

Bridge Design Speed Study

Bridge # 670043 over Seven Mile Creek on SR 1120 (Mt Willing Rd)
Orange County
WBS Element # 17BP.7.R.54



Document Prepared By:

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Principal Investigator

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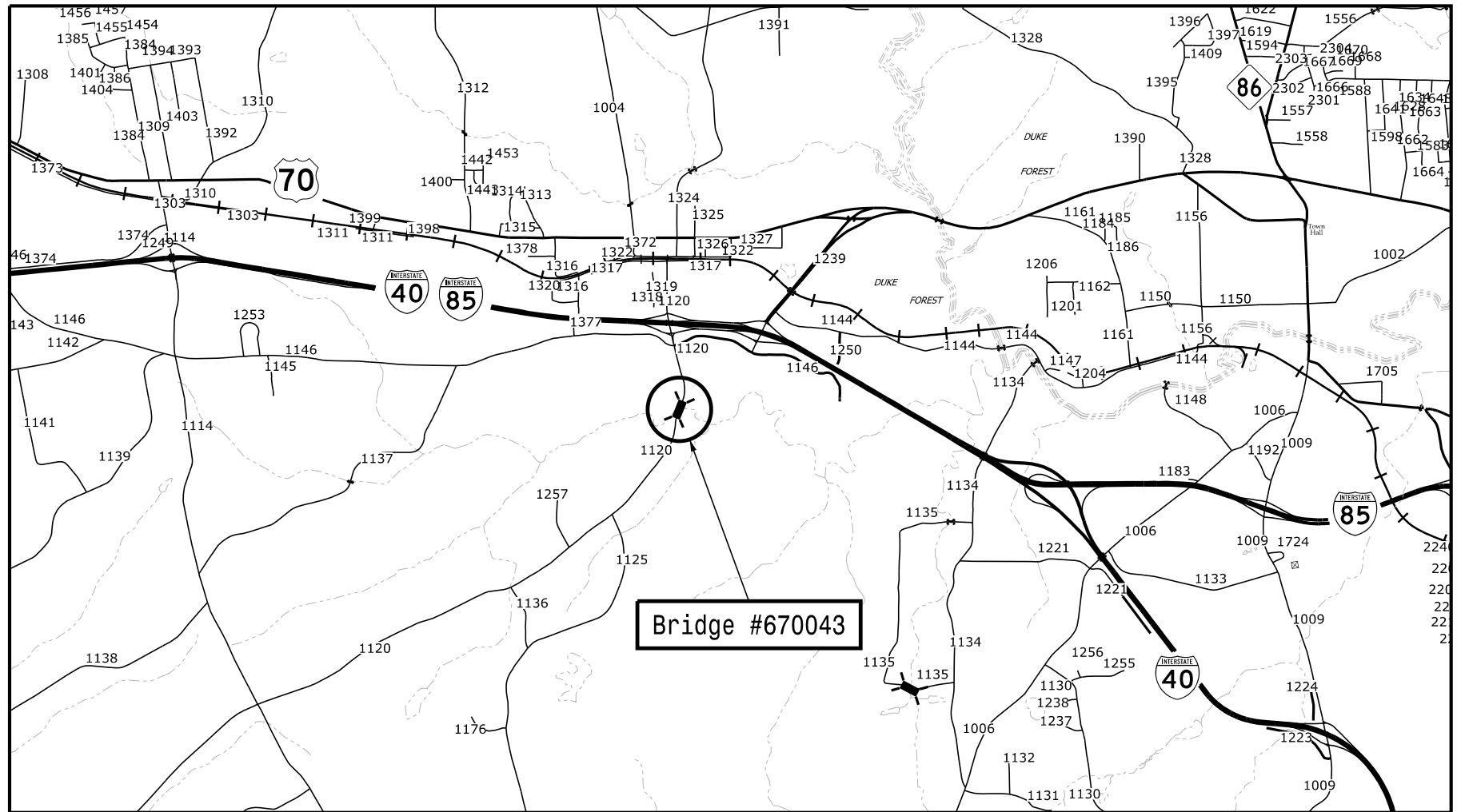
Project Manager

Bradley Reynolds
Bradley A. Reynolds, PE
Project Manager



Division 7 - Orange County Design Build Year 2 Bridge Program

Bridge locations plotted based on coordinates provided by Bridge Management



Division	County	Structure Number	Structure Description	Latitude	Longitude
7	Orange	670043	Bridge #43 over Seven Mile Creek on SR 1120	36.06583807	-79.16871219



1" = 5000'
SCALE

Bridge and Approach Investigation Checklist

Project 17BP.7.R.54

Description Bridge #43 over Seven Mile Creek on SR 1120

Route SR 1120 (Mt Willing Rd)

Division 7

County Orange

Existing Speed Limit 45 ☒ Posted ☐ Statutory

Reasonable & Comfortable
Passenger Car Speed 50-55 mph

Speed Data 20 speed data points collected.
43 mph, 57 mph, 54 mph, 57 mph, 57 mph, 48 mph, 48 mph, 49 mph
49 mph, 47 mph, 44 mph, 52 mph, 63 mph, 59 mph, 51 mph, 51 mph
48 mph, 44 mph, 58 mph, 52 mph
Based on the given sample size the 85th percentile speed is 57.7 mph.

Ball Bank Speed Study Curves on both the north and south sides of bridge ball bank at 7
degrees at 45 mph, 10 degrees at 50 mph, and 12 degrees at 55 mph.

Warning Signs at Bridge W23-10 object markers, one located at each corner of the bridge.
Regulatory 24 ton/32 ton weight limit sign on each approach.

Roadside Development Wooded/Residential/Rural

ADT History 1900 vpd from 2010 NCDOT Traffic Survey Map
1800 vpd from 2002 NCDOT Traffic Survey Map

Pedestrian/Bicycle Traffic No bike or ped traffic observed during investigation. Little bike or ped traffic
is expected on SR 1120.

Bridge and Approach
Digital Photos See attached photos.

Approach Lane Width 19' overall pavement width with 9.5' lanes

Approach Shoulder Width: Varies from 6' to 12'±
Shoulder Type Grass

Lane Width (existing bridge) 23' overall pavement width with 9.5' lanes

Shoulder width (existing bridge) 2' / 2'

Strategic Corridor / Thoroughfare
Designation and Recommended
Cross Section SR 1120 is classified as a collector, therefore it is recommended
that the minimum cross section follow the NCDOT "R-R-R Guide" with a
minimum of 11 foot lane widths and 6 foot shoulder widths (9 foot graded
shoulder width where guardrail is to be installed).

Crash History and
Safety Considerations No crashes were reported in the vicinity of the bridge from 1/1/2002
to 12/31/2011 (10 years).

Comments None.

Reasonable Bridge Speed 55 mph

Investigated by: Elizabeth Harris, PhD, EI

Reviewed by: Bradley Reynolds, PE

County: Orange

Description: Bridge #43 over Seven Mile Creek

Route: SR 1120

SR 1120 (Mt Willing Rd) NB $\pm 50'$ from Bridge #43



SR 1120 (Mt Willing Rd) NB $\pm 100'$ from Bridge #43



SR 1120 (Mt Willing Rd) NB $\pm 150'$ from Bridge #43



SR 1120 (Mt Willing Rd) NB $\pm 200'$ from Bridge #43



County: Orange

Description: Bridge #43 over Seven Mile Creek

Route: SR 1120

SR 1120 (Mt Willing Rd) NB $\pm 250'$ from Bridge #43



SR 1120 (Mt Willing Rd) SB $\pm 50'$ from Bridge #43



SR 1120 (Mt Willing Rd) SB $\pm 100'$ from Bridge #43



SR 1120 (Mt Willing Rd) SB $\pm 150'$ from Bridge #43



County: Orange

Description: Bridge #43 over Seven Mile Creek

Route: SR 1120

SR 1120 (Mt Willing Rd) SB ±200' from Bridge #43



SR 1120 (Mt Willing Rd) SB ±250' from Bridge #43



Bridge Approach Speed Crash Analysis Request

Order # 41000018389

**500 feet on Both Sides of Bridge Number 43 on Secondary Route 1120 (Mt Willing Road)
over Seven Mile Creek in Orange County**

Document Prepared By:

Safety Planning Group
Traffic Safety Systems Management Unit
Transportation Mobility and Safety Division
North Carolina Department of Transportation

Note: The crash statistics have been generated and are available through North Carolina's Crash Database. This database provides an inventory of **reported** crashes on record that have occurred at this location. Please note that many traffic crashes go unreported for a variety of reasons, and this report simply provides a listing of all crashes on record that occurred within 0 feet of the section described above.