
Bridge Design Speed Investigation

850203

Structure #203 on SR 1338 (Hidden Valley Road) over Ramey Creek

Surry County



Document Prepared By:

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September 20, 2013

Project Manager

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Regional Manager

Principal Investigator

Andrew Eagle, PE, PTOE
Traffic Engineer



Bridge and Approach Investigation Checklist

Project 13191

Description Bridge # 203 over Ramey Creek

Route SR 1338 (Hidden Valley Road)

Division 11

County Surry

Existing Speed Limit 55 ☐ Posted ☒ Statutory

Reasonable & Comfortable Passenger Car Speed 45

Speed Data 45-50 mph

Ball Bank Speed Study 35 mph: NB Approach - 4, NB Departure - 4, SB App - 5, SB Dep - 4
40 mph: NB App - 5, NB Dep - 6, SB App - 8, SB Dep - 5
45 mph: NB App - 8, NB Dep - 9, SB App - 10, SB Dep - 10

Warning Signs at Bridge 4x Bridge End Delineators, 2x Weight Limit (22 ton SV, 29 ton TTST)

Roadside Development Residential, Farm

ADT History 590 vpd (From NCDOT TEAAS); 340 vpd (2000)

Pedestrian/Bicycle Traffic Minimal Expected

Bridge and Approach Digital Photos Attached

Approach Lane Width 9 ft

Approach Shoulder Width: 4-6 ft
Shoulder Type grass

Lane Width (existing bridge) 8.5 ft

Shoulder width (existing bridge) 2.5-4.5 ft (~24 ft total width)

Strategic Corridor / Thoroughfare Designation and Recommended Cross Section SR 1338 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. Two collisions reported. Both involved a vehicle striking an embankment.

Comments Reasonable bridge speed 45 mph due to curves on both sides of bridge.

Reasonable Bridge Speed 45

Investigated by: J. Andrew Eagle, PE, PTOE

Reviewed by: 

County: Surry

Bridge and Route: 850203 – SR 1338 Hidden Valley Rd.
Northbound

Date: 9/17/13

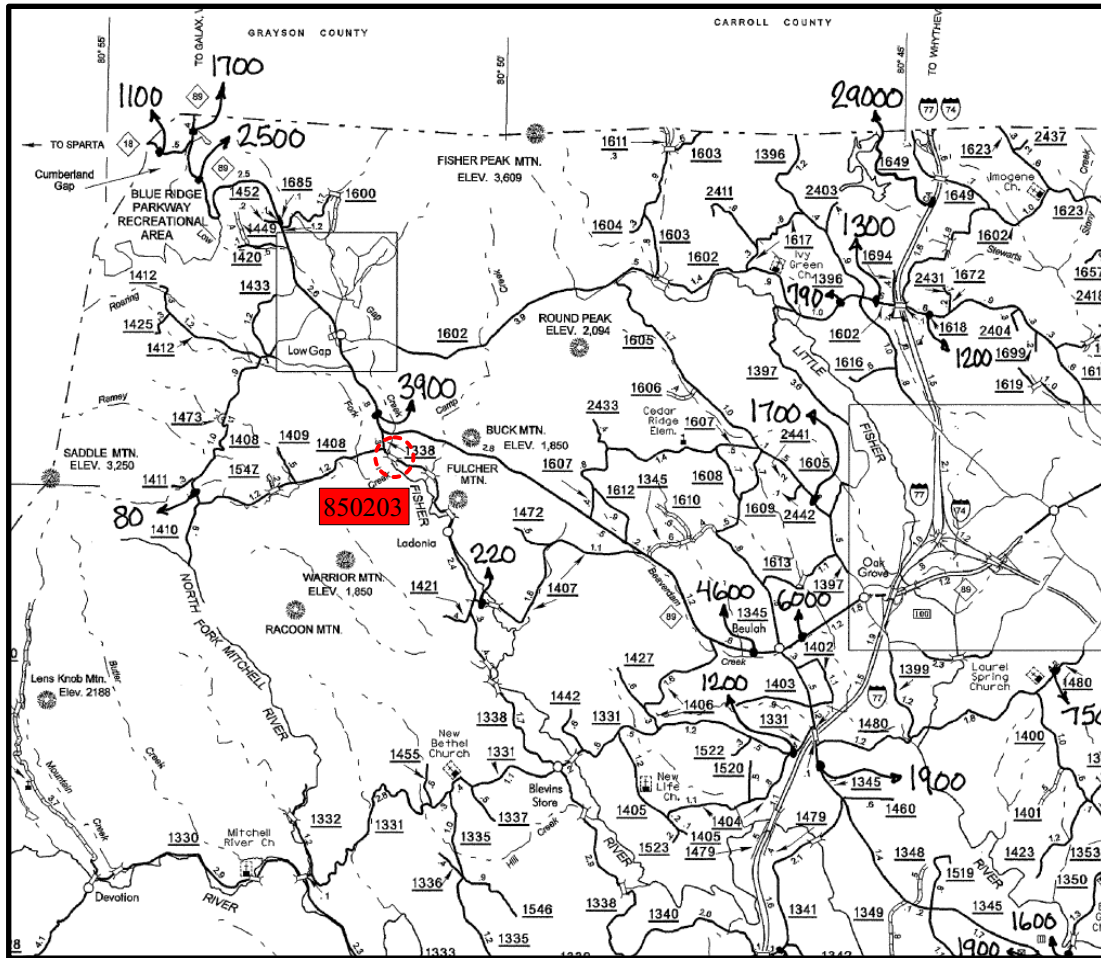


Southbound



Southbound





Bridge Location Map - Bridge #850203

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

Study Criteria Summary

County: SURRY **City:** All and Rural
Date: 7/1/2003 **to** 6/30/2013 **Study:** SURRYBRIDGE203
Location: SR 1338 (Hidden Valley Rd - Blevins Store Rd), 500 ft either side of Bridge 203

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	101615190	0.370	11/21/2005 21:20	FIXED OBJECT	\$ 6000	0	0	0	0	2	1	3	1	0	13	1
Unit 1 : 4 Alchl/Drgs: 7 Speed: 55 MPH Dir: N Veh Mnvr/Ped Actn: 4 Obj Strk: 59																
2	101314955	0.470	10/22/2004 23:10	RAN OFF ROAD - RIGHT	\$ 3500	0	0	0	1	2	5	2	5	0	0	
Unit 1 : 2 Alchl/Drgs: 0 Speed: 40 MPH Dir: N 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	1	50.00
Wet Crashes	2	100.00
Alcohol/Drugs Involvement Crashes	0	0.00

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 = 590

Total Length = 0.204 (Miles) 0.328 (Kilometers)

Total Vehicle Exposure = 0.44 (MVMT) 0.71 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	454.88	282.65
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	227.44	141.33
Night Crash Rate	227.44	141.33
Wet Crash Rate	454.88	282.65
EPDO Rate	2137.94	1328.46

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Miscellaneous Statistics

Severity Index =	4.70
EPDO Crash Index =	9.40
Estimated Property Damage Total = \$	9500.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
FIXED OBJECT	1	50.00
RAN OFF ROAD - RIGHT	1	50.00

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	0	0.00
Aug	0	0.00
Sep	0	0.00
Oct	1	50.00
Nov	1	50.00
Dec	0	0.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	1	50.00
Tue	0	0.00
Wed	0	0.00
Thu	0	0.00
Fri	1	50.00
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	1	50.00
2200-2259	0	0.00
2300-2359	1	50.00

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Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	0	1	0	1
Dark	0	1	0	1
Other	0	0	0	0
Total	0	2	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
PICKUP	1	50.00
SPORT UTILITY	1	50.00

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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	1	0	1	0
2005	1	0	0	1
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	0
2004	0	1
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	\$ 0	0.00
2004	\$ 3500	8.40

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Year	Property Damage	EPDO Index
2005	\$ 6000	1.00
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	\$ 9500	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	0	0	0	0
2004	0	0	0	1	0	0	0
2005	0	0	0	1	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 Diagram

Features	Milepost	Crash IDs
	0.31	
	0.32	
	0.33	
	0.34	
	0.35	
	0.36	
	0.37	101615190
	0.38	
WARRIOR MTN	0.39	
	0.40	
Structure:850203	0.41	
	0.42	
	0.43	
	0.44	
	0.45	
	0.46	
	0.47	101314955
	0.48	
	0.49	
	0.50	
	0.51	

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Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
SURRYBRIDGE203				76.8	8.4	590	40001338

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 1338 (Hidden Valley Rd - Blevins Store Rd), 500 ft either side of Bridge 203	

Fiche Roads	
Name	Code
SR 1338	40001338
HIDDEN VALLEY	50013914
BLEVINS STORE	50039479

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1338	40001338	0.310	0.514	0.204	0.328