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 Russell Branch (TMA)								
PIN	134850.00								
Route Information	**Route**	**NHS (Y/N)**	**Functional Class**		**City**		**County**		
	SR-196	Yes	Urban Minor Arterial		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**
	1.09		1,290	155	4.00	50	45	2029	2049
Project Description & Standard Drawings Used	The proposed bridge is to be a 1 @ 90' bridge using box beams. 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 4.25'. A detour is recommended. The state route detour is 13 minutes (8.6 miles). Superstructure depth is 56.95" = 43.2" (beam) + 10" (deck) + 3.75" (width (in inches) x0.02/2). RD11-TS-3								Project Details
Important Project History or Related Projects	The existing structure, built in 1939, is a 3 span concrete channel beam timber bridge, 51' long with an out-to-out width of 21'7". The existing structure has 2-10' travel lanes with no shoulders. The listed weight limit on the inspection report is 40 tons (7/6/2022). The discharges for the drainage basin (StreamStats Version 4.19.4) for drainage area of 1.61 square miles: Q10 is 957 cfs, Q50 is 1290 cfs, and Q100 is 1730 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 FAIR 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 1.64 acres of right of way are expected to be acquired. Overhead electric/communication and water 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

Approvals

Executed for approval of this Concept Report

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:

The following individuals to execute if a bridge concept report:

Jul 10, 2024

Structures Director — Date

Brandon Akins (Jul 11, 2024 10:50 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	
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	
	✓	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

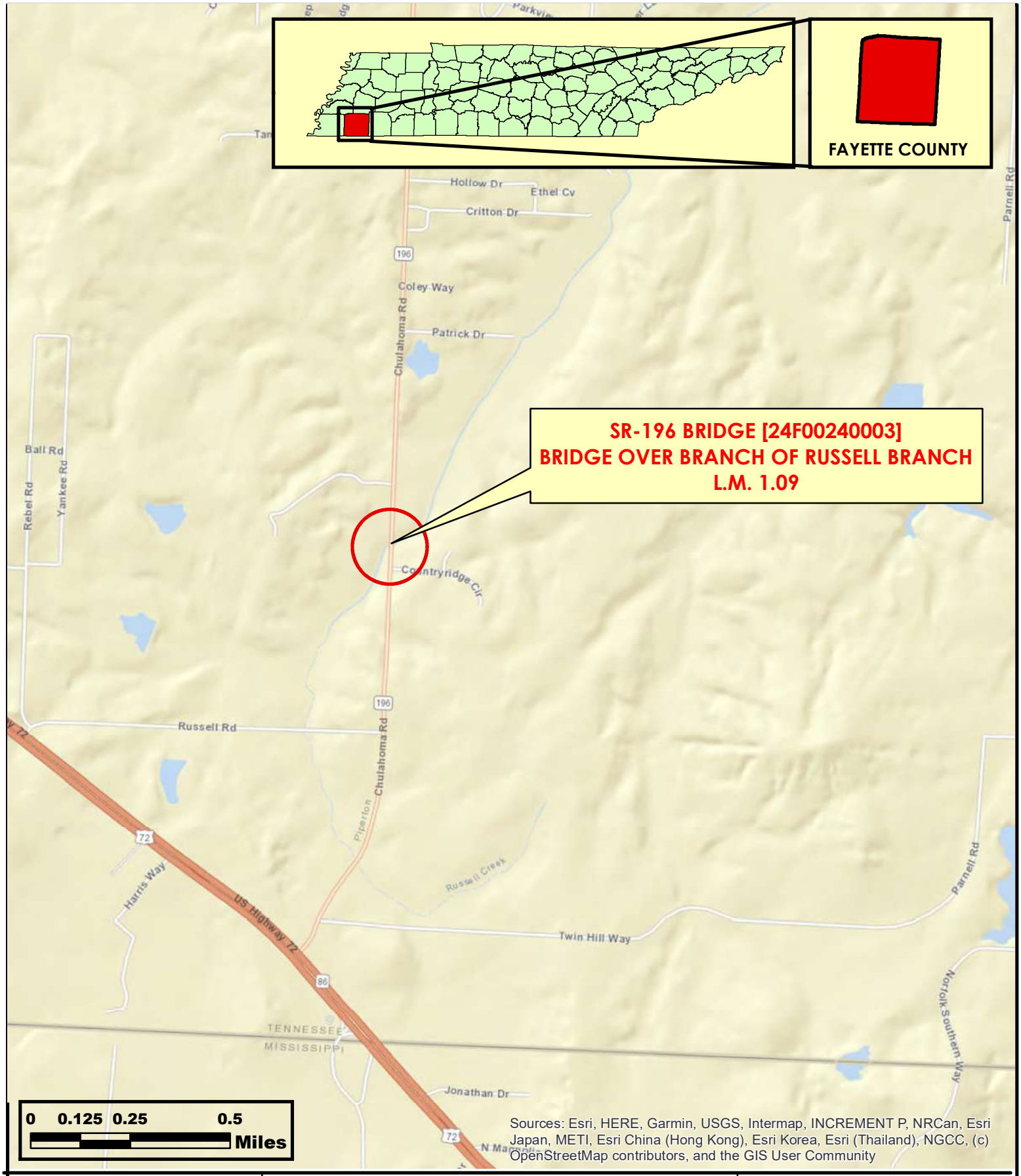
Coordinate with Long Range Planning-Long Range Planning coordination not needed for STID BCR document
Request Preliminary Survey Data- survey data not needed for STID BCR document
Schedule a site visit-site visit not required
0MM1 Conduct Multimodal Review- multimodal coordination not required
0SY1 Provide 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- 2 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- 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



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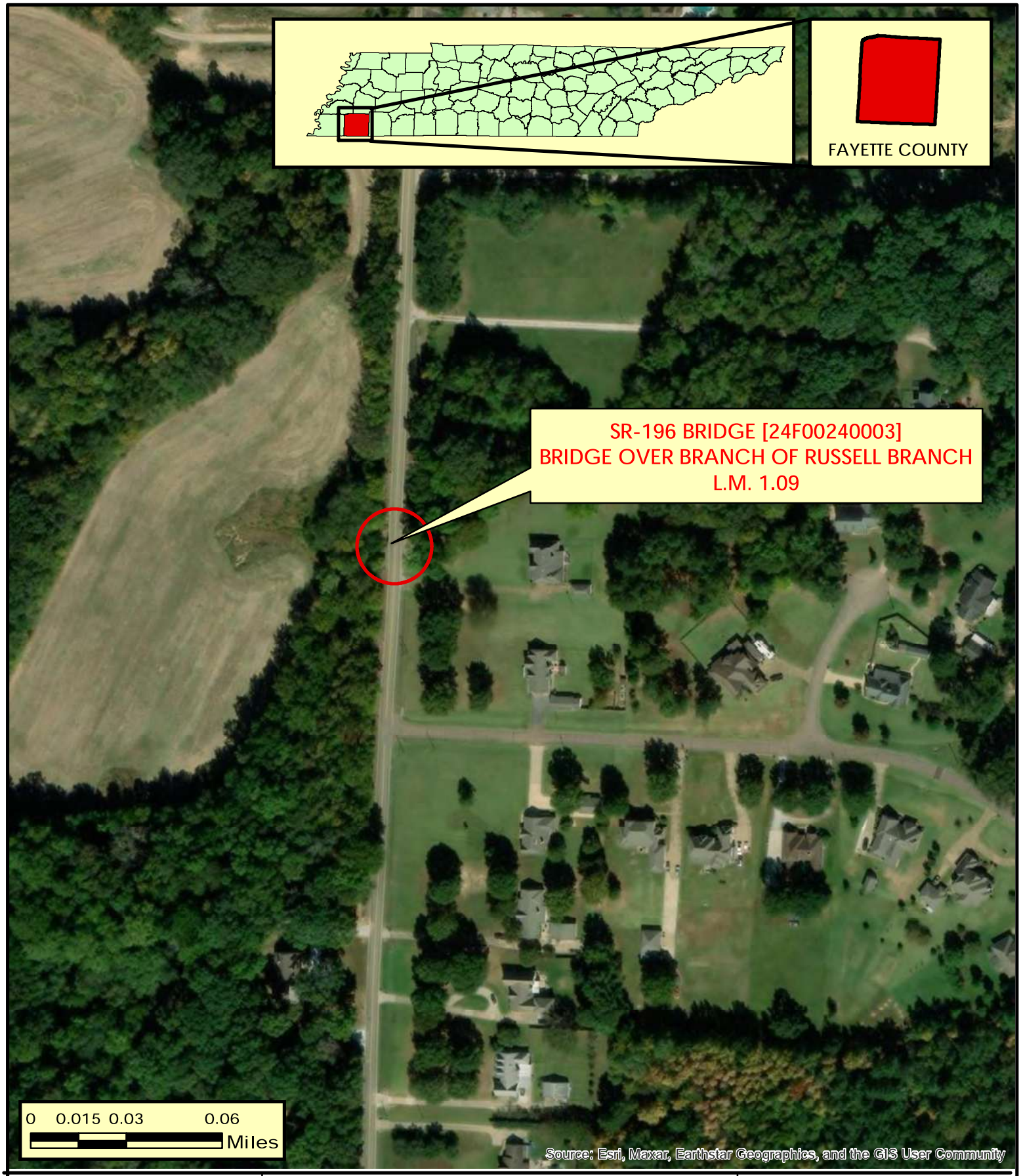
AREA MAP

SR-196 BRIDGE [24F00240003]
BRIDGE OVER BRANCH OF RUSSELL BRANCH
L.M. 1.09
FAYETTE COUNTY

TN TDOT Department of Transportation

PIN 134850.00



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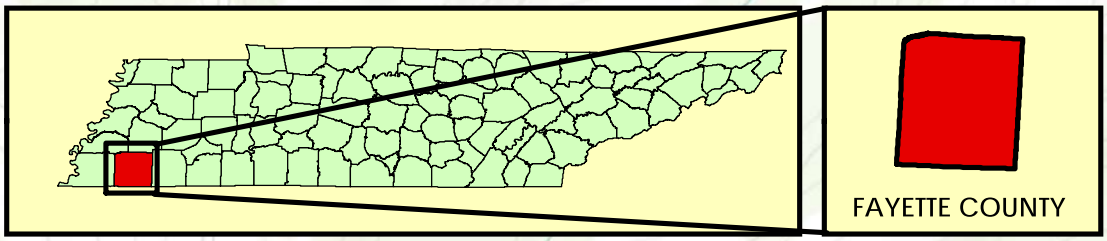
LOCATION MAP

SR-196 BRIDGE [24F00240003]
BRIDGE OVER BRANCH OF RUSSELL BRANCH
L.M. 1.09
FAYETTE COUNTY

TN TDOT Department of Transportation

PIN 134850.00



SR-196 BRIDGE [24F00240003]
BRIDGE OVER BRANCH OF RUSSELL BRANCH
L.M. 1.09

196
Oklahoma Rd
Countryridge Cir
382 ft
400 ft
196
400 ft
Russell 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

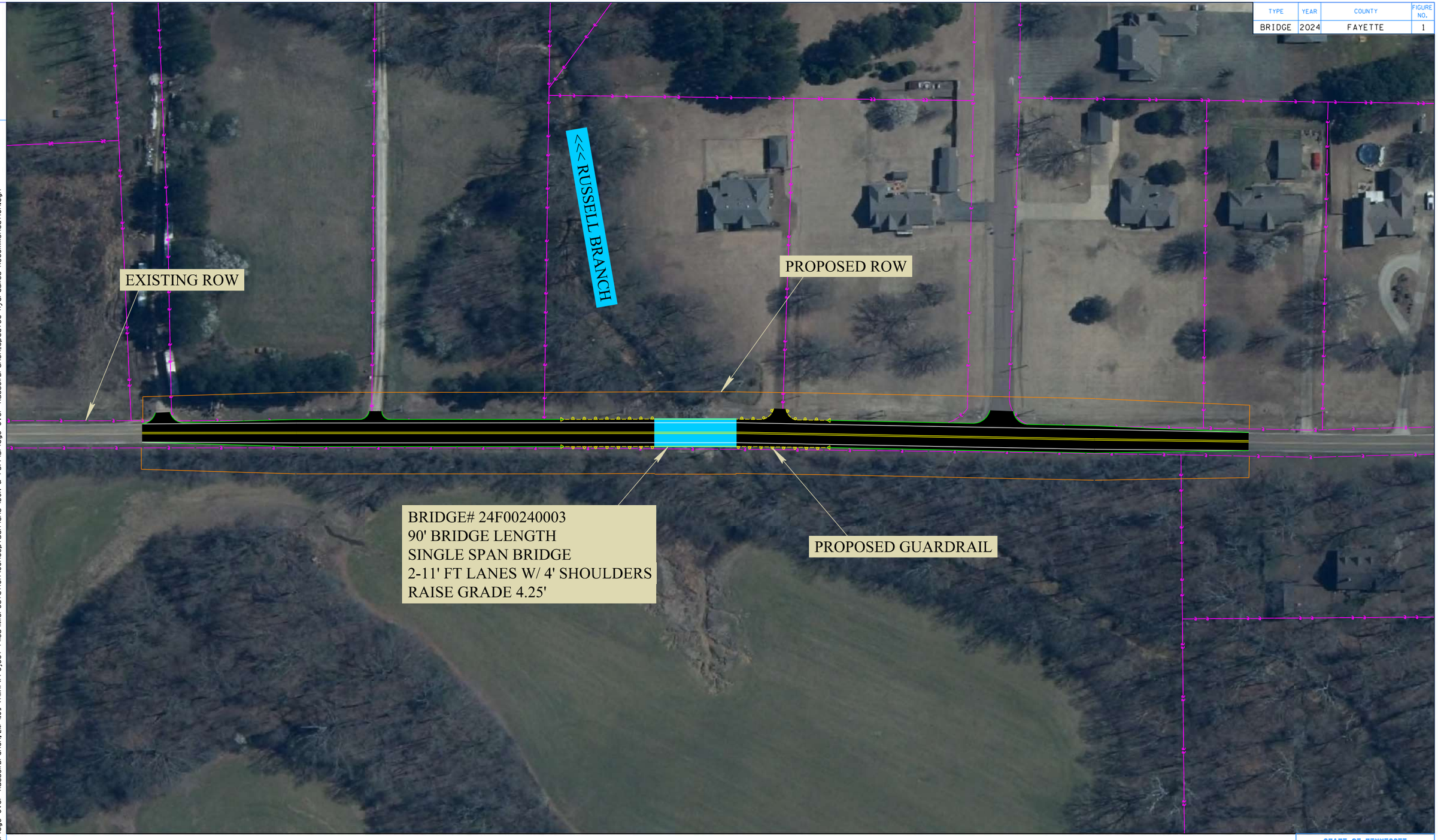
TOPOGRAPHIC MAP
SR-196 BRIDGE [24F00240003]
BRIDGE OVER BRANCH OF RUSSELL BRANCH
L.M. 1.09
FAYETTE COUNTY

TN TDOT Department of Transportation

PIN 134850.00

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 RUSSELL BRANCH, L.M. 1.09
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. 1.09

4/17/2024 4:13:34 PM
X:\Projects\Fayette\SR 196\Bridge over RussellBranch, LM 1.09 (TMA)\Project Files\Microstation\ConceptualPlans (DGN & PDF)\Bridge over RussellBranch_Updated Hydraulics Recommendation.dgn

TENNESSEE D.O.T.

S.T.I.D.

FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
ETSA	2024	FAYETTE	1a

0′ 150′ 300′ 450′

N

ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 196
BRIDGE OVER RUSSELL BRANCH, L.M. 1.09
FAYETTE COUNTY

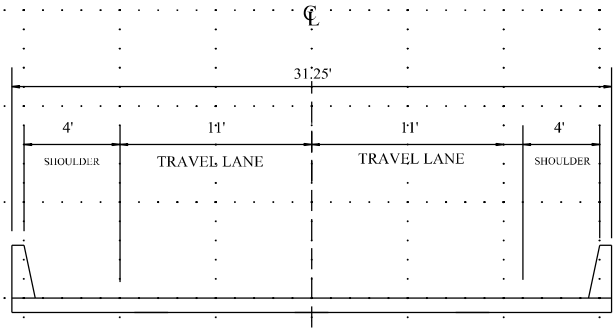
CAUTION ! PRELIMINARY PLANS SUBJECT TO CHANGE

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

FIGURE 1a
S.R. 196
L.M. 1.09

4/16/2024 9:03:10 AM
X:\Projects\Fayette\SR 196\Bridge over RussellBranch_LM 1.09 (TMA)\Project Files\Microstation\Conceptual Plans (DGN & PDF)\Bridge over RussellBranch_Updated Hydraulics Recommendation.dgn

PROPOSED COMPLETED



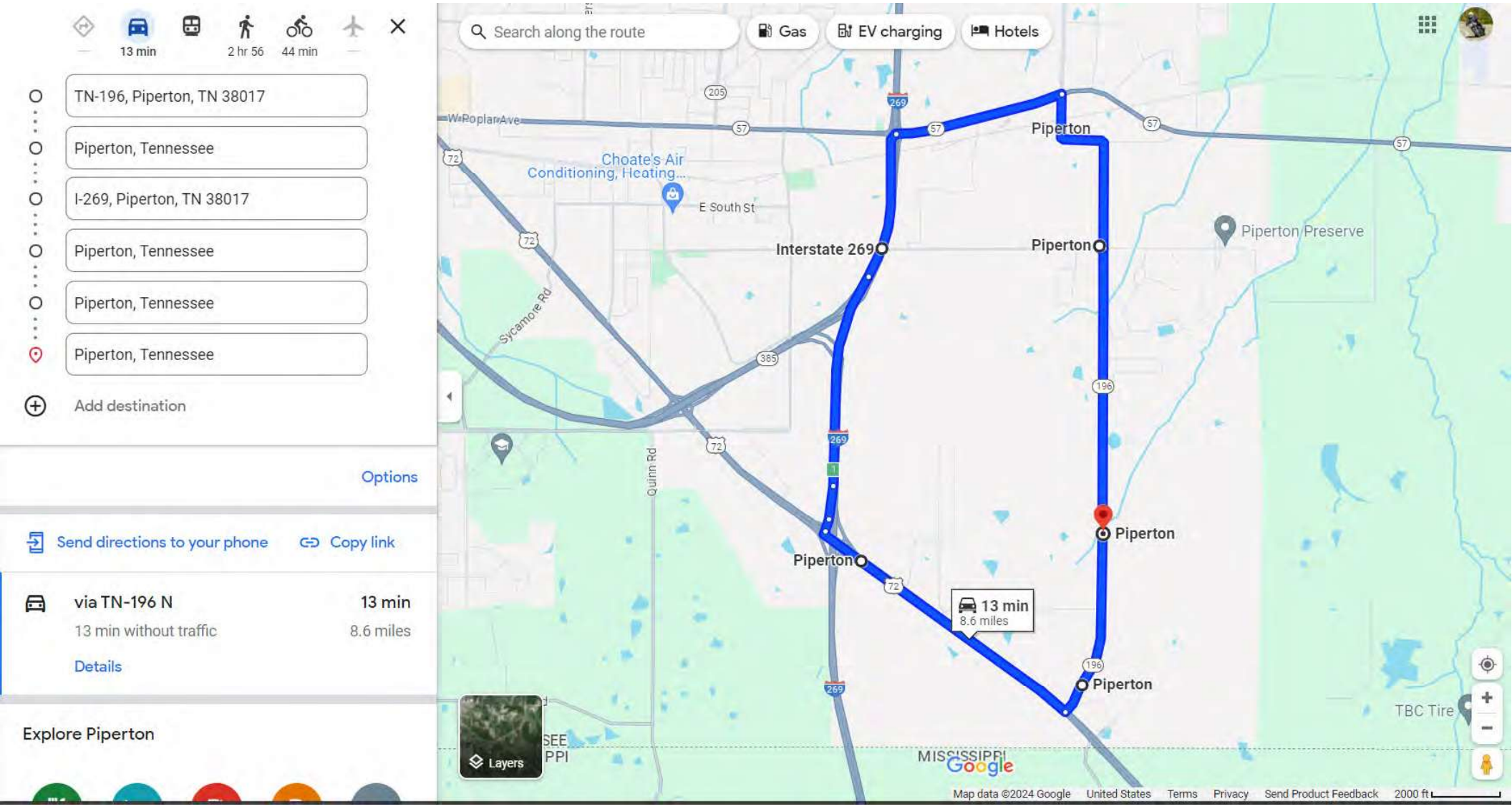
0' 5' 10' 15'

CROSS-SECTION DETAIL

REGION 4 TIMBER BRIDGE PROGRAM
TRANSPORTATION MODERNIZATION ACT (TMA)

CAUTION !
PRELIMINARY
PLANS
SUBJECT TO
CHANGE

DETOUR MAP


13 min
2 hr 56
44 min
TN-196, Piperton, TN 38017
Piperton, Tennessee
I-269, Piperton, TN 38017
Piperton, Tennessee
Piperton, Tennessee
Piperton, Tennessee
Add destination
Options
Send directions to your phone
Copy link
via TN-196 N
13 min
13 min without traffic
8.6 miles
Details
Explore Piperton
Search along the route
Gas
EV charging
Hotels
Choate's Air Conditioning, Heating...
E South St
Interstate 269
Piperton
Piperton Preserve
Sycamore Rd
Quinn Rd
W Poplar Ave
13 min
8.6 miles
TBC Tire
Layers
Google
Map data ©2024 Google
United States
Terms
Privacy
Send Product Feedback
2000 ft

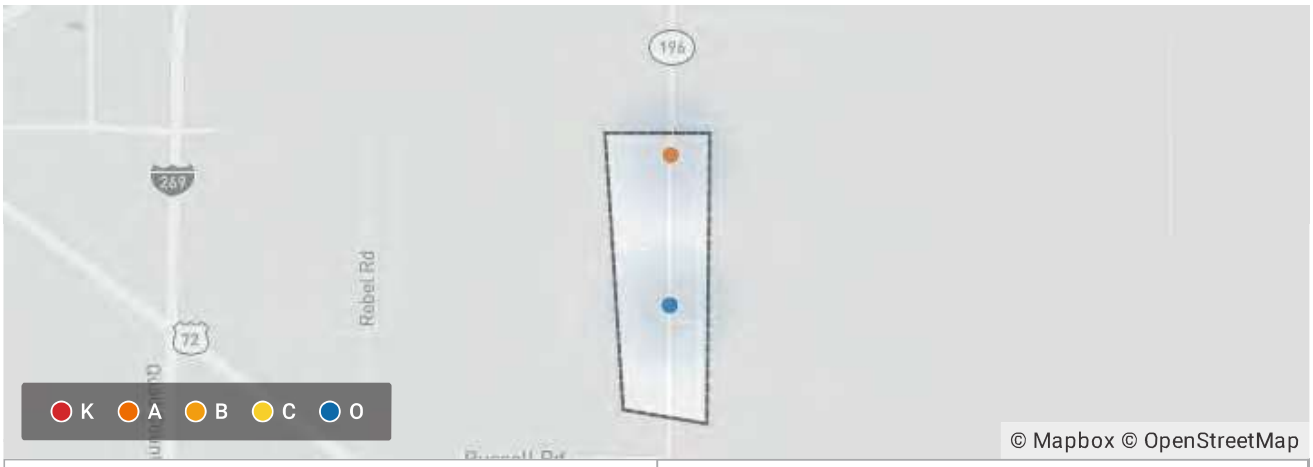
CRASH SUMMARY REPORT

Fayette Co SR196 - Branch of Russell Creek

Created on April 3, 2024
Created by JOSHUA CLOUD
Requested by Michael Cloud
Data extents: March 28, 2021 to March 28, 2024

Applied Filters

County = Fayette | Shape: Polygon



Total Crashes	2	Fatal Crashes	0

Summary		Crash
Total Crashes	2	100.00%
Truck/Bus Involved	1	50.00%
+ 4 more	0	0%

Type of Crash		Crash
(A) Suspected Serious Injury	1	50.00%
(O) Property-Damage Only	1	50.00%
+ 3 more	0	0%

Date of Crash (Year)		Crash
2021	2	100.00%
+ 10 more	0	0%

Manner of First Collision		Crash
Sideswipe, Opp Dir	2	100.00%

+ 9 more	0	0%

First Harmful Event		Crash
Vehicle in Transport	2	100.00%
+ 64 more	0	0%

Crash Location		Crash
Along Roadway	2	100.00%
+ 6 more	0	0%

Light Conditions		Crash
Daylight	2	100.00%
+ 7 more	0	0%

Weather Conditions		Crash
Clear	1	50.00%
Cloudy	1	50.00%
+ 10 more	0	0%

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

BRIDGE NO.

APPROACH 1 A/C PATCHED, CRACKED

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

LOOKING AHEAD ON ROUTE

APPROACH 1 WEIGHT LIMIT SIGN 40T/40T

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

VIEW ACROSS TOP OF DECK

LOOKING BACK ON ROUTE

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

APPROACH 2 WEIGHT LIMIT SIGN 40T/40T

ABUTMENT 2

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

RIGHT SIDE OUTLET END VIEW

REAR SIDE BENT 2

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

ABUTMENT 2

BOTTOM DECK SPAN 2

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

BOTTOM DECK SPAN 3

PILE A BENT 1 WASHING UNDER CASING

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

SLAB D SPAN 2 SPALLED TO STEEL

FRONT SIDE BENT 2

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

PILE E ABUTMENT 1 WASHING UNDER CASING

BOTTOM DECK SPAN 1

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

FRONT SIDE BENT 1

LEFT SIDE INLET END VIEW

Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

ABUTMENT 1

LEFT SIDE DRIFT INLET END

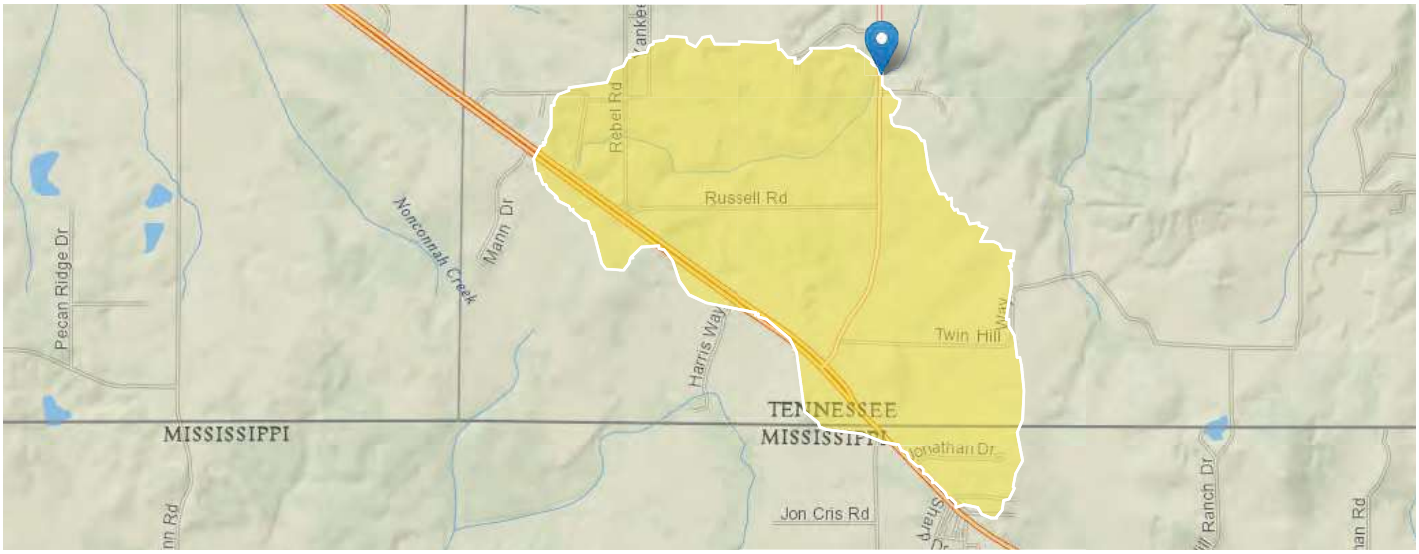
Bridge Loc. No: 24-SR196-0109 Date: 07-06-2022

ABUTMENT 1

SLAB E SPAN 1 CRACKED

StreamStats

Region ID: TN
Workspace ID: TN20240404151419072000
Clicked Point (Latitude, Longitude): 35.01311, -89.61750
Time: 2024-04-04 10:14:41 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CLIMFAC2YR	Two-year climate factor from Lichy and Karlinger (1990)	2.439	dimensionless
CONTDA	Area that contributes flow to a point on a stream	1.61	square miles
DRNAREA	Area that drains to a point on a stream	1.61	square miles
PERMGTE2IN	Percent of area underlain by soils with permeability greater than or equal to 2 inches per hour	37.819	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	1.071	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	1.61	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	560	ft^3/s	295	1060	38.7	38.7	1.8
20-percent AEP flood	801	ft^3/s	432	1490	37.2	37.2	2.4

Statistic	Value	Unit	PIL	PIU	SE	ASEp	Equiv. Yrs.
10-percent AEP flood	957	ft^3/s	510	1800	38	38	3.1
4-percent AEP flood	1150	ft^3/s	593	2230	40.1	40.1	3.8
2-percent AEP flood	1290	ft^3/s	643	2590	42.2	42.2	4.2
1-percent AEP flood	1420	ft^3/s	682	2960	44.7	44.7	4.4
0.2-percent AEP flood	1730	ft^3/s	756	3960	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	1.61	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	37.819	percent	2	98

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

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

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

Statistic	Value	Unit
7 Day 10 Year Low Flow	0.00222	ft^3/s
30 Day 5 Year Low Flow	0.00612	ft^3/s

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	1.61	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	37.819	percent	2	98
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.439	dimensionless	2.307	2.455
SOILPERM	Average Soil Permeability	1.071	inches per hour	0.97	2.44

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

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

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

Statistic	Value	Unit
99.5 Percent Duration	0.00205	ft^3/s
99 Percent Duration	0.00319	ft^3/s
98 Percent Duration	0.00445	ft^3/s
95 Percent Duration	0.00655	ft^3/s
90 Percent Duration	0.00913	ft^3/s
80 Percent Duration	0.015	ft^3/s
70 Percent Duration	0.0247	ft^3/s
60 Percent Duration	0.0559	ft^3/s
50 Percent Duration	0.0853	ft^3/s
40 Percent Duration	0.202	ft^3/s
30 Percent Duration	0.573	ft^3/s
20 Percent Duration	1.84	ft^3/s
10 Percent Duration	3.6	ft^3/s

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	1.61	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.439	dimensionless	2.307	2.455
PERMGTE2IN	Percent permeability gte 2 in per hr	37.819	percent	2	98

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

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

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

Statistic	Value	Unit
Mean Annual Flow	1.95	ft^3/s

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	1.61	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
PERMGTE2IN	Percent permeability gte 2 in per hr	37.819	percent	2	98

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

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

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

Statistic	Value	Unit
Summer Mean Flow	0.304	ft^3/s

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-S1-006 ROUTE: S.R. 196
COUNTY: FAYETTE CITY:
PROJECT PIN NUMBER: 134850.00
PROJECT DESCRIPTION: BRIDGE OVER RUSSELL CREEK @ L.M. 1.09

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
870	2029	1,290	155	12	2049	65-35	3	4		

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 2/20/2024
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 2/20/2024
TRANSPORTATION MANAGER 2
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

FURNISH THE 2029-2049 TRAFFIC DATA.

THIS TRAFFIC IS BASED ON A 2022 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	134850.00
Project Number (if available)	
County	Fayette
Route	SR-196
Termini	Bridge over Russell Creek, LM 1.09 (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 3 historical and 1 prehistoric previously recorded sites 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. 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 completed.

An Asbestos Containing Material (ACM) survey was completed on Bridge No. 24F00240003 SR-196 over Russell Creek LM 1.09 (24-SR196-01.09). 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 greater than 1.5 acres, coordination with FHWA is 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 not located within a Statewide Flood Hazard Area.

Project: SR-196, Bridge over Russell Branch, LM 1.09 (TMA)
Comment Resolution Form
County: Fayette
PIN 134850.00

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)	Preconstruction	Kyle Garcia	5/14/2024	We will need to maintain acces to the private drive on the South side of the bridge.	Yes	Google maps was used to verify that there isn't a private drive on the south side of the bridge. All private drives will require access to be maintained during construction.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	ADT = 843(2023); 8% annual growth from previous year 780(2022).	Yes	STID uses the traffic information provided by the traffic forecasting office for design considerations.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	Is the raise in grade taking into account the adjacent flood zone area A which is approximately 2000 feet from the project location.	Yes	STID developed the Concept Report utilizing the provided Hydraulics recommendations noted on page 36 of the Draft Report. This comment is documented and will be further investigated at a later time during the design phase.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	Will AOP need to be taken into consideration.	Yes	AOP considerations will need to be investigated during design.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	Are there any utilities attached to the bridge?	Yes	Utilities Office provided estimates and feedback on what is present.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	ETrims shows an existing 60' ROW.	Yes	The exact ROW width will be determined during design when a survey is conducted.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	Local representatives need to attend and review the detour plan and provide feedback.	Yes	STID has been directed by HQ Structures to consider methods of construction that do not exceed provided budgetary constraints. An initial desktop review was performed by STID to determine if a detour and/or ABC was viable for each structure. This comment is documented and will be further investigated at a later time during the design phase to determine if the provided detour route is suitable.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	Ditches seem quite wide and deep are any of them classsified as WWC.	Yes	This comment is documented and will be further investigated at a later time during the design phase.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	Do stream banks need to be stabilized? Seems like quite a bit of erosion is happening in the stream and rip-rap could have been relocated due to erosion.	Yes	This comment is documented and will be further investigated at a later time during the design phase.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	Do EPSC measures need to be included in the cost estimate?	Yes	They are assumed to be included in the additional items field as a % project cost.
Draft Report Review (0SD2)	Preconstruction	Kyle Garcia	5/14/2024	Cost estiamte is accounting for 5 end terminals will this many be required?	Yes	The cost estimate has been revised.