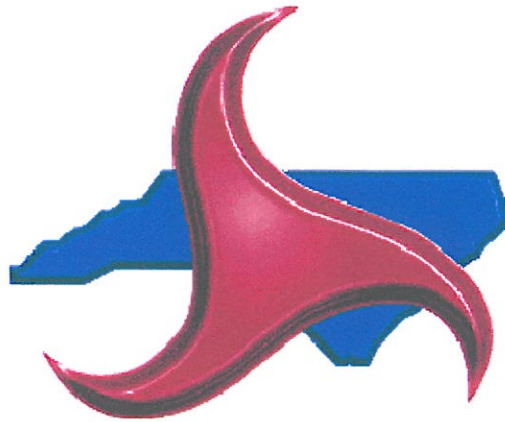


Bridge Design Speed Investigation

17BP.6.R.43

Bridge 126 over Gum Swamp on SR 1005
Columbus County



Document Prepared By:

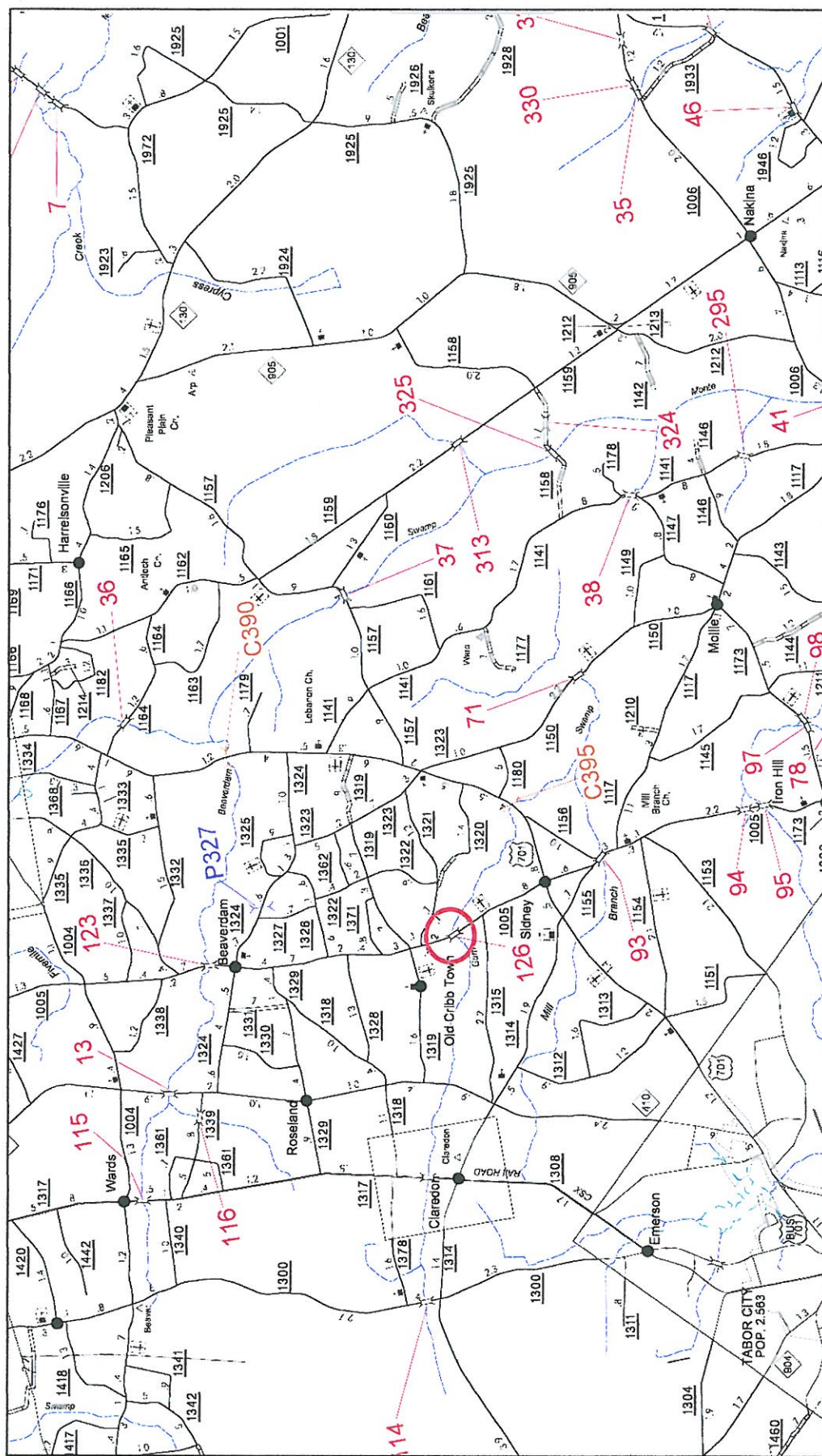
Regional Traffic Office – Sand hills Region
Transportation Mobility and Safety Division
North Carolina Department of Transportation

August 29, 2014

Principal Investigator & Project Manager

David B. Phipps, PE
Regional Traffic Engineer





Bridge 126 over Gum Swamp on SR 1005 in Columbus County

Bridge and Approach Investigation Checklist

Project 17BP.6.R.43
Description Bridge 126 over Gum Swamp
Route SR 1005
Division 6
County Columbus

Existing Speed Limit 55 ☐ Posted ☒ Statutory

Reasonable & Comfortable
Passenger Car Speed 55

Speed Data None.

Ball Bank Speed Study Readings indicate this section of SR 1005 is safe and reasonable at 50-55 mph.

Warning Signs at Bridge Type 3 Object Markers (OM-3L and OM-3R) - 2 each.

Roadside Development Rural wooded area with some homes along roadway.

ADT History 2005: 1600, 2007: 1500, 2009: 1500, 2013: 1300.

Pedestrian/Bicycle Traffic Minimal expected.

Bridge and Approach
Digital Photos Attached

Approach Lane Width 9 ft.

Approach Shoulder Width: 5 ft.
Shoulder Type Soil/Grass. 1 ft. paved.

Lane Width (existing bridge) 9 ft.

Shoulder width (existing bridge) 3 ft.

Strategic Corridor / Thoroughfare
Designation and Recommended
Cross Section n/a

Crash History and
Safety Considerations Four collisions in crash analysis. One crash involved a vehicle traveling off of the roadway and submerging in the swamp. Approach and trailing guardrail on the new structure should reduce the possibility of this type of collision.

Comments This section of SR 1005 is safe and reasonable at 55 mph.

Reasonable Bridge Speed 55 mph

Investigated by: David B. Phipps, PE Reviewed by: David B. Phipps, PE

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

Study Criteria Summary

County: COLUMBUS **City:** All and Rural
Date: 06/01/2004 to 05/31/2014 **Study:** MW410000312
Location: Crash analysis on SR 1005 (Peacocks Rd) for Bridge #126 over Gum Swamp, 500 feet on each side.

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	103095523	7.890	02/22/2011 12:05	ANIMAL	\$ 200	0	0	0	0	1	1	1	1	0	0	
Unit 1 : 2 Alchl/Drugs: 0 Speed: 55 MPH Dir: N Veh Mnvr/Ped Actn: 4 Obj Strk: 17																
2	101500254	7.984	06/17/2005 10:43	LEFT TURN, SAME ROADWAY	\$ 5500	0	0	0	2	1	1	1	1	0	13	1
Unit 1 : 1 Alchl/Drugs: 0 Speed: 45 MPH Dir: S Veh Mnvr/Ped Actn: 8 Obj Strk:																
Unit 2 : 5 Alchl/Drugs: 0 Speed: 55 MPH Dir: N Veh Mnvr/Ped Actn: 4 Obj Strk:																
3	102763707	7.990	01/08/2010 21:21	FIXED OBJECT	\$ 3500	1	0	0	0	1	5	1	5	0	0	
Unit 1 : 3 Alchl/Drugs: 1 Speed: 60 MPH Dir: S Veh Mnvr/Ped Actn: 4 Obj Strk: 58																
4	101512060	8.084	07/04/2005 22:30	FIXED OBJECT	\$ 4000	0	0	0	0	1	5	1	5	0	0	
Unit 1 : 1 Alchl/Drugs: 0 Speed: 60 MPH Dir: N Veh Mnvr/Ped Actn: 4 Obj Strk: 58																

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/Drugs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
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	1	25.00
Non-Fatal Injury Crashes	1	25.00
Total Injury Crashes	2	50.00
Property Damage Only Crashes	2	50.00
Night Crashes	2	50.00
Wet Crashes	0	0.00
Alcohol/Drugs Involvement Crashes	1	25.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	4	100.00
Fatal Crashes	1	25.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	1	25.00
Property Damage Only Crashes	2	50.00

Vehicle Exposure Statistics

Annual ADT = 1400

Total Length = 0.196 (Miles)

0.315 (Kilometers)

Total Vehicle Exposure = 1 (MVMT)

1.61 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	399.16	248.03
Fatal Crash Rate	99.79	62.01
Non Fatal Crash Rate	99.79	62.01
Night Crash Rate	199.58	124.01
Wet Crash Rate	0.00	0.00
EPDO Rate	8701.65	5406.95

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

Miscellaneous Statistics

Severity Index =	21.80
EPDO Crash Index =	87.20
Estimated Property Damage Total = \$	13200.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANIMAL	1	25.00
FIXED OBJECT	2	50.00
LEFT TURN, SAME ROADWAY	1	25.00

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	1	33.33
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	2	66.67
Total Non-Fatal Injuries	2	66.67
Total Injuries	3	100.00

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

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	1	25.00
Feb	1	25.00
Mar	0	0.00
Apr	0	0.00
May	0	0.00
Jun	1	25.00
Jul	1	25.00
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	1	25.00
Tue	1	25.00
Wed	0	0.00
Thu	0	0.00
Fri	2	50.00
Sat	0	0.00
Sun	0	0.00

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

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	1	25.00
1100-1159	0	0.00
1200-1259	1	25.00
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	25.00
2200-2259	1	25.00
2300-2359	0	0.00

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

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	2	0	0	2
Dark	2	0	0	2
Other	0	0	0	0
Total	4	0	0	4

Object Struck Summary

Object Type	Times Struck	Percent of Total
ANIMAL	1	33.33
DITCH	2	66.67

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	20.00
PASSENGER CAR	2	40.00
PICKUP	1	20.00
VAN	1	20.00

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

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2004	0	0	0	0
2005	2	0	1	1
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	0	0	0
2010	1	1	0	0
2011	1	0	0	1
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0
Total	4	1	1	2

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2004	0	0
2005	0	2
2006	0	0
2007	0	0
2008	0	0
2009	0	0
2010	1	0
2011	0	0
2012	0	0
2013	0	0
2014	0	0
Total	1	2

Miscellaneous Totals

Year	Property Damage	EPDO Index
2004	\$ 0	0.00
2005	\$ 9500	9.40
2006	\$ 0	0.00

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

Year	Property Damage	EPDO Index
2007	\$ 0	0.00
2008	\$ 0	0.00
2009	\$ 0	0.00
2010	\$ 3500	76.80
2011	\$ 200	1.00
2012	\$ 0	0.00
2013	\$ 0	0.00
2014	\$ 0	0.00
Total	\$ 13200	87.20

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2004	0	0	0	0	0	0	0
2005	1	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	1	0	0	0
2011	0	0	0	0	0	0	1
2012	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0
Total	1	0	0	2	0	0	1

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

Strip Diagram

Features	Milepost	Crash IDs
	7.89	103095523
	7.90	
	7.91	
	7.92	
	7.93	
	7.94	
	7.95	
	7.96	
	7.97	
	7.98	101500254
Structure:230126	7.99	102763707
	8.00	
	8.01	
	8.02	
	8.03	
	8.04	
	8.05	
	8.06	
	8.07	
	8.08	101512060
	8.09	

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
MW410000312	41000030312			76.8	8.4	1400	40001005

Request Date	Courier Service	Phone No.	Ext.	Fax No.
07/16/2014		910 437 2614		910 437 0211

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
COLUMBUS	23	6	All and Rural		0	06/01/2004	05/31/2014	10.00

Location Text	Requestor
Crash analysis on SR 1005 (Peacocks Rd) for Bridge #126 over Gum Swamp, 500 feet on each side.	David Phipps NCDOT Sandhills Region

Fiche Roads	
Name	Code
SR 1005	40001005
PEACOCK	50023637

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1005	40001005	7.889	8.085	0.196	0.315

County: Columbus

Description:

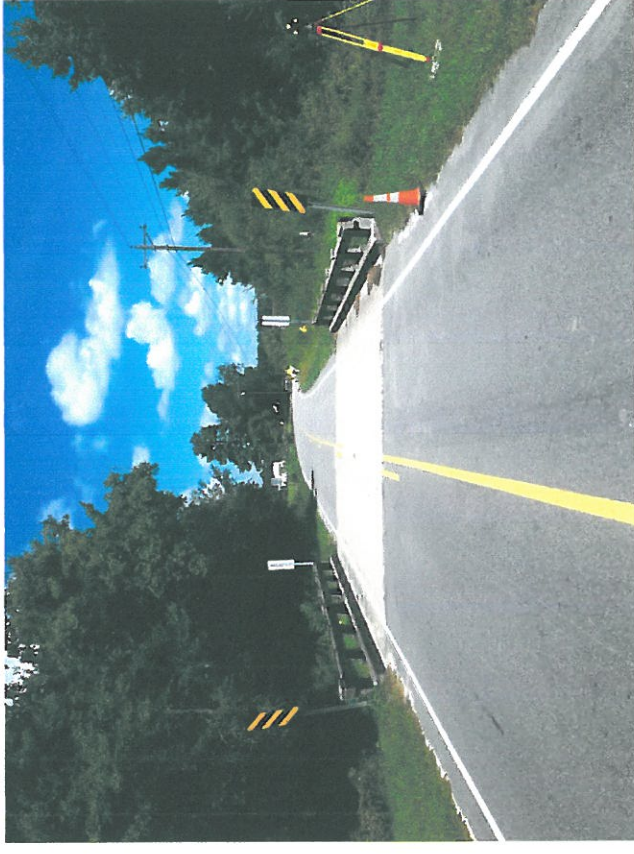
Bridge 126

Route:SR 1005

Looking north



Looking north



Looking south



Looking south

