

Bridge Approach Speed Investigation

Bridge #313 over Boggy Branch on SR 1159 (Old Tram Rd)
Columbus County
Project Number 17BP.6.PE.1



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August 23, 2018



Principal Investigator

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Elizabeth E. Hartzog
Traffic Engineer

Project Manager

DocuSigned by:

Kelly L. Becker

8/23/2018

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Kelly L. Becker, PE
Project Manager



Slip Number	Division	County	Location Description	Latitude	Longitude
ColumbusBridge313	6	Columbus	SR 1159 (Old Tram Rd) From 500ft S of Bridge 313 to 500ft N of Bridge 313	34.188893	-78.699065

Bridge and Approach Investigation Checklist

Project 17BP.6.PE.1
 Description Bridge 313 over Boggy Branch
 Route SR 1159 (Old Tram Rd)
 Division 6
 County Columbus

Existing Speed Limit 55 ☐Posted ☒Statutory

Reasonable & Comfortable
 Passenger Car Speed 55

Ball Bank Speed Study
 (if necessary) No study performed, bridge in tangent section.

Warning Signs at Bridge Object markers on each bridge corner - 1x OMR and 1x OML each approach

Roadside Development Rural/Residential/Agricultural

AADT History 760 vpd, 2016 (from count station)
740 vpd, 2012 (from count station)

Pedestrian/Bicycle Traffic Minimal expected.

Bridge and Approach
 Digital Photos Attached

Approach Lane Width 10'

Approach Shoulder Width: 1'
 Shoulder Type Paved

Lane Width (existing bridge) 10'

Shoulder width (existing bridge) 2'

Strategic Corridor / Thoroughfare
 Designation and Recommended
 Cross Section Rural

Crash History and
 Safety Considerations Four (4) crashes have been reported in the vicinity of the bridge from
07/1/2008 to 06/30/2018 (10 years). Three (3) occurred at bridge.

Comments There were no posted speed limits signs or weight limit signs present.
Heavy duty farming equipment was spotted nearby.

Reasonable Bridge Speed 55

Investigated by: Elizabeth Hartzog 08/14/2018 Reviewed by: Kelly Becker, PE 08/18/2018

County: Columbus

Description:

Bridge 313 on SR 1159

Date: 08-13-18

SR 1159 NB Approach to Bridge 313



SR 1159 NB Approach to Bridge 313



SR 1159 SB Approach to Bridge 313



SR 1159 SB Approach to Bridge 313



County: Columbus

Description:

Bridge 313 on SR 1159

Date: 08-13-18

Profile View of NB Approach to Bridge 313

Profile View of SB Approach to Bridge 313



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

Study Criteria Summary

County: COLUMBUS **City:** All and Rural
Date: 7/1/2008 **to** 06/30/2018 **Study:** COLUMBUSBRIDGE313
Location: SR 1158 (Old Tram Rd) from 500ft S of Bridge 313 to 500ft N of Bridge 313

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	103316678	2.170	12/01/2011 08:00	FIXED OBJECT	\$ 300	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	7	Speed: 55 MPH	Dir: S	Veh Mnvr/Ped Actn:				4	Obj Strk:			58		
2	102919519	2.268	07/23/2010 10:44	FIXED OBJECT	\$ 15000	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 60 MPH	Dir: N	Veh Mnvr/Ped Actn:				4	Obj Strk:			58		
3	103602798	2.268	11/18/2012 01:40	MOVABLE OBJECT	\$ 1200	0	0	0	0	1	5	2	1	0	13	1
Unit	1 : 1	Alchl/Drgs:	0	Speed: 55 MPH	Dir: N	Veh Mnvr/Ped Actn:				4	Obj Strk:			18		
4	105000929	2.268	02/06/2017 17:00	FIXED OBJECT	\$ 4500	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 2	Alchl/Drgs:	0	Speed: 50 MPH	Dir: S	Veh Mnvr/Ped Actn:				4	Obj Strk:			50		

**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	4	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	1	25.00
Total Injury Crashes	1	25.00
Property Damage Only Crashes	3	75.00
Night Crashes	1	25.00
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	4	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	1	25.00
Property Damage Only Crashes	3	75.00

Vehicle Exposure Statistics

Annual ADT = 760

Total Length = 0.204 (Miles)

0.328 (Kilometers)

Total Vehicle Exposure = 0.57 (MVMT)

0.91 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	706.46	438.97
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	176.61	109.74
Night Crash Rate	176.61	109.74
Wet Crash Rate	0.00	0.00
EPDO Rate	2013.40	1251.07

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Traffic Engineering Accident Analysis System
Strip Analysis Report**

Miscellaneous Statistics

Severity Index =	2.85
EPDO Crash Index =	11.40
Estimated Property Damage Total = \$	21000.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
FIXED OBJECT	3	75.00
MOVABLE OBJECT	1	25.00

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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Traffic Engineering Accident Analysis System
Strip Analysis Report**

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	0	0.00
Feb	1	25.00
Mar	0	0.00
Apr	0	0.00
May	0	0.00
Jun	0	0.00
Jul	1	25.00
Aug	0	0.00
Sep	0	0.00
Oct	0	0.00
Nov	1	25.00
Dec	1	25.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	1	25.00
Tue	0	0.00
Wed	0	0.00
Thu	1	25.00
Fri	1	25.00
Sat	0	0.00
Sun	1	25.00

08/14/2018

All data presented in this report comes explicitly from the Traffic Engineering Accident Analysis System based upon various criteria provided by the report's creator. The onus is strictly upon the user of this report to exercise due diligence in interpreting and further representing this data.

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Strip Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	1	25.00
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	25.00
0900-0959	0	0.00
1000-1059	1	25.00
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	1	25.00
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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Traffic Engineering Accident Analysis System
Strip Analysis Report**

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	3	0	0	3
Dark	1	0	0	1
Other	0	0	0	0
Total	4	0	0	4

Object Struck Summary

Object Type	Times Struck	Percent of Total
BRIDGE RAIL FACE	1	25.00
DITCH	2	50.00
MOVABLE OBJECT	1	25.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	3	75.00
PICKUP	1	25.00

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Traffic Engineering Accident Analysis System
Strip Analysis Report**

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2008	0	0	0	0
2009	0	0	0	0
2010	1	0	1	0
2011	1	0	0	1
2012	1	0	0	1
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	1	0	0	1
2018	0	0	0	0
Total	4	0	1	3

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2008	0	0
2009	0	0
2010	0	1
2011	0	0
2012	0	0
2013	0	0
2014	0	0
2015	0	0
2016	0	0
2017	0	0
2018	0	0
Total	0	1

Miscellaneous Totals

Year	Property Damage	EPDO Index
2008	\$ 0	0.00
2009	\$ 0	0.00

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Year	Property Damage	EPDO Index
2010	\$ 15000	8.40
2011	\$ 300	1.00
2012	\$ 1200	1.00
2013	\$ 0	0.00
2014	\$ 0	0.00
2015	\$ 0	0.00
2016	\$ 0	0.00
2017	\$ 4500	1.00
2018	\$ 0	0.00
Total	\$ 21000	11.40

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
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	1	0	0	0
2012	0	0	0	0	0	0	1
2013	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0
2017	0	0	0	1	0	0	0
2018	0	0	0	0	0	0	0
Total	0	0	0	3	0	0	1

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

Strip Diagram

Features	Milepost	Crash IDs
BEGIN STUDY 500' S OF BRIDGE 313	2.17	103316678
	2.18	
	2.19	
	2.20	
	2.21	
	2.22	
	2.23	
	2.24	
	2.25	
	2.26	
Structure:230313	2.27	102919519 103602798 105000929
	2.28	
	2.29	
	2.30	
	2.31	
	2.32	
	2.33	
	2.34	
	2.35	
	2.36	
END STUDY 500' N OF BRIDGE 313	2.37	

**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
COLUMBUSBRIDGE313				76.8	8.4	760	40001158

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
COLUMBUS	24	6	All and Rural		0	7/1/2008	06/30/2018	10.00

Location Text	Requestor
SR 1158 (Old Tram Rd) from 500ft S of Bridge 313 to 500ft N of Bridge 313	

Included Accidents	Old MP	New MP	Type
105000929		2.268	I
103602798	2.09	2.268	I
102919519	3.07	2.268	I

Fiche Roads

Name	Code
SR 1159	40001159

Strip Road

Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1159	40001159	2.166	2.370	0.204	0.328