

Bridge Approach Speed Investigation

Bridge #197 over Kelly Creek on SR 1534 (Old Lyon Rd)
Bladen County
Project Number 17BP.6.PE.1



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8/23/2018

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Kelly L. Becker

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Kelly L. Becker, PE
Project Manager



Slip Number	Division	County	Location Description	Latitude	Longitude
BladenBridge197	6	Bladen	SR 1534 (Over Lyon Rd) From 1000ft S of Bridge 197 to 500ft N of Bridge 197	34.495409	-78.343458

Bridge and Approach Investigation Checklist

Project 17BP.6.PE.1
 Description Bridge 197 over Kelly Creek
 Route SR 1534 (Over Lyon Rd)
 Division 6
 County Bladen

Existing Speed Limit 55 ☐ Posted ☒ Statutory

Reasonable & Comfortable
 Passenger Car Speed 55

Ball Bank Speed Study Curve south of bridge on NB approach bank: 5 @ 45 mph, 10 @ 55 mph
 (if necessary) Curve south of bridge on SB approach bank: 5 @ 45 mph, 8 @ 55 mph

Warning Signs at Bridge Object markers on each bridge corner - 1x OMR and 1x OML each approach
Weight Limit Signs on each bridge approach - 1x each approach

Roadside Development Rural/Residential

AADT History 180 vpd, 2014 (from count station)
200 vpd, 2010 (from count station)

Pedestrian/Bicycle Traffic Minimal expected.

Bridge and Approach
 Digital Photos Included in bridge speed packet

Approach Lane Width 8'

Approach Shoulder Width: 6'-8'
 Shoulder Type Grass

Lane Width (existing bridge) 9'

Shoulder width (existing bridge) 3'

Strategic Corridor / Thoroughfare
 Designation and Recommended
 Cross Section Minor Collector, Rural

Crash History and
 Safety Considerations Three (3) crashes have been reported in the vicinity of the bridge from
07/01/2008 to 06/30/2018 (10 years). 2 of the three crashes were animal
collisions. There are no nearby animal crossing signs.

Comments No posted speed limit or curve advisories.

Reasonable Bridge Speed 55

Investigated by: Elizabeth Hartzog 08/13/2018 Reviewed by: Kelly Becker, PE 08/17/2018

County: Bladen

Description:

Bridge 197 on SR 1534

Date: 08-13-18

SR 1534 SB Approach to Bridge 197



SR 1534 SB Approach to Bridge 197



SR 1534 NB Approach to Bridge 197



SR 1534 NB Approach to Bridge 197



County: Bladen

Description:

Bridge 197 on SR 1534

Date: 08-13-18

Profile View of NB Approach to Bridge 197

Profile View of SB Approach to Bridge 197



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

Study Criteria Summary

County: BLADEN **City:** All and Rural
Date: 07/01/2008 to 06/30/2018 **Study:** BLADENBRIDGE197
Location: SR 1534 (Old Lyon Rd) from 1000ft S of Bridge 197 to 500ft N of Bridge 197

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	103024764	0.970	11/27/2010 07:54	ANIMAL	\$ 2000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed: 50 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:		17	
2	102361686	1.070	07/06/2008 20:45	PEDESTRIAN	\$ 3000	1	0	0	0	1	2	1	1	0	13	1
Unit	1 : 2	Alchl/Drugs:	1	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn:				4			Obj Strk:		14	
Unit	2 : 24	Alchl/Drugs:	1	Speed: 0 MPH Dir:		Veh Mnvr/Ped Actn:							Obj Strk:		14	
3	102817615	1.070	03/04/2010 02:08	ANIMAL	\$ 1800	0	0	0	0	1	5	1		0		
Unit	1 : 1	Alchl/Drugs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				16			Obj Strk:		17	

**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/Drugs - Alcohol Drugs Suspected
Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
Obj Strk - Object Struck

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Strip Analysis Report**

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	3	100.00
Fatal Crashes	1	33.33
Non-Fatal Injury Crashes	0	0.00
Total Injury Crashes	1	33.33
Property Damage Only Crashes	2	66.67
Night Crashes	1	33.33
Wet Crashes	0	0.00
Alcohol/Drugs Involvement Crashes	1	33.33

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	3	100.00
Fatal Crashes	1	33.33
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	0	0.00
Property Damage Only Crashes	2	66.67

Vehicle Exposure Statistics

Annual ADT = 180

Total Length = 0.295 (Miles)

0.475 (Kilometers)

Total Vehicle Exposure = 0.19 (MVMT)

0.31 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	1547.02	961.27
Fatal Crash Rate	515.67	320.42
Non Fatal Crash Rate	0.00	0.00
Night Crash Rate	515.67	320.42
Wet Crash Rate	0.00	0.00
EPDO Rate	40635.06	25249.46

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Miscellaneous Statistics

Severity Index =	26.27
EPDO Crash Index =	78.80
Estimated Property Damage Total = \$	6800.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANIMAL	2	66.67
PEDESTRIAN	1	33.33

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	1	100.00
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	1	100.00

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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	33.33
Apr	0	0.00
May	0	0.00
Jun	0	0.00
Jul	1	33.33
Aug	0	0.00
Sep	0	0.00
Oct	0	0.00
Nov	1	33.33
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	1	33.33
Fri	0	0.00
Sat	1	33.33
Sun	1	33.33

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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	1	33.33
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	1	33.33
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	1	33.33
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	1	0	0	1
Other	1	0	0	1
Total	3	0	0	3

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	2	50.00
PEDESTRIAN	2	50.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	2	50.00
PEDESTRIAN	1	25.00
PICKUP	1	25.00

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Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2008	1	1	0	0
2009	0	0	0	0
2010	2	0	0	2
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	0	0	0	0
2018	0	0	0	0
Total	3	1	0	2

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2008	1	0
2009	0	0
2010	0	0
2011	0	0
2012	0	0
2013	0	0
2014	0	0
2015	0	0
2016	0	0
2017	0	0
2018	0	0
Total	1	0

Miscellaneous Totals

Year	Property Damage	EPDO Index
2008	\$ 3000	76.80
2009	\$ 0	0.00

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Year	Property Damage	EPDO Index
2010	\$ 3800	2.00
2011	\$ 0	0.00
2012	\$ 0	0.00
2013	\$ 0	0.00
2014	\$ 0	0.00
2015	\$ 0	0.00
2016	\$ 0	0.00
2017	\$ 0	0.00
2018	\$ 0	0.00
Total	\$ 6800	78.80

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	1
2009	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	2
2011	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	3

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Strip Analysis Report

Strip Diagram

Features	Milepost	Crash IDs
BEGIN STUDY 1000' S OF BRIDGE 197	0.78	
	0.79	
	0.80	
	0.81	
	0.82	
	0.83	
	0.84	
	0.85	
	0.86	
	0.87	
	0.88	
	0.89	
	0.90	
	0.91	
	0.92	
	0.93	
	0.94	
	0.95	
	0.96	
ASH FORD Structure:080197	0.97	103024764
	0.98	
	0.99	
	1.00	
	1.01	
	1.02	
	1.03	
	1.04	
	1.05	
	1.06	
END STUDY 500' N OF BRIDGE 197	1.07	102361686 102817615

**North Carolina Department of Transportation
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Strip Analysis Report**

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
BLADENBRIDGE197				76.8	8.4	180	40001534

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
BLADEN	9	6	All and Rural		0	07/01/2008	06/30/2018	10.00

Location Text	Requestor
SR 1534 (Old Lyon Rd) from 1000ft S of Bridge 197 to 500ft N of Bridge 197	

Fiche Roads	
Name	Code
SR 1534	40001534

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1534	40001534	0.779	1.074	0.295	0.475