
Bridge Design Speed Investigation

B-5660

Structure #65 on SR 1100 (Bells Bridges Road) over Deep Creek

Halifax County



Document Prepared By:

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March 16, 2016

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 "Joshua T. Reinke".

Joshua T. Reinke, PE
Transportation Engineer



Bridge and Approach Investigation Checklist

Project B-5660

Description Bridge #65 over Deep Creek

Route SR 1100 (Bells Bridges Road)

Division 4

County Halifax

Existing Speed Limit 55 mph ☐ Posted ☒ Statutory

Reasonable & Comfortable
Passenger Car Speed 50 mph

Speed Data Estimated 45-50 mph

Ball Bank Speed Study Curve East of Bridges:
45 mph: WB Approach - 10, EB Approach - 10
50 mph: WB Approach - 12, EB Approach - 12
No curve west of bridges

Warning Signs at Bridge West Bridge: 4x Bridge End Delineators, 2x Weight Limit (39 ton)
East Bridge: 4x Bridge End Delineators, 2x Weight Limit (31 ton SV,
34 ton TTST)

Roadside Development Wooded, Agricultural

ADT History 205 vpd (From NCDOT TEAAS)
190 vpd (From NCDOT Traffic Volume Map - 2012)

Pedestrian/Bicycle Traffic Minimal Expected

Bridge and Approach
Digital Photos Attached

Approach Lane Width East of Bridges - 18.75 ft, West of Bridges - 18.75 ft (total width)

Approach Shoulder Width
Shoulder Type East of Bridges - <1 ft paved, >8 ft grass then swamp
West of Bridges - <1 ft paved, >8 ft grass then swamp

Lane Width (existing bridge) West Bridge - 18.75 ft, East Bridge - 18.75

Shoulder width (existing bridge) North Bridge - 2.5 ft on north side, 4 ft on south side
South bridge - 2.5 ft on north side, 3 ft on south side

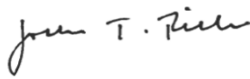
Strategic Corridor / Thoroughfare
Designation and Recommended
Cross Section SR 1100 is classified as a rural local facility in the Statewide Functional
Classification System. 2-lane cross-section is recommended.

Crash History and
Safety Considerations Crash Analysis completed for 01/01/06 to 12/31/15. One collision was
reported. One collision involved a movable object.

Comments The design of the bridge and approaches should consider accommodating
up to a 25 ft wide farm machine.

Reasonable Bridge Speed 50 mph

Investigated by: Joshua T. Reinke, PE

Reviewed by: 

County: Halifax

Route: SR 1100 (Bells Bridges Road) – East Bridge

Date: 03/16/16

Eastbound

Eastbound



Westbound

Westbound



County: Halifax

Route: SR 1100 (Bells Bridges Road) – West Bridge

Date: 03/16/16

Eastbound

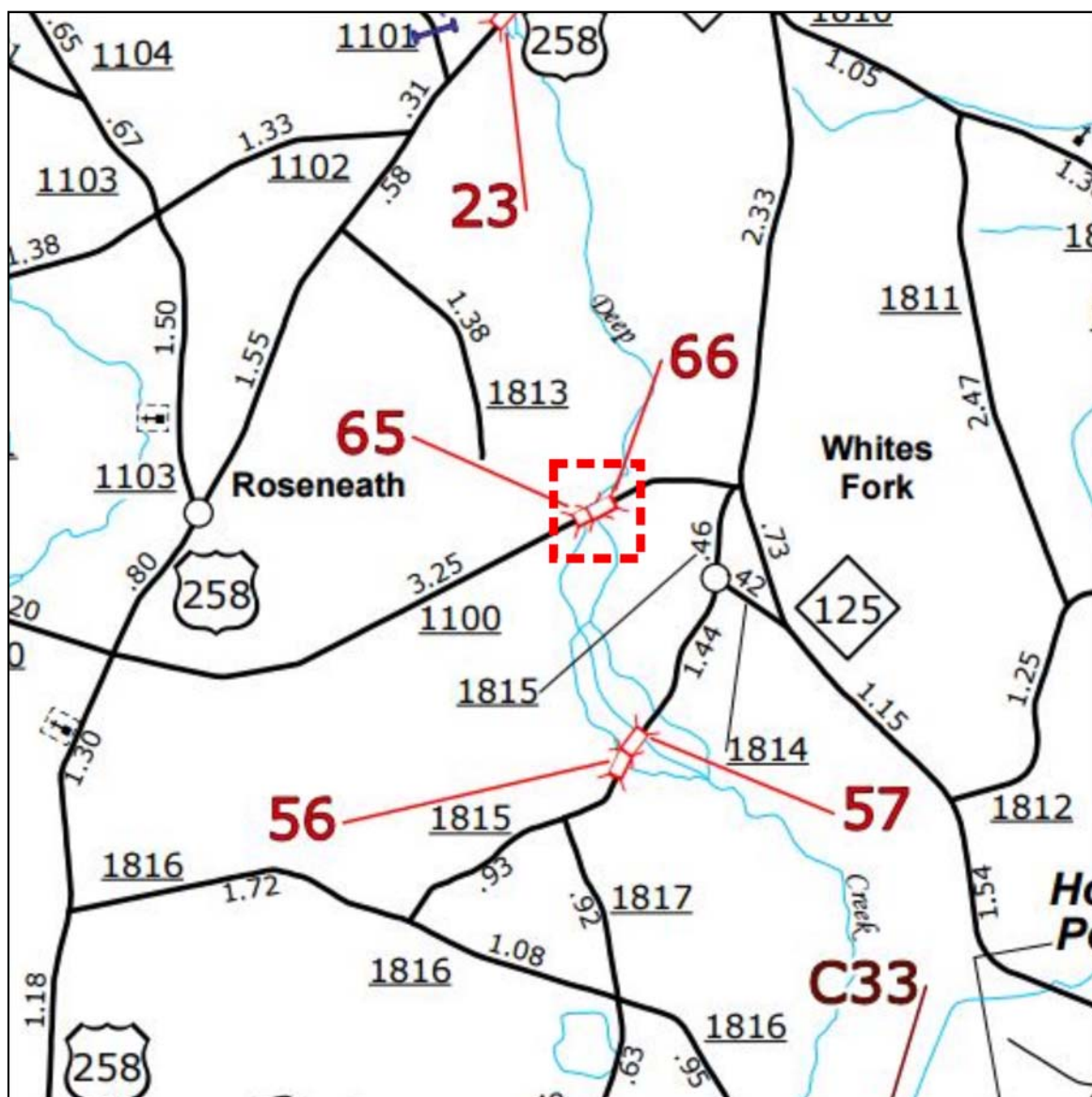
Eastbound



Westbound

Westbound





Bridge Location Map-Bridge #410065

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

Study Criteria Summary

County: HALIFAX **City:** All and Rural
Date: 1/1/2006 to 12/31/2015 **Study:** HALIFAXBRIDGE65
Location: 500 ft. either side of Bridge No. 65 on SR 1100 (Bells Bridge Rd) over Deep Creek

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	102279772	15.056	03/08/2008 13:56	MOVABLE OBJECT	\$ 1000	0	0	0	0	1	1	1	1	6	0	
Unit 1 : 4 Alchl/Drgs: 0 Speed: 50 MPH Dir: E Veh Mnvr/Ped Actn: 4 Obj Strk: 18																

**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	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	0	0.00
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 = 205

Total Length = 0.212 (Miles) 0.341 (Kilometers)

Total Vehicle Exposure = 0.16 (MVMT) 0.26 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	630.06	391.50
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	0.00	0.00
Night Crash Rate	0.00	0.00
Wet Crash Rate	0.00	0.00
EPDO Rate	630.06	391.50

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Miscellaneous Statistics

Severity Index =	1.00
EPDO Crash Index =	1.00
Estimated Property Damage Total = \$	1000.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
MOVABLE 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	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	1	100.00
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	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	1	100.00
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	1	100.00
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	0	0.00

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Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	1	0	0	1
Dark	0	0	0	0
Other	0	0	0	0
Total	1	0	0	1

Object Struck Summary

Object Type	Times Struck	Percent of Total
MOVABLE OBJECT	1	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
SPORT UTILITY	1	100.00

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Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2006	0	0	0	0
2007	0	0	0	0
2008	1	0	0	1
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
2014	0	0	0	0
2015	0	0	0	0
Total	1	0	0	1

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2006	0	0
2007	0	0
2008	0	0
2009	0	0
2010	0	0
2011	0	0
2012	0	0
2013	0	0
2014	0	0
2015	0	0
Total	0	0

Miscellaneous Totals

Year	Property Damage	EPDO Index
2006	\$ 0	0.00
2007	\$ 0	0.00
2008	\$ 1000	1.00
2009	\$ 0	0.00
2010	\$ 0	0.00

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Year	Property Damage	EPDO Index
2011	\$ 0	0.00
2012	\$ 0	0.00
2013	\$ 0	0.00
2014	\$ 0	0.00
2015	\$ 0	0.00
Total	\$ 1000	1.00

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2006	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	1
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
2014	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1

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Strip Analysis Report

Strip Diagram

Features	Milepost	Crash IDs
Structure:410065	14.96	
	14.97	
	14.98	
	14.99	
	15.00	
	15.01	
	15.02	
	15.03	
	15.04	
	15.05	
	15.06	102279772
	15.07	
	15.08	
	15.09	
	15.10	
Structure:410066	15.11	
	15.12	
	15.13	
	15.14	
	15.15	
	15.16	
	15.17	

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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
HALIFAXBRIDGE65				76.8	8.4	205	

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
HALIFAX	42	4	All and Rural		0	1/1/2006	12/31/2015	10.00

Location Text	Requestor
500 ft. either side of Bridge No. 65 on SR 1100 (Bells Bridge Rd) over Deep Creek	

Fiche Roads	
Name	Code
SR 1100	40001100
BATTS	50001883

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1100	40001100	14.962	15.174	0.212	0.341