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-196 - Bridge over Branch (TMA)								
PIN	134851.00								
Route Information	**Route**	**NHS (Y/N)**	**Functional Class**		**City**		**County**		
	SR-196	Yes	Urban Major Collector		Piperton		Fayette		
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**
	14.12		2,810	365	3.00	55	50	2029	2049
Project Description & Standard Drawings Used	The proposed bridge is to be a 3 span 128' bridge. The typical section for the approach and bridge will be 2-11' foot travel lanes with 4' shoulders (Design Exception Required). The out-to-out width based on the above recommendations will be 31'3". The proposed grade and vertical clearance will be raised 2.5'. A detour is recommended but is a potential ABC candidate. The state route detour is 19 minutes (15.8 miles); the local route detour is 21 minutes (14.1 miles). Superstructure depth is 41.75" = 28" (beam) + 10" (deck) + 3.75" (width (in inches) x0.02/2). RD11-TS-2								Project Details
Important Project History or Related Projects	The existing structure is a 4 span concrete channel beam timber bridge, 115' long with an out-to-out width of 25'3". The existing structure has 2-11' travel lanes with 2' shoulders. The listed weight limit on the inspection report is 10 tons (9/1/2022). The discharges for the drainage basin (StreamStats Version 4.19.4) for drainage area of 3.95 square miles: Q10 is 1570 cfs, Q50 is 2150 cfs, and Q100 is 2930 cfs. This project is NOT expected to utilize federal funding.								
Project Purpose/Need	The need to replace this bridge is due to the present condition of the existing bridge: -Timber bridges are being phased out and is near the end of it's service life -The bridge is in POOR condition								
Major Environmental Considerations	To be determined								

Multi-Modal Considerations	This project is in a urban 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	Approximately 1.22 acres of right of way are expected to be acquired. Overhead electric/communication and gas lines are present. Shallower Beam Options should be considered (e.g. Valmont U-Beam). Potential for suburban expansion in the area due to proximity to Memphis Urban Boundary and Blue Oval City. 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

Jul 11, 2024

Project Management Division Director — Date

The following individuals to execute if a bridge concept report:

Jul 9, 2024

Structures Director — Date

Brandon Akins (Jul 11, 2024 10:49 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	03/26/2024
✓		Request Project Number, PIN, and Task Profile Numbers	01/10/2024
	✓	Coordinate with Long Range Planning	
✓		Request and Finalize Traffic Data	02/15/2024
	✓	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	
		Request Concept Report Review	
0ST1 Develop Structures Recommendations			
Complete	**NA**		**Date Completed**
✓		Confirm Recommended Structure Type for Concept Report is Complete	04/11/2024
✓		Confirm Hydraulic Recommendations for Concept Report is Complete	04/11/2024
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	

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	
		Review and Confirm Preliminary Railroad Cost Estimate	
0SD3 Finalize Concept Report			
Complete	**NA**		**Date Completed**
	✓	Compile and Review Initial Risk Assessment	
		Finalize Conceptual Layouts	
✓		Develop Environmental Technical Study Area (ETSA)	04/10/2024
✓		Address Comments and Finalize Concept Report	06/17/2024
	✓	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)	
		Finalize Document and Upload All Needed Electronic Files	
		Notify the Project Management Director or Assigned Project Manager to Set Up Project (1PM1)	

NA Justification

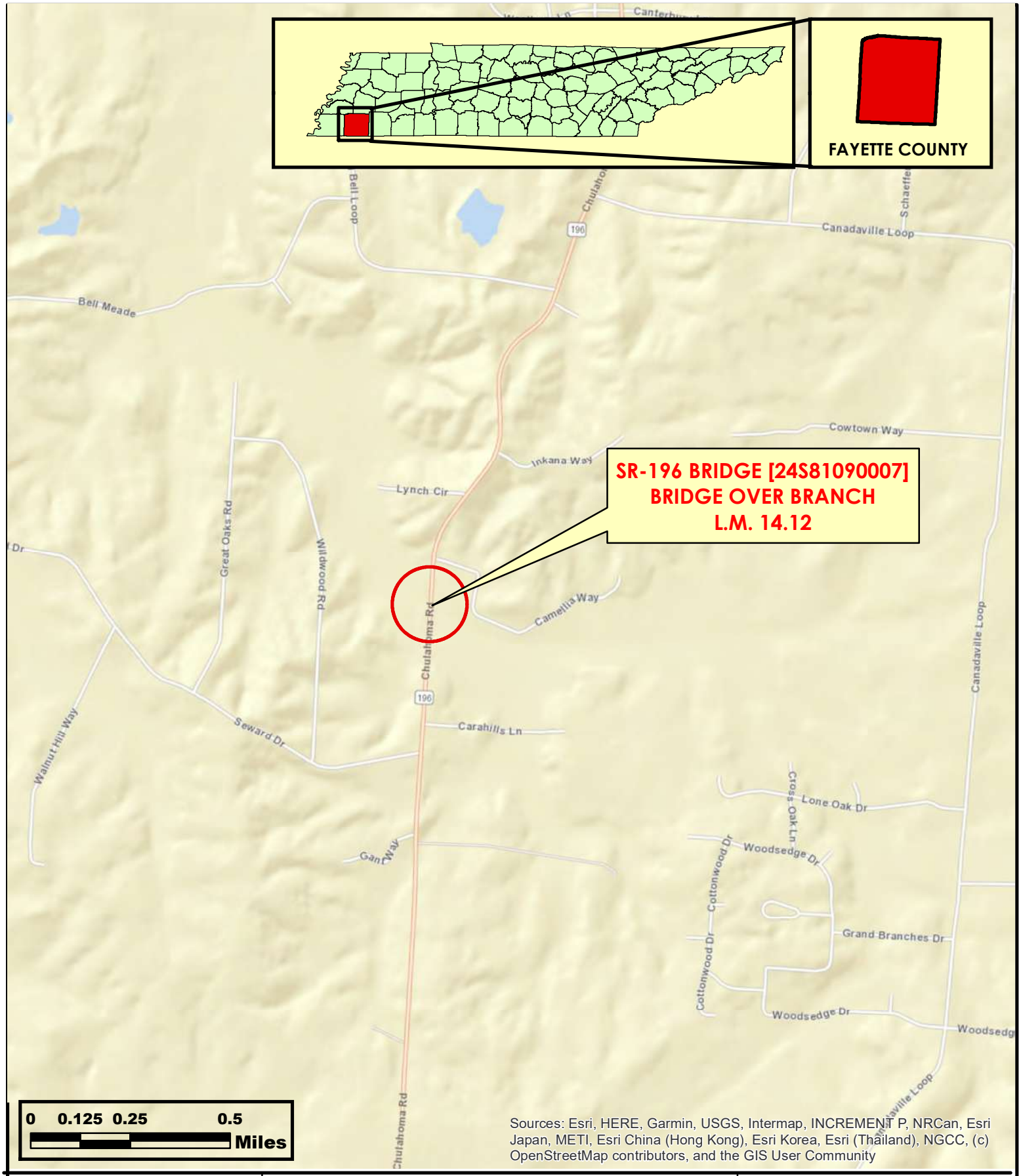
Coordinate with Long Range Planning-Long Range Planning coordination not needed for STID BCR document
Request Preliminary Survey Data- survey data not needed for STID BCR document
Schedule a site visit-site visit not required
0MM1 Conduct Multimodal Review- multimodal coordination not required
0SY1 Provide 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
0UT1 Complete Utility Preliminary Estimates-utility cost calculated in cost estimate
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- 1 crash 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- AADT is too low for IIE Analysis
Traffic Modeling (e.g., Synchro, VISSIM, Highway Capacity Software (HCS) Output)- AADT too low to model
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

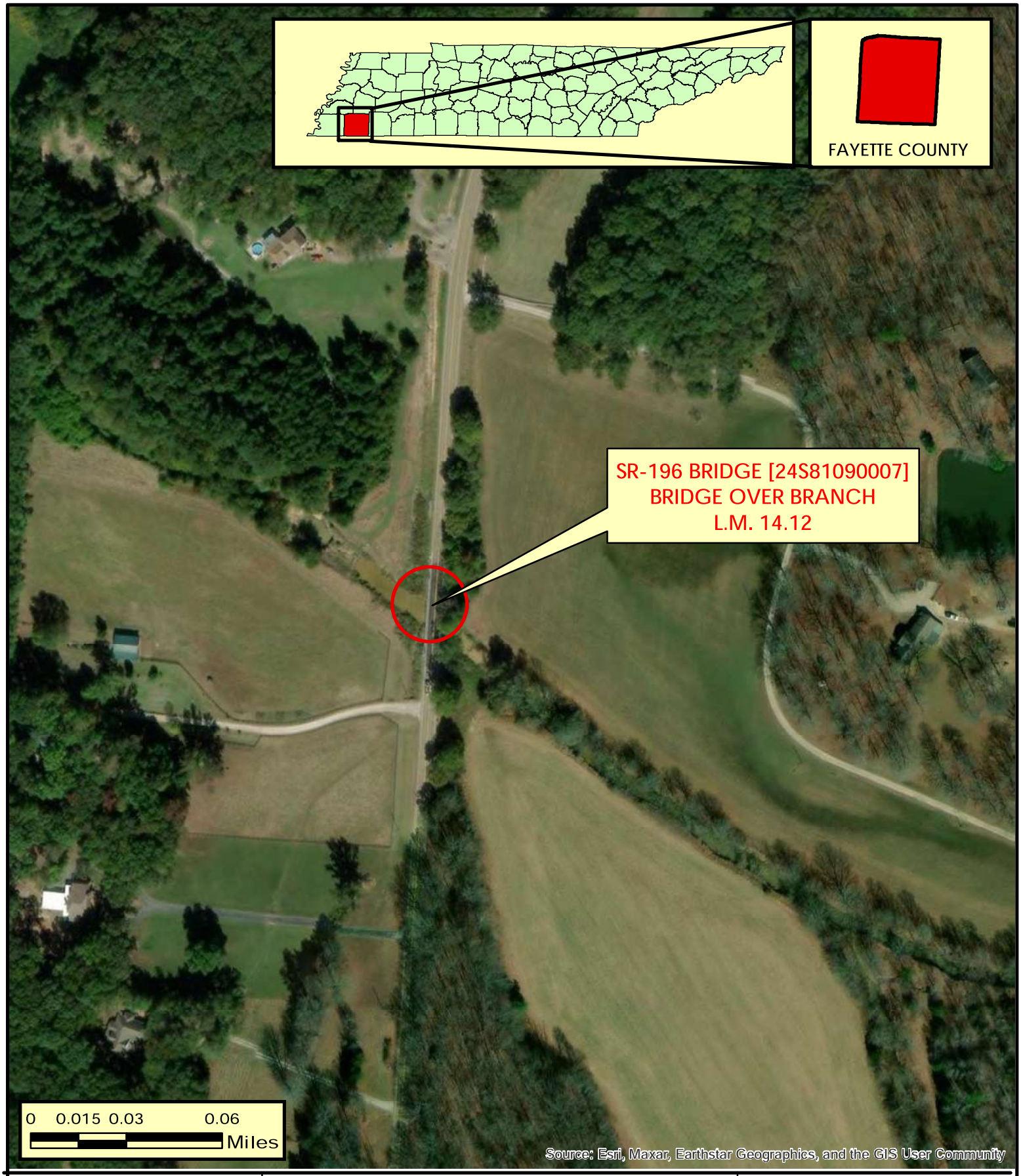


N

AREA MAP
SR-196 BRIDGE [24S81090007]
BRIDGE OVER BRANCH
L.M. 14.12
FAYETTE COUNTY

TN TDOT Department of Transportation

PIN 134851.00



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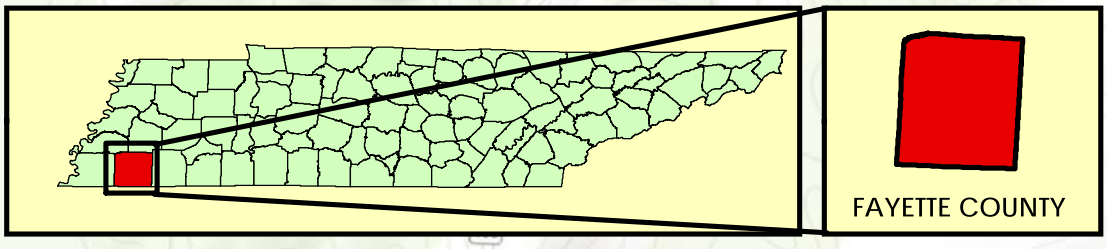
LOCATION MAP
SR-196 BRIDGE [24S81090007]
BRIDGE OVER BRANCH
L.M. 14.12
FAYETTE COUNTY

TN TDOT Department of Transportation

PIN 134851.00



Inkana Way
400 ft
Wildwood Rd
Lynch Cir
Chulahoma Rd
SR-196 BRIDGE [24S81090007]
BRIDGE OVER BRANCH
L.M. 14.12
Camellia Way
Carahills Ln
Seward Dr
350 ft
196
350 ft

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

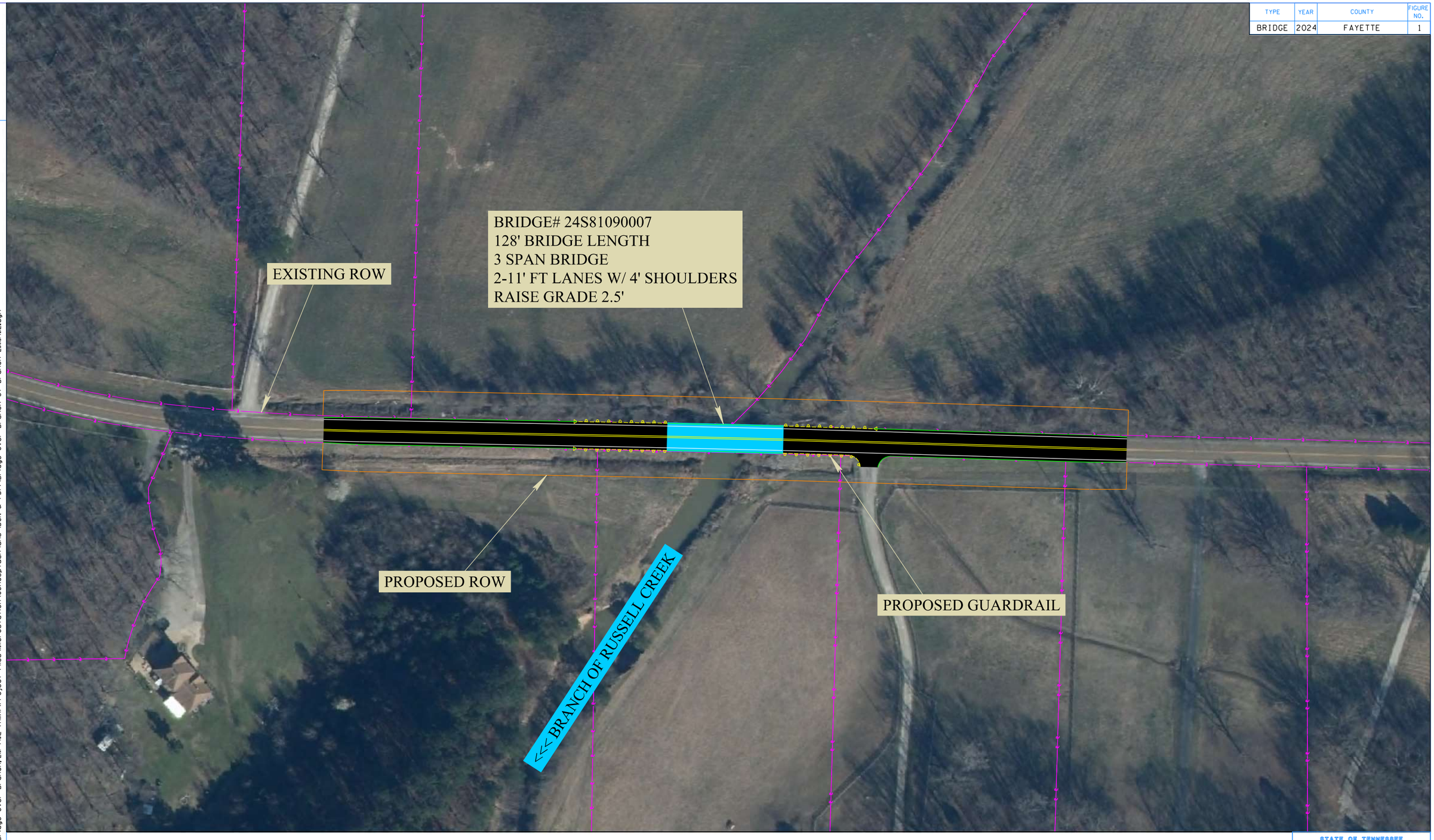
SR-196 BRIDGE [24S81090007]
BRIDGE OVER BRANCH
L.M. 14.12
FAYETTE COUNTY

TN TDOT Department of Transportation

PIN 134851.00

TENNESSEE D.O.T.
S.T.I.D.
FILE NO. ——

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2024	FAYETTE	1



0' 100' 200' 300'

N

R4 TIMBER BRIDGE PROGRAM

STATE ROUTE 196
BRIDGE OVER BRANCH, L.M. 14.12
FAYETTE COUNTY

CAUTION ! PRELIMINARY PLANS SUBJECT TO CHANGE

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

FIGURE 1
S.R. 196
L.M. 14.12

4/17/2024 4:15:55 PM
X:\Projects\Fayette\SR 196\Bridge over Branch, LM 14.12 (TMA)\Project Files\Microstation\Conceptual Plans (DGN & PDF)\Bridge over Branch of Branch L.M.14.12.dgn

TENNESSEE D.O.T.

S.T.I.D.

FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
ETSA	2024	FAYETTE	1a

STUDY AREA 300 FEET PAST PROJECT LIMITS

STUDY AREA APPROX. 50 FEET FROM EXISTING (ROW)

PROPOSED ROW

STUDY AREA APPROX. 50 FEET FROM PROPOSED (ROW)

EXISTING ROW

STUDY AREA 300 FEET PAST PROJECT LIMITS

EXISTING ROW

PROPOSED ROW

<<< BRANCH OF RUSSELL CREEK

STUDY AREA APPROX. 50 FEET FROM PROPOSED (ROW)

STUDY AREA APPROX. 50 FEET FROM EXISTING (ROW)

EXISTING R.O.W.

PROPOSED R.O.W.

ENVIRONMENTAL TECHNICAL STUDY AREA

0' 100' 200' 300'

ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 196
BRIDGE OVER BRANCH, L.M. 14.12
FAYETTE COUNTY

CAUTION ! PRELIMINARY PLANS SUBJECT TO CHANGE

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

FIGURE 1a
S.R. 196
L.M. 14.12

4/18/2024 12:31:35 PM
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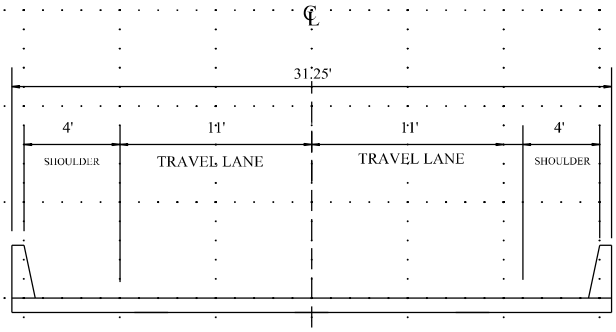
PROPOSED COMPLETED



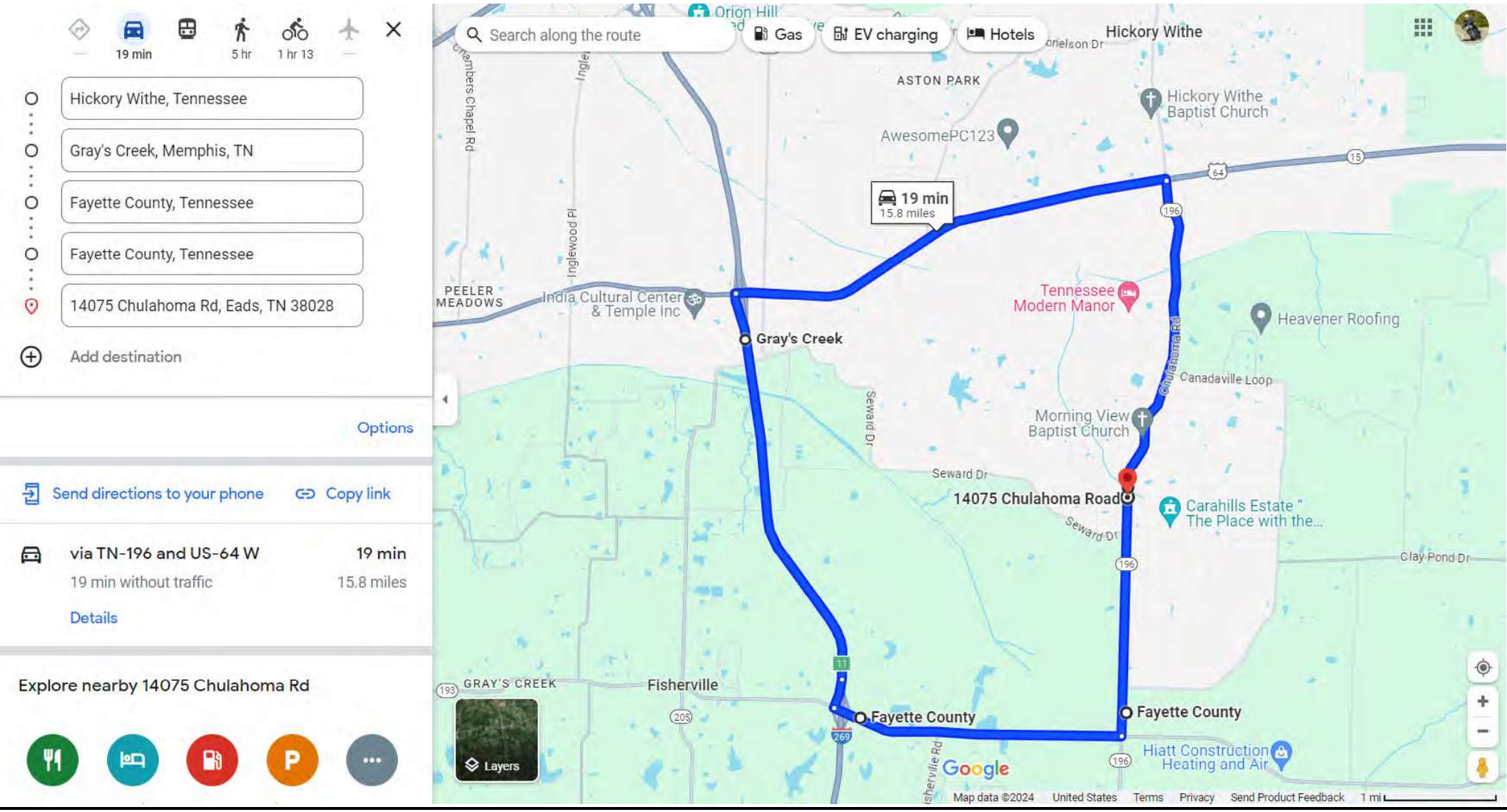
0' 5' 10' 15'

CROSS-SECTION DETAIL

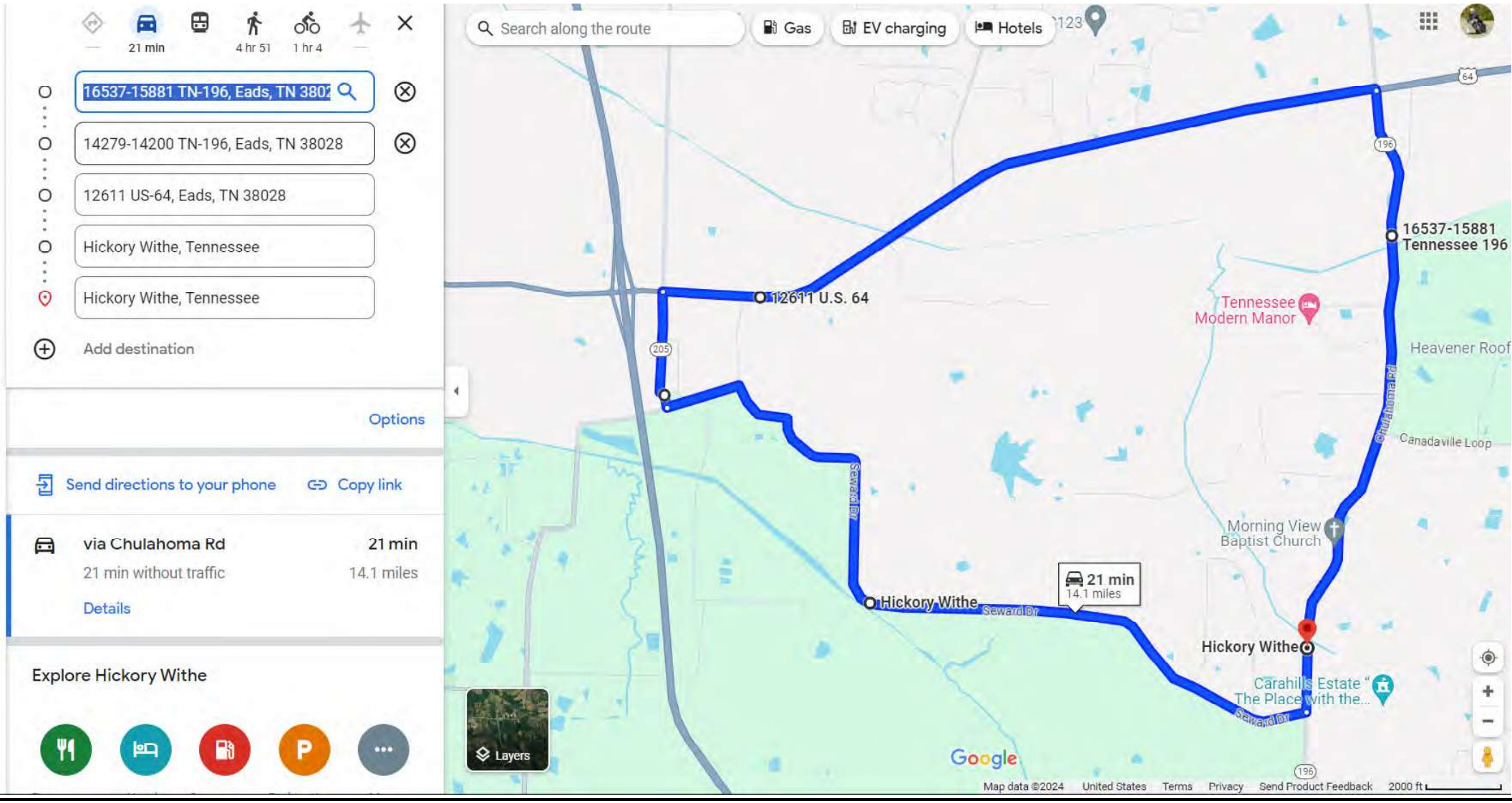
REGION 4 TIMBER BRIDGE PROGRAM
TRANSPORTATION MODERNIZATION ACT (TMA)

CAUTION !
PRELIMINARY
PLANS
SUBJECT TO
CHANGE

DETOUR MAP – STATE ROUTE



DETOUR MAP – LOCAL ROUTE



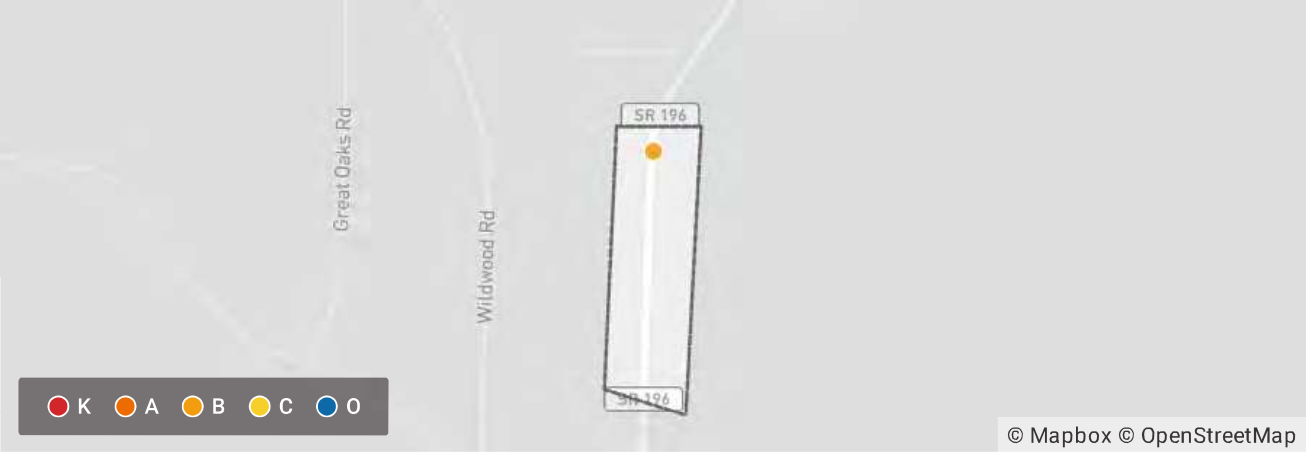
CRASH SUMMARY REPORT

Fayette Co SR196 - Bridge over Branch

Created on April 9, 2024
Created by JOSHUA CLOUD
Data extents: April 4, 2021 to April 4, 2024

Applied Filters

County = Fayette | Shape: Polygon



Total Crashes	1	Fatal Crashes	0

Summary		Crash
Total Crashes	1	100.00%
Truck/Bus Involved	1	100.00%
+ 4 more	0	0%

Type of Crash		Crash
(B) Suspected Minor Injury	1	100.00%
+ 4 more	0	0%

Date of Crash (Year)		Crash
2022	1	100.00%
+ 10 more	0	0%

Manner of First Collision		Crash
Rear-End	1	100.00%
+ 9 more	0	0%

First Harmful Event		Crash
Vehicle in Transport	1	100.00%
+ 64 more	0	0%

Crash Location		Crash
Along Roadway	1	100.00%
+ 6 more	0	0%

Light Conditions		Crash
Daylight	1	100.00%
+ 7 more	0	0%

Weather Conditions		Crash
Clear	1	100.00%
+ 11 more	0	0%

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

BRIDGE NO.

APPROACH 1 WEIGHT LIMIT SIGN

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

LOOKING AHEAD ON ROUTE

SPAN 1 CURB SPALLING TO STEEL (LEFT CURB)

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

SPAN 1 POT HOLE

APPROACH 1

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

VIEW ACROSS TOP OF DECK

RIGHT SIDE UPSTREAM

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

LEFT SIDE DOWNSTREAM

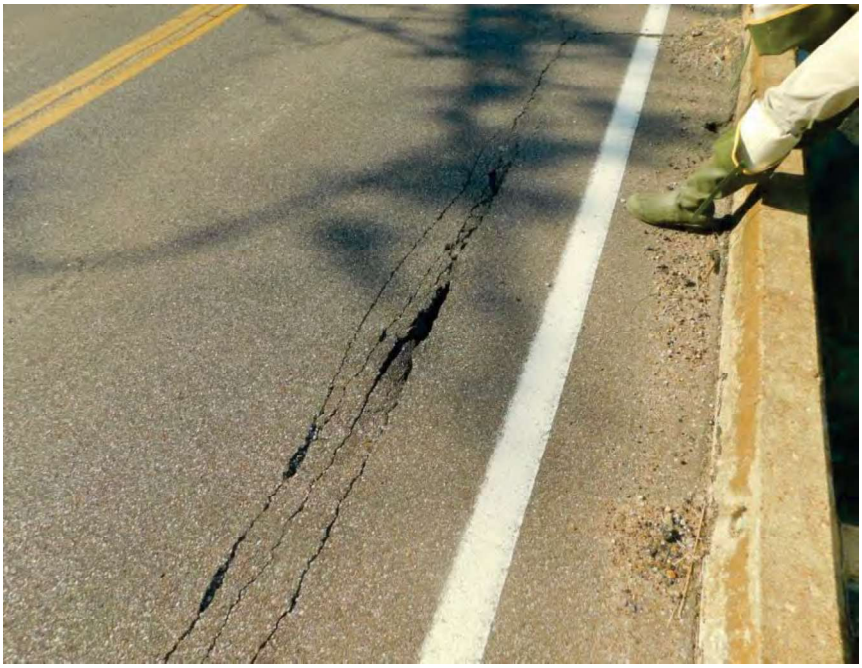
LOOKING BACK ON ROUTE

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

APPROACH 2

SPAN 3 RIGHT BRIDGE RAIL POST SPALLING

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022



SPAN 4 POT HOLE

ABUTMENT 2

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

BENT 3 REAR

BENT 2 REAR

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

BENT 1 REAR

BOTTOM DECK SPAN 2

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

LEFT ELEVATION

RIGHT ELEVATION

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

BENT 1 FRONT

BENT 2 FRONT

Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

ABUTMENT 1

BENT 3 FRONT

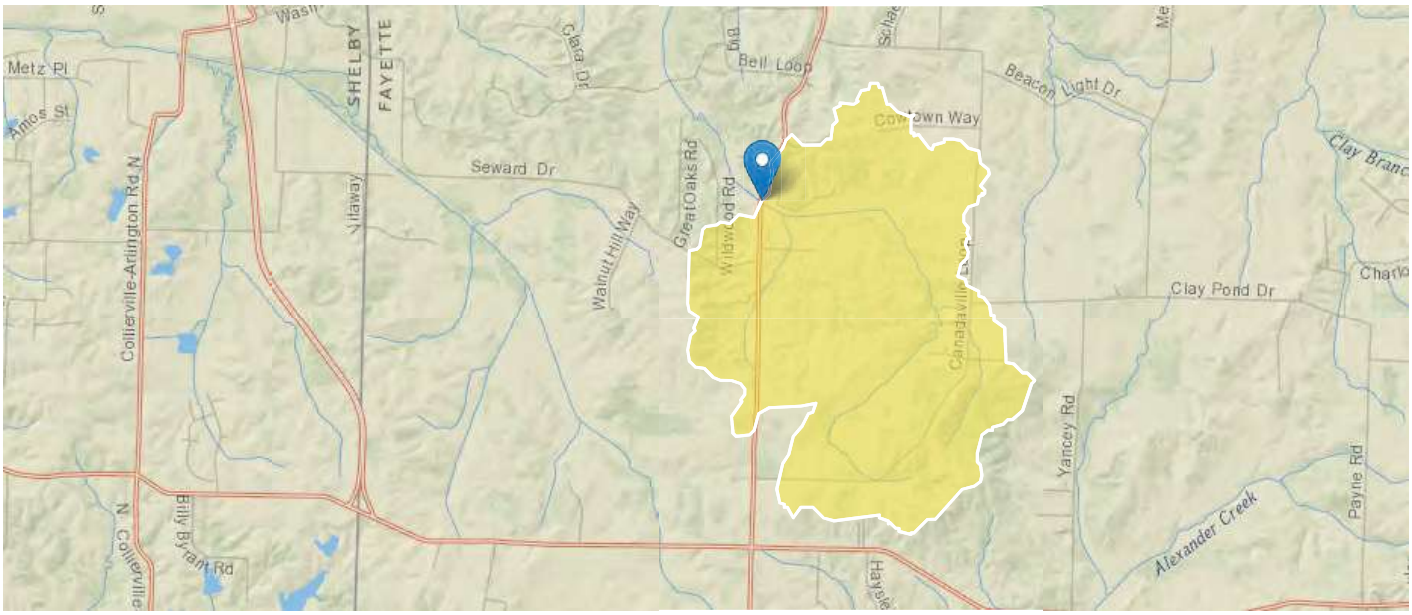
Bridge Loc. No: 24-SR196-1413 Date: 07-05-2022

SPAN 3 PCCS B SPALLING TO STEEL

SPAN 4 RIGHT GUARD RAIL POST HAS HEAVY DECAY

StreamStats

Region ID: TN
Workspace ID: TN20240404151902447000
Clicked Point (Latitude, Longitude): 35.18475, -89.59267
Time: 2024-04-04 10:19:25 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CLIMFAC2YR	Two-year climate factor from Lichy and Karlinger (1990)	2.422	dimensionless
CONTDA	Area that contributes flow to a point on a stream	3.95	square miles
DRNAREA	Area that drains to a point on a stream	3.95	square miles
PERMGTE2IN	Percent of area underlain by soils with permeability greater than or equal to 2 inches per hour	37.002	percent
RECESS	Number of days required for streamflow to recede one order of magnitude when hydrograph is plotted on logarithmic scale	32	days per log cycle
SOILPERM	Average Soil Permeability	1.07	inches per hour

Peak-Flow Statistics

Peak-Flow Statistics Parameters [DAOnly Area 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CONTDA	Contributing Drainage Area	3.95	square miles	0.76	2308

Peak-Flow Statistics Flow Report [DAOnly Area 4]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIL	PIU	SE	ASEp	Equiv. Yrs.
50-percent AEP flood	899	ft^3/s	478	1690	38.7	38.7	1.8
20-percent AEP flood	1310	ft^3/s	712	2410	37.2	37.2	2.4
10-percent AEP flood	1570	ft^3/s	844	2920	38	38	3.1
4-percent AEP flood	1910	ft^3/s	994	3670	40.1	40.1	3.8
2-percent AEP flood	2150	ft^3/s	1080	4270	42.2	42.2	4.2
1-percent AEP flood	2380	ft^3/s	1160	4900	44.7	44.7	4.4
0.2-percent AEP flood	2930	ft^3/s	1300	6620	51.1	51.1	4.7

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/)

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.95	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	37.002	percent	2	98

Low-Flow Statistics Flow Report [Low Flow West Region 2009 5159]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
7 Day 10 Year Low Flow	0.00595	ft^3/s	123
30 Day 5 Year Low Flow	0.016	ft^3/s	93.5

Low-Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E.,2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009–5159, 212 p., 1 pl. (http://pubs.usgs.gov/sir/2009/5159/)

Flow-Duration Statistics

Flow-Duration Statistics Parameters [Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.95	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	37.002	percent	2	98

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.422	dimensionless	2.307	2.455
SOILPERM	Average Soil Permeability	1.07	inches per hour	0.97	2.44

Flow-Duration Statistics Flow Report [Low Flow West Region 2009 5159]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
99.5 Percent Duration	0.0055	ft^3/s	122
99 Percent Duration	0.00847	ft^3/s	105
98 Percent Duration	0.0117	ft^3/s	96.4
95 Percent Duration	0.0171	ft^3/s	90.5
90 Percent Duration	0.0237	ft^3/s	85.8
80 Percent Duration	0.0389	ft^3/s	79.6
70 Percent Duration	0.0636	ft^3/s	75
60 Percent Duration	0.141	ft^3/s	69.2
50 Percent Duration	0.223	ft^3/s	57
40 Percent Duration	0.499	ft^3/s	46.9
30 Percent Duration	1.37	ft^3/s	36.6
20 Percent Duration	4.43	ft^3/s	27.4
10 Percent Duration	9.11	ft^3/s	17.7

Flow-Duration Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E.,2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009–5159, 212 p., 1 pl. (http://pubs.usgs.gov/sir/2009/5159/)

Annual Flow Statistics

Annual Flow Statistics Parameters [Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.95	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.422	dimensionless	2.307	2.455
PERMGTE2IN	Percent permeability gte 2 in per hr	37.002	percent	2	98

Annual Flow Statistics Flow Report [Low Flow West Region 2009 5159]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
Mean Annual Flow	4.72	ft^3/s	13.1

Annual Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E.,2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009–5159, 212 p., 1 pl. (http://pubs.usgs.gov/sir/2009/5159/)

Seasonal Flow Statistics

Seasonal Flow Statistics Parameters [Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.95	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	37.002	percent	2	98

Seasonal Flow Statistics Flow Report [Low Flow West Region 2009 5159]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
Summer Mean Flow	0.773	ft^3/s	38.3

Seasonal Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E.,2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009–5159, 212 p., 1 pl. (http://pubs.usgs.gov/sir/2009/5159/)

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.: 24S196-S1-007 ROUTE: S.R. 196
COUNTY: FAYETTE CITY:
PROJECT PIN NUMBER: 134851.00
PROJECT DESCRIPTION: BRIDGE OVER BRANCH @ L.M. 14.115

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
2,270	2029	2,810	365	13	2049	65-35	2	3		

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)

Michelle Hunt

From: David A. Duncan
Sent: Thursday, April 11, 2024 12:13 PM
To: Michelle Hunt; Ty Tucker
Cc: Michael Gilbert
Subject: FW: Timber Bridge Hydraulic Recommendation Request

Follow Up Flag: Follow up
Flag Status: Completed

Michelle/Ty,
I'm going to update the DD_2 with these recommendations. Wes is updating his recommendation for the ones below.
Thanks,
Dave

From: Wesley Peck <Wesley.Peck@tn.gov>
Sent: Thursday, April 11, 2024 10:52 AM
To: David A. Duncan <David.A.Duncan@tn.gov>
Cc: Ty Tucker <Ty.Tucker@tn.gov>
Subject: RE: Timber Bridge Hydraulic Recommendation Request

Dave,

It's good that you asked that question. I talked to Ted yesterday and he asked that we recommend single spans where we can. We were favoring three short spans in a few sites just to keep the grade change lower, so I need to revise a couple of those recommendations.

PIN 134835.00 – single span, 90' long with type 4 I beam. Raise grade 2.75 ft.
PIN 134840.00 – single span, 60 ft long with 32" box beam, raise grade 2.5 ft
PIN 134849.00 – single span, 70 ft using 33" box beam. Raise grade 2.0 ft
PIN 134850.00 – 1 @ 90 ft bridge using box beams. Raise grade 4.25 ft.
PIN 134851.00 – Stays three span because it is too long to be a single.

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: David A. Duncan <David.A.Duncan@tn.gov>
Sent: Thursday, April 11, 2024 7:39 AM
To: Wesley Peck <Wesley.Peck@tn.gov>

0EN1 Environmental Desktop Review Form

PIN	134851.00
Project Number (if available)	
County	Fayette
Route	SR-196
Termini	Bridge over Branch, LM 14.115 (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 Fayette 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 no previously recorded sites or survey areas within one mile of the ETSA. A survey will be required. There are road construction and drainage disturbances within the ETSA. There is a moderate probability of intact archaeological deposits in this location.

History: There is one previously surveyed historic resource in the project area, and the bridge itself is more than 50 years old. Therefore, a survey will be required.

Ecology

Water resource features are likely to occur within the project area.

HazMat

No known hazardous materials sites. The asbestos bridge survey has been completed.

An Asbestos Containing Material (ACM) survey was completed on Bridge No. 24S81090007 SR-196 over Branch LM 14.115 (24-SR196-14.12). No asbestos was detected. Please see the report for further details and photographs. No special accommodations for demolition and waste disposal are anticipated for these structures and the material can be deposited in a C&D landfill. Prior to the demolition or rehabilitation of any structure (bridge or building), the contractor is required to submit the National Emission Standards for Hazardous Air Pollutants standard 10-day notice of demolition to the TDEC Division of Air Pollution Control (per TDOT Standard Specifications for Road and Bridge Construction (January 1, 2021) Sections 107.08.D and 202.03).

NEPA

This project was evaluated for the following:

- Detour: Detour under 25 miles, no FHWA coordination 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 AE.

PIN	County	Project	Utilities on Project	At Risk	Mitigation (if applicable)	Items	Footage	
134851.00	Fayette	SR-196 Bridge over Branch L.M. 14.12	Electric (Chickasaw Electric Co-Op assumed)	Aerial Electric - Distribution Lines	Easily avoidable - pole route has CATV, Electric, and Fiber	(4) wire 3PH + Neutral, (2) 50-2 poles, (4) 1" anchors, (4) downguys, (2) pole removals, wire removal	***850'***	
134851.00	Fayette	SR-196 Bridge over Branch L.M. 14.12	CATV (Spectrum assumed)	Aerial Coax	Easily avoidable - pole route has CATV, Electric, and Fiber	Coax replacement, (4) down guys - 6M strand, remove strand, remove cable	***850'***	
134851.00	Fayette	SR-196 Bridge over Branch L.M. 14.12	Telecommunications (AT&T or Frontier assumed)	Aerial Fiber	Easily avoidable - pole route has CATV, Electric, and Fiber	Fiber replacement, (4) down guys - 10M strand (1) 144 fiber (assumed), (2) storage loop, (2) splice case) (2) splice	***850'***	
134851.00	Fayette	SR-196 Bridge over Branch L.M. 14.12	MLGW Gas	Transmission Gas Line Corridor	Easily avoidable	Unknown	***170'***	Will estimate if needed but this should be easliy missed.
134851.00	Fayette	SR-196 Bridge over Branch L.M. 14.12	Water	Water Line	Verify utility - this will have to be replaced	appears to be a 3" steel water line on side of bridge	170'	Can estimate once verified

Project: SR-196, Bridge over Branch, LM 14.12 (TMA)
Comment Resolution Form
County: Fayette
PIN 134851.00

Comment Stage	Division	Commenter	Date	Comment	Comment Addressed?	Additional Notes
Draft Report Review (0SD2)	STID	David Duncan	4/29/2024	Draft Report Review comments requested by email.	N/A	N/A
Draft Report Review (0SD2)	R4 - Design	Derek Link	5/13/2024	Are general EPSC items included as part of the Construction contengiency costs? If not would consider adding some general items. ie... SF, outfall protection, stream diversions, etc...	Yes	They are assumed to be included in the additional items field as a % project cost.
Draft Report Review (0SD2)	R4 - Design	Derek Link	5/13/2024	The private drive within the project has 3 culverts draining water coming from the field. If 24" is not an improvement to what is existing, consider increasing size in estimate. Also, I would anticipate the side drain to be within the clear zone so you may want to factor in structural tubing to the steel amounts needed for safety endwalls if not done so already.	Yes	STID developed the Concept Report utilizing the provided Hydraulics recommendations noted on page 41 of the Draft Report. This comment is documented and will be further investigated at a later time during the design phase.