

# Programmatic Categorical Exclusion

State Route (SR) 223

(Shady Grove Road), Bridge over Branch, Log Mile (LM) 2.28

Unincorporated (northeast of Mercer)

Madison County

PIN 128113.06

Submitted Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4332(2)

# Project Information

## General Information

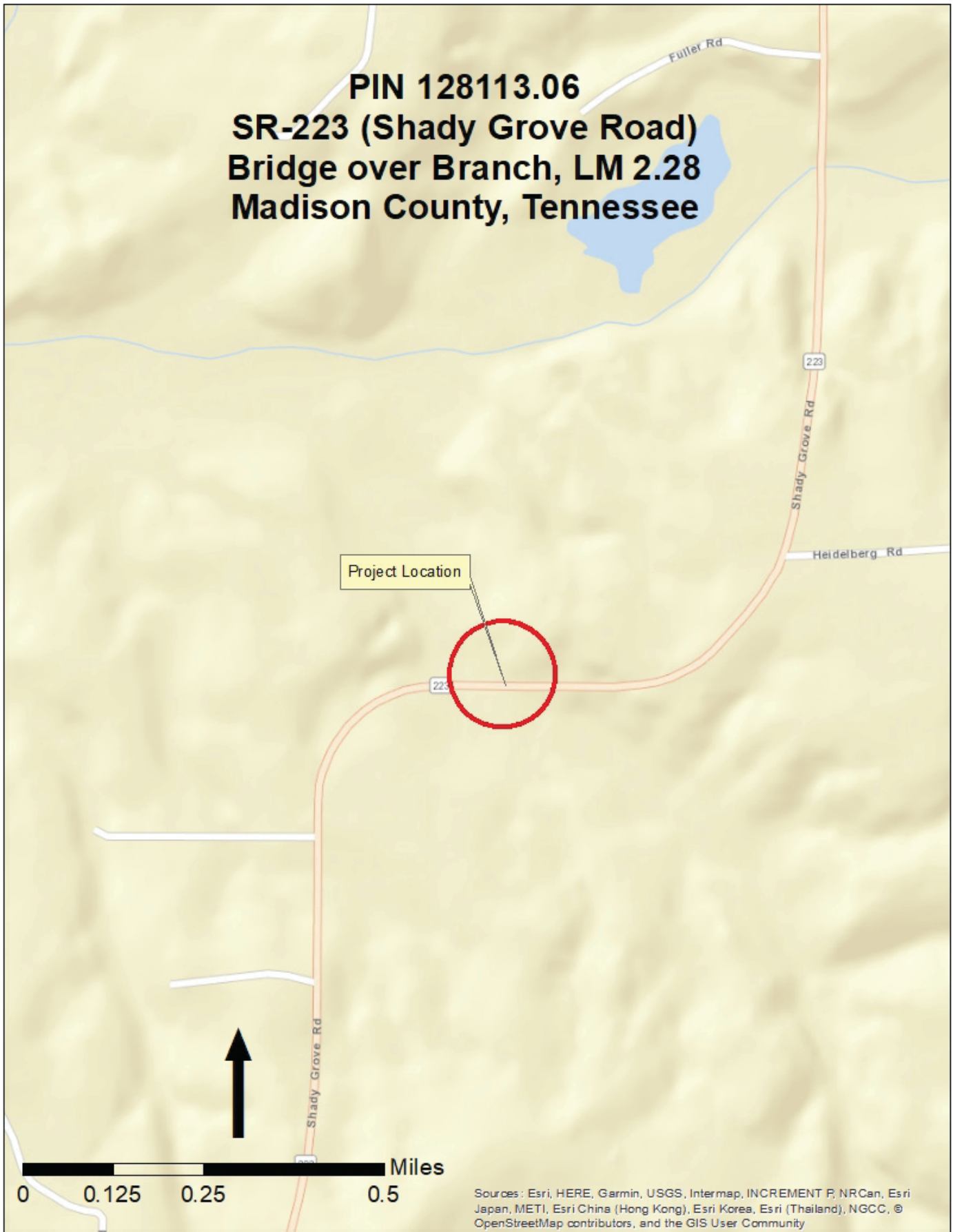
**Route:** State Route (SR) 223  
**Termini:** (Shady Grove Road), Bridge over Branch, Log Mile (LM) 2.28  
**Municipality:** Unincorporated (northeast of Mercer)  
**County:** Madison  
**PIN:** 128113.06  
**Plans:** Transportation Investment Report  
**Date of Plans:** 04/12/2018

## Project Funding

**Planning Area:** Jackson Metropolitan Planning Organization (MPO)  
**STIP/TIP:** Jackson STBG-05: Surface Transportation Block Group (STBG) Grouping

Funding Source	Preliminary Engineering	Right-of-Way	Construction
Federal	BR-STP-223(11)	BR-STP-223(11)	BR-STP-223(11)
State	57039-0231-94	57039-2231-94	57039-3231-94

# Project Location



# Project Overview

## Introduction

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The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), proposes to replace the SR-223 (Shady Grove Road) Bridge (57S81960003) over an unnamed branch at LM 2.28 in Madison County, TN.

## Background

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Every two years, TDOT performs a comprehensive inspection and subsequent evaluation of all public bridges across the state in order to determine the status of their working condition and operating limits to ensure that they are in accordance with the Federal Highway Administration (FHWA) National Bridge Inspection Standards (NBIS). These inspections are recorded and published in the National Bridge Inventory (NBI) Tennessee Inventory and Appraisal Report. One of the components of this evaluation is the designation of a sufficiency rating. A sufficiency rating is calculated for each individual bridge that is used to carry vehicular traffic. Ratings are measured on a scale of 0 to 100. A rating of 100 corresponds to a bridge that qualifies as an “entirely sufficient bridge,” while a rating of 0 denotes a bridge that is “entirely deficient.” Bridges that receive a sufficiency rating of less than 80.0 are eligible for rehabilitation; bridges that earn a rating below 50.0 are eligible for replacement. Another component of the NBI are the condition ratings. Condition ratings are used to describe the existing, in-place bridge as compared to the as-built condition. The physical condition of the deck, superstructure, and substructure components of a bridge are evaluated for a condition rating. Condition ratings are assigned codes ranging from 0-9, with 0 being failed condition and 9 being excellent condition.

According to the Transportation Investment Report (TIR) dated 04/12/2018 (located in the Technical Appendices), the SR-223 Bridge over Branch at LM 2.28 received a sufficiency rating of 27.4. Formerly, the proposed project was assigned project PIN 124712.00, however correspondence provided on 10/03/2018 shows a new project PIN (PIN 128113.06), has been assigned. This correspondence can be found in the Technical Appendices. All responses from the technical studies areas list the former PIN.

# Project Development

## Need

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The proposed project is needed to address insufficient structural elements due to the deterioration of the bridge as indicated by the sufficiency rating.

## Purpose

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The purpose of this project is to improve structural elements of the SR-223 Bridge over Branch at LM 2.28 by replacing the existing bridge.

## Range of Alternatives

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Other than the selected design, were any alternative build designs developed for this project?

No

### No-Build

In the development of design solutions that address the needs outlined above and achieve the purpose of the project, TDOT evaluated the potential consequences should the project not be implemented. This option, known as the No-Build alternative, assumed the continuation of current conditions and set the baseline from which the impacts of the selected design were compared.

The No-Build Alternative was not selected as it does not meet the purpose and need of the project.

## Public Involvement

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Has there been any public involvement for the project?

No

## Existing Conditions and Layout

The proposed project is located in the southwest region of Tennessee in Madison County between the cities of Mercer and Denmark. The project segment of SR-233 runs north to south connecting these two cities, and according to the TIR dated 04/12/2018, is a Rural Collector Road consisting of two, nine foot wide travel lanes, (one lane in each direction). The speed limit along the project segment is 45 miles per hour (mph).

The initial SR-233 Bridge (ID 5781960003), built in 1952, was a single-span steel I-beam bridge crossing an unnamed branch of Chisholm Creek. The total length of the bridge was 23 feet long with an out-to-out width of 22 feet and three inches. The sufficiency rating for this initial structure was a 27.4 based off a Bridge Inspection Report dated 08/03/2017 from the TDOT Structures Division - Bridge Inspection Unit. Since the inspection, the initial structure was removed and replaced with a temporary structure. The temporary structure is a precast concrete slab bridge, with an out-to-out width of 28 feet and 8 inches and an overall length of 28 ft (see Figure 1).

## EXISTING STRUCTURE (INLET)

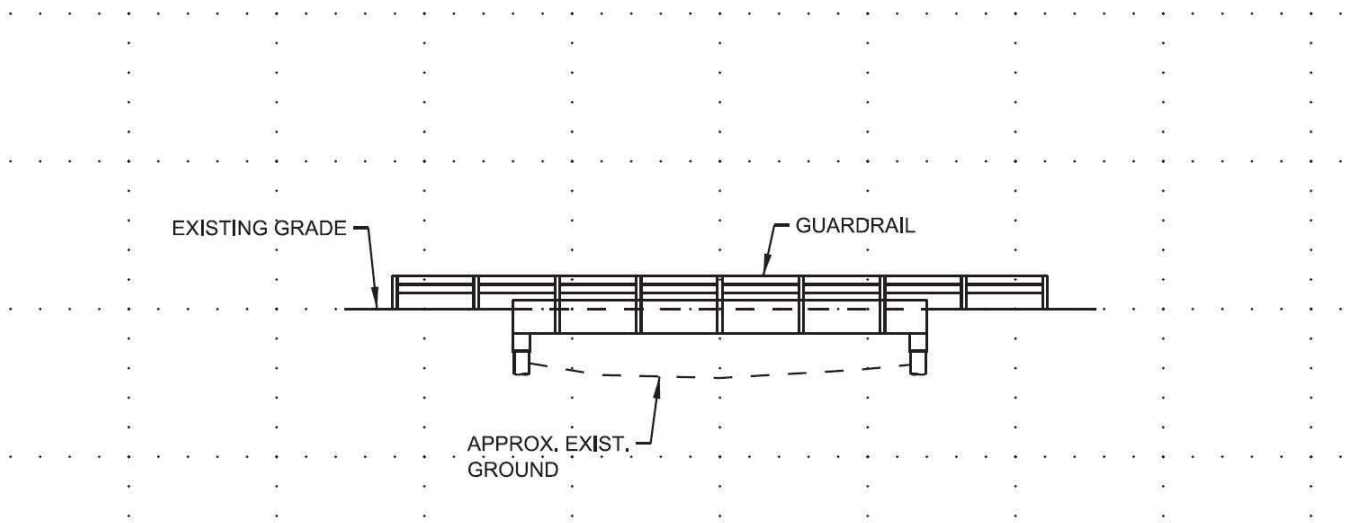


Figure 1. Shows the profile of the existing bridge structure according to TIR dated 04/12/2018.

## Proposed Project Description

The proposed bridge would consist of a 26 foot long reinforced concrete box bridge consisting of two barrels, each at a length of 12 feet and a vertical height clearance of five feet. The new structure would have an out-to-out width of 33 feet and six inches (see Figure 2).

The project segment of SR-233 would consist of two, 11 foot wide travel lanes, (one in each direction), and three foot wide shoulders. The proposed project would extend 120 feet from the project bridge in both directions to install guardrail and to taper the paved shoulders back to the existing roadway. The speed limit would remain at 45 mph for this project.

# PROPOSED STRUCTURE (INLET)

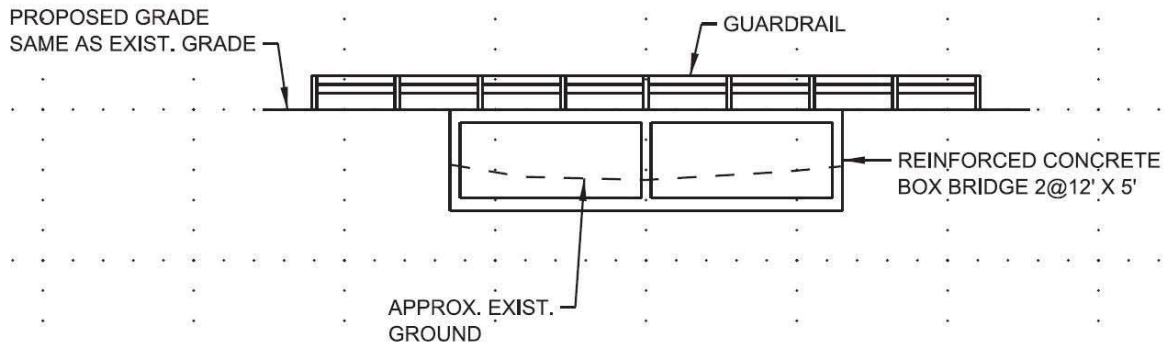


Figure 2. Shows profile of the replacement bridge according to TIR dated 04/12/2018.

## Right-of-Way

Does this project require the acquisition of right-of-way or easements?

Yes

Right-of-Way Acquisition Table

Permanent Acquisition			Temporary Acquisition		
R.O.W Acquisition	Drainage Easements	Total	Slope Easements	Construction Easements	Total
0.06	0	0.06	0	0	0

\*Measured in acres

According to the TIR dated 04/12/2018, "It is estimated that two tracts of land will be affected resulting in 0.06 acres of estimated right-of-way acquisition."

## Displacements and Relocations

Will this project result in residential, business or non-profit displacements and relocations?

No

## Changes in Access Control

Will changes in access control impact the functional utility of any adjacent parcels?

No

## Traffic and Access Disruption

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**At this time, are traffic control measures and temporary access information available?**

**Yes**

**Will this project involve traffic control measures that may result in major traffic disruptions?**

**No**

According to the TIR dated 04/12/2018 traffic control would be conducted by detouring commercial and local traffic with two different detour routes.

The commercial route would consist of traffic using the following route: Approaching from the east and north, would be directed to take Britton Lane heading due north, next onto Denmark Jackson Road heading east, then onto Smith Lane heading north to turn onto SR-1 (Airways Boulevard) heading west, next turning onto SR-138 to head due south to turn back onto SR-223 (Shady Grove Road). The detour for traffic approaching from the west, or south, would use the same roads in the reverse. The total length of the commercial detour route is approximately 30.6 miles with a driving time of 28 minutes to complete.

In addition to the commercial route, a second detour would be implemented for local traffic. The local traffic detour consists of utilizing the following streets: Traffic approaching the bridge from the north and/or east would turn onto Heidelberg Road heading east, next onto Maple Springs Road heading west, then onto SR-138 heading west, and lastly back onto SR-223 heading north. Traffic approaching from the south and/or west would utilize the same road but in the reverse order. The local traffic detour has a total length of 7.1 miles with a driving time of 12 minutes to complete.



# Environmental Studies

## Water Resources

Are there any water resources, wetlands or natural habitat located within the project area?

Yes

Preliminary Impact Form

County: Madison

Route: SR-223

PIN: 124712.00

Date Prepared: 7/17/2018

Prepared by:  
TDOT Region 4 - Environmental Tech Office

**NOTE:** This document is for "preliminary" use only and will not be considered accurate until the time of permit application.

### Streams

Labels	Type *	Function	Quality**	Impacts (feet) **		
				Permanent	Temporary	Total
STR-1	Stream		Undetermined at this time	175		175
STR-2	Stream		Undetermined at this time	0		0
<b>Total</b>				<b>175</b>		<b>175</b>

\* Identification of features has not been reviewed by regulatory agencies. Determinations could change.

Mitigation of impacts to streams or any other fluvial systems will be accomplished through the avoidance and minimization of potential impacts during the design process. Permanent stream alterations such as relocations, impoundments or channel modification will be mitigated on-site to the extent possible in order to return the channel to its most probable natural state. Impacts that cannot be mitigated on-site will be subject to a compensatory mitigation plan that may include restoration of a comparable resource or application of an in-lieu fee program.

## Protected Species

Is the GPNEA (2017) Consultation or the TDEC-DNA (2015) MOA applicable to this project?

No

### Rare Species Dataviewer:

The TDEC Rare Species Dataviewer was reviewed on 06/21/2018.

Rare Species List			
Species Name	Status	Species Potential within Right-of-Way	Accommodations
Piebald Madtom ( <i>Noturus gladiator</i> )	State	Low Potential: Present habitat unsuitable	BMP's

According to the Environmental Boundaries Report (EBR) dated 07/18/2018 from the TDOT Ecology Section, The TDEC Rare Species Dataviewer showed one species located within a one mile radius, and the one to four mile

radius, of the project was identified as the Piebald madtom, (*Noturus gladiator*), a state threatened animal with the present habitat unsuitable in both locations (see above Table).

### **U.S. Fish and Wildlife Service (USFWS):**

Coordination with the USFWS was completed on 07/16/2018.

The USFWS correspondence states, "Upon review of the information provided and our database, we would not anticipate impacts to any federally listed or proposed species as a result of the project. Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act."

### **Tennessee Wildlife Resources Agency (TWRA):**

Coordination with TWRA was completed on 07/11/2018.

The TWRA correspondence states, "I have reviewed the information that you provided regarding the proposed bridge replacement on SR-223 (Shady Grove Road) in Madison County, Tennessee. The implementation of standard BMP's will be sufficient to satisfy the needs of the Tennessee Wildlife Resources Agency for this proposed project."

## **Floodplain Management**

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**Flood Zone:** Zone A - No Base Flood Elevations Determined

Portions of this project are located in or near a Federal Emergency Management Agency (FEMA) defined floodplain however there is no detailed study. The project is located on Flood Insurance Rate Maps (FIRMs) in Madison County, Panel 375 of 435, Map # 47113C0375E. The design of the roadway system is consistent with the Memorandum of Understanding (MOU) between FHWA and FEMA and with the floodplain management criteria set forth in the National Flood Insurance Regulations of Title 44 of the Code of Federal Regulations (CFR). It will be consistent with the requirements of floodplain management guidelines for implementing Executive Order 11988 and FHWA guidelines 23 CFR 650A. A portion of the FEMA FIRM is included in Attachment

## **Air Quality**

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### **Transportation Conformity:**

Coordination with the TDOT Air and Noise Section dated 06/08/2018 states, "This project is in Madison County which is in attainment for all transportation-related regulated criteria pollutants. Therefore, conformity does not apply to this project."

### **Mobile Source Air Toxics (MSAT):**

The same coordination also states, "This project qualifies as a categorical exclusion under 23 CFR 771.117 and does

not require a Mobile Source Air Toxics (MSATs) evaluation per FHWA's 'Interim Guidance Update on Air Toxic Analysis in NEPA Documents' dated October 2016."

## Noise

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In accordance with FHWA requirements and TDOT's Noise Policy this project is determined to be **Type III**

No significant noise impacts are anticipated for this project and a noise study is not needed.

## Farmland

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Is this project exempt from the provisions of the Farmland Protection Policy Act (FPPA)? **Yes**

**FPPA Exemption:** Small Acreage (3 acres or less for an existing bridge or interchange)

## Section 4(f)

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Does this project involve the use of property protected by Section 4(f) (49 USC 303)? **No**

## Section 6(f)

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Does this project involve the use of property assisted by the L&WCF? **No**

## Cultural Resources

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Does the Interstate Highway exemption or MOU between TDOT and the SHPO (2015) apply? **No**

Are NRHP listed or eligible cultural resources within the project Area of Potential Effect (APE)? **No**

### Historic/Architectural Concurrence:

Concurrence from the TN State Historic Preservation Office (TN-SHPO) was received on 06/12/2018.

TN-SHPO Concurrence letter states, "Considering the information provided, we find that no architectural resources eligible for listing in the National Register of Historic Places will be affected by this undertaking,"

### Archaeology Concurrence:

Concurrence from the TN State Historic Preservation Office (TN-SHPO) was received on 08/21/2018.

TN-SHPO Concurrence letter states, "Considering the information provided, we find that no archaeological resources eligible for listing in the National Register of Historic Places will be affected by this undertaking."

## Native American Consultation

Does this project require Native American consultation?

Yes

Native American Consultation was requested on 05/14/2018.

Native American Consultation					
Sent	Response		Sent	Response	
<input type="checkbox"/>	<input type="checkbox"/>	Absentee Shawnee Tribe of Oklahoma	<input type="checkbox"/>	<input type="checkbox"/>	Muscogee (Creek) Nation
<input type="checkbox"/>	<input type="checkbox"/>	Cherokee Nation	<input type="checkbox"/>	<input type="checkbox"/>	Poarch Band of Creek Indians
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Chickasaw Nation	<input type="checkbox"/>	<input type="checkbox"/>	Quapaw Tribe of Oklahoma
<input type="checkbox"/>	<input type="checkbox"/>	Choctaw Nation of Oklahoma	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Shawnee Tribe
<input type="checkbox"/>	<input type="checkbox"/>	Eastern Band of Cherokee Indians	<input type="checkbox"/>	<input type="checkbox"/>	Thlopthlocco Tribal Town
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Eastern Shawnee Tribe of Oklahoma	<input checked="" type="checkbox"/>	<input type="checkbox"/>	United Keetoowah Band of Cherokee Indians
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Kialegee Tribal Town	<input type="checkbox"/>	<input type="checkbox"/>	Other

### Chickasaw Nation:

The response was received on 10/03/2018.

Correspondence from the Chickasaw Nation states, "The Chickasaw Nation supports the proposed undertakings and is presently unaware of any specific historic properties, including those of traditional religious and cultural significance, in the project area."

### Shawnee Tribe:

The response was received on 06/12/2018.

The Shawnee Tribe correspondence states, "The Shawnee Tribe's Tribal Historic Preservation Department concurs that no known historic properties will be negatively impacted by this project."

## Environmental Justice

Are there any disproportionately high or adverse effects on low-income or minority populations?

No

The proposed project does not have the potential to cause disproportionately high or adverse effects on low-income or minority populations.

## Hazardous Materials

Does the project involve any asbestos containing materials?

No

Does the project involve any other hazardous material sites?

No

## Bicycle and Pedestrian

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Does this project include accommodations for bicycles and pedestrians?

No

**Policy Exception:** Area characteristics (population, employment, transit) do not justify multimodal alternatives.

Coordination dated 06/08/2018 from the Multimodal Transportation Resources Division states, "This bridge project is exempt from Multimodal accommodation due to low ADT and rural nature of project."

## Environmental Commitments

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Does this project involve any environmental commitments?

No

## Additional Environmental Issues

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Are there any additional environmental concerns involved with this project?

No

# Conclusion

## Review Determination

### Determination: Programmatic Categorical Exclusion

This federal-aid highway project qualifies for a Categorical Exclusion under 23 C.F.R 771.117(d) and does not exceed the thresholds listed in Section IV(A)(1)(b) of the 2016 Programmatic Agreement between the Federal Highway Administration, Tennessee Division and the Tennessee Department of Transportation. The Department has determined that the specific conditions and criteria for these CEs are satisfied and that significant environmental impacts will not result from this action. This project is therefore designated as a Programmatic Categorical Exclusion and does not require Administration approval.

This state-funded highway project meets the qualifications for a Categorical Exclusion under 23 C.F.R 771.117(d) and does not exceed the thresholds listed in Section IV(A)(1)(b) of the 2016 Programmatic Agreement between the Federal Highway Administration, Tennessee Division and the Tennessee Department of Transportation. Though not required at this time, the Department has determined that all specific conditions and criteria for these CEs are satisfied and that significant environmental impacts will not result from this action. This project is therefore designated as a Tennessee Programmatic Categorical Exclusion.

## Reference Material

All source material used in support of the information and conclusions presented in this document are included in the attachments and technical appendices. The attachments are located at the end of the environmental document and include information on funding, agency concurrence, applicable agency agreements, and special commitment support. The technical appendices are compiled as a separate document and include the project plans, technical reviews, reports and any other additional information.

## Preparer Certification

By signing below, you certify that this document has been prepared in compliance with all applicable environmental laws, regulations and procedures. You can attest to the document's quality, accuracy, and completeness, and that all source material has been compiled and included in the attachments and technical appendices.

Crystal M. Alfaro

Digitally signed by Crystal M. Alfaro  
DN: cn=Crystal M. Alfaro, o=TN Dept. of  
Transportation, ou=Environmental Division - NEPA,  
email=crystal.alfaro@tn.gov, c=US  
Date: 2018.10.12 14:33:59 -05'00'

**Document Preparer**

## Document Approval

By signing below, you officially concur that this document is in compliance with all applicable environmental laws, regulations and procedures. You have reviewed and verified the document's quality, accuracy, and completeness and that all source material has been compiled and included in the attachments and technical appendices.

Joseph D. Santangelo

Digitally signed by Joseph D. Santangelo  
Date: 2018.10.12 15:21:45 -05'00'

# Attachments

## Acronyms

<b>AADT</b>	Annual Average Daily Traffic	<b>NRCS</b>	Natural Resources Conservation Service
<b>ADA</b>	Americans with Disabilities Act	<b>NRHP</b>	National Register of Historic Places
<b>APE</b>	Area of Potential Effect	<b>PCE</b>	Programmatic Categorical Exclusion
<b>BMP</b>	Best Management Practice	<b>PIN</b>	Project Identification Number
<b>CAA</b>	Clean Air Act	<b>PM</b>	Particulate Matter
<b>CE</b>	Categorical Exclusion	<b>PND</b>	Pond
<b>CEQ</b>	Council on Environmental Quality	<b>RCRA</b>	Resource Conservation and Recovery Act
<b>CFR</b>	Code of Federal Regulations	<b>ROW</b>	Right-of-Way
<b>CMAQ</b>	Congestion Mitigation and Air Quality	<b>ROD</b>	Record of Decision
<b>DEIS</b>	Draft Environmental Impact Statement	<b>RPO</b>	Rural Planning Organization
<b>FEMA</b>	Federal Emergency Management Agency	<b>SIP</b>	State Implementation Plan
<b>FONSI</b>	Finding of No Significant Impact	<b>SNK</b>	Sinkhole
<b>EA</b>	Environmental Assessment	<b>SR</b>	State Route
<b>EIS</b>	Environmental Impact Statement	<b>STIP</b>	State Transportation Improvement Program
<b>EJ</b>	Environmental Justice	<b>STR</b>	Stream
<b>EPA</b>	Environmental Protection Agency	<b>TDEC</b>	TN Department of Environment and Conservation
<b>EPH</b>	Ephemeral Stream	<b>TDOT</b>	Tennessee Department of Transportation
<b>FHWA</b>	Federal Highway Administration	<b>TIP</b>	Transportation Improvement Program
<b>FIRM</b>	Flood Insurance Rate Map	<b>SHPO</b>	State Historic Preservation Office
<b>FPPA</b>	Farmland Protection Policy Act	<b>TPO</b>	Transportation Planning Organization
<b>GHG</b>	Greenhouse Gas	<b>TVA</b>	Tennessee Valley Authority
<b>GIS</b>	Geographic Information System	<b>TWRA</b>	Tennessee Wildlife Resources Agency
<b>IAC</b>	Interagency Consultation	<b>USDOT</b>	U.S. Department of Transportation
<b>LWCF</b>	Land and Water Conservation Fund	<b>USACE</b>	U.S. Army Corps of Engineers
<b>LOS</b>	Level of Service	<b>USFWS</b>	U.S. Fish and Wildlife Service
<b>MOA</b>	Memorandum of Agreement	<b>UST</b>	Underground Storage Tank
<b>MOU</b>	Memorandum of Understanding	<b>VMT</b>	Vehicle Miles Traveled
<b>MPO</b>	Metropolitan Planning Organization	<b>VPD</b>	Vehicles Per Day
<b>MSAT</b>	Mobile Source Air Toxics	<b>WWC</b>	Wet Weather Conveyance
<b>NEPA</b>	National Environmental Policy Act		

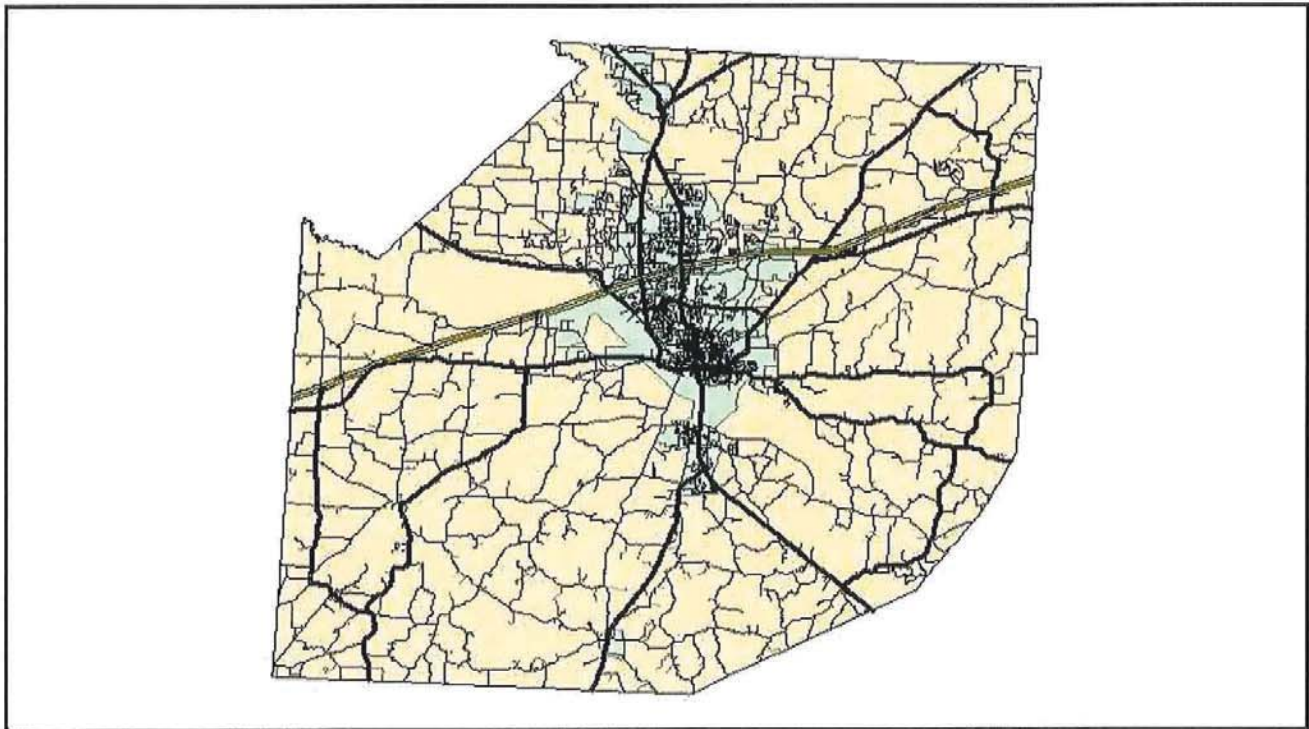
# State Transportation Improvement Program

## JACKSON AREA MPO FISCAL YEARS 2017-2020 TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

STIP #	TIP#	STBG-05	TDOT PIN#		PRIORITY		LEAD AGENCY	TDOT
COUNTY	Madison	LENGTH		L RTP#	Consistent w/L RTP	CONFORMITY STATUS		
ROUTE/PROJECT NAME	Surface Transportation Block Grant (STBG) Grouping		TOTAL PROJECT COST	\$1,957,324				
TERMINI OR INTERSECTION	Jackson Area MPO							
PROJECT DESCRIPTION	RESURFACING, GUARDRAIL, SLIDE REPAIR, SIGNS, SIGNALS, MARKING, INTERSECTION / INTERCHANGE MODIFICATIONS, SIGHT DISTANCE MODIFICATIONS, NOISE WALLS, WETLAND AND OR STREAM MITIGATION, SAFETY IMPROVEMENTS, BRIDGE REPLACEMENT, REPAIR, REHABILITATION, PRESERVATION, ROCKFALL MITIGATION, SIDEWALKS, TRAFFIC CALMING, PEDESTRIAN AND OR BICYCLE FACILITIES, ITS OPERATIONS, MAINTENANCE, POWER, COMMUNICATIONS, CONSTRUCTION, OPERATE THE TN 511 SYSTEM, FREEWAY SERVICE PATROLS, TRAFFIC DIVERSION, NON-INFRASTRUCTURE, SCHOOL AND OTHER FLASHING SIGNALS, BRIDGE AND TUNNEL INSPECTION, RAIL-HIGHWAY GRADE CROSSING IMPROVEMENTS, ENHANCEMENT ACTIVITIES, ETC. SEE APPENDIX E.							

FISCAL YEAR	PHASE	FUNDING TYPE	TOTAL FUNDS	FED FUNDS	STATE FUNDS	LOCAL FUNDS
2017	PE, ROW, CONST	STBG	\$489,331	\$391,465	\$97,866	\$0
2018	PE, ROW, CONST	STBG	\$489,331	\$391,465	\$97,866	\$0
2019	PE, ROW, CONST	STBG	\$489,331	\$391,465	\$97,866	\$0
2020	PE, ROW, CONST	STBG	\$489,331	\$391,465	\$97,866	\$0

AMENDMENT #		ADJUSTMENT #		REMARKS	Source: TDOT Program Development and Scheduling Office (PDSO) 2016
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Appendices

Grouping Category	Function of Grouping Activities	Allowable Work Types
<p>Surface Transportation Block Grant Program (STBG) Grouping</p> <p>STIP# 1799001</p>	<p>Projects and programs for the preservation and improvement of the conditions and performance of Federal-aid highways and public roads, including:</p> <ul style="list-style-type: none"> <li>• Rehabilitation, resurfacing, restoration, preservation, and operational improvements on Federal-aid highways and designated routes of the Appalachian Development Highway System (ADHS) and local access roads under 40 USC 14501.</li> <li>• Traffic operations on Federal-aid highways.</li> <li>• Bridge and tunnel improvements on public roads.</li> <li>• Safety improvements on public roads.</li> <li>• Environmental mitigation</li> <li>• Scenic and historic highway programs.</li> <li>• Landscaping and scenic beautification.</li> </ul>	<p>Activities previously authorized under the Surface Transportation Program (STP):</p> <ul style="list-style-type: none"> <li>• Minor rehabilitation, pavement resurfacing, preventative maintenance, restoration, and pavement preservation treatments to extend the service life of highway infrastructure, including pavement markings and improvements to roadside hardware or sight distance</li> <li>• Highway improvement work including slide repair, rock fall mitigation, drainage repairs, or other preventative work necessary to maintain or extend the service life of existing infrastructure in a good operational condition</li> <li>• Minor operational and safety improvements to intersections and interchanges such as adding turn lanes, addressing existing geometric deficiencies, and extending on/off ramps</li> <li>• Capital and operating costs for intelligent transportation systems (ITS) and traffic monitoring, management, and control facilities and programs:             <ul style="list-style-type: none"> <li>○ Infrastructure-based intelligent transportation systems (ITS) capital improvements</li> <li>○ Traffic Management Center (TMC) operations and utilities</li> <li>○ Freeway service patrols</li> <li>○ Traveler information</li> </ul> </li> <li>• Bridge and tunnel construction (no additional travel lanes), replacement, rehabilitation, preservation, protection, inspection, evaluation, and inspector training and inspection and evaluation of other infrastructure assets, such as signs, walls, and drainage structures</li> <li>• Development and implementation of a State Asset Management Plan including data collection, maintenance and integration, software costs, and equipment costs that support the development of performance-based management systems for infrastructure</li> <li>• Rail-highway grade crossing improvements</li> <li>• Highway safety improvements:             <ul style="list-style-type: none"> <li>○ Installation of new or improvement of existing guardrail</li> <li>○ Installation of traffic signs and signals/signs</li> <li>○ Spot safety improvements</li> </ul> </li> <li>• Sidewalk improvements</li> <li>• Pedestrian and/or bicycle facilities</li> <li>• Traffic calming and traffic diversion improvements</li> <li>• Transportation Alternatives as defined by 23 USC 213(B), 23 USC, 101(A)(29), and Section 1122 of MAP-21</li> <li>• Noise walls</li> <li>• Wetland and/or stream mitigation</li> <li>• Environmental restoration and pollution abatement</li> <li>• Control of noxious weeds and establishment of native species</li> </ul> <p>Activities previously authorized under the Transportation Enhancement Program:</p>

Appendices

<p><b>Surface Transportation Block Grant Program (STBG) Grouping</b> (continued)  STIP# 1799001</p>	<ul style="list-style-type: none"> <li>● Historic preservation.</li> <li>● On- and off-road pedestrian and bicycle facilities.</li> <li>● Infrastructure projects for improving non-driver access to public transportation and enhanced mobility.</li> <li>● Community improvement activities.</li> <li>● Recreational Trail Program projects.</li> <li>● Safe Routes to School (SRTS) projects.</li> <li>● Transportation Enhancement projects.</li> <li>● Transportation Alternatives projects.</li> <li>● Projects for the creation, rehabilitation, and maintenance of multi-use recreational trails.</li> </ul>	<ul style="list-style-type: none"> <li>○ Pedestrian and bicycle facilities, safety, and educational activities</li> <li>○ Acquisition of scenic easements and scenic or historic sites</li> <li>○ Scenic or historic highway programs</li> <li>○ Landscaping and other scenic beautification activities</li> <li>○ Historic preservation</li> <li>○ Rehabilitation and operation of historic transportation buildings, structures, or facilities</li> <li>○ Preservation of abandoned railway corridors</li> <li>○ Inventory, control, and removal of outdoor advertising</li> <li>○ Archaeological planning and research</li> <li>○ Environmental mitigation to address water pollution due to highway runoff or reduce vehicle-caused wildlife mortality while maintaining habitat connectivity</li> <li>○ Establishment of transportation museums</li> <li>○ Activities under the Tennessee Roadscapes grant program, including landscaping, irrigation, benches, trash cans, paints, and signage</li> </ul> <p><b>Activities previously authorized under the Safe Routes to School Program (SRTS):</b></p> <ul style="list-style-type: none"> <li>● Sidewalk improvements</li> <li>● Traffic calming and speed reduction improvements</li> <li>● Pedestrian and bicycle crossing improvements</li> <li>● On-street bicycle facilities</li> <li>● Off-street bicycle and pedestrian facilities</li> <li>● Secure bicycle parking facilities</li> <li>● Traffic diversion improvements approximately within 2 miles of a school location</li> <li>● Non-infrastructure related activities:             <ul style="list-style-type: none"> <li>○ Public awareness campaigns and outreach to press and community leaders</li> <li>○ Traffic education and enforcement in the vicinity of schools                 <ul style="list-style-type: none"> <li>▪ Student sessions on bicycle and pedestrian safety, health, and environment</li> <li>▪ Funding for training, volunteers, and managers of safe routes to school program</li> </ul> </li> </ul> </li> </ul> <p><b>Activities previously authorized under the Transportation Alternatives Program (TAP):</b></p> <ul style="list-style-type: none"> <li>● Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including:             <ul style="list-style-type: none"> <li>○ Sidewalk improvements</li> <li>○ Bicycle infrastructure</li> <li>○ Pedestrian and bicycle signals</li> <li>○ Traffic calming techniques</li> <li>○ Lighting and other safety-related infrastructure</li> </ul> </li> </ul>
---	--	--



# U.S. Fish and Wildlife Service Coordination

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**From:** [John Griffith](#)  
**To:** [Eric Philipps](#)  
**Cc:** [Randall E. Mann](#); [Lou Timms](#); [Jared McCoy](#); [Dustin Tucker](#); [Rita M. Thompson](#); [Greg Harris](#)  
**Subject:** RE: [EXTERNAL] Madison County, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00  
**Date:** Monday, July 16, 2018 9:44:40 AM  
**Attachments:** [image001.png](#)

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

Eric,  
??

Thank you for requesting our review of the proposed SR-223 Bridge replacement over a unnamed tributary to Chisholm Creek at LM 2.28 in Madison County, Tennessee.?? Upon review of the information provided and our database, we would not anticipate impacts to any federally listed or proposed species as a result of the project.?? Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act.?? Obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

??

TDOT's standard construction BMPs would be implemented during the project. Equipment staging and maintenance areas should be developed an adequate distance from the stream to avoid entry of petroleum-based pollutants into the water.?? Concrete and cement dust must be kept out of the water as they alter chemical properties and can be toxic to aquatic species. This email will serve as our official project response.?? Please let me know if we can offer further assistance.?? Thanks,

??

John Griffith  
Transportation Biologist  
U.S. Fish and Wildlife Service  
Tennessee Field Office  
931-525-4995 (office)  
931-528-7075 (fax)  
??

---

**From:** Eric Philipps <[Eric.Philipps@tn.gov](mailto:Eric.Philipps@tn.gov)>  
**Sent:** Thursday, June 21, 2018 2:15 PM  
**To:** [john\\_griffith@fws.gov](mailto:john_griffith@fws.gov)  
**Cc:** Randall E. Mann <[Randall.E.Mann@tn.gov](mailto:Randall.E.Mann@tn.gov)>; Lou Timms <[Lou.Timms@tn.gov](mailto:Lou.Timms@tn.gov)>; Jared McCoy <[Jared.McCoy@tn.gov](mailto:Jared.McCoy@tn.gov)>; Dustin Tucker <[Dustin.Tucker@tn.gov](mailto:Dustin.Tucker@tn.gov)>; Rita M. Thompson <[Rita.M.Thompson@tn.gov](mailto:Rita.M.Thompson@tn.gov)>; Greg Harris <[Greg.Harris@tn.gov](mailto:Greg.Harris@tn.gov)>  
**Subject:** [EXTERNAL] Madison County, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00  
??

# Tennessee Wildlife Resource Agency Coordination

---

**From:** [Casey Parker](#)  
**To:** [Eric Philipps](#); [TDOT Env.LocalPrograms](#)  
**Cc:** [Rob Todd](#)  
**Subject:** RE: Request for Comment - Madison, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00  
**Date:** Wednesday, July 11, 2018 2:53:29 PM  
**Attachments:** [image002.png](#)  
[image003.png](#)

---

Subject: Request for Comment - Madison, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00

Mr. Eric Philipps,

I have reviewed the information that you provided regarding the proposed bridge replacement on SR-223 (Shady Grove Road) in Madison County, Tennessee. The implementation of standard BMP's will be sufficient to satisfy the needs of the Tennessee Wildlife Resources Agency for this proposed project. Thank you for the opportunity to review and comment, please contact me if you need further assistance.

**Casey Parker - Wildlife Biologist**  
**Liaison to TDOT & Federal Highway Administration**  
**Tennessee Wildlife Resources Agency**  
**Environmental Services Division**  
**Email:** [casey.parker@tn.gov](mailto:casey.parker@tn.gov)



---

**From:** Eric Philipps  
**Sent:** Thursday, June 21, 2018 2:57 PM  
**To:** Casey Parker  
**Cc:** Rob Todd; Randall E. Mann; Lou Timms; Jared McCoy; Dustin Tucker; Rita M. Thompson; Greg Harris  
**Subject:** Request for Comment - Madison, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00

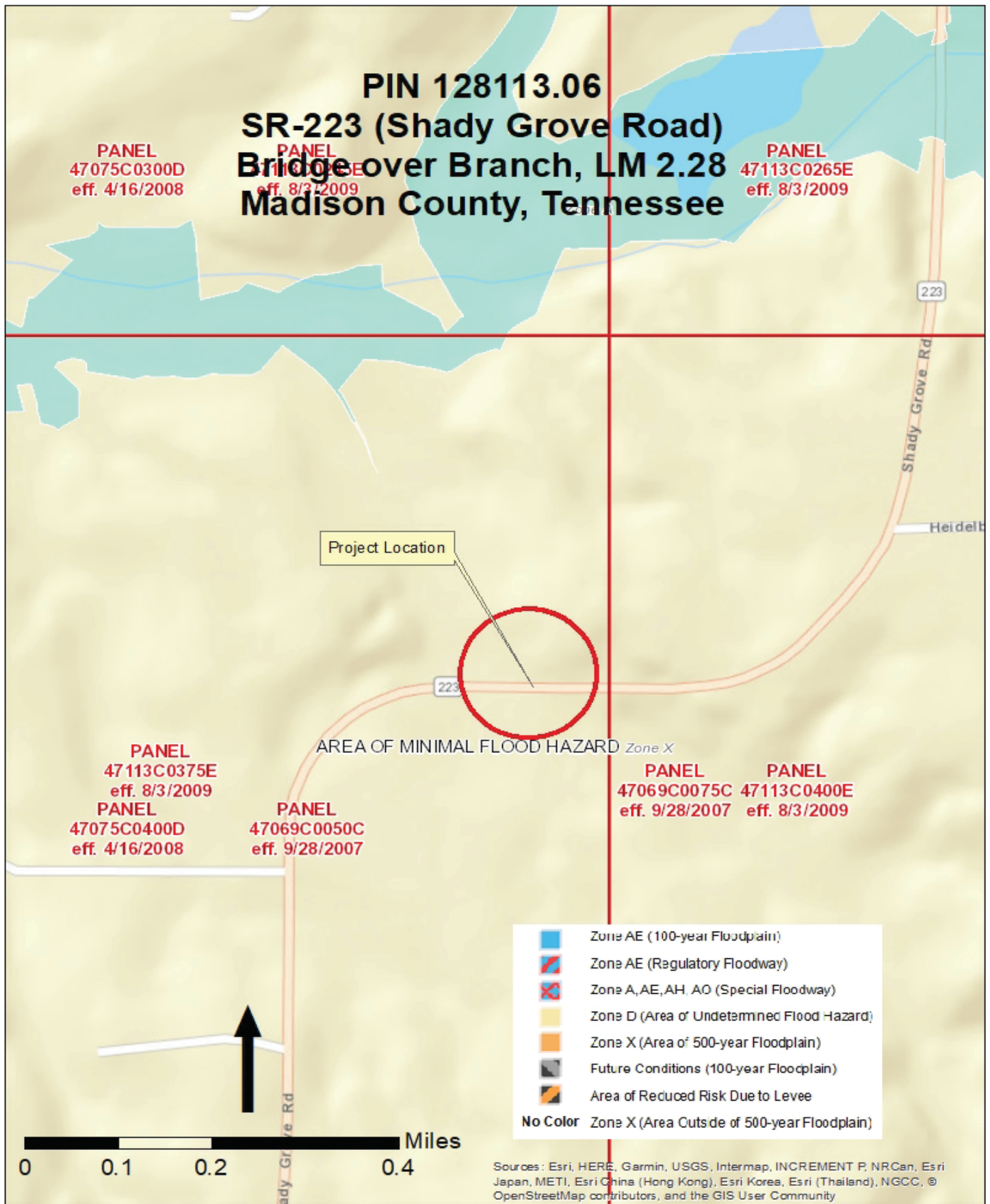
Casey,

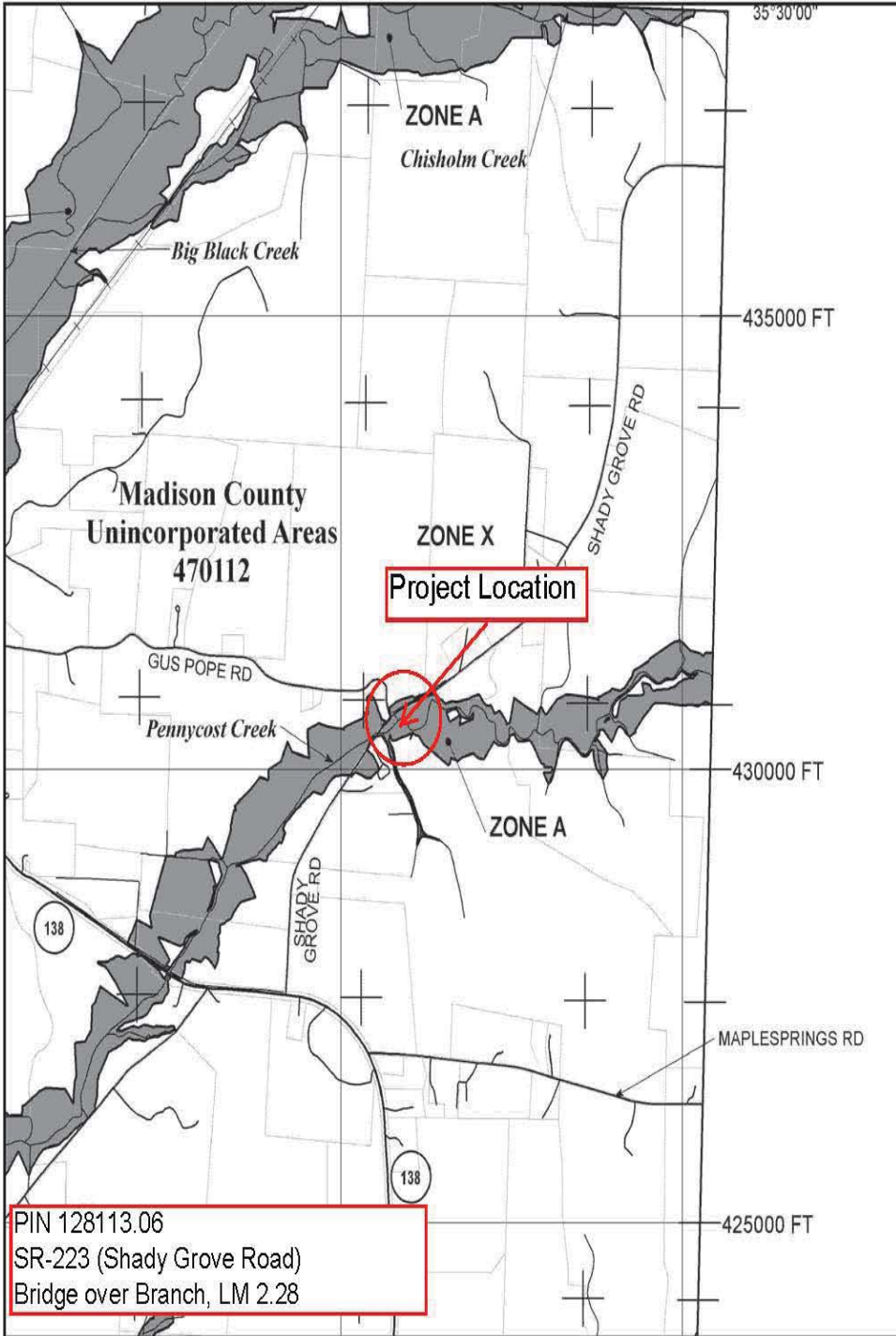
TDOT proposes to replace the subject bridge in Madison County. Please find attached KMZ file, species maps, species list, and plan sheet. If you have any questions or require additional information, please do not hesitate to contact me.

Thanks



# Floodplain Map

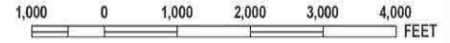




and Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 2000'



NFIP

PANEL 0375E

**FIRM**  
FLOOD INSURANCE RATE MAP  
MADISON COUNTY,  
TENNESSEE  
AND INCORPORATED AREAS

PANEL 375 OF 435  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MADISON COUNTY	470112	0375	E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
47113C0375E

**MAP REVISED**  
AUGUST 3, 2009

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



**TENNESSEE HISTORICAL COMMISSION**  
STATE HISTORIC PRESERVATION OFFICE  
2941 LEBANON PIKE  
NASHVILLE, TENNESSEE 37243-0442  
OFFICE: (615) 532-1550  
[www.tnhistoricalcommission.org](http://www.tnhistoricalcommission.org)

June 12, 2018

Ms. Katherine Looney  
Tennessee Department of Transportation  
505 Deaderick St  
Suite 900  
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, Replacement of the SR 223 Bridge over Branch,  
Log Mile 2.28/ PIN 124712.00, , Madison County, TN

Dear Ms. Looney:

In response to your request, we have reviewed the architectural survey report and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we concur that no architectural resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Questions or comments may be directed to Casey Lee (615 253-3163).

Your cooperation is appreciated.

Sincerely,

A handwritten signature in cursive script that reads "E. Patrick McIntyre, Jr.".

E. Patrick McIntyre  
Executive Director and  
State Historic Preservation Officer

EPM/cjl





**TENNESSEE HISTORICAL COMMISSION**  
STATE HISTORIC PRESERVATION OFFICE  
2941 LEBANON PIKE  
NASHVILLE, TENNESSEE 37243-0442  
OFFICE: (615) 532-1550  
[www.tnhistoricalcommission.org](http://www.tnhistoricalcommission.org)

August 21, 2018

Mr. Phillip R. Hodge  
Tennessee Department of Transportation  
Suite 900, James K. Polk Building  
505 Deaderick Street  
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, SR-233 (Shady Grove Road) Bridge  
Replacement, Log Mile 2.28, Madison County, TN

Dear Mr. Hodge:

In response to your request, we have reviewed the archaeological report of investigations and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we find that no archaeological resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Complete and/or updated Tennessee Site Survey Forms should be submitted to the Tennessee Division of Archaeology for all sites recorded and/or revisited during the current investigation. Questions or comments may be directed to Jennifer Barnett (615) 687-4780.

Your cooperation is appreciated.

Sincerely,

E. Patrick McIntyre, Jr.  
Executive Director and  
State Historic Preservation Officer

EPM/jmb

# Quality Assurance Review

# Project Information

**Route:** State Route (SR) 223  
**Termini:** (Shady Grove Road), Bridge over Branch, Log Mile (LM) 2.28  
**County:** Madison County  
**PIN:** 128113.06  
**Preparer:** Crystal M. Alfaro

## Certification

By signing below, you certify that this document has been reviewed for compliance with all applicable environmental laws, regulations and procedures. The document has been evaluated for quality, accuracy, and completeness, and that all source material has been verified, compiled and included in the attachments and technical appendices.

<b>Reviewer:</b>	Joe Santangelo	<b>Signature:</b>	Joseph D. Santangelo <small>Digitally signed by Joseph D. Santangelo Date: 2018.10.12 13:49:40 -05'00'</small>
<b>Title:</b>	Environmental Supervisor	<b>Comment:</b>	Revisions required

<b>Reviewer:</b>	Joe Santangelo	<b>Signature:</b>	Joseph D. Santangelo <small>Digitally signed by Joseph D. Santangelo Date: 2018.10.12 15:22:38 -05'00'</small>
<b>Title:</b>	Environmental Supervisor	<b>Comment:</b>	Approved

<b>Reviewer:</b>	Enter Reviewer Name	<b>Signature:</b>	
<b>Title:</b>	Enter Reviewer Title	<b>Comment:</b>	Enter Comment

<b>Reviewer:</b>	Enter Reviewer Name	<b>Signature:</b>	
<b>Title:</b>	Enter Reviewer Title	<b>Comment:</b>	Enter Comment

<b>Reviewer:</b>	Enter Reviewer Name	<b>Signature:</b>	
<b>Title:</b>	Enter Reviewer Title	<b>Comment:</b>	Enter Comment

# Technical Appendices

Programmatic Categorical Exclusion

State Route (SR) 223

(Shady Grove Road), Bridge over Branch, Log Mile (LM) 2.28

near Mercer, Tennessee

Madison County

# Project Development

## Crystal Alfaro

---

**From:** Joseph Santangelo  
**Sent:** Wednesday, October 3, 2018 1:11 PM  
**To:** Abby Harris; Brittany Hyder; Crystal Alfaro  
**Cc:** Sharon Sanders  
**Subject:** Design-Build Bridge Projects

**Importance:** High

All,

The PINs have recently changed for all of these projects. Please see below and update your tracking reports and project files accordingly.

If you have projects that have been approved under the old PIN, I'm awaiting guidance on how to proceed...

Brittany – 124139.00 – New PIN: 128113.01

Crystal – 124285.00 – New PIN: 128113.02

Abby – 124505.00 – New PIN: 128113.03

Abby – 124503.00 – New PIN: 128113.04

Abby – 124637.00 – New PIN: 128113.05

Crystal – 124712.00 – New PIN: 128113.06

Thank you,



**Joe Santangelo** | Environmental Supervisor  
Environmental Division – NEPA Section  
James K. Polk Building, 9<sup>th</sup> Floor  
505 Deaderick Street  
Nashville, TN 37243  
p. 615-253-1454  
[Joseph.Santangelo@tn.gov](mailto:Joseph.Santangelo@tn.gov)

**TENNESSEE**  
**DEPARTMENT OF TRANSPORTATION**



**TRANSPORTATION INVESTMENT REPORT**  
**IMPROVE Act**

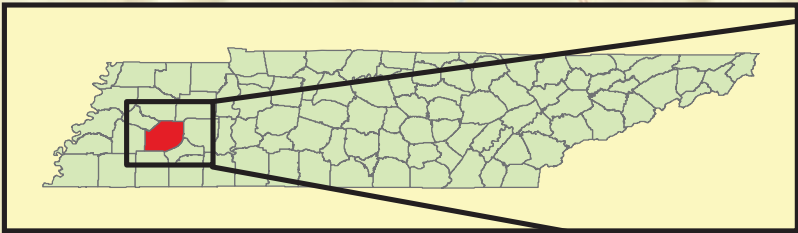
**State Route 223**  
**Bridge over Branch,**  
**Log Mile 2.28 Madison County**  
**PIN 124712.00**

PREPARED BY KCI TECHNOLOGIES INC. FOR THE  
TENNESSEE DEPARTMENT OF TRANSPORTATION

Approved by Toks Oritokun Date 03-28-18 Approved by Paul Deegan Date 4/2/18  
Chief of Environment and Planning Deputy Commissioner and Chief Engineer

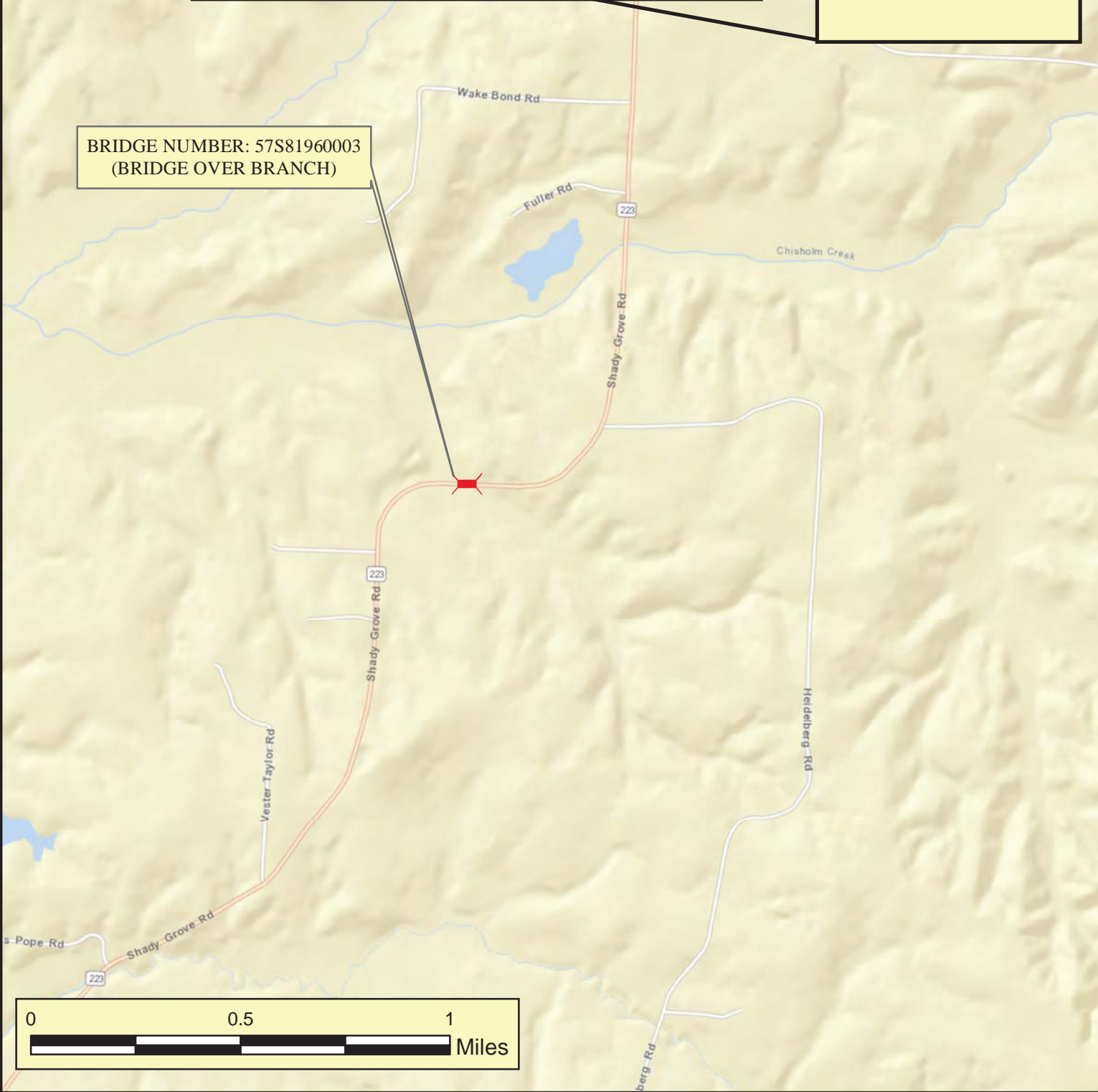
Approved by:	Signature	DATE
TRANSPORTATION DIRECTOR STRATEGIC TRANSPORTATION INVESTMENTS DIVISION		3-26-18
ENGINEERING DIRECTOR DESIGN DIVISION		03/27/18
ENGINEERING DIRECTOR STRUCTURES DIVISION		3/27/18

*This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.*



MADISON COUNTY

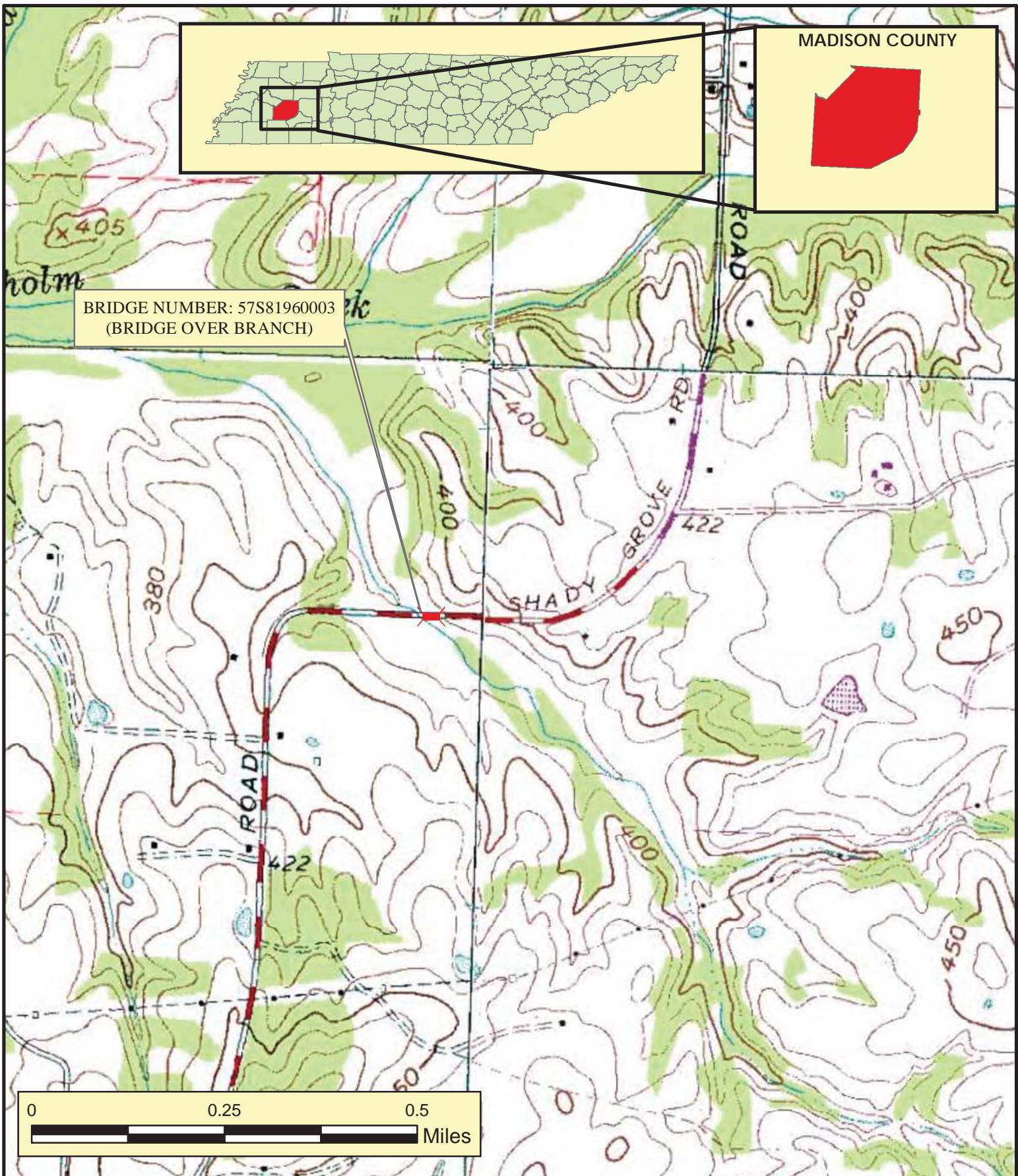
BRIDGE NUMBER: 57S81960003  
(BRIDGE OVER BRANCH)



**AREA MAP**  
**BRIDGE TIR**  
**STATE ROUTE 223 (SHADY GROVE ROAD)**  
**BRIDGE OVER BRANCH (LM 2.28)**  
**MADISON COUNTY**



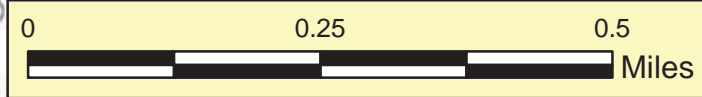
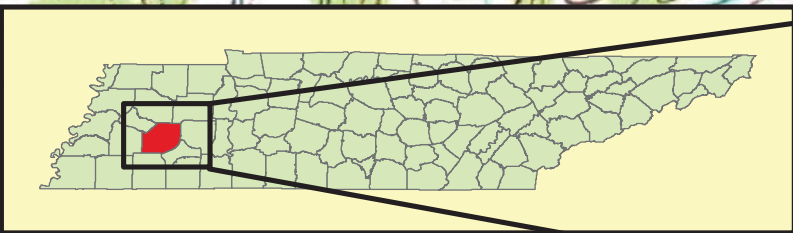




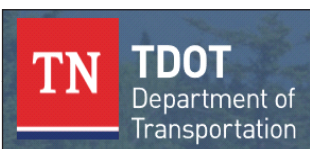
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(BRIDGE OVER BRANCH)

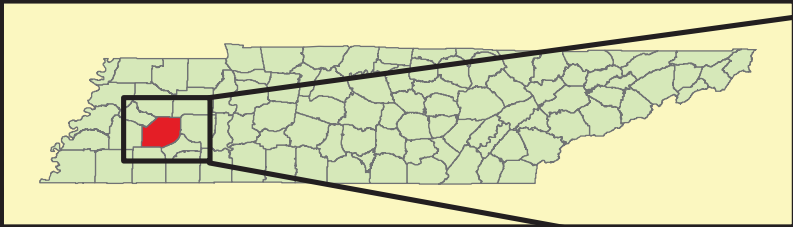


MADISON COUNTY

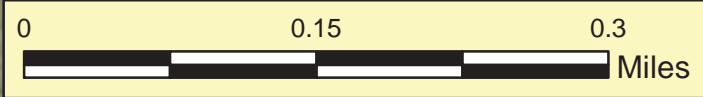


**TOPO MAP**  
**BRIDGE TIR**  
**STATE ROUTE 223 (SHADY GROVE ROAD)**  
**BRIDGE OVER BRANCH (LM 2.28)**  
**MADISON COUNTY**





BRIDGE NUMBER: 57S81960003  
(BRIDGE OVER BRANCH)



**PROJECT MAP**  
**BRIDGE TIR**  
**STATE ROUTE 223 (SHADY GROVE ROAD)**  
**BRIDGE OVER BRANCH (LM 2.28)**  
**MADISON COUNTY**





**STATE OF TENNESSEE**  
**DEPARTMENT OF TRANSPORTATION**  
**STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**  
SUITE 1000, JAMES K. POLK BUILDING  
505 DEADERICK STREET  
NASHVILLE, TN 37243  
(615) 741-2208

**JOHN C. SCHROER**  
COMMISSIONER

**BILL HASLAM**  
GOVERNOR

**MEMORANDUM**

**TO:** Steve Allen, Transportation Director  
Strategic Transportation Investments Division

**FROM:** David Duncan P.E., C.E. Manager 1  
Strategic Transportation Investments Division

**DATE:** March 9, 2018

**SUBJECT:** TIR Field Review (IMPROVE Act)  
Shady Grove Road (SR223), Bridge over Branch  
Bridge ID: 57S81960003  
Log Mile 2.28  
Madison County  
PIN: 124712.00

A field review was held for the above-mentioned project on January 11, 2018.

The initial structure, built in 1952, was a single span steel I-beam bridge crossing a branch of Chisholm Creek. The structure had an out-to-out width of 22 feet 3 inches. The overall structure length was 23 feet. The sufficiency rating for this structure is 27.4 based on the Bridge Inspection Report from August 3, 2017. Floating maintenance has removed and replaced the initial bridge with a temporary precast concrete slab bridge. The temporary structure has an out-to-out width of 28 feet 8 inches and overall length of 28 feet. These measurements are taken from a Site Inspection performed by KCI Technologies on January 10, 2018.

The discharges for the drainage basin were determined using StreamStats, which used a drainage area of 0.76 square miles. The 10-year discharge rate (Q10) was 631 cubic feet per second (cfs), Q50 was 839 cfs, and Q100 was 922 cfs.

There is potential for restrictions from TWRA for in stream work due to records of the Pie Bald Mad Tom and the Naked Sand Darter in the vicinity of the project site.

The proposed alignment and grade for the replacement structure will remain the same as the existing structure including the 60-degree skew with the river channel. There is a 45 mph posted speed limit on State Route 223, which will also be the design speed based on the tangent alignment. The TDOT Hydraulics Section has recommended that the proposed structure be a reinforced concrete box bridge with two (2) barrels with a length of 12 feet and a total clearance of 5 feet (2 @ 12'x 5') giving a total structure length of 26 feet per TDOT structures standard STD-17-76. It is estimated that two (2) tracts of land will be affected resulting in approximately 0.06 acres of right-of-way (ROW) acquisition. Detour routes are provided in report. The official detour will be the only detour route that is signed.

The route has a base year 2022 AADT of 610 and a design year 2042 AADT of 1,120. The existing structure and roadway approaches consist of two (2) nine (9) foot travel lanes. The route is classified as a Rural Collector Road and Standard Drawing RD01-TS-2 was used for design considerations. Based on Tables I and IV from the standard drawing, it is recommended that the proposed curb-to-curb width over the structure will be 28 feet based on a design year AADT between 400-1,500 and a design speed of 45 MPH. Therefore, the typical section on the proposed structure will consist of two (2) 11-foot travel lanes with three (3) foot shoulders and guardrail per TDOT structures standard STD-17-7 giving an out-to-out structure width of 33 feet 6 inches. The project will extend 120 feet from the structure to the east and to the west in order to install guardrail and to taper the paved shoulders back into the existing roadway.

The total cost for the estimated required approach work, estimated replacement and estimated preliminary engineering for this bridge replacement is approximately \$425,000.

cc: File

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

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2018	MADISON	

3/23/2018 3:55:44 PM M:\2017\160408005 (1101) TIR - SR-223 Bridge over Branch, Madison County\Design\Sheets\Proposed Alignment Madison Co.Bridge Over Branch.dgn



### BRIDGE TIR

STATE ROUTE 223 (SHADY GROVE ROAD)  
BRIDGE OVER BRANCH @ L.M. 2.28  
MADISON COUNTY

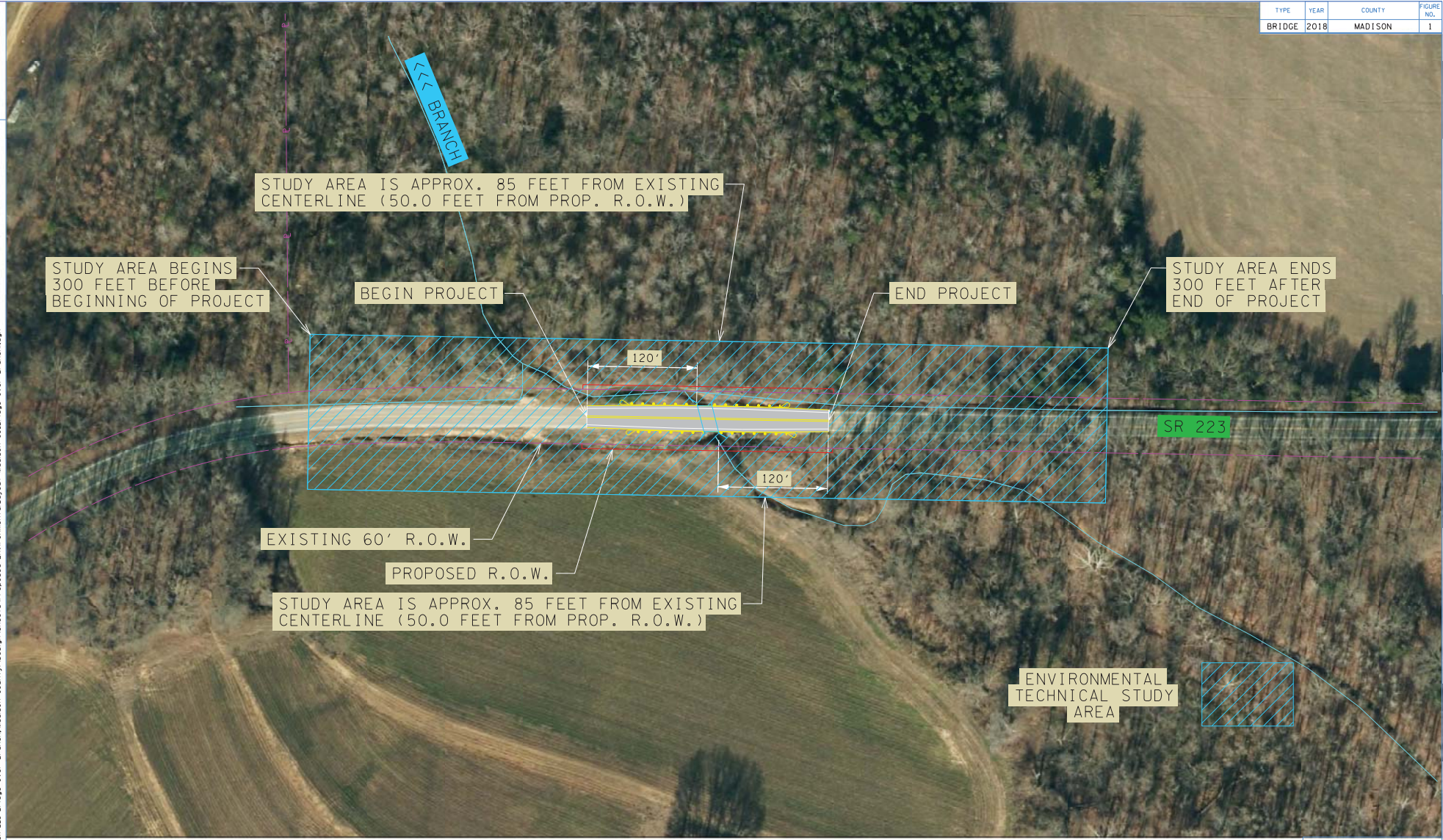
45 MPH DESIGN SPEED

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

BRIDGE REPLACEMENT  
SR223  
L.M. 2.28

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

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2018	MADISON	1



3/23/2018 3:57:24 PM M:\2017\160408005 (1001) TR - SR-223 Bridge over Branch, Madison County\Design\Sheets\Proposed Environmental Layout Madison Co.Bridge Over Branch\ldgn



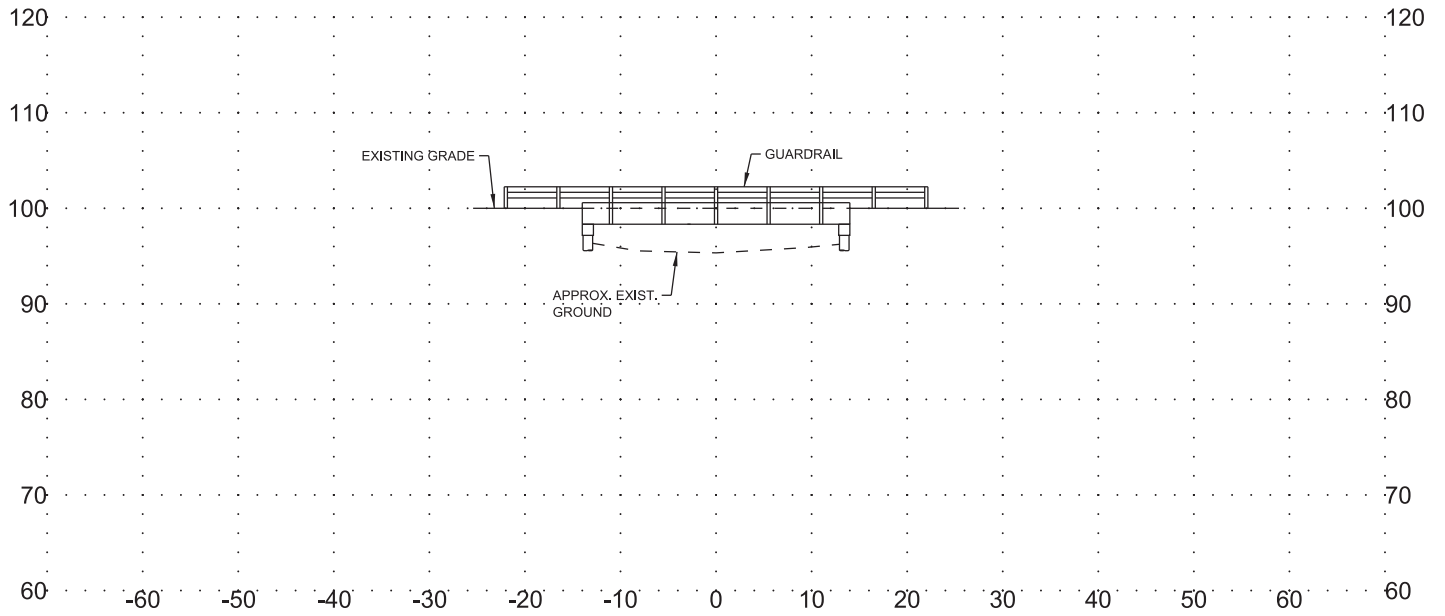
### ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 223 (SHADY GROVE ROAD)  
BRIDGE OVER BRANCH @ L.M. 2.28  
MADISON COUNTY

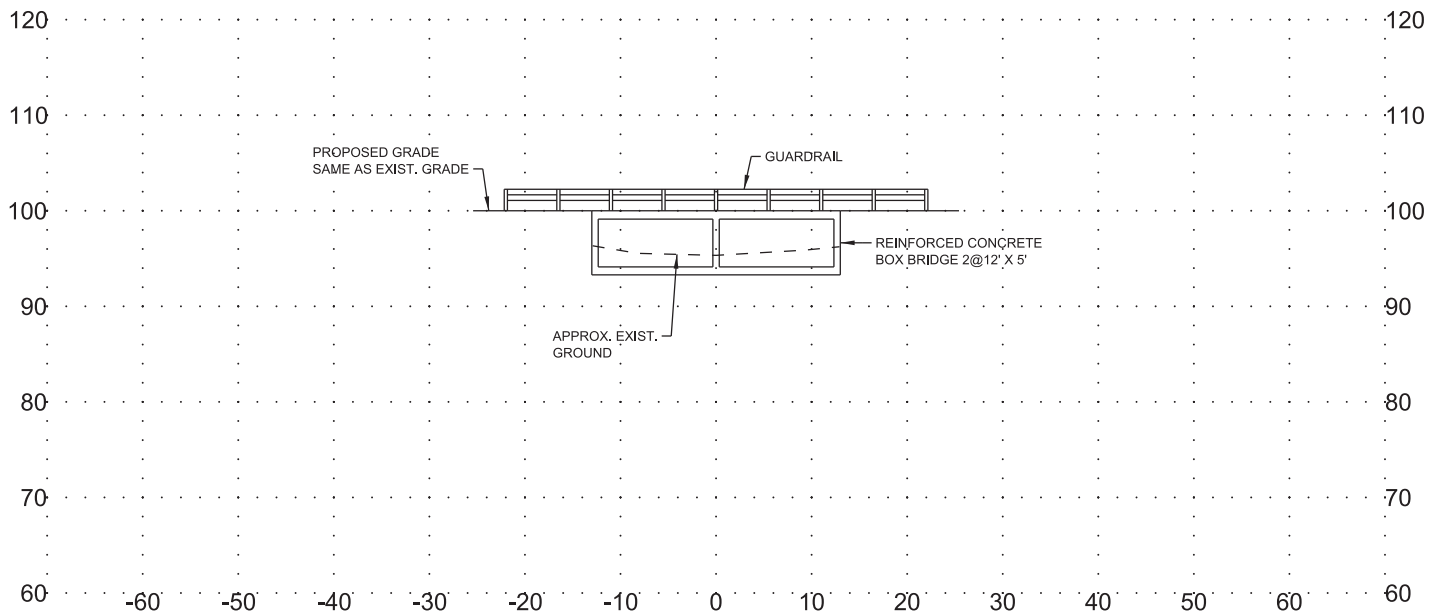
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
S.T.I.D.

FIGURE 1  
BRIDGE REPLACEMENT  
SR223  
L.M. 2.28

# EXISTING STRUCTURE (INLET)



# PROPOSED STRUCTURE (INLET)



SCALE: 1" = 20'

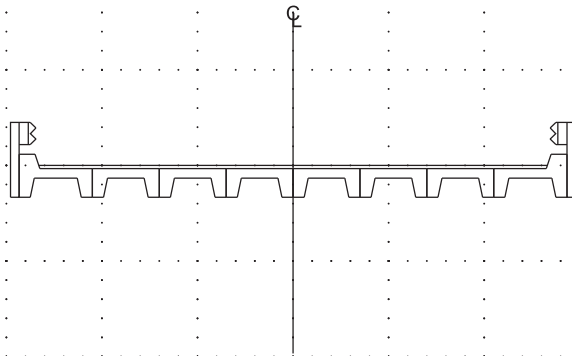
## PROPOSED PROFILE

STATE ROUTE 223 (SHADY GROVE ROAD) MADISON COUNTY

BRIDGE OVER BRANCH L.M. 2.28

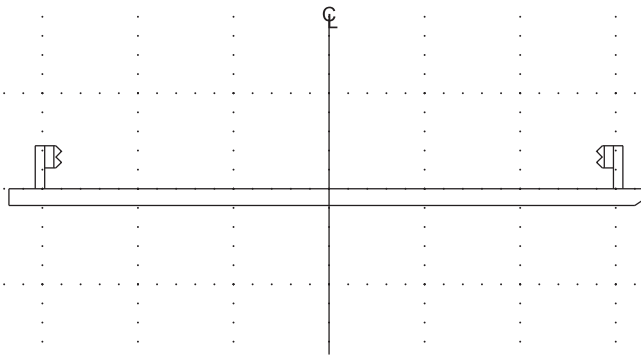
BRIDGE ID: 57S81960003

EXISTING STRUCTURE

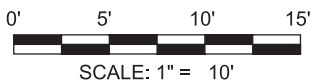


TOTAL WIDTH: 28'-8"

PROPOSED STRUCTURE

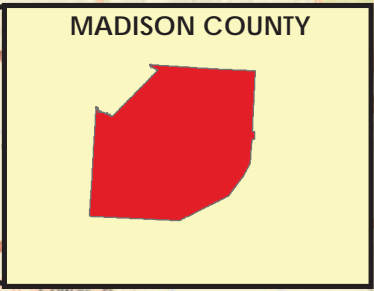
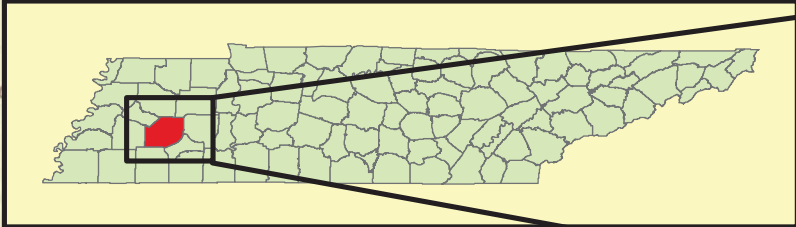
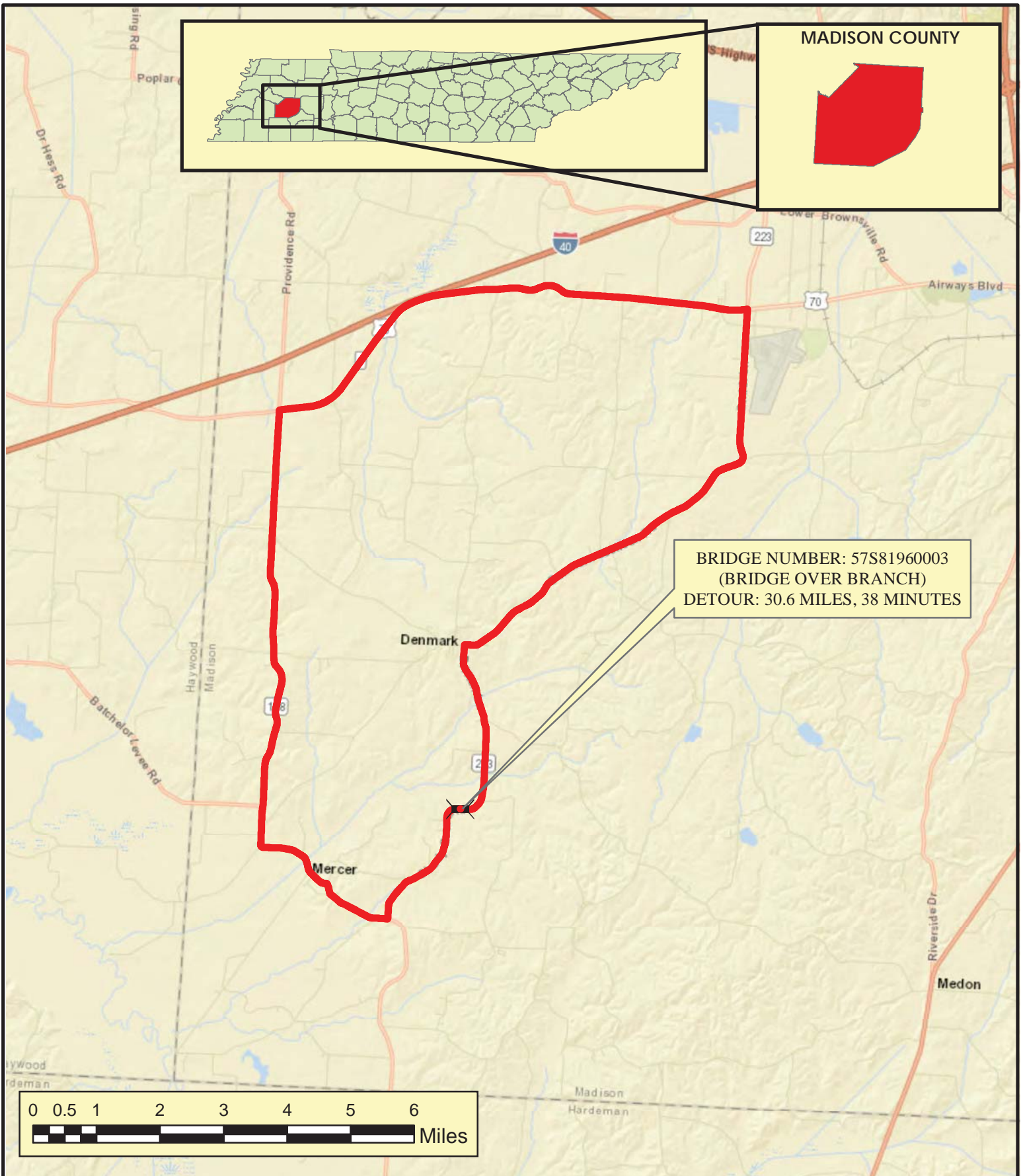


TOTAL WIDTH: 33'-6"

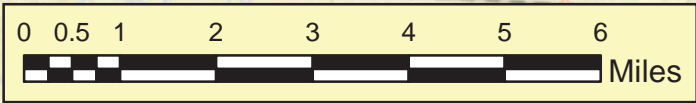


**PROPOSED TYPICAL SECTION**  
**STATE ROUTE 223 (SHADY GROVE ROAD) MADISON COUNTY**  
**BRIDGE OVER BRANCH L.M. 2.28**  
**BRIDGE ID: 57S81960003**



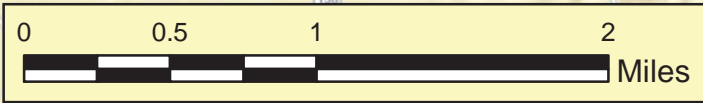
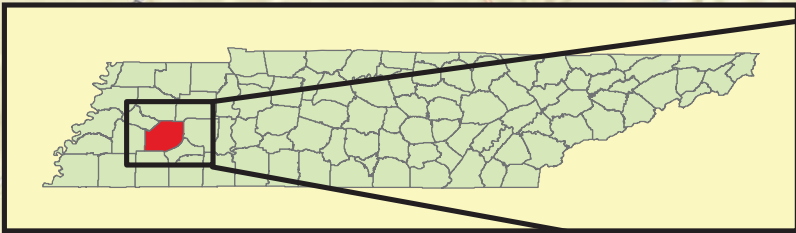
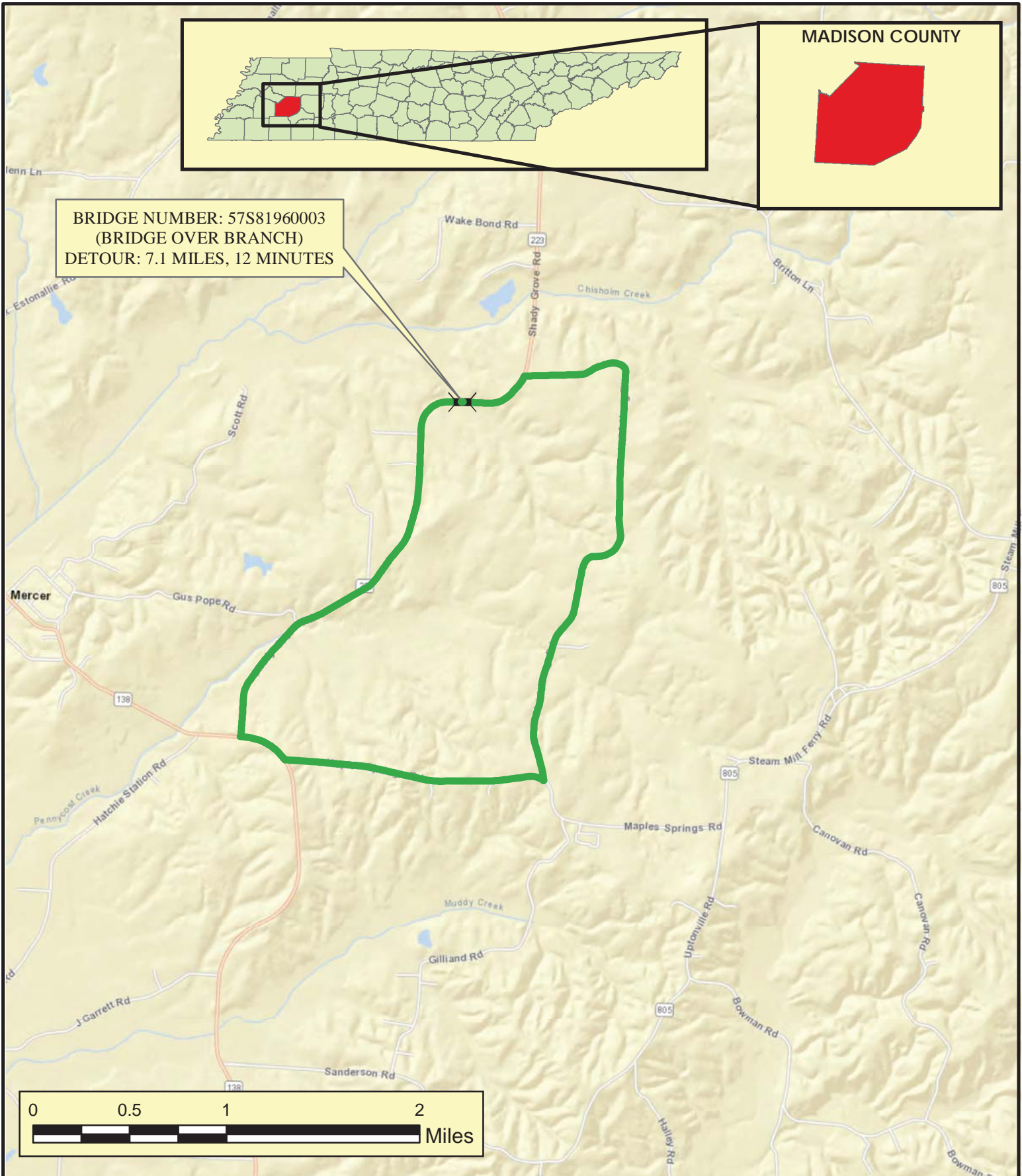


BRIDGE NUMBER: 57S81960003  
 (BRIDGE OVER BRANCH)  
 DETOUR: 30.6 MILES, 38 MINUTES

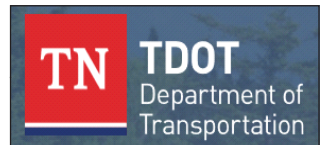


**OFFICIAL DETOUR MAP**  
**BRIDGE TIR**  
**STATE ROUTE 223 (SHADY GROVE ROAD)**  
**BRIDGE OVER BRANCH (LM 2.28)**  
**MADISON COUNTY**





**LOCAL ROUTE DETOUR MAP**  
**BRIDGE TIR**  
**STATE ROUTE 223 (SHADY GROVE ROAD)**  
**BRIDGE OVER BRANCH (LM 2.28)**  
**MADISON COUNTY**



# COST ESTIMATE SUMMARY

Route: SR223 STATE ROUTE 223 (SHADY GROVE ROAD)  
 Description: REPLACEMENT OF BRIDGE OVER BRANCH  
 County: MADISON  
 Length: 0.05 MILES  
 Date: March 9, 2018



DESCRIPTION	LOCAL	STATE	FEDERAL	TOTAL
	0%	100%	0%	
<b>Construction Items</b>				
Pavement Removal	\$0	\$3,800	\$0	\$3,800
Asphalt Paving	\$0	\$29,500	\$0	\$29,500
Concrete Pavement	\$0	\$0	\$0	\$0
Drainage	\$0	\$7,100	\$0	\$7,100
Appurtenances	\$0	\$0	\$0	\$0
Structures	\$0	\$107,600	\$0	\$107,600
Fencing	\$0	\$0	\$0	\$0
Signalization	\$0	\$0	\$0	\$0
Railroad Crossing or Separation	\$0	\$0	\$0	\$0
Earthwork	\$0	\$73,200	\$0	\$73,200
Clearing and Grubbing	\$0	\$10,600	\$0	\$10,600
Seeding & Sodding	\$0	\$2,600	\$0	\$2,600
Rip-Rap or Slope Protection	\$0	\$0	\$0	\$0
Guardrail	\$0	\$24,500	\$0	\$24,500
Signing	\$0	\$300	\$0	\$300
Pavement Markings	\$0	\$1,100	\$0	\$1,100
Maintenance of Traffic	\$0	\$10,900	\$0	\$10,900
Mobilization (5%)	\$0	\$13,600	\$0	\$13,600
Other Items = 10%	\$0	\$28,500	\$0	\$28,500
Const. Contingency = 15%	\$0	\$30,900	\$0	\$30,900
Construction Estimate	\$0	\$344,200	\$0	\$344,200
<b>Interchanges &amp; Unique Intersections</b>				
Roundabouts	\$0	\$0	\$0	\$0
Interchanges	\$0	\$0	\$0	\$0
<b>Right-of-Way &amp; Utilities</b>				
	LOCAL	STATE	FEDERAL	TOTAL
	0%	100%	0%	
Right-of-Way	\$0	\$10,200	\$0	\$10,200
Utilities	\$0	\$0	\$0	\$0
<b>Preliminary &amp; Construction Engineering and Inspection</b>				
Prelim. Eng. 10%	\$0	\$35,400	\$0	\$35,400
Const. Eng. & Inspec. 10%	\$0	\$35,400	\$0	\$35,400
<b>Total Project Cost</b>	\$0	\$425,200	\$0	<b>\$ 425,000</b>

# PAY ITEM SUMMARY

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	TOOL QUANTITIES	ADDITIONAL QUANTITIES	TOOL QUANTITIES + ADDITIONAL QUANTITIES	Statewide UNIT COST	TOTAL COST
<b>Pavement Removal</b>							
415-01.02	Cold Planning Bituminous Pavement	SY	486		486	\$ 7.64	\$ 3,709.56
PAVEMENT REMOVAL TOTAL (ROUNDED)							\$ 3,800
<b>Asphalt Roads</b>							
303-01	Mineral Aggregate, Type A Base, Grading D	TON	571		571	\$ 32.05	\$ 18,291.17
307-02.01	Asphalt Concrete Mix (PG70-22) (BPMB-HM) Grading A	TON	19		19	\$ 101.33	\$ 1,886.85
307-02.02	Asphalt Cement (PG70-22)(BPMB-HM) Grading A-S	TON	0		0	\$ 727.26	\$ 317.95
307-02.03	Aggregate (BPMB-HM) Grading A-S Mix	TON	14		14	\$ 74.35	\$ 1,051.00
307-02.08	Asphalt Concrete Mix (PG70-22) (BPMB-HM) Grading B-M2	TON	12		12	\$ 113.84	\$ 1,388.56
402-01	Bituminous Material For Prime Coat (PC)	TON	0		0	\$ 713.72	\$ 266.82
402-02	Aggregate For Cover Material (PC)	TON	1		1	\$ 66.14	\$ 89.25
403-01	Bituminous Material For Tack Coat (TC)	TON	0		0	\$ 781.25	\$ 191.67
411-01.07	ACS (PG64-22) GR "E"	TON	13		13	\$ 112.58	\$ 1,469.71
411-02.10	ACS Mix(PG70-22) Grading D	TON	39		39	\$ 115.32	\$ 4,535.79
PAVING TOTAL (ROUNDED)							\$ 29,500
<b>Concrete Roads</b>							
CONCRETE RAMPS AND ROADWAYS TOTAL (ROUNDED)							\$ -
<b>Drainage</b>							
607-05.02	24" Concrete Pipe Culvert (Class III)	LF	29		29	\$ 85.54	\$ 2,478.94
611-07.01	Class A Concrete (Pipe Endwalls)	CY	1		1	\$ 1,054.82	\$ 1,562.39
611-07.02	Steel Bar Reinforcement (Pipe Endwalls)	LB	141		141	\$ 2.31	\$ 325.19
710.02	Aggregate Underdrains (with pipe)	LF	486		486	\$ 5.46	\$ 2,652.25
DRAINAGE TOTAL (ROUNDED)							\$ 7,100
<b>Appurtenances</b>							
ROADWAY AND PAVEMENT APPURTENANCES TOTAL (ROUNDED)							\$ -
<b>Earthwork &amp; Mineral</b>							
105-01	Construction Stakes, Lines, and Grades	LS	1	-0.8	0.2	\$ 112,407.96	\$ 22,481.59
203-01	Road & Drainage Excavation (Unclassified)	CY	1727		1727	\$ 16.79	\$ 28,994.94
203-03	Borrow Excavation (Unclassified)	CY	1439		1439	\$ 15.04	\$ 21,646.34
EARTHWORK & MINERAL TOTAL (ROUNDED)							\$ 73,200
<b>Structures</b>							
N/A	Removal of Bridge	SF	804		804	\$ 20.00	\$ 16,072.00
N/A	New Bridge (Box)	SF	871		871	\$ 105.00	\$ 91,455.00
STRUCTURES TOTAL (ROUNDED)							\$ 107,600
<b>Interchanges and Unique Intersections</b>							
INTERCHANGES AND UNIQUE INTERSECTIONS TOTAL (ROUNDED)							\$ -
<b>Lighting &amp; Signalization</b>							
LIGHTING & SIGNALIZATION TOTAL (ROUNDED)							\$ -
<b>Guardrail</b>							
705-01.01	Guardrail at Bridge Ends	LF	100		100	\$ 73.64	\$ 7,364.49
705-02.02	Single Guardrail (Type 2)	LF	134		133,584	\$ 18.82	\$ 2,514.27
705-04.07	Tan Energy Absg Term (NCHRP, 350, TL3)	EA	5	-1	4	\$ 2,352.59	\$ 9,410.38
705-04.09	Earth Pad for Type 38 GR End Treatment	EA	5	-1	4	\$ 1,294.80	\$ 5,179.21
GUARDRAIL TOTAL (ROUNDED)							\$ 24,500
<b>Seeding and Sodding</b>							
801-01	Seeding (With Mulch)	UNIT	21		21	\$ 78.25	\$ 1,662.90
801-01.07	Temporary Seeding (With Mulch)	UNIT	16		16	\$ 29.94	\$ 477.19
801-02	Seeding (Without Mulch)	UNIT	16		16	\$ 28.52	\$ 454.60
SODDING TOTAL (ROUNDED)							\$ 2,600
<b>Maintenance of Traffic</b>							
N/A	Traffic Control	LS	1		1	\$ -	\$ 10,412.00
712-02.02	Interconnected Portable Barrier Rail	LF	12		12	\$ 31.96	\$ 388.14
MAINTENANCE OF TRAFFIC TOTAL (ROUNDED)							\$ 10,900
<b>Signs</b>							
Not Listed	Signs (Construction)	LS	1		1	\$ -	\$ 300
SIGNING TOTAL (ROUNDED)							\$ 300
<b>Pavement Markings</b>							
716-13.06	Spray Thermo P.M. (40 mil 4")	LM	0.3		0.3	\$ 2,889.10	\$ 1,010.03
PAVEMENT MARKINGS TOTAL (ROUNDED)							\$ 1,100
<b>Fencing</b>							
FENCE TOTAL (ROUNDED)							\$ -
<b>Rip-Rap</b>							
RIP-RAP & SLOPE PROTECTION TOTAL (ROUNDED)							\$ -
<b>Clearing and Grubbing</b>							
201-01	Clearing and Grubbing	LS		0.04	0.04	\$ 264,380.06	\$ 10,575.20
CLEAR AND GRUBBING TOTAL (ROUNDED)							\$ 10,600.00
<b>Railroad At-Grade Crossing</b>							
RAILROAD CROSSING OR SEPARATION TOTAL (ROUNDED)							\$ -
<b>Utilities</b>							
UTILITIES TOTAL (ROUNDED)							\$ -
<b>Right-of-Way</b>							
N/A	Right-of-Way	LS	1	27	28	\$ 362.42	\$ 10,147.88
RIGHT-OF-WAY TOTAL (ROUNDED)							\$ 10,200.00

# BRIDGE TIR

Madison  
State Route 223/Shady Grove Road

LOCATION			
Bridge #:	57S81960003	Feature Crossed:	Branch
Road Name:	StateRoute223/ShadyGroveRoad	Log mile:	2.28
Route ID:	SR223	System:	5-STP Rural, State
City:	Mercer	Functional Class:	Rural Collector
County:	Madison	State Project Number	57039-0230-04
PIN:	124712.00		

ROADWAY		
	Existing	Proposed (Preliminary Design Estimate)
Design Standard		RD01-TS-2 / 2011 Green Book
<b>Route Characteristics</b>		
AADT:	610	1120
AADT Year:	2022	2042
Terrain:	Rolling	Rolling
No. Lanes:	2	2
Speed(Posted):	45	45
Speed (Design):		45
<b>Approach Character.</b>		
Lane Width (ft):	9	11
Shoulder Width (ft):	2	3
ROW Width (ft):	60	70
ROW Tracts Affected		2
ROW Required (acre)		0.06
Cross Section Width (ft):	18/22/60	22/28/70
Approach Length (ft):		120' (east), 120' (west)
Alignment:	tangent	tangent
Grade:		grade to remain the same as existing
Surface Material:	Pavement	Pavement
Sidewalks (R/L):	No	No
App. Lower Than Structure	No	No
Utilities (list)	N/A	N/A
Utilities to be Relocated	N/A	N/A
Comments		

# BRIDGE TIR

Madison  
State Route 223/Shady Grove Road

STRUCTURE		
	Existing	Proposed (Preliminary Design Estimate)
<b>Bridge Characteristics</b>		
Year Built	2017	
Load Limit	10 tons(inspection report), 40 tons(signed)	
Sufficiency Rating	27.4	
Skew	60	60
Structure Type	Precast Concrete Slab	Reinforced Concrete Box
Structures in Channel	No	No
Length (ft)	28	26
No. Spans (App./Main)	0   1	0   1
Width (curb to curb) (ft)	26.5	28
Width (o to o) (ft)	28.7	33.5
Sidewalks on Structure	No	No
Vert. Clearance (ft)	3	3.8
Superstructure Depth (in)	27	10.5
Girder Depth (in)	18	n/a
Finish Grade-Low Girder (in)	20	10.5
High Water Marks	N/A	
Bridge Rail Type	Guardrail	Guardrail
Bridge Rail Height (ft)	2.7	2.25
Indication Overtopping	No	
Local Scour	No	
Obstructions	No	
Other Structures	N/A	N/A
Comments	Floating maintenance replaced original structure with a temporary structure. Substructure is timber.	

# BRIDGE TIR

Madison  
State Route 223/Shady Grove Road

## FLOW RATES (from USGS StreamStats)

Drainage Area (sq. miles)	0.76
10 Year Discharge Rate (Q10) cfs	631
50 Year Discharge Rate (Q50) cfs	839
100 Year Discharge Rate (Q100) cfs	922

## CHANNEL

Depth (ft)	N/A
Width of Normal Flow (ft)	14
Depth of Normal Flow (ft)	N/A
Skew of Channel with Roadway	60
Type of Material in Stream Bed	silt
Type of Vegetation on Banks	low growth, large timber
Are Channel Banks Stable	No
Signs of Stream Aggradation	No
Signs of Stream Degradation	No
Drift or Drift Potential	Yes
Comments	

## FLOODPLAIN

Skew Same as Channel	Yes
Symmetrical About Channel	Yes
Approx. Floor Elevations	N/A
Type of Vegetation in Floodplain	low growth, large timber, grass
Any Buildings in Floodplain	No
Flood Information From Locals	N/A
Comments	

## MAINTENANCE OF TRAFFIC

Method of Maintaining Traffic	temporary detour
Description	<p><u>Official Detour:</u> Detour thru-traffic north/east of bridge onto Britton Lane/State Route 223 heading north, next onto Denmark Jackson Road/State Route 223 heading east, then onto Smith Lane/State Route 223 heading north, turn onto Airways Boulevard/Brownsville Highway/State Route 1/U.S. Highway 70 heading west, turn onto State Route 138 heading south, lastly back onto Shady Grove Road/State Route 223. Detour thru-traffic south/west of bridge using the same route in reverse order. This is the only detour route that will be signed.</p>
Comments	<p><u>Detour for Local Traffic:</u> Detour thru-traffic north/east of bridge onto Heidelberg Road heading east, next onto Maple Springs Road heading west, then onto State Route 138 heading west, lastly back onto State Route 223 heading north. Detour thru-traffic south/west of bridge using the same route in reverse order.</p>

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

PROJECT NO.: 57039-0230-04 ROUTE: S.R. 223  
 COUNTY: MADISON CITY: \_\_\_\_\_  
 PROJECT PIN NUMBER: 124712.00  
 PROJECT DESCRIPTION: BRIDGE OVER BRANCH @ L.M. 2.28

**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: \_\_\_\_\_  
 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
610	2022	1,120	1,460	13	2042	65-35	10	15		

REQUESTED BY: NAME CALEB SMITH DATE 11/6/17  
 DIVISION S.T.I.D.  
 ADDRESS 505 DEADERICK STREET  
NASHVILLE, TN. 37243

REVIEWED BY: TONY ARMSTRONG *Tony Armstrong* DATE 11.30.17  
 TRANSPORTATION MANAGER 1  
 SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: JIM WATERS *Jim Waters* DATE 12/1/17  
 ASSISTANT DIRECTOR  
 SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

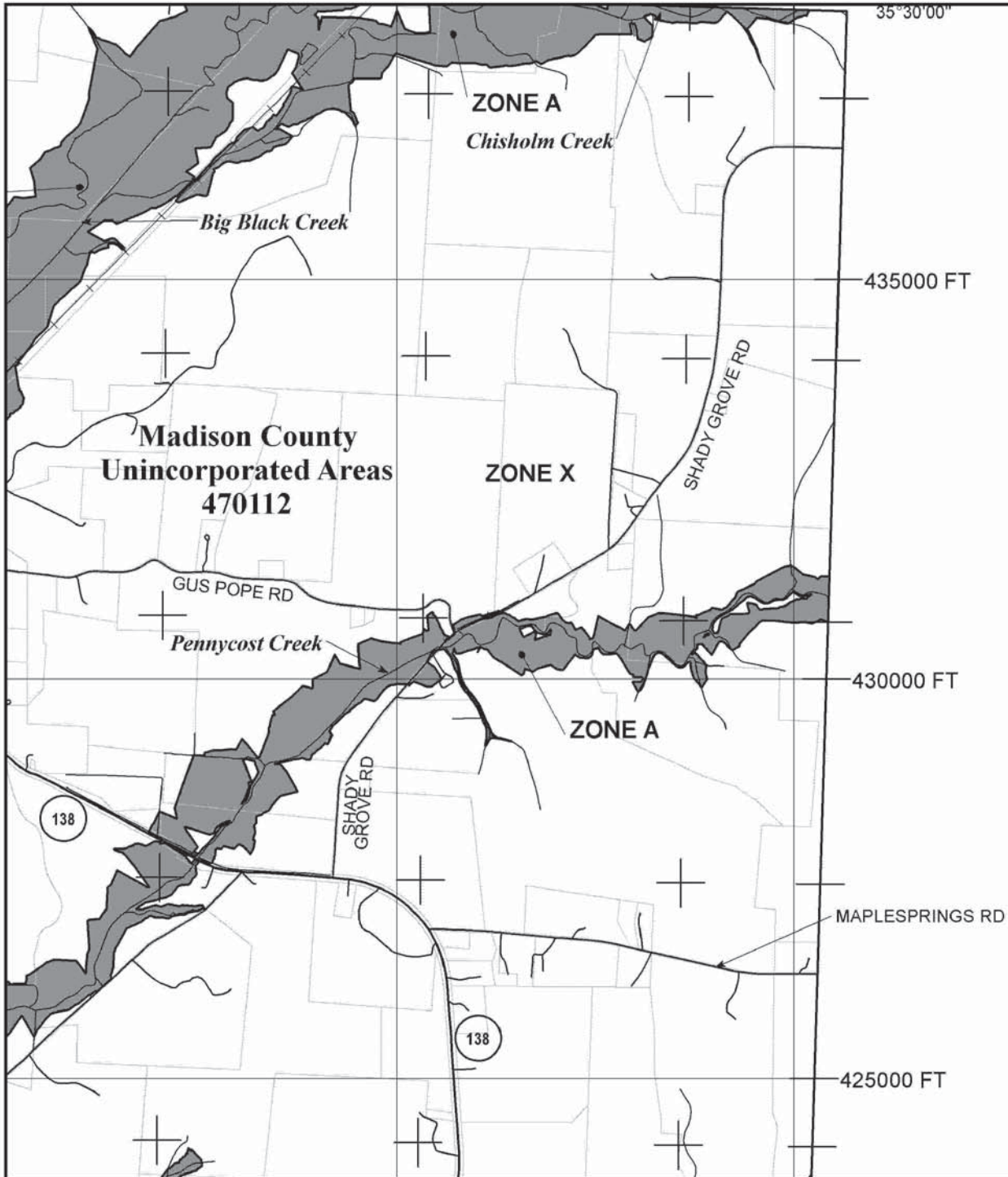
THIS TRAFFIC BASED ON 2017 CYCLE COUNTS. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE JACKSON MPO COMPUTER ASSIGNMENT MODEL.

**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.

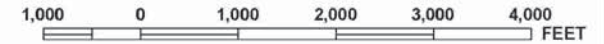




and Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 2000'



NFP

PANEL 0375E

**FIRM**

**FLOOD INSURANCE RATE MAP  
MADISON COUNTY,  
TENNESSEE  
AND INCORPORATED AREAS**

**PANEL 375 OF 435**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MADISON COUNTY	470112	0375	E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER  
47113C0375E**

**MAP REVISED  
AUGUST 3, 2009**

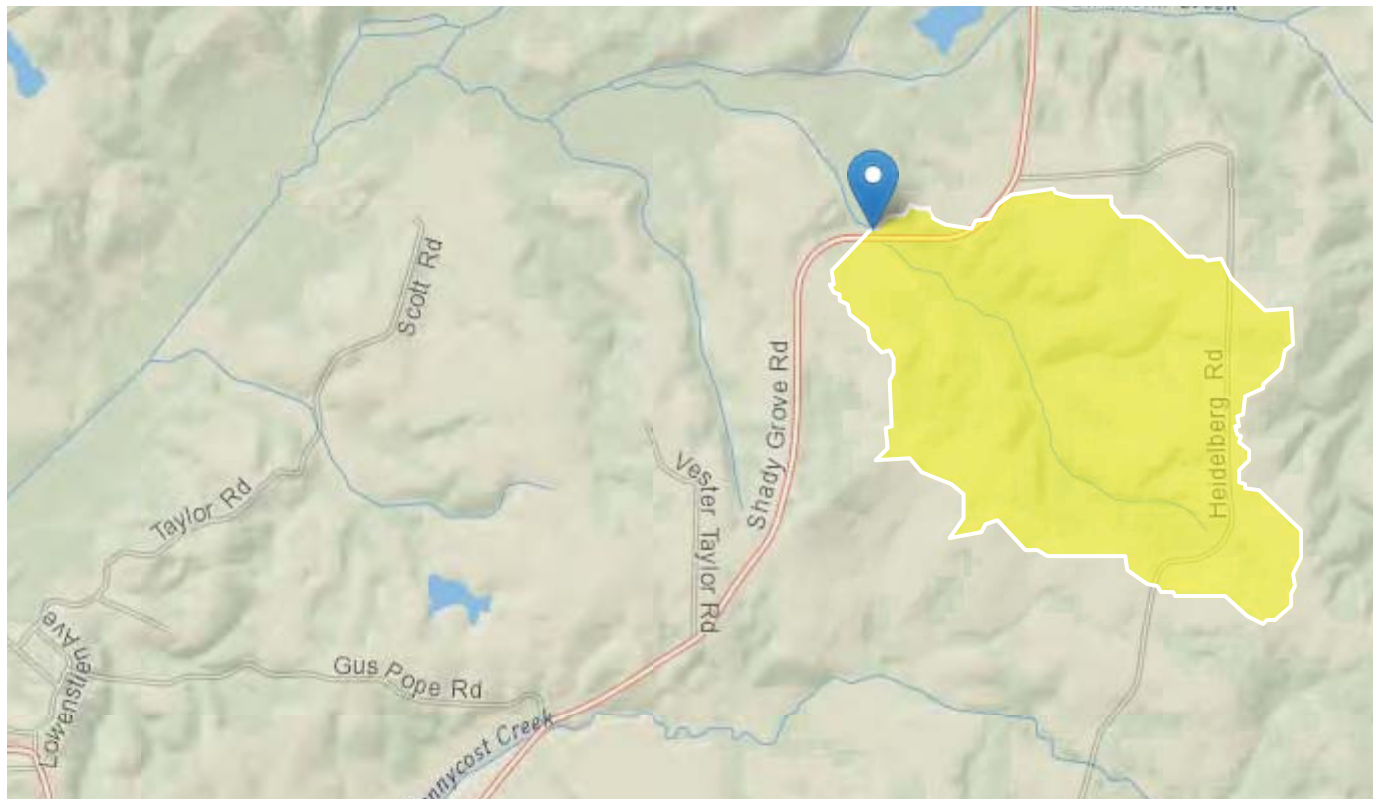


Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

# StreamStats Report

Region ID: TN  
 Workspace ID: TN20180105165620999000  
 Clicked Point (Latitude, Longitude): 35.49555, -89.00179  
 Time: 2018-01-05 10:55:51 -0600



## Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CONTPA	Area that contributes flow to a point on a stream	0.76	square miles
DRNAREA	Area that drains to a point on a stream	0.76	square miles
RECESS	Number of days required for streamflow to recede one order of magnitude when hydrograph is plotted on logarithmic scale	151	days per log cycle
PERMGTE2IN	Percent of area underlain by soils with permeability greater than or equal to 2 inches per hour	99.166	percent
CLIMFAC2YR	Two-year climate factor from Lichy and Karlinger (1990)	2.402	dimensionless
SOILPERM	Average Soil Permeability	2.015	inches per hour

## Peak-Flow Statistics Parameters [DAOnly Area 4]

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

**Peak-Flow Statistics Flow Report** [DAOnly Area 4]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	SE	SEp	Equiv. Yrs.
2 Year Peak Flood	377	ft <sup>3</sup> /s	197	722	38.7	38.7	1.8
5 Year Peak Flood	532	ft <sup>3</sup> /s	284	996	37.2	37.2	2.4
10 Year Peak Flood	631	ft <sup>3</sup> /s	333	1200	38	38	3.1
25 Year Peak Flood	752	ft <sup>3</sup> /s	384	1470	40.1	40.1	3.8
50 Year Peak Flood	839	ft <sup>3</sup> /s	414	1700	42.2	42.2	4.2
100 Year Peak Flood	922	ft <sup>3</sup> /s	438	1940	44.7	44.7	4.4
500 Year Peak Flood	1120	ft <sup>3</sup> /s	481	2590	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 Parameters** [Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.76	square miles	2	2405
RECESS	Recession Index	151	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	99.166	percent	2	98

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

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

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

Statistic	Value	Unit
7 Day 10 Year Low Flow	0.0882	ft <sup>3</sup> /s
30 Day 5 Year Low Flow	0.112	ft <sup>3</sup> /s

*Low-Flow Statistics Citations*

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

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.76	square miles	2	2405
RECESS	Recession Index	151	days per log cycle	32	350
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.402	dimensionless	2.307	2.455
PERMGTE2IN	Percent permeability gte 2 in per hr	99.166	percent	2	98

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

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

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

Statistic	Value	Unit
Mean Annual Flow	1.14	ft <sup>3</sup> /s

*Annual Flow Statistics Citations*

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

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.76	square miles	2	2405
RECESS	Recession Index	151	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	99.166	percent	2	98

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

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

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

Statistic	Value	Unit
Summer Mean Flow	0.462	ft <sup>3</sup> /s

*Seasonal Flow Statistics Citations*

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

(<http://pubs.usgs.gov/sir/2009/5159/>)

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.76	square miles	2	2405
RECESS	Recession Index	151	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	99.166	percent	2	98
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.402	dimensionless	2.307	2.455
SOILPERM	Average Soil Permeability	2.015	inches per hour	0.97	2.44

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

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

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

Statistic	Value	Unit
99.5 Percent Duration	0.0804	ft <sup>3</sup> /s
99 Percent Duration	0.0886	ft <sup>3</sup> /s
98 Percent Duration	0.0967	ft <sup>3</sup> /s
95 Percent Duration	0.116	ft <sup>3</sup> /s
90 Percent Duration	0.132	ft <sup>3</sup> /s
80 Percent Duration	0.166	ft <sup>3</sup> /s
70 Percent Duration	0.199	ft <sup>3</sup> /s
60 Percent Duration	0.196	ft <sup>3</sup> /s
50 Percent Duration	0.263	ft <sup>3</sup> /s
40 Percent Duration	0.374	ft <sup>3</sup> /s
30 Percent Duration	0.648	ft <sup>3</sup> /s
20 Percent Duration	1.12	ft <sup>3</sup> /s
10 Percent Duration	2.07	ft <sup>3</sup> /s

### *Flow-Duration Statistics Citations*

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

## 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	X
2. Airport (existing or proposed)	
3. Commercial area, shopping center	
4. Floodplains	
5. Forested land	X
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	X
Permit required:	
Coast Guard	
Section 404	X
TVA Section 26a review	
NPDES	X
Aquatic Resource Alteration	X
13. Other	
14. Location coordinated with local officials	
15. Railroad crossings	
16. Hazardous materials site	
<u>Comments:</u> Additional environmental information includes perform fish study on High Bald Mad Tom and Naked Sand Darter.	

**BRIDGE TIR**Madison  
State Route 223/Shady Grove Road

<b>SITE VISIT ATTENDEES</b>			DATE: 1/11/2018
Name	Organization	Phone	Email
David Duncan	TDOT (STID)	615-532-6131	david.a.duncan@tn.gov
Joseph Clement	TDOT (STID)	615-770-1035	joseph.clement@tn.gov
Willie Coleman	TDOT Utilities	731-935-0160	willie.coleman@tn.gov
Robert Hope	TDOT Survey	731-935-0241	robert.hope@tn.gov
Branden Garcia	TDOT Operations	731-695-5776	branden.garcia@tn.gov
Burt Hutchins	R4 Project Dev.	731-935-0142	burt.hutchins@tn.gov
Nicholas Stephens	R4 Project Dev.	731-935-0133	nicholas.stephens@tn.gov
Evelyn DiOrio	R4 Env. Tech	731-935-0302	evelyn.diorio@tn.gov
Eric Philipps	R4 Env. Tech	731-935-0174	eric.philipps@tn.gov
Derek Ryan	R4 Traffic		derek.ryan@tn.gov
Brandon Taylor	KCI	615-559-0158	brandon.taylor@kci.com
Daniel Keener	KCI	980-288-6763	daniel.keener@kci.com
Drew Randolph	KCI	615-559-0157	drew.randolph@kci.com



Bridge Number



Upstream View from Bridge





Downstream View



Inlet



Outlet



Floodplain Downstream



Flood Plain Downstream looking towards Bridge



Flood Plain Upstream



Looking East from Bridge



Looking West from Bridge



Eastbound from Bridge



Westbound from Bridge



Weight Limit Sign at East Approach of Bridge



Connection to East Abutment on Inlet Side



Connection to West Abutment on Inlet Side



Pavement Cracking at East Abutment Connection



West Abutment



East Abutment





Bridge Beams

# Environmental Studies Request

# Environmental Studies Request

## Project Information

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**Route:** State Route 223  
**Termini:** Bridge over Branch, Log Mile 2.28  
**County:** Madison  
**PIN:** 124712.00

## Request

---

**Request Type:** Initial Environmental Study  
**Project Plans:** Transportation Investment Report  
**Date of Plans:** 04/02/2018  
**Location:** Email Attachment

## Certification

---

**Requestor:** Crystal M. Alfaro  
**Title:** TESS - NEPA

**Signature:** Crystal M.  
Alfaro

Digitally signed by Crystal M. Alfaro  
DN: cn=Crystal M. Alfaro, o=TN  
Dept. of Transportation,  
ou=Environmental Division - NEPA,  
email=crystal.alfaro@tn.gov, c=US  
Date: 2018.06.05 13:45:51 -05'00'

# Ecology

# Environmental Study

## Technical Section

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**Section:** Ecology

## Study Results

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Based on the TIR dated 4-2-18, the Environmental Boundaries Report dated 7-18-18 for this project is still valid.

## Commitments

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**Did the study of this project result in any environmental commitments?**

**No**

## Additional Information

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**Is there any additional information or material included with this study?**

**Yes**

**Type:** Environmental Boundaries Report (EBR)

**Location:** FileNet

## Certification

---

**Responder:** Eric Philipps

**Title:** TESS

**Signature:**

Eric Philipps

Digitally signed by Eric Philipps  
Date: 2018.07.30 08:30:38 -05'00'



# **Environmental Boundaries Report**

**SR-223 (Shady Grove Road) Bridge over Branch, LM 2.28**

**Project Number: 57039-0231-94**

**PIN: 124712.00**

**Madison County, Tennessee**

**Prepared by:  
Tennessee Department of Transportation – TDOT  
Region 4**

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STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
REGION 4 ENVIRONMENTAL TECH OFFICE  
300 BENCHMARK PLACE  
JACKSON, TENNESSEE 38301  
(731) 935-0139

JOHN C. SCHROER  
COMMISSIONER

BILL HASLAM  
GOVERNOR

**MEMORANDUM**

**To:** Dennis Moultrie  
Design Division

**From:** Eric Philipps  
Environmental Tech Office, Region 4

**Eric Philipps**

Digitally signed by Eric Philipps  
Date: 2018.07.18 09:34:42  
-05'00'

**Date:** July 18, 2018

**Subject:** **Environmental Boundaries For:** Madison County, SR-223 (Shady Grove Road), Bridge over Branch, LM 2.28  
**PE:** 57039-0231-94      **PIN:** 124712.00

An ecological evaluation of the subject project has been conducted with the following results:

**SPRINGS/STREAMS**

There are **two (2)** streams within the project limits.

- Information concerning the quality and amount of impact can be found in the attached impact table.

**WET WEATHER CONVEYANCES/UPLAND DRAINAGE FEATURES**

There are two (2) wet weather conveyances/upland drainage features within the project limits.

**WETLANDS**

There are **no** wetlands within the project limits.

**OTHER FEATURES**

There are **no** other features noted within the project limits.

**PROTECTED SPECIES**

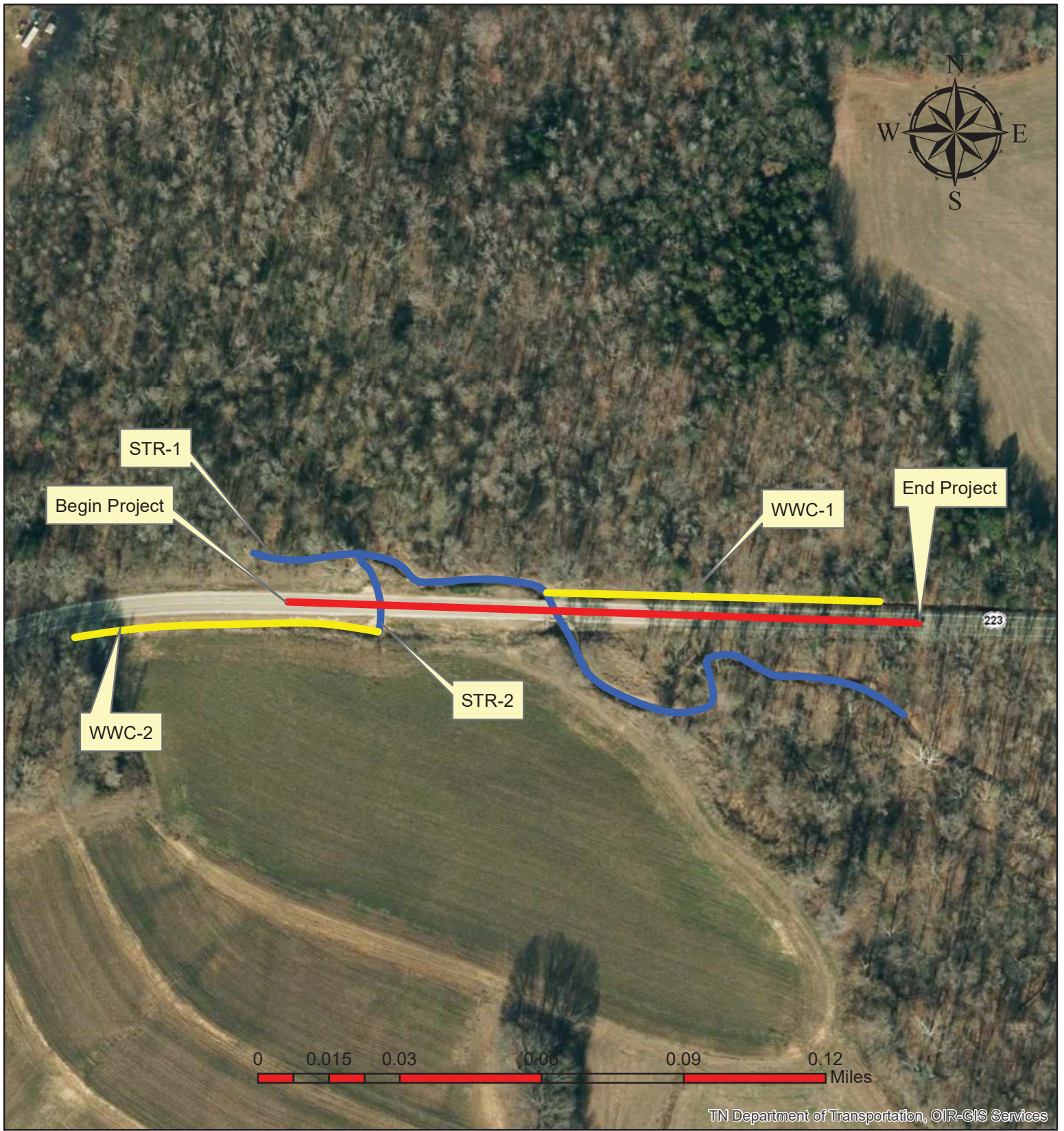
A search of the TDEC rare species database was performed on June 21, 2018. Coordination with TWRA and USFWS is included within this report.

Your assistance is appreciated. If you have any questions or comments, please contact Eric Philipps in the Region 4 Environmental Tech Office at 731-935-0174 or [eric.philipps@tn.gov](mailto:eric.philipps@tn.gov).

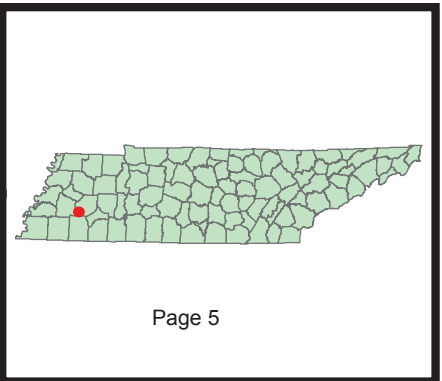


xc: Tabitha Cavaness  
Rachel Webb  
Gary Scruggs  
Randall Mann  
Lou Timms  
Jared McCoy  
Glen Blakenship  
James Boyd  
John Hewitt  
D.J. Wiseman  
Michael White  
Khalid Ahmed  
Sharon Sanders  
Rita Thompson  
Greg Harris

TDOT.ENV.NEPA  
R4.ENVTechOffice  
TDOT. Env. Ecology  
TDOT.Env.Mitigation



TN Department of Transportation, OIR-GIS Services

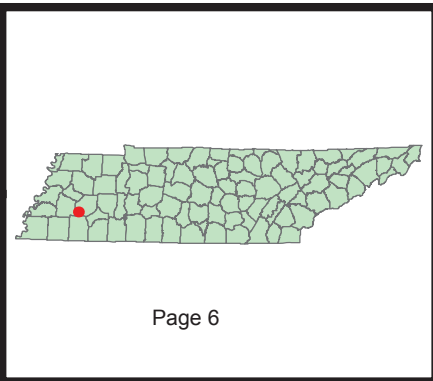
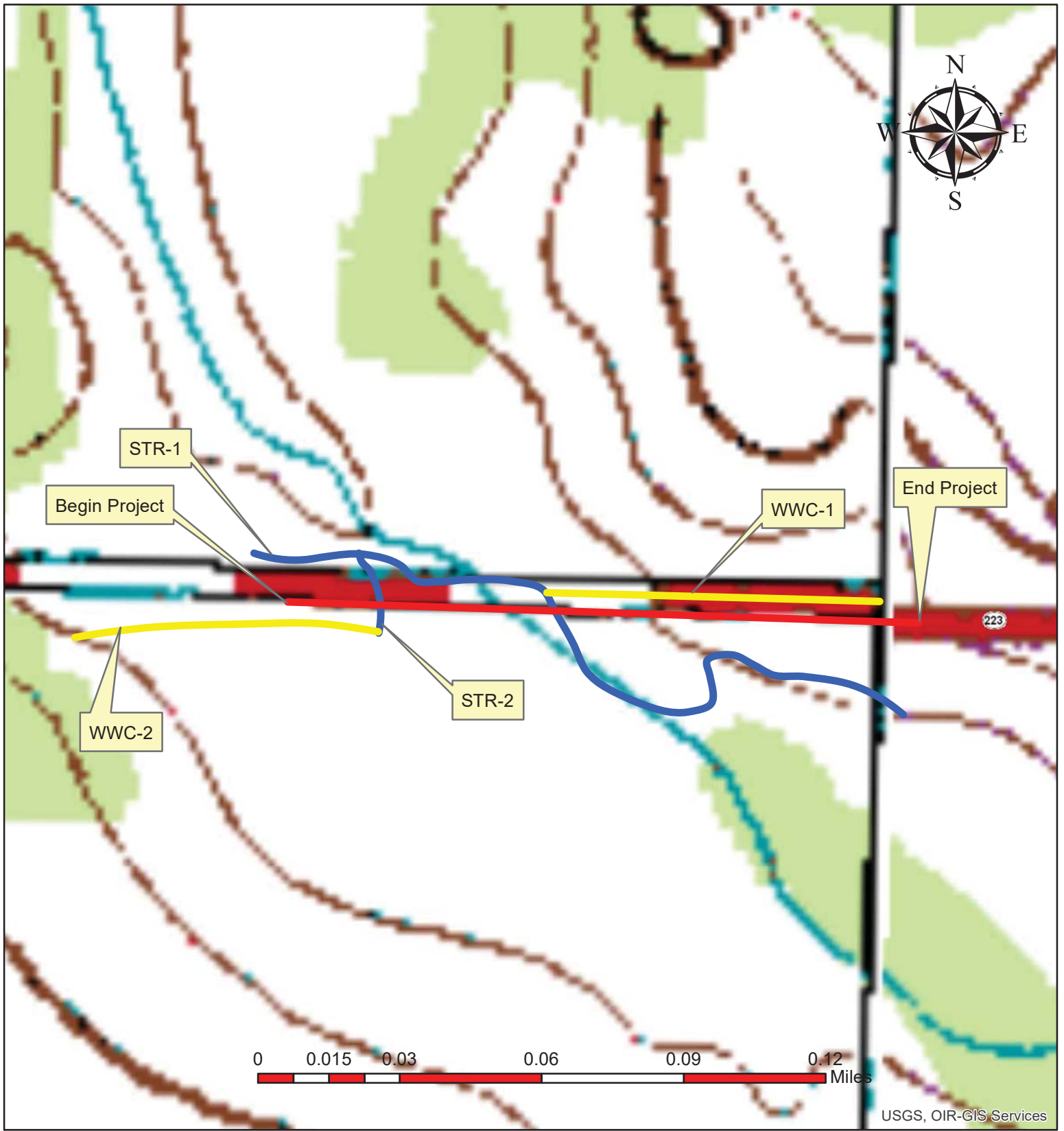


**Madison County; SR-223 (Shady Grove Road), Bridge over Branch, LM 2.28**

**P.E. 57039-0231-94  
PIN 124712.00**

**07/03/2018**





**Madison County; SR-223 (Shady Grove Road), Bridge over Branch, LM 2.28**

**P.E. 57039-0231-94  
PIN 124712.00**

**07/03/2018**



Preliminary Impact Form

County: Madison

Route: SR-223

PIN: 124712.00

Date Prepared: 7/17/2018

Prepared by:  
 TDOT Region 4 - Environmental Tech Office

**NOTE:** *This document is for "preliminary" use only and will not be considered accurate until the time of permit application.*

**Streams**

Labels	Type *	Function	Quality**	Impacts (feet) **		
				Permanent	Temporary	Total
STR-1	Stream		Undetermined at this time	175		175
STR-2	Stream		Undetermined at this time	0		0
<b>Total</b>				<b>175</b>		<b>175</b>

\* Identification of features has not been reviewed by regulatory agencies. Determinations could change.

Table 1. Calculation of Normal Weather Conditions / Jackson McKellar-Sipes AP, TN - June 2018  
 Source: AgAcis, 1988-2018 WETS, Jackson McKellar-Sipes AP

		Long-term Rainfall Records								
	Month	Minus one Std. Dev (DRY)	Normal (Mean Inches)	Plus One Std. Dev. (WET)	Actual Rainfall	Condition	Condition Value	Month Weight Value	Product of Previous two columns	
1st month prior	May	3.6	5.5	6.61	4.76	Normal	2	3	6	
2nd Month prior	Apr	3.41	4.95	5.89	6.87	Wet	3	2	6	
3rd month prior	Mar	3.89	5.47	6.47	4.46	Normal	2	1	2	
								Sum	14	

Note:	
If sum is:	
6-9	then prior period has been drier than normal
10-14	then prior period has been normal
15-18	then prior period has been wetter than normal

Condition Value	
Dry =	1
Normal =	2
Wet=	3

Conclusions:  
 Prior period has been normal.

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## Ecology Field Data Sheet: Water Resources

<b>Project:</b>		Madison County; SR-223 (Shady Grove Road), Bridge over Branch, LM 2.28					
<b>Biologist:</b>	Eric Philipps	<b>Affiliation:</b>	TDOT	<b>Date:</b>	06/13/2018		
<b>1-Station:</b> from plans	No Plans						
<b>2-Map label and name</b>	STR-1						
<b>3-Latitude/Longitude</b>	35.49529, -89.00131						
<b>4-Potential impact</b>	Encapsulation/Fill						
<b>5-Feature description:</b>							
-channel identification	<input checked="" type="checkbox"/> perennial stream	<input type="checkbox"/> intermittent stream	<input type="checkbox"/> ephemeral stream	<input type="checkbox"/> wwc			
-HD score (if applicable)							
-OHWM indicators	bed & banks <input checked="" type="checkbox"/>	deposition <input checked="" type="checkbox"/>	presence of litter / debris <input checked="" type="checkbox"/>	scour <input checked="" type="checkbox"/>	veg absent, bent, matted <input checked="" type="checkbox"/>		
	change in plant community <input checked="" type="checkbox"/>	destruction of terrestrial veg <input checked="" type="checkbox"/>	multiple observed flow events <input type="checkbox"/>	sediment sorting <input checked="" type="checkbox"/>	water staining <input checked="" type="checkbox"/>		
	change in soil character <input checked="" type="checkbox"/>	leaf litter disturbed absent <input checked="" type="checkbox"/>	natural line impressed on bank <input checked="" type="checkbox"/>	shelving <input checked="" type="checkbox"/>	wracking <input checked="" type="checkbox"/>		
-sinuosity	<input type="checkbox"/> absent	<input checked="" type="checkbox"/> weak	<input type="checkbox"/> moderate	<input type="checkbox"/> strong			
-channel bottom width	~6ft.		-top of bank width	~10ft.			
- avg. gradient of stream (%)	Low						
-bank height and slope ratio	LDB - ~2.5ft.		RDB - ~2.5ft.				
-water flow	<input type="checkbox"/> fast	<input type="checkbox"/> moderate	<input checked="" type="checkbox"/> slow	<input checked="" type="checkbox"/> isolated pools	<input type="checkbox"/> none		
-water depth (riffles / pools)	~1ft.		water width (riffles / pools)		~6ft.		
-bank stability: LDB, RDB	LDB:	Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input type="checkbox"/>	
	RDB:	Stable <input type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input type="checkbox"/>	
-dominant riparian species: ------(LDB /RDB)-----	LDB: Kudzu, Giant Ragweed						
	RDB: Kudzu, American sweetgum, Riverbirch						
-habitat assessment score	48						
	epifaunal substrate	5	channel alteration	5			
	channel substrate	6	channel sinuosity	6			
	pool variability	4	bank stability	LDB	3	RDB 3	
	sediment deposition	5	bank vegetative protection	LDB	1	RDB 1	
	channel flow status	5	riparian veg zone width	LDB	2	RDB 2	
-benthos	Assumed						
-fish	Observed						
-algae or other aquatic life	Frogs, Tadpoles observed, Algae						
<b>6-photo numbers</b>	1, 2						
<b>7-rainfall information</b>	.16" previous 7days						
<b>8-HUC -12 Code &amp; Name</b>	08010208503, Big Black Creek						
<b>9-Confirmed by:</b>							
<b>10-Assessed</b>	yes <input type="checkbox"/>	no <input checked="" type="checkbox"/>					
<b>11-ETW</b>	yes <input type="checkbox"/>	no <input checked="" type="checkbox"/>					
<b>12-303 (d) List</b>	yes <input type="checkbox"/>	siltation <input type="checkbox"/>	habitat:	<input type="checkbox"/>	other:	<input type="checkbox"/>	
	no <input checked="" type="checkbox"/>						
<b>13-Notes</b>	Chisholm Creek (TN08010208030_0200)						

## Ecology Field Data Sheet: Water Resources

<b>Project:</b>		Madison County; SR-223 (Shady Grove Road), Bridge over Branch, LM 2.28					
<b>Biologist:</b>	Eric Philipps	<b>Affiliation:</b>	TDOT	<b>Date:</b>	06/13/2018		
<b>1-Station:</b> from plans	No plans						
<b>2-Map label and name</b>	STR-2						
<b>3-Latitude/Longitude</b>	Crossing SR-223 through culvert at 35.495255, -89.001984						
<b>4-Potential impact</b>	Encapsulation/Fill						
<b>5-Feature description:</b>							
-channel identification	perennial stream	<input checked="" type="checkbox"/> <b>intermittent stream</b>	ephemeral stream	wwc			
-HD score (if applicable)							
-OHWM indicators	bed & banks <input checked="" type="checkbox"/>	deposition <input checked="" type="checkbox"/>	presence of litter / debris <input checked="" type="checkbox"/>	scour <input checked="" type="checkbox"/>	veg absent, bent, matted <input checked="" type="checkbox"/>		
	change in plant community <input checked="" type="checkbox"/>	destruction of terrestrial veg <input checked="" type="checkbox"/>	multiple observed flow events <input type="checkbox"/>	sediment sorting <input checked="" type="checkbox"/>	water staining <input checked="" type="checkbox"/>		
	change in soil character <input checked="" type="checkbox"/>	leaf litter disturbed absent <input checked="" type="checkbox"/>	natural line impressed on bank <input checked="" type="checkbox"/>	shelving <input type="checkbox"/>	wracking <input checked="" type="checkbox"/>		
-sinuosity	absent <input type="checkbox"/>	weak <input checked="" type="checkbox"/>	moderate <input type="checkbox"/>	strong <input type="checkbox"/>			
-channel bottom width	~3 ft.		-top of bank width	~5 ft.			
- avg. gradient of stream (%)	Low						
-bank height and slope ratio	LDB - ~2 ft.		RDB - ~2 ft.				
-water flow	fast <input type="checkbox"/>	moderate <input type="checkbox"/>	slow <input type="checkbox"/>	isolated pools <input checked="" type="checkbox"/>	none <input type="checkbox"/>		
-water depth (riffles / pools)	~.5 ft		water width (riffles / pools)	~.5 ft			
-bank stability: LDB, RDB	LDB: Stable <input checked="" type="checkbox"/>	Eroding <input type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input type="checkbox"/>		
	RDB: Stable <input checked="" type="checkbox"/>	Eroding <input type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input type="checkbox"/>		
-dominant riparian species: ------(LDB /RDB)-----	LDB: Kudzu, boxelder, American sycamore						
	RDB: Kudzu, boxelder, American sycamore						
-habitat assessment score	49						
	epifaunal substrate	4	channel alteration	2			
	channel substrate	6	channel sinuosity	3			
	pool variability	4	bank stability	LDB	5	RDB 5	
	sediment deposition	6	bank vegetative protection	LDB	3	RDB 3	
	channel flow status	2	riparian veg zone width	LDB	3	RDB 3	
-benthos	Assumed						
-fish	Observed						
-algae or other aquatic life	Frogs, Tadpoles, Algal mat observed						
<b>6-photo numbers</b>	5, 6						
<b>7-rainfall information</b>	.16" previous 7days						
<b>8-HUC -12 Code &amp; Name</b>	08010208503, Big Black Creek						
<b>9-Confirmed by:</b>							
<b>10-Assessed</b>	yes <input type="checkbox"/>	no <input checked="" type="checkbox"/>					
<b>11-ETW</b>	yes <input type="checkbox"/>	no <input checked="" type="checkbox"/>					
<b>12-303 (d) List</b>	yes <input type="checkbox"/>	siltation <input type="checkbox"/>	habitat: <input type="checkbox"/>	other: <input type="checkbox"/>			
	no <input checked="" type="checkbox"/>						
<b>13-Notes</b>	Fish observed in pool present on either side of culvert under SR-223.						

## Ecology Field Data Sheet: Water Resources

<b>Project:</b>		Madison County; SR-223 (Shady Grove Road), Bridge over Branch, LM 2.28					
<b>Biologist:</b>	Eric Philipps	<b>Affiliation:</b>	TDOT	<b>Date:</b>	06/13/2018		
<b>1-Station:</b> from plans	No Plans						
<b>2-Map label and name</b>	WWC-1						
<b>3-Latitude/Longitude</b>	From 35.495338, -89.000710 to 35.495331, -89.001320						
<b>4-Potential impact</b>	Encapsulation/Fill						
<b>5-Feature description:</b>							
-channel identification	perennial stream	intermittent stream	ephemeral stream	WWC			
-HD score (if applicable)	8						
-OHWM indicators	bed & banks <input type="checkbox"/>	deposition <input type="checkbox"/>	presence of litter / debris <input type="checkbox"/>	scour <input type="checkbox"/>	veg absent, bent, matted <input type="checkbox"/>		
	change in plant community <input type="checkbox"/>	destruction of terrestrial veg <input type="checkbox"/>	multiple observed flow events <input type="checkbox"/>	sediment sorting <input type="checkbox"/>	water staining <input type="checkbox"/>		
	change in soil character <input type="checkbox"/>	leaf litter disturbed absent <input type="checkbox"/>	natural line impressed on bank <input type="checkbox"/>	shelving <input type="checkbox"/>	wracking <input type="checkbox"/>		
-sinuosity	absent <input checked="" type="checkbox"/>	weak <input type="checkbox"/>	moderate <input type="checkbox"/>	strong <input type="checkbox"/>			
-channel bottom width	~1 ft.		-top of bank width		~2.5 ft.		
- avg. gradient of stream (%)	Low						
-bank height and slope ratio	LDB - ~2 ft.			RDB - ~2 ft.			
-water flow	fast <input type="checkbox"/>	moderate <input type="checkbox"/>	slow <input type="checkbox"/>	isolated pools <input type="checkbox"/>	none <input checked="" type="checkbox"/>		
-water depth (riffles / pools)	N/A		water width (riffles / pools)		N/A		
-bank stability: LDB, RDB	LDB: Stable <input checked="" type="checkbox"/>	Eroding <input type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input type="checkbox"/>		
	RDB: Stable <input checked="" type="checkbox"/>	Eroding <input type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input type="checkbox"/>		
-dominant riparian species: ------(LDB /RDB)-----	LDB: Kudzu, grasses						
	RDB: Kudzu, American Sweetgum, Elm						
-habitat assessment score	0						
	epifaunal substrate		channel alteration				
	channel substrate		channel sinuosity				
	pool variability		bank stability		LDB	RDB	
	sediment deposition		bank vegetative protection		LDB	RDB	
	channel flow status		riparian veg zone width		LDB	RDB	
-benthos	None observed						
-fish	None observed						
-algae or other aquatic life	None observed						
<b>6-photo numbers</b>	3, 4						
<b>7-rainfall information</b>	.16" previous 7 days						
<b>8-HUC -12 Code &amp; Name</b>	08010208503, Big Black Creek						
<b>9-Confirmed by:</b>							
<b>10-Assessed</b>	yes <input type="checkbox"/>	no <input type="checkbox"/>					
<b>11-ETW</b>	yes <input type="checkbox"/>	no <input type="checkbox"/>					
<b>12-303 (d) List</b>	yes <input type="checkbox"/>	siltation <input type="checkbox"/>	habitat: <input type="checkbox"/>	other: <input type="checkbox"/>			
	no <input type="checkbox"/>						
<b>13-Notes</b>							



## Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.4

County: Madison	Named Waterbody:	Date/Time: 6/13/18
Assessors/Affiliation: Eric Philipps, TDOT	Project ID: 124712.00	
Site Name/Description: WWC-1		
Site Location: NE corner of SR-223 and STR-1		
USGS quad: Mercer, TN	HUC (12 digit): Big Black Creek 080102080503	Lat/Long: From 35.495338, -89.000710 to 35.495331, -89.001320
Previous Rainfall (7-days) : .19" in last 48 hours		
Precipitation this Season vs. Normal : very wet    wet <b>average</b> dry    drought    unknown		
Source of recent & seasonal precip data : AqAcis		
Watershed Size : <.03 sq mi	Photos: Yes	Number : 3, 4
Soil Type(s) / Geology : From Lexington silt loam, 8 to 12 percent slopes, severely eroded to Collins silt loam, 0 to 2 percent slopes, frequently flooded, brief duration		
Surrounding Land Use : Agricultural, Forested		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe                      Moderate <b>Slight</b> Absent		

### Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, dominated by upland vegetation / grass	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i> )	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precipitation in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

**NOTE : If any Primary Indicators 1-9 = "Yes", then STOP; absent directly contradictory evidence, determination is complete.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.4*

**Overall Hydrologic Determination = WWC**

**Secondary Indicator Score (if applicable) = 8**

**Justification / Notes :** Feature is characterized as actively eroding roadside ditch. Parallels SR-223 and enters STR-1 north of roadway/bridge from the east.



## Ecology Field Data Sheet: Water Resources

<b>Project:</b>		Madison County; SR-223 (Shady Grove Road), Bridge over Branch, LM 2.28					
<b>Biologist:</b>	Eric Philipps	<b>Affiliation:</b>	TDOT	<b>Date:</b>	06/13/2018		
<b>1-Station:</b> from plans	No plans						
<b>2-Map label and name</b>	WWC-2						
<b>3-Latitude/Longitude</b>	From 35.495190, -89.003014 to 35.495213, -89.001869						
<b>4-Potential impact</b>	Encapsulation/Fill						
<b>5-Feature description:</b>							
-channel identification	perennial stream	intermittent stream	ephemeral stream	WWC			
-HD score (if applicable)	11.5						
-OHWM indicators	bed & banks <input type="checkbox"/>	deposition <input type="checkbox"/>	presence of litter / debris <input type="checkbox"/>	scour <input type="checkbox"/>	veg absent, bent, matted <input type="checkbox"/>		
	change in plant community <input type="checkbox"/>	destruction of terrestrial veg <input type="checkbox"/>	multiple observed flow events <input type="checkbox"/>	sediment sorting <input type="checkbox"/>	water staining <input type="checkbox"/>		
	change in soil character <input type="checkbox"/>	leaf litter disturbed absent <input type="checkbox"/>	natural line impressed on bank <input type="checkbox"/>	shelving <input type="checkbox"/>	wracking <input type="checkbox"/>		
-sinuosity	absent <input checked="" type="checkbox"/>	weak <input type="checkbox"/>	moderate <input type="checkbox"/>	strong <input type="checkbox"/>			
-channel bottom width	~2 ft.		-top of bank width		~2 ft.		
- avg. gradient of stream (%)	Low						
-bank height and slope ratio	LDB - ~2ft.			RDB - ~2ft.			
-water flow	fast <input type="checkbox"/>	moderate <input type="checkbox"/>	slow <input type="checkbox"/>	isolated pools <input type="checkbox"/>	none <input checked="" type="checkbox"/>		
-water depth (riffles / pools)	N/A		water width (riffles / pools)		N/A		
-bank stability: LDB, RDB	LDB: Stable <input checked="" type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input type="checkbox"/>		
	RDB: Stable <input checked="" type="checkbox"/>	Eroding <input checked="" type="checkbox"/>	Undercutting <input type="checkbox"/>	Sloughing <input type="checkbox"/>	Exposed Roots <input type="checkbox"/>		
-dominant riparian species: ------(LDB /RDB)-----	LDB: Boxelder, giant ragweed, poison ivy, grasses						
	RDB: Boxelder, giant ragweed, poison ivy, grasses						
-habitat assessment score	0						
	epifaunal substrate		channel alteration				
	channel substrate		channel sinuosity				
	pool variability		bank stability		LDB	RDB	
	sediment deposition		bank vegetative protection		LDB	RDB	
	channel flow status		riparian veg zone width		LDB	RDB	
-benthos	None observed						
-fish	None observed						
-algae or other aquatic life	None observed						
<b>6-photo numbers</b>	7, 8						
<b>7-rainfall information</b>	.16" previous 7 days						
<b>8-HUC -12 Code &amp; Name</b>	08010208503 Big Black Creek						
<b>9-Confirmed by:</b>							
<b>10-Assessed</b>	yes <input type="checkbox"/>	no <input type="checkbox"/>					
<b>11-ETW</b>	yes <input type="checkbox"/>	no <input type="checkbox"/>					
<b>12-303 (d) List</b>	yes <input type="checkbox"/>	siltation <input type="checkbox"/>	habitat: <input type="checkbox"/>	other: <input type="checkbox"/>			
	no <input type="checkbox"/>						
<b>13-Notes</b>							

## Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.4

County: Madison	Named Waterbody:	Date/Time: 6/13/18
Assessors/Affiliation: Eric Philipps, TDOT	Project ID: 124712.00	
Site Name/Description: WWC-2		
Site Location: SW corner of SR-223 and STR-2		
USGS quad: Mercer, TN	HUC (12 digit): Big Black Creek 080102080503	Lat/Long: From 35.495190, -89.003014 to 35.495213, -89.001869
Previous Rainfall (7-days) : .16" in last 48 hours		
Precipitation this Season vs. Normal : very wet    wet <b>average</b> dry    drought    unknown		
Source of recent & seasonal precip data : AqAcis		
Watershed Size : <.03 sq mi	Photos: Yes	Number : 7, 8
Soil Type(s) / Geology : From Lexington silt loam, 5 to 8 percent slopes, severely eroded to Collins silt loam, 0 to 2 percent slopes, frequently flooded, brief duration		
Surrounding Land Use : Agricultural, Forested		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe <b>Moderate</b> Slight                      Absent		

### Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, dominated by upland vegetation / grass	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i> )	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precipitation in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

**NOTE : If any Primary Indicators 1-9 = "Yes", then STOP; absent directly contradictory evidence, determination is complete.**

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.4*

**Overall Hydrologic Determination = WWC**

**Secondary Indicator Score (if applicable) = 11.5**

**Justification / Notes :** Feature is characterized as actively eroding roadside ditch. Parallels SR-223 and enters STR-2 south of roadway from the west. Heavy deposits of sand observed. Recent removal of culvert at field drive is contributing to erosion.

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**Species reported within 1 mile radius of project:**

Species  Scientific and common names, followed by (A) for animal or (P) for plant	Status		Species is potentially present in R-O-W because: <b>(A)</b> it is listed by TDEC within ROW <b>(B)</b> habitat is present <b>(C)</b> observed during site visit <b>(D)</b> critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: <b>(A)</b> Present habitat unsuitable <b>(B)</b> Not observed during site visit <b>(C)</b> Original record questionable <b>(D)</b> Considered extinct/extirpated	Accommodations to minimize impacts: <b>(A)</b> BMPs are sufficient to protect species <b>(B)</b> Special Notes are included on project plans <b>(C)</b> Individuals will be impacted. <b>(D)</b> Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes
	Fed	TN					
<i>Noturus gladiator</i> (Piebald madtom) (A)	-	D		A	A	Large creeks & rivers in moderate-swift currents with clean sand or gravel substrates; Mississippi River tributaries. 1970-PRE. TAYLOR, W. R. 1969. A REVISION OF THE CATFISH GENUS NOTURUS RAFINESQUE WITH AN ANALYSIS OF HIGHER GROUPS IN THE ICTALURIDAE. US NAT. MUS. BULL. NO. 282:315 PP.	

**Species reported within 1-mile to 4-mile radius of project:**

Species  Scientific and common names, followed by (A) for animal or (P) for plant	Status		Species is potentially present in R-O-W because:  (A) it is listed by TDEC within ROW (B) habitat is present (C) observed during site visit (D) critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: (A) Present habitat unsuitable (B) Not observed during site visit (C) Original record questionable (D) Considered extinct/extirpated	Accommodations to minimize impacts: (A) BMPs are sufficient to protect species (B) Special Notes are included on project plans (C) Individuals will be impacted. (D) Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes
	Fed	TN					
<i>Noturus gladiator</i> (Piebald madtom) (A)	-	D		A	A	Large creeks & rivers in moderate-swift currents with clean sand or gravel substrates; Mississippi River tributaries. 1970-PRE. TAYLOR, W. R. 1969. A REVISION OF THE CATFISH GENUS NOTURUS RAFINESQUE WITH AN ANALYSIS OF HIGHER GROUPS IN THE ICTALURIDAE. US NAT. MUS. BULL. NO. 282:315 PP.	

**Migratory Birds**

List **significant concentrations** of migratory birds encountered within the project area (rookeries, aggregations, nesting areas, etc).

Species (Scientific and Common Name)	Approximate No. of Nests (or Individuals)	Location of Nests (or Individuals) (Include Latitude & Longitude)	Nesting Dates and Reference	Photograph #
None				

**USFWS letter:** Yes  X  (attached) No   (explain)

**Biological Assessment:** Yes   (response letter attached; see below) No  X

Species (scientific and common names)	USFWS conclusion <sup>1</sup>
None	

<sup>1</sup> Choose from "no effect"; "not likely to adversely affect;" or "likely to adversely affect;". If "likely to adversely affect" is chosen, indicate "no jeopardy to species and no adverse modification to habitat" or "jeopardy to species, or adverse modification to habitat" based on FWS concurrence letter

# 1 & 4 Mile T&E

SCIENTIFIC_NAME	COMMON_NAME	LAST_OBS_DATE	FED_PROTECTION	ST_PROTECTION	EO_RANK
Noturus gladiator	Piebald Madtom	1970-PRE	--	D	Historical



**From:** [John Griffith](#)  
**To:** [Eric Philipps](#)  
**Cc:** [Randall E. Mann](#); [Lou Timms](#); [Jared McCoy](#); [Dustin Tucker](#); [Rita M. Thompson](#); [Greg Harris](#)  
**Subject:** RE: [EXTERNAL] Madison County, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00  
**Date:** Monday, July 16, 2018 9:44:40 AM  
**Attachments:** [image001.png](#)

---

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

Eric,  
??

Thank you for requesting our review of the proposed SR-223 Bridge replacement over a unnamed tributary to Chisholm Creek at LM 2.28 in Madison County, Tennessee.?? Upon review of the information provided and our database, we would not anticipate impacts to any federally listed or proposed species as a result of the project.?? Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act.?? Obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

??

TDOT's standard construction BMPs would be implemented during the project. Equipment staging and maintenance areas should be developed an adequate distance from the stream to avoid entry of petroleum-based pollutants into the water.?? Concrete and cement dust must be kept out of the water as they alter chemical properties and can be toxic to aquatic species. This email will serve as our official project response.?? Please let me know if we can offer further assistance.?? Thanks,

??

John Griffith  
Transportation Biologist  
U.S. Fish and Wildlife Service  
Tennessee Field Office  
931-525-4995 (office)  
931-528-7075 (fax)  
??

---

**From:** Eric Philipps <[Eric.Philipps@tn.gov](mailto:Eric.Philipps@tn.gov)>  
**Sent:** Thursday, June 21, 2018 2:15 PM  
**To:** [john\\_griffith@fws.gov](mailto:john_griffith@fws.gov)  
**Cc:** Randall E. Mann <[Randall.E.Mann@tn.gov](mailto:Randall.E.Mann@tn.gov)>; Lou Timms <[Lou.Timms@tn.gov](mailto:Lou.Timms@tn.gov)>; Jared McCoy <[Jared.McCoy@tn.gov](mailto:Jared.McCoy@tn.gov)>; Dustin Tucker <[Dustin.Tucker@tn.gov](mailto:Dustin.Tucker@tn.gov)>; Rita M. Thompson <[Rita.M.Thompson@tn.gov](mailto:Rita.M.Thompson@tn.gov)>; Greg Harris <[Greg.Harris@tn.gov](mailto:Greg.Harris@tn.gov)>  
**Subject:** [EXTERNAL] Madison County, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00  
??

John,

??

Please find attached the coordination request, including species maps and list, for the proposed bridge replacement in Madison County.

??

Thanks,



**Eric Philipps** | Environmental Studies Specialist  
Region 4 | Project Development

Environmental Tech Office | Building A, 1<sup>st</sup> floor  
300 Benchmark Place, Jackson, TN 38301

p. 731-935-0174???? c. 731-513-0021

[eric.philipps@tn.gov](mailto:eric.philipps@tn.gov)

[tn.gov/tdot](http://tn.gov/tdot)

??

**From:** [Casey Parker](#)  
**To:** [Eric Philipps](#); [TDOT Env.LocalPrograms](#)  
**Cc:** [Rob Todd](#)  
**Subject:** RE: Request for Comment - Madison, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00  
**Date:** Wednesday, July 11, 2018 2:53:29 PM  
**Attachments:** [image002.png](#)  
[image003.png](#)

---

Subject: Request for Comment - Madison, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00

Mr. Eric Philipps,

I have reviewed the information that you provided regarding the proposed bridge replacement on SR-223 (Shady Grove Road) in Madison County, Tennessee. The implementation of standard BMP's will be sufficient to satisfy the needs of the Tennessee Wildlife Resources Agency for this proposed project. Thank you for the opportunity to review and comment, please contact me if you need further assistance.

**Casey Parker - Wildlife Biologist**  
**Liaison to TDOT & Federal Highway Administration**  
**Tennessee Wildlife Resources Agency**  
**Environmental Services Division**  
**Email:** [casey.parker@tn.gov](mailto:casey.parker@tn.gov)



---

**From:** Eric Philipps  
**Sent:** Thursday, June 21, 2018 2:57 PM  
**To:** Casey Parker  
**Cc:** Rob Todd; Randall E. Mann; Lou Timms; Jared McCoy; Dustin Tucker; Rita M. Thompson; Greg Harris  
**Subject:** Request for Comment - Madison, SR-223 (Shady Grove Road) Bridge over Branch, PIN 124712.00

Casey,

TDOT proposes to replace the subject bridge in Madison County. Please find attached KMZ file, species maps, species list, and plan sheet. If you have any questions or require additional information, please do not hesitate to contact me.

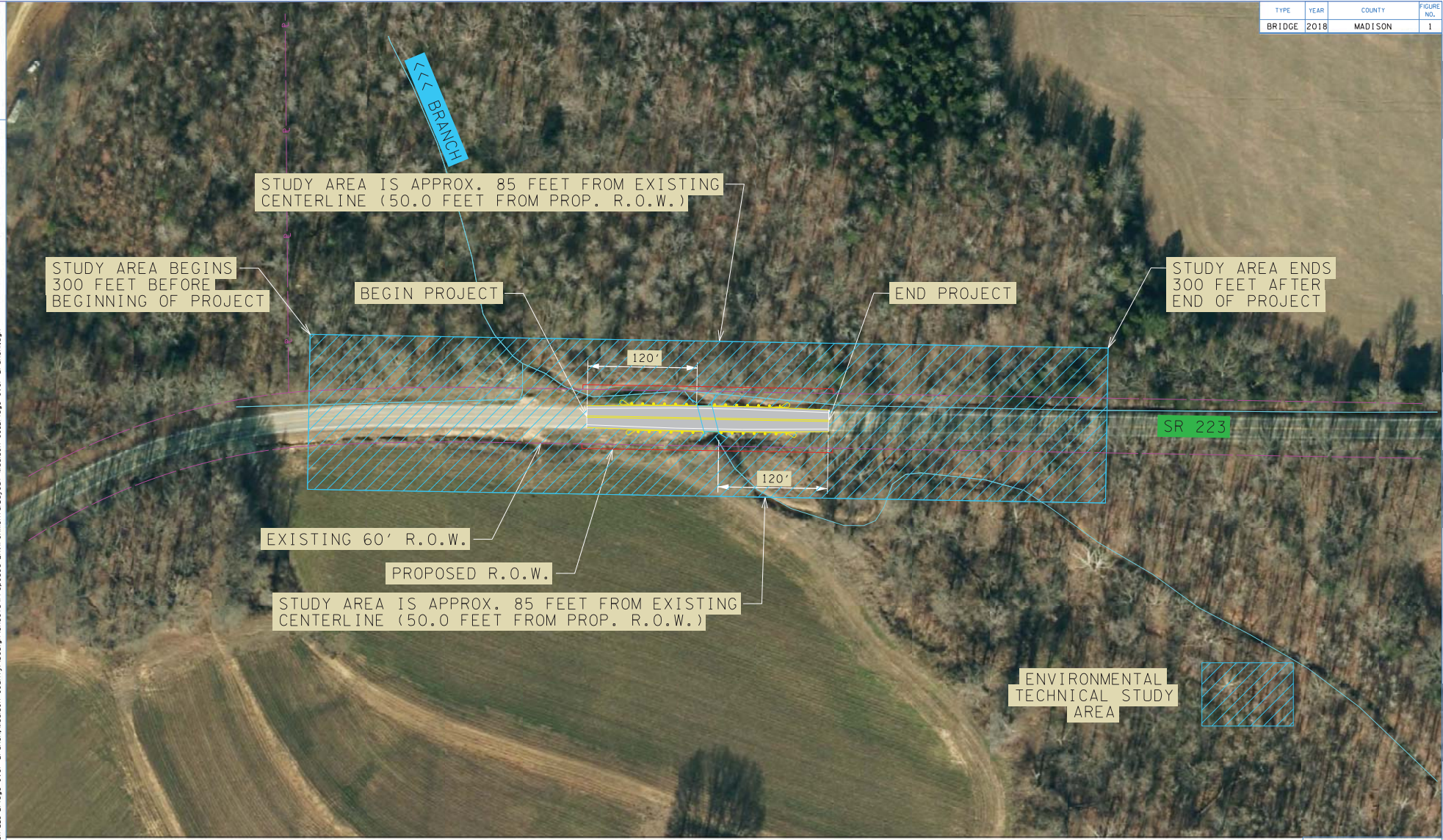
Thanks,



**Eric Philipps** | Environmental Studies Specialist  
Region 4 | Project Development  
Environmental Tech Office | Building A, 1<sup>st</sup> floor  
300 Benchmark Place, Jackson, TN 38301  
p. 731-935-0174 c. 731-513-0021  
[eric.philipps@tn.gov](mailto:eric.philipps@tn.gov)  
[tn.gov/tdot](http://tn.gov/tdot)

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

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2018	MADISON	1



3/23/2018 3:57:24 PM M:\2017\160408005 (1101) TIR - SR-223 Bridge over Branch, Madison County\Design\Sheets\Proposed Environmental Layout Madison Co.Bridge Over Branch.tdgn



### ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 223 (SHADY GROVE ROAD)  
BRIDGE OVER BRANCH @ L.M. 2.28  
MADISON COUNTY

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

FIGURE 1  
BRIDGE REPLACEMENT  
SR223  
L.M. 2.28

# Air and Noise

# Environmental Study

## Technical Section

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**Section:** Air and Noise

## Study Results

---

### AIR QUALITY

#### Transportation Conformity

This project is in Madison 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 does not require a Mobile Source Air Toxics (MSATs) evaluation per FHWA's "Interim Guidance Update on Air Toxic Analysis in NEPA Documents" dated October 2016.

### 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.

## Commitments

---

Did the study of this project result in any environmental commitments?

No

## Additional Information

---

Is there any additional information or material included with this study?

No

## Certification

---

**Responder:** Darlene D Reiter

**Title:** TDOT Environmental Division Consultant

**Signature:** Darlene D  
Reiter

Digitally signed by  
Darlene D Reiter  
Date: 2018.06.08  
12:16:53 -05'00'

# Cultural Resources



# Historic Preservation

# Environmental Study

## Technical Section

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**Section:** Historic Preservation

## Study Results

---

In a letter dated 6/12/2018, the TN-SHPO concurred that no architectural resources eligible for listing in the National Register of Historic Places will be affected by this undertaking.

## Commitments

---

**Did the study of this project result in any environmental commitments?**

No

## Additional Information

---

**Is there any additional information or material included with this study?**

Yes

**Type:** Historical-Architectural Report & SHPO Letter

**Location:** FileNet

## Certification

---

**Responder:** Laura van Opstal

**Title:** TESS-AD, Historic Preservation

**Signature:** Laura van  
Opstal

Digitally signed by Laura  
van Opstal  
Date: 2018.06.15  
11:15:31 -05'00'



**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**BUREAU OF ENVIRONMENT & PLANNING**

SUITE 700, JAMES K. POLK BUILDING  
505 DEADERICK STREET  
NASHVILLE, TENNESSEE 37243-1402  
(615) 741-5376

**JOHN C. SCHROER**  
COMMISSIONER

**BILL HASLAM**  
GOVERNOR

June 6, 2018

Mr. E. Patrick McIntyre, Jr.  
Executive Director & State Historic Preservation Officer  
Tennessee Historical Commission  
2941 Lebanon Road  
Nashville, TN 37214

SUBJECT: Historic/Architectural Assessment for the Proposed Replacement of the State Route 223 Bridge over Branch, Log Mile 2.28, in Madison County, PIN 124712.00

Dear Mr. McIntyre,

Enclosed is the Historic/Architectural Assessment for the above-referenced project. It is the opinion of TDOT that there are no historic resources within the Area of Potential Effect of the proposed project. On behalf of the Federal Highway Administration, we request your review of this report pursuant to regulations contained within 36 CFR 800. An archaeological assessment is being prepared separately.

We look forward to your comments. Thank you for your help in this matter.

Sincerely,

Katherine Looney  
TDOT Environmental Supervisor, Historic Preservation

Enclosure

# BRIDGE REPLACEMENT PROJECT: MADISON COUNTY

State Route 223 Bridge over Branch, Log Mile 2.28  
PIN 124712.00

## PROJECT DESCRIPTION

The Tennessee Department of Transportation (TDOT), with funding made available through the Federal Highway Administration (FHWA), is proposing to remove and replace the State Route 223 (SR-223, Shady Grove Road) bridge over an unnamed branch of Chisolm Creek in Madison County, Tennessee. The project proposes to replace the existing bridge with a new structure on the same alignment. The bridge replacement project will require approximately 0.06 acres of new right-of-way (ROW) acquisition.

The existing bridge is a precast concrete slab bridge 28 feet long and 28 feet, 8 inches wide. The proposed replacement structure is a reinforced concrete box beam bridge 26 feet long and 33.5 feet wide. The replacement bridge will maintain the two travel lanes, but will add three-foot shoulders. The project includes transition work along SR-223 to taper the paved shoulders into the existing roadway east and west of the bridge, and to install guardrail.



**Figure 1:** Project location map.

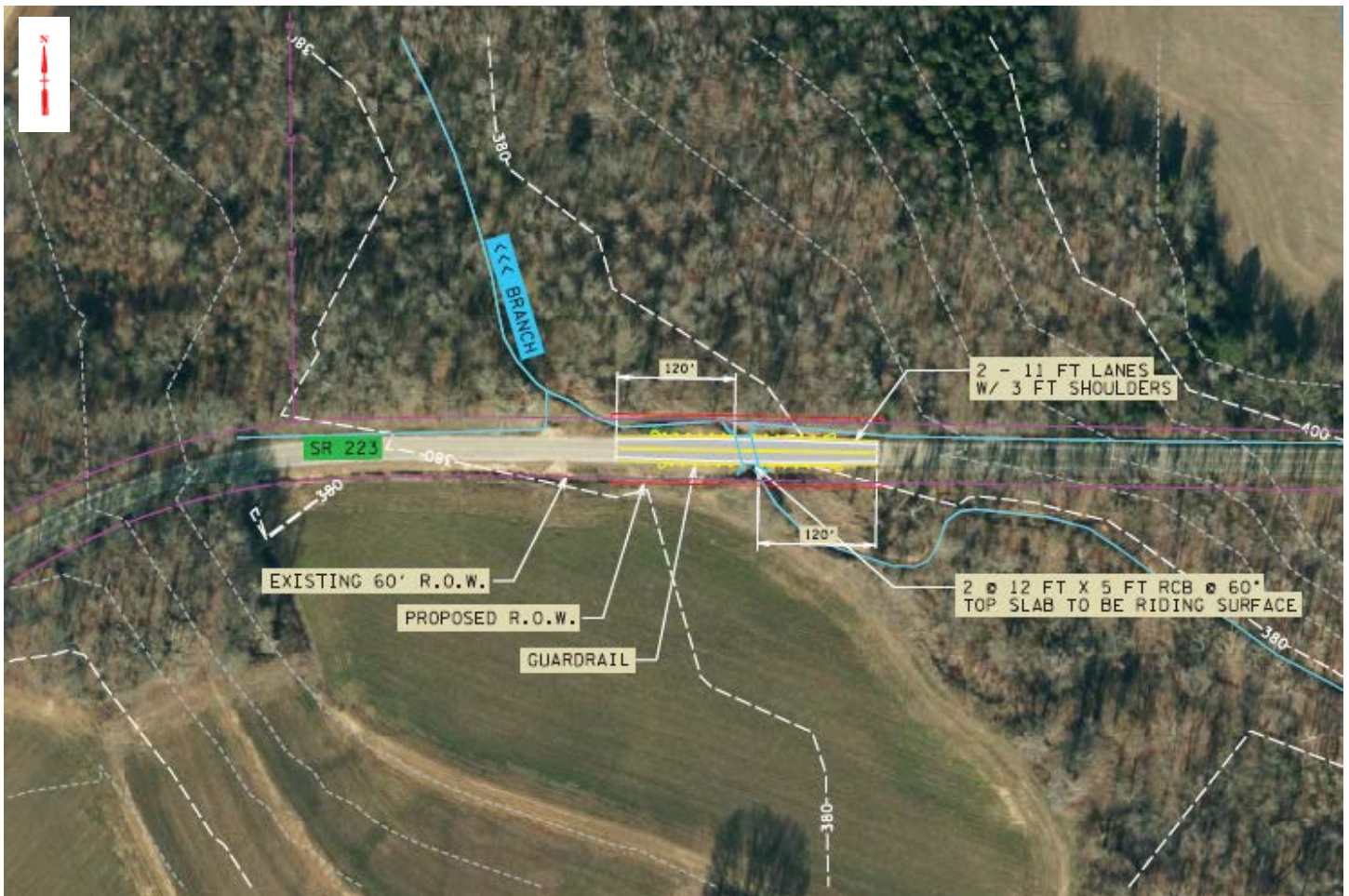
## PUBLIC AND TRIBAL PARTICIPATION

TDOT will write to five Native American tribes or representatives asking each for information regarding the project and if they would like to participate in the Section 106 review process as a consulting party. The tribes with historic interest in Madison County are:

The Chickasaw Nation  
Eastern Shawnee Tribe of Oklahoma  
Kialegee Tribal Town

Shawnee Tribe  
United Keetoowah Band of Cherokee Indians

TDOT invited the Madison County Mayor to be a consulting party in the Section 106 process via letter dated May 11, 2018. To date, TDOT has not received any response regarding historic resources.



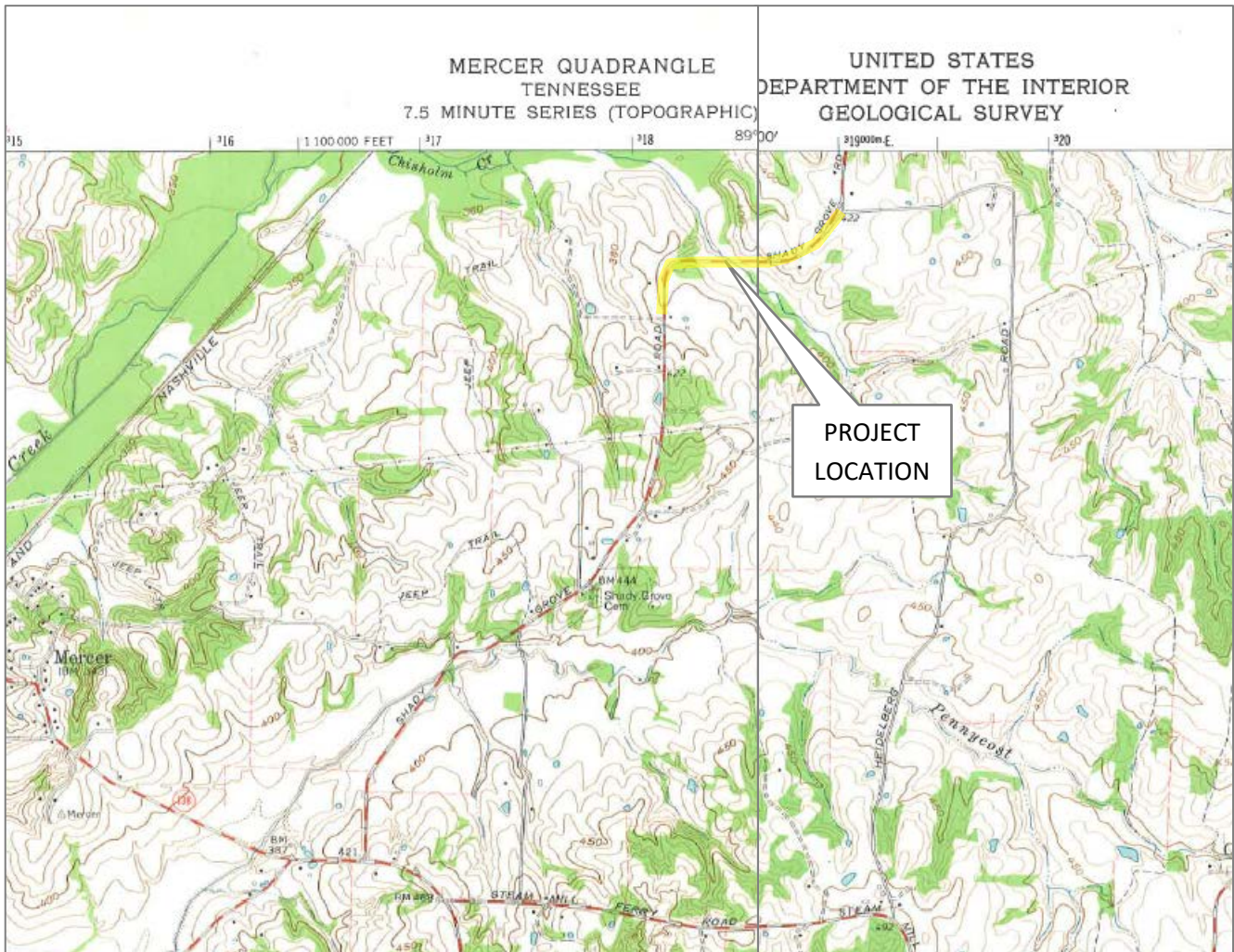
**Figure 2:** Functional layout for proposed bridge replacement, aerial view. Proposed ROW lines are for planning purposes.

## ARCHITECTURAL/HISTORICAL SURVEY

In compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, TDOT staff historians reviewed the Area of Potential Effect (APE) for this project. An archaeological assessment is being prepared separately. A TDOT historian checked the survey records of the Tennessee State Historic Preservation Office (TN-SHPO) to determine if any previous architectural surveys had identified historic properties in the area. There are no previously surveyed properties within the APE of the proposed project (Figure 3).

LIT/RECORDS SEARCH: 5/21/2018—Laura van Opstal

FIELD STUDY: 5/24/2018—Laura van Opstal & Katherine Looney



**Figure 3:** TN-SHPO survey map. USGS topographic quadrangles Mercer 431NE and Teague 439NW. There are no previously surveyed properties within the APE of the proposed project. Roads driven by TDOT historians during the field survey are highlighted in yellow.

TDOT historians field reviewed the APE for the proposed project in compliance with 36 CFR 800 regulations. The purpose of this survey was to identify any resources either included in or eligible for inclusion in the National Register of Historic Places (eligibility criteria are set forth in 36 CFR 60.4). The survey area included land needed for additional ROW as well as areas that might possibly be affected by changes in air quality, noise levels, setting, and land use. The area surrounding the bridge is rural and mostly agricultural fields and wooded areas.

The field survey did not identify any buildings within the APE. The existing bridge was built in 2017, and is a temporary precast concrete slab bridge with guardrails.

Therefore, it is the opinion of TDOT that there are no properties listed in or eligible for listing in the National Register of Historic Places within the proposed project's APE.



*View west along SR-223 toward the bridge.*

## **CONCLUSION**

The Tennessee Department of Transportation, with funding made available through the Federal Highway Administration (FHWA), is proposing the replacement of the SR-223 bridge over an unnamed branch of Chisolm Creek in Madison County.

In compliance with 36 CFR 800, TDOT historians surveyed the proposed project APE for historic resources. No National Register listed or eligible properties exist in the project area, and no historic resources were identified by the survey. It is the opinion of TDOT that there are no historic resources in the project area. Additionally, the lack of historic resources indicates that Section 4(f) does not apply.



**TENNESSEE HISTORICAL COMMISSION**  
STATE HISTORIC PRESERVATION OFFICE  
2941 LEBANON PIKE  
NASHVILLE, TENNESSEE 37243-0442  
OFFICE: (615) 532-1550  
[www.tnhistoricalcommission.org](http://www.tnhistoricalcommission.org)

June 12, 2018

Ms. Katherine Looney  
Tennessee Department of Transportation  
505 Deaderick St  
Suite 900  
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, Replacement of the SR 223 Bridge over Branch,  
Log Mile 2.28/ PIN 124712.00, , Madison County, TN

Dear Ms. Looney:

In response to your request, we have reviewed the architectural survey report and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we concur that no architectural resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Questions or comments may be directed to Casey Lee (615 253-3163).

Your cooperation is appreciated.

Sincerely,

E. Patrick McIntyre  
Executive Director and  
State Historic Preservation Officer

EPM/cjl



# Archaeology

# Environmental Study

## Technical Section

---

**Section:** Archaeology

## Study Results

---

In a letter dated August 21, 2018, the TN SHPO concurred that no National Register of Historic Places listed, eligible, or potentially eligible properties would be affected by this undertaking.

## Commitments

---

Did the study of this project result in any environmental commitments?

No

## Additional Information

---

Is there any additional information or material included with this study?

No

## Certification

---

**Responder:** Sarah Kate McKinney

**Title:** TESS Archaeology

**Signature:** Sarah Kate  
McKinney

Digitally signed by  
Sarah Kate McKinney  
Date: 2018.10.05  
14:35:47 -05'00'

**FINAL**

# **PHASE I ARCHAEOLOGICAL SURVEY OF BRIDGE REPLACEMENT AT SR223 (SHADY GROVE ROAD) AT LOG MILE 2.28, MADISON COUNTY**

---

PIN: 124712.0

PE-N: 57039-0213-94

AGREEMENT NO. E1906, WORK ORDER NO. 10

TDOA PERMIT: 000990

LEAD FEDERAL AGENCY: FEDERAL HIGHWAY ADMINISTRATION

PREPARED FOR:

TENNESSEE DEPARTMENT OF TRANSPORTATION

JAMES K. POLK BUILDING, SUITE 900

505 DEADERICK STREET

NASHVILLE, TN 37243

PREPARED BY:

AECOM

1600 PERIMETER PARK DRIVE

SUITE 400

MORRISVILLE, NC 27560

PRINCIPAL INVESTIGATOR AND AUTHOR:

MARK MARTINKOVIC, MA, RPA

AUGUST 29, 2018

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## MANAGEMENT SUMMARY

The Tennessee Department of Transportation (TDOT) intends to replace the bridge on State Road 223 (Shady Grove Road) at Log Mile 2.28 Madison County, Tennessee. The project is tracked as TDOT Project Number (PE-N) 57039-0213-94 and PIN 124712.00. AECOM performed a Phase I terrestrial archaeological survey of the project's Area of Potential Effect (APE) under contract to the TDOT (Agreement No. E1906, Work Order 10). Design plans for the project were provided by TDOT archaeologist Sarah K. McKinney in PDF format via email attachment on May 16, 2018. The APE includes land on the east and west sides of the Branch of Chisholm Creek and the north and south sides of State Road 223 (Shady Grove Road). The Area of Potential Effects (APE) includes the existing right of way, easements, and the environmental technical study area as defined by TDOT. The APE measures 150,056 square feet (0.00538 square miles). State Archaeological Permit #000990 was issued by the Tennessee Division of Archaeology to AECOM on June 11, 2018.

The Scope of Work (SOW) for the project is compliant with TCA 4-11-111 and Section 106 of the National Historic Preservation Act in compliance with the regulations issued by the Advisory Council on Historic Preservation (36 CFR 800), and following TDOT's *Scope of Work Phase I Archaeological Assessments* (FY 2017-2018) and the Tennessee SHPO's *Standards and Guidelines for Archaeological Resource Management Studies* (March 2009). This standardized SOW included background research, shovel test survey at 20 meter intervals in the APE, and reporting tasks. AECOM performed the Phase I archaeological survey to address these project goals on June 11-12, 2018.

The APE northeast of the Branch creek consists of an elevated landform with a southwest facing slope, the remaining southeastern, southwestern, and northwestern sides consist of level floodplain. Subsurface testing was conducted within the entire APE.

No archaeological resources or archaeologically sensitive deposits have been identified within the State Road 223 (Shady Grove Road) Bridge APE. We therefore recommend no additional archaeological studies be required in conjunction with the proposed replacement of the State Road 223 (Shady Grove Road) Bridge over the Branch of Chisholm Creek.

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## 1.0 INTRODUCTION

The Tennessee Department of Transportation (TDOT) intends to replace the bridge on State Road 223 (Shady Grove Road) at Log Mile 2.28 spanning the Branch of Chisholm Creek in Madison County, Tennessee (Figures 1 through Figure 3). The project is tracked as TDOT Project Number (PE-N) 57039-0213-94 and PIN 124712.00. AECOM performed a Phase I terrestrial archaeological survey of the project's Area of Potential Effect (APE) under contract to the TDOT (Agreement No. E1906, Work Order 10). Design plans for the project were provided by TDOT staff member Sarah K. McKinney in PDF format via email attachment on May 16, 2018. The APE includes land on the east and west sides of the Branch of Chisholm Creek and the north and south sides of State Road 223 (Shady Grove Road). The Area of Potential Effects (APE) includes the existing right of way, easements, and the environmental technical study area as defined by TDOT. The APE measures 150,056 square feet (0.00538 square miles). State Archaeological Permit #000990 was issued by the Tennessee Division of Archaeology to AECOM on June 11, 2018 (Appendix A).

AECOM performed the Phase I archaeological survey to address these project goals June 11-12, 2018. Mark Martinkovic, RPA acted as the Archaeologist in General Charge and the Archaeologist in Direct Charge. Mr. Martinkovic was assisted in the field by Crew Chief Jeffrey Scott Jones. Sarah Potere completed the Historic Context. Daniel Cassedy, PhD, RPA performed QA/QC tasks for the project, and acted as the primary liaison with TDOT. Sarah K. McKinney of TDOT is managing the project for TDOT. Paperwork and project materials are currently being housed at AECOM's facilities. Upon completion of the project, these materials will be curated with the TDOT.

The following report is organized as follows. Background—including environmental, cultural, and archaeological contexts—is presented in Chapter 2. Chapter 3 details the methodology used for the project and Chapter 4 presents the results of the project. A summary of the work and recommendations can be found in Chapter 5. References cited can be found in Chapter 6. Following Chapter 6 are appendices for the TDOA Permit (Appendix A) and Shovel Test Log (Appendix B).

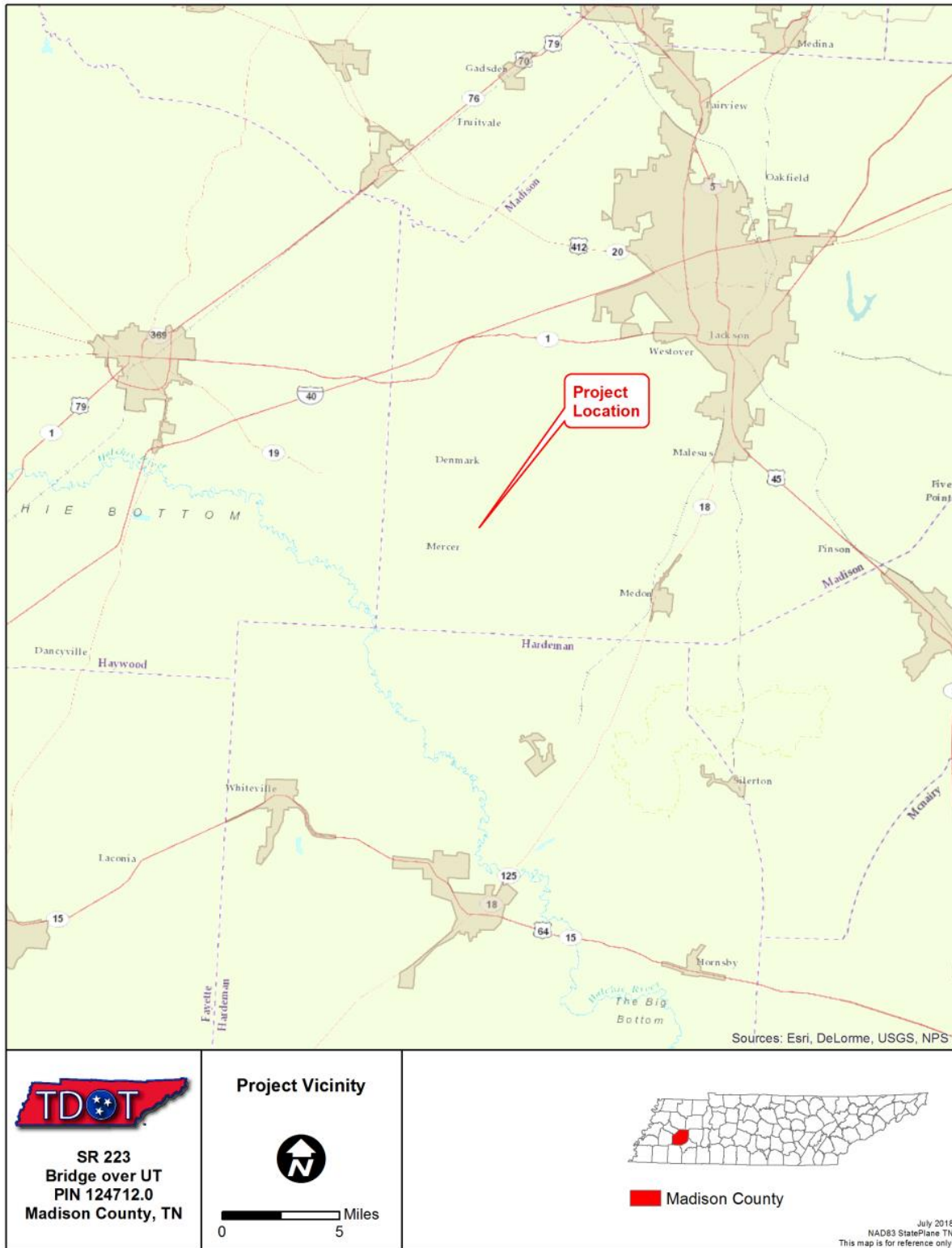


Figure 1. General Location of SR 223 (Shady Grove Road) Bridge Replacement Project, Madison County, Tennessee.

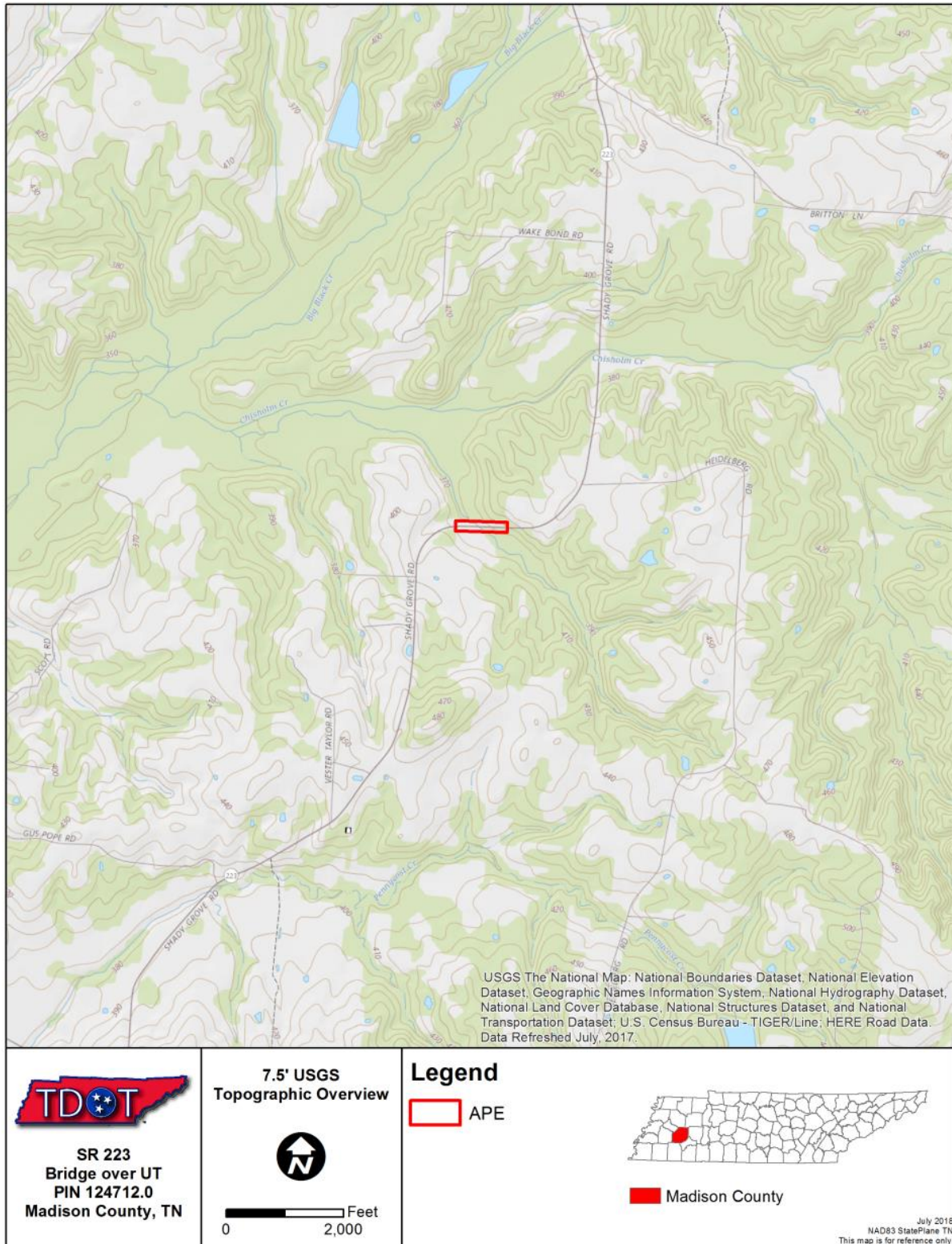


Figure 2. Topographic Setting of SR 223 (Shady Grove Road) Bridge Replacement Project Vicinity.

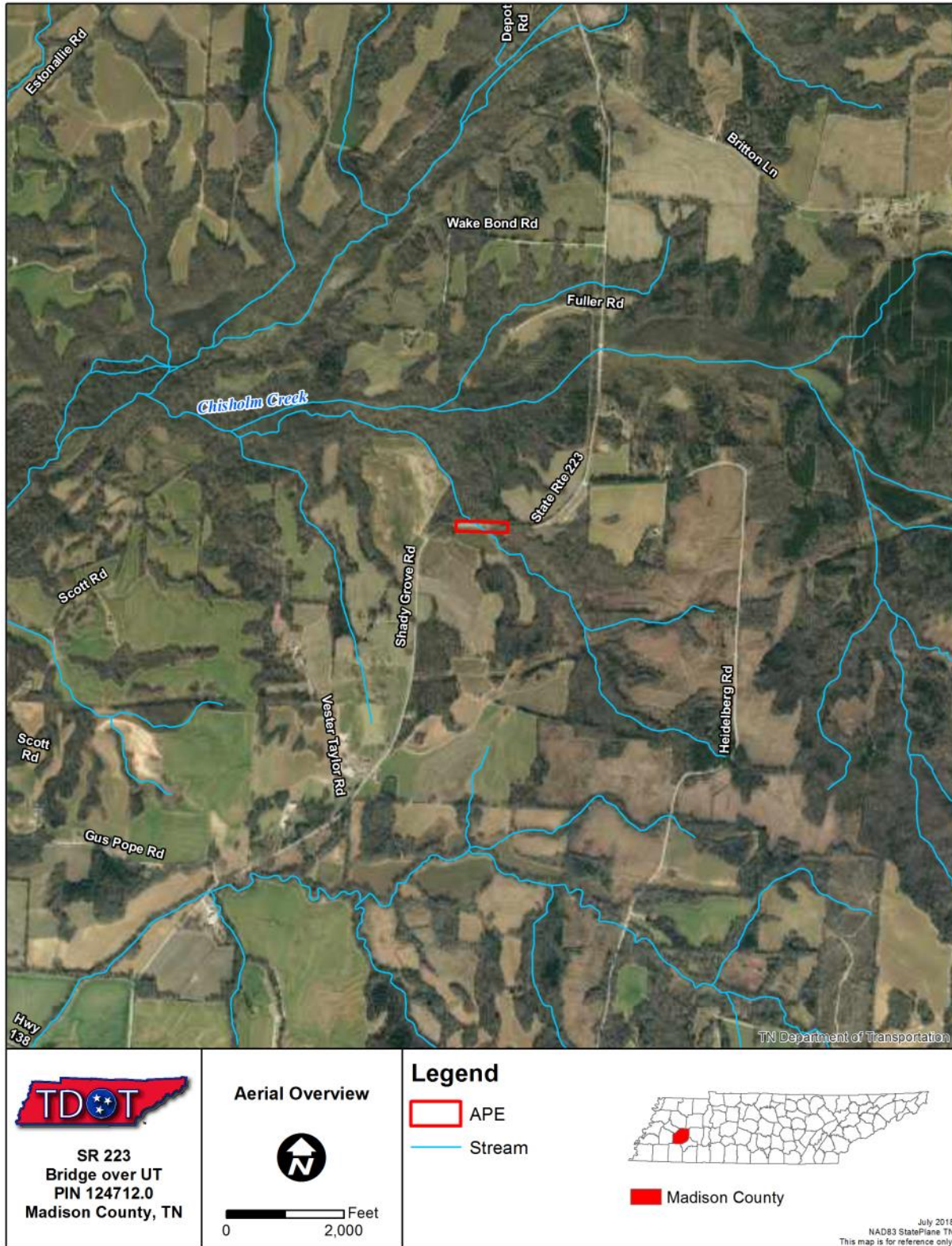


Figure 3. Aerial Photograph of SR 223 (Shady Grove Road) Bridge Replacement Project Vicinity.

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## 2.0 BACKGROUND

### Environmental Context

The current project is located within the extreme eastern portion of the Mississippi Valley Loess Plain physiographic province of western Tennessee (Figure 4). This region is marked by rolling terrain with well-drained soils that were formed in Loess over Coastal Plain sediments (Fenneman 1938). When the northern glaciers melted many changes were spurred, including increased floods and exposure of the Mississippi River bottom. Western winds picked up loosed silt and carried it away, much of this silt (Loveland Loess) fell on Madison County and formed the Loess Hills (USDA 1964). Braun (1950) places the project area in the Western Mesophytic Forest, specifically in the Mississippian Plateau section. Beech, oak, hickory, and chestnut communities dominate the region. Many other species of trees are interspersed throughout the forestlands as well.

The majority of the APE is located within the floodplain of the Branch creek, a tributary of Shawn Creek. A small portion of upland is present on the northeastern portion of the APE. The USDA Soil Survey has mapped the APE as alluvial silt and sandy loam soil units. The Collins Silt loam extends across much of the study area (Figure 5). Collins silt loam is described as a moderately well-drained soil of the floodplains. The western and eastern edges of the APE extend into an area of Lexington Silt loam, which contains the small portion of upland on the northeastern portion of the APE. The western edge exhibits 5 to 8 percent slopes while the eastern edge contains 8 to 12 percent slopes. The elevated landform mapped on the western portion of the APE is physically outside of the project area. Lexington Silt loam is described as a moderately well-drained loam which is severely eroded and sloping.

### Cultural Context

#### **Pre-Clovis Occupations in the Southeast (ca. pre-12,000 BP)**

For the past several decades, the Meadowcroft Rockshelter in Pennsylvania has been an anomalous site with intriguing evidence indicative of early human occupations predating the classic Clovis Paleoindian assemblages that have long been thought to be the first inhabitants of North America (Adovasio et al. 1999:427-428). However, within the past decade, data from several Southeastern sites has begun to convince many archaeologists that there may have been a significant pre-Clovis occupation that predates 12,000 BP by several thousand years. Both the Topper Site in South Carolina (Chandler 2001) and the Cactus Hill site in southern Virginia (McAvoy and McAvoy 1997) have produced well-documented pre-Clovis assemblages. Site 44SM37 in the Saltville Valley of Smyth County, Virginia has produced possible pre-Clovis artifacts associated with Pleistocene faunal remains (McDonald 2000). Although distinct diagnostic artifacts for these assemblages have not yet been defined, there are indications that large and small blades and possibly triangular and lanceolate point forms may be associated with these early pre-Clovis occupations.

#### **Paleoindian Period (ca. 11,500-10,000 BP)**

The first relatively well-documented inhabitants of eastern North America have been termed Paleoindians by archaeologists. This cultural period corresponds with the late glacial transition in eastern North America, and is marked by the retreat of the Laurentide ice sheet. The end of the

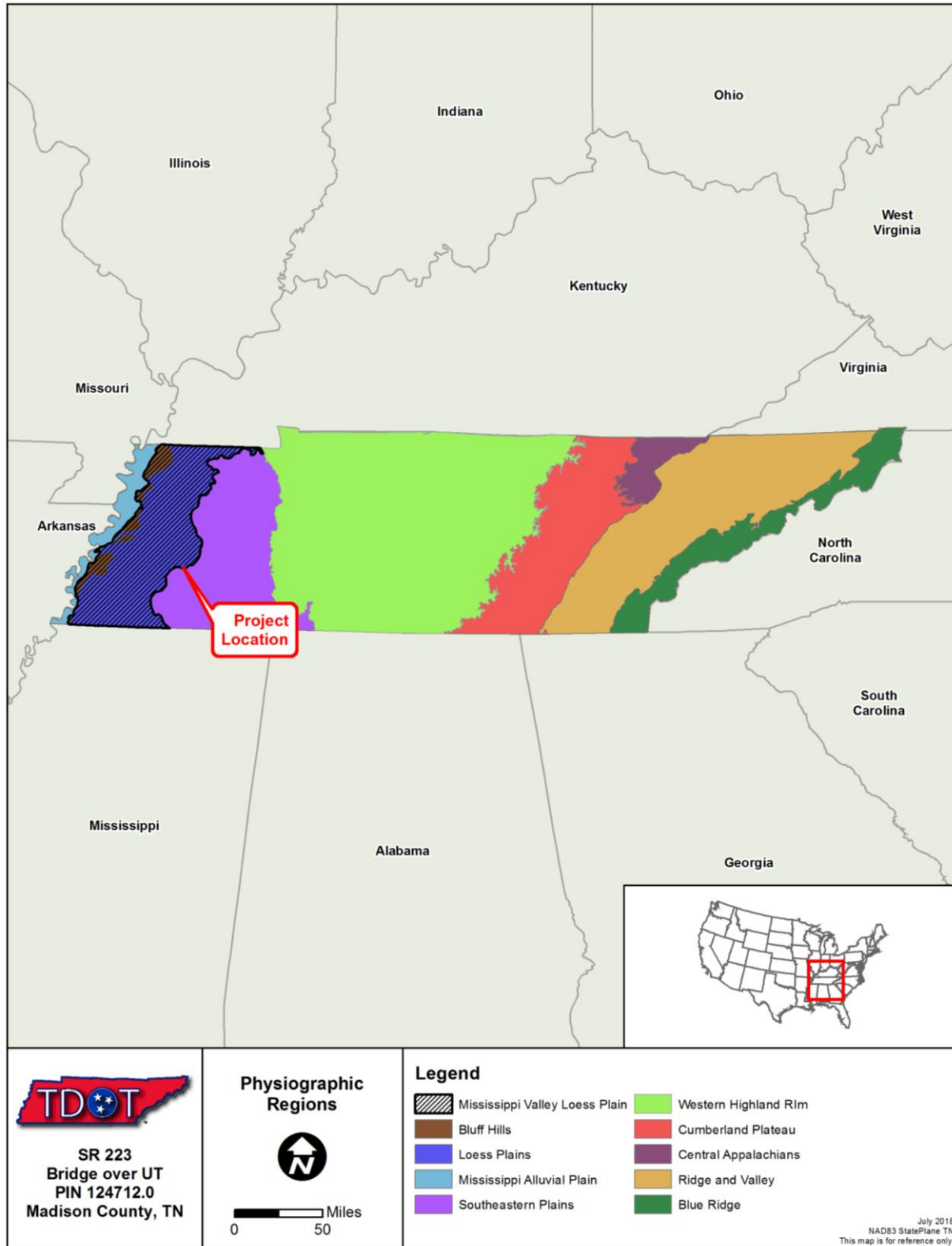


Figure 4. Physiographic provinces of Tennessee.

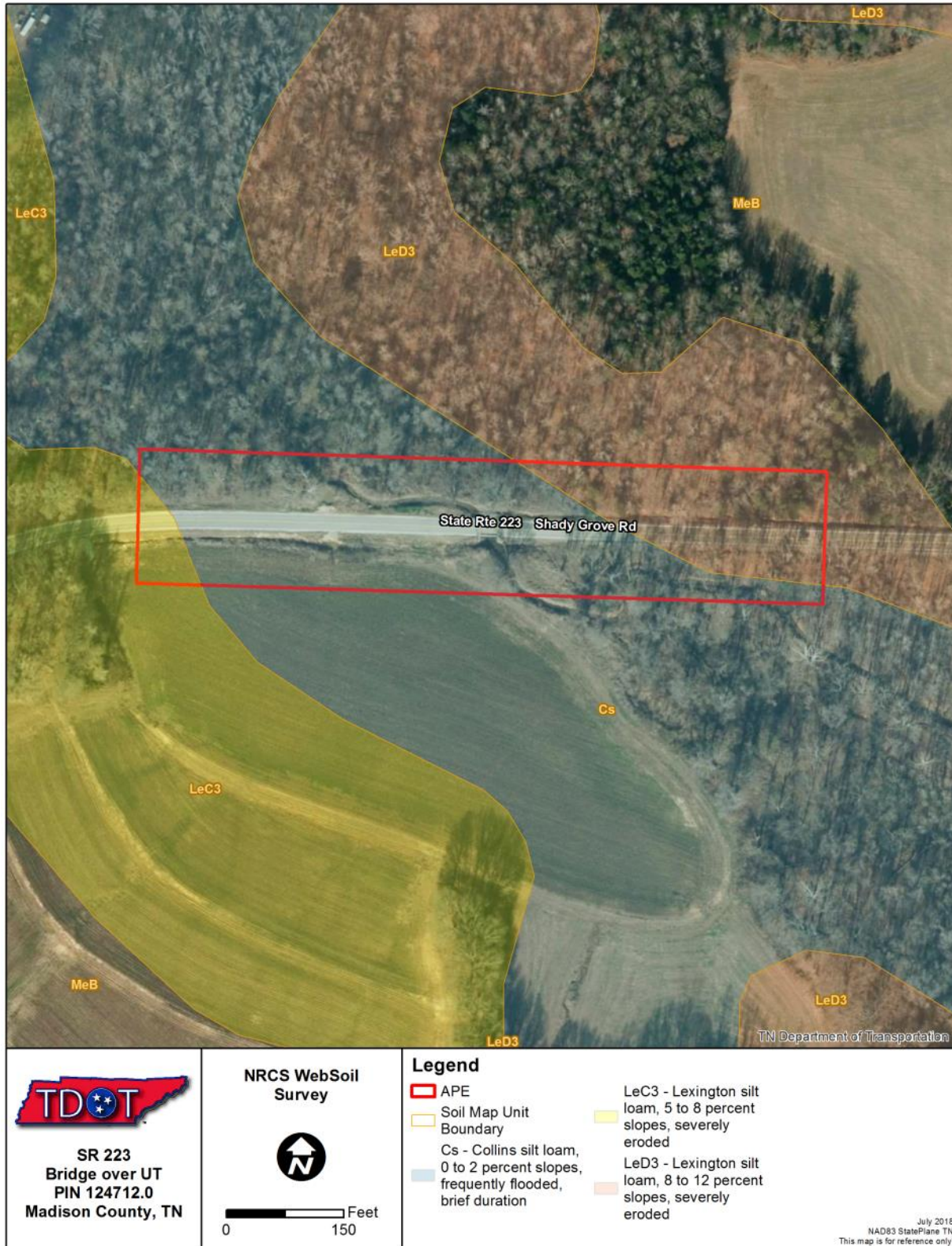


Figure 5. Soil Map of Project Vicinity with Approximate Project Area Depicted.

Paleoindian period coincides with the Pleistocene/Holocene epoch transition, which in most areas of the southeast is estimated to be ca. 10,000 BP. Paleoindians are presumed to have been fairly mobile hunters and gatherers. High concentrations of Paleoindian sites along the Cumberland, Ohio, and Tennessee Rivers has prompted Anderson (1990, 1996) to suggest these major rivers provided routes for initial populations to enter the Eastern Woodlands, and provided these groups with staging areas “where at least some of these initial populations slowed their movement, settling in for greater or lesser periods of time” (Anderson 1996:36). Such a decrease in mobility would have allowed these groups “to familiarize themselves with the resources available in their new homeland” (Anderson 1996:36). These initial settlements are presumed to be the core from which later regional cultural traditions would emerge in the Middle and Late Paleoindian subperiods (Anderson 1996:37).

The Paleoindian tool kit was based on a highly refined flake and blade technology as well as a significant bone, wood and antler assemblage as evidenced by material recovered from waterlogged sites in Florida (Milanich and Fairbanks 1980). Paleoindians exhibited a marked preference for the use of high-quality cryptocrystalline or metavolcanic lithic materials for the fashioning of their tools, suggesting many of these groups focused their seasonal settlement/subsistence activities around quarries (Gardner 1981). Base camps tied to traditional access rights to quarry material may have contributed to increasing differentiation in projectile point forms as well as tribal distinctiveness and culturally circumscribed territoriality. This would set the stage for many of the trends associated with the subsequent Archaic culture period. Key diagnostics of the Paleoindian period are fluted, and later, unfluted lanceolate projectile points. Over the course of the Paleoindian period, fluted point forms underwent a general reduction in size, and true fluting gave way to basal thinning. A wide range of Paleoindian lithic implements have been recovered from sites in North America, reflecting associations with discrete functions and activities: unspecialized flake tools, formal side and end scrapers, graters, denticulates, hafted unifacial knives, and bifacial knives (Gardner 1979). There have been several finds of worked ivory (Goodyear 1999).

Overall population density during the Paleoindian period is often thought to have been fairly low. In the South, however, large numbers of sites in the late Paleoindian period, and evidence for territories discovered in several regions, indicates relatively rapid population evolutions (Gunn and Brown 1982). Climate and vegetation were changing rapidly at this time, as the continental ice sheets retreated to the north. Based on a decline in the numbers of projectile points between Clovis and full-fluted post-Clovis projectile point types (e.g., Cumberland), Anderson et. al. (2009) have suggested a population decline occurred during the initial Middle Paleoindian subperiod. Later in the Middle Paleoindian subperiod, and continuing into the Late Paleoindian subperiod (and beyond), population appears to have increased, though.

In general, the Paleoindian Period is divided into three units: Early Paleoindian (11,500-11,000 BP), Middle Paleoindian (11,000-10,500 BP), and Late Paleoindian (10,500-9900 BP) (cf. Anderson 1990:201).

The Early Paleoindian is marked by the presence of fluted projectile points, “very similar to the classic Clovis points of the West” (Ward and Davis 1999:29). Clovis projectile points have been found on sites ranging from Canada to the southern tip of South America, and variants of the Clovis projectile point have been found throughout much of the eastern United States (Justice 1987:17-23).

Beginning in the Middle Paleoindian, regional differentiation of point types becomes manifest, and these point types are often found in environmental zones that lack Early Paleoindian evidence, suggesting a movement beyond the initial staging points posited by Anderson (1990, 1996). Thus



various fluted types (e.g., Cumberland, Gainey, and Redstone), and later, unfluted types (e.g., Suwannee and Simpson), mark Middle Paleoindian occupations.

Dalton points (Goodyear 1982) and several varieties of the Dalton point type, such as the Hardaway-Dalton type—broad, thin, triangular bifaces with deeply concave bases and shallow side notches (Coe 1964:64)—are diagnostic markers of Late Paleoindian assemblages.

### **Archaic Period (ca. 10,000-3000 BP)**

The Archaic period begins with the onset of Holocene post-glacial climatic conditions in the east. The Archaic period exhibits an increase in the density and horizontal dispersal of archaeological remains. It is characterized by a reliance on both wild animal and plant resources, which became increasingly stabilized and broad based over time. The Archaic was a relatively long and successful foraging adaptation, with subsistence based on hunting, fishing, and the collection of wild plant resources with minor horticultural gardening practiced in some locales in the Late Archaic. Group organization was presumed to still be fairly mobile, making use of seasonally available resources in different areas of the Southeast. Caldwell (1958) has termed the maximizing adaptation (scheduled hunter-forager) to the environment in the Eastern woodlands during the Archaic period “primary forest efficiency.” Group size gradually increased during this period, culminating in a fairly complex society in the Late Archaic.

The Archaic has been subdivided into three sub-periods: Early (ca. 10,000-8000 BP), Middle (ca. 8000-5000 BP), and Late (ca. 5000-3000 BP). Diagnostic projectile points, including a variety of notched, bifurcate, and stemmed types, form the primary criteria used to identify and date these occupations (Coe 1964). The technology of the Archaic peoples of the Southeast appears to have been progressively more diverse than that of Paleoindians. Over the course of the Archaic period, increasing numbers of artifact and tool types appear, such as groundstone implements (e.g., woodworking and plant processing tools), carved and polished stone bowls, axes, atlatl weights, and stone pipes and beads (Griffin 1967; Jennings 1975:127-129). Regional differentiation in projectile point and other artifact styles also occurs, suggesting the emergence and elaboration of local cultures or cultural traditions. This cultural variability is thought to be partially related to localized differences in environment and subsistence resources, and to an increasing regional population base, with a concomitant circumscription of group territories and mobility (Ford 1974).

During the Early Archaic, the vegetation matrix of mixed coniferous forest was replaced by mixed hardwood communities dominated by oak, hemlock, beech, and maple (Claggett and Cable 1982:212). A fairly modern faunal assemblage was in place, following the extinction of the Pleistocene megafauna, although some species such as buffalo and elk have since ceased to be present in the southeast. The Early Archaic is subdivided into earlier Corner Notched (ca. 9550-8775 BP) and later Bifurcate (ca. 8775-8000 BP) traditions, named for the shapes of the projectile points used to recognize these occupations. Corner Notched tradition components are identified by the presence of Palmer and Kirk projectile points, while Bifurcate tradition assemblages are identified by a range of bifurcate-based forms, including the succeeding St. Albans, LeCroy, and Kanawha types (Chapman 1975; Gardner 1974).

During the Middle Archaic, the cool, moist conditions of the Early Holocene gave way to the warmer, drier climate of the mid Holocene Hypsithermal interval. This pattern may be reversed at higher altitudes. Extensive estuarine marshes and riverine swamps began to emerge in coastal regions as the sea level ceased its post-Pleistocene rise, perhaps as early as 8000 BP during a Middle Holocene sea level high stand, but certainly by 5000 BP. The northern hardwoods vegetational matrix was replaced by

an oak-hickory forest, which was in turn replaced by a southern hardwoods-pine forest characterized by the species occupying the region today (Carbone 1974; Delcourt and Delcourt 1983).

Diagnostic projectile points from the Middle Archaic include Eva, Morrow Mountain, Sykes/White Springs, and Benton types. In addition, an increase in ground stone tools and a more diverse tool kit is present on some Middle Archaic sites.

During the Late Archaic period, population appears to have grown markedly and to have concentrated in riverine and estuarine settings. Climatic conditions were warm, moist, and unusually stable. The sea level appears to have been relatively stable, rising to within ca. 2-4 meters of its present stand; only minor fluctuations on the order of one to a few meters occurred (Colquhoun and Brooks 1987).

Diagnostic artifacts of the Late Archaic include Ledbetter, Wade, Little Bear Creek, and Motley projectile points. Grinding implements, polished stone tools, and carved soapstone bowls become fairly common, suggesting increased use of plant resources, and possibly changes in subsistence strategies and cooking technologies. For example, some researchers suggest that it is during the Late Archaic when cooking techniques underwent a transition from indirect to direct cooking methods.

### **Woodland Period (ca. 3000-1100 BP)**

Across the eastern United States, the Woodland period is marked by the appearance of widespread pottery use, a greatly increased role for horticulture in subsistence economies, and an elaboration of mortuary ceremonialism, including the appearance of burial mounds (Griffin 1967:180). In the greater Southeast, the Woodland period began with a transition from the Late Archaic that was marked by increasing sedentism and changes in food storage and preparation technologies. Subsistence strategies were a continuation of earlier hunter-forager ways, with an increased reliance on the cultivation of native plants (Yarnell and Black 1985). Religious life, as evidenced by increased ceremonialism and the development of burial mounds, became more sophisticated during the Woodland period. The Woodland period is divided into three subperiods: Early (3000-2200 BP), Middle (2200-1650 BP), and Late (1650-1100 BP) (Kimball 1985).

The Early Woodland is largely a transitional period between the Archaic and Woodland. Initial Woodland occupations are thought to reflect a more or less unchanged continuation of preceding Late Archaic lifeways, but with the expansion of ceramic technology and the introduction of the bow and arrow. Intensive horticulture also likely began in the Early Woodland (Watson 1989). Adena and Flint Creek projectile point forms are diagnostic of the Early Woodland period in the project area. The earliest Early Woodland ceramics (or quite possibly even Late Archaic) are fiber tempered wares that are manufactured along the Atlantic and Gulf coasts. These are quickly replaced by cord marked and fabric impressed styles later in the Early Woodland period that appear to originate from the north (Chapman 1985:56).

The Middle Woodland is usually characterized by an intensification of long-distance trade throughout the eastern Woodlands. Artifacts indicating interactions with the Hopewell culture to the north have been found throughout Tennessee (Caldwell 1964). Mound building greatly intensifies in Tennessee during the Middle Woodland. Research at the Pinson Mounds (40MD1) has documented a large mound complex with exotic artifacts indicating trade and relations with cultural groups including Hopewell, Marksville, Copena, Swift Creek, and Miller (Broster and Adair 1975; Broster et al. 1980). The Pinson Mound Complex is approximately 20 miles east of the project area.

Fabric-marked ceramics decline while cord-marked ceramics increase during the Middle Woodland. Grog tempered ceramics such as Baytown first appear in the Middle Woodland. Stemmed points, such as the Stuben and Bakers Creek types, continue to be produced in the Middle Woodland (Justice 1987:208-212). Other forms also appear, though, particularly triangular types such as the Copena and Copena Triangular being Middle Woodland diagnostic types (Justice 1987:204-208).

The Late Woodland sees a decline and disappearance of the far-ranging trade networks of the Middle Woodland. Cultural groups appear to have become more isolated from one another and also less socially complex (Kneberg 1952; Dragoo 1976). Many Late Woodland villages are fortified, indicating a level of cultural conflict and turmoil.

Diagnostic artifacts of the Late Woodland are poorly understood for the project region (Mainfort et al. 1994). Baytown ceramics are continued to be manufactured; other ceramic types include Mulberry Creek Cord Marked, Wheeler Check Stamped, and Coles Creek Incised (Smith 1996). The shift from larger to smaller triangular projectile point types is also evident with the Madison and Hamilton small triangular point types.

### **Mississippian Period (ca. 1100-400 BP)**

During the Mississippian period, people began settling in large towns that were the centers of government and religious life. Most Mississippian period towns were often palisaded, were built around a central plaza, and often included one or more large, flat-topped mounds. Smaller “homesteads” or small nuclear family farms were located in the river valleys to provide surplus food for the larger towns. Floodplains offered rich, well drained, easily tilled soils conducive to the cultivation of maize, squash, and beans. Nearby fish and waterfowl were readily available in these locations and provided an additional source of protein. Also, the harvesting of wild foods, such as nuts and fruits, provided a further source of protein and fat. Animals such as deer, raccoon, and turkey also remained important sources of food. Artwork in pottery and shell reached the pinnacle of prehistoric development at many of these sites (Hudson 1976).

Excess food production in the Mississippian led to a more sedentary lifestyle, and a greater need for storage (Rindos 1989). The more egalitarian society of the Late Woodland once again became more socially complex and marked by a chiefdom-level society (Blitz 1993). In the project region, however, it has been suggested that there was a significant population decrease and almost a near abandonment due to rapid shifts in the socio-political organization of portions of the Mississippian area along the central Mississippi and parts of the Tennessee and Cumberland River valleys (Williams 1980, 1983, 1990).

Lithic assemblages become less complex during the Mississippian. Small triangular points first seen in the Late Woodland continue to be manufactured. Hoes, chunky stones, engraved shell items, mica, and galena are also present throughout the Mississippian period. Conversely, ceramics become much more complex. Shell tempering is seen in much of the heartland of the Mississippian culture. Numerous decorative motifs and highly burnished wares become commonplace during this period. Anthropomorphic symbolism also rises and is seen on shell gorgets, copper and stone plates, and pottery. Many other specialized artifact types also appear in the archaeological record (e.g., stone maces, monolithic axes, chert ceremonial “swords”). The Denmark Mound site (40MD85) is a multiple mound site dating to this period located approximately 3 miles northwest of the project area.

### **Protohistoric Period (ca. A.D. 1450-1650)**

The earliest recorded European contact with Native Americans in this portion of the Southeast was the Spanish de Soto expedition of A.D. 1541. De Soto crossed the Mississippi River near Walls, Mississippi in June 1541 after traversing a trail from northeastern Mississippi. It was thought the de Soto expedition wintered with the Proto-Chickasaw in northeastern Mississippi (Dye 1993). Cultural materials found on Protohistoric sites in western Tennessee generally contain trade goods including glass beads, metal bells, pipes, and buttons. These European trade goods are generally French in origin although smaller numbers of Spanish goods have been found (Mainfort 1996). A change in burial practices from the Late Mississippian to the Protohistoric period has been identified to include secondary interments in large earthen urns (Mainfort 1992).

In 1682, the French explorer Rene-Robert Cavelier, Sier de La Salle (“La Salle”) explored the Mississippi River from modern day Illinois south to the Tennessee region. A member of his group went missing near the mouth of the Hatchie River (near modern Randolph, Tennessee) and a small temporary stockade, Fort Prudhomme, was established on the bluffs of the Mississippi River to serve as a base for the search (Magness 2009). This was the first European structure known to be established in western Tennessee, but the exact location of Fort Prudhomme is unknown.

In 1739, the French constructed Fort Assumption on the bluffs of the Mississippi River near present day Memphis. This fort, originally constructed to assist in a campaign against the Chickasaw, was abandoned after one year (Magness 2009).

### **HISTORIC CONTEXT: MADISON COUNTY, TN**

Madison County Tennessee is located in the southwestern corner of Tennessee, approximately sixty miles northeast of Memphis. The county rests on a plateau between the basin of the Tennessee and Mississippi Rivers (Goodspeed, 1886:797). As seen in Figure 6, at the time of its formation in 1821, Madison County encompassed much more than its current 560 square miles. Over time, portions of more than six counties have been carved from Madison’s original bounds. Today Madison is centrally located in Western Tennessee and bordered by Haywood, Crockett, Gibson, Carroll, Henderson, Chester, and Hardeman Counties.

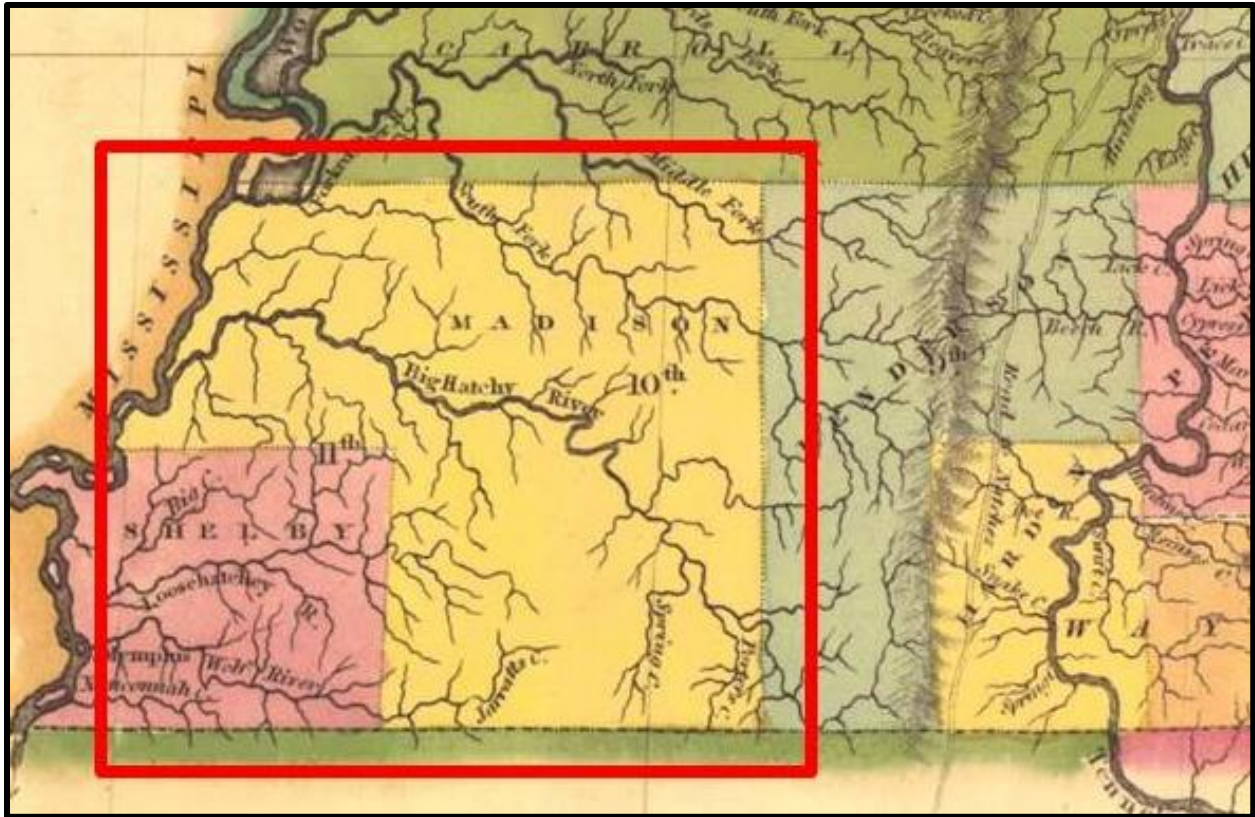


Figure 6. 1822 Fielding “Geographical, Statistical, and Historical Map of Tennessee.”

The first settlers arrived in Madison around 1819, near the end of the Chickasaw Indian removal period, which largely took place between 1818 and 1821. Hailing primarily from Middle Tennessee and neighboring states of Virginia, North Carolina and South Carolina the territory’s new residents quickly populated the land (Goodspeed, 1886: 798). Established in 1819, Cotton Gin Grove was the first formal settlement in Madison County. Shortly thereafter, a settlement was formed near Spring Creek, and another near the Forked Deer River (Williams, 1946: 33). In November of 1821 legislation was passed by the Tennessee General Assembly organizing the Western District of Tennessee, which included the creation of Madison, Henry, Carroll and Henderson Counties (Goodspeed, 1886:802). The legislation was also responsible for the creation of a county seat, a small community located near the Madison’s geographical center called Alexandria. In 1822 the town was renamed Jackson, in honor of Andrew Jackson, and maintains the same name and county seat status today (Secrist, 2012).

At the time of the 1830 U.S. Census, just nine years following the county’s organization, Madison boasted a population of 11,594 people (U.S. Census). Between 1820 and 1850 almost all businesses in the county were general stores (Goodspeed, 1886:810). During these early years, the county’s industry centered on agriculture, like much of Western Tennessee. Madison historically boasted rich soils which primarily supported cotton production, and required a large work force of enslaved individuals. At the time of the 1860 U.S. Census, the population of Madison was 21,535 residents. Census records also reveal that 46.7 percent – almost half the county’s total 1860 population – were enslaved individuals (U.S. Census).

Early discussions of the railroad began in Madison County around 1852, when the county purchased \$100,000 of stock to support the construction of the Mobile & Ohio Railroad. The Illinois Central arrived

a few years later. The Brownsville & Jackson was constructed in 1882, and the Ohio Valley Railroad was built in 1886 (Goodspeed, 1886: 805). By the late-nineteenth century Madison County, specifically Jackson, had become a major transportation hub for Western Tennessee as seen in Figure 7. The railroad would continue to play an important role in the economy of Madison County into the early-twentieth century.

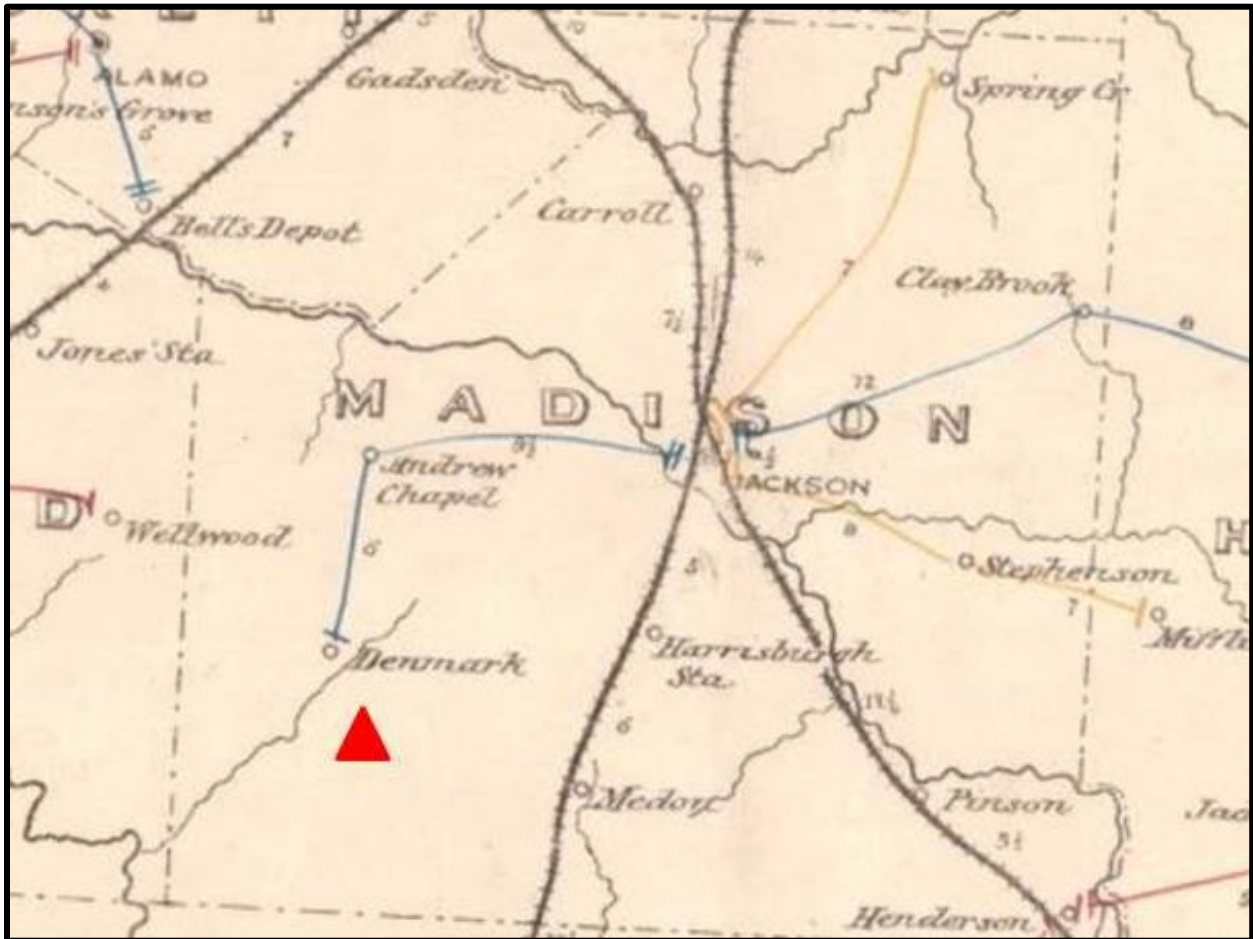


Figure 7. Nicholson's 1877 "Postal Route Map of the State of Tennessee."

Around 1920 Jackson native Isaac B. Tigrett became president of the Mobile and Ohio Railroad. During his time heading the conglomerate (1938-1952), he oversaw the reorganization of the line into the Gulf, Mobile, and Ohio Railroad to an enormous degree of success. His ties to Madison County led him to place the main repair shop for the large rail line in the town of Jackson during the early-twentieth century. This move provided numerous jobs and greatly boosted the town's economy (2018, Madison County). Jackson boasted another railroad tie as the historic home of Casey Jones, the infamous Illinois Central Railroad engineer. Today the Casey Jones Home and Railroad Museum, located just north of historic downtown Jackson pays homage to the great American folk hero (2018, Madison County).

Given the county's substantial slave population, it comes as no surprise that Madison residents were staunch supporters of the Confederacy during the Civil War. The county produced two Confederate generals: Alexander W. Campbell and William H. Jackson, and saw much destruction as result of the four year conflict. The Battle of Britton's Lane occurred in September 1862 approximately five miles southeast of the small town of Denmark (which is located approximately three miles north of the project

area). Historians continue to debate to this day the true winner of the skirmish, which claimed over 100 Confederate lives though only eight Union (Brewer, 2018.) In addition to this confrontation, Madison saw the war first hand within the county seat of Jackson, which was occupied by Union troops for much of the war. In 1864 the town was held ransom by Federal raiders at the threat of burning. Although the ransom was paid, most of the downtown was still burned (Alexander, 2018).

Despite the hardships encountered during the war, and the loss of its slave population following emancipation, Madison County continued to experience a noticeable growth in population in the decades following the Civil War. At the time of the 1870 Census, Madison boasted a population of 23,480 residents and exceeded 30,000 residents by the 1880 Census (U.S. Census). It was about this time that the first map appeared providing a close glimpse at the project area (Figure 8).

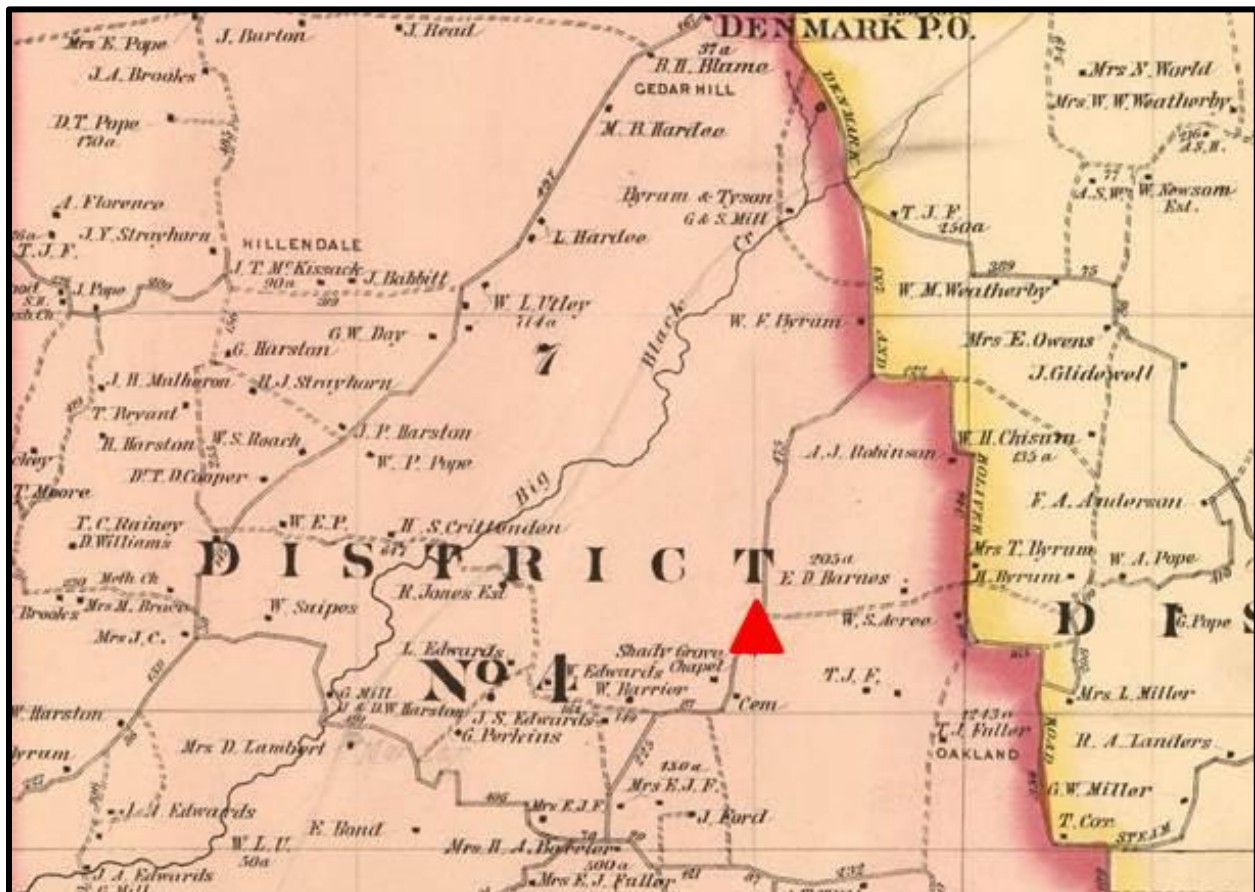


Figure 8. 1877 Beers & Co. “Map of Madison County, Tenn. : from actual surveys and official records.”

Published in 1877, the Beers & Co Map denotes minimal infrastructure within the greater vicinity of the project area (approximate location denoted by red triangle). Located in Madison’s fourth district, the project area appears very rural in nature. Although occupying a slightly different footprint, an early version of SR 223 is present on the map. Located on the western side of the road, just south of the project area, is labeled Shady Grove Chapel. An associated cemetery is located directly across the street. Although the church no longer stands, the cemetery still remains. A few residences are scattered about the greater vicinity of the project area, but nothing stands in close proximity.

By 1900, Madison County’s population had reached 36,333 residents (U.S. Census). While the county still relied heavily on agriculture, new industry had begun to appear. In 1901 the Bemis Bag Company





## Archaeological Context

Research at the TDOA on June 11, 2018, coupled with background resources provided by TDOT, has revealed that several previously-recorded sites are located in the general vicinity of the project area, however none occur directly with the current APE. This number includes 20 previously-recorded sites within the general area of the APE in the Black River/Chisholm Creek valley (Table 1; Figure 6). These previously recorded sites range from one mile to three and a half miles of the project APE.

Almost all of the sites shown in Table 1 were recorded by Dr. Robert C. Mainfort with the assistance of Harbert Alexander. Site 40MD233 was recorded by Fred Prouty and Gary Barker in 1994. The site is located in the Hayes Chapel Church Cemetery and was reported to be a sunken trench with the remains of 26 Confederate soldiers interred within. The informant was Mr. Joe Midyett, who related the story told by Mr. Johnny Jones that as a boy he helped his father fill in the sunken trench, which measured 6 ft x 24 ft. Fieldwork confirmed the presence of a depression matching those approximate dimensions.

Between 1982 and 1987 Dr. Robert C. Mainfort and Harbert Alexander recorded 19 prehistoric archaeological sites, most notable the Denmark Mound complex (40MD85). This Mississippian mound complex is notable for containing three earthen platform mounds, but little evidence of an adjacent village site. Mainfort and Alexander's research in the area provide additional information on prehistoric lifeways, primarily in the Woodland and Mississippian periods.

Table 1. Previously-recorded Archaeological Sites with 3.5 miles of the Shady Grove Road Bridge APE.

Site #	Temporal	NRHP Status	Source
40MD85	Woodland, Mississippian	Not evaluated	Mainfort and Alexander 1983
40MD86	Late Paleo, Archaic, Woodland	Not evaluated	Mainfort and Alexander 1982
40MD160	Late Archaic	Not evaluated	Mainfort and Alexander 1985
40MD168	Woodland	Not evaluated	Mainfort and Alexander 1986
40MD171	Woodland	Not evaluated	Mainfort and Alexander 1986
40MD172	Woodland, Mississippian, Historic	Not evaluated	Mainfort and Alexander 1986
40MD173	Woodland	Not evaluated	Mainfort and Alexander 1986
40MD174	Late Woodland, Mississippian	Not evaluated	Mainfort and Alexander 1986
40MD175	Late Woodland, Mississippian	Not evaluated	Mainfort and Alexander 1986
40MD176	Woodland	Not evaluated	Mainfort and Alexander 1986
40MD177	Woodland	Not evaluated	Mainfort and Alexander 1986
40MD178	Woodland	Not evaluated	Mainfort and Alexander 1986
40MD179	Late Woodland	Not evaluated	Mainfort and Alexander 1986
40MD184	Woodland	Not evaluated	Mainfort and Alexander 1986
40MD185	Mississippian	Not evaluated	Mainfort and Alexander 1986
40MD186	Mississippian	Not evaluated	Mainfort and Alexander 1987
40MD188	Early Archaic, Early Woodland	Not evaluated	Mainfort and Alexander 1987
40MD190	Early Woodland	Not evaluated	Mainfort and Alexander 1987
40MD216	Woodland	Not evaluated	Mainfort and Alexander 1987
40MD233	Civil War Cemetery	Not evaluated	Prouty and Barker 1994

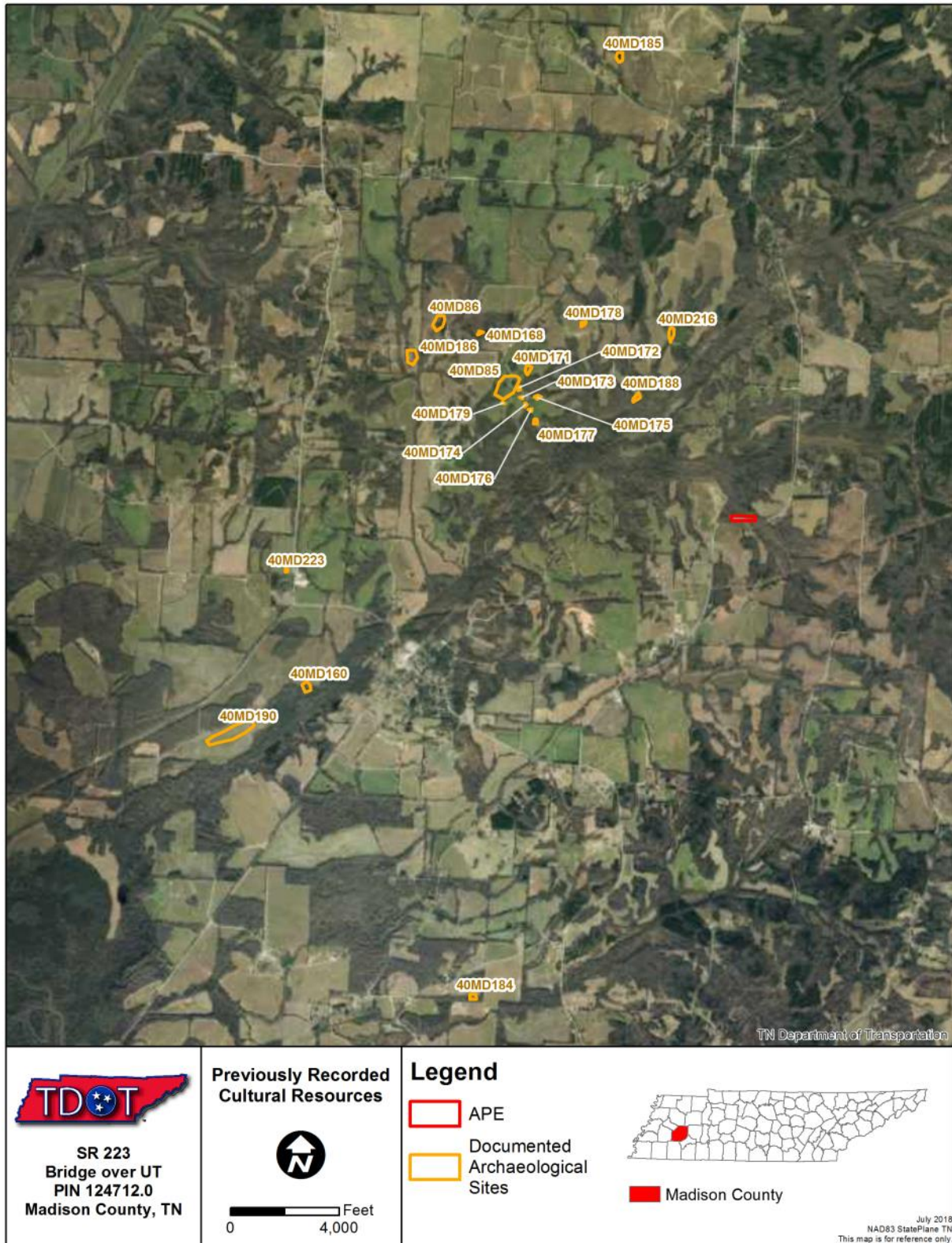


Figure 10. Archaeological sites recorded within 3.5 miles of the APE.

## 3.0 METHODOLOGY

### Field Methods

Archaeological fieldwork for the project consisted of a combination of reconnaissance and shovel test pit (STP) excavation. The project APE is divided into four areas based on divisions provided by the Branch creek and Macon Road: Northwest Quadrant, Northeast Quadrant, Southeast Quadrant, and Southwest Quadrant.

*Reconnaissance.* A portion of the project APE on the extreme west and east edges does not extend beyond the existing ROW and is located within the existing Macon Road berm. These areas within the existing berm were subjected to pedestrian reconnaissance to determine if any areas required subsurface testing and/or if signs of archaeological resource(s) were present.

*Shovel Test Pits.* All four quadrants were subjected to STP survey adjacent to the Branch creek, as the APE included land outside of the existing Macon Road berm. Systematic shovel testing was performed at 20 meter (66 feet) intervals. Two transects were established, with Transect A on the north side of Macon Road and Transect B on the south side of Macon Road. STPs were numbered sequentially within the transects.

Shovel tests were square, approximately 30 centimeters (11.8 inches) across, and excavated by hand with a long-handled shovel. Shovel tests were excavated in vertical levels based on natural soil stratigraphy, terminating approximately 10 centimeters (four inches or 0.3 feet) into sterile subsoil. Each stratigraphic context was excavated and screened separately. Soils removed were screened using quarter-inch hardwire mesh for uniform artifact recovery. Upon completion of the shovel test excavation, the walls of each STP were inspected for artifacts, features, and other indications of an archaeological site. Standardized information was recorded for each test pit on a form. Data recorded for each STP included provenience, depth (in centimeters), and Munsell color and soil texture for each strata.

Project photographs were taken with a digital camera to document the topography, vegetation, and general conditions at the time of the fieldwork. Digital photographs were also taken of several STP profiles.

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## 4.0 RESULTS OF INVESTIGATION

### Fieldwork Overview

The project APE was divided into four quadrants (Northeast, Northwest, Southeast, Southwest) based on the divisions of Shady Grove Road and the Branch creek (Figure 11). Pedestrian reconnaissance of the APE identified there were possible locations where archaeological resources might be preserved, and subsurface shovel testing of the entire APE was recommended.

At their widest point, all four quadrants contain approximately 85-feet of new ROW measured from the existing road centerline within the study area. Portions of this new ROW are currently under the existing roadway berm, but there is about 50-feet of new ROW from the current paved edge of Shady Grove Road. This wider portion encompasses the entire length of the APE.

#### Northeastern Quadrant

The Northeastern Quadrant includes an upland landform bordering the Branch creek, as mentioned in Chapter 2. The Northeastern quadrant is wooded with hardwood trees and was tested at 20 meter intervals (Figure 11; Figure 12). The ground surface in this area was undulating and heavily eroded. STPs 1 – 8 in Transect A were excavated in the Northeastern Quadrant.

STPs 1-7 excavated on the upland landform encountered sand and oxidized sandy clay at varying depths. Once clay was encountered it generally increased in thickness and density as the depth of the STP progressed. The stratigraphy in this area is exemplified by STP A5. The first stratum (Ap horizon) consisted of brown (10YR 5/3) fine sand to a depth of 11 cmbs. The second stratum (E horizon) consisted of yellowish brown (10YR 5/6) medium sand to a depth of 53 cmbs. Lastly, the third stratum (B horizon) contained strong brown (7.5YR 5/6) oxidized sandy clay to a depth of 63 cmbs.

The remaining STP A8 was excavated in the Branch creek floodplain, and during excavation clay was encountered directly on the ground surface. No cultural resources were encountered in the Northeastern Quadrant.

#### Northwestern Quadrant

The Northwestern Quadrant is located in a floodplain which is currently undeveloped floodplain with a dense hardwood forest and understory (Figure 11; Figure 13). Recent thunderstorms and flash flooding occurred in the project area a few weeks prior to our site visit, and the floodplain received a heavy discharge of flood water. This water action physically scoured the ground surface, and revealed large patches of gleyed-soil directly on the ground surface (Figure 14). STPs 9 – 11 in Transect A were excavated in the Northwestern Quadrant.

STPs A9 - A11 were excavated to a general depth of 15-20 cmbs. Gleyed-soils were and consisted of light olive brown (2.5Y 5/4) silty clay. No cultural resources were encountered in the Northwestern Quadrant.

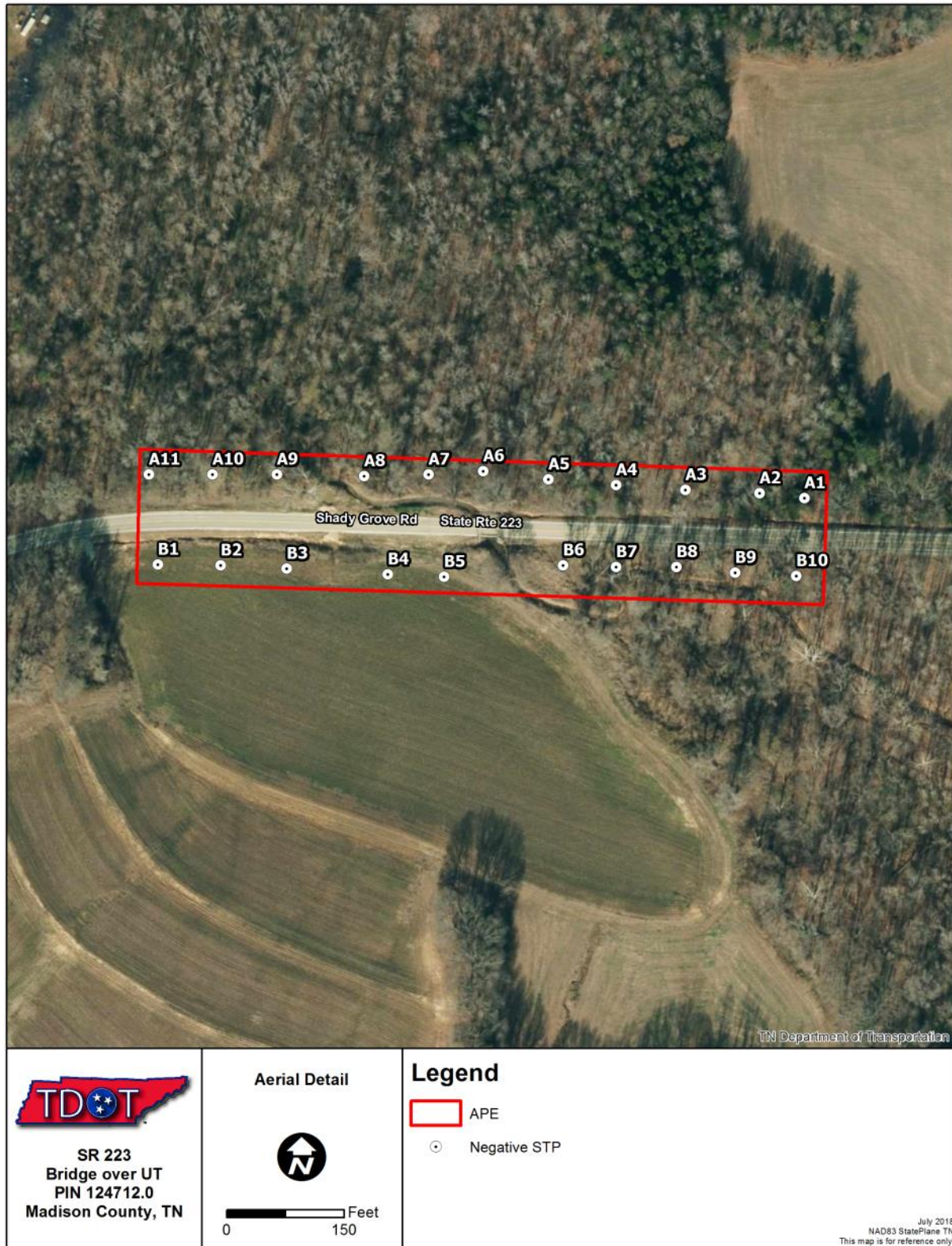


Figure 11. Shady Grove Road field testing map.



Figure 12. Environmental setting of the upland landform, facing west.



Figure 13. Environmental setting of the Northwest Quadrant, facing northwest.



Figure 14. Gleyed-soils exposed on ground surface, facing west.



### **Southeastern Quadrant**

The Southeastern Quadrant is located in the floodplain hardwood forest with a dense understory (Figure 15). The Branch creek parallels Shady Grove Road in this quadrant and is located on the southern edge of the APE (Figure 11). STPs 6 – 10 in Transect B were excavated in the Southeastern Quadrant.

The four STPS excavated in the floodplain forest encountered floodplain deposits with deeper oxidized stratigraphy. The stratigraphy in this area is typified by STP B7 (Figure 16; Figure 17). The first stratum (C horizon) consisted of yellowish brown (10YR 5/6) compact silty sand to a depth of 38 cmbs. The second stratum (C horizon) displayed strong brown (7.5YR 5/6) compact fine silty sand to a depth of 55 cmbs. The second stratum was affected to some degree by mineralization and oxidation. The third stratum was characterized by yellowish brown (10YR 5/6) compact silty sand to a depth of 60 cmbs. The third stratum was heavily mineralized and oxidized. Strata 1-3 represent flood events and deposits in the floodplain, with increasingly mineralized and oxidized deposits increasing with depth. No cultural resources were encountered in the Southeastern Quadrant.

### **Southwestern Quadrant**

The Southwestern Quadrant is situated in a floodplain which is currently an active agricultural field (Figure 18). STPs 1 – 5 in Transect B were excavated in the Southwestern Quadrant (Figure 11).

The five STPs excavated in the agricultural field encountered floodplain deposits with gleyed soils. The stratigraphy in this area is characterized by STP B4 (Figure 16; Figure 159). The first stratum (C horizon) displayed yellowish brown (10YR 5/6) compact silty sand to a depth of 32 cmbs. The second stratum (C horizon) consisted of light olive brown (2.5Y 5/4) gleyed silty clay to a depth of 45 cmbs. Similar to the Northwestern and Southeastern Quadrants, these strata represent flood events and deposits in the floodplain. No cultural resources were encountered in the Southwestern Quadrant.



Figure 15. Environmental setting of the Southeast Quadrant, facing southeast.

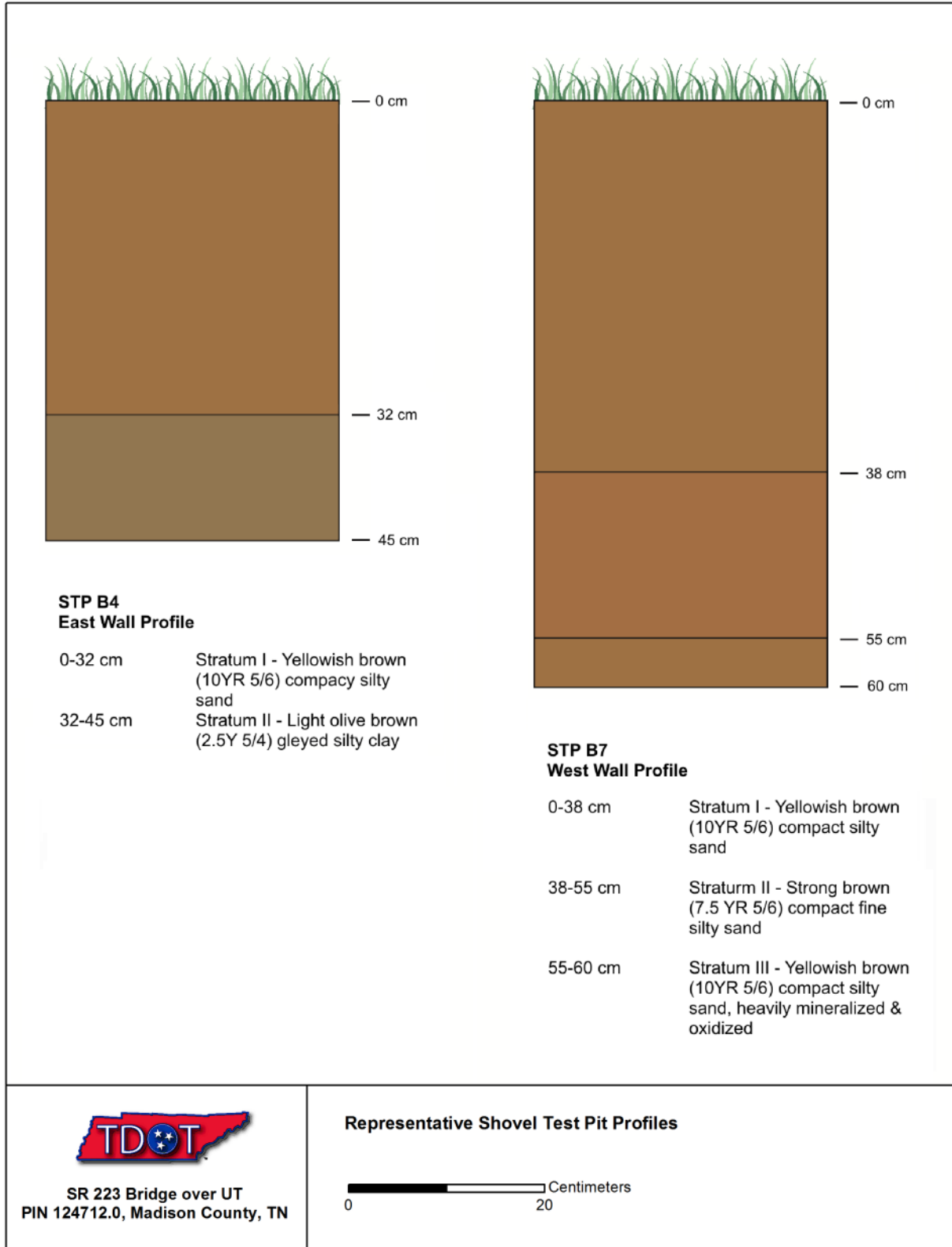


Figure 16. Shady Grove Road Representative Soil Profiles



Figure 17. STP B7 West Wall Profile



Figure 18. Environmental Setting in the Southwestern Quadrant, facing east-southeast.



Figure 19. STP B4 East Wall Profile.

## 5.0 SUMMARY AND RECOMMENDATIONS

The Tennessee Department of Transportation (TDOT) intends to replace the bridge on State Road 223 (Shady Grove Road) at Log Mile 2.28 spanning the Branch of Chisholm Creek in Madison County, Tennessee. The project is tracked as TDOT Project Number (PE-N) 57039-0213-94 and PIN 124712.00. AECOM performed a Phase I terrestrial archaeological survey of the project's Area of Potential Effect (APE) under contract to the TDOT (Agreement No. E1906, Work Order 10). Design plans for the project were provided by TDOT staff member Sarah K. McKinney in PDF format via email attachment on May 16, 2018. The APE includes land on the east and west sides of the Branch of Chisholm Creek and the north and south sides of State Road 223 (Shady Grove Road). The Area of Potential Effects (APE) includes the existing right of way, easements, and the environmental technical study area as defined by TDOT. The APE measures 150,056 square feet (0.00538 square miles). State Archaeological Permit #000990 was issued by the Tennessee Division of Archaeology to AECOM on June 11, 2018.

The Scope of Work (SOW) for the project is compliant with TCA 4-11-111 and Section 106 of the National Historic Preservation Act in compliance with the regulations issued by the Advisory Council on Historic Preservation (36 CFR 800), and following TDOT's *Scope of Work Phase I Archaeological Assessments* (FY 2017-2018) and the Tennessee SHPO's *Standards and Guidelines for Archaeological Resource Management Studies* (March 2009). This standardized SOW included background research, shovel test survey at 20 meter intervals in the APE, and reporting tasks. AECOM performed the Phase I archaeological survey to address these project goals on June 11-12, 2018.

The APE northeast of the Branch creek consists of an elevated landform with a southwest facing slope, the remaining southeastern, southwestern, and northwestern sides consist of level floodplain. Subsurface testing was conducted within the entire APE.

No archaeological resources or archaeologically sensitive deposits have been identified within the State Road 223 (Shady Grove Road) Bridge APE. We therefore recommend no additional archaeological studies be required in conjunction with the proposed replacement of the State Road 223 (Shady Grove Road) Bridge over the Branch of Chisholm Creek.

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## APPENDIX A – TDOA PERMIT





## APPENDIX B – SHOVEL TEST LOG

Transect	STP #	Depth (cm)	Munsell #	Munsell Color	Texture	Artifacts	Comments
A	1	0-40	7.5YR6/6	Reddish Yellow	Sandy Clay	none	Clay increasing with depth
A	2	0-40	7.5YR6/6	Reddish Yellow	Sandy Clay	none	Clay increasing with depth
A	3	0-35	5YR4/6	Yellowish Brown	Silty Clay	none	Clay increasing with depth
A	4	0-33	7.5YR6/6	Reddish Yellow	Sandy Clay	none	Clay increasing with depth
A	5	0-11	10YR5/3	Brown	Fine Sand	none	
		11-53	10YR5/6	Yellowish Brown	Medium Sand	none	
		53-63	7.5YR5/6	Strong Brown	Sandy Clay	none	Clay increasing with depth
A	6	0-10	10YR5/6	Yellowish Brown	Medium Sand	none	
		10-35	7.5YR5/6	Strong Brown	Sandy Clay	none	Clay increasing with depth
A	7	0-45	10YR5/6	Yellowish Brown	Medium Sand	none	
		45-70	7.5YR5/6	Strong Brown	Sandy Clay	none	Clay increasing with depth
A	8	0-20	7.5YR5/6	Strong Brown	Sandy Clay	none	Clay on surface
A	9	0-15	2.5Y5/4	Light Olive Brown	Silty Clay	none	Gleyed soils on surface
A	10	0-15	2.5Y5/4	Light Olive Brown	Silty Clay	none	Gleyed soils on surface
A	11	0-15	2.5Y5/4	Light Olive Brown	Silty Clay	none	Gleyed soils on surface
B	1	0-38	10YR5/4	Yellowish Brown	Silt	none	Plowzone; deep compact colluvium
		38-48	2.5Y5/4	Light Olive Brown	Silty Clay	none	Gleyed soils, heavily oxidized
B	2	0-36	10YR5/4	Yellowish Brown	Silt	none	Plowzone; deep compact colluvium
		36-47	2.5Y5/4	Light Olive Brown	Silty Clay	none	Gleyed soils, heavily oxidized
B	3	0-22	10YR5/4	Yellowish Brown	Silt	none	Plowzone; deep compact colluvium

		22-43	2.5Y5/4	Light Olive Brown	Silty Clay	none	Gleyed soils, heavily oxidized
B	4	0-32	10YR5/4	Yellowish Brown	Silt	none	Plowzone; deep compact colluvium
		32-45	2.5Y5/4	Light Olive Brown	Silty Clay	none	Gleyed soils, heavily oxidized
B	5	0-36	10YR5/4	Yellowish Brown	Silt	none	Plowzone; deep compact colluvium
		36-46	2.5Y5/4	Light Olive Brown	Silty Clay	none	Gleyed soils, heavily oxidized
B	6	0-40	10YR5/6	Yellowish Brown	Silty Sand	none	
		40-60	7.5YR5/6	Strong Brown	Sandy Clay	none	Clay increasing with depth
B	7	0-38	10YR5/6	Yellowish Brown	Silty Sand	none	Compact
		38-55	7.5YR5/6	Strong Brown	Sandy Clay	none	Compact
		55-60	10YR5/6	Yellowish Brown	Silty Sand	none	Compact; Oxidized
B	8	0-38	10YR5/6	Yellowish Brown	Clay	none	Oxidized; Mineralized
B	9	0-32	10YR5/6	Yellowish Brown	Clay	none	Oxidized; Mineralized
B	10	0-17	10YR5/6	Yellowish Brown	Silty Sand	none	
		17-40	7.5YR5/6	Strong Brown	Clay	none	Oxidized; Mineralized





**TENNESSEE HISTORICAL COMMISSION**  
STATE HISTORIC PRESERVATION OFFICE  
2941 LEBANON PIKE  
NASHVILLE, TENNESSEE 37243-0442  
OFFICE: (615) 532-1550  
[www.tnhistoricalcommission.org](http://www.tnhistoricalcommission.org)

August 21, 2018

Mr. Phillip R. Hodge  
Tennessee Department of Transportation  
Suite 900, James K. Polk Building  
505 Deaderick Street  
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, SR-233 (Shady Grove Road) Bridge Replacement, Log Mile 2.28, Madison County, TN

Dear Mr. Hodge:

In response to your request, we have reviewed the archaeological report of investigations and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we find that no archaeological resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Complete and/or updated Tennessee Site Survey Forms should be submitted to the Tennessee Division of Archaeology for all sites recorded and/or revisited during the current investigation. Questions or comments may be directed to Jennifer Barnett (615) 687-4780.

Your cooperation is appreciated.

Sincerely,

E. Patrick McIntyre, Jr.  
Executive Director and  
State Historic Preservation Officer

EPM/jmb

# Native American Consultation

# Environmental Study

## Technical Section

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**Section:** Native American Coordination

## Study Results

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NAC was sent to all federally recognized, interested tribes on May 14, 2018 and September 4, 2018. The Chickasaw Nation requested to be a consulting party. A final report was sent to them. The Shawnee Tribe responded with a finding of "no concern." No other tribes responded during the consultation period.

## Commitments

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**Did the study of this project result in any environmental commitments?**

No

## Additional Information

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**Is there any additional information or material included with this study?**

Yes

**Type:** Native American Coordination

**Location:** Email Attachment

## Certification

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**Responder:** Sarah Kate McKinney

**Title:** TESS Archaeology

**Signature:** Sarah Kate McKinney  
Digitally signed by Sarah Kate McKinney  
Date: 2018.10.05 14:32:21 -05'00'



**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**ENVIRONMENTAL DIVISION**  
SUITE 900, JAMES K. POLK BUILDING  
505 DEADERICK STREET  
NASHVILLE, TENNESSEE 37243-1402  
(615) 741-3655

**JOHN C. SCHROER**  
COMMISSIONER

**BILL HASLAM**  
GOVERNOR

May 14, 2018

Mr. Brett Barnes  
Cultural Preservation Director/ THPO  
Eastern Shawnee Tribe of Oklahoma  
70500 E. 128 Road, Wyandotte OK  
74370

**SUBJECT:** Section 106 Initial Consultation for Proposed Bridge Replacement of State Route 223 Bridge over Branch in Madison County, Tennessee (TDOT PIN 124712.00).

Dear Mr. Barnes,

The Tennessee Department of Transportation (TDOT), in coordination with the Federal Highway Administration (FHWA), is proposing to replace the State Route 223 bridge over a branch, log mile 2.28, in Madison County, Tennessee (maps attached). The proposed bridge replacement will remain on the same alignment, however, approximately 0.06 acres of additional right-of-way is expected and there will be ground disturbance in the area of potential effects.

The National Historic Preservation Act (NHPA) recognizes that federally funded undertakings, like the subject project, can affect historic properties to which your tribe attaches religious, cultural, and historic significance. In accordance with 36 CFR 800 regulations implementing compliance with Section 106 of the NHPA, we are providing general project information so that you can determine if your tribe has an interest in the project area or nature of the work proposed and so you have an opportunity to bring to our attention any interests and concerns about the potential for impacts to properties of religious and cultural significance. In addition, do you wish to be a consulting party on the project? Early awareness of your concerns can serve to protect historic properties valued by your tribe.

If you act as a consulting party you will receive archaeological assessment reports and related documentation, be invited to attend project meetings with FHWA, TDOT, and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held, and be asked to provide input throughout the process. If you choose to not act as a consulting party at this time, you can do so at a later date simply by notifying me.

Please respond to me via letter, telephone (615-741-0977), fax (615-741-1098), or E-mail ([Phillip.Hodge@tn.gov](mailto:Phillip.Hodge@tn.gov)). I respectfully request responses (email is preferred) to project reports and other materials within thirty (30) days of receipt if at all possible. Thank you for your assistance.

Sincerely,

Phillip R. Hodge  
Archaeology Program Manager

Enclosure

cc Karen Brunso, The Chickasaw Nation  
David Cook, Kialegee Tribal Town  
Tonya Tipton, Shawnee Tribe  
Sheila Bird, United Keetoowah Band of Cherokee Indians





**TDOT PIN 124712.00**  
**Madison County**  
**USGS TOPO Mercer 431 NE**



Madison County, TN. PIN 124712.00

**TDOT PIN 124712.00**  
**Madison County**  
**USGS TOPO Mercer 431 NE**



Project Location: Aerial View

**From:** [Phillip Hodge](#)  
**To:** [Sarah K. McKinney](#)  
**Subject:** FW: Section 106 Coordination; State Route 223 Bridge over Branch, Madison County, Tennessee PIN 124712.00  
**Date:** Monday, September 10, 2018 10:05:58 AM  
**Attachments:** [Madison SR 223 Bridge 124712.00 NAC Brunso.pdf](#)  
[Madison County, TN, Proposed SR-223 Bridge over Branch, LM 2.28, PIN 124....pdf](#)  
[Madison County, TN, Proposed SR-223 Bridge over Branch, LM 2.28, PIN 124....pdf](#)

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**From:** Fottrell, Gary (FHWA) [mailto:Gary.Fottrell@dot.gov]  
**Sent:** Tuesday, September 4, 2018 12:49 PM  
**To:** Chickasaw Nation (HPO@chickasaw.net)  
**Cc:** Phillip Hodge  
**Subject:** Section 106 Coordination; State Route 223 Bridge over Branch, Madison County, Tennessee PIN 124712.00

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

Dear Ms. Brunso:

Please find attached information for a project proposed by the Tennessee Department of Transportation (TDOT):

- **State Route 223 Bridge over Branch, Madison County, PIN 124712.00**

In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and as promulgated in 36 CFR 800, we are providing general project information so that you can determine if your tribe has an interest in the project area or nature of the work proposed and so you have an opportunity to bring to our attention any interests and concerns about the potential for impacts to properties of religious and cultural significance. In addition, do you wish to be a consulting party on the project? If possible, we would appreciate your response via email by October 4<sup>th</sup>.

TDOT has attached a map of the project site with coordinates, architectural/historical and archaeological assessments, and SHPO letters. Thank you for your assistance on this project. If you have questions or need additional information, please feel free to call at any time.

Sincerely,

Gary Fottrell  
Environmental Program Engineer  
TN Division, Federal Highway Administration

404 BNA Drive, Suite 508  
Nashville, TN 37217  
Phone (615) 781-5766

October 3, 2018

Mr. Gary Fottrell, Environmental Program Engineer  
Tennessee Division, Federal Highway Administration  
404 BNA Drive, Suite 508  
Nashville, TN 37217

Dear Mr. Fottrell:

Thank you for the letter of notification regarding the proposed projects, delineated in the attached table, in Tennessee. We accept the invitation to consult under Section 106 of the National Historic Preservation Act.

The Chickasaw Nation supports the proposed undertakings and is presently unaware of any specific historic properties, including those of traditional religious and cultural significance, in the project area. In the event the agency becomes aware of the need to enforce other statutes we request to be notified under ARPA, AIRFA, NEPA, NAGPRA, NHPA and Professional Standards.

Your efforts to preserve and protect significant historic properties are appreciated. If you have any questions, please contact Ms. Karen Brunso, tribal historic preservation officer, at (580) 272-1106, or at [karen.brunso@chickasaw.net](mailto:karen.brunso@chickasaw.net).

Sincerely,

Lisa John, Secretary  
Department of Culture and Humanities

cc: [Gary.Fottrell@dot.gov](mailto:Gary.Fottrell@dot.gov)

Project Description	Location
PIN #124503.00 State Route 1 bridge replacement over an unnamed branch	Haywood County
PIN #124712.00 State Route 223 bridge replacement over an unnamed branch	Madison County
PIN #124749.00 State Route 3 bridge replacement over CNIC Railroad	Shelby County
PIN #124726.00 State Route 57 bridge replacement over overflow	McNairy County
PIN #124728.00 State Route 57 bridge replacement over an unnamed branch	McNairy County

**From:** [tonya@shawnee-tribe.com](mailto:tonya@shawnee-tribe.com)  
**To:** [Phillip Hodge](#)  
**Subject:** RE: Section 106 Consultation; Madison County, State Route 223 Bridge over Branch, PIN 124712.00  
**Date:** Tuesday, June 12, 2018 3:10:24 PM  
**Attachments:** [image002.jpg](#)  
[image003.png](#)

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

This letter is in response to the above referenced project.

The Shawnee Tribe's Tribal Historic Preservation Department concurs that no known historic properties will be negatively impacted by this project.

We have no issues or concerns at this time, but in the event that archaeological materials are encountered during construction, use, or maintenance of this location, please re-notify us at that time as we would like to resume immediate consultation under such a circumstance.

If you have any questions, you may contact me via email at [tonya@shawnee-tribe.com](mailto:tonya@shawnee-tribe.com)

Thank you for giving us the opportunity to comment on this project.

Sincerely,  
Tonya Tipton  
Shawnee Tribe



---

**From:** Phillip Hodge <[Phillip.Hodge@tn.gov](mailto:Phillip.Hodge@tn.gov)>  
**Sent:** Monday, May 14, 2018 3:27 PM  
**To:** [tonya@shawnee-tribe.com](mailto:tonya@shawnee-tribe.com)  
**Subject:** Section 106 Consultation; Madison County, State Route 223 Bridge over Branch, PIN 124712.00

Dear Ms. Tipton,

Please find attached a letter inviting Shawnee Tribe to participate in the subject project as a consulting party under Section 106 of the National Historic Preservation Act. This letter also describes the project and includes maps that illustrate its location. If you have any questions or need additional information, please feel free to call or email anytime. I appreciate your review of this information and look forward to your response.



Sincerely,  
Phil

logo



**Phillip Hodge** | Archaeology Program Manager  
Environmental Division

James K. Polk Building, 9<sup>th</sup> Floor

505 Deaderick St.

Nashville, TN 37243

p. 615-741-0977

[Phillip.Hodge@tn.gov](mailto:Phillip.Hodge@tn.gov)

# Hazardous Materials

# Environmental Study

## Technical Section

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**Section:** Hazardous Materials

## Study Results

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Based on the Transportation Investment Report dated 2 April 2018, no known hazardous materials sites appear to affect this project as it is currently planned and no additional hazardous material studies are recommended at this time. The asbestos bridge survey was completed under a previous project and the following project commitment is pending in PPRM.

In the event hazardous substances/wastes are encountered within the right-of-way, their disposition shall be subject to all applicable regulations, including the applicable sections of the Federal Resource Conservation and Recovery Act, as amended; and 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, TDEC Registered UST database, TDEC Division of Water Resources Public Data Viewer, TDOT IBIS, and others as necessary.

## Commitments

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**Did the study of this project result in any environmental commitments?**

Yes

An Asbestos Containing Material (ACM) survey was conducted on Bridge No. 57S81960003, SR-223 over Branch, LM 2.28 (57-SR223-02.28). No ACM was detected. 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 (Standard Specifications for Road and Bridge Construction (January 1, 2015) Sections 107.08 D and 202.03).

## Additional Information

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**Is there any additional information or material included with this study?**

No

## Certification

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**Responder:** Kyle Kirschenmann

**Signature:**

Kyle Kirschenmann

**Title:** Environmental Program Manager, Hazardous Materials Section

Digitally signed by Kyle Kirschenmann  
DN: cn=Kyle Kirschenmann, o=TDOT,  
ou=Hazardous Materials Section,  
email=kyle.kirschenmann@tn.gov,  
c=US  
Date: 2018.06.06 13:57:25 -04'00'

# Multimodal

# Environmental Study

## Technical Section

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**Section:** Multimodal

## Study Results

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This bridge project is exempt from Multimodal accommodation due to low ADT and rural nature of project.

## Commitments

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Did the study of this project result in any environmental commitments?

No

## Additional Information

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Is there any additional information or material included with this study?

No

## Certification

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**Responder:** Whitney S.D. Mason

**Title:** Pedestrian and Bicycle Coordinator

**Signature:** Whitney  
S.D. Mason

Digitally signed by  
Whitney S.D. Mason  
Date: 2018.06.08  
10:22:07 -05'00'



## MULTIMODAL ACCESS POLICY

### **EFFECTIVE DATE:**

July 31, 2015

### **AUTHORITY:**

TCA 4-3-2303

If any portion of this policy conflicts with applicable state or federal laws or regulations, that portion shall be considered void. The remainder of this policy shall not be affected thereby and shall remain in full force and effect.

### **PURPOSE:**

To create and implement a multimodal transportation policy that encourages safe access and mobility for users of all ages and abilities through the planning, design, construction, maintenance, and operation of new construction, reconstruction and retrofit transportation facilities that are federally or state funded. Users include, but are not limited to, motorists, transit-riders, freight-carriers, bicyclists and pedestrians.

### **APPLICATION:**

The policy applies to Department of Transportation employees, consultants and contractors involved in the planning, design, construction, maintenance, and operation of state and federally funded projects, and local governments managing and maintaining transportation projects with funding through TDOT's Local Programs Development Office.

### **DEFINITIONS:**

- Highway: A main road or thoroughfare, such as a street, boulevard, or parkway, available to the public for use for travel or transportation.
- Multimodal: For the purposes of this policy, multimodal is defined as the movement of people and goods on state and functionally-classified roadways. Users include, but are not limited to, motorists, transit-riders, freight-carriers, bicyclists and pedestrians, including those with disabilities.
- Reconstruction: Complete removal and replacement of the pavement structure or the addition of new continuous traffic lanes on an existing roadway.

- Retrofit: Changes to an existing highway within the general right-of-way, such as adding lanes, modifying horizontal and vertical alignments, structure rehabilitation, safety improvements, and maintenance.
- Roadway: The portion of a highway, including shoulders, that is available for vehicular, bicycle or pedestrian use.

### **POLICY:**

The Department of Transportation recognizes the benefits of integrating multimodal facilities into the transportation system as a means to improve the mobility, access and safety of all users. The intent of this policy is to promote the inclusion of multimodal accommodations in all transportation planning and project development activities at the local, regional and statewide levels, and to develop a comprehensive, integrated, and connected multimodal transportation network. TDOT will collaborate with local government agencies and regional planning agencies through established transportation planning processes to ensure that multimodal accommodations are addressed throughout the planning, design, construction, maintenance, and operation of new construction, reconstruction and retrofit transportation facilities as outlined in TDOT's Multimodal Access Policy Implementation Plan.

TDOT is committed to the development of a transportation system that improves conditions for multimodal transportation users through the following actions:

1. Provisions for multimodal transportation shall be given full consideration in new construction, reconstruction and retrofit roadway projects through design features appropriate for the context and function of the transportation facility.
2. The planning, design and construction of new facilities shall give full consideration to likely future demand for multimodal facilities and not preclude the provision of future improvements. If all feasible roadway alternatives have been explored and suitable multimodal facilities cannot be provided within the existing or proposed right of way due to environmental constraints, an alternate route that provides continuity and enhances the safety and accessibility of multimodal travel should be considered.
3. Existing multimodal provisions on roadways shall not be made more difficult or impossible by roadway improvements or routine maintenance projects.
4. Intersections and interchanges shall be designed (where appropriate based on context) to accommodate the mobility of bicyclists and pedestrians to cross corridors as well as travel along them in a manner that is safe, accessible, and convenient.
5. While it is not the intent of resurfacing projects to expand existing facilities, opportunities to provide or enhance bicycle and pedestrian facilities shall be given full consideration during the program development stage of resurfacing projects.
6. Pedestrian facilities shall be designed and built to accommodate persons with disabilities in accordance with the access standards required by the Americans with Disabilities Act

(ADA). Sidewalks, shared use paths, street crossings (including over- and under-crossings) and other infrastructure shall be constructed so that all pedestrians, including those with disabilities, can travel independently.

7. Provisions for transit-riders, pedestrians, and bicyclists shall be included when closing roads, bridges or sidewalks for construction projects where pedestrian, bicycle, or transit traffic is documented or expected.

### **EXCEPTIONS:**

It is TDOT's expectation that full consideration of multimodal access will be integrated in all appropriate new construction, reconstruction and retrofit infrastructure projects. However, there are conditions where it is generally inappropriate to provide multimodal facilities. Examples of these conditions include, but are not limited to:

1. Controlled access facilities where non-motorized users are prohibited from using the roadway. In this instance, a greater effort may be necessary to accommodate these users elsewhere within the same transportation corridor.
2. The cost of accommodations would be excessively disproportionate to the need and probable use. Excessively disproportionate is defined as exceeding twenty percent (20%) of the total cost of the project. The twenty percent figure should be used in an advisory rather than an absolute sense, especially in instances where the cost may be difficult to quantify. Compliance with ADA requirements may require greater than 20% of project cost to accommodate multimodal access. Costs associated with ADA requirements are NOT an exception.
3. Areas in which the population and employment densities or level of transit service around the facility, both existing and future, does not justify the incorporation of multimodal alternatives.
4. Inability to negotiate and enter into an agreement with a local government to assume the operational and maintenance responsibility of the facility.
5. Other factors where there is a demonstrated absence of need or prudence, or as requested by the Commissioner of the Department of Transportation.


Exceptions for not accommodating multimodal transportation users on State roadway projects in accordance with this policy shall be documented describing the basis and supporting data for the exception, and must be approved by TDOT's Chief Engineer and Chief of Environment and Planning or their designees.




**DESIGN GUIDANCE:**

The Department recognizes that a well-planned and designed transportation network is responsive to its context and meets the needs of its users. Therefore, facilities will be designed and constructed in accordance with current applicable laws and regulations, using best practices and guidance, including but not limited to the following: TDOT Standard Drawings and guidelines, American Association of State Highway and Transportation Officials (AASHTO) publications, Institute of Transportation Engineers (ITE) publications, the Manual on Uniform Traffic Control Devices (MUTCD), National Association of City Transportation Officials (NACTO) publications, the Public Rights-of-Ways Accessibility Guidelines (PROWAG), and the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

**Signed:**

  
\_\_\_\_\_  
PAUL DEGGES  
Chief Engineer/Deputy Commissioner

  
\_\_\_\_\_  
TOKS OMISHAKIN  
Chief of Planning/Deputy Commissioner

  
\_\_\_\_\_  
JOHN SCHROER  
Commissioner