cross section at 35
mph based on 3R guidelines.

Crash History and
Safety Considerations Two "Fixed Object" crashes reported near bridge (5/1/2003 - 4/30/2013,
10 years).

Comments Driveway near east end of bridge. Bridge number posted on bridge.

Reasonable Bridge Speed 35 mph

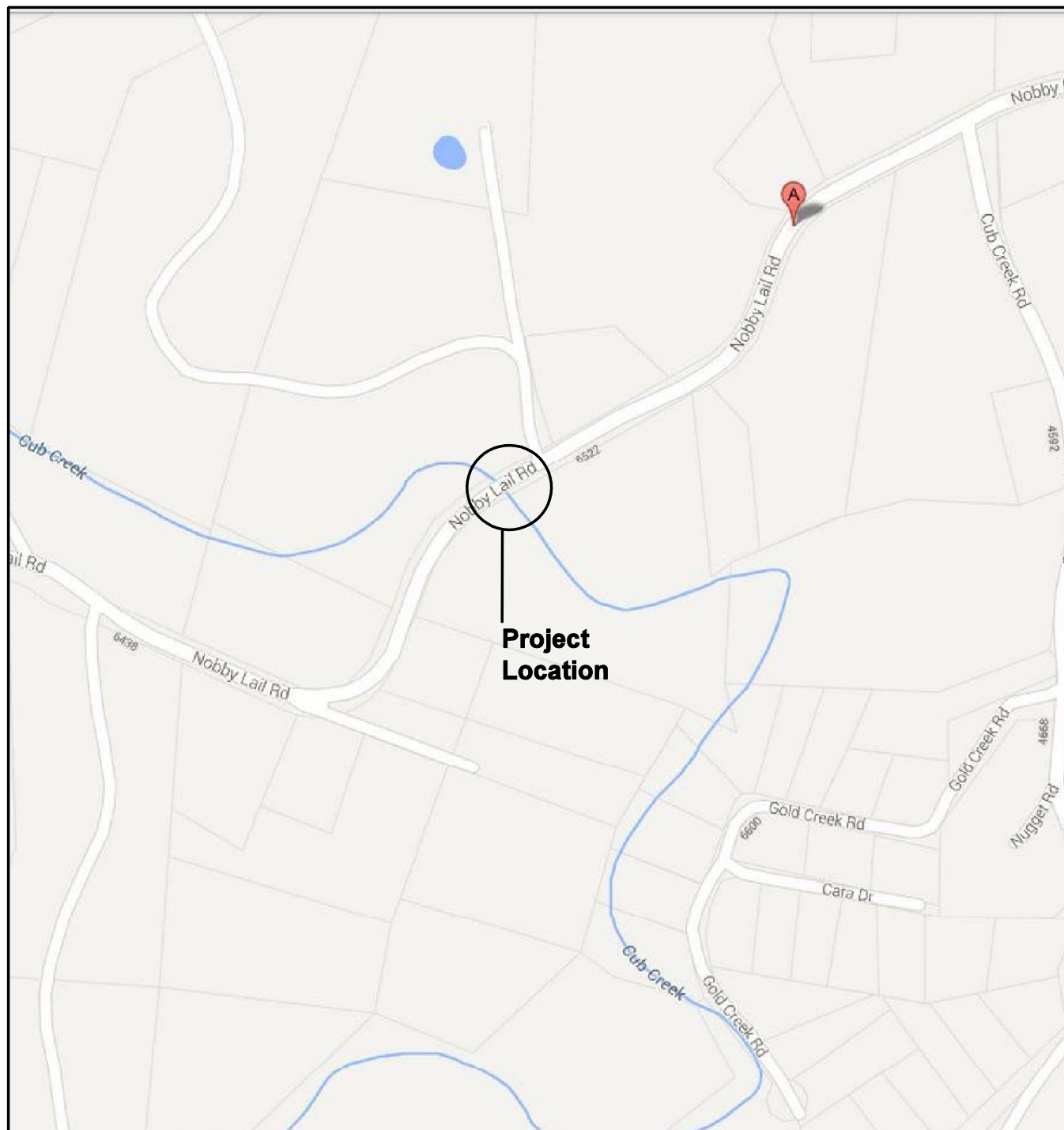
Investigated by: Mathew Bolden Reviewed by: James Voso



Bridge #15

Burke County

Division 13



VICINITY MAP

Bridge #15 on SR 1793
(Nobby Lail Road)
over Cub Creek



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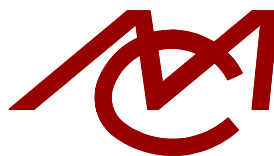


Eastbound Approach



Eastbound Approach at bridge

**Bridge #15 on SR 1793
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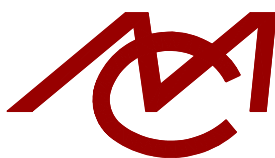


Westbound Approach



Westbound Approach at bridge

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

Study Criteria Summary

County: BURKE **City:** All and Rural
Date: 5/1/2003 **to** 4/30/2013 **Study:** BURKEBRIDGE15
Location: SR 1793 (Nobby Lail Road) from 500 feet West of Bridge 15 to 500 feet East of Bridge 15

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	100942064	0.800	07/12/2003 19:15	FIXED OBJECT	\$ 2000	0	0	0	1	1	1	2	7	0	13	1
Unit 1 : 1		Alchl/Drgs:	1	Speed:	45 MPH	Dir:	W	Veh Mnvr/Ped Actn:				4	Obj Strk:		59	
2	100973968	0.820	08/22/2003 18:35	FIXED OBJECT	\$ 2500	0	0	0	0	1	1	1	7	0	13	1
Unit 1 : 1		Alchl/Drgs:	0	Speed:	45 MPH	Dir:	E	Veh Mnvr/Ped Actn:				4	Obj Strk:		59	

**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	2	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	1	50.00
Total Injury Crashes	1	50.00
Property Damage Only Crashes	1	50.00
Night Crashes	0	0.00
Wet Crashes	0	0.00
Alcohol/Drugs Involvement Crashes	1	50.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	2	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	1	50.00
Property Damage Only Crashes	1	50.00

Vehicle Exposure Statistics

Annual ADT = 500

Total Length = 0.198 (Miles) 0.319 (Kilometers)

Total Vehicle Exposure = 0.36 (MVMT) 0.58 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	553.03	343.63
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	276.51	171.82
Night Crash Rate	0.00	0.00
Wet Crash Rate	0.00	0.00
EPDO Rate	2599.22	1615.08

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Strip Analysis Report**

Miscellaneous Statistics

Severity Index =	4.70
EPDO Crash Index =	9.40
Estimated Property Damage Total = \$	4500.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
FIXED OBJECT	2	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	1	100.00
Total Non-Fatal Injuries	1	100.00
Total Injuries	1	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	1	50.00
Aug	1	50.00
Sep	0	0.00
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	1	50.00
Sat	1	50.00
Sun	0	0.00

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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	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	0	0.00
1800-1859	1	50.00
1900-1959	1	50.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

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Traffic Engineering Accident Analysis System
Strip Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	2	0	0	2
Dark	0	0	0	0
Other	0	0	0	0
Total	2	0	0	2

Object Struck Summary

Object Type	Times Struck	Percent of Total
EMBANKMENT	2	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	2	100.00

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Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2003	2	0	1	1
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	0	0	0	0
2013	0	0	0	0
Total	2	0	1	1

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2003	0	1
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	1

Miscellaneous Totals

Year	Property Damage	EPDO Index
2003	\$ 4500	9.40
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	\$ 0	0.00
2013	\$ 0	0.00
Total	\$ 4500	9.40

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2003	0	0	0	2	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	0	0	0	0
2013	0	0	0	0	0	0	0
Total	0	0	0	2	0	0	0

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Strip Analysis Report

Strip Diagram

Features	Milepost	Crash IDs
Structure:110015	0.69	
	0.70	
	0.71	
	0.72	
	0.73	
	0.74	
	0.75	
	0.76	
	0.77	
	0.78	
	0.79	
	0.80	100942064
	0.81	
	0.82	100973968
	0.83	
	0.84	
	0.85	
	0.86	
	0.87	
	0.88	
	0.89	

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Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
BURKEBRIDGE15				76.8	8.4	500	40001793

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
BURKE	11	13	All and Rural		0	5/1/2003	4/30/2013	10.00

Location Text	Requestor
SR 1793 (Nobby Lail Road) from 500 feet West of Bridge 15 to 500 feet East of Bridge 15	

Fiche Roads	
Name	Code
SR 1793	40001793
MILLER BRIDGE	50020098

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1793	40001793	0.688	0.886	0.198	0.319