
Bridge Design Speed Investigation

850143

Structure #143 on SR 2048 (Stony Ridge Road) over Grassy Creek

Surry County



Document Prepared By:

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September 20, 2013

Project Manager

A handwritten signature in black ink, reading "Jacob D. Carpenter".

Jacob D. Carpenter, PE
Regional Manager

Principal Investigator

A handwritten signature in black ink, reading "Andrew Eagle".

Andrew Eagle, PE, PTOE
Traffic Engineer



Bridge and Approach Investigation Checklist

Project 13191

Description Bridge # 143 over Grassy Creek

Route SR 2048 (Stony Ridge Road)

Division 11

County Surry

Existing Speed Limit 55 ☐ Posted ☒ Statutory

Reasonable & Comfortable Passenger Car Speed 50

Speed Data 45-55 mph

Ball Bank Speed Study 40 mph: EB - 13, WB - 11 - Readings for curve west of bridge
45 mph: EB - 14, WB - 14 - Bridge speed good at 45 mph per BBI
50 mph: EB - 16, WB - 17

Warning Signs at Bridge 4x Bridge End Delineators, 2x Weight Limit (34 ton SV, 40 ton TTST)

Roadside Development Residential, Farm

ADT History 1200 vpd (From NCDOT TEAAS); 1200 vpd (2011)

Pedestrian/Bicycle Traffic Minimal Expected

Bridge and Approach Digital Photos Attached

Approach Lane Width 10.5 ft

Approach Shoulder Width: 6 ft
Shoulder Type grass

Lane Width (existing bridge) 10 ft

Shoulder width (existing bridge) 2 ft (~24 ft total width)

Strategic Corridor / Thoroughfare Designation and Recommended Cross Section SR 2048 is classified as a minor collector 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. One vehicle struck an animal.

Comments Reasonable bridge speed 45 mph due to curve west of bridge.

Reasonable Bridge Speed 45

Investigated by: J. Andrew Eagle, PE, PTOE

Reviewed by: 

County: Surry

Bridge and Route: 850143 – SR 2048 Stony Ridge Rd.
Eastbound

Date: 9/16/13

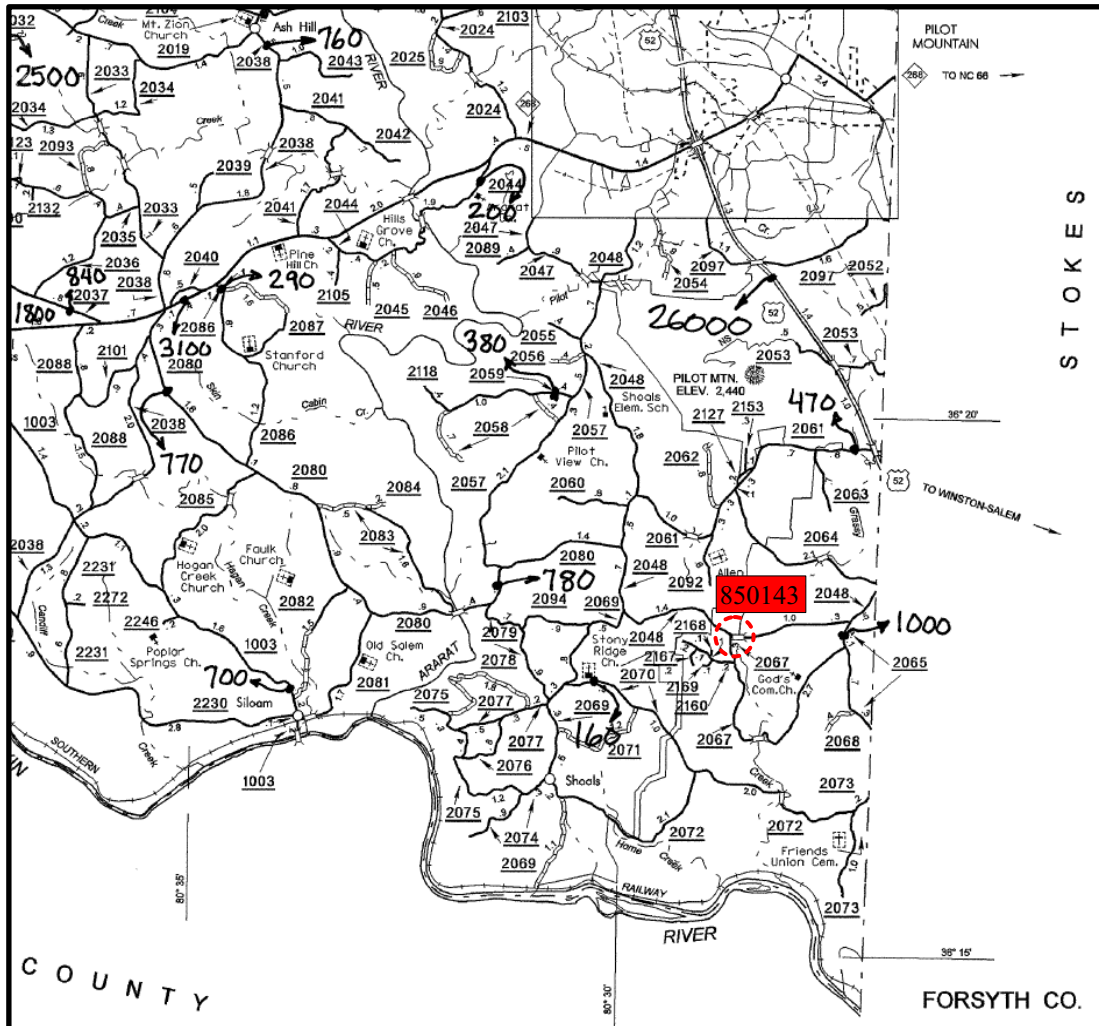


Westbound



Westbound





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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 = 1200

Total Length = 0.176 (Miles) 0.283 (Kilometers)

Total Vehicle Exposure = 0.77 (MVMT) 1.24 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	129.62	80.54
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	0.00	0.00
Night Crash Rate	129.62	80.54
Wet Crash Rate	0.00	0.00
EPDO Rate	129.62	80.54

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Miscellaneous Statistics

Severity Index =	1.00
EPDO Crash Index =	1.00
Estimated Property Damage Total = \$	1200.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANIMAL	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	1	100.00
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	0	0.00
Sat	0	0.00
Sun	1	100.00

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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	0	0.00
2300-2359	1	100.00

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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
ANIMAL	1	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PICKUP	1	100.00

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Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2003	1	0	0	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	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	\$ 1200	1.00
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	\$ 0	0.00
2013	\$ 0	0.00
Total	\$ 1200	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	1
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	0	0	0	1

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Strip Diagram

Features	Milepost	Crash IDs
	7.11	
	7.12	
	7.13	
	7.14	
	7.15	
	7.16	
	7.17	
	7.18	
	7.19	
	7.20	101002835
	7.21	
	7.22	
	7.23	
	7.24	
	7.25	
	7.26	
	7.27	
	7.28	

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Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
SURRYBRIDGE143				76.8	8.4	1200	40002048

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 2048 (Stony Ridge Rd- Shoals Rd), 500 feet either side of Bridge 143	

Excluded Accidents
102706893
102740961

Fiche Roads	
Name	Code
SR 2048	40002048
STONEY RIDGE	50029351
SHOALS	50027988

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 2048	40002048	7.109	7.285	0.176	0.283