
Bridge Design Speed Investigation

B-5665

Structure #138 on SR 1309 (Spruills Bridge Road) over Little Fishing 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-5665

Description Bridge #138 over Little Fishing Creek

Route SR 1309 (Spruills Bridge Road)

Division 4

County Halifax

Existing Speed Limit 55 mph ☐ Posted ☒ Statutory

Reasonable & Comfortable
Passenger Car Speed 10 mph

Speed Data Estimated 10 mph

Ball Bank Speed Study ~10 mph North and South of bridge felt safe

Warning Signs at Bridge 3x Bridge End Delineators, 2x Weight Limit (10 ton SV, 14 ton TTST)
2x One-Lane Bridge

Roadside Development Wooded

ADT History 270 vpd (From NCDOT TEAAS)
No posted ADT on NCDOT Traffic Volume Map

Pedestrian/Bicycle Traffic Minimal Expected

Bridge and Approach
Digital Photos Attached

Approach Lane Width South of Bridge - 16 ft, North of Bridge - 18 ft (total width)

Approach Shoulder Width South of Bridge - 2 ft grass
Shoulder Type North of Bridge - no shoulder

Lane Width (existing bridge) 12 ft (total width)

Shoulder width (existing bridge) No shoulder

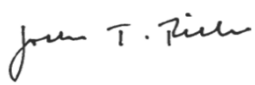
Strategic Corridor / Thoroughfare
Designation and Recommended
Cross Section SR 1309 is classified as a rural local facility in the Statewide Functional
Classification System. 2-lane cross-section is recommended.

Crash History and
Safety Considerations Crash data was completed for 01/01/2006 to 12/31/2015. Two collisions
were reported. Both collisions involved a fixed object.

Comments Dirt/gravel roadway leading up to a 1-lane bridge that is currently under
construction. Due to severe curves approaching the one-lane bridge from
both directions, the reasonable bridge speed is very low.

Reasonable Bridge Speed 10 mph

Investigated by: Joshua T. Reinke, PE

Reviewed by: 

County: Halifax

Route: SR 1309 (Spruills Bridge Road)

Date: 03/16/16

Northbound



Northbound

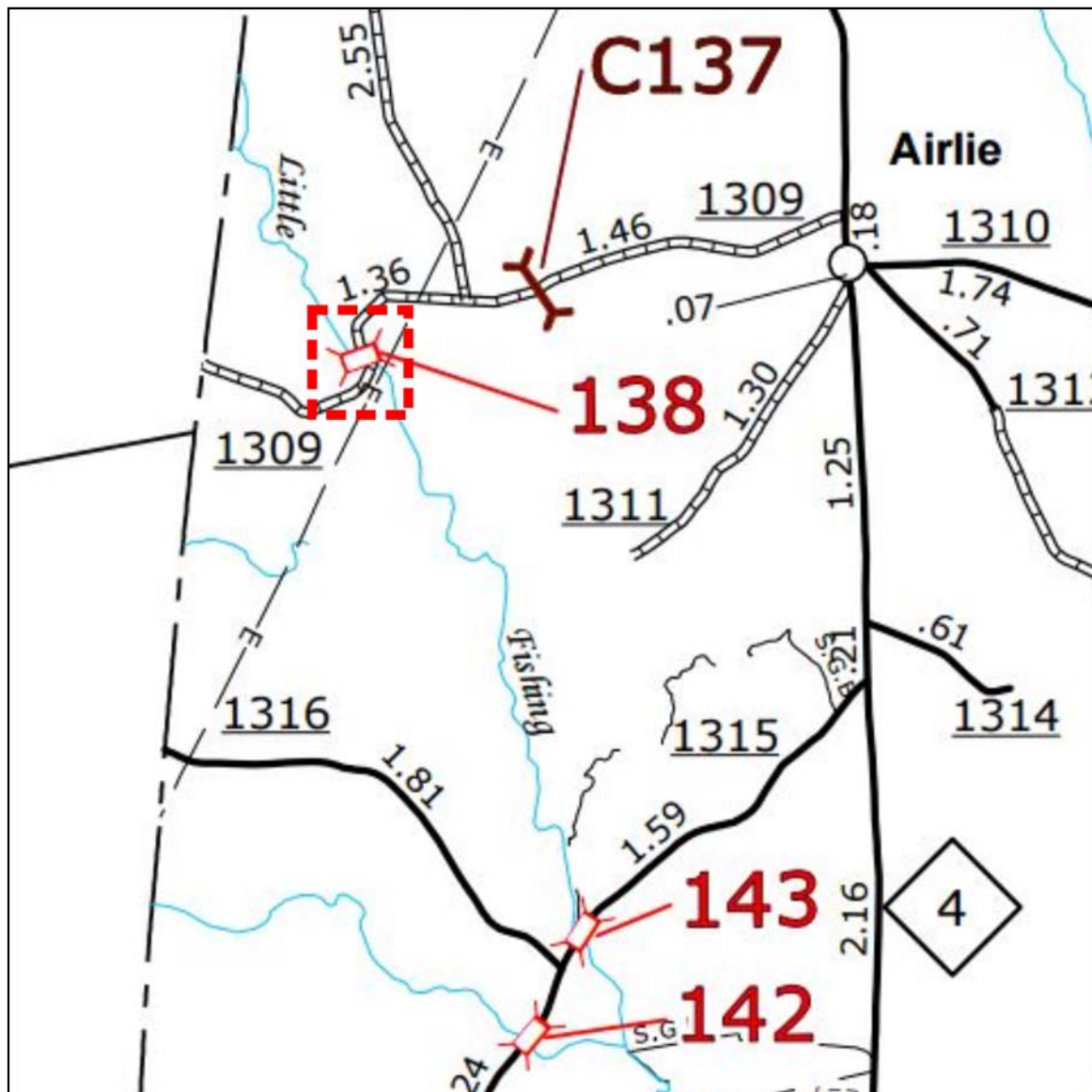


Southbound



Southbound





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

Study Criteria Summary

County: HALIFAX **City:** All and Rural
Date: 01/01/2006 **to** 12/31/2015 **Study:** HALIFAXBRIDGE138
Location: 500 feet either side of Bridge No. 138 on SR 1309 (Spruills Bridge Rd) over Little Fishing 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	102918149	1.895	06/30/2010 08:23	FIXED OBJECT	\$ 3000	0	0	0	1	7	1	1	5	0		
Unit 1 : 2		Alchl/Drgs:	0	Speed:	45 MPH	Dir:	W	Veh Mnvr/Ped Actn:				4	Obj Strk:		58	
2	103968942	1.900	12/18/2013 14:48	FIXED OBJECT	\$ 1500	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 10		Alchl/Drgs:	0	Speed:	5 MPH	Dir:	W	Veh Mnvr/Ped Actn:				4	Obj Strk:		49	

**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	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	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 = 270

Total Length = 0.196 (Miles) 0.315 (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	1034.85	643.03
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	517.43	321.51
Night Crash Rate	0.00	0.00
Wet Crash Rate	0.00	0.00
EPDO Rate	4863.81	3022.23

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Strip Analysis Report**

Miscellaneous Statistics

Severity Index =	4.70
EPDO Crash Index =	9.40
Estimated Property Damage Total = \$	4500.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
FIXED OBJECT	2	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	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	1	50.00
Jul	0	0.00
Aug	0	0.00
Sep	0	0.00
Oct	0	0.00
Nov	0	0.00
Dec	1	50.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	0	0.00
Tue	0	0.00
Wed	2	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	1	50.00
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	1	50.00
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	1	2
Dark	0	0	0	0
Other	0	0	0	0
Total	1	0	1	2

Object Struck Summary

Object Type	Times Struck	Percent of Total
BRIDGE RAIL END	1	50.00
DITCH	1	50.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PICKUP	1	50.00
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	1	50.00

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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	0	0	0	0
2009	0	0	0	0
2010	1	0	1	0
2011	0	0	0	0
2012	0	0	0	0
2013	1	0	0	1
2014	0	0	0	0
2015	0	0	0	0
Total	2	0	1	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	1
2011	0	0
2012	0	0
2013	0	0
2014	0	0
2015	0	0
Total	0	1

Miscellaneous Totals

Year	Property Damage	EPDO Index
2006	\$ 0	0.00
2007	\$ 0	0.00
2008	\$ 0	0.00
2009	\$ 0	0.00
2010	\$ 3000	8.40

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Year	Property Damage	EPDO Index
2011	\$ 0	0.00
2012	\$ 0	0.00
2013	\$ 1500	1.00
2014	\$ 0	0.00
2015	\$ 0	0.00
Total	\$ 4500	9.40

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	0
2009	0	0	0	0	0	0	0
2010	0	0	0	1	0	0	0
2011	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0
2013	0	0	0	1	0	0	0
2014	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
Total	0	0	0	2	0	0	0

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Strip Analysis Report

Strip Diagram

Features	Milepost	Crash IDs
Structure:410138	1.81	
	1.82	
	1.83	
	1.84	
	1.85	
	1.86	
	1.87	
	1.88	
	1.89	102918149
	1.90	103968942
	1.91	
	1.92	
	1.93	
	1.94	
	1.95	
	1.96	
	1.97	
	1.98	
	1.99	
	2.00	

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

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
HALIFAXBRIDGE138				76.8	8.4	270	

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	01/01/2006	12/31/2015	10.00

Location Text	Requestor
500 feet either side of Bridge No. 138 on SR 1309 (Spruills Bridge Rd) over Little Fishing Creek	

Included Accidents	Old MP	New MP	Type
102918149	2	1.895	R
103968942	0.86	1.9	I

Fiche Roads

Name	Code
SR 1309	40001309
SPRUILLS BRDG	50028907

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1309	40001309	1.806	2.002	0.196	0.315