

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	Shellmound Rd (L.R. 02161) - Bridge over Interstate 24 Eastbound									
PIN	130902.00									
Route Information	Route	NHS (Y/N)	Functional Class		City			County		
	L.R. 02161	No	Rural Minor Collector					Marion		
Project Information	Begin Log Mile	End Log Mile	AADT¹	Design Hour Vol. (DHV)¹	Truck %¹	Design Speed (MPH)	Posted Speed (MPH)	Base Year	Design Year	
	1.29	1.40	1,930	232	2.00	40	30	2026	2046	
Project Description & Standard Drawings Used	A field review was held for the above-mentioned project on August 3, 2021. The proposed structure is a 154' long, single span BT-72 Concrete Bulb-T Beam bridge with an out-to-out width of 33' 3". The typical section consists of 2-11' wide lanes each with a 5' wide shoulder. The proposed finished grade of the bridge will need to be raised approximately 4' and will provide a minimum clearance of seventeen 17' under the bridge. A 7.8 mile detour will be established while the proposed bridge is completed. Standard Drawing: RD11-TS-2									Project Details
Important Project History or Related Projects	The replacement of the I-24 WB Bridge over Shellmound Road (Pin# 130900.00) located 0.25 miles north of the proposed Shellmound RD Bridge over I-24 EB replacement will need to be considered when scheduling construction. The existing bridge is a 3 span concrete deck girder bridge crossing over I-24 EB at L.M. 22.78. The existing structure has an out-to-out width of 34' 6". The overall structure length is 139' 6". The current load limit for this structure is 20 tons. Marion County Highway Department is planning to resurface Shellmound Rd in 2023.									
Project Purpose/Need	The need to replace this bridge is due to the present condition of the existing bridge: - Built in 1965. - Sufficiency rating is 54.2 (FAIR) – July 21, 2020 - Typical section does not meet current TDOT standards.									
Major Environmental Considerations	There are no major environmental considerations.									

Multi-Modal Considerations	- Five (5) feet Paved Shoulder Width to accommodate bicycle traffic - Forty-two (42) inch bridge rail TDOT Multimodal Project Scoping Manual, Roadway Design Guidelines, MM-TS-1, MM-BPR-1			
Major Project Risks	Utilities: Distribution lines, communications cable			
Concept Estimate and Timeline	Total Current Project Cost		Construction Year Estimate	Preliminary Estimates
	\$ 3,210,000		\$ 4,100,000	
	Proposed Construction Year		Estimated Construction Duration	
	2027		TBD	

¹ Traffic numbers reflect identified design year

Approvals

Executed for approval of this Concept Report


 Steve Allen (Nov 18, 2022 05:19 CST)

Nov 18, 2022

STID Director

Date

The following individuals to execute if a bridge concept report:

APPROVED
 By Ted A. Kniazewycz at 6:08 pm, Nov 19, 2022

11/19/2022

Structures Director

Date



Regional Project Development Director

12/12/2022

Date



Bureau Chief of Engineering

Feb 7, 2023

Date

PRESTON J ELLIOTT Digitally signed by PRESTON J ELLIOTT
 Date: 2022.12.12 12:48:07 -06'00'

12/12/2022

Bureau Chief of Environment and Planning

Date

Action Checklist			
0SD1 Initiate Concept Report and Request Funding			
Complete	NA		Date Completed
	✓	Request and Finalize Safety Data	
✓		Request Project Number, PIN, and Task Profile Numbers	10/02/2020
	✓	Coordinate with Long Range Planning	
✓		Request and Finalize Traffic Data	04/26/2021
	✓	Request Preliminary Survey Data	
✓		Initiate Division Reviews	11/29/2021
✓		Schedule Site Review (with appropriate Divisions)	07/09/2021
0EN1 Conduct Environmental Desktop Review			
Complete	NA		Date Completed
✓		Confirm Environmental Desktop Review is Complete	01/06/2022
0MM1 Conduct Multimodal Review			
Complete	NA		Date Completed
✓		Confirm Multimodal Review is Complete	09/27/2022
✓		Review Multimodal Considerations & Recommendations	09/27/2022
0TO1 Conduct Initial Traffic Ops/TSMO Review <i>(include HQ Traffic Ops and Regional Traffic Office)</i>			
Complete	NA		Date Completed
✓		Confirm Transportation Systems Management & Operations (TSMO) Alignment & Operations Review is Complete	09/27/2022
	✓	Request Concept Report Review	
0ST1 Develop Structures Recommendations			
Complete	NA		Date Completed
✓		Confirm Recommended Structure Type for Concept Report is Complete	03/31/2022
✓		Confirm Hydraulic Recommendations for Concept Report is Complete	04/06/2021
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	07/06/2021
	✓	Compile Initial Divisional Reviews for Site Visit	
✓		Prepare & Send Site Visit Packet	07/09/2021
✓		Lead Site Visit	08/03/2021
	✓	Initiate Interstate Access Requests (IAR) Concept Coordination with FHWA (if applicable)	
✓		Develop, Compile, and Distribute the Draft Concept Report	11/03/2021
0TO2 Develop TSMO Scope Items <i>(include HQ Traffic Ops and Regional Traffic Office)</i>			
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	11/03/2021
0UT1 Complete Utility Preliminary Estimates			
Complete	NA		Date Completed
✓		Review and Confirm Preliminary Utility Estimate	11/03/2021
	✓	Review and Confirm Preliminary Railroad Cost Estimate	
0SD3 Finalize Concept Report			
Complete	NA		Date Completed
	✓	Compile and Review Initial Risk Assessment	
✓		Finalize Conceptual Layouts	09/27/2022
✓		Develop Environmental Technical Study Area (ETSA)	09/27/2022
✓		Address Comments and Finalize Concept Report	09/29/2022
	✓	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)	09/29/2022
	✓	Finalize Document and Upload All Needed Electronic Files	
	✓	Notify the Project Management Director or Assigned Project Manager to Set Up Project (1PM1)	

NA Justification

- Conduct Intersection and Interchange Evaluation (IIE) – No interchange within the limits of the project
- Complete Conceptual Signal Warrants – Signal warrants not needed for the low AADT
- Initiate Interstate Access Requests (IAR) Concept Coordination with FHWA (if applicable) – Not applicable
- Confirm Signal Warrants Analysis is Complete - AADT too low for signal warrant
- Review and Confirm TSMO & ITS Scope and Budget – No ITS within project limits
- Review and Confirm Preliminary Railroad Cost Estimate – No railway within project limits
- Address Comments and Finalize Interstate Access Requests (IAR) Document and Memo (if applicable) – Not applicable
- Develop Roadway Safety Audit (RSA) No Plans Document – RSA outside the scope of this BTIR

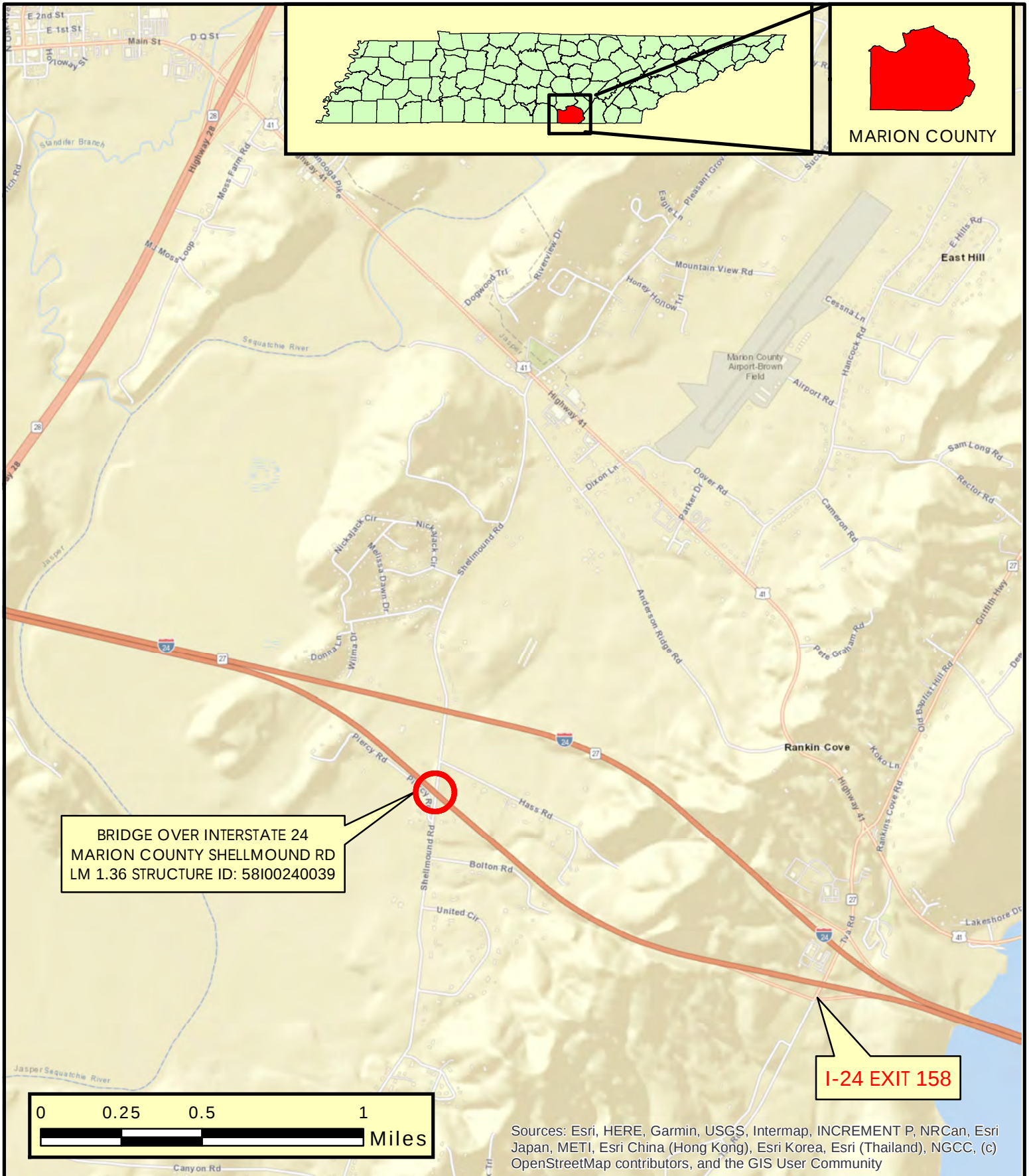
Concept Report Table of Contents/Attachments

	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

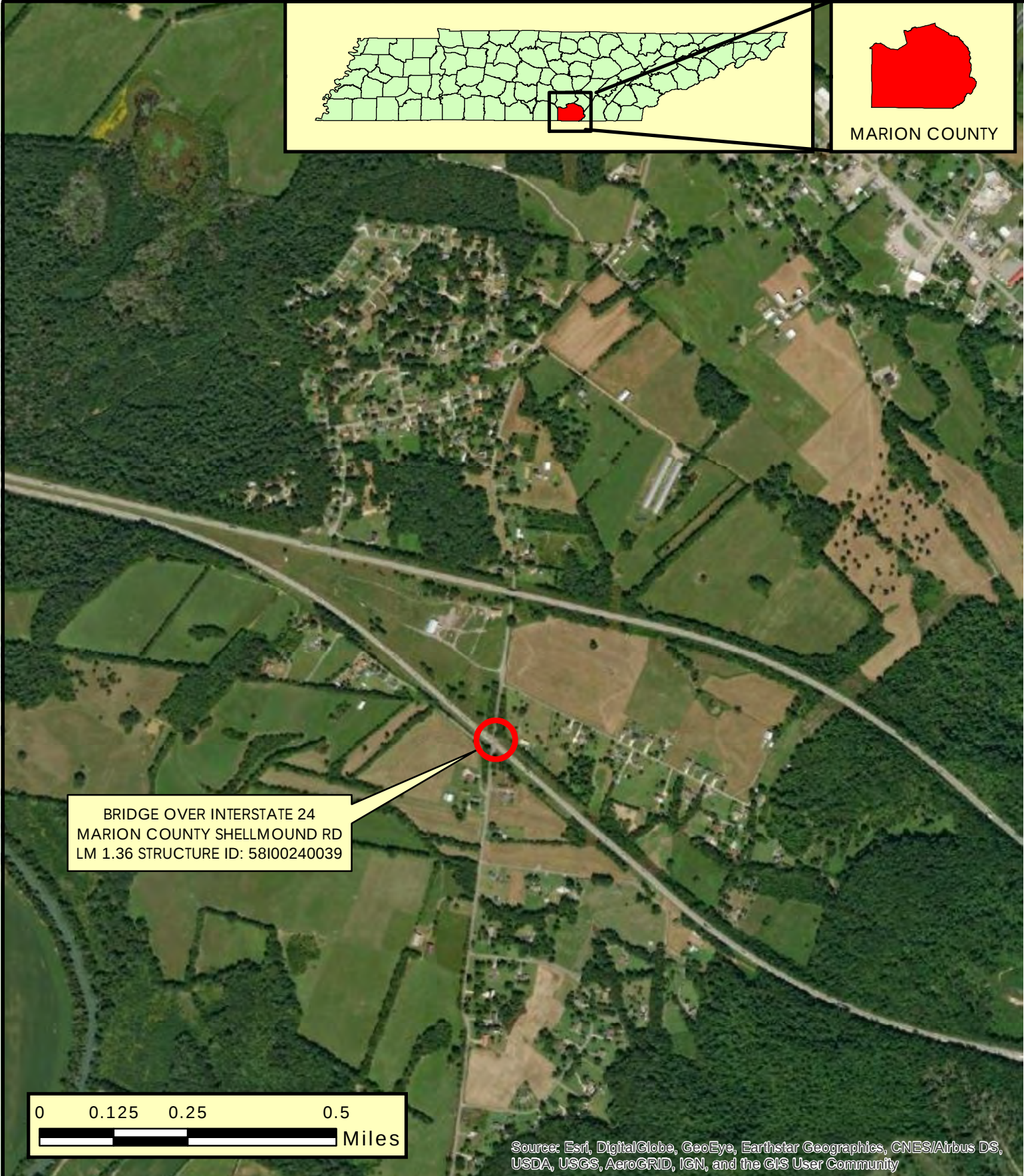
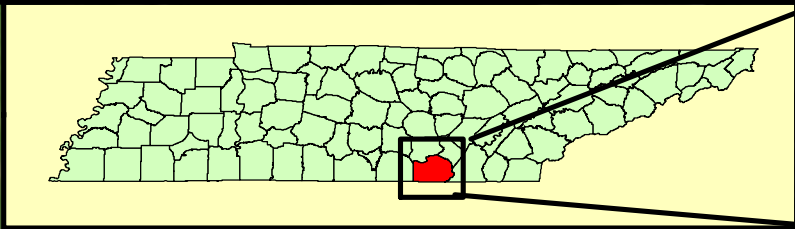
- TSMO & ITS Scope and Budget* - No ITS at site
- Crash Packet* - Crash packets are not typically provided for Bridge replacements
- Intersection and Interchange Evaluation (IIE) Analysis and Summary Form - No intersection or interchange
- Traffic Modeling (e.g., Synchro, VISSIM, Highway Capacity Software (HCS) Output)* - AADT too low to model
- Signal Warrant* - No intersection to signal warrant
- Road Safety Audit (RSA) No Plans* - RSA outside the scope of this BTIR

* External document to STID



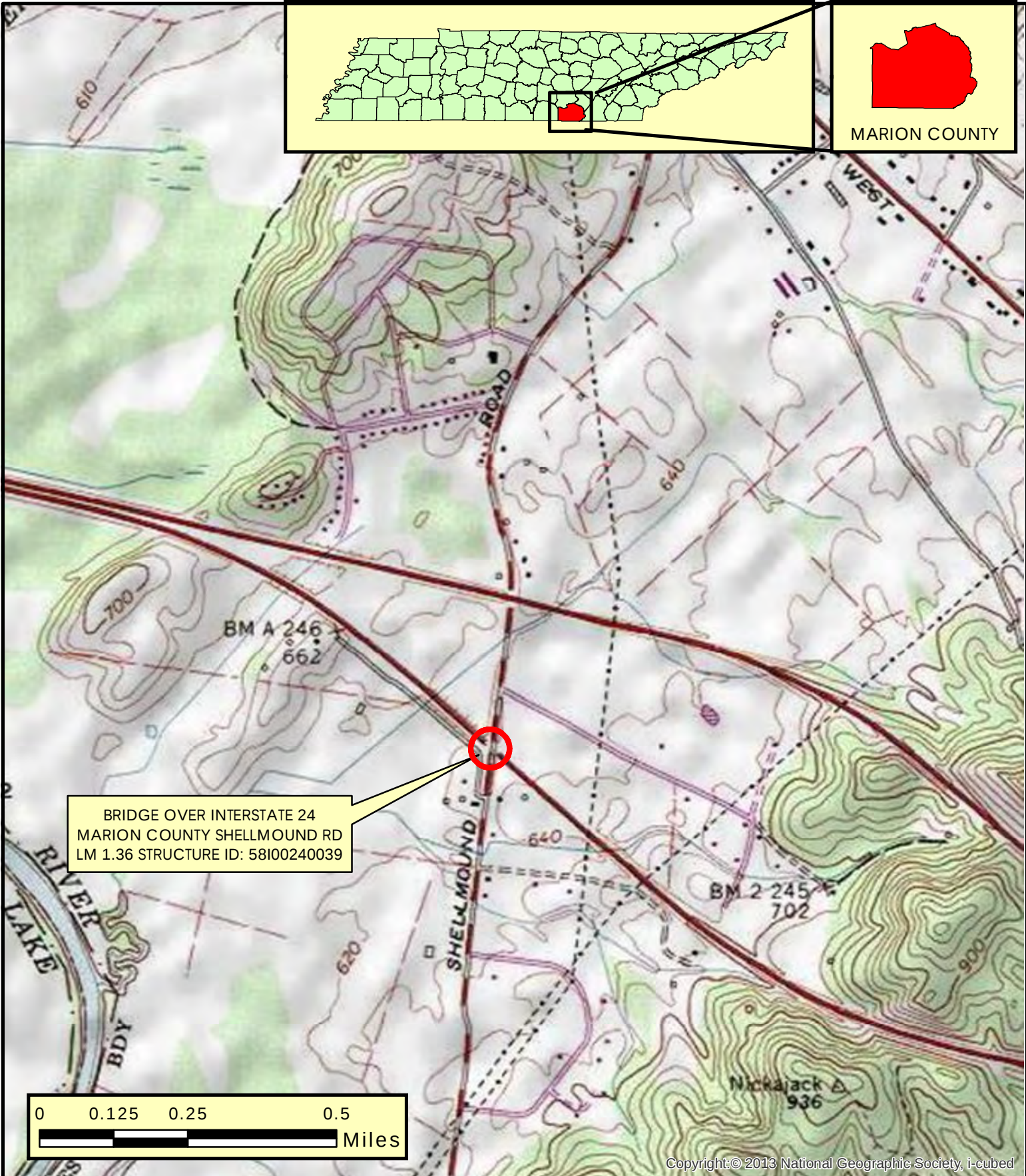
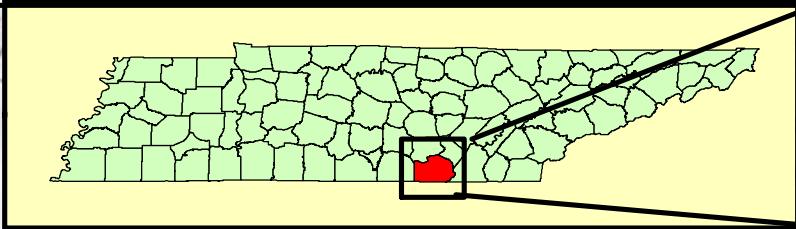
AREA MAP
BRIDGE OVER INTERSTATE 24
SHELLMOUND ROAD
L.M. 1.36
PIN: 130902.00
MARION COUNTY





LOCATION MAP
BRIDGE OVER INTERSTATE 24
SHELLMOUND ROAD
L.M. 1.36
PIN: 130902.00
MARION COUNTY

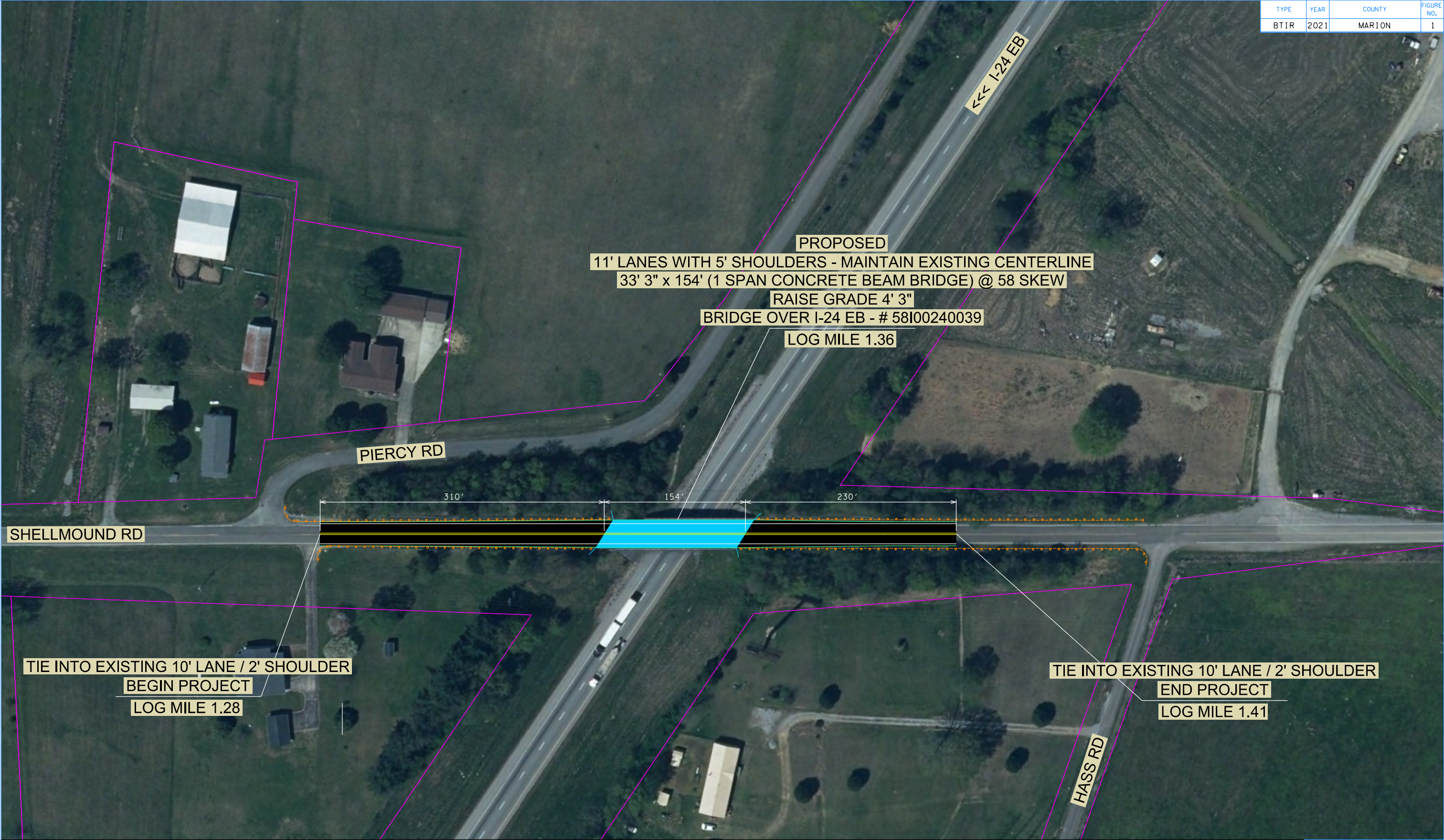




TOPOGRAPHIC MAP
BRIDGE OVER INTERSTATE 24
SHELLMOUND ROAD
L.M. 1.36
PIN: 130902.00
MARION COUNTY



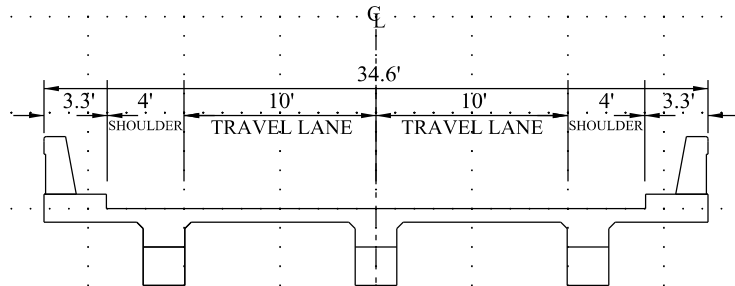
0/4/2022 8:19:16 AM
X:\Projects\Marion\Shellmound Rd\Bridge over I-24\Project Files\ dgn\centerline\30902.00 - Marion Shellmound Rd Bridge over I24 - Sheet 1 - Proposed (centerline ABC).dgn



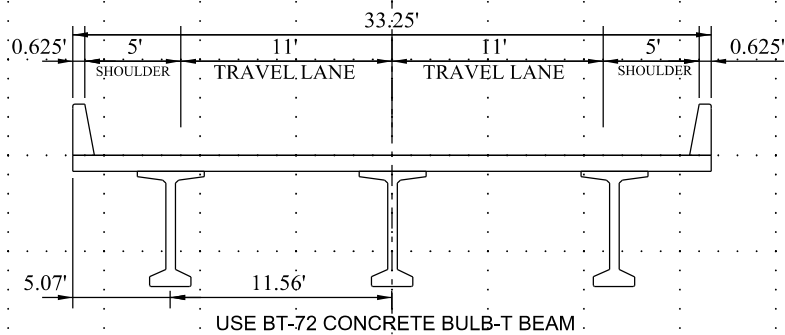
BRIDGE TRANSPORTATION INVESTMENT REPORT

SHELLMOUND RD (L.R. 02161)
BRIDGE OVER INTERSTATE 24 EB
L.M. 1.28 TO L.M. 1.41
MARION COUNTY

EXISTING STRUCTURE



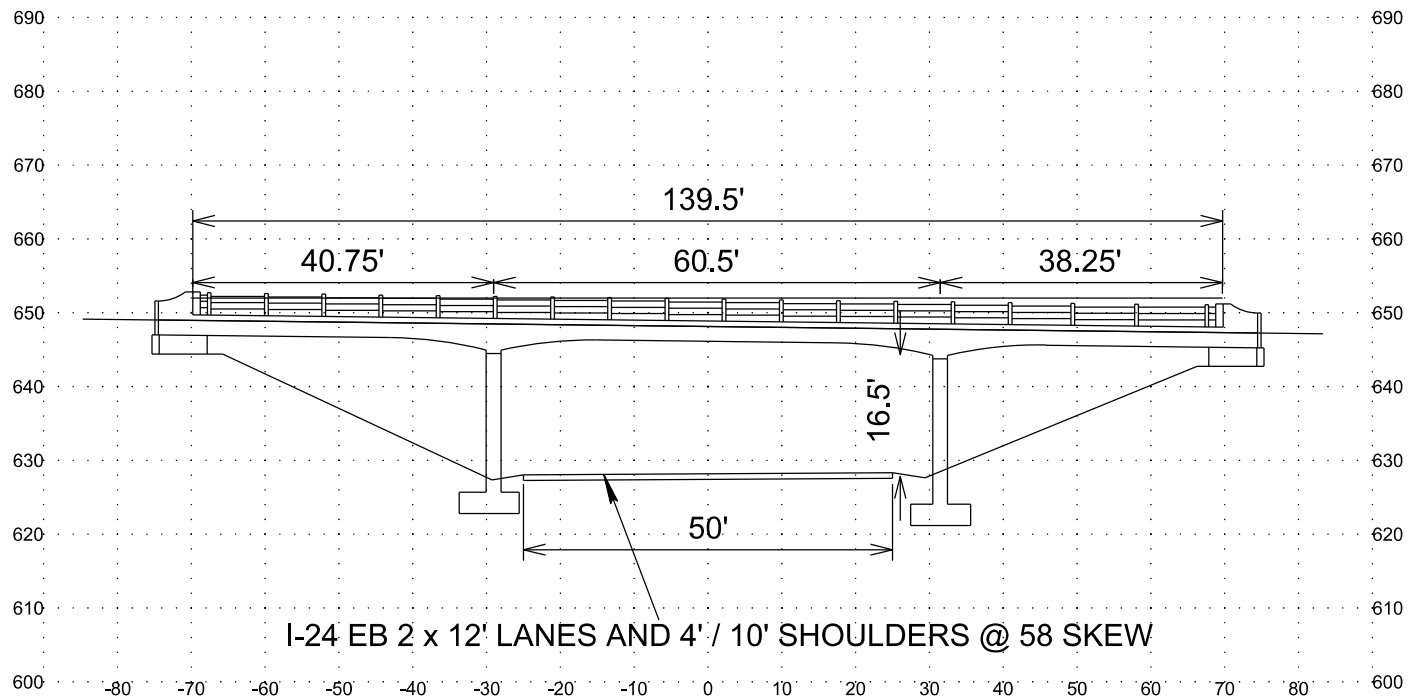
PROPOSED COMPLETED



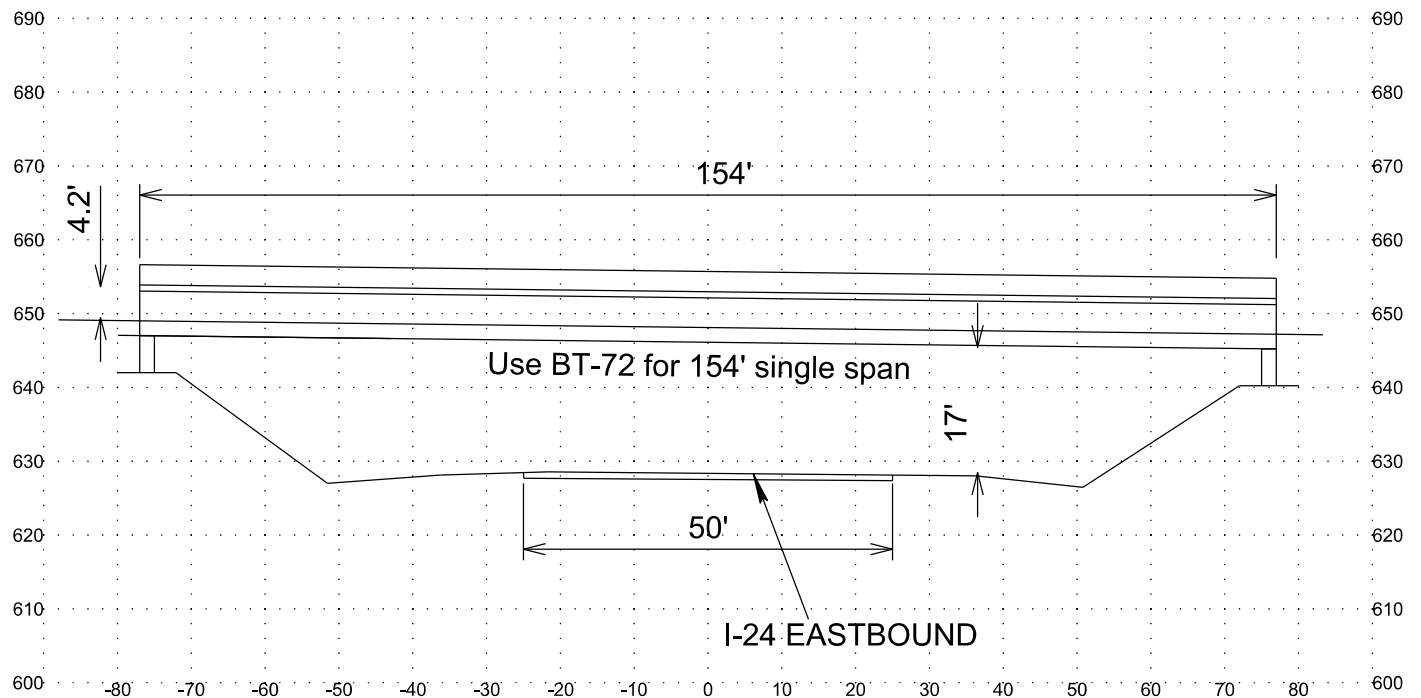
CROSS-SECTION DETAIL

MARION COUNTY - SHELLMOUND ROAD (02161)
BRIDGE OVER I-24 EB @ L.M. 1.36
BRIDGE ID: 58I00240039

EXISTING STRUCTURE (INLET)



PROPOSED STRUCTURE (INLET)



BRIDGE SECTIONS

MARION COUNTY - SHELLMOUND ROAD (02161)

BRIDGE OVER I-24 EB @ L.M. 1.36

BRIDGE ID: 58I00240039

BRIDGE TRANSPORTATION INVESTMENT REPORT (TIR)

MARION COUNTY
LR 02161 (SHELLMOUND RD)

LM 1.36

LOCATION							
Bridge #:	58I00240039			Feature Crossed:	I-24 EB		
Road Name:	Shellmound Rd			Log mile:	1.36		
Route ID:	02161			System:	State Highway Agency		
City:				Functional Class:	Rural Minor Collector		
County:	Marion						
PIN:	130902.00						
ROADWAY							
	Existing			Proposed (Preliminary Design Estimate)			
Design Standard				RD11-TS-2			
Route Characteristics							
AADT:	1,750			1,930			
AADT Year:	2026			2046			
Terrain:	Rolling			Rolling			
No. Lanes:	2			2			
Speed(Posted):	30			30			
Speed (Design):				40			
Approach Character.							
Lane Width (ft):	10			11			
Shoulder Width (ft):	2			5			
ROW Width (ft):	60			60			
ROW Tracts Affected				0			
ROW Required (acre)				0			
Cross Section Width (ft):	20/24/60			22/30/60			
Northern Approach Length (ft)				230'			
Southern Approach Length (ft):				310'			
Alignment:	Centerline			Maintain Centerline			
Grade:	N/A			Raise Approximately 4.3'			
Surface Material:	Asphalt Concrete			Asphalt Concrete			
App. Lower Than Structure	NO			NO			
Utilities (list)	transmission and communications utilites alongside road will need to be relocated						
Comments				I-24 EB use RD11-TS-5A			

BRIDGE TRANSPORTATION INVESTMENT REPORT (TIR)

MARION COUNTY
LR 02161 (SHELLMOUND RD)
LM 1.36

STRUCTURE							
		Existing			Proposed (Preliminary Design Estimate)		
Bridge Characteristics							
Year Built		1965					
Load Limit		16 tons					
Sufficiency Rating		54.2 (FAIR)					
Skew		58			58		
Structure Type		Concete Tee Beam			Concrete Prestressed Bulb-T Beam		
Structures in Channel		NO			NO		
Length (ft)		139' 6"			154'		
No. Spans (App./Main)		3 main			1 main		
Width (curb to curb) (ft)		28'			30'		
Width (o to o) (ft)		34' 6"			31' 3"		
Sidewalks on Structure		NO			NO		
Superstructure Depth (in)		61" / 85"			124"		
Girder Depth (in)		24" / 48"			72"		
Finish Grade-Low Girder (in)		31" / 55"			82"		
Bridge Rail Type		Concrete parapet			Concrete Wall		
Bridge Rail Height (ft)		30"			42"		
Indication Overtopping		NO					
Local Scour		NO					
Obstructions		NO					
Other Structures		Use BT-72 for single span					
Comments		Minimum Clearance of existing located at 24" beam thickness					

BRIDGE TRANSPORTATION INVESTMENT REPORT (TIR)MARION COUNTY
LR 02161 (SHELLMOUND RD)

LM 1.36

MAINTENANCE OF TRAFFIC	
Method of Maintaining Traffic	close road
Description	Close Bridge and Detour 7.8 miles on TVA Road, U.S. 64 and U.S. 41
Comments	TVA Road will need to be striped and signed for detour.

COST ESTIMATE SUMMARY

Route:	LR 02161			
Termini:	Shellmound Rd, Bridge over I-24 Eastbound			
Scope of Work:				
Project Type of Work:	Bridge Replacement			
County:	Marion			
Length:	0.23 Miles			
Date:	October 4, 2022			
Estimate Type:	Concept			
DESCRIPTION	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Construction Items				
Removal Items	\$0	\$0	\$0	\$45,100
Asphalt Paving	\$0	\$0	\$0	\$389,000
Concrete Pavement	\$0	\$0	\$0	\$0
Drainage	\$0	\$0	\$0	\$15,100
Appurtenances	\$0	\$0	\$0	\$0
Structures	\$0	\$0	\$0	\$1,010,000
Fencing	\$0	\$0	\$0	\$0
Signalization & Lighting	\$0	\$0	\$0	\$0
Railroad Crossing	\$0	\$0	\$0	\$0
Earthwork	\$0	\$0	\$0	\$194,000
Clearing and Grubbing	\$0	\$0	\$0	\$0
Seeding & Sodding	\$0	\$0	\$0	\$2,700
Rip-Rap or Slope Protection	\$0	\$0	\$0	\$31,900
Guardrail	\$0	\$0	\$0	\$38,400
Signing	\$0	\$0	\$0	\$1,700
Pavement Markings	\$0	\$0	\$0	\$21,900
Maintenance of Traffic	\$0	\$0	\$0	\$75,500
Mobilization 5%	\$0	\$0	\$0	\$91,300
Other Items and Annual Inflation 10%	\$0	\$0	\$0	\$192,000
Const. Contingency (Structures Not Included) 30%	\$0	\$0	\$0	\$330,000
Const. Eng. & Inspec. 10%	\$0	\$0	\$0	\$244,000
Construction Estimate	\$0	\$0	\$0	\$2,680,000
Interchanges & Unique Intersections				
Roundabouts	\$0	\$0	\$0	\$0
Interchanges	\$0	\$0	\$0	\$0
Right-of-Way & Utilities				
	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Right-of-Way	\$0	\$0	\$0	\$0
Utilities	\$0	\$0	\$0	\$260,000
Preliminary Engineering				
	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Prelim. Eng. 10.0%	\$0	\$0	\$0	\$268,000
Total Project Cost (2022)	\$ -	\$ -	\$ -	\$ 3,210,000

PAY ITEM SUMMARY

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	TOOL QUANTITIES	ADDITIONAL QUANTITIES	TOOL QUANTITIES + ADDITIONAL QUANTITIES	Statewide UNIT COST	TOTAL COST
						<-- Unit Cost Trends with Quantities	
Pavment Removal							
202-03.01	REMOVAL OF ASPHALT PAVEMENT	SY	3919		3919	\$ 11.50	\$ 45,068.17
						PAVEMENT REMOVAL TOTAL (ROUNDED)	\$ 45,100
Asphalt Roads							
303-01	MINERAL AGGREGATE, TYPE A BASE, GRADING D	TON	2770		2770	\$ 33.59	\$ 93,062.03
307-(01, 02, 03).01	ASPHALT CONCRETE MIX (All Grades) (BPMB-HM) GRADING A	TON	1419		1419	\$ 96.50	\$ 136,976.49
307-01.(20 & 21 & 22)	AGGREGATE (BPMB-HM) GRADING A-S MIX	TON	414		414	\$ 86.50	\$ 35,795.14
307-(01 & 02 & 03).08	ASPHALT CONCRETE MIX (ALL GRADES) (BPMB-HM) GRADING B-M2	TON	492		492	\$ 137.76	\$ 67,763.87
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	TON	6		6	\$ 807.84	\$ 4,871.47
402-02	AGGREGATE FOR COVER MATERIAL (PC)	TON	22		22	\$ 70.11	\$ 1,525.92
403-01	BITUMINOUS MATERIAL FOR TACK COAT (TC)	TON	4		4	\$ 747.73	\$ 2,863.32
411-01.07	ACS MIX (PG64-22) GRADING E SHOULDER	TON	17		17	\$ 147.40	\$ 2,509.89
411-(01 & 02 & 03).10	ACS MIX(ALL GRADES) GRADING D	TON	298		298	\$ 147.76	\$ 43,987.41
						PAVING TOTAL (ROUNDED)	\$ 389,400
Concrete Roads							
						CONCRETE RAMPS AND ROADWAYS TOTAL (ROUNDED)	\$ -
Drainage							
607-05.02	24" CONCRETE PIPE CULVERT (CLASS III)	LF	66		66	\$ 100.62	\$ 6,661.31
611-07.01	CLASS A CONCRETE (PIPE ENDWALLS)	CY	3		3	\$ 1,425.66	\$ 4,131.57
611-07.02	STEEL BAR REINFORCEMENT (PIPE ENDWALLS)	LB	275		275	\$ 3.12	\$ 858.85
710-02	Aggregate Underdrains (with pipe)	LF	475		475	\$ 7.10	\$ 3,372.55
						DRAINAGE TOTAL (ROUNDED)	\$ 15,100
Appurtenances							
						ROADWAY AND PAVEMENT APPURTENANCES TOTAL (ROUNDED)	\$ -
Earthwork & Mineral							
105-01	CONSTRUCTION STAKES, LINES AND GRADES	LS	1		1	\$ 31,120.89	\$ 31,120.89
203-01	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)	CY	8015		8015	\$ 15.45	\$ 123,829.74
203-02.01	BORROW EXCAVATION (GRADED SOLID ROCK)	TON	378		378	\$ 32.33	\$ 12,225.97
203-03	BORROW EXCAVATION (UNCLASSIFIED)	CY	1800		1800	\$ 14.91	\$ 26,845.32
						EARTHWORK & MINERAL TOTAL (ROUNDED)	\$ 194,100
Structures							
N/A	Removal of Bridge	SF	4468		4468	\$ 20.00	\$ 89,355.00
N/A	New Bridge (Concrete Girder)	SF	5121		5121	\$ 180.00	\$ 921,690.00
						STRUCTURES TOTAL (ROUNDED)	\$ 1,011,100
Interchanges and Unique Intersections							
						INTERCHANGES AND UNIQUE INTERSECTIONS TOTAL (ROUNDED)	\$ -
Lighting & Signalization							
						LIGHTING & SIGNALIZATION TOTAL (ROUNDED)	\$ -
Guardrail							
705-01.01	GUARDRAIL AT BRIDGE ENDS	LF	100		100	\$ 66.52	\$ 6,651.84
705-06.01	W Beam GR (Type 2) Mash TL3	LF	143	1132	1275	\$ 20.07	\$ 25,589.25
705-04.05	GUARDRAIL TERMINAL (TYPE-IN-LINE)	EA		3	3	\$ 590.37	\$ 1,771.11
705-06.20	Tangent Energy Absorbing Term Mash TL-3	EA	5	-4	1	\$ 2,626.00	\$ 2,626.00
706-06.03	RADIUS RAIL	LF		75	75	\$ 21.47	\$ 1,610.25
706-10.26	ROUNDED END ELEMENT	EA		3	3	\$ 42.68	\$ 128.04
						GUARDRAIL TOTAL (ROUNDED)	\$ 38,400
Seeding and Sodding							
801-01	SEEDING (WITH MULCH)	UNIT	45		45	\$ 27.26	\$ 1,239.07
801-01.07	TEMPORARY SEEDING (WITH MULCH)	UNIT	34		34	\$ 22.31	\$ 760.56
801-02	SEEDING (WITHOUT MULCH)	UNIT	34		34	\$ 17.70	\$ 603.40
						SODDING TOTAL (ROUNDED)	\$ 2,700
Maintenance of Traffic							
N/A	Traffic Control	LS	1		1		\$ 73,648.44
712-02.02	INTERCONNECTED PORTABLE BARRIER RAIL	LF	61		61	\$ 30.18	\$ 1,832.53
						MAINTENANCE OF TRAFFIC TOTAL (ROUNDED)	\$ 75,500
Signs							
Not Listed	Signs (Construction)	LS	1		1	\$ -	\$ 1,700
						SIGNING TOTAL (ROUNDED)	\$ 1,700
Pavement Markings							
716-13.07	Spray Thermo P.M. (40 mil 6")	LM		17.7	17.6838	\$ 1,237.50	\$ 21,883.70
						PAVEMENT MARKINGS TOTAL (ROUNDED)	\$ 21,900
Fencing							
						FENCE TOTAL (ROUNDED)	\$ -
Rip-Rap							
709-05.05	Machined Rip-Rap (Class A-3)	TON	800		800	\$ 39.85	\$ 31,880.00
						RIP-RAP & SLOPE PROTECTION TOTAL (ROUNDED)	\$ 31,900.00
Clearing and Grubbing							
						CLEAR AND GRUBBING TOTAL (ROUNDED)	\$ -
Railroad At-Grade Crossing							
						RAILROAD CROSSING OR SEPARATION TOTAL (ROUNDED)	\$ -
Utilities							
N/A	Overhead Distribution	LM	0.23		0.23	\$ 750,000	\$ 172,500
N/A	Underground Communication	LM	0.23		0.23	\$ 380,000	\$ 87,400
						UTILITIES TOTAL (ROUNDED)	\$ 259,900.00
Right-of-Way							
N/A	Right-of-Way	LS	1		1	\$ -	\$ -
						RIGHT-OF-WAY TOTAL (ROUNDED)	\$ -

BRIDGE TRANSPORTATION INVESTMENT REPORT (TIR)MARION COUNTY
LR 02161 (SHELLMOUND RD)

LM 1.36

SITE VISIT ATTENDEES			DATE:	8/8/2021
Name	Organization	Phone	Email	
Michael Cloud	TDOT - STID	615-532-7696	michael.cloud@tn.gov	
Michael Gilbert	TDOT - STID	615-741-0772	michael.gilbert@tn.gov	
David Duncan	TDOT - STID	615-532-6131	david.duncan@tn.gov	
Alan Wolfe	R2 - Traffic	423-510-1139	Alan.Wolfe@tn.gov	
Chester Sutherland	R2 - ETO	423-510-1229	Chester.Sutherland@tn.gov	
Marykate Collins	R2 - Traffic	423-510-1139	marykate.collins@tn.gov	
Ann Casseus	R2- Survey	423-510-1233	Ann.Casseus@tn.gov	
Jackson Collette	R2- Traffic	423-510-1139	Jackson.Collette@tn.gov	
Tami Johnson-Praino	R2 - Survey	423-510-1233	Tami.Johnson-Praino@tn.gov	



Northern Approach looking South



Western Edge of Bridge



Eastern Edge of Bridge



Southern Approach looking North



On bridge looking South



Southern Approach intersection with Piercy Road



Northern approach of bridge looking North



Drainage feature on Shellmound Rd



EB I-24 Looking East Under bridge



EB I-24 Looking West Under Bridge



EB I-24 Looking North Under Bridge



EB I-24 Looking South Under Bridge

CHECK LIST OF DETERMINANTS FOR LOCATION STUDY

If any of the following facilities or ESE categories are located within the project area or corridor, place an "x" in the blank opposite the item. Where more than one alternate is to be considered, place its letter designation in the blank.

1. Agricultural land usage	☒
2. Airport (existing or proposed)	☐
3. Commercial area, shopping center	☐
4. Floodplains	☐
5. Forested land	☐
6. Historical, cultural, or natural landmark	☐
7. Industrial park, factory	☐
8. Institutional usages	
a. School or other educational institution	☐
b. Church or other religious institution (Cemetery)	☐
c. Hospital or other medical facility	☐
d. Public building, e.g., fire station	☐
e. Defense installation	☐
9. Recreation usages	
a. Park or recreational area	☐
b. Game preserve or wildlife area	☐
10. Residential establishment	☒
11. Urban area, town, city, or community	☐
12. Waterway, lake, pond, river, stream, spring	☐
Permit required:	
Coast Guard	☐
Section 404	☐
TVA Section 26a review	☐
NPDES	☐
Aquatic Resource Alteration	☐
13. Other	☒
14. Location coordinated with local officials	☐
15. Railroad crossings	☐
16. Hazardous materials site	☐

Michael Cloud

From: David A. Duncan
Sent: Tuesday, March 15, 2022 9:59 AM
To: Michael Cloud
Subject: FW: Draft Bridge TIR - 130902.00 - Shellmound Road, Bridge over I-24 Eastbound
Attachments: 130902.00 - Marion Co Shellmound Rd BTIR over I-24 EB - draft (12-3-21).pdf

From: Linda Tidwell <Linda.Tidwell@tn.gov>
Sent: Thursday, January 6, 2022 2:44 PM
To: David A. Duncan <David.A.Duncan@tn.gov>
Cc: Kimberly Vasut-Shelby <Kimberly.Vasut-Shelby@tn.gov>; Sharon Sanders <Sharon.Sanders@tn.gov>
Subject: FW: Draft Bridge TIR - 130902.00 - Shellmound Road, Bridge over I-24 Eastbound

David,

Thank you for the opportunity to comment on the draft Bridge TIR for the Shellmound Road Bridge over I-24 Eastbound.

The project is located in a rural/agricultural area and there are no obvious Section 4(f) resources in the project area. The bridge sufficiency rating is 54.2. Please include a purpose and need statement for replacing the bridge. Also, please include a statement as to whether the proposed project is expected to be constructed within the existing ROW. If ROW is needed, please include an estimated amount of ROW needed.

Thanks,
Linda



Linda Tidwell | TDOT Environmental Studies Specialist
Environmental Division/ NEPA Programs Office
James K. Polk Building, 9th Floor
505 Deaderick Street, Nashville, TN 37243
P. 615-253-2860
Linda.Tidwell@tn.gov
tn.gov/tdot
[NEPA Office \(tn.gov\)](http://NEPA.Office(tn.gov))

From: Kimberly Vasut-Shelby <Kimberly.Vasut-Shelby@tn.gov>
Sent: Thursday, December 30, 2021 9:58 AM
To: Linda Tidwell <Linda.Tidwell@tn.gov>
Cc: Sharon Sanders <Sharon.Sanders@tn.gov>
Subject: Project Assignment: Draft Bridge TIR - 130902.00 - Shellmound Road, Bridge over I-24 Eastbound

Linda,

I have assigned the following project to you. Please provide NEPA comments for this draft.

Michael Cloud

From: Veda Nguyen
Sent: Tuesday, September 27, 2022 3:01 PM
To: David A. Duncan; Daniel McDonell
Cc: Steve Allen; Jim Waters; Daniel Pallme; Michael Cloud; Michael Gilbert
Subject: RE: 130902.00 - Marion Shellmound Road over I-24 EB

Follow Up Flag: Follow up
Flag Status: Flagged

Hi David,

Based on the information provided in the BTIR and TDOT standards and guidelines:

- Bicyclists can be accommodated with a shared lane
 - On low speed (Posted Speed $\leq$ 35 mph) and low volume (ADT < 2000) rural roads, [MM-TS-1](#) Table 2 indicates that a shared lane with vehicles is an acceptable bike accommodation.
- Pedestrians can be accommodated with a 5 ft paved shoulder
 - On rural collector roads where only an occasional pedestrian is expected, TDOT Design Guidelines, Chapter 3, Section 3-205.00 indicates that the shoulder is an acceptable pedestrian accommodation. TDOT Design Guidelines, Chapter 3, Section 3-801.00, Table 3-5 recommends a minimum paved shoulder width of 5ft (4ft + 1ft) to accommodate pedestrians along the bridge. The additional 1 ft is a required offset to the bridge railing (vertical element).

Please let me know if you have any follow-up questions.

Thanks,



Veda L. Nguyen, P.E. | Civil Engineering Manager II
Multimodal Planning Office
James K. Polk Bldg, 12th Floor
505 Deaderick St., Nashville, TN 37243
Office No. 615-532-0421
Veda.Nguyen@tn.gov

From: David A. Duncan <David.A.Duncan@tn.gov>
Sent: Tuesday, September 27, 2022 8:58 AM
To: Veda Nguyen <Veda.Nguyen@tn.gov>; Daniel McDonell <Daniel.McDonell@tn.gov>
Cc: Steve Allen <Steve.Allen@tn.gov>; Jim Waters <Jim.Waters@tn.gov>; Daniel Pallme <Daniel.Pallme@tn.gov>; Michael Cloud <Michael.Cloud@tn.gov>; Michael Gilbert <Michael.Gilbert@tn.gov>
Subject: 130902.00 - Marion Shellmound Road over I-24 EB

Veda/Daniel,

I don't think we ever got comments from your office for the attached bridge TIR, and it was going through the review process prior to the IJIA discussions began earlier this year. We are currently showing 4' shoulders across the bridge, but I think the Multimodal guidelines call for 5' shoulders when a vertical wall is present. Do you think we need to

accommodate pedestrians on this bridge? Or we okay with just providing the width on the shoulders for bikes? Let us know your thoughts about the multimodal accommodations for this project.

Thanks,
Dave



David Duncan, PE | Civil Engineering Manager 1
Strategic Transportation Investments Division / Project Investigation
James K. Polk Building, 10th Floor
505 Deaderick St., Nashville, TN 37243
p. 615-532-6131
David.A.Duncan@tn.gov
tn.gov/tdot
<https://www.tn.gov/tdot/strategic-transportation-investments.html>

NATIONAL BRIDGE INVENTORY TENNESSEE INVENTORY AND APPRAISAL REPORT



BRIDGE ID NUMBER: **58I00240039**
 BRIDGE OWNER: **STATE OF TENNESSEE**
 FIPS CODE: **00000**
 ROAD NAME: **SHELLMOUND RD.**
 CROSSING: **SHELLMOUND RD. / I-24 EB**
 LOCATION: **3.5 MI S OF SR28**

COUNTY: **MARION**
 ROUTE: **02161**
 SPECIAL CASE: **0**
 COUNTY SEQUENCE: **1**
 LOG MILE: **1.36**
 SUFFICIENCY RATING: **54.2**

IDENTIFICATION

(16a,b) LATITUDE: **N 35.04068 DEGREES**
 (17a,b) LONGITUDE: **W 85.60353 DEGREES**
 (98a) BORDER BRIDGE STATE CODE: **N/A**
 (98b) PERCENT SHARE: **N/A**
 (99) BORDER BRIDGE NUMBER: **NOT APPLICABLE**

BRIDGE TYPE AND MATERIAL

(43a) MAIN SPAN MATERIAL: **CONCRETE CONTINUOUS**
 (44a) APPR SPAN MATERIAL: **NOT APPLICABLE**

(45) NUMBER OF MAIN SPANS: **3**
 (46) NUMBER OF APPROACH SPANS: **0**
 (107) TYPE OF DECK: **CONCRETE CAST-IN-PLACE**
 (108) TYPE OF WEARING SURFACE AND DECK PROTECTION:
 A) TYPE OF SURFACE: **ASPHALT**
 B) TYPE MEMBRANE: **NONE**
 C) TYPE PROTECTION: **NONE**

AGE AND SERVICE

(27) YEAR THE BRIDGE WAS BUILT: **1965**
 (106) YEAR THE BRIDGE WAS REHABILITATED: **N/A**
 (42a) SERVICE ON BRIDGE: **HIGHWAY**
 (42b) UNDER BRIDGE: **HIGHWAY**
 (28a) NUMBER OF LANES CARRIED BY BRIDGE: **2**
 (28b) NUMBER OF LANES UNDER THE BRIDGE: **2**

GEOMETRIC DATA

(48) MAXIMUM SPAN LENGTH: **61.0 FT**
 (49) TOTAL BRIDGE LENGTH: **140.1 FT**
 (50a) LEFT SIDEWALK WIDTH: **0.0 FT**
 (50b) RIGHT SIDEWALK WIDTH: **0.0 FT**
 (51) BRIDGE CURB TO CURB WIDTH: **27.9 FT**
 (52) BRIDGE OUT TO OUT WIDTH: **34.4 FT**
 (32) APPROACH ROADWAY (W/ SHLDS) WIDTH: **27.9 FT**
 (33) BRIDGE MEDIAN: **NO MEDIAN**
 (34) BRIDGE SKEW: **32 DEGREES**
 (35) BRIDGE FLARE: **NO FLARE**
 (520) MIN VERTICAL CLEARANCE OVER RD: **NO RESTRICTION**
 (47) MIN HORIZONTAL CLEARANCE ON ROADWAY: **27.9 FT**
 (54a) VERT UNDERCLR: **HIGHWAY BENEATH BRIDGE**
 (54b) MIN VERTICAL UNDERCLEARANCE: **17.52 FT**
 (55a) HORZ UNDERCLR: **HIGHWAY BENEATH BRIDGE**
 (55b) MIN HORZ UNDERCLR ON RIGHT: **11.15 FT**
 (56) MIN HORZ UNDERCLR ON LEFT: **NOT APPLICABLE**

NAVIGATION DATA

(38) NAV CONTROL: **NOT APPLICABLE**
 (39) NAVIGATION VERTICAL CLEARANCE: **N/A**
 (116) LIFT BRIDGE VERT CLEARANCE: **N/A**
 (40) NAVIGATION HORZ CLEARANCE: **N/A**

CLASSIFICATION

(112) MEETS NBIS BRIDGE LENGTH: **YES**
 (104) NATIONAL HIGHWAY SYSTEM: **NOT A NHS ROUTE**
 (26) FUNCTIONAL CLASS: **RURAL MINOR COLLECTOR**
 (101) PARALLEL BRIDGE: **NO PARALLEL BRIDGE**
 (102) TRAFFIC DIR: **2-WAY TRAFFIC**
 (103) TEMPORARY BRIDGE: **NOT APPLICABLE**
 (110) NATIONAL TRUCK ROUTE: **NOT ON TRUCK NETWORK**
 (37) HISTORICAL CLASS: **HISTORICAL SIGNIFICANCE HAS NOT BEEN DETERMINED**

CONDITION RATINGS

(58) DECK: **7**
 (59) SUPERSTRUCTURE: **5**
 (60) SUBSTRUCTURE: **7**
 (61) STREAM CHANNEL AND CHANNEL PROTECTION: **N**
 (62) CULVERT CONDITION (IF APPLICABLE): **N**

DESIGN LOAD AND WEIGHT POSTING

(31) DESIGN LOADING: **HS-20-44 +MOD**
 WEIGHT POSTING (2 AXLE VEHICLES): **ALL LEGAL LOADS**
 WEIGHT POSTING (3 OR MORE AXLES): **ALL LEGAL LOADS**
 (70) BRIDGE POSTING CODE: **5**
 (41) WT POSTING STATUS: **OPEN**

APPRAISAL

(67) STRUCTURAL EVALUATION: **5**
 (68) DECK GEOMETRY: **5**
 (69) UNDERCLEARANCE RATING: **3**
 (71) WATERWAY ADEQUACY: **N**
 (72) APPROACH ROADWAY ALIGNMENT: **6**
 (36) TRAFFIC SAFETY FEATURES: **0000**
 (113) SCOUR CONDITION RATING: **N**

RECOMMENDED IMPROVEMENTS

(75) TYPE OF WORK: **BRIDGE DECK REPAIR**
 (76) LENGTH OF BRIDGE IMPROVEMENT: **140.1 FT**
 (94) BRIDGE IMPROVEMENT COST: **\$152,000.00**
 (95) ROADWAY IMPROVEMENT COST: **\$16,000.00**
 (96) TOTAL PROJECT COST: **\$229,000.00**
 (97) YEAR OF IMPROVEMENT COST ESTIMATE: **2019**

INSPECTION DATES

(90) DATE OF LAST REGULAR INSPECTION: **7/24/2018**
 (91) REGULAR INSPECTION FREQUENCY (MONTHS): **24**
 (93b) DATE OF LAST UNDERWATER INSP (MO/YR): **N/A**
 (92b) UNDERWATER INSP FREQUENCY (MONTHS): **N**
 (93c) DATE OF SPECIAL INSPECTION (MO/YR): **N/A**
 (92c) SPECIAL INSP FREQUENCY (MONTHS): **N**

**PRODUCED PURSUANT TO
PUBLIC RECORDS REQUEST**
 This document is covered by 23 USC §409
 and its production pursuant to a public
 document records request does not
 waive the provisions of §409

PUBLICATION DATE

19-Mar-20

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: 58100-0187-44 ROUTE: SHELLMOUND ROAD
COUNTY: MARION CITY: _____
PROJECT PIN NUMBER: 130902.00
PROJECT DESCRIPTION: BRIDGE OVER I-24 @ L.M. 1.36.

DIVISION REQUESTING:

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

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2026
PROJECTED LETTING DATE: _____

TRAFFIC ASSIGNMENT:

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
1,750	2026	1,930	232	12	2046	65-35	2	3		

REQUESTED BY: NAME MICHAEL CLOUD DATE 4/26/21
DIVISION S.T.I.D.
ADDRESS 1000 J. K. POLK BUILDING
NASHVILLER TN 37243

REVIEWED BY: _____ DATE _____
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG *Tony Armstrong* DATE 4/26/2021
TRANSPORTATION MANAGER 2
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

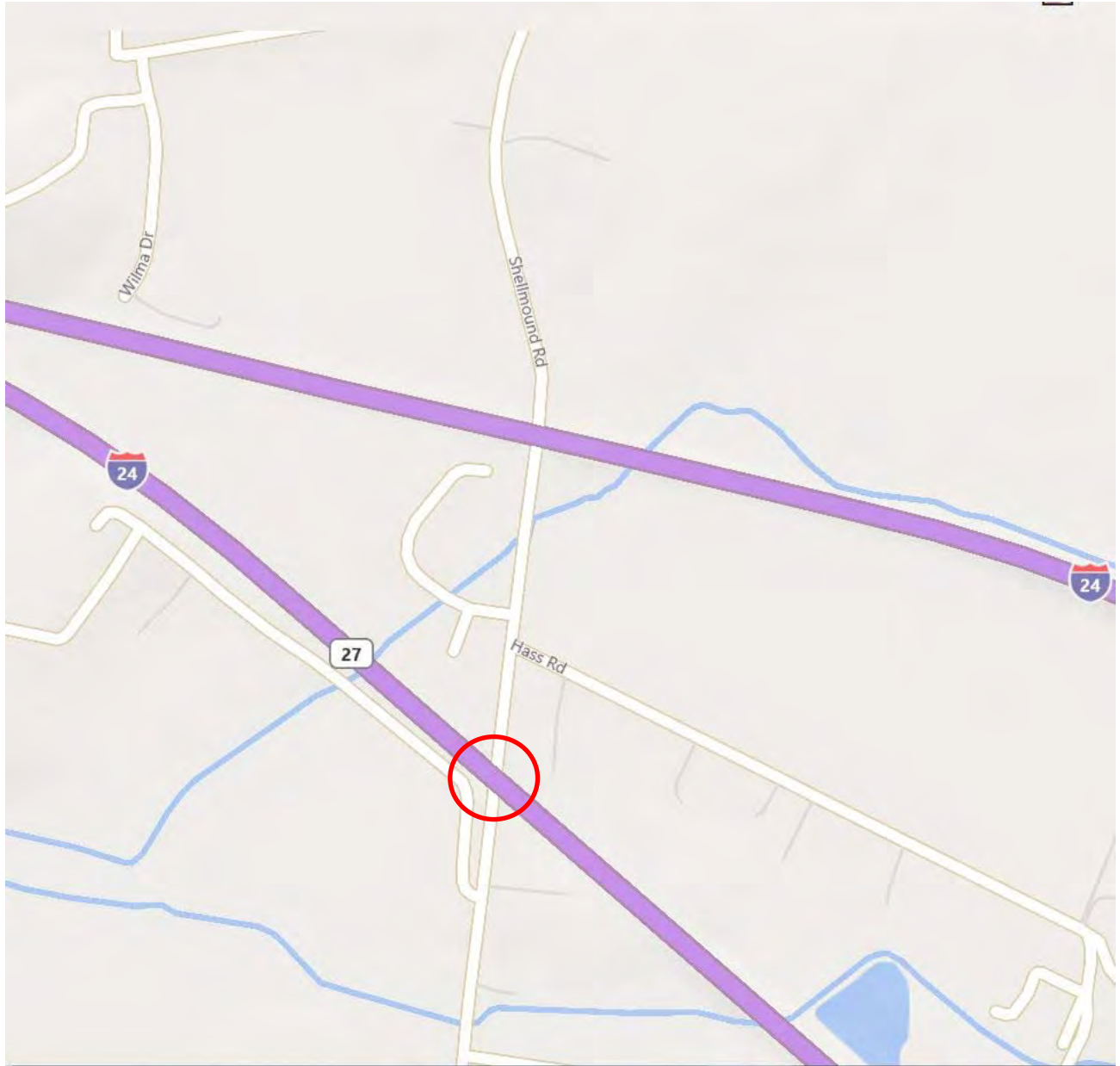
THIS TRAFFIC IS BASED ON A 2019 CYCLE COUNT. THE DESIGN YEAR TRAFFIC IS
BASED ON GROWTH RATE FROM THE ADAM COMPUTER PROGRAM.

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. 3/1/21)



Marion County

Shellmound Road

Bridge over I-24 @ L.M. 1.36

Michael Cloud

From: David A. Duncan
Sent: Monday, September 26, 2022 1:26 PM
To: Michael Cloud
Subject: FW: FOLLOW-UP on Request for Letter of Approval - 130902.00 - MarionCo Shellmound Rd BTIR - bridge over I-24 EB - detour approval request

Follow Up Flag: Follow up
Flag Status: Flagged

Please add this to the report.

From: Marion County Highway Department <marion.hwy.dept@gmail.com>
Sent: Monday, September 26, 2022 1:25 PM
To: David A. Duncan <David.A.Duncan@tn.gov>
Subject: [EXTERNAL] RE: FOLLOW-UP on Request for Letter of Approval - 130902.00 - MarionCo Shellmound Rd BTIR - bridge over I-24 EB - detour approval request

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. *****

Mr. Hawk agrees the detour will be sufficient.

Paula Richards

Marion County Highway Department
Administrative Office
513 East Valley Rd
Jasper, TN 37347
Phone: 423-942-2581

WARNING:

CONFIDENTIALITY NOTICE - The information enclosed with this transmission are the private, confidential property of the sender, and the material is privileged communication intended solely for the individual indicated. If you are not the intended recipient, you are notified that any review, disclosure, copying, distribution, or the taking of any other action relevant to the contents of this transmission are strictly prohibited. If you have received this transmission in error, please notify me immediately at (423) 942-2581.

From: [David A. Duncan](#)
Sent: Monday, September 26, 2022 1:18 PM

To: marion.hwy.dept@gmail.com

Cc: [Michael Cloud](#); [Michael Gilbert](#); [Jim Waters](#); [Steve Allen](#)

Subject: FW: FOLLOW-UP on Request for Letter of Approval - 130902.00 - MarionCo Shellmound Rd BTIR - bridge over I-24 EB - detour approval request

Mr. Hawk,

I'm following up on Mr. Cloud's request below. We need confirmation from the County Roadway Department that the proposed detour is sufficient before we can finish up the report. Please let us know if you have any questions.

Thanks,



David Duncan, PE | Civil Engineering Manager 1

Strategic Transportation Investments Division / Project Investigation

James K. Polk Building, 10th Floor

505 Deaderick St., Nashville, TN 37243

p. 615-532-6131

David.A.Duncan@tn.gov

tn.gov/tdot

<https://www.tn.gov/tdot/strategic-transportation-investments.html>

From: Michael Cloud <Michael.Cloud@tn.gov>

Sent: Tuesday, September 13, 2022 10:54 AM

To: Marion.HWY.DEPT@gmail.com

Cc: David A. Duncan <David.A.Duncan@tn.gov>; Michael Gilbert <Michael.Gilbert@tn.gov>; Jim Waters <Jim.Waters@tn.gov>; Steve Allen <Steve.Allen@tn.gov>

Subject: FOLLOW-UP on Request for Letter of Approval - 130902.00 - Marion Co Shellmound Rd BTIR - bridge over I-24 EB - detour approval request

Hello Mr. Hawk,

This is a courtesy follow-up email regarding the previous request for Marion County Approval of the detour for the proposed Shellmound Rd Bridge replacement. I have included a map of the 7.8 mile detour that we plan to relocate traffic onto during project construction. Please let us know if you agree with this detour route by sending a response to this email.

Thanks,

Mike Cloud



Michael Cloud, PE | Transportation Project Specialist – Senior

Strategic Transportation Investments Division

James K. Polk Building, 10th Floor

505 Deaderick St., Nashville, TN 37243

p. 615-532-7696 c. 615-414-5040

tn.gov/tdot

<https://www.tn.gov/tdot/strategic-transportation-investments.html>

From: Michael Cloud

Sent: Thursday, September 1, 2022 7:42 AM

To: marion.hwy.dept@gmail.com

Cc: David A. Duncan <David.A.Duncan@tn.gov>; Michael Gilbert <Michael.Gilbert@tn.gov>; Steve Allen <Steve.Allen@tn.gov>; Jim Waters <Jim.Waters@tn.gov>

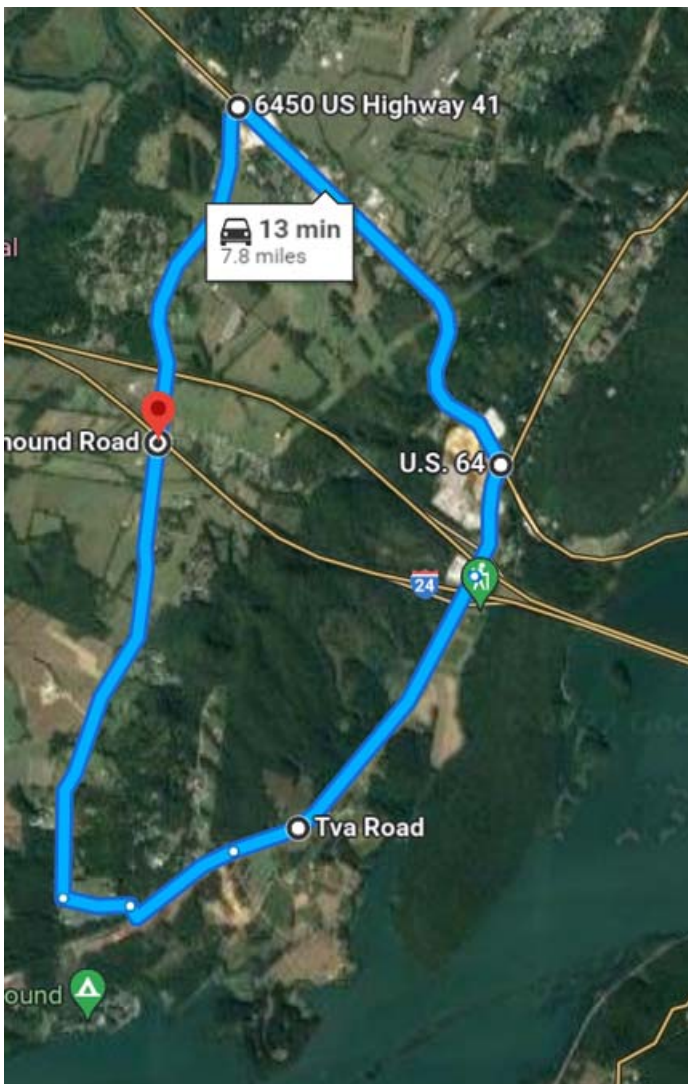
Subject: 130902.00 - Marion Co Shellmound Rd BTIR - bridge over I-24 EB - detour approval request

Mr. Hawk,

Yesterday, we had a conversation over the phone about detours for the attached proposed BTIR project. What is shown in the attached report is 1-lane phase construct with a temporary signal, but what I am currently proposing will need a temporary roadway closure and reroute traffic onto the detour found below.

Do you think Shellmound Rd and TVA Rd can handle the detour traffic for this project if we restripe and install signs? We may need to have the bridge crossing closed and use the detour for over a year. Do you foresee any issues with the proposed detour route?

Please respond with an email confirming if the county is agreeable to the proposed detour route, or if you have any other ideas to consider.



Thanks,
Mike Cloud



Michael Cloud, PE | Transportation Project Specialist – Senior
Strategic Transportation Investments Division
James K. Polk Building, 10th Floor
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<https://www.tn.gov/tdot/strategic-transportation-investments.html>