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-179 - Bridge over Overflow (TMA)								
PIN	134880.00								
Route Information	**Route**	**NHS (Y/N)**	**Functional Class**		**City**		**County**		
	SR-179	Yes	Rural Major Collector		Stanton		Haywood		
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		2,450	294	4.00	55	55	2029	2049
Project Description & Standard Drawings Used	The proposed bridge is to be a 3 span 105' bridge using Type 1 I beam. 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'. A detour is recommended but is a potential ABC candidate. The state route detour is 32 minutes (26.6 miles); the local route detour is 15 minutes (11.2 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	Existing structure, built in 1959, is a 3 span concrete channel beam timber bridge, 57' long with an out-to-out width of 27'. The existing structure has 2-10' travel lanes with no shoulders. The listed weight limit on the inspection report is 40 tons (8/16/2023). The discharges for the drainage basin (StreamStats Version 4.19.4) for drainage area of 13.46 square miles: Q10 is 3100 cfs, Q50 is 4320 cfs, and Q100 is 4820 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	Historic Preservation- A historic resources survey and report will be required. Archaeology- A survey of the ETSA will be required. There is a low likelihood of intact archaeological deposits in the ETSA. Ecology- Species records in the vicinity may require surveys as well as sweeps / time of year restrictions.								

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 0.35 acres of right of way are expected to be acquired. Overhead communication lines are present. Potential for suburban expansion in the area due to proximity to Memphis Urban Boundary and Blue Oval City. This bridge replacement should be coordinated with the replacements at L.M. 1.24 along SR 179. 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 10:38 CDT)

Engineering Concepts and Statewide Programs Director — Date: 10/24/2024

The following individuals to execute if a bridge concept report:

Structures Director — Date: 10/25/2024

Regional Project Management Director — Date: 10/28/2024

Action Checklist			
0SD1 Initiate 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 Conduct Environmental Desktop Review			
Complete	**NA**		**Date Completed**
✓		Confirm Environmental Desktop Review is Complete	10/11/2024
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	05/19/2024
✓		Confirm Hydraulic Recommendations for Concept Report is Complete	05/19/2024
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	09/20/2024

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	08/12/2024
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	09/20/2024
		Review and Confirm Preliminary Railroad Cost Estimate	
0SD3 Finalize Concept Report			
Complete	**NA**		**Date Completed**
	✓	Compile and Review Initial Risk Assessment	
✓		Finalize Conceptual Layouts	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)	
	✓	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

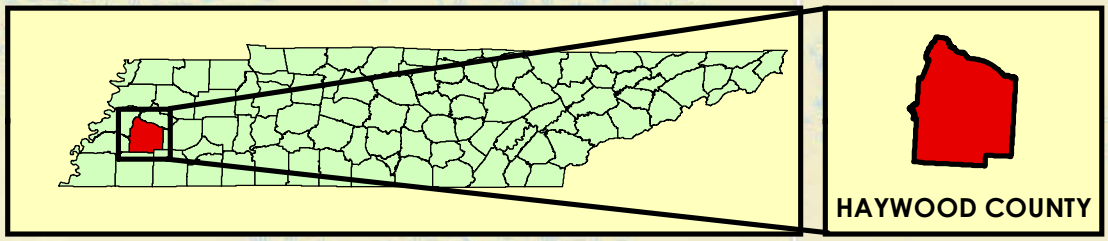
Coordinate with Long Range Planning-Long Range Planning coordination not needed for STID BCR document
Request Preliminary Survey Data- survey data not needed for STID BCR document
Schedule a site visit-site visit not required
0MM1 Conduct Multimodal Review- multimodal coordination not required
0SY1 Provide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

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



SR-179 BRIDGE [38S80520001]
BRIDGE OVER OVERFLOW
L.M. 1.09

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

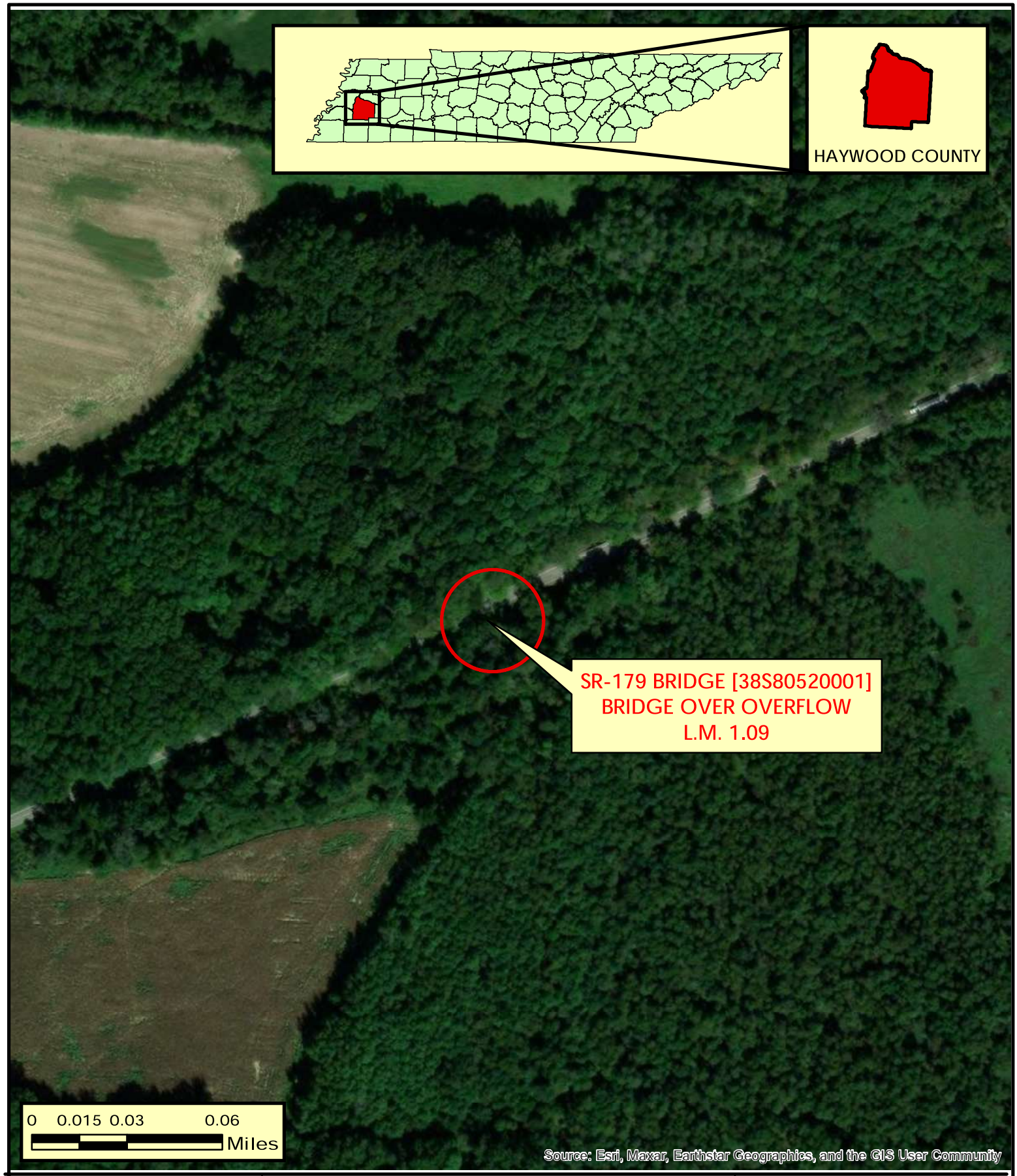
N

AREA MAP

SR-179 BRIDGE [38S80520001]
BRIDGE OVER OVERFLOW
L.M. 1.09
HAYWOOD COUNTY

TN TDOT Department of Transportation

PIN 134880.00

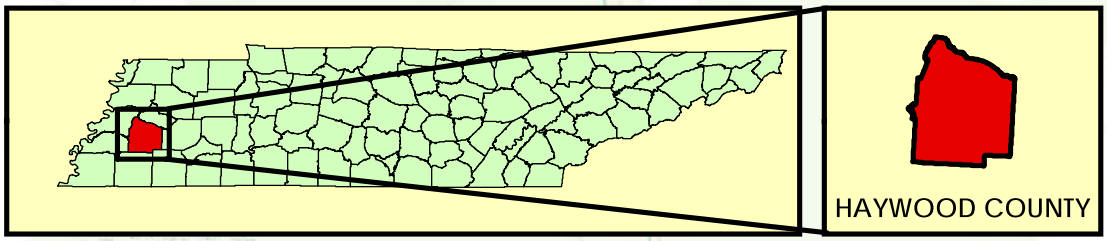


N

LOCATION MAP
SR-179 BRIDGE [38S80520001]
BRIDGE OVER OVERFLOW
L.M. 1.09
HAYWOOD COUNTY

TN TDOT Department of Transportation

PIN 134880.00



Lloyd Harden Rd

300 ft

Charleston Rd

179

Roy Faulk Rd

SR-179 BRIDGE [38S80520001]
BRIDGE OVER OVERFLOW
L.M. 1.09

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-179 BRIDGE [38S80520001]
BRIDGE OVER OVERFLOW
L.M. 1.09
HAYWOOD COUNTY

TN TDOT Department of Transportation

PIN 134880.00

TENNESSEE D.O.T.

S.T.I.D.

FILE NO. ——

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2024	HAYWOOD	1

PROPOSED ROW

PROPOSED GUARDRAIL

EXISTING ROW

OVERFLOW

BRIDGE# 38S80520001
105' BRIDGE LENGTH
3 SPAN BRIDGE
2-11' FT LANES W/ 4' SHOULDERS
RAISE GRADE 2'

0' 100' 200' 300'

N

R4 TIMBER BRIDGE PROGRAM

STATE ROUTE 179
BRIDGE OVER OVERFLOW, L.M. 1.09
HAYWOOD COUNTY

CAUTION !
PRELIMINARY PLANS SUBJECT TO CHANGE

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

FIGURE 1
S.R. 179
L.M. 1.09

7/29/2024 8:30:45 PM
X:\Projects\Haywood\SR-179\Bridge over Overflow, LM 1.09 (TMA)\Project Files\Microstation\Conceptual Plans (DGN & PDF)\SR 179 Bridge over Overflow, L.M. 1.09.dgn

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

TYPE	YEAR	COUNTY	FIGURE NO.
ETSA	2024	HAYWOOD	1

BRIDGE# 38S80520001

STUDY AREA APPROX. 50 FEET FROM PROPOSED (ROW)

STUDY AREA 300 FEET PAST PROJECT LIMITS

EXISTING ROW

STUDY AREA WITHIN EXISTING ROW

STUDY AREA WITHIN EXISTING ROW

STUDY AREA 300 FEET PAST PROJECT LIMITS

PROPOSED ROW

STUDY AREA APPROX. 50 FEET FROM PROPOSED (ROW)

OVERFLOW >>>

EXISTING R.O.W.

PROPOSED R.O.W.

ENVIRONMENTAL TECHNICAL STUDY AREA

0' 100' 200' 300'

N

ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 179
BRIDGE OVER OVERFLOW, L.M. 1.09
HAYWOOD COUNTY

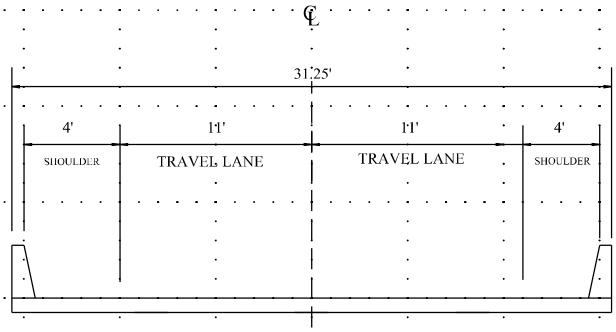
CAUTION! PRELIMINARY PLANS SUBJECT TO CHANGE

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

FIGURE 1
S.R. 179
L.M. 1.09

8/7/2024 10:03:46 AM
X:\Projects\Haywood\SR-179\Bridge over Overflow, LM 1.09 (TMA)\Project Files\Microstation\Conceptual Plans (DGN & PDF)\ETSA SR 179 Bridge over Overflow, L.M. 1.09.dgn

PROPOSED COMPLETED



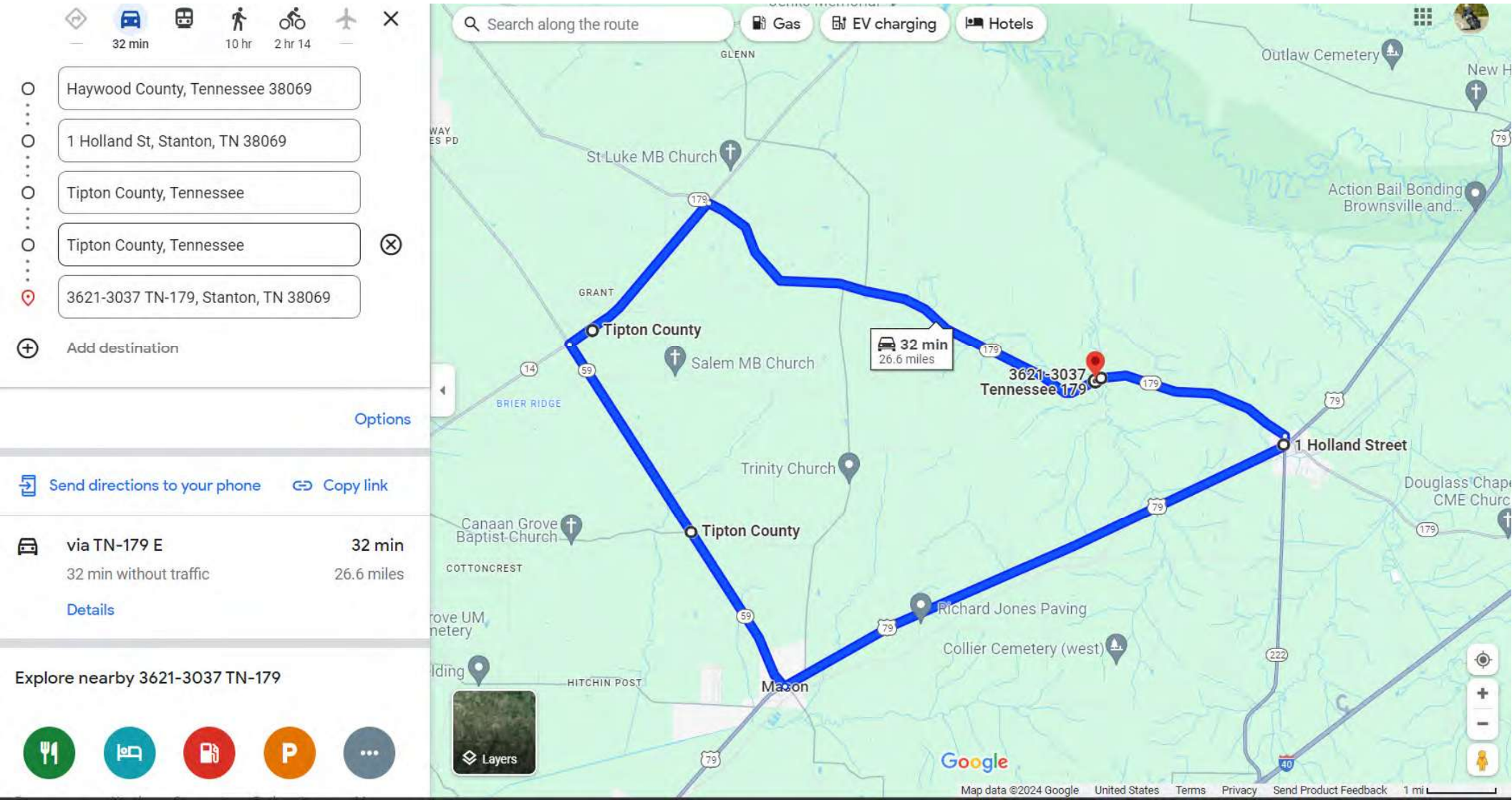
0' 5' 10' 15'

CROSS-SECTION DETAIL

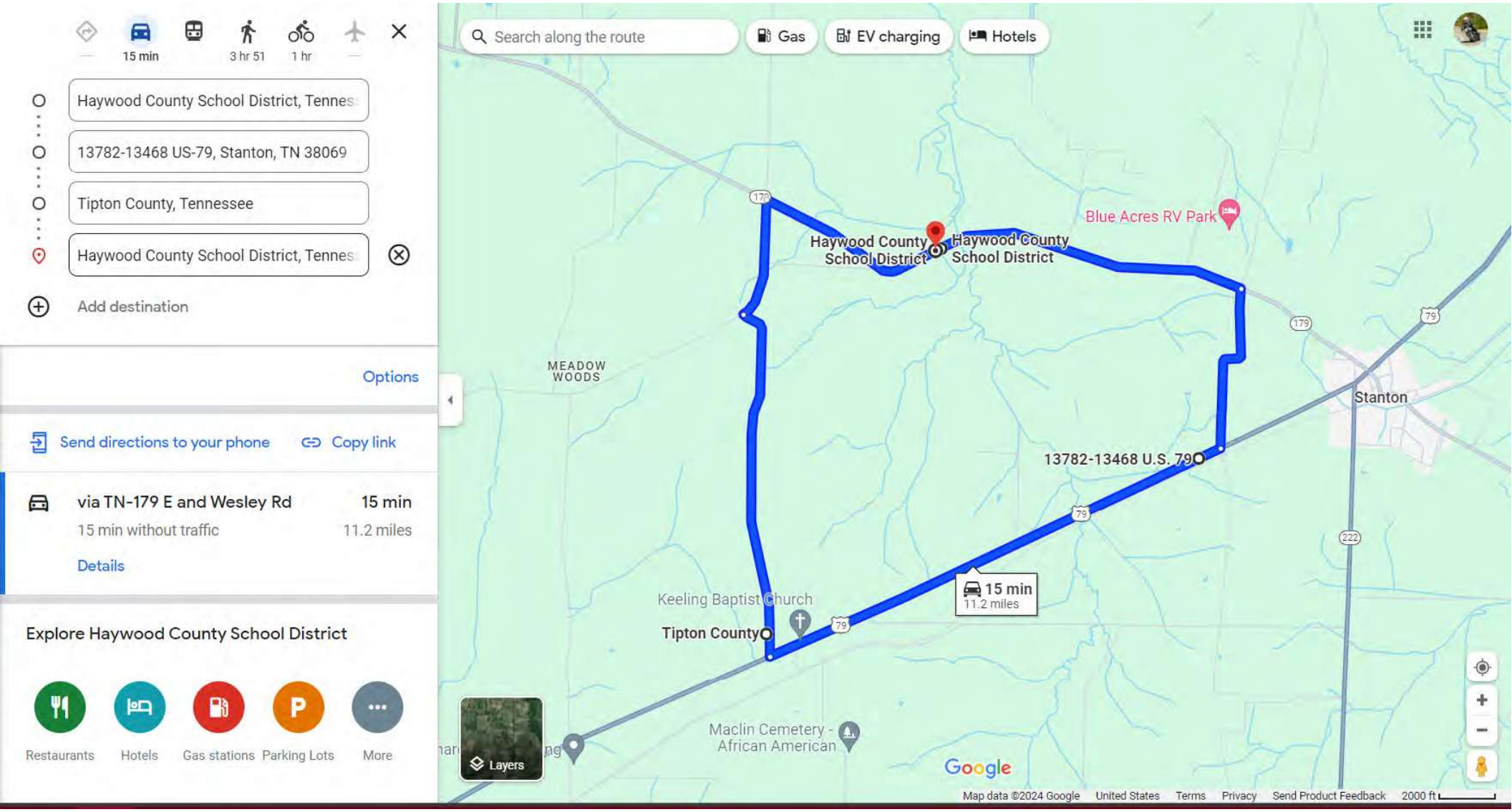
REGION 4 TIMBER BRIDGE PROGRAM
TRANSPORTATION MODERNIZATION ACT (TMA)

CAUTION !
PRELIMINARY
PLANS
SUBJECT TO
CHANGE

DETOUR MAP – STATE ROUTE



DETOUR MAP – LOCAL ROUTE



CRASH SUMMARY REPORT

Haywood Co SR179 - Bridge over Muddy Creek and Branch

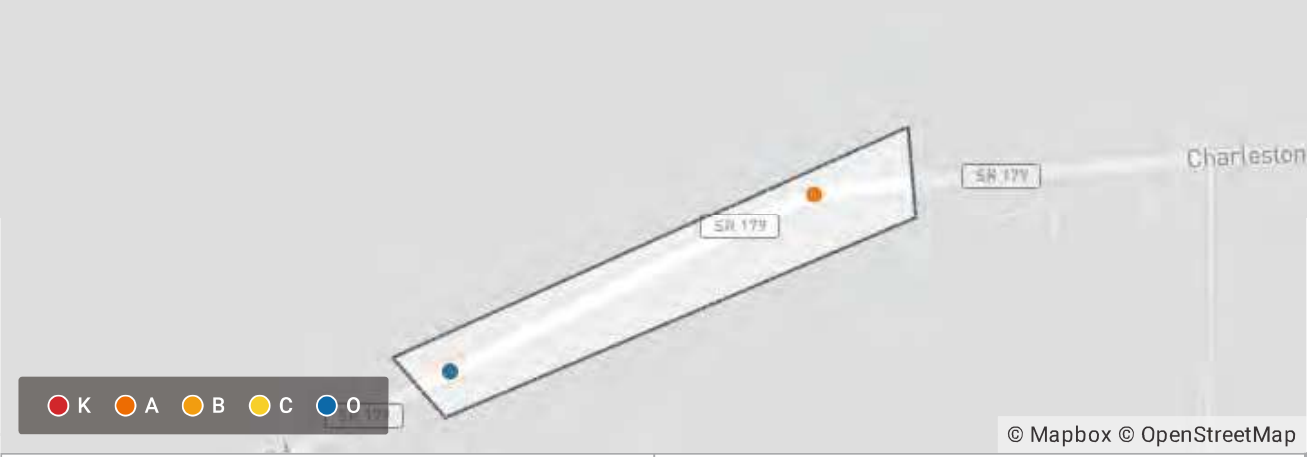
Created on April 4, 2024

Created by JOSHUA CLOUD

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

Applied Filters

County = Haywood | Shape: Polygon



Total Crashes	2	Fatal Crashes	0

Summary		Crash
Total Crashes	2	100.00%
+ 5 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
2022	1	50.00%
2021	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
Other Object (not fixed)	1	50.00%
Standing Tree	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%
Dawn	1	50.00%
+ 6 more	0	0%

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

TN TDOT Department of Transportation

Asset **#38S80520001** (Routine)

Region: 04, **County:** 38 - Haywood

Team Lead: Nathan Bedford, **Inspection Date:** 08/16/2023

Left elevation

Right elevation

Span 2 slab A,B,C span connectors corroded and missing nuts

Span 2 slab A impending spall

Span 2 slab B impending spall

Span 2 slab C 1/16” cracks

Span 2 slab C spall to steel

Span 2 slab E impending spall

Span 2 bottom deck typical of all spans

Span 1 slab F 1/16” cracks

Span 1 slab A spall to steel

Abutment 2

Bent 1 rear

Decay/split, bent 1 cap rear

Up to 1/8” check/split

Up to 1/4” checks bent 1 cap

Spall to steel concrete casing, bent 1

Minor decay, left end of cap, bent 1

Decay section loss, pile A rear bent 1.

Bent 2 front

Abutment 1

Bent #2 rear

Bent #2 pile D decay

Bent #2 splice plates corroded (typical)

Bent #2 pile C impacting cap

Bent #2 cap split all the way through

Bent #2 pile B decay

Bent #2 pile A decay

Bent #2 pile A decay

Approach #2 weight limit sign

Opposite direction of route

Spans #2&#3 right curb spall to steel

View across deck

Upstream

Downstream

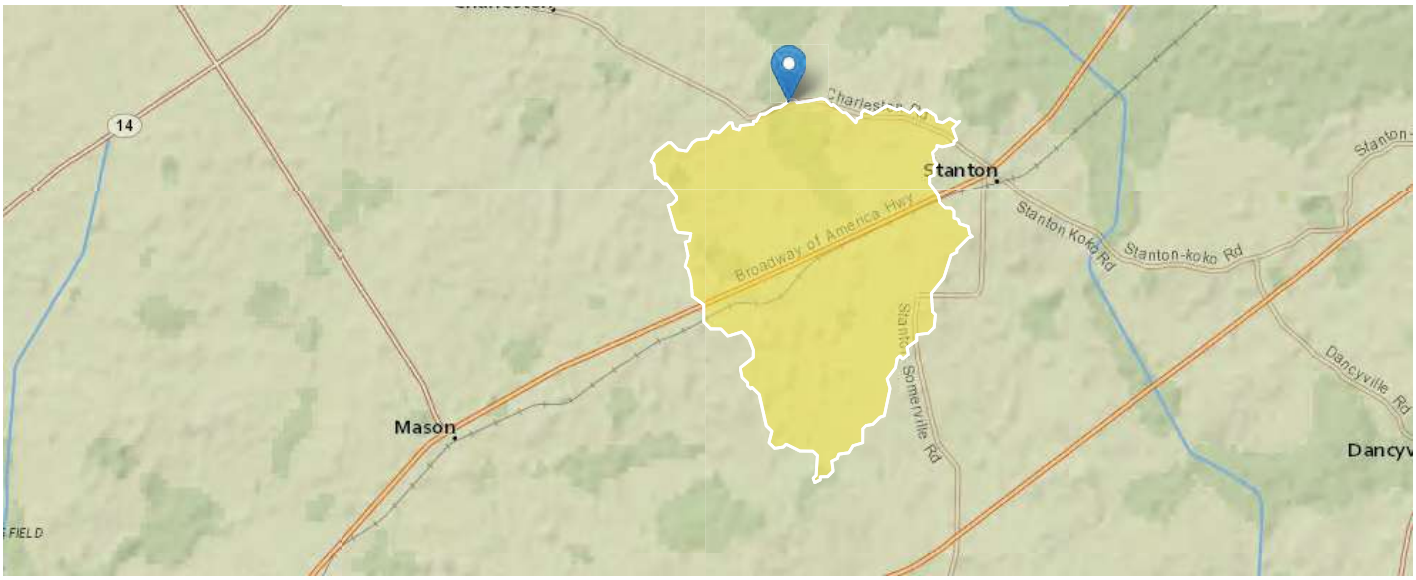
Direction of route

Approach #1 weight limit sign

Bridge #

StreamStats

Region ID: TN
Workspace ID: TN20240404160238365000
Clicked Point (Latitude, Longitude): 35.47774, -89.45289
Time: 2024-04-04 11:03:00 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CLIMFAC2YR	Two-year climate factor from Lichy and Karlinger (1990)	2.401	dimensionless
CONTDA	Area that contributes flow to a point on a stream	13.46	square miles
DRNAREA	Area that drains to a point on a stream	13.46	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	13.46	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	1720	ft^3/s	922	3210	38.7	38.7	1.8
20-percent AEP flood	2550	ft^3/s	1400	4650	37.2	37.2	2.4
10-percent AEP flood	3100	ft^3/s	1680	5720	38	38	3.1
4-percent AEP flood	3800	ft^3/s	2000	7230	40.1	40.1	3.8
2-percent AEP flood	4320	ft^3/s	2200	8490	42.2	42.2	4.2
1-percent AEP flood	4820	ft^3/s	2370	9820	44.7	44.7	4.4
0.2-percent AEP flood	6010	ft^3/s	2690	13400	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	13.46	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	0.0243	ft^3/s	123
30 Day 5 Year Low Flow	0.0622	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	13.46	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
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.401	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	0.0226	ft^3/s	122
99 Percent Duration	0.034	ft^3/s	105
98 Percent Duration	0.0462	ft^3/s	96.4
95 Percent Duration	0.0661	ft^3/s	90.5
90 Percent Duration	0.0903	ft^3/s	85.8
80 Percent Duration	0.148	ft^3/s	79.6
70 Percent Duration	0.238	ft^3/s	75
60 Percent Duration	0.502	ft^3/s	69.2
50 Percent Duration	0.833	ft^3/s	57
40 Percent Duration	1.73	ft^3/s	46.9
30 Percent Duration	4.54	ft^3/s	36.6
20 Percent Duration	14.7	ft^3/s	27.4
10 Percent Duration	32.4	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	13.46	square miles	2	2405
RECESS	Recession Index	32	days per log cycle	32	350
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.401	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	15.9	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	13.46	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	37.002	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	2.83	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.: 38S179-S1-005 ROUTE: S.R. 179
COUNTY: HAYWOOD CITY:
PROJECT PIN NUMBER: 134880.00
PROJECT DESCRIPTION: BRIDGE OVER OVERFLOW @ 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
1,360	2029	2,450	294	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 2/22/2024
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 2/22/2024
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)

PIN	County	Route	Priority	Termini	LM	Bridge #	Hydraulics Recommendation
134835.00	Chester	SR125	1	Bridge over Little Piney Creek (TMA)	0.12	12016770001	single span type 4 I beam,with 2.5 ft grade change.
134837.00	Chester	SR125	1	Bridge over Piney Creek (TMA)	1.40	12016770003	45" box beam, 85 ft long single span, raise grad 2 ft. Proposed ETSA should include 50 ft of channel up and downstream of bridge outer limits. Proposed ROW to include limits of existing riprap.
134852.00	Henderson	SR200	1	Bridge over Overflow(TMA)	0.59	39S80610001	36" box beam, 70 ft long single span, raise grade 2 ft.
134849.00	Fayette	SR196	1	Bridge over Branch of Russell Creek (T	1.35	24F00240001	Single span 70 ft using 33" box beam. Raise grade 2 ft.
134850.00	Fayette	SR196	1	Bridge over Russell Branch (TMA)	1.09	24F00240003	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. Alternative design, single span with 4.25 ft grade increase.
134851.00	Fayette	SR196	1	Bridge over Branch (TMA)	14.115	24S81090007	Recommendation is 3 span 128 ft bridge, raise grade 2.5 ft. Survey to include location of existing concrete block channel protection up and downstream of bridge in plan and profile.
134845.00	Dyer	SR104	1	Bridge over Branch (TMA)	4.89	23SR0200001	60 ft single span using 30" box beam. Raise grade 1.5 ft. Proposed ETSA and ROW to include limits of riprap up and downstream. Site gets backwater from Obion River during major floods. Probably levee in NW quadrant should be avoided if possible.
134874.00	Haywood	SR087	1	Bridge over Branch (TMA)	3.47	38S80460003	Overflow for 134873.00. Very undersized for drainage area. Appears to be 1 of 3 structures on floodplain.
134848.00	Haywood	SR087	1	Bridge over Branch (TMA)	2.3	38SR0870001	50' single span using a 24" deep box beam. Raise grade 1 ft.
134880.00	Haywood	SR179	1	Bridge over Overflow(TMA)	1.09	38S80520001	105', 3 span, type 1 I beam, raise grade 2 ft. Existing bridge is scour critical. Main channel bridge is 134881.00 and hydraulic design should be done together. Existing bridge is scour critical. Both are undersized and will probably be low design storm.
134881.00	Haywood	SR179	1	Bridge over Little Muddy Creek (TMA	1.24	38S80520003	105', 3 span, type 1 I beam, raise grade 2 ft. Existing bridge is scour critical. Main channel bridge is 134881.00 and hydraulic design should be done together. Existing bridge is scour critical. Both are undersized and will probably be low design storm.

TN TDOT Department of Transportation

Environmental Division

0SD2 Environmental Desktop Review Form

Part 1 – Project Information

PIN	134880.00
Project Number (if available)	
County	Haywood
Route	SR179
Termini	Bridge over Overflow (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.

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

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

Ecology

Water resources are present in the project area. Species records in the vicinity may require surveys as well as sweeps / time of year restrictions.

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 commitments have 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. 38S80520001 SR-179 over Overflow LM 1.09 (38-SR179-01.09), The bridge has asbestos in the pad material between the curb and guard rail supports; approximately 30 square feet at 60% chrysotile. Please see the report for further details and photographs.

EDHZ002. The State of Tennessee asbestos accreditation requirements (TDEC Rules Chapter 1200-01-20) mandates that ACM abatement work be performed by an accredited firm (contractor) using accredited abatement workers and supervisors. Abatement of this material shall be accomplished per SP202ACM Special Provision Regarding Removal of Asbestos-Containing Materials. ACM abatement should be completed prior to any demolition activities if possible. 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 # 47075C0305D (Panel 305 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.

Comment Resolution: 134880.00, Haywood, SR 179, Bridge over Overflow(TMA)						
Comment Stage	**Division**	**Commenter**	**Date**	**Comment**	**Comment Addressed?**	**Additional Notes**
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	SR-179 is classified as a rural major collector. Therefore, standard drawing RD11-TS-2 will be applicable.	Yes	Noted
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	According to E-TRIMS, the bridge is located at approximately L.M. 1.09 , the speed limit is 55 mph, the AADT is 1379 for 2022 , a design AADT of 2450 (2049) and the ROW is 80'.	Yes	Noted
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	Given the 55 MPH speed of the roadway, the proposed roadway should have design lane widths of 11 ft and 4 ft graded shoulders. Consideration for wider lanes (12 ft) should be included based on the vicinity of agricultural equipment. With Blue Oval and the potential for other developments, the design year ADT is over 2,000 which would require 2-12' lanes and 8' shoulders.	Yes	The cross section was reduced to fit within the budget for the Timber Bridge Program. We are confident in these recommendations due to the increased shoulder width compared to the existing conditions and the lack of crash history at this location. Further refinement of the cross-section design will be addressed in Phase 1 of the project.
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	Because of possible new bridge elevation and width changes, ensure long enough project limits, sufficient environmental study area, and ROW widths.	Yes	Assumptions are provided; however, the final beginning and ending project limits will be confirmed during Stage 1.
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	Based on a FEMA FIRMETTE it doesn't appear that this project is located within a flood plain. The floodplain can be located both upstream and downstream of the project area.	Yes	Noted
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	Consideration should be taken for higher precipitation storms due to size of DA and close vicinity of downstream flood plain.	Yes	To be further refined in stage 1.
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	Existing Bridge out to out width is only 27' 0" ft.	Yes	Noted
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	Bridge inspection has determined that this bridge is in Poor Condition.	Yes	Noted
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	Reconstructing in-place by means of stage construction would require a width restriction. Agricultural equipment should be considered for staging lane widths.	Yes	Further investigation to be conducted during Stage 1.
Draft Report Review (0SD2)	Design	Thomas Jones	9/18/2024	Stage construction with minor shift would require a temporary signal but would allow a wider lane to allow some farming vehicles to cross.	Yes	Noted
Draft Report Review (0SD2)	Design	Sam Ferguson	9/18/2024	No utilities appear to be attached to the bridge.	Yes	Utilities divison has completed a preliminary cost estimate. Further investigation into affected utilities will be conducted during Stage 1.
Draft Report Review (0SD2)	Design	Sam Ferguson	9/18/2024	E-TRIMS has the last resurfacing in 2010, but seems to have been resurfaced more recently than 2010.	Yes	Noted
Draft Report Review (0SD2)	Design	Sam Ferguson	9/18/2024	If ABC is chosen, ensure curves meet superelevation standards with no superelevation transition on the proposed bridge.	Yes	Further investigation to be conducted during Stage 1.
Draft Report Review (0SD2)	Design	Sam Ferguson	9/18/2024	Location is prone to higher future traffic volumes due to the Blue Oval City development.	Yes	Further investigation to be conducted during Stage 1.
Draft Report Review (0SD2)	Design	Sam Ferguson	9/18/2024	Overhanging branches may impact construction equipment.	Yes	Noted
Draft Report Review (0SD2)						