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.

			Gen	ieral Proj	ect Informa	tion				
Project Name	SR-87 - Brid	lge over Lag	oon Ci	reek (TMA)						
PIN	134873.00	134873.00								
Route	Route	NHS (Y/N)		Function	al Class		City		County	
Information	SR-87	Yes		Rura l Majo	r Collector		Rip l ey		Haywo	od
Project Information	Begin Lo Mile	og End Mi	-	AADT ¹	Design Hour Vol. (DHV) ¹	Truck % ¹	Design Speed (MPH)	Posted Speed (MPH)	Base Year	Design Year
	3.61			410	41	3.00	55	55	2029	2049
Project Description & Standard Drawings Used	The proposed bridge is to be a 75' single span bridge using 36" box beam. The typical section for the approach and bridge will be 2-11' foot travel lanes with 4' shoulders. The out-to-out width based on the above recommendations will be 31'3". The proposed grade and vertical clearance will be raised 1'. A detour is recommended but is a potential ABC candidate. The state route detour is 45 minutes (39.2 miles); the local route detour is 21 minutes (16.9 miles). Superstructure depth is 49.75" = 36" (beam) + 10" (deck) + 3.75" (width (in inches) x0.02/2).									
lmportant Project History or Related Projects	The existing structure, built in 1960, is a 3 span concrete channel beam timber bridge, 58' long with an out-to-out width of 24.9'. The existing structure has 2-10' travel lanes with no shoulders. The listed weight limit on the inspection report is 40 tons (8/14/2023). The discharges for the drainage basin (StreamStats Version 4.19.4) for drainage area of 23.84 square miles: Q10 is 4260 cfs, Q50 is 5980 cfs, and Q100 is 6690 cfs.							Project Details		
Project Purpose/Need	-Timber bridges are being phased out and is near the end of it's service life -The bridge is in FAIR Condition							Proje		
Major Environmental Considerations	Historic Pre	eservation- A	histo	ric resource:	s survey and re	oort 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 are 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 0.22 acres of right of way are expected to be acquired. Overhead electric lines are present. Existing bridge is scour critical and heavily under-sized for drainage area. Additional grade increase would be helpful if impacting the adjacent structure can be avoided. Coordinated bridge replacement with Pin 134848.00 & Pin 134874.00. Survey to include all three structures. 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

David Duncan David Duncan (Oct 24, 2024 10:40 CDT)

Engineering Concepts and Statewide Programs Director

10/24/2024

Date

The following individuals to execute if a bridge concept report: $\bigcap_{n \in \mathcal{N}} a_n A \mathcal{C}$

A

Structures Director

Regional Project Management Director

10/25/2024

Date

10/28/2024

Date

		Action Checklist	
0SD1 Initi	iate (Concept Report and Request Funding	
Complete	NA		Date Completed
✓		Request and Finalize Safety Data	04/05/2024
√		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	
	✓	Schedule Site Review (with appropriate Divisions)	
0EN1 Con	duct	Environmental Desktop Review	
Complete	NA		Date Completed
✓		Confirm Environmental Desktop Review is Complete	10/11/2024
0MM1 Co	nduc	t Multimodal Review	
Complete	NA		Date Completed
	✓	Confirm Multimodal Review is Complete	
	1	Review Multimodal Considerations & Recommendations	
0TO1 Con Complete	NA NA	Initial Traffic Ops/TSMO Review (include HQ Traffic Ops and Regional Traffic Office)	Date Completed
		Confirm Transportation Systems Management & Operations (TSMO) Alignment & Operations Review is Complete	
		Request Concept Report Review	
0ST1 Dev	elop	Structures Recommendations	
Complete	NA		Date Completed
1		Confirm Recommended Structure Type for Concept Report is Complete	08/12/2024
1		Confirm Hydraulic Recommendations for Concept Report is Complete	08/12/2024
OSY1 Prov	vide F	Preliminary Survey Data	
Complete	NA		Date Completed
	✓	Confirm Control Ground Survey Set	
	✓	Review Preliminary Survey Data	
	 ✓ 	Determine Time to Complete the Aerial Survey	
0GT1 Con	duct	Preliminary Geotechnical Assessment	
Complete	NA		Date Completed
	✓	Confirm Geotechnical Division Review is Complete	
ORD1 Pro	vide	Roadway Desktop Review	
Complete	NA		Date Completed
√		Confirm Roadway Division Review is Complete	09/20/2024

		Action Checklist	
		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	
	1	Initiate Interstate Access Requests (IAR) Concept Coordination with FHWA (if applicable)	
✓		Develop, Compile, and Distribute the Draft Concept Report	09/02/2024
0TO2 Dev	elop	TSMO Scope Items (include HQ Traffic Ops and Regional Traffic Office)	
Complete	NA		Date Completed
	✓	Confirm Signal Warrants Analysis is Complete	
	1	Confirm Lighting Warrants Analysis is Complete	
	1	Review and Confirm TSMO & ITS Scope and Budget	
0RW1 Coi	nple	te Preliminary Right-of-Way Estimates	
Complete	NA		Date Completed
	✓	Review and Confirm Preliminary Right-of-Way Cost Estimates	
0UT1 Con	nplet	e Utility Preliminary Estimates	·
Complete	NA		Date Completed
1		Review and Confirm Preliminary Utility Estimate	09/20/2024
		Review and Confirm Preliminary Railroad Cost Estimate	
0SD3 Fina	alize	Concept Report	
Complete	NA		Date Completed
	✓	Compile and Review Initial Risk Assessment	
√		Finalize Conceptual Layouts	08/31/2024
√		Develop Environmental Technical Study Area (ETSA)	08/31/2024
√		Address Comments and Finalize Concept Report	10/21/2024
	~	Address Comments and Finalize Interstate Access Requests (IAR) Document and Memo (if applicable)	
	1	Develop Roadway Safety Audit (RSA) No Plans Document	
√		Submit the final Concept Report for Review and Signatures (as needed; see 0SD3 for additional information)	10/23/2024
		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

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

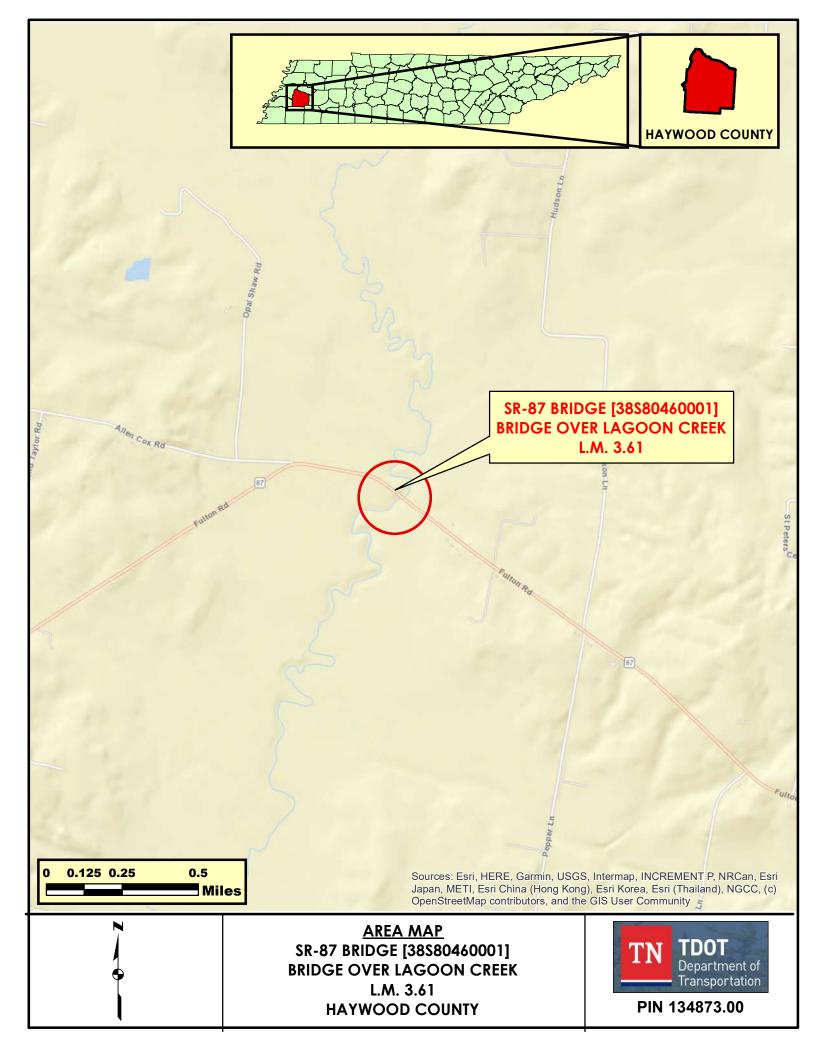
Develop Roadway Safety Audit (RSA) No Plans Document- no plans document not needed for STID BCR document

Table of Contents/Attachments	Included	NA
One-Page Summary (with project location map)	√ fineradaea	
Conceptual Layout(s) and Cross Section	√	
Environmental Technical Study Area (ETSA) Layout	✓	
Concept Cost Estimate (Construction Year Estimate)	1	
TSMO & ITS Scope and Budget ¹		1
ROW Form 44-A ¹		1
Crash Packet ¹	4	
Crash Prediction Analysis ¹		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	✓	1
Email or memo containing Hydraulic Recommendations ¹	√	
Hydraulic Data	✓	
Intersection and Interchange Evaluation (IIE) Analysis and Summary Form		1
Traffic Analysis Summary/Tables	4	
Forecasted Traffic Sheets ¹	4	
Traffic Modeling (e.g., Synchro, VISSIM, Highway Capacity Software (HCS) Output) ¹		1
Signal Warrant ¹		1
Lighting Warrant ¹		1
Initial Risk Assessment using the Risk Assessment Form		1
Final Interstate Access Request (IAR) Document and Memo with Letter from STID Director		1
Road Safety Audit (RSA) No Plans ¹		1
NA Justification		
TSMO & ITS Scope and Budget-no ITS within project limits; ROW Form 44-A-form not needed for STID BCI Prediction Analysis- 0 crashes occurred within the project limits, crash prediction analysis not needed; Sit 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 l	te Visit Attendee s l project limits	sh

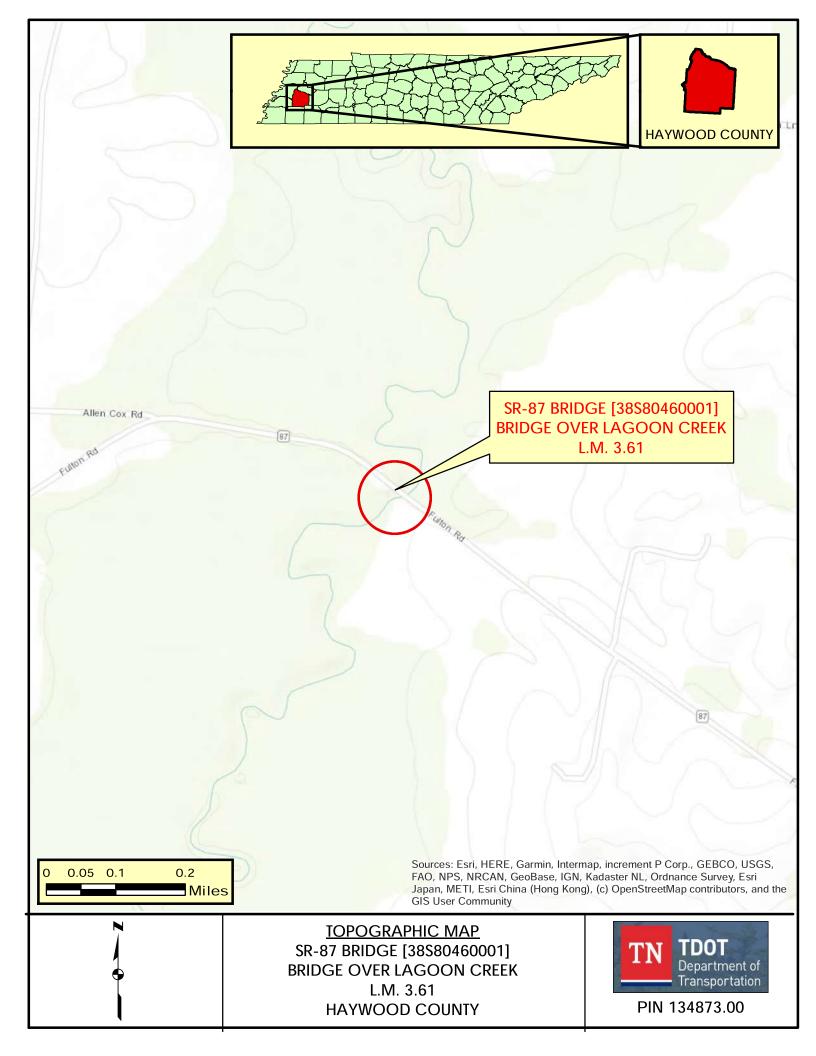
Initial Risk Assessment using the Risk Assessment Form-Risk Assessment not needed for STID BCR document

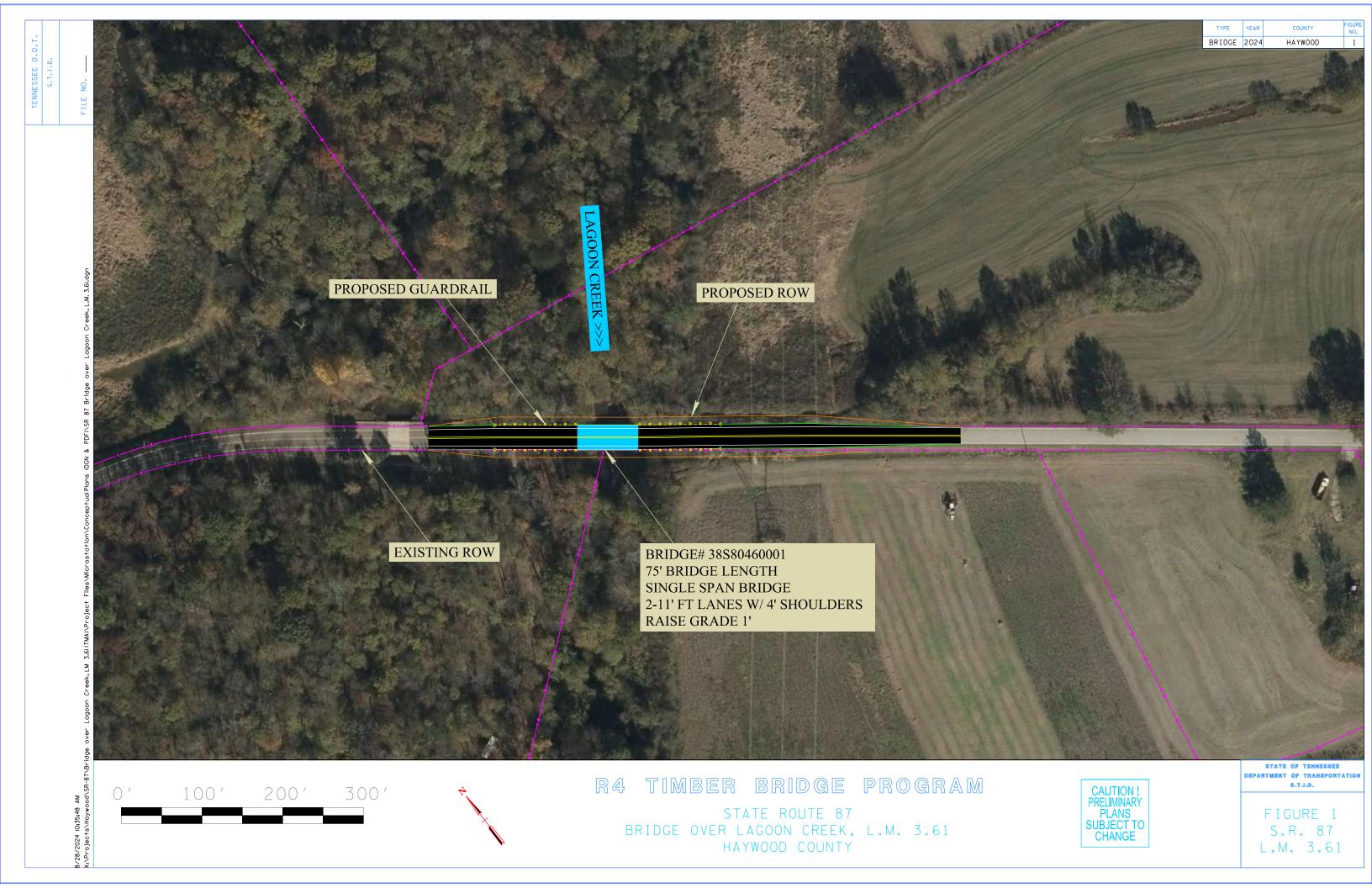
Final IAR Document and Memo with Letter from STID Director-no interstate access within project limits Road Safety Audit (RSA) No Plans-RSA no plans document not needed for STID BTIR document

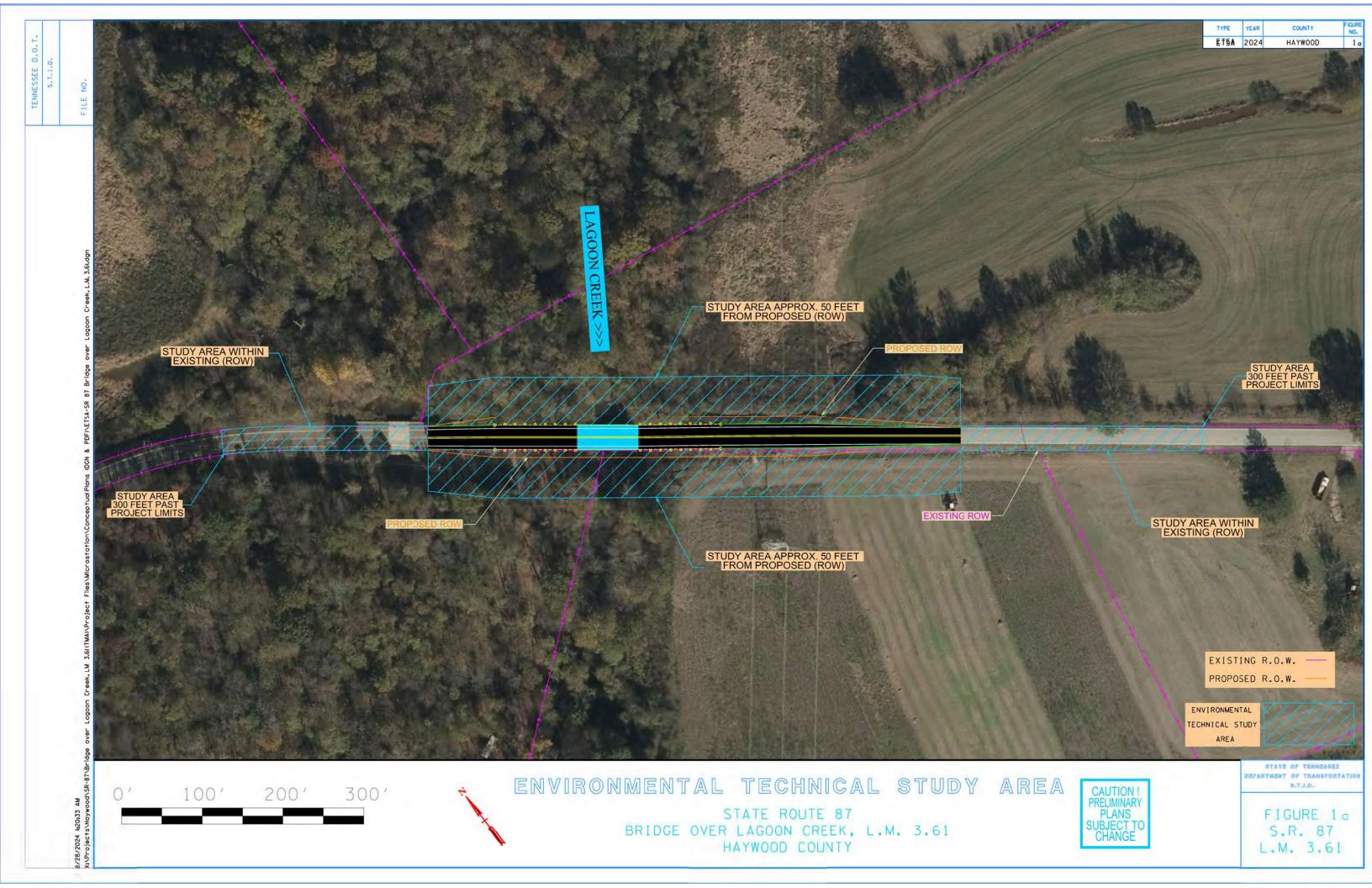
¹ External document to STID

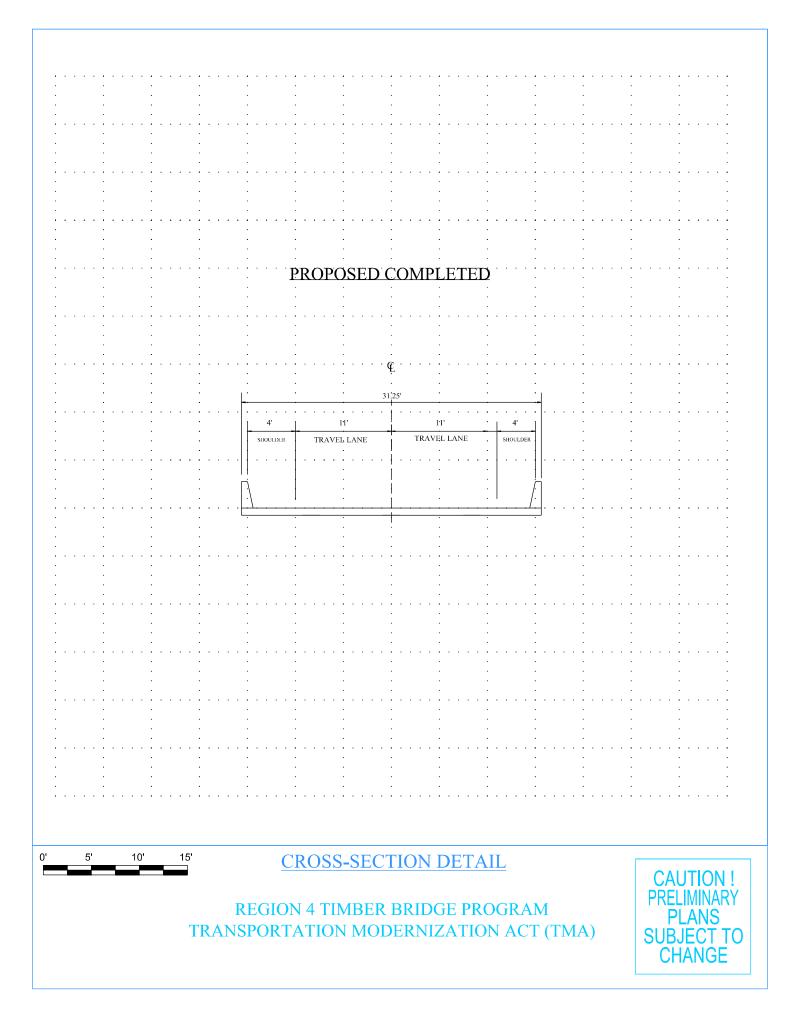




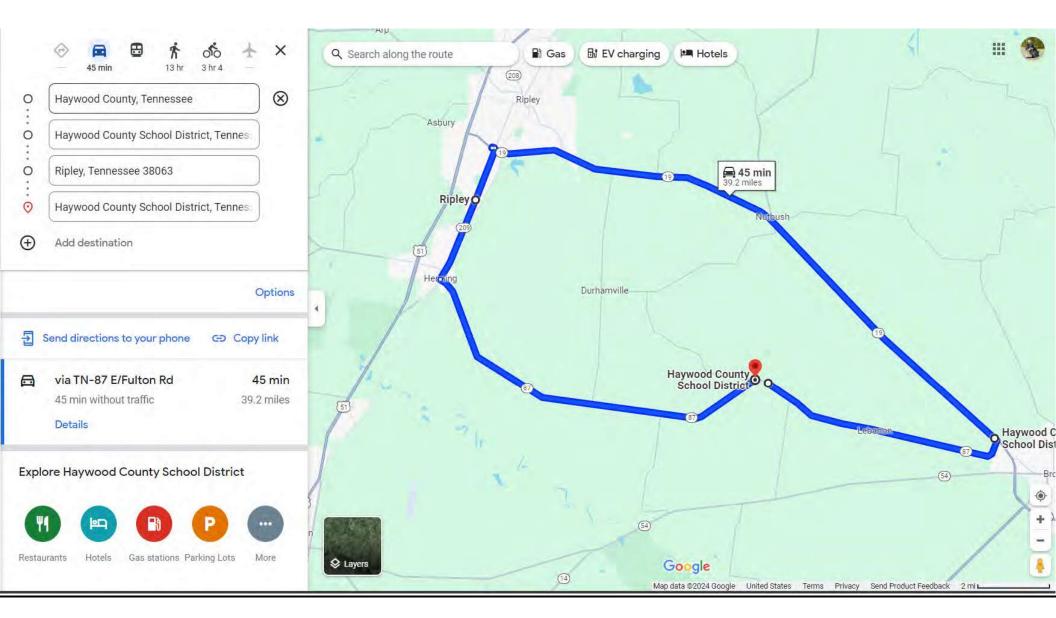




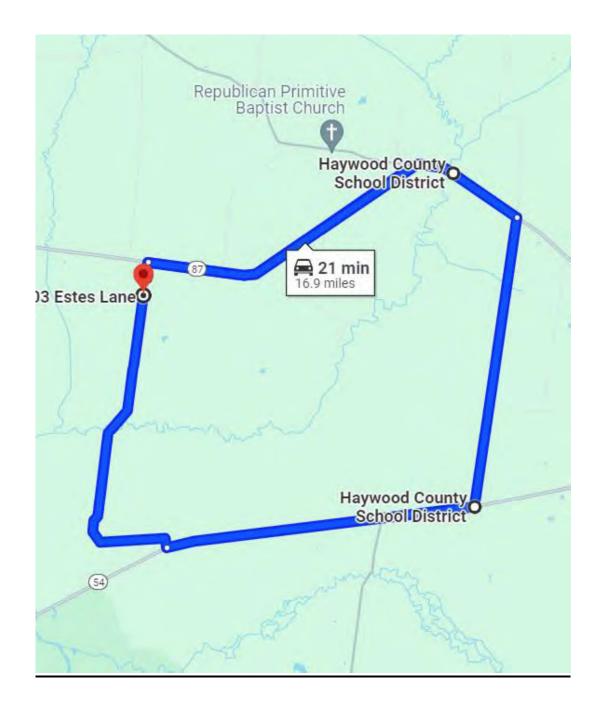




DETOUR MAP – STATE ROUTE



DETOUR MAP – LOCAL ROUTE



Haywood Co SR087 - Bridge over Lagoon Creek

Created on April 4, 2024 Created by JOSHUA CLOUD Data extents: March 28, 2021 to March 28, 2024



Applied Filters County = Haywood Shape: Polygon on Ln Opal Shaw Allen Cox Rd 00 (87) Futton Ro (87) 🔴 К 🔴 А 🔴 В 🔴 С 🔵 О © Mapbox © OpenStreetMap 2 **Total Crashes** Fatal Crashes 0

Summary		Crash
Total Crashes	2	100.00%
+ 5 more	0	0%
Type of Crash		Crash
(O) Property-Damage Only	2	100.00%
+ 4 more	0	0%
Date of Crash (Year)		Crash
2024	1	50.00%
2022	1	50.00%
+ 9 more	0	0%
Manner of First Collision		Crash
No Collision W/ Vehicle	2	100.00%
+ 9 more	0	0%

First Harmful Event		Crash
Guardrail End	1	50.00%
Immersion	1	50.00%
+ 63 more	0	0%
Crash Location		Crash
Along Roadway	2	100.00%
+ 6 more	0	0%
Light Conditions		Crash
Dark-Not Lighted	1	50.00%
Daylight	1	50.00%
+ 6 more	0	0%
Weather Conditions		Crash
Clear	1	50.00%
+ 11 more	0	0%





Bottom deck span #3



Bottom deck span #1





Abutment 2 Pile A decay



Abutment 2





Rear bent 2



Abutment 2 pile B decay





Right elevation



Left elevation





Span 2 Pre Cast Concrete Slab A impending Spall







Frontside bent 1



Abutment 1





Spall to steel on left curb of span #1



1/16" cracks on span #3 deck





View across deck of span #2



Spalling on left curb of span #1





Approach 1 right terminal



Approach 1 asphalt





Approach 1 left embankment



PRODUCED PURSUANT TO PUBLIC RECORDS REQUEST This document is covered by 23 USC §407 And its production pursuant to a public Document records request does not Waive the provisions of §407

Bridge #





Right side downstream



Left side upstream





Approach 2 asphalt



Approach 2 left guardrail damage





Opposite direction of route



Approach 2 right terminal



Asset **#38S80460001**(Routine) **Region:** 04, **County:** 38 - Haywood **Team Lead:** Jason Ellison, **Inspection Date:** 08/14/2023



Approach 2 weight limit sign

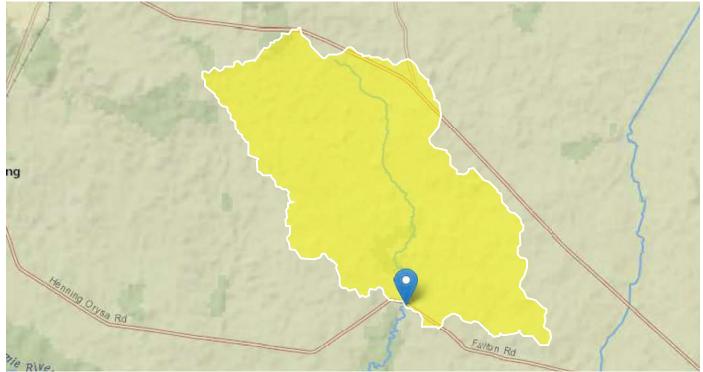
Haywood SR087 - Bridge over Lagoon Creek

 Region ID:
 TN

 Workspace ID:
 TN20240404123905861000

 Clicked Point (Latitude, Longitude):
 35.63062, -89.41154

 Time:
 2024-04-04 07:39:27 -0500



🗄 Collapse All

Basin Characteristics Parameter Code Parameter Description Value Unit CONTDA Area that contributes flow to a point on a stream 23.84 square miles DRNAREA Area that drains to a point on a stream 23.84 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	23.84	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	2320	ft^3/s	1250	4320	38.7	38.7	1.8
20-percent AEP flood	3480	ft^3/s	1910	6340	37.2	37.2	2.4
10-percent AEP flood	4260	ft^3/s	2320	7840	38	38	3.1
4-percent AEP flood	5250	ft^3/s	2770	9960	40.1	40.1	3.8
2-percent AEP flood	5980	ft^3/s	3050	1 1700	42.2	42.2	4.2
1-percent AEP flood	6690	ft^3/s	3290	13600	44.7	44.7	4.4
0.2-percent AEP flood	8400	ft^3/s	3770	18700	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/)

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	23.84	square miles	0.1	10000

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

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	43900	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)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

TENNESSEE DEPARTMENT OF TRANSPORTATION STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

PROJECT NO.: 38S0	87-S1-003	ROUTE:	S.R. 87	
COUNTY: HAY	WOOD	CITY:		
PROJECT PIN NUMBE				
PROJECT DESCRIPTIO	DN: BRIDGE OVER LAGOON	CREEK @ L	.M. 3.61	
DIVISION REQUE	CSTING:			
		PAVEME	NT DESIGN	
MAINTENANCE		STRUCTU	JRES	
S.T.I.D.	\boxtimes	SURVEY	& ROADWAY DESIGN	
PROG. DEVELOPME	ENT & ADM.	TRAFFIC	SIGNAL DESIGN	
PUBLIC TRANS. & A	AERO.	OTHER		

PUBLIC TRANS. & AERO. 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
290	2029	410	41	10	2049	65-35	3	5		

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

REVIEWED BY:	RANDY BOGUSKIE	Randy Boguskis	DATE	2/22/2024
	TRANSPORTATION M	IANAGER I		
	SUITE 1000, JAMES K.	POLK BUILDING		

APPROVED BY:	TONY ARMSTRONG	Tony Armstr	ong	DATE	2/22/2024	
	TRANSPORTATION MA	RANSPORTATION 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.



Environmental Division

0SD2 Environmental Desktop Review Form

Part 1 – Project Information				
PIN	134873.00			
Project Number (if available)				
County	Haywood			
Route	SR87			
Termini	Bridge over Lagoon Creek (TMA)			
Type of Document	TEER			
Date ENV DIV Comments are Due	10.10.24 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 Haywood 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.

<u>NOISE</u>

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

Historic Preservation: The bridge is greater than fifty years of age, so a historic resources survey and report will be required. There are no other previously identified historic resources in the vicinity of the bridge.

Archaeology: No previously recorded sites or survey areas within one mile of the ETSA. A survey of the ETSA will be required. Given the disturbance from road construction, there is a low likelihood of intact archaeological deposits in the ETSA.

Ecology

Water resources are present in the project area.

HazMat

No known hazardous materials sites affect the area around this bridge replacement. No additional hazardous material studies are recommended at this time. The asbestos bridge survey has been completed and the following project commitment EDHZ001 has been submitted in PPRM. In the event hazardous materials or wastes are encountered within the right-of-way, notification shall be made per TDOT Standard Specifications for Road and Bridge Construction (January 1, 2021) Section 107.08.C. Disposition of hazardous materials or wastes shall be subject to all applicable Federal, State, and local regulations, including the applicable sections of the Federal Resource Conservation and Recovery Act, as amended; the Comprehensive Environmental Response, Compensation, and Liability Act, as amended; and the Tennessee Hazardous Waste Management Act of 1983, as amended. Databases reviewed include Google Earth imagery, EPA National Priorities List, EPA EnviroMapper (Envirofacts), TDEC Registered Underground Storage Tanks Public Data Viewer and Data and Reports, TDEC Division of Water Resources Public Data Viewer and Oil and Gas Wells database, TDEC Division of Remediation Sites Public Data Viewer, TDOT Integrated Bridge Information System, and others, as necessary.

EDHZ001. An Asbestos Containing Material (ACM) survey was completed on Bridge No. 38S80460001 SR-87 over Lagoon Creek LM 3.61 (38-SR087-03.61). 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

No Section 4(f) or Section 6(f) resources within project limits. The project is located within a 100-year floodplain and is located on FEMA FIRM # 47075C0100D (Panel 100 of 400), in Haywood County, TN. Detour lengths will not need to be coordinated with FHWA, since the project is solely state-funded. The environmental document type will be a TEER, since the project is solely state-funded.