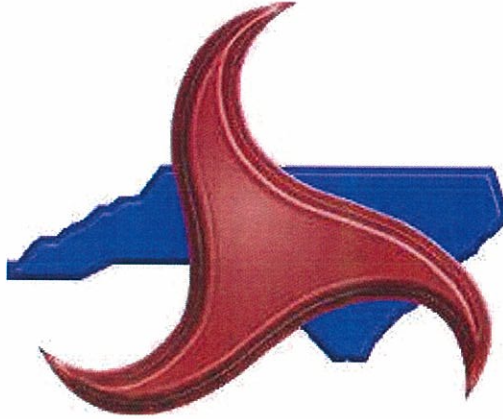


Bridge Approach Speed Investigation

Bridge # 400427 over Rose Creek on SR 2704
Guilford County
WBS Element # 17BP.7.PE.1



Document Prepared By:

HNTB North Carolina, P.C.
343 E. Six Forks Rd
Raleigh NC, 27609
NC License No: C-1554

July 12, 2013



Principal Investigator

A handwritten signature in black ink that reads "Kam Tabrizi".

Kam Tabrizi
Principal Investigator

Project Manager

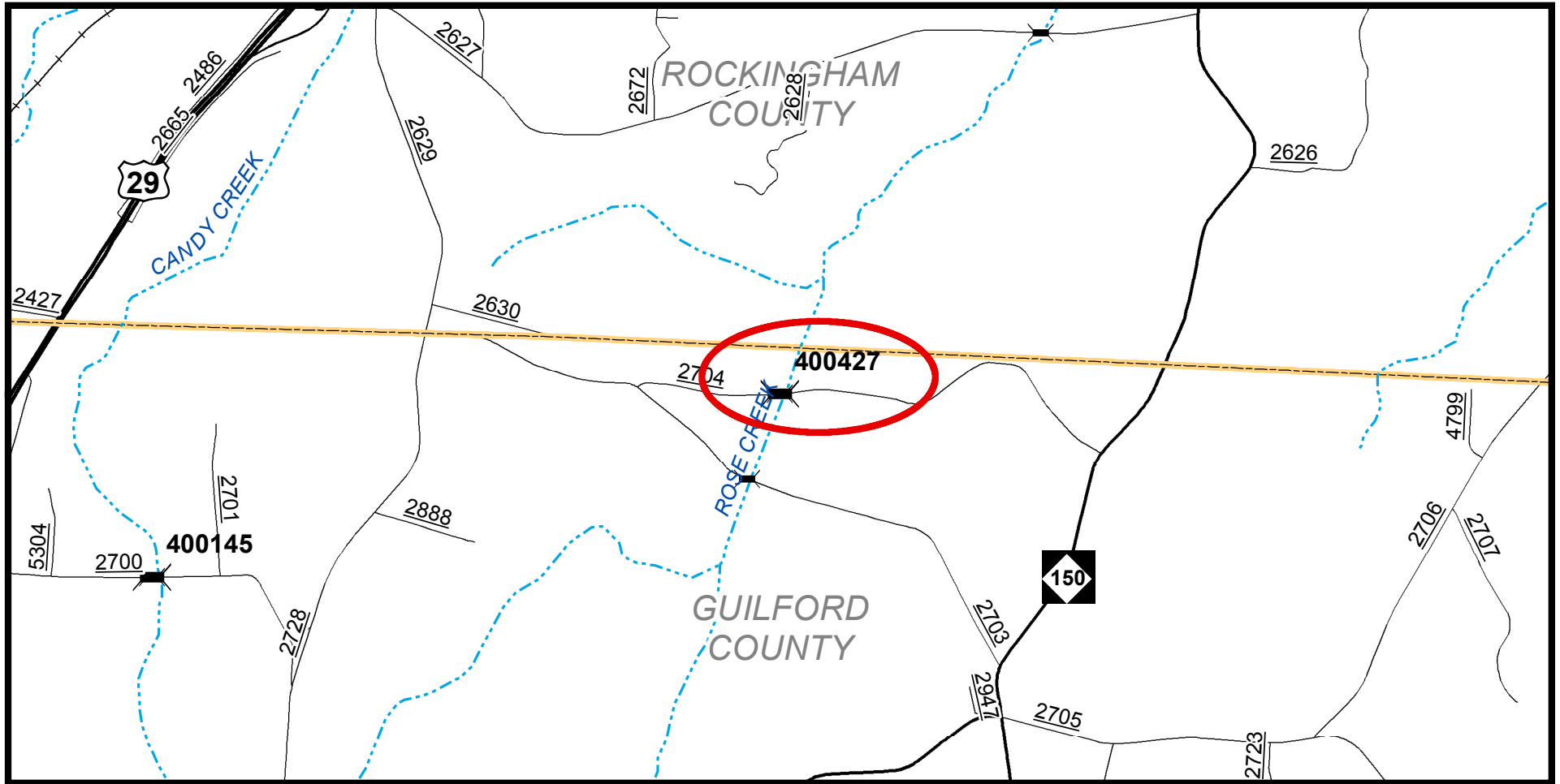
A handwritten signature in black ink that reads "Bradley A. Reynolds".

Bradley A. Reynolds, PE, PTOE
Project Manager

Division 7 - Guilford, County

Design Build Year 3/4 Bridge Program

Bridge Locations plotted based on coordinates provided by Bridge Management



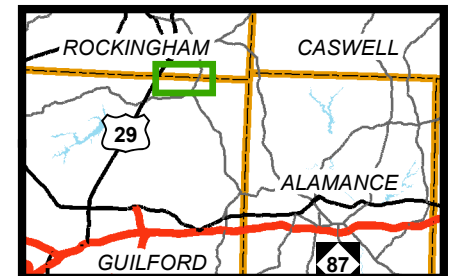
Structure Number	Division	County	Structure Description	Latitude	Longitude
400427	7	GUILFORD	Bridge #0427 over ROSE CREEK on SR2704	36.242187	-79.62752



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1 in = 2,500 ft
SCALE



Bridge and Approach Investigation Checklist

Project 17BP.7.PE.1

Description Bridge #427 over Rose Creek on SR 2704

Route SR 2704 (Poley Rd)

Division 7

County Guilford

Existing Speed Limit 55 ☐ Posted ☒ Statutory

Reasonable & Comfortable
Passenger Car Speed 50-55 mph

Speed Data None collected due to sparseness of traffic.

Ball Bank Speed Study EB: 3 at 45 mph, 4 at 50 mph, 5 at 55 mph
WB: 4 at 45 mph, 6 at 50 mph, 8 at 55 mph

Warning Signs at Bridge Object Markers (OM-3L & OM-3R) - one located at each bridge corner
Weight Limit Signs (Single Vehicle 15 tons, TTST 23 tons) - 1x each Appr.
Narrow Bridge Signs (W5-2A) - 1x WB Appr.

Roadside Development Wooded/Residential/Agricultural

ADT History 200 vpd from Crash Analysis Report (Attached)

Pedestrian/Bicycle Traffic Minimal expected

Bridge and Approach
Digital Photos See attached photos.

Approach Lane Width 18' overall pavement width with 9' lanes

Approach Shoulder Width:
Shoulder Type Varies from 5' to 7'±
Grass

Lane Width (existing bridge) 22' overall pavement width with 9' lanes

Shoulder width (existing bridge) 1.5' / 1.5'

Strategic Corridor / Thoroughfare
Designation and Recommended
Cross Section SR 2704 is classified as a local roadway, therefore it is recommended that
the minimum cross section follow the NCDOT "R-R-R Guide" with a
minimum of 10 foot lane widths and 3 foot shoulder widths (6 foot graded
shoulder width where guardrail is to be installed).

Crash History and
Safety Considerations No crashes have been reported in the vicinity of the bridge from
05/1/2003 to 04/30/2013 (10 years).

Comments If the bridge lane widths are widened the approach speeds may be greater
than observed speeds.
Littering is illegal sign located east and west of bridge.

Reasonable Bridge Speed 55 mph

Investigated by: Kam Tabrizi 06/19/2013 Reviewed by: Bradley Reynolds, PE, PTOE

County: Guilford

Description:

Bridge # 427 over Rose Creek

Route: SR 2704

SR 2704 (Pley Rd) EB $\pm$ 50' from Bridge #427



SR 2704 (Pley Rd) EB $\pm$ 100' from Bridge #427



SR 2704 (Pley Rd) EB $\pm$ 150' from Bridge #427



SR 2704 (Pley Rd) EB $\pm$ 200' from Bridge #427



County: Guilford

Description: Bridge # 427 over Rose Creek

Route: SR 2704

SR 2704 (Pley Rd) EB $\pm$ 250' from Bridge #427



SR 2704 (Pley Rd) WB $\pm$ 50' from Bridge #427



SR 2704 (Pley Rd) WB $\pm$ 100' from Bridge #427



SR 2704 (Pley Rd) WB $\pm$ 150' from Bridge #427



County: Guilford

Description: Bridge # 427 over Rose Creek

Route: SR 2704

SR 2704 (Pley Rd) WB $\pm$ 200' from Bridge #427

SR 2704 (Pley Rd) WB $\pm$ 250' from Bridge #427



EB view of Bridge # 427 structure looking south



WB view of Bridge # 427 structure looking north



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

Study Criteria Summary

County: GUILFORD **City:** All and Rural
Date: 5/1/2003 to 4/30/2013 **Study:** GUILDFORDBRIDGE400427
Location: 500 feet on either side of bridge 400427 on SR 2704 (Poley Road)

Report Details

Study Criteria

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
GUILDFORDBRIDGE400427				76.8	8.4	200	

Request Date	Courier Service	Phone No.	Ext.	Fax No.
--------------	-----------------	-----------	------	---------

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
GUILFORD	40	7	All and Rural		0	5/1/2003	4/30/2013	10.00

Location Text	Requestor
500 feet on either side of bridge 400427 on SR 2704 (Poley Road)	Consultant Bridge Replacement Crash Analysis Requests.

Fiche Roads	
Name	Code
SR 2704	40002704
POLEY	50024500
SR 2703	40002703
FRIENDSHIP CHURCH	50011227
CHRISMON	50006034

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
SR 2704	40002704	1.023	1.222	0.199	0.320

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Fiche, Intersection, and Strip Reports Code Index**

T - Type of Accident Codes

0 = UNKNOWN
1 = RAN OFF ROAD - RIGHT
2 = RAN OFF ROAD - LEFT
3 = RAN OFF ROAD - STRAIGHT
4 = JACKKNIFE
5 = OVERTURN/ROLLOVER
13 = OTHER NON-COLLISION
14 = PEDESTRIAN
15 = PEDALCYCLIST
16 = RR TRAIN, ENGINE
17 = ANIMAL
18 = MOVABLE OBJECT
19 = FIXED OBJECT
20 = PARKED MOTOR VEHICLE
21 = REAR END, SLOW OR STOP
22 = REAR END, TURN
23 = LEFT TURN, SAME ROADWAY
24 = LEFT TURN, DIFFERENT ROADWAYS
25 = RIGHT TURN, SAME ROADWAY
26 = RIGHT TURN, DIFFERENT ROADWAYS
27 = HEAD ON
28 = SIDESWIPE, SAME DIRECTION
29 = SIDESWIPE, OPPOSITE DIRECTION
30 = ANGLE
31 = BACKING UP
32 = OTHER COLLISION WITH VEHICLE

F - Road Feature Codes

0 = NO SPECIAL FEATURE
1 = BRIDGE
2 = BRIDGE APPROACH
3 = UNDERPASS
4 = DRIVEWAY, PUBLIC
5 = DRIVEWAY, PRIVATE
6 = ALLEY INTERSECTION
7 = FOUR-WAY INTERSECTION
8 = T-INTERSECTION
9 = Y-INTERSECTION
10 = TRAFFIC CIRCLE/ROUNDBOUT
11 = FIVE-POINT, OR MORE
12 = RELATED TO INTERSECTION
13 = NON-INTERSECTION MEDIAN CROSSING
14 = END OR BEGINNING - DIVIDED HIGHWAY
15 = OFF RAMP ENTRY
16 = OFF RAMP PROPER
17 = OFF RAMP TERMINAL ON CROSSROAD
18 = MERGE LANE BETWEEN ON AND OFF RAMP
19 = ON RAMP ENTRY
20 = ON RAMP PROPER
21 = ON RAMP TERMINAL ON CROSSROAD
22 = RAILROAD CROSSING
23 = TUNNEL
24 = SHARED-USE PATHS OR TRAILS
25 = OTHER

R - Road Condition Codes

1 = DRY
2 = WET
3 = WATER (STANDING, MOVING)
4 = ICE
5 = SNOW
6 = SLUSH
7 = SAND, MUD, DIRT, GRAVEL
8 = FUEL, OIL
9 = OTHER
10 = UNKNOWN

L - Light Condition Codes

1 = DAYLIGHT
2 = DUSK
3 = DAWN
4 = DARK - LIGHTED ROADWAY
5 = DARK - ROADWAY NOT LIGHTED
6 = DARK - UNKNOWN LIGHTING
7 = OTHER
8 = UNKNOWN

W - Weather Condition Codes

1 = CLEAR
2 = CLOUDY
3 = RAIN
4 = SNOW
5 = FOG, SMOG, SMOKE
6 = SLEET, HAIL, FREEZING RAIN/DRIZZLE
7 = SEVERE CROSSWINDS
8 = BLOWING SAND, DIRT, SNOW
9 = OTHER

S - Accident Severity Codes

K = FATAL
A = A-LEVEL INJURY
B = B-LEVEL INJURY
C = C-LEVEL INJURY
O = PROPERTY DAMAGE ONLY

Ch - Road Character

1 = STRAIGHT, LEVEL
2 = STRAIGHT, HILLCREST
3 = STRAIGHT, GRADE
4 = STRAIGHT, BOTTOM (SAG)
5 = CURVE, LEVEL
6 = CURVE, HILLCREST
7 = CURVE, GRADE
8 = CURVE, BOTTOM (SAG)
9 = OTHER

Op - Traffic Control Operating

1 = YES
2 = NO
3 = UNKNOWN

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Fiche, Intersection, and Strip Reports Code Index**

Veh Mnvr - Vehicle Maneuver Codes

1 = STOPPED IN TRAVEL LANE
2 = PARKED OUT OF TRAVEL LANES
3 = PARKED IN TRAVEL LANES
4 = GOING STRAIGHT AHEAD
5 = CHANGING LANES OR MERGING
6 = PASSING
7 = MAKING RIGHT TURN
8 = MAKING LEFT TURN
9 = MAKING U-TURN
10 = BACKING
11 = SLOWING OR STOPPING
12 = STARTING IN ROADWAY
13 = PARKING
14 = LEAVING PARKED POSITION
15 = AVOIDING OBJECT IN ROAD

Dv - Traffic Control Device

0 = NO CONTROL PRESENT
1 = STOP SIGN
2 = YIELD SIGN
3 = STOP AND GO SIGNAL
4 = FLASHING SIGNAL WITH STOP SIGN
5 = FLASHING SIGNAL WITHOUT STOP SIGN
6 = RR GATE AND FLASHER
7 = RR FLASHER
8 = RR CROSSBUCKS ONLY
9 = HUMAN CONTROL
10 = WARNING SIGN
11 = SCHOOL ZONE SIGNS
12 = FLASHING STOP AND GO SIGNAL
13 = DOUBLE YELLOW LINE, NO PASSING ZONE
14 = OTHER

Alchl/Drugs - Driver Alcohol/Drugs Suspected Status Codes

0 = NO
1 = YES - ALCOHOL, IMPAIRMENT SUSPECTED
2 = YES - ALCOHOL, NO IMPAIRMENT DETECTED
3 = YES - OTHER DRUGS, IMPAIRMENT SUSPECTED
4 = YES - OTHER DRUGS, NO IMPAIRMENT DETECTED
5 = YES - ALCOHOL AND OTHER DRUGS, IMPAIRMENT SUSPECTED
6 = YES - ALCOHOL AND OTHER DRUGS, NO IMPAIRMENT DETECTED
7 = UNKNOWN

Ped Actn - Pedestrian Action Codes

1 = ENTERING OR CROSSING SPECIFIED LOCATION
2 = WALKING, RIDING, RUNNING/JOGGING WITH TRAFFIC
3 = WALKING, RIDING, RUNNING/JOGGING AGAINST TRAFFIC
4 = WORKING
5 = PUSHING VEHICLE
6 = APPROACHING OR LEAVING VEHICLE
7 = PLAYING
8 = STANDING
9 = OTHER

Ci - Roadway Contributing Circumstances

0 = NONE (NO UNUSUAL CONDITIONS)
1 = ROAD SURFACE CONDITION
2 = DEBRIS
3 = RUT, HOLES, BUMPS
4 = WORK ZONE (CONSTRUCTION, MAINTENANCE, UTILITY)
5 = WORN TRAVEL-POLISHED SURFACE
6 = OBSTRUCTION IN ROADWAY
7 = TRAFFIC CONTROL DEVICE INOPERATIVE, NOT VISIBLE OR MISSING
8 = SHOULDERS LOW, SOFT OR HIGH
9 = NO SHOULDERS
10 = NON-HIGHWAY WORK
11 = OTHER
12 = UNKNOWN

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Fiche, Intersection, and Strip Reports Code Index**

Obj Strk - Object Struck Codes

14 = PEDESTRIAN
15 = PEDALCYCLIST
17 = ANIMAL
18 = MOVABLE OBJECT
20 = PARKED MOTOR VEHICLE
33 = TREE
34 = UTILITY POLE
35 = LUMINAIRE POLE NON-BREAKAWAY
36 = LUMINAIRE POLE BREAKAWAY
37 = OFFICIAL HIGHWAY SIGN NON-BREAKAWAY
38 = OFFICIAL HIGHWAY SIGN BREAKAWAY
39 = OVERHEAD SIGN SUPPORT
40 = COMMERCIAL SIGN
41 = GUARDRAIL END ON SHOULDER
42 = GUARDRAIL FACE ON SHOULDER
43 = GUARDRAIL END IN MEDIAN
44 = GUARDRAIL FACE IN MEDIAN
45 = SHOULDER BARRIER END
46 = SHOULDER BARRIER FACE
47 = MEDIAN BARRIER END
48 = MEDIAN BARRIER FACE
49 = BRIDGE RAIL END
50 = BRIDGE RAIL FACE
51 = OVERHEAD PART UNDERPASS
52 = PIER ON SHOULDER OF UNDERPASS
53 = PIER IN MEDIAN OF UNDERPASS
54 = ABUTMENT OF UNDERPASS
55 = TRAFFIC ISLAND CURB OR MEDIAN
56 = CATCH BASIN OR CULVERT ON SHOULDER
57 = CATCH BASIN OR CULVERT ON MEDIAN
58 = DITCH
59 = EMBANKMENT
60 = MAILBOX
61 = FENCE OR FENCE POST
62 = CONTRUCTION BARRIER
63 = CRASH CUSHION
64 = OTHER FIXED OBJECT

Unit # - Vehicle Style Codes

1 = PASSENGER CAR
2 = PICKUP
3 = LIGHT TRUCK (MINI-VAN, PANEL)
4 = SPORT UTILITY
5 = VAN
6 = COMMERCIAL BUS
7 = SCHOOL BUS
8 = ACTIVITY BUS
9 = OTHER BUS
10 = SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)
11 = SINGLE UNIT TRUCK (3 OR MORE AXLES)
12 = TRUCK/TRAILER
13 = TRUCK/TRACTOR
14 = TRACTOR/SEMI-TRAILER
15 = TRACTOR/DOULBES
16 = UNKNOWN HEAVY TRUCK
17 = TAXICAB
18 = FARM EQUIPMENT
19 = FARM TRACTOR
20 = MOTORCYCLE
21 = MOPED
22 = MOTOR SCOOTER OR MOTOR BIKE
23 = PEDALCYCLE
24 = PEDESTRIAN
25 = MOTOR HOME/RECREATIONAL VEHICLE
26 = OTHER
27 = ALL TERRAIN VEHICLE (ATV)
28 = FIRETRUCK
29 = EMS VEHICLE, AMBULANCE, RESCUE SQUAD
30 = MILITARY
31 = POLICE
32 = UNKNOWN