

Bridge Design Speed Investigation

Bridge #676 on SR 1397 (Surrett Cove Rd) over Bald Fork Creek
Buncombe County



Document Prepared By:

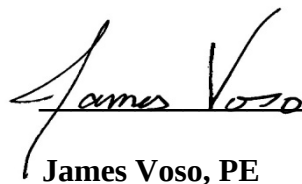
Mattern & Craig, Inc.
Consulting Engineers - Surveyors
12 Broad Street
Asheville, NC 28801
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Commission No: 3350

June 21, 2013



Investigating Engineer


James Voso, PE

Bridge and Approach Investigation Checklist

Project 17BP.13.PE.1
Description Replace Bridge #676 on SR 1397 (Surrett Cove Rd) over Bald Fork Creek
Route SR 1397 (Surrett Cove Road)
Division 13
County Buncombe

Existing Speed Limit 55 mph ☐ Posted ☒ Statutory

Reasonable & Comfortable
Passenger Car Speed 25 mph

Speed Data N/A

Ball Bank Speed Study Curve east of Bridge #676 had a ball bank indication of 8 at 20 mph.

Warning Signs at Bridge 4 Bridge End Delineators, Weight Limit (16 tons - single vehicle,
21 tons - truck tractor semitrailer), One Lane Bridge Signs

Roadside Development Residence in southwest quadrant of bridge. Farm land in all other quadrants
of bridge.

ADT History Not available

Pedestrian/Bicycle Traffic Low

Bridge and Approach
Digital Photos (attached)

Approach Lane Width 8.5'

Approach Shoulder Width: 4'
Shoulder Type grass

Lane Width (existing bridge) 13' one lane

Shoulder width (existing bridge) 3.3'

Strategic Corridor / Thoroughfare
Designation and Recommended
Cross Section Not a Strategic Corridor/Thoroughfare. Two lane cross section at 25
mph based on 3R guidelines.

Crash History and
Safety Considerations One crash ("Sideswipe, Opposite Direction") near bridge (4/1/2003
- 3/31/2013, 10 years)

Comments Residential driveway near southwest corner of bridge. Bridge number
posted on bridge.

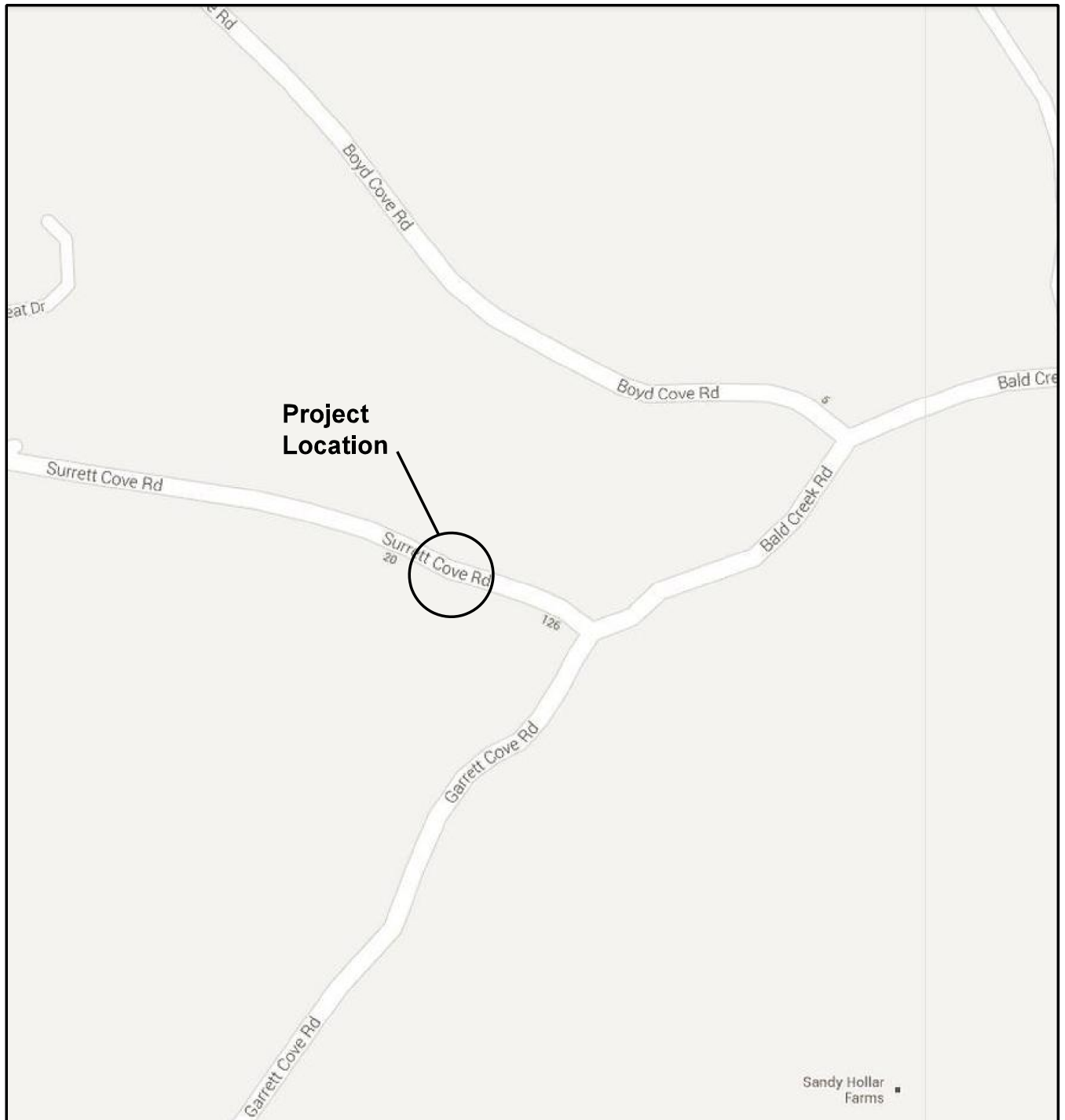
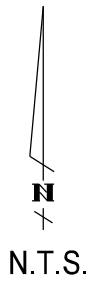
Reasonable Bridge Speed 25 mph

Investigated by: Mathew Bolden Reviewed by: James Voso

Bridge #676

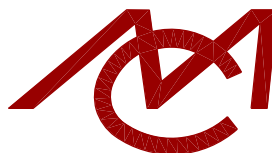
Buncombe County

Division 13



VICINITY MAP

Bridge #676 on SR 1397
(Surratt Cove Road)
over Bald Fork Creek



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Bridge #676

Buncombe County

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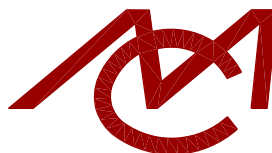


Eastbound Approach



Eastbound Approach at bridge

Bridge #676 on SR 1397
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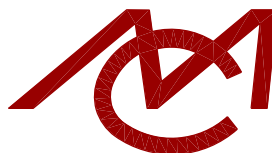


Westbound Approach



Westbound Approach at bridge

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

Study Criteria Summary

County: BUNCOMBE **City:** All and Rural
Date: 4/1/2003 **to** 03/31/2013 **Study:** BUNCOMBEBRIDGE676
Location: SR 1397 (Surrett Cove) from 500 west of Bridge 676 to 500 feet east of the bridge

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	102063425	0.005	06/11/2007 10:00	SIDESWIPE, OPPOSITE DIRECTION	\$ 2500	0	0	1	0	1	1	2	1	0	13	1
Unit	1 : 22	Alchl/Drugs:	0	Speed:	0 MPH	Dir:	Veh Mnvr/Ped Actn:				Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	0	Speed:	20 MPH	Dir:	S	Veh Mnvr/Ped Actn:				4	Obj Strk:			

**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

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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	1	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	1	100.00
Total Injury Crashes	1	100.00
Property Damage Only Crashes	0	0.00
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	1	100.00
Class C Crashes	0	0.00
Property Damage Only Crashes	0	0.00

Vehicle Exposure Statistics

Annual ADT = 50

Total Length = 0.159 (Miles) 0.256 (Kilometers)

Total Vehicle Exposure = 0.03 (MVMT) 0.05 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	3443.37	2139.61
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	3443.37	2139.61
Night Crash Rate	0.00	0.00
Wet Crash Rate	0.00	0.00
EPDO Rate	28924.28	17972.71

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Strip Analysis Report**

Miscellaneous Statistics

Severity Index =	8.40
EPDO Crash Index =	8.40
Estimated Property Damage Total = \$	2500.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
SIDESWIPE, OPPOSITE DIRECTION	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	1	100.00
Class C Injuries	0	0.00
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	100.00
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	1	100.00
Tue	0	0.00
Wed	0	0.00
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	0	0.00
0900-0959	0	0.00
1000-1059	1	100.00
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	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

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
MOTOR SCOOTER OR MOTOR BIKE	1	50.00
PASSENGER CAR	1	50.00

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Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	1	0	1	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	1	0

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	1
2008	0	0
2009	0	0
2010	0	0
2011	0	0
2012	0	0
2013	0	0
Total	0	1

Miscellaneous Totals

Year	Property Damage	EPDO Index
2003	\$ 0	0.00
2004	\$ 0	0.00

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Strip Analysis Report**

Year	Property Damage	EPDO Index
2005	\$ 0	0.00
2006	\$ 0	0.00
2007	\$ 2500	8.40
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	\$ 2500	8.40

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	0
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	1	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	1	0

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Strip Analysis Report

Strip Diagram

Features	Milepost	Crash IDs
SR 1392 Structure:100676	0.00	102063425
	0.01	
	0.02	
	0.03	
	0.04	
	0.05	
	0.06	
	0.07	
	0.08	
	0.09	
	0.10	
	0.11	
	0.12	
	0.13	
	0.14	
	0.15	
	0.16	

**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
BUNCOMBEBRIDGE676				76.8	8.4	50	40001397

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
BUNCOMBE	10	13	All and Rural		0	4/1/2003	03/31/2013	10.00

Location Text	Requestor
SR 1397 (Surrett Cove) from 500 west of Bridge 676 to 500 feet east of the bridge	

Fiche Roads	
Name	Code
SR 1397	40001397
SURRETT COVE	50029709

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 1397	40001397	0.000	0.159	0.159	0.256