
Bridge Design Speed Investigation

850213

Structure #213 on SR 1600 (Lumber Plant Road) over Low Gap Creek

Surry County



Document Prepared By:

Ramey Kemp & Associates, Inc.
8307 University Executive Park Drive, Suite 260
Charlotte, NC 28262

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Project Manager

Jacob D. Carpenter, PE
Regional Manager

Principal Investigator

Andrew Eagle, PE, PTOE
Traffic Engineer



Bridge and Approach Investigation Checklist

Project 13191

Description Bridge # 213 over Low Gap Creek

Route SR 1600 (Lumber Plant Road)

Division 11

County Surry

Existing Speed Limit 55 ☐ Posted ☒ Statutory

Reasonable & Comfortable Passenger Car Speed 30

Speed Data 30-35 mph

Ball Bank Speed Study 25 mph: NB - 10, SB - 9 - Readings for curve north of bridge
30 mph: NB - 12, SB - 14 - Bridge speed good at 30 mph per BBI
35 mph: NB - 16, SB - 17

Warning Signs at Bridge 4x Bridge End Delineators, 2x Weight Limit (14 ton SV, 19 ton TTST)

Roadside Development Residential, Church

ADT History 410 vpd (From NCDOT TEAAS); 430 vpd (2012)

Pedestrian/Bicycle Traffic Minimal Expected

Bridge and Approach Digital Photos Attached

Approach Lane Width 8.5-9 ft

Approach Shoulder Width: 4-6 ft
Shoulder Type grass

Lane Width (existing bridge) 7.5 ft

Shoulder width (existing bridge) 1.5-2.5 ft (~19 ft total width)

Strategic Corridor / Thoroughfare Designation and Recommended Cross Section SR 1600 is classified as a rural local facility 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 struck an embankment.

Comments The bridge width is narrow, but there are no warning signs informing the driver. The bridge acts as a one lane bridge. Reasonable bridge speed 30 mph due to curve north of bridge and narrow width.

Reasonable Bridge Speed 30

Investigated by: J. Andrew Eagle, PE, PTOE

Reviewed by: 

County: Surry

Bridge and Route: 850213 – SR 1600 Lumber Plant Rd.
Northbound

Date: 9/17/13

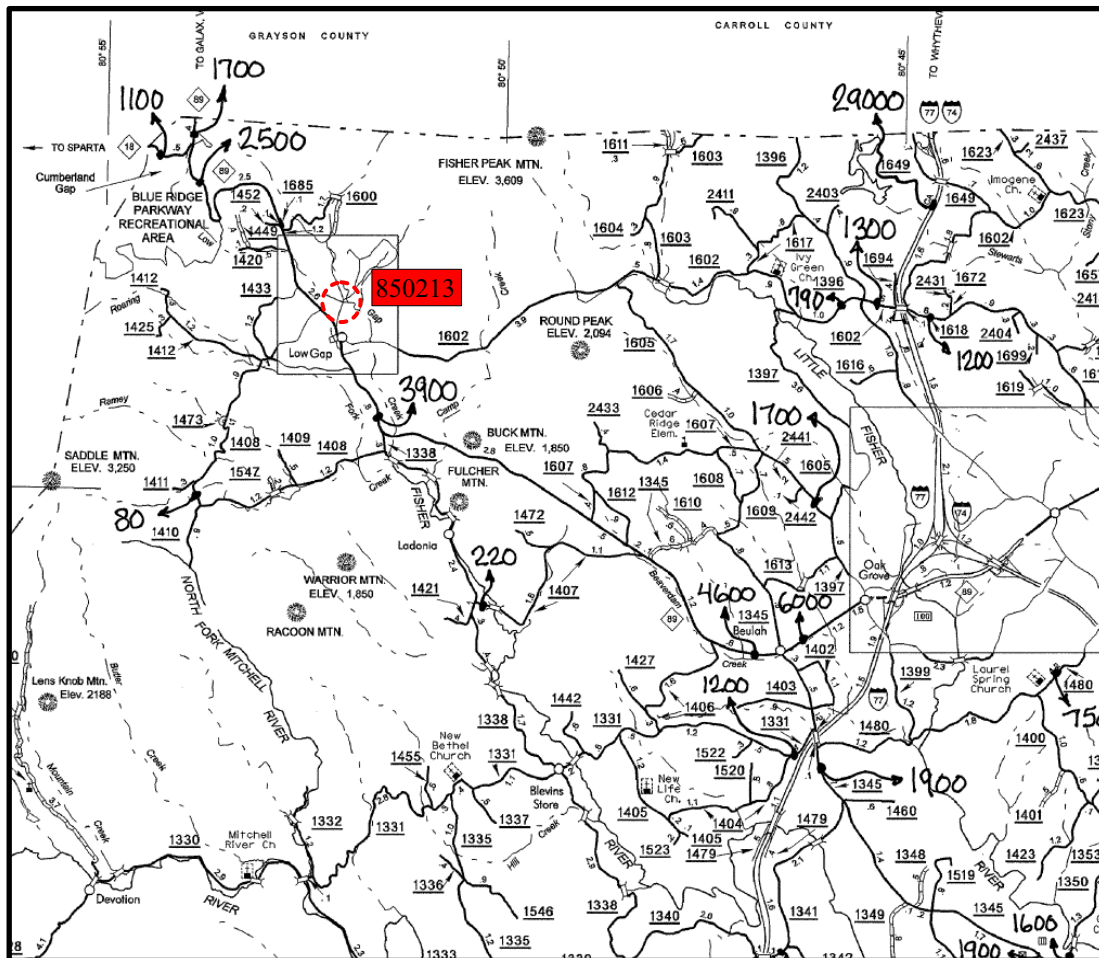


Southbound



Southbound





Bridge Location Map - Bridge #850213

Study Criteria Summary

County:	SURRY	City:	All and Rural
Date:	7/1/2003 to 6/30/2013	Study:	SURRYBRIDGE213
Location:	SR 1600 (Lumber Plant Rd), 500 ft either side of Bridge 213		

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	102505892	0.320	12/31/2008 22:45	FIXED OBJECT	\$ 2000	0	0	1	0	1	5	1	5	0	1	1
Unit	1 : 32	Alchl/Drugs:	0	Speed:	70 MPH	Dir:	W	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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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	1	100.00
Total Injury Crashes	1	100.00
Property Damage Only Crashes	0	0.00
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	1	100.00
Class C Crashes	0	0.00
Property Damage Only Crashes	0	0.00

Vehicle Exposure Statistics

Annual ADT = 410

Total Length = 0.196 (Miles) 0.315 (Kilometers)

Total Vehicle Exposure = 0.29 (MVMT) 0.47 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	340.65	211.67
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	340.65	211.67
Night Crash Rate	340.65	211.67
Wet Crash Rate	0.00	0.00
EPDO Rate	2861.47	1778.04

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Miscellaneous Statistics

Severity Index =	8.40
EPDO Crash Index =	8.40
Estimated Property Damage Total = \$	2000.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
FIXED OBJECT	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	100.00
Class C Injuries	0	0.00
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	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	1	100.00
Thu	0	0.00
Fri	0	0.00
Sat	0	0.00
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	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	0	0.00
1900-1959	0	0.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	1	100.00
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	1	0	0	1
Other	0	0	0	0
Total	1	0	0	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
UNKNOWN	1	100.00

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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	1	0	1	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	1	0	1	0

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	1
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	\$ 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	\$ 2000	8.40
2009	\$ 0	0.00
2010	\$ 0	0.00
2011	\$ 0	0.00
2012	\$ 0	0.00
2013	\$ 0	0.00
Total	\$ 2000	8.40

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2003	0	0	0	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	1	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	1	0	0	0

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Strip Diagram

Features	Milepost	Crash IDs
	0.20	
	0.21	
	0.22	
	0.23	
	0.24	
	0.25	
	0.26	
	0.27	
	0.28	
	0.29	
Structure:850213	0.30	
	0.31	
SR 1601	0.32	102505892
	0.33	
	0.34	
	0.35	
	0.36	
	0.37	
	0.38	
	0.39	
	0.40	

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Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
SURRYBRIDGE213				76.8	8.4	410	40001600

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
SURRY	85	11	All and Rural		0	7/1/2003	6/30/2013	10.00

Location Text	Requestor
SR 1600 (Lumber Plant Rd), 500 ft either side of Bridge 213	

Fiche Roads	
Name	Code
SR 1600	40001600
LUMBER PLANT	50018443

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1600	40001600	0.202	0.398	0.196	0.315