Concept Report Form

The Concept Report Form develops an initial project vision, basis of design and report (e.g., the Concept Report) to transition into the subsequent design stages (Stages 1 through 4 in the Project Delivery Network [PDN]). This form summarizes all project components using information to complete the Concept Report.

General Project Information

Project Name	SR 138 – Bridge over Overflow (OF) and Bridge over Branch (Brch)								
PIN	134865.00 and 134866.00								
Route Information	**Route**	**NHS (Y/N)**	**Functional Class**			**City**		**County**	
	SR138	No	Rural Major Collector					Madison	
Project Information	**Begin Log Mile**	**End Log Mile**	**AADT[1]**	**Design Hour Vol. (DHV)[1]**	**Truck %[1]**	**Design Speed (MPH)**	**Posted Speed (MPH)**	**Base Year**	**Design Year**
	4.88	4.95	1,000	110	5.00	55	55	2029	2049
Project Description & Standard Drawings Used	OF proposed: 3 span concrete bridge 90' long, raise grade 2'. Brch proposed:3@ 14'x7' reinforced concrete box culvert 44.67' long. Typical sections: 2-11' lanes with 4' shoulders. Out-to-outs: 31'3". Road will either be realigned to the north or the bridges will remain on existing alignment as they are strong candidates to use the ABC method and the road will be detoured. This will be determined at a later time during the design phase. SR Detour: 37 min (30.6 mi); local route detour: 16 min (12.4 mi). OF superstructure depth: 41.6"= 10" (deck)+28" (beam)+3.6" (width (in inches) x0.02/2). Brch superstructure depth: 15.1"= 11.5" (deck)+3.6" (width (in inches)x0.02/2). RD11-TS-2								Project Details
Important Project History or Related Projects	OF existing structure, built in 1949, 5 span timber bridge, 85' long, out-to-out width of 28.5'. The discharges for the drainage basin (StreamStats Version 4.19.4): no drainage characteristics. Brch existing structure, built in 1949, 2 span timber bridge, 34' long, out-to-out width of 28.9'. The discharges for the drainage basin (StreamStats Version 4.19.4): for drainage area of 0.22 square miles: Q10 is 318 cfs, Q50 is 414 cfs, and Q100 is 452 cfs. Posted weight limits are 40 tons (5/2023). The existing structures have 2-10' travel lanes with 2' shoulders. This project is NOT expected to utilize federal funding.								
Project Purpose/Need	The need to replace these bridges is due to the present condition of the existing bridge: -Timber bridges are being phased out and are reaching the end of their service life -Bridges are in FAIR condition								
Major Environmental Considerations	Madison County is in attainment for all regulated criteria pollutants. No evaluation of MSATs is required. A noise study is not needed. 3 known archaeological sites within one mile of the ETSA and a survey will be required for both bridges. No previously surveyed historic resources for either bridge within the project area but a survey will be required. No known hazardous materials sites. An asbestos survey has been scheduled for both bridges. No Section 4(f) or 6(f) resources were identified in the project area. Wetlands will likely be impacted. The SR detour is over 25 miles and FHWA coordination will be required.								

Multi-Modal Considerations	This project is in a rural area with a proposed 2-lane bridge width of less than 44 ft where the cost of dedicated multimodal accommodations is excessively disproportionate to the need and probable use. Excessively disproportionate is defined as exceeding 20 percent of the cost of the project.	
Major Project Risks	Approx. ROW to be acquired: 1.43 acres (realign), 0.16 acres (ABC). Underground power and overhead electric/communication are present. Mercer fire station could have response times significantly impacted if bridges are closed for a long period of time, so these bridges are strong candidates for ABC. Also, if realigned, approaches could get into adjacent bridge. Bridges should be coordinated with replacement at L.M. 4.69 along SR 138. This document is covered by 23 USC § 407 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 407.	

[1] Traffic numbers reflect identified design year

Approvals

Executed for approval of this Concept Report

James D. Kelley — Jul 12, 2024

Project Management Division Director — Date

The following individuals to execute if a bridge concept report:

Jed A. Knigawyg — Jul 9, 2024

Structures Director — Date

Brandon Akins (Jul 11, 2024 10:44 CDT) — Jul 11, 2024

Regional Project Management Division Director — Date

Action Checklist			
0SD1 Initiate Concept Report and Request Funding			
Complete	**NA**		**Date Completed**
✓		Request and Finalize Safety Data	04/09/2024
✓		Request Project Number, PIN, and Task Profile Numbers	01/22/2024
	✓	Coordinate with Long Range Planning	
✓		Request and Finalize Traffic Data	02/21/2024
	✓	Request Preliminary Survey Data	
✓		Initiate Division Reviews	04/15/2024
	✓	Schedule Site Review (with appropriate Divisions)	
0EN1 Conduct Environmental Desktop Review			
Complete	**NA**		**Date Completed**
✓		Confirm Environmental Desktop Review is Complete	05/22/2024
0MM1 Conduct Multimodal Review			
Complete	**NA**		**Date Completed**
	✓	Confirm Multimodal Review is Complete	
	✓	Review Multimodal Considerations & Recommendations	
0TO1 Conduct Initial Traffic Ops/TSMO Review *(include HQ Traffic Ops and Regional Traffic Office)*			
Complete	**NA**		**Date Completed**
✓		Confirm Transportation Systems Management & Operations (TSMO) Alignment & Operations Review is Complete	05/22/2024
✓		Request Concept Report Review	05/22/2024
0ST1 Develop Structures Recommendations			
Complete	**NA**		**Date Completed**
✓		Confirm Recommended Structure Type for Concept Report is Complete	03/25/2024
✓		Confirm Hydraulic Recommendations for Concept Report is Complete	03/25/2024
0SY1 Provide Preliminary Survey Data			
Complete	**NA**		**Date Completed**
	✓	Confirm Control Ground Survey Set	
	✓	Review Preliminary Survey Data	
	✓	Determine Time to Complete the Aerial Survey	
0GT1 Conduct Preliminary Geotechnical Assessment			
Complete	**NA**		**Date Completed**
	✓	Confirm Geotechnical Division Review is Complete	
0RD1 Provide Roadway Desktop Review			
Complete	**NA**		**Date Completed**
✓		Confirm Roadway Division Review is Complete	05/22/2024

Action Checklist			
0SD2 Develop Draft Concept Report			
Complete	**NA**		**Date Completed**
	✓	Conduct Intersection and Interchange Evaluation (IIE)	
	✓	Complete Conceptual Signal Warrants	
	✓	Develop Draft Conceptual Layouts/Crash Figures for Site Visit	
	✓	Compile Initial Divisional Reviews for Site Visit	
	✓	Prepare & Send Site Visit Packet	
	✓	Lead Site Visit	
	✓	Initiate Interstate Access Requests (IAR) Concept Coordination with FHWA (if applicable)	
✓		Develop, Compile, and Distribute the Draft Concept Report	04/15/2024
0TO2 Develop TSMO Scope Items *(include HQ Traffic Ops and Regional Traffic Office)*			
Complete	**NA**		**Date Completed**
	✓	Confirm Signal Warrants Analysis is Complete	
	✓	Confirm Lighting Warrants Analysis is Complete	
	✓	Review and Confirm TSMO & ITS Scope and Budget	
0RW1 Complete Preliminary Right-of-Way Estimates			
Complete	**NA**		**Date Completed**
	✓	Review and Confirm Preliminary Right-of-Way Cost Estimates	
0UT1 Complete Utility Preliminary Estimates			
Complete	**NA**		**Date Completed**
✓		Review and Confirm Preliminary Utility Estimate	05/22/2024
	✓	Review and Confirm Preliminary Railroad Cost Estimate	
0SD3 Finalize Concept Report			
Complete	**NA**		**Date Completed**
	✓	Compile and Review Initial Risk Assessment	
✓		Finalize Conceptual Layouts	05/29/2024
✓		Develop Environmental Technical Study Area (ETSA)	04/10/2024
✓		Address Comments and Finalize Concept Report	05/29/2024
	✓	Address Comments and Finalize Interstate Access Requests (IAR) Document and Memo (if applicable)	
	✓	Develop Roadway Safety Audit (RSA) No Plans Document	
✓		Submit the final Concept Report for Review and Signatures (as needed; see 0SD3 for additional information)	05/29/2024
		Finalize Document and Upload All Needed Electronic Files	
		Notify the Project Management Director or Assigned Project Manager to Set Up Project (1PM1)	

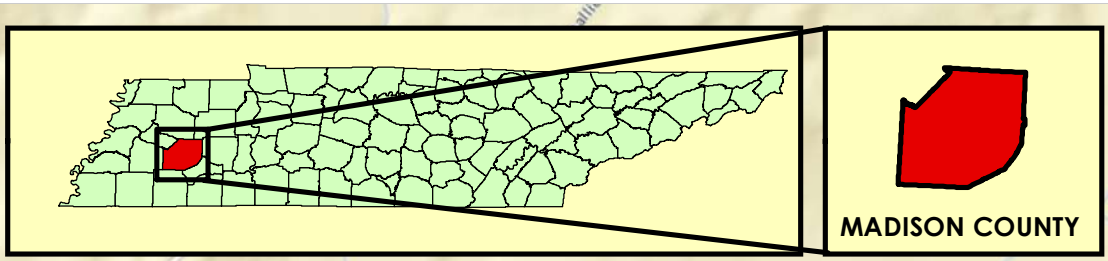
NA Justification
Coordinate with Long Range Planning-Long Range Planning coordination not needed for STID BCR document Request Preliminary Survey Data- survey data not needed for STID BCR document Schedule a site visit-site visit not required 0MM1 Conduct Multimodal Review- multimodal coordination not required 0SY1 Provide Preliminary Survey Data- survey data not needed for STID BCR document 0GT1 Conduct Preliminary Geotechnical Assessment- geotechnical data not received for STID BCR document 0SD2 Develop Draft Concept Report-no site visit was held for this bridge and no interchange or signal warrants were required 0TO2 Develop TSMO Scope Items-no signals or lighting needed within project limits 0RW1 Complete Preliminary Right-of-Way Estimates-ROW estimate calculated in cost estimate Review and Confirm Preliminary Utility Estimate-no railroad within project limits Compile and Review Initial Risk Assessment-Risk Assessment not needed for STID BCR document Address Comments and Finalize Interstate Access Requests (IAR) Document and Memo (if applicable)-no interstate within project limits Develop Roadway Safety Audit (RSA) No Plans Document- no plans document not needed for STID BCR document

Concept Report Table of Contents/Attachments		
	Included	**NA**
One-Page Summary (with project location map)	✓	
Conceptual Layout(s) and Cross Section	✓	
Environmental Technical Study Area (ETSA) Layout	✓	
Concept Cost Estimate (Construction Year Estimate)	✓	
TSMO & ITS Scope and Budget[1]		✓
ROW Form 44-A[1]		✓
Crash Packet[1]	✓	
Crash Prediction Analysis[1]		✓
Site Visit Attendee List		✓
Environmental Desktop Review Form[1]		
Multimodal Considerations & Recommendations[1]		✓
Existing Structure Summary[1]	✓	
Email or memo containing Structure Type Recommendations[1]	✓	
Email or memo containing Hydraulic Recommendations[1]	✓	
Hydraulic Data	✓	
Intersection and Interchange Evaluation (IIE) Analysis and Summary Form		✓
Traffic Analysis Summary/Tables	✓	
Forecasted Traffic Sheets[1]	✓	
Traffic Modeling (e.g., Synchro, VISSIM, Highway Capacity Software (HCS) Output)[1]		✓
Signal Warrant[1]		✓
Lighting Warrant[1]		✓
Initial Risk Assessment using the Risk Assessment Form		✓
Final Interstate Access Request (IAR) Document and Memo with Letter from STID Director		✓
Road Safety Audit (RSA) No Plans[1]		✓

NA Justification

TSMO & ITS Scope and Budget-no ITS within project limits; ROW Form 44-A-form not needed for STID BCR document; Crash Prediction Analysis- 0 crashes occurred within the project limits, crash prediction analysis not needed; Site Visit Attendee List-no site visit was held; Multimodal Considerations & Recommendation-no multimodal coordination;
Intersection and Interchange Evaluation (IIE) Analysis and Summary Form- not needed for STID BCR document
Traffic Modeling (e.g., Synchro, VISSIM, Highway Capacity Software (HCS) Output)- traffic modeling not needed for STID BCR document
Signal Warrant-no signals warranted within project limits; Lighting Warrant-no lighting warranted within project limits
Initial Risk Assessment using the Risk Assessment Form-Risk Assessment not needed for STID BCR document
Final IAR Document and Memo with Letter from STID Director-no interstate access within project limits
Road Safety Audit (RSA) No Plans-RSA no plans document not needed for STID BTIR document

[1] External document to STID



SR-138 BRIDGE [57SR1380011]
BRIDGE OVER OVERFLOW
L.M. 4.88

0 0.125 0.25 0.5 Miles

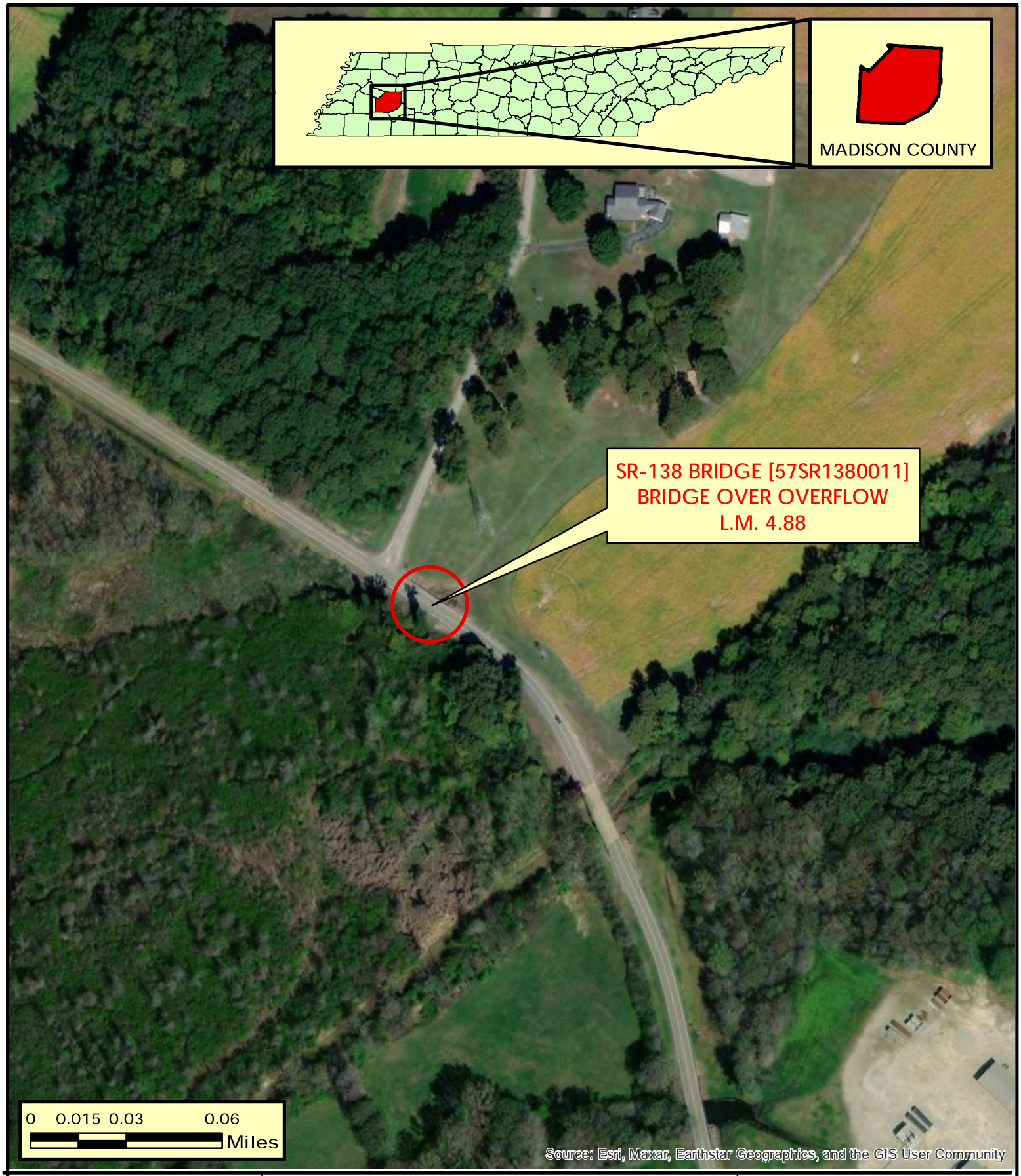
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

N

AREA MAP
SR-138 BRIDGE [57SR1380011]
BRIDGE OVER OVERFLOW
L.M. 4.88
MADISON COUNTY

TN TDOT Department of Transportation

PIN 134865.00



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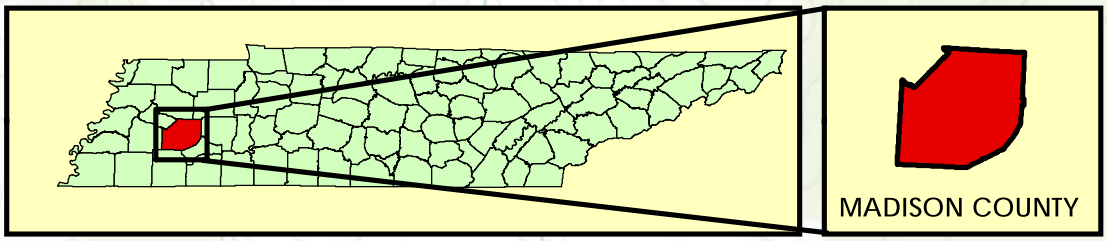
LOCATION MAP
SR-138 BRIDGE [57SR1380011]
BRIDGE OVER OVERFLOW
L.M. 4.88
MADISON COUNTY

TN TDOT Department of Transportation

PIN 134865.00



SR-138 BRIDGE [57SR1380011]
BRIDGE OVER OVERFLOW
L.M. 4.88

Sterling Rd
138
348 ft
Front St
Washington St
Lowenstein Ave
Scott Rd
Gus Pope Rd
Mercer
350 ft
Jackson Ave
McGlathery Ave
Bond St
138
Hill Top Dr
Old Sturdivant Crossing Rd

0 0.05 0.1 0.2
Miles

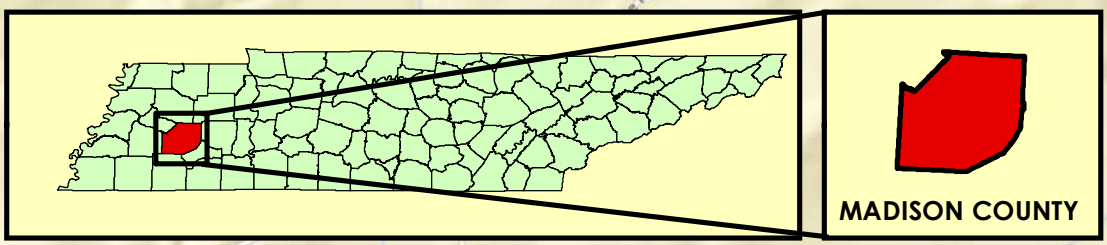
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

N

TOPOGRAPHIC MAP
SR-138 BRIDGE [57SR1380011]
BRIDGE OVER OVERFLOW
L.M. 4.88
MADISON COUNTY

TN TDOT Department of Transportation

PIN 134865.00



SR-138 BRIDGE [57SR1380013]
BRIDGE OVER OVERFLOW
L.M. 4.95

0 0.125 0.25 0.5 Miles

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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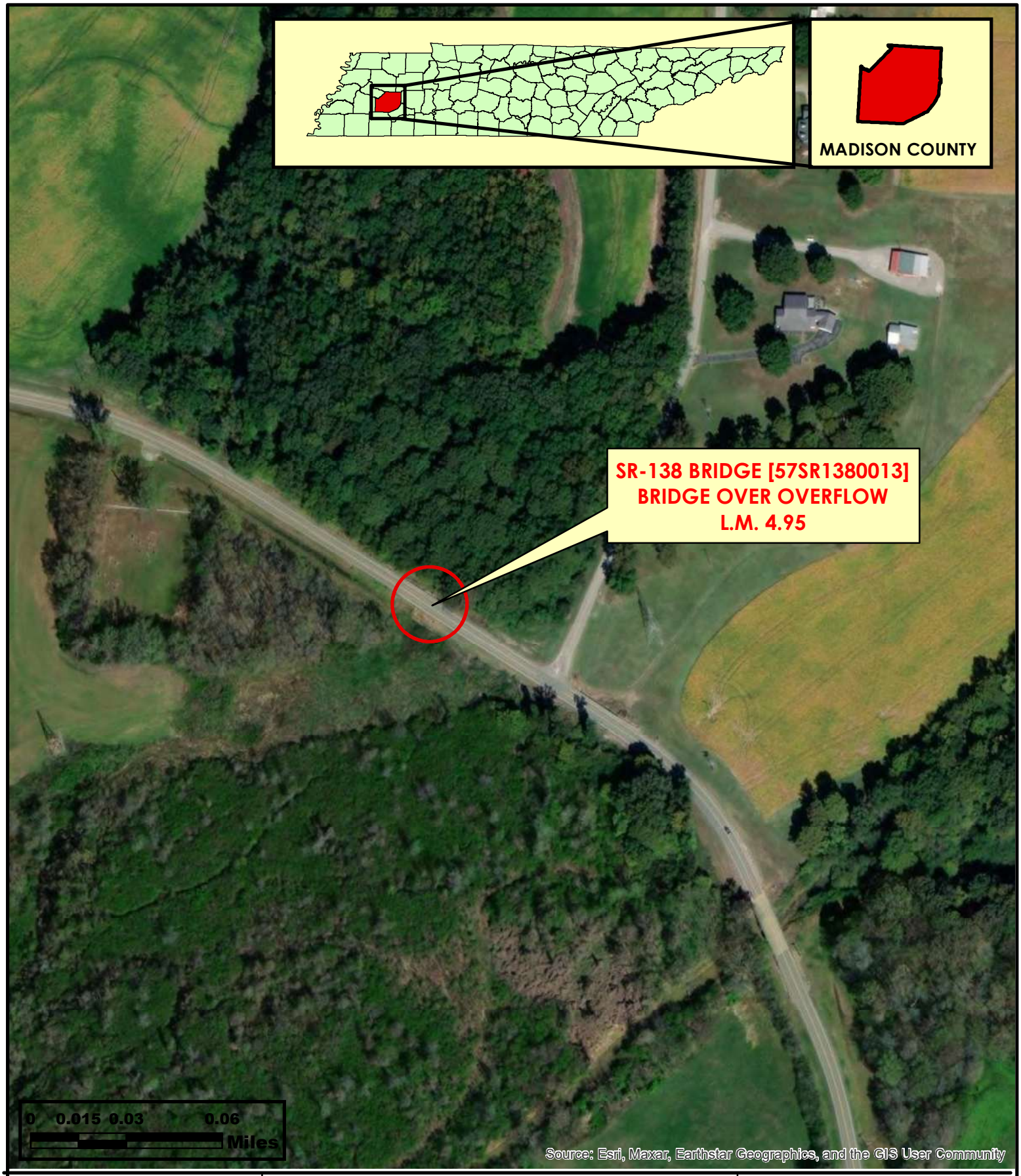
AREA MAP
SR-138 BRIDGE [57SR1380013]
BRIDGE OVER BRANCH
L.M. 4.95
MADISON COUNTY

TN TDOT Department of Transportation

PIN 134866.00



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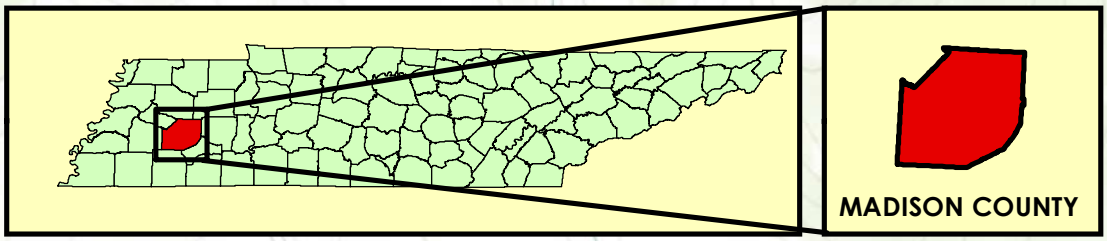
LOCATION MAP

SR-138 BRIDGE [57SR1380013]
BRIDGE OVER BRANCH
L.M. 4.95
MADISON COUNTY

TN TDOT Department of Transportation

PIN 134866.00



SR-138 BRIDGE [57SR1380013]
BRIDGE OVER OVERFLOW
L.M. 4.95

Sterling Rd
138
348 ft
Scott Rd
Front St
Washington St
Lowenstein Ave
Gus Pope
Mercer
350 ft
Jackson Ave
McGlathery Ave
Bond St
138
Hill Top Dr
Old Sturdivant Crossing Rd

0 0.05 0.1 0.2 Miles

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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TOPOGRAPHIC MAP
SR-138 BRIDGE [57SR1380013]
BRIDGE OVER BRANCH
L.M. 4.95
MADISON COUNTY

TN TDOT Department of Transportation

PIN 134866.00

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2024	MADISON	1

TENNESSEE D.O.T.
S.T.I.D.
FILE NO. ——

PROPOSED GUARDRAIL

PROPOSED ROW

STERLING RD

<<<BRANCH

<<<OVERFLOW

EXISTING ROW

138

CEMETERY

SCARIFY

PIN 134866.00
BRIDGE# 57SR1380013
3 @ 14'x7' REINFORCED
CONCRETE BOX CULVERT
2-11' LANES W/ 4' SHOULDERS

PIN 134865.00
BRIDGE# 57SR1380011
90'-3 SPAN CONCRETE BRIDGE
2-11' LANES W/ 4' SHOULDERS
RAISE GRADE 2'

<<<END OF 30 MPH SPEED LIMIT,
BEGINNING OF 55 MPH SPEED LIMIT

REALIGN OPTION

0′ 150′ 300′ 450′

N

R4 TIMBER BRIDGE PROGRAM

STATE ROUTE 138
BRIDGE OVER OVERFLOW, L.M. 4.88 AND
BRIDGE OVER BRANCH L.M. 4.95
MADISON COUNTY

CAUTION!
PRELIMINARY
PLANS
SUBJECT TO
CHANGE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
S.T.I.D.

FIGURE 1
S.R. 138
L.M. 4.88 &
L.M. 4.95

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TENNESSEE D.O.T.

S.T.I.D.

FILE NO. ——

TYPE	YEAR	COUNTY	FIGURE NO.
ETSA	2024	MADISON	1a

STUDY AREA APPROX. 150 FEET PAST END OF ROAD

STUDY AREA APPROX. 50 FEET FROM EXISTING (ROW)

STUDY AREA APPROX. 50 FEET FROM PROPOSED (ROW)

PROPOSED ROW

PROPOSED ROW

EXISTING ROW

STUDY AREA APPROX. 50 FEET FROM PROPOSED (ROW)

STUDY AREA APPROX. 50 FEET FROM EXISTING (ROW)

STUDY AREA 300 FEET PAST PROJECT LIMITS

STUDY AREA APPROX. 50 FEET FROM EXISTING (ROW)

STUDY AREA APPROX. 50 FEET FROM EXISTING (ROW)

138

STUDY AREA 300 FEET PAST PROJECT LIMITS

EXISTING ROW

EXISTING R.O.W.

PROPOSED R.O.W.

ENVIRONMENTAL TECHNICAL STUDY AREA

REALIGN OPTION

0′ 150′ 300′ 450′

N

ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 138
BRIDGE OVER OVERFLOW, L.M. 4.88 AND
BRIDGE OVER BRANCH L.M. 4.95
MADISON COUNTY

CAUTION! PRELIMINARY PLANS SUBJECT TO CHANGE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
S.T.I.D.

FIGURE 1a
S.R. 138
L.M. 4.88 &
L.M. 4.95

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TENNESSEE D.O.T.
S.T.I.D.
FILE NO. ____

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2024	MADISON	2

STERLING RD

PROPOSED ROW

<<<END OF 30 MPH SPEED LIMIT,
BEGINNING OF 55 MPH SPEED LIMIT

<<<BRANCH

<<<OVERFLOW

EXISTING ROW

138

PIN 134866.00
BRIDGE# 57SR1380013
3 @ 14'x7' CONCRETE BOX CULVERT
2-11' LANES W/ 4' SHOULDERS

PIN 134865.00
BRIDGE# 57SR1380011
90'-3 SPAN CONCRETE BRIDGE
2-11' LANES W/ 4' SHOULDERS
RAISE GRADE 2'

PROPOSED GUARDRAIL

ABC OPTION

0' 150' 300' 450'

N

R4 TIMBER BRIDGE PROGRAM

STATE ROUTE 138
BRIDGE OVER OVERFLOW, L.M. 4.88 AND
BRIDGE OVER BRANCH L.M. 4.95
MADISON COUNTY

CAUTION !
PRELIMINARY
PLANS
SUBJECT TO
CHANGE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
S.T.I.D.

FIGURE 2
S.R. 138
L.M. 4.88 &
L.M. 4.95

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TENNESSEE D.O.T.

S.T.I.D.

FILE NO. ____

TYPE	YEAR	COUNTY	FIGURE NO.
ETSA	2024	MADISON	2a

STUDY AREA APPROX.
150 FEET FROM END OF ROAD

STUDY AREA APPROX. 50 FEET
FROM EXISTING (ROW)

PROPOSED ROW

STUDY AREA APPROX. 50 FEET
FROM PROPOSED (ROW)

STUDY AREA APPROX. 50 FEET
FROM EXISTING (ROW)

EXISTING ROW

STUDY AREA
300 FEET PAST
PROJECT LIMITS

STUDY AREA APPROX. 50 FEET
FROM EXISTING (ROW)

138

EXISTING ROW

STUDY AREA APPROX. 50 FEET
FROM EXISTING (ROW)

STUDY AREA APPROX. 50 FEET
FROM EXISTING (ROW)

EXISTING ROW

STUDY AREA
300 FEET PAST
PROJECT LIMITS

EXISTING R.O.W.

PROPOSED R.O.W.

ENVIRONMENTAL
TECHNICAL STUDY
AREA

ABC OPTION

0′ 150′ 300′ 450′

ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 138
BRIDGE OVER OVERFLOW, L.M. 4.88 AND
BRIDGE OVER BRANCH L.M. 4.95
MADISON COUNTY

CAUTION !
PRELIMINARY
PLANS
SUBJECT TO
CHANGE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
S.T.I.D.

FIGURE 2a
S.R. 138
L.M. 4.88 &
L.M. 4.95

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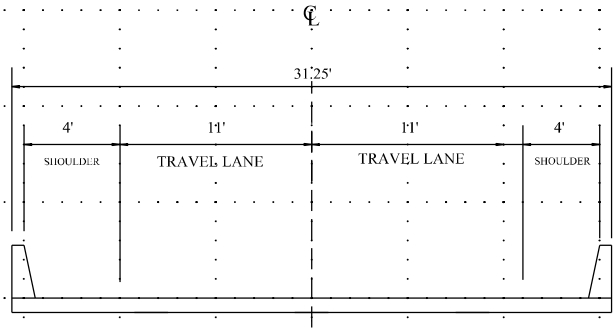
PROPOSED COMPLETED



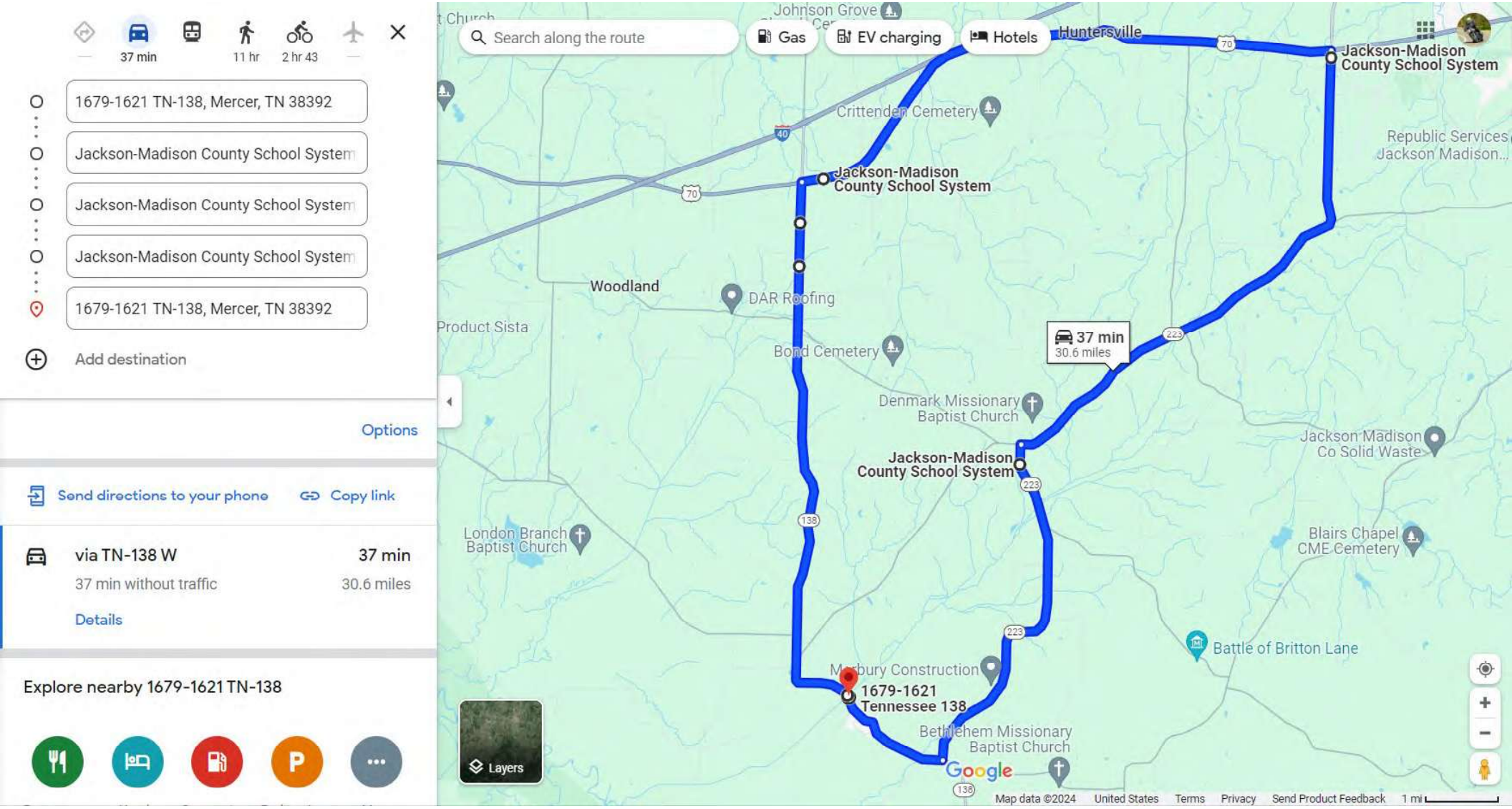
0' 5' 10' 15'

CROSS-SECTION DETAIL

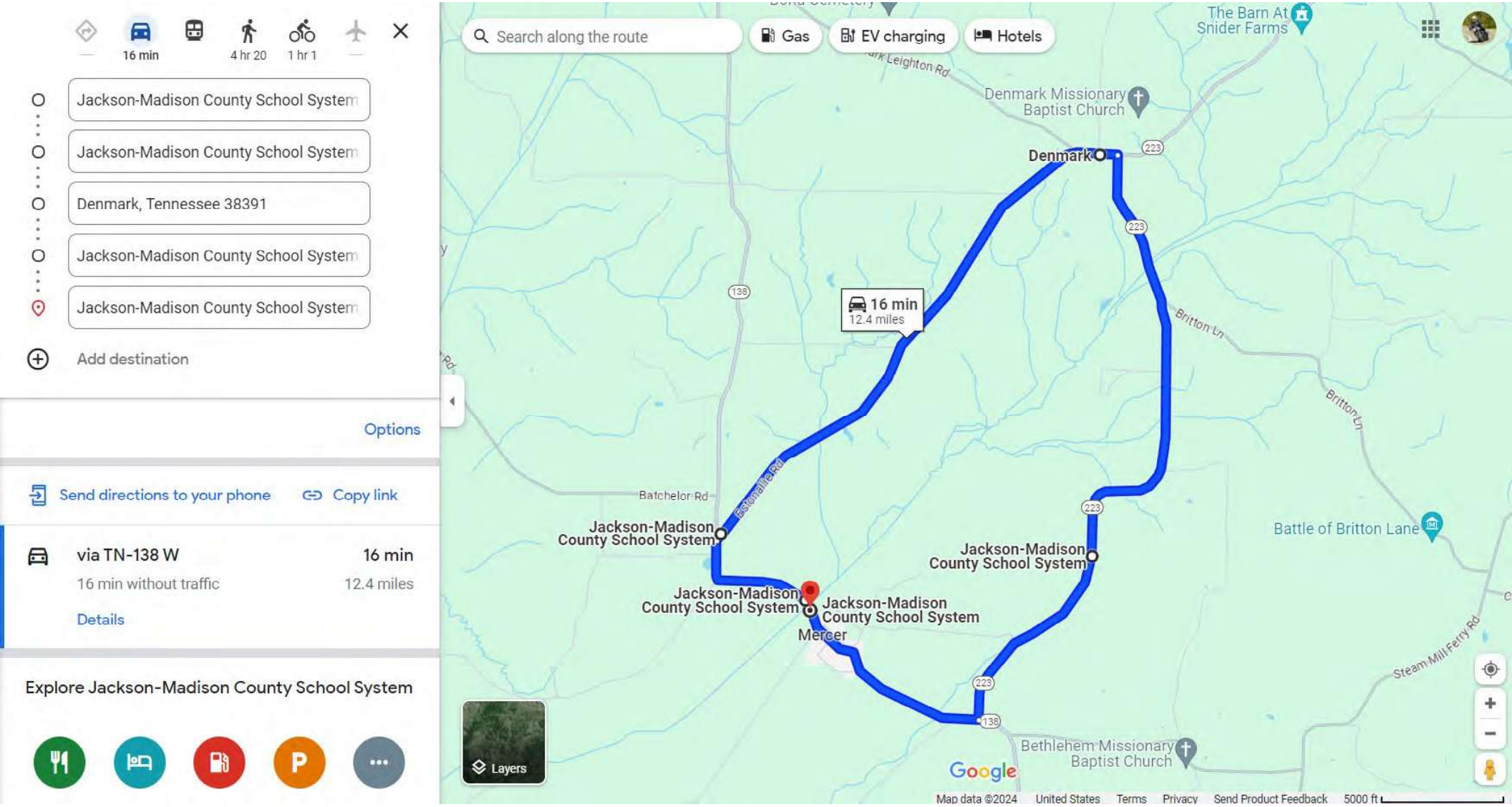
REGION 4 TIMBER BRIDGE PROGRAM
TRANSPORTATION MODERNIZATION ACT (TMA)

CAUTION !
PRELIMINARY
PLANS
SUBJECT TO
CHANGE

DETOUR MAP - STATE ROUTE



DETOUR MAP - LOCAL ROUTE



CRASH SUMMARY REPORT

Madison Co SR138 - Bridge over Overflow (LM 4.88)

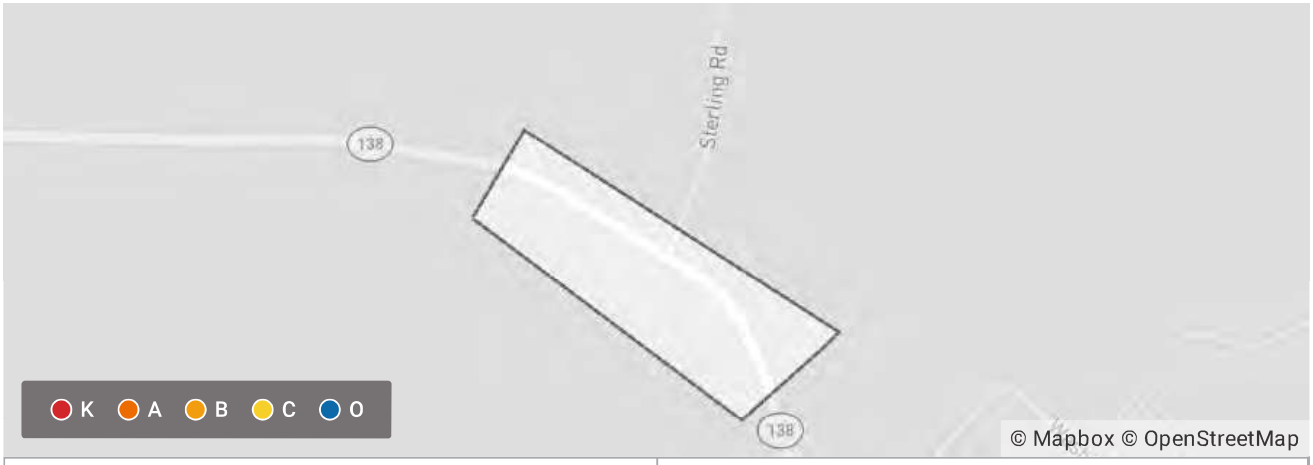
Created on April 9, 2024

Created by JOSHUA CLOUD

Data extents: April 4, 2021 to April 4, 2024

Applied Filters

County = Madison | Shape: Polygon



Total Crashes	0	Fatal Crashes	0

Summary	Crash
+ 6 more	0

Type of Crash	Crash
+ 5 more	0

Date of Crash (Year)	Crash
+ 11 more	0

Manner of First Collision	Crash
+ 10 more	0

First Harmful Event	Crash
+ 65 more	0

Crash Location	Crash

+ 7 more	0

Light Conditions	Crash
+ 8 more	0

Weather Conditions	Crash
+ 12 more	0

CRASH SUMMARY REPORT

Madison Co SR138 - Bridge over Branch (LM 4.95)

Created on April 5, 2024

Created by JOSHUA CLOUD

Data extents: March 28, 2021 to March 28, 2024

Applied Filters

County = Madison | Shape: Polygon

Total Crashes	0	Fatal Crashes	0

Summary	Crash
+ 6 more	0

Type of Crash	Crash
+ 5 more	0

Date of Crash (Year)	Crash
+ 11 more	0

Manner of First Collision	Crash
+ 10 more	0

First Harmful Event	Crash
+ 65 more	0

Crash Location	Crash

+ 7 more	0

Light Conditions	Crash
+ 8 more	0

Weather Conditions	Crash
+ 12 more	0

Right elevation

Bottom deck span 2

Bottom deck span 1

Left elevation

Span 2 slab “C” heavy spall to steel

Bent 2 cap A decay on right side

Bent 2 cap A decay

Bent 2 front

Bent 2 left side decay on cap A & B

Abutment 2

Abutment 2 left wing decay

Bridge number

Approach 1

Direction of Route

Weight limit sign Direction of Route

View across deck

Approach 2

Opposite Direction of Route

Weight limit sign Opposite Direction of Route

Right side view

Left side view

Abutment #1

Span #5 PCCS “E” spalling to steel

Span #3 PCCS “C” spalling to steel

Span #3 PCCS “C” spalling to steel

Span 2 right curb spalling

Bent 1 cap “A” right side decay

Bent 1 cap “B” right side decay

Span 2 left curb spalling

Span 1 left curb spalling

Bent 1 cap “B” left side decay

Abutment 1 left side cap decay

Left elevation

Right elevation

Approach 1 pavement

Direction of route

Approach 1 weight limit sign

Approach 2 right guardrail

Opposite direction of route

Approach 2 weight limit sign

Approach 2 pavement

View downstream

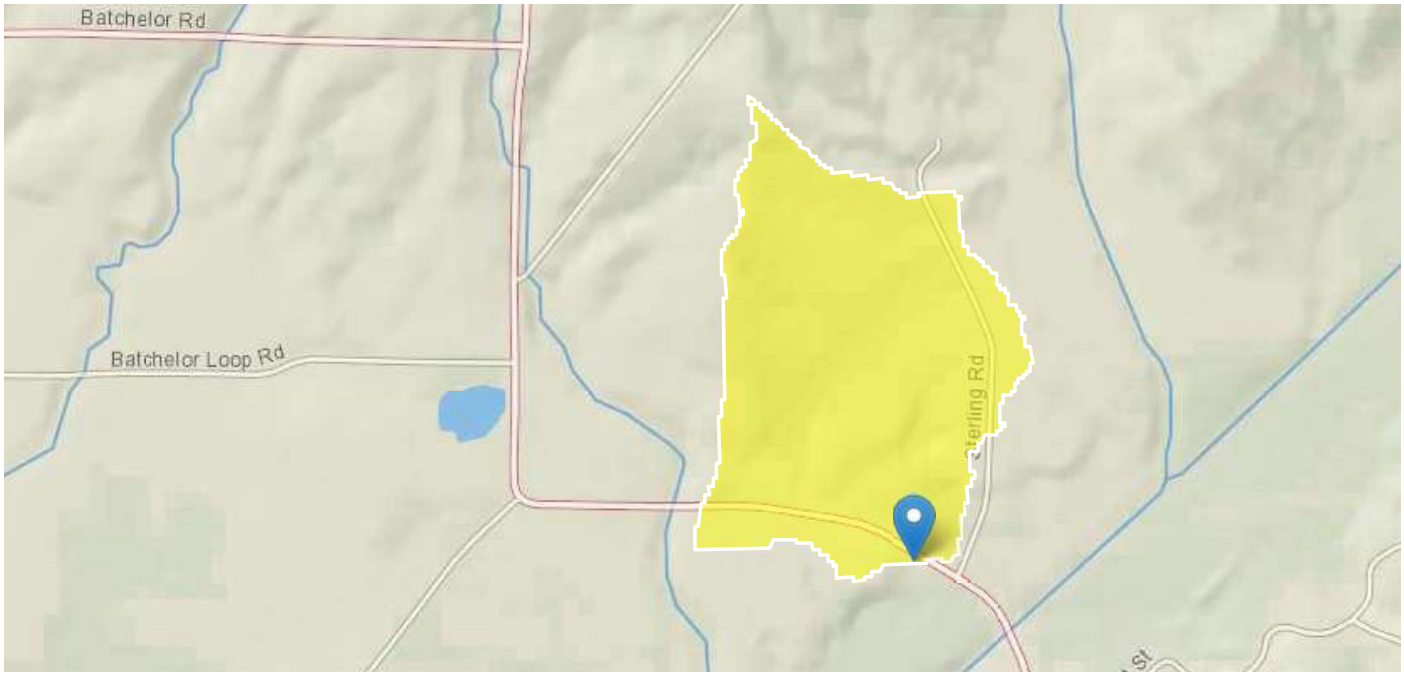
View upstream

View across top deck

Bridge number

Madison Co SR138 - Bridge over Branch

Region ID: TN
Workspace ID: TN20240409140656329000
Clicked Point (Latitude, Longitude): 35.48393, -89.04642
Time: 2024-04-09 09:07:18 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CONTDA	Area that contributes flow to a point on a stream	0.22	square miles
DRNAREA	Area that drains to a point on a stream	0.22	square miles

Peak-Flow Statistics

Peak-Flow Statistics Parameters [DAOnly Area 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CONTDA	Contributing Drainage Area	0.22	square miles	0.76	2308

Peak-Flow Statistics Disclaimers [DAOnly Area 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Peak-Flow Statistics Flow Report [DAOnly Area 4]

Statistic	Value	Unit
50-percent AEP flood	196	ft^3/s
20-percent AEP flood	271	ft^3/s
10-percent AEP flood	318	ft^3/s
4-percent AEP flood	374	ft^3/s
2-percent AEP flood	414	ft^3/s
1-percent AEP flood	452	ft^3/s
0.2-percent AEP flood	539	ft^3/s

Peak-Flow Statistics Citations

Law, G.S., and Tasker G.D.,2003, Flood-Frequency Prediction Methods for Unregulated Streams of Tennessee, 2000: U.S. Geological Survey Water-Resources Investigations Report 03-4176, 79p. (http://pubs.usgs.gov/wri/wri034176/)

Maximum Probable Flood Statistics

Maximum Probable Flood Statistics Parameters [Crippen Bue Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.22	square miles	0.1	10000

Maximum Probable Flood Statistics Flow Report [Crippen Bue Region 3]

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	1300	ft^3/s

Maximum Probable Flood Statistics Citations

Crippen, J.R. and Bue, Conrad D.1977, Maximum Floodflows in the Conterminous United States, Geological Survey Water-Supply Paper 1887, 52p. (https://pubs.usgs.gov/wsp/1887/report.pdf)

Application Version: 4.19.4
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

PROJECT NO.: 57S138-S1-003 ROUTE: S.R. 138
COUNTY: MADISON CITY:
PROJECT PIN NUMBER: 134865.00
PROJECT DESCRIPTION: BRIDGE OVER OVERFLOW @ L.M. 4.88

DIVISION REQUESTING:

		PAVEMENT DESIGN	☐
MAINTENANCE	☐	STRUCTURES	☐
S.T.I.D.	☒	SURVEY & ROADWAY DESIGN	☐
PROG. DEVELOPMENT & ADM.	☐	TRAFFIC SIGNAL DESIGN	☐
PUBLIC TRANS. & AERO.	☐	OTHER	☐

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029
PROJECTED LETTING DATE: 2029

TRAFFIC ASSIGNMENT:

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
910	2029	1,000	110	11	2049	65-35	5	8		

REQUESTED BY: NAME CALEB SMITH DATE 2/15/24
DIVISION S.T.I.D.
ADDRESS 1000 J. K. POLK BUILDING
NASHVILLE TN 37243

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 2/21/2024
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 2/21/2024
TRANSPORTATION MANAGER 2
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

FURNISH THE 2029-2049 TRAFFIC DATA.

THIS TRAFFIC IS BASED ON A 2023 CYCLE COUNT. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE TN-TIMES LINEAR REGRESSION TOOL.

DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.

NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.
SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS. (REV. 6/9/21)

TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

PROJECT NO.: 57S138-S1-004 ROUTE: S.R. 138
COUNTY: MADISON CITY:
PROJECT PIN NUMBER: 134866.00
PROJECT DESCRIPTION: BRIDGE OVER BRANCH @ L.M. 4.95

DIVISION REQUESTING:

		PAVEMENT DESIGN	☐
MAINTENANCE	☐	STRUCTURES	☐
S.T.I.D.	☒	SURVEY & ROADWAY DESIGN	☐
PROG. DEVELOPMENT & ADM.	☐	TRAFFIC SIGNAL DESIGN	☐
PUBLIC TRANS. & AERO.	☐	OTHER	☐

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029
PROJECTED LETTING DATE: 2029

TRAFFIC ASSIGNMENT:

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
880	2029	970	107	11	2049	65-35	5	8		

REQUESTED BY: NAME CALEB SMITH DATE 2/15/24
DIVISION S.T.I.D.
ADDRESS 1000 J. K. POLK BUILDING
NASHVILLE TN 37243

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 2/21/2024
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 2/21/2024
TRANSPORTATION MANAGER 2
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

FURNISH THE 2029-2049 TRAFFIC DATA.

THIS TRAFFIC IS BASED ON A 2023 CYCLE COUNT. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE TN-TIMES LINEAR REGRESSION TOOL.

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NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.
SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS. (REV. 6/9/21)

Ty Tucker

From: Wesley Peck
Sent: Monday, March 25, 2024 3:03 PM
To: Michael Gilbert
Cc: Ted Kniazewycz; Steve Allen; Jim Waters; Michelle Hunt; David A. Duncan; Shane Hester; Brandon Akins; Daniel Pallme; Ty Tucker
Subject: RE: Timber Bridge Hydraulic Recommendation Request

Mike,

In the interest of being timely, I am enclosing my staff recommendations below. Note, these are all hydraulically complex bridge sites and most have some sort of scour or stream stability issue and I think some additional notes will be necessary for your planning studies. I will do a more in depth review and provide you with additional information later this week.

134833.00 – Tentative recommendation is a 2 @16x16 box culvert. However this one has some scour and stream stability issues that I am still reviewing.
134846.00 – Tentative recommendation is single span 60 ft bridge using box beam. Raise grade approximately 1. Ft. This one also has stream stability issues.
134847.00 – Recommendation is single span 90 ft bridge, raise grade 2.0 ft. Superelevation should be kept off bridge deck if possible for safety reasons. Significant drift concerns.
134849.00 – Recommendation is a 3 @ 14x14 box culvert.
134850.00 – Recommendation is a 3 @ 30' girder bridge. Total length 90 ft. Raise grade 2 ft minimum. A two span could probably work, but it may result in a pier in the middle of the channel. We can be creative with it once we have survey data, but this is the best we can do for now.
134851.00 – Recommendation is 3 span 128 ft bridge, raise grade 2.5 ft.
134864.00 – Recommendation is a single span 60 ft bridge, raise grade approx. 2 ft.
134865.00 – Recommendation is a three span 90 ft bridge, raise grade approx. 2.0 ft
134866.00 – Recommendation is a 3 @ 14x7 reinforced concrete box culvert.

TN TDOT Department of Transportation

Wesley Peck, PE, MS | Manager
Hydraulic Design Section | Structures Division
James K Polk Building, 11th Floor
505 Deaderick St, Nashville, TN 37243-0338
p. 615-532-5660
Wesley.Peck@tn.gov
tn.gov/tdot
Follow TDOT: Facebook | X | Instagram | LinkedIn

From: Michael Gilbert <Michael.Gilbert@tn.gov>
Sent: Monday, March 25, 2024 8:29 AM
To: Wesley Peck <Wesley.Peck@tn.gov>
Cc: Ted Kniazewycz <Ted.Kniazewycz@tn.gov>; Steve Allen <Steve.Allen@tn.gov>; Jim Waters <Jim.Waters@tn.gov>; Michelle Hunt <Michelle.Hunt@tn.gov>; David A. Duncan <David.A.Duncan@tn.gov>; Shane Hester

TN TDOT Department of Transportation

Environmental Division

0EN1 Environmental Desktop Review Form

Part 1 – Project Information

PIN	134865
Project Number (if available)	
County	Madison
Route	SR138
Termini	Bridge over Overflow, LM 4.88 (TMA)
Type of Document	
Date ENV DIV Comments are Due	5/22/24 by noon

Part 2: Provide information identifying known Environmental Resources within the proposed project area using the attached information. If no known resources are identified, each study area should note that none were identified.

Air & Noise

AIR QUALITY

Transportation Conformity

This project is in Madison County which is in attainment for all regulated criteria pollutants. Therefore, conformity does not apply to this project.

Mobile Source Air Toxics (MSATs)

This project qualifies as a categorical exclusion under 23 CFR 771.117 and, therefore, does not require an evaluation of MSATs per FHWA's *"Interim Guidance Update on Air Toxic Analysis in NEPA Documents"* dated January 2023.

NOISE

This project is Type III in accordance with the FHWA noise regulation in 23 CFR 772 and TDOT's noise policy; therefore, a noise study is not needed.

Cultural Resources

Archaeology

There are three previously recorded sites or survey areas within one mile of the ETSA. A survey will be required. There is a low probability of intact archaeological deposits in this location.

Historic Preservation

There are no previously identified historic resources located in the project location. However, the bridge itself is over 50 years old, so a survey will be required.

Ecology

Water resource features are likely to occur within the project area. Additionally, species records in the area will likely results in surveys and or sweeps.

HazMat

No known hazardous materials sites. The asbestos bridge survey has been scheduled and the commitment will be submitted when the report is available.

NEPA

This project was evaluated for the following:

- Detour: Detour over 25 miles, FHWA coordination is needed.
- ROW Acquisition: ROW acquisition is less than 1.5 acres, coordination with FHWA is not required.
- Section 4(f): No Section 4(f) resources were identified in the proposed project area.
- Section 6(f): No Section 6(f) resources were identified in the proposed project area.
- Recreation and Wildlife Management Areas: No Recreation or Wildlife Management areas were identified in the proposed project area.
- Local/State Parks and Greenways: No parks or greenways were identified in the proposed project area.

- Floodplain Management: The project is located within the Statewide Flood Hazard Area Zone A.

TN TDOT Department of Transportation

Environmental Division

0EN1 Environmental Desktop Review Form

Part 1 – Project Information

PIN	134866.00
Project Number (if available)	
County	Madison
Route	SR-138
Termini	Bridge over Overflow, LM 4.95 (TMA)
Type of Document	
Date ENV DIV Comments are Due	5/22/24 by noon

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- Local/State Parks and Greenways: No parks or greenways were identified in the proposed project area.

- Floodplain Management: The project is located within the Statewide Flood Hazard Area Zone A.

PIN	County	Project	Utilities on Project	At Risk	Mitigation (if applicable)	Items	Footage
134865.00 & 134866.00	Madison	SR-138 Bridge & Bridge over Overflow L.M. 4.88 (Big Black Creek)	Electric (Southwest TN Electric Co-Op assumed)	Aerial Electric - Distribution Lines & Fiber	Avoid if possible - **power could potentially shift the pole that is too close to the deck to avoid total replacement**	(2) 55-2 poles, (4) 1" anchors, (4) downguys, (2) tangent double cross arms, (2) double cross arms, 3 phase with neutral power, (3) pole removals, (1) 48 fiber (assumed) (2) storage loop, (2) splice case) (2) splice	700'
134865.00 & 134866.00	Madison	SR-138 Bridge & Bridge over Overflow L.M. 4.88 (Big Black Creek)	Telecommunications (AT&T or Frontier assumed)	Aerial fiber	Rides aerial route with electric	72 fiber (assumed) - IOF, 10M strand, (4) 1" anchors, (4) downguys. (1) 48 fiber (assumed) and (1) 144 fiber (assumed), (2) storage loop, (2) splice case) (2) splice	700'
134865.00 & 134866.00	Madison	SR-138 Bridge & Bridge over Overflow L.M. 4.88 (Big Black Creek)	Telecommunications (AT&T or Frontier assumed)	Buried copper	Opposite side of bridge	Assuming 50 pair buried copper cable - (2) 6" pedestals, (2) dig pit, RIP copper, (2) splice	350'

Project: SR-138, Bridge over Overflow, LM 4.88 & Bridge over Branch, LM 4.95 (TMA)
Comment Resolution Form
County: Madison
PIN 134865.00 & 134866.00

Comment Stage	Division	Commenter	Date	Comment	Comment Addressed?	Additional Notes
Draft Report Review (0SD2)	Design	Samuel Reed	5/14/2024	If the realignment is attempted, detouring the state route may not be necessary. The bulk of the project can be completed and then connected afterward to the state route.	Yes	Noted. Two Options are provided for the PDN team to help advise with decision making.
Draft Report Review (0SD2)	Design	Samuel Reed	5/14/2024	In both cases, additional rights-of-way for the environment should be considered. Raising the grade will result in wetland impact.	Yes	Noted, widened ROW.
Draft Report Review (0SD2)	Design	Samuel Reed	5/14/2024	Raising the grade may result in conflict with the box bridge. In the case of realignment, the horizontal curve is extended to include the bridge. This will likely result in a superelevation of the structure. Structures does not prefer bridges with superelevation.	Yes	Noted. Coordination with Structures during design to determine the feasibility of the curved structure will need to be explored. Structures has asked STID in the past to keep super transitions off proposed bridges. Realignment of bridge at L.M. 4.88 is also constrained due to the location of the bridge at L.M. 4.79.
Draft Report Review (0SD2)	Design	Samuel Reed	5/14/2024	Raising the grade may result in conflict with the box bridge.	Yes	Noted. More clarifications on the conflict may be needed for further assessment during design.
Draft Report Review (0SD2)	Design	Samuel Reed	5/14/2024	Ensure the project end limit leaves sufficient space to taper out of the horizontal curve.	Yes	Extended the approach a little further on the western side to account for the super transitions.
Draft Report Review (0SD2)	Design	Samuel Reed	5/14/2024	Additional Guardral may need to be considered for the horizontal curve leading into the bridge.	Yes	Noted, extended guardrail on drawing.