

APPENDIX O
INDIRECT AND CUMULATIVE EFFECTS ANALYSIS

ENVIRONMENTAL ASSESSMENT

STATE ROUTE 32 (US-321)
From State Route 73 to North of Wilton Springs Road
Cocke County, Tennessee
TDOT PIN 101422.00



INDIRECT AND CUMULATIVE EFFECTS TECHNICAL MEMORANDUM

State Route-32
From State Route 73 at Cosby
to North of Wilton Springs Road
Cocke County, Tennessee

TDOT Project No. 15005-1234-04
PIN 101422.00

Prepared By:



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1.0 INTRODUCTION

The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing an Environmental Assessment (EA) for proposed improvements to State Route (SR) 32 (US-321) from SR-73 to the existing 4-lane divided section of SR-32 (US-321) north of Wilton Springs Road in Cocke County, Tennessee (approximately 7.1 miles). The project location is shown [Figure 1-1](#).

This indirect and cumulative effects (ICE) analysis technical memorandum has been prepared to discuss the potential for induced growth in the project area due to the potential construction of the proposed project, and to assess the collective effects that past, present and future projects have had, and/or are likely to have, on natural, cultural and socioeconomic resources in the project area.

This technical memorandum:

- Provides a brief description of the project setting, project purpose and need, and the alternatives being evaluated;
- Describes the methodology used for the ICE analysis; and
- Documents the ICE analysis

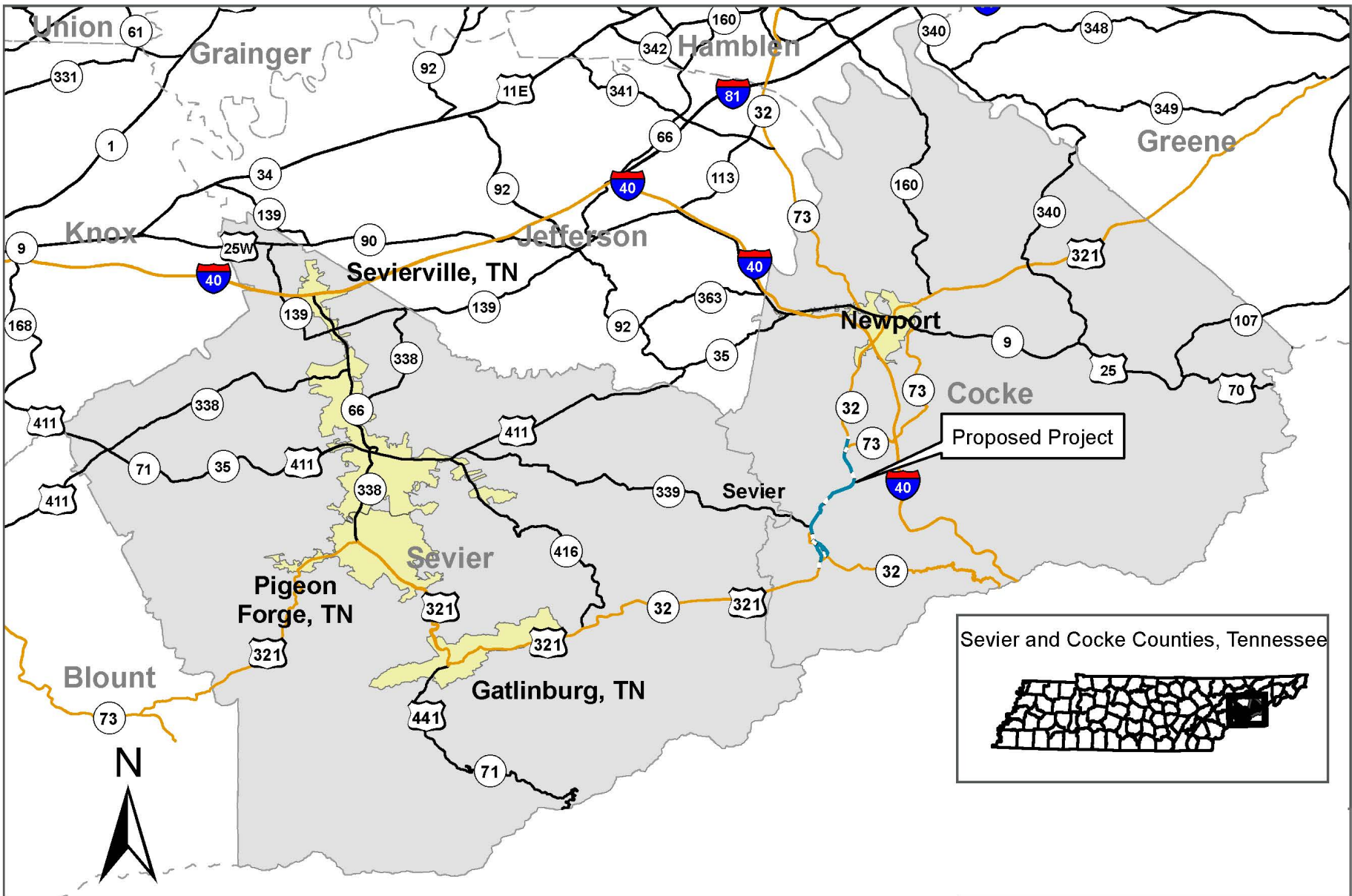
This ICE analysis has been conducted in accordance with the requirements and processes outlined in the following regulations and guidance documents:

- FHWA regulations for Environmental Impact and Related Procedures (23 CFR Part 771)
- Questions and Answers on Considering Indirect and Cumulative Impacts in the NEPA Process (FHWA, 2014)
- Interim Guidance: Indirect and Cumulative Impacts in NEPA (FHWA, 2003)
- Position Paper: Secondary and Cumulative Impact Assessment in the Highway Project Development Process (FHWA, 1992)
- Considering Cumulative Effects Under the National Environmental Policy Act (Council on Environmental Quality [CEQ], 1997a)
- Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ, 2005)
- National Cooperative Highway Research Program (NCHRP) Report 403: Guidance for Estimating the Indirect Effects of Proposed Transportation Projects (Transportation Research Board [TRB], 1998)
- NCHRP Report 466: Desk Reference for Estimating the Indirect Effect of Proposed Transportation Projects (TRB, 2002)
- NCHRP Project 25-25 Task 11: Secondary/Indirect and Cumulative Effects Analysis (TRB, 2006)
- NCHRP Project 25-25 Task 22: Forecasting Indirect Land Use Effects of Transportation Projects (TRB, 2007)
- *Practitioner's Handbook 12: Assessing Indirect Effects and Cumulative Impacts Under NEPA* (American Association of State Highway and Transportation Officials Center for Environmental Excellence [AASHTO], 2016)

1.1 Project Setting

The proposed project is located along the western side of Cocke County in Tennessee. Cocke County has been identified by the Appalachian Regional Commission (ARC) as a distressed county. Each year, ARC prepares an index of county economic status for every county in the United States. Economic status designations are identified through a composite measure of each county's three-year average unemployment rate, per capita market income, and poverty rate. Based on these indicators, each county is then categorized as distressed, at-risk, transitional, competitive or attainment. Distressed counties in Tennessee rank among the 10 percent most economically distressed counties in the nation.

Figure 1-1 Project Location Map



The project area encompasses the community of Cosby, Tennessee which is located approximately 15 miles southwest of Newport, Tennessee, the county seat of Cocke County. SR-32 is a north/south corridor that runs parallel to Interstate 40 (I-40). The project area connects to Newport via SR-32 (US-321) and Sevier County via SR-73 (US-321). In addition to serving local traffic in the Newport/Cosby area, SR-32 (US-321) serves as part of a regional facility, providing access to Pigeon Forge, Gatlinburg, the Great Smoky Mountains National Park (GSMNP), and other visitor attractions in the region. The US-321 corridor from I-40 in Newport to the US 321/US 441 intersection in Gatlinburg is approximately 31 miles long. Of the 31 miles, approximately 10 miles have been improved from two-lane roads to either a four-lane roadway with a median or a four-lane roadway with a continuous center turn lane (**Figure 1-2**).

Land use in the project corridor consists of predominantly residential and commercial land uses including a mix of restaurants, tourist attractions, retail establishments, and cabin rentals, which are interspersed along the entire project corridor. As mentioned above, the SR-32 (US-321) corridor provides access to the GSMNP. In 2019, the GSMNP had over 12.5 million recreational visits, which is the highest visitation of any of the 59 national parks. The main entrance to the GSMNP is located approximately 20 miles west of Cosby, Tennessee. The SR-32 (US-321) corridor is actively promoted by the Gatlinburg and Pigeon Forge Convention and Visitors Bureaus and various private recreational facilities as an alternative route to avoid congestion when traveling to these popular tourist destinations, particularly during the summer and fall seasons, Fourth of July, Thanksgiving, Christmas, and during major events. It is also promoted as a scenic route to these popular tourist destinations.

The Foothills Parkway, a scenic parkway that is under National Park Service (NPS) jurisdiction, connects to existing SR-32 (US-321) near the southern end of the project corridor. The Cherokee National Forest, under jurisdiction of the US Forest Service (USFS), is located near the SR-32 (US-321) project corridor.

1.2 Purpose and Need

The needs for the proposed project include:

- Inefficient connectivity/access to tourist areas;
- Existing roadway deficiencies;
- Existing operational deficiencies;
- High crash rate;
- Improve SR-32 consistent with the legislative intent of the “Improving Manufacturing, Public Roads, and Opportunities for a Vibrant Economy” (IMPROVE) Act; and
- Support economic development opportunities.

The purpose of the project is to:

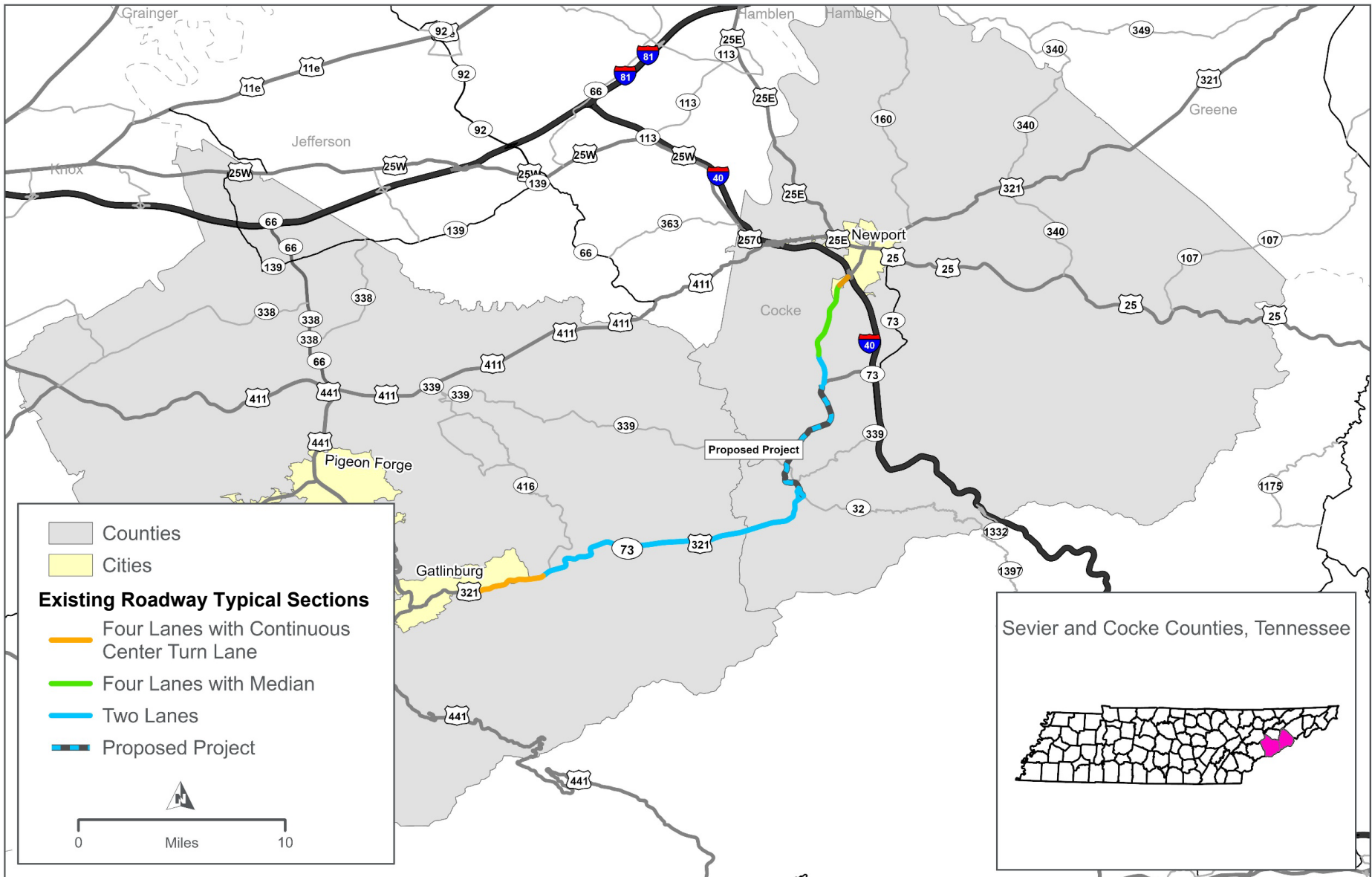
- Improve connections/access to high tourism areas within the region;
- Improve roadway to meet current design standards;
- Improve traffic operational efficiency;
- Reduce crashes;
- Meet the intent of the IMPROVE Act legislation; and
- Enhance economic development opportunities.

1.3 Description of Alternatives

1.3.1 No-Build Alternative

The No-Build Alternative would leave this portion of SR-32 (US-321) as it currently exists, other than routine maintenance as needed.

Figure 1-2 US-321/SR-73/SR-32 Corridor



1.3.2 Build Alternatives

Two Build Alternatives, which are described in the sections below, are currently under consideration for this project. The proposed Build Alternatives are shown in [Figure 1-3](#).

Alternative A

Alternative A would begin on SR-73 just south of Stonebrook Drive and continue north on new location west of Stonebrook Drive for approximately 1.4 miles before crossing existing SR-32. After crossing existing SR-32, the alternative continues north on new location to just north of SR-339 (Jones Cove Road), where it then follows the existing SR-32 alignment, except where it straightens out several curves, to north of Middle Creek Road where it again travels on new location to align with existing SR-32 at the SR-32/Wilton Springs Road intersection. The alternative continues through the intersection to connect with the existing 4-lane divided section of SR-32 north of the bridge over Cosby Creek. The replacement of the bridge is an IMPROVE Act project. Alternative A would result in the realignment of the entrance to the Foothills Parkway.

Alternative B

Alternative B would begin just west of the SR-73/SR-32 intersection and reconfigure the existing intersection. Currently, vehicles accessing SR-32 from SR-73 must stop at the intersection and turn left to go north on SR-32. The T-intersection would be reconfigured so that traffic travelling from SR-73 to SR-32 northbound, or from SR-32 to SR-73 southbound, would become the through traffic, and traffic travelling to or from SR-32 south of the original intersections would have a stop condition.

Just north of the reconfigured intersection, Alternative B would follow existing SR-32 to just north of Caney Creek Road where it would diverge slightly to straighten out the curve, cross existing SR-32 and Cosby Creek, and continue in a northwesterly direction on new location. Approximately 1,000 feet north of where it crosses existing SR-32, Alternative B would follow the same alignment as Alternative A to the northern project terminus. Alternative B would include the same realignment of the entrance to the Foothills Parkway as Alternative A.

Proposed Roadway Typical Sections

Both Build Alternatives are proposed to be constructed in two separate construction phases from the southern terminus to Penland Road. TDOT is proposing to acquire enough right-of-way for Phase 1 Construction (Interim Build) to accommodate the construction of Phase 2 (Full Build). Phased construction is not proposed for the section of the Build Alternatives from Penland Road to the project terminus at the 4-lane divided section of SR-32 north of Wilton Springs Road. That section would be constructed at the same time as Phase 1 Construction (Interim Build). The proposed typical sections for Alternative A for Phase 1 Construction (Interim Build) and Phase 2 Construction (Full Build) are shown on [Figure 1-4](#). The proposed typical sections for Alternative B for Phase 1 Construction (Interim Build) and Phase 2 Construction (Full Build) are shown on [Figure 1-5](#). The proposed typical sections for Phase 2 Construction (Full Build) describe the completed typical section, which includes the improvements from Phase 1 Construction (Interim Build).

Figure 1-3 Proposed Build Alternatives

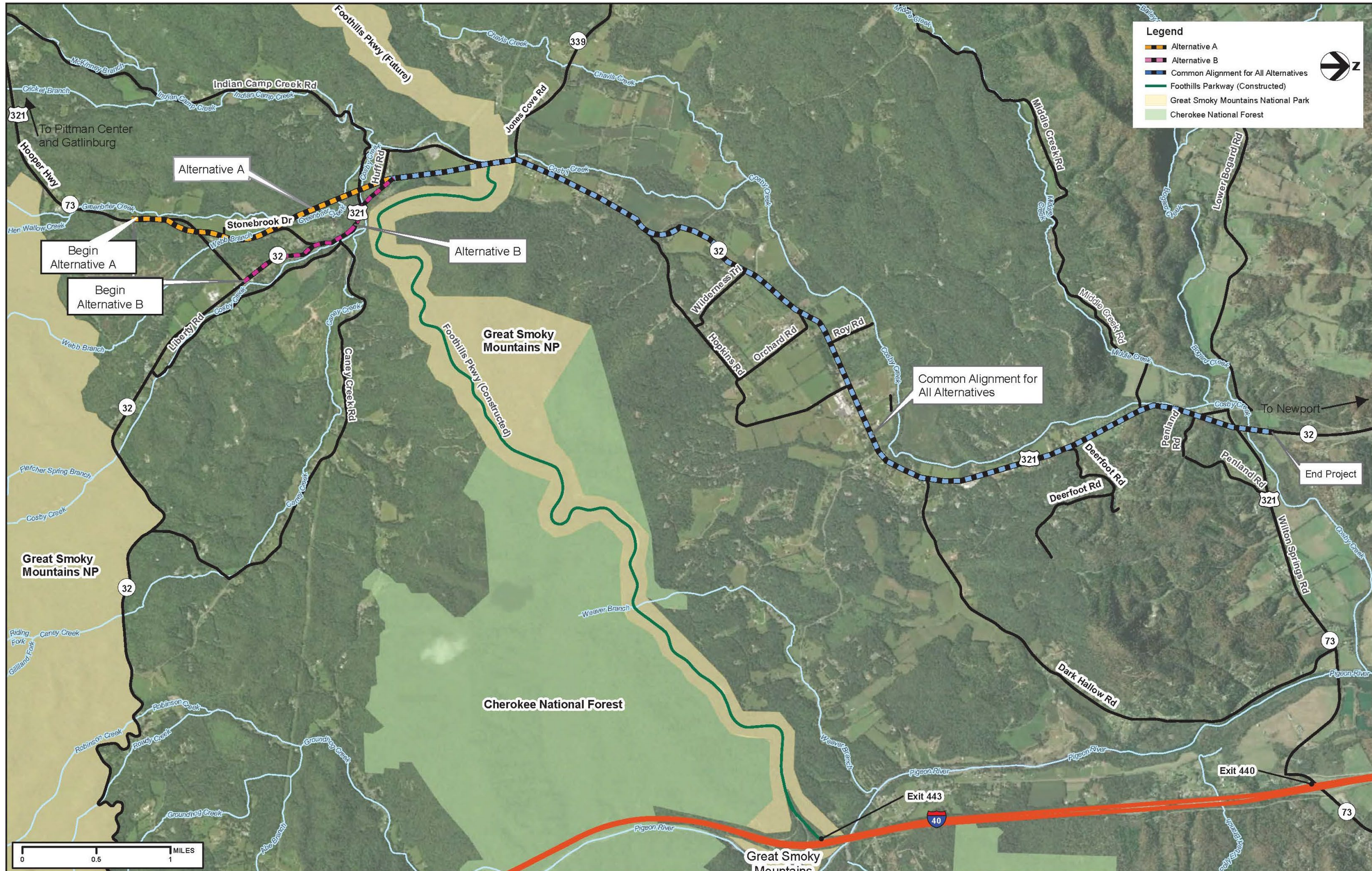
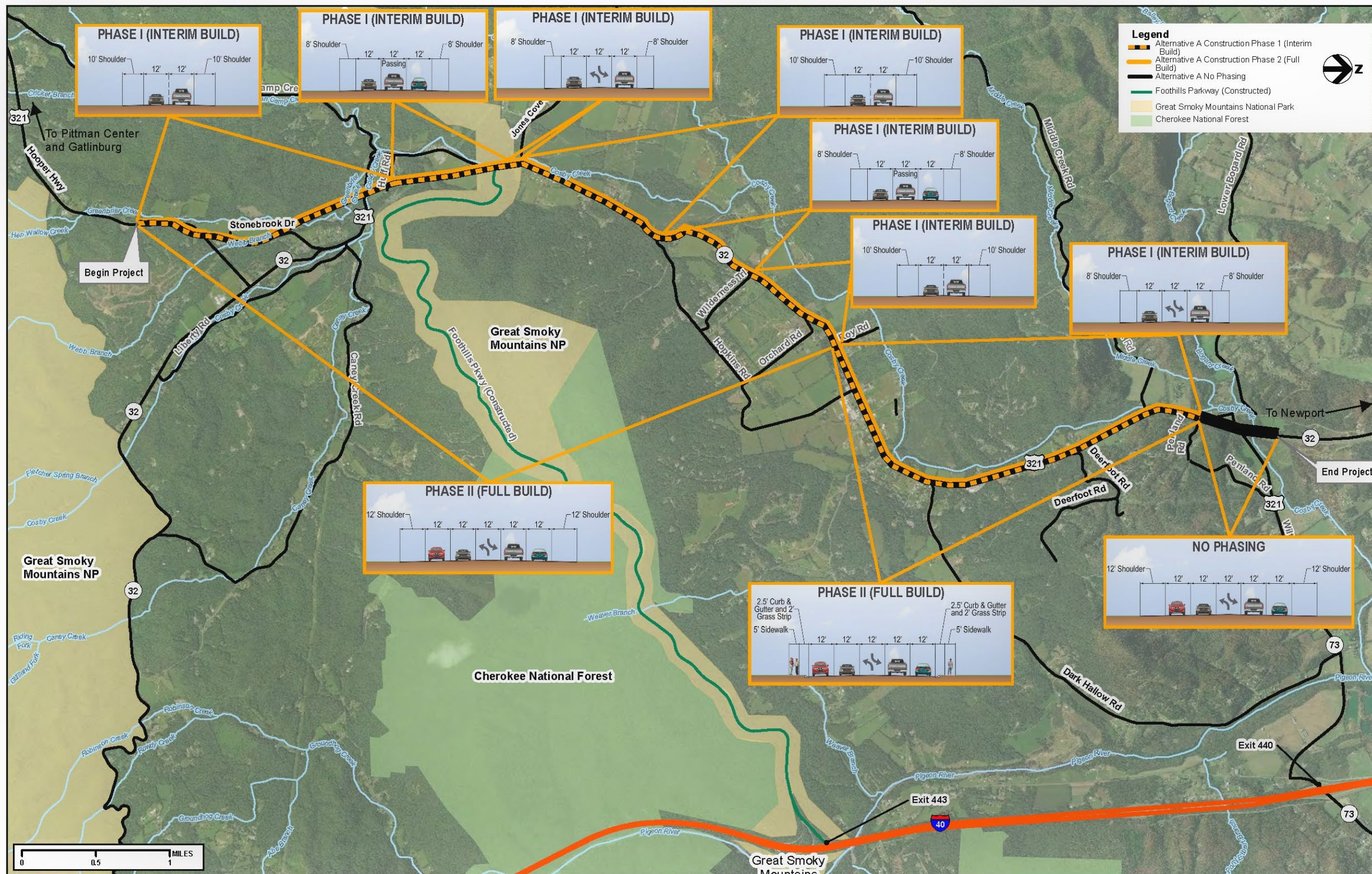


Figure 1-4 Proposed Roadway Typical Sections: Alternative A



1.4 Project Study Area

1.4.1 Environmental Technical Study Area (ETSA)

An Environmental Technical Study Area (ETSA) was developed for the project using conceptual-level design plans and extends beyond the immediate footprint of the proposed improvements described in Section 1.3 above. An ETSA is developed for a project in order to document natural, cultural, and community resources within a broader study area than the immediate project footprint. TDOT staff identify resources within the larger study boundary of the ETSA in order to allow designers to consider potential future alignment shifts during subsequent design phases of the proposed project.

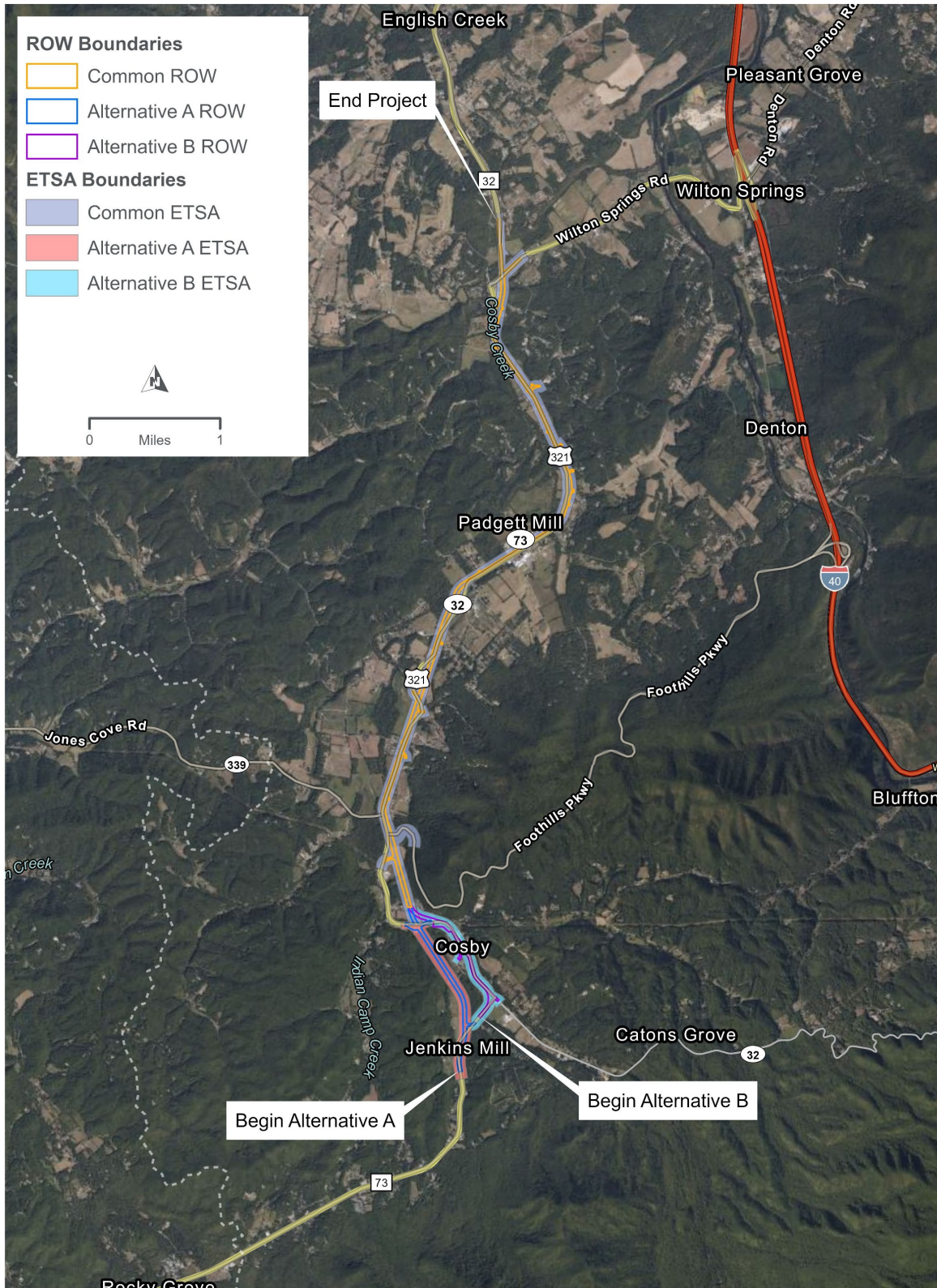
The ETSA limits for the proposed project encompass an area that is generally 250 feet on either side of the proposed centerline, extend 300 feet from the project termini, and extend 150 feet from intersections with side roads. The ETSA for Alternative A encompasses approximately 470.5 acres. The ETSA for Alternative B encompasses approximately 466.1 acres.

1.4.2 Right-of-Way Limits Study Area (ROW)

The potential environmental impacts of the Build Alternatives were calculated within the project's Right-of-Way (ROW) limits. The ROW for the project is based on concept-level plans and encompasses the area currently proposed for acquisition to accommodate the proposed project once fully constructed. Proposed right-of-way widths for Alternatives A and B range from a minimum of 104 feet to a maximum of 250 feet, which is substantially less than the width of the ETSA. The ROW for Alternative A encompasses approximately 125.2 acres. The ROW for Alternative B encompasses approximately 116.5 acres.

Figure 1-6 shows a comparison of the ETSA and proposed right-of-way boundaries. As design for the project progresses, the alternatives will be further refined to avoid and/or minimize impacts to the extent practicable. Future design refinements will be documented through future National Environmental Policy Act (NEPA) reevaluations.

Figure 1-6 Environmental Technical Study Area (ETSA) and Right-of-Way Limits Study Area (ROW)



2.0 INDIRECT AND CUMULATIVE EFFECTS

2.1 Indirect Effects

Indirect effects are caused by the action (the project) but occur later in time or are farther removed in distance. They must be reasonably foreseeable effects. Reasonably foreseeable is defined as sufficiently likely to occur, that a person of ordinary prudence would take it into account in making a decision. Indirect effects result from actions that occur that would not otherwise occur if the project was not pursued (Figure 2-1). Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air, water, and other natural systems.

An example of an indirect effect would be when a new roadway is built, and commercial development occurs along that roadway that would not have otherwise occurred without the construction of the roadway. The commercial development would be an indirect effect of the construction of the roadway.

As stated in *Practitioner's Handbook 12* (AASHTO, 2016), the commonly recognized types of indirect effects are:

- Induced Growth Effects:** Changes in the location, magnitude, or pace of future development that result from changes in accessibility caused by the project. An example of induced-growth effect is commercial development occurring around a new interchange and the environmental impacts associated with this development; and
- Encroachment Alteration Effects:** Alteration of the behavior and functioning of the affected environment caused by project encroachment. An example of an encroachment effect is a long-term decline in the viability of a population of a particular species as a result of habitat fragmentation caused by the project.

Source: *Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (FHWA, 2014)

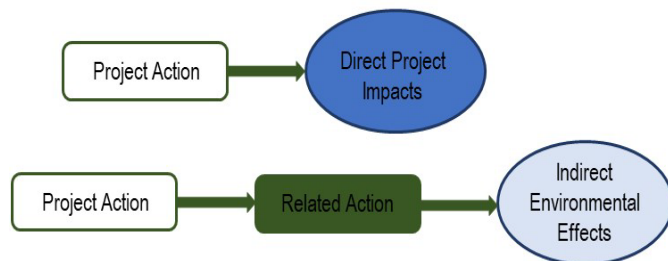
An analysis of growth-related indirect effects involves answering the following questions (AASHTO, 2016):

- Does the project have the potential to increase mobility and/or accessibility? If so, in what geographic area is increased accessibility likely to occur?
- Is the increased accessibility likely to cause changes in development patterns (timing, type, location, or amount)? If so, where are those changes in development likely to occur?
- What impacts are likely to result from changes in development patterns that are caused by the project? What specific types of resources could be impacted?

INDIRECT EFFECTS

Effects caused by the proposed action(s) that occur later or farther in distance but are reasonably foreseeable.

Figure 2-1 Direct Impacts vs Indirect Impacts



2.2 Cumulative Effects

A cumulative effect is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Cumulative effects include the total of all impacts, direct and indirect, experienced by a particular resource that have occurred, are occurring, and/or would likely occur as a result of any action or influence, including effects of a federal activity (Figure 2-2). Cumulative effects analysis is resource specific and generally performed for the environmental resources directly impacted by a project. If a project will not cause direct or indirect effects on a resource, it will not contribute to a cumulative effect on that resource. Cumulative effects analysis may be thought of as a comparison of the past, present, and reasonably foreseeable health or condition of a specific resource.

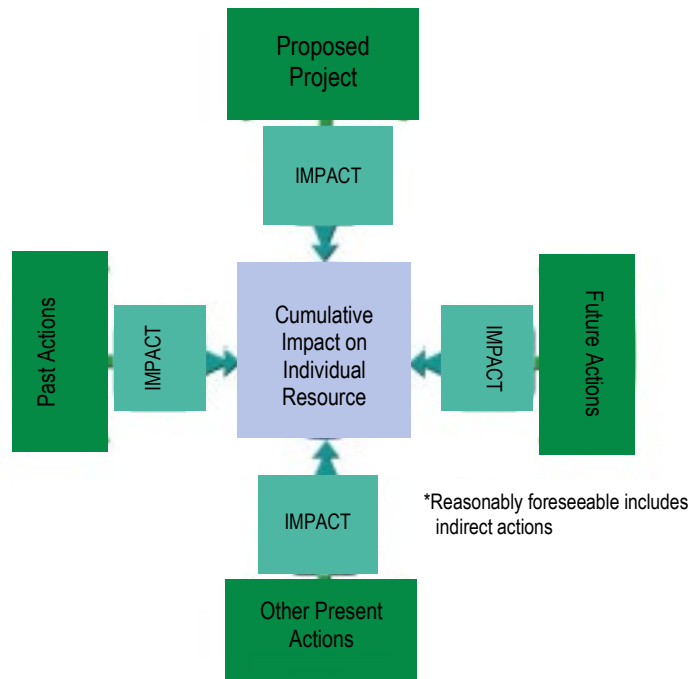
CUMULATIVE EFFECTS

Effects caused by the proposed action(s) or project in combination with all other impacts in the past, present, and reasonably foreseeable future.

An analysis of cumulative effects involves answering the following questions (FHWA, 2014):

- What is the geographic area affected by the project?
- What are the resources affected by the project?
- What are the other past, present, and reasonably foreseeable actions that have impacted these resources?
- What were those impacts?
- What is the overall impact on these various resources from the accumulation of the actions?

Figure 2-2 Cumulative Effects



Source: *Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (FHWA, 2014)

2.3 Key Concepts Related to Indirect and Cumulative Effects

The following three concepts are important when considering indirect and cumulative effects of transportation projects. The descriptions of these key concepts are from *Practitioner’s Handbook 12* (AASHTO, 2016).

2.3.1 “But-For” Relationship

As a general rule, a project may be considered to cause an impact if the project is necessary for the impact to occur. This relationship is sometimes described as a “but-for” relationship: that is, the development would not have occurred but for the transportation project (AASHTO, 2016).

2.3.2 Necessary vs. Sufficient

Even when a project is a necessary condition for an impact to occur, there are often other conditions that also need to be present in order for the impact to occur. Other conditions that may be necessary for a development project to occur may include:

- Suitable, available land for development or redevelopment.
- Economic conditions that support development, e.g., markets, acceptable rate of return on investment in land purchase, construction, other costs.
- Zoning and other land use controls and policies suitable for the type of development suggested by market conditions.
- Other infrastructure that supports development, e.g., water and sewer service.
- Amenities, e.g., schools, access to recreational opportunities.

2.3.3 Reasonably Foreseeable

Indirect and cumulative impacts must be considered if they are reasonably foreseeable. Impacts that are merely possible, or that are considered “speculative,” are not reasonably foreseeable.

3.0 INDIRECT EFFECTS ANALYSIS

3.1 Methodology

The following steps, based on the process outlined in the National Cooperative Highway Research Program (NCHRP) Report 466: *Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects* (2002), were used to analyze potential indirect effects of the project:

- Step 1: Initial Scoping
- Step 2: Identify the Study Area Direction and Goals
- Step 3: Inventory Notable Features in the Study Area
- Step 4: Identify Impact-Causing Activities of Proposed Alternatives
- Step 5: Identify Indirect Effects for Analysis
- Step 6: Analyze Indirect Effects and Evaluate Results
- Step 7: Assess Consequences and Develop Mitigation

3.2 Step 1: Initial Scoping

Scoping entails collaboration with the public, agencies and other stakeholders to identify issues that should be studied during the development of the proposed project. Coordination packages were sent to federal, state, and local agencies and other stakeholder groups in 1998, 2012 and 2019. The project is also subject to the Tennessee Environmental Streamlining Agreement (TESA), which requires coordination with the signatory agencies. As part of the TESA process, TESA agency field reviews for the project were held in 2012 and 2018. Public input on the project was solicited through public information meetings held in 2010, 2012, and 2018.

Issues raised during scoping include:

- Impacts to streams
- Potential business impacts
- Noise impacts
- Visual impacts
- Potential impacts to the Stonebrook Subdivision

As discussed in [Section 1.3.2](#), the proposed improvements would basically follow existing SR-32 in the project limits, except for a short segment of Alternative A, which would be on new location. The study area for an indirect effects analysis is defined as the geographic area that can be influenced by the project. The boundary for the indirect effects analysis for this project extends one mile outside the project's ETSA boundary ([Figure 3-1](#)). This boundary was chosen based on the relatively small travel time savings that would result from the project (see [Sections 3.6.1](#) and [3.7.1](#)), particularly during the Interim Build and the limited potential for induced growth due to the topography and other constraints on growth ([Section 3.7.1](#)). The Interim Build would be constructed first and does not include adding capacity. Phase 2 Construction (Full Build) would be constructed at some point in the future that is within 20 years of the construction of the Interim Build.

Resources considered for the indirect effects analysis are listed in [Table 3-1](#).

Figure 3-1 Study Area: Indirect Effects

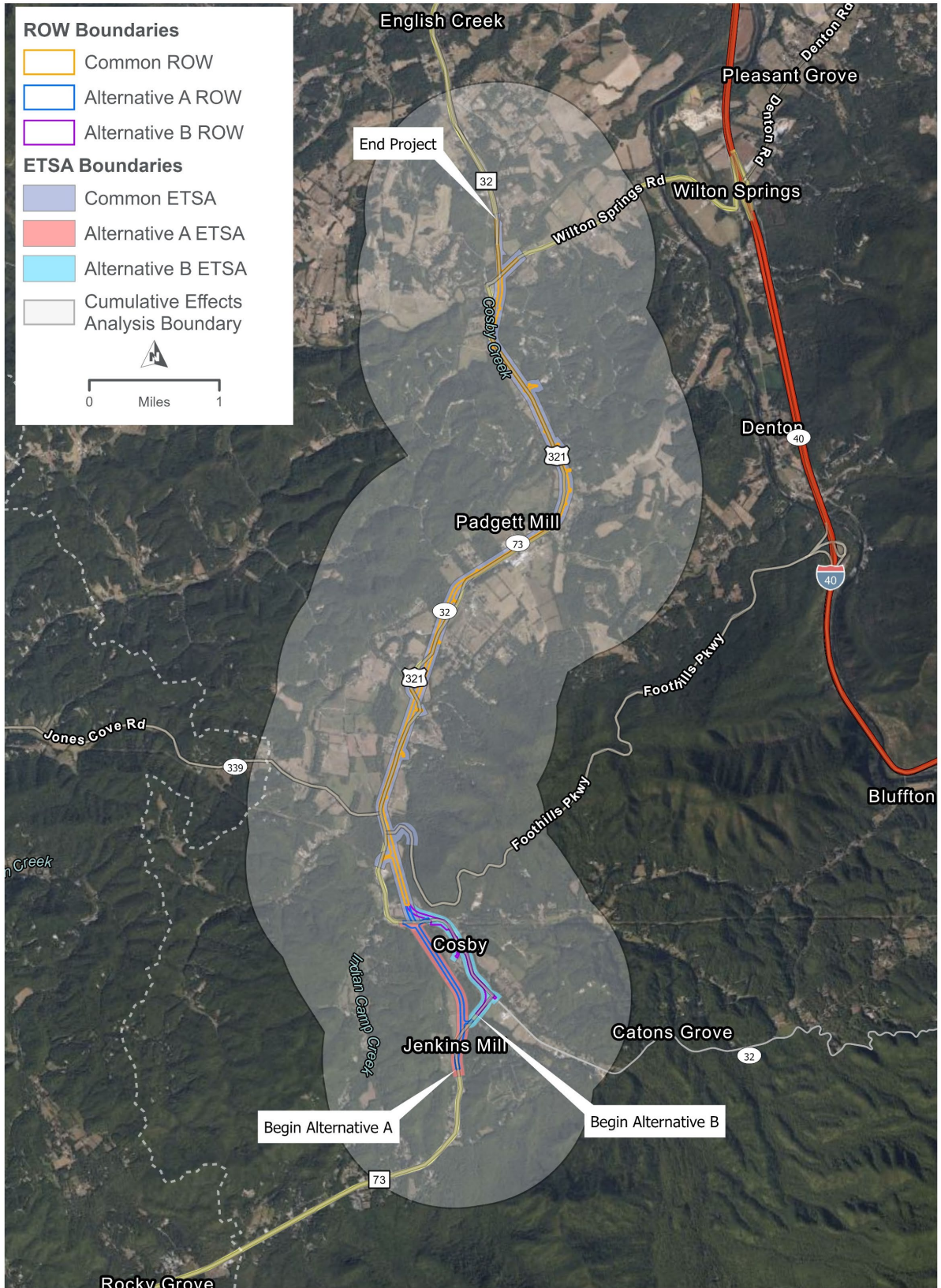


Table 3-1 Resources Considered for Indirect Effects Analysis

Resource		Alternative	Direct Impacts	Included in Indirect Effects Analysis? If No, Why Not?
Socioeconomic Resources	Residential and Commercial Land Uses and Community Facilities	Alternative A	<ul style="list-style-type: none"> 21 residential relocations 7 business relocations 1 non-profit relocation (church) 	Yes
		Alternative B	<ul style="list-style-type: none"> 24 residential relocations 11 business relocations 1 non-profit relocation (church) 	
	Environmental Justice	Alternative A	<ul style="list-style-type: none"> No EJ populations were identified within the project ETSA limits. 	No
		Alternative B		No EJ populations identified within study limits.
Farmland	Alternative A	<ul style="list-style-type: none"> Conversion of 29 acres of prime farmland to transportation right-of-way 	Yes	
	Alternative B	<ul style="list-style-type: none"> Conversion of 34 acres of prime farmland to transportation right-of-way 		
Economic Conditions	Alternative A	<ul style="list-style-type: none"> Improved travel time of 1.57 minutes in peak period and 0.83 minute in off-peak period for the Interim Build (2020) Improved travel time of 5.71 minutes in peak period and 2.58 minutes in off-peak period for the Full Build (2040) 	No	
	Alternative B		The proposed project is not expected to induce growth.	
Air Quality	Alternative A	<ul style="list-style-type: none"> Cocke County is currently in attainment for all regulated pollutants. No adverse MSAT effects. 	No	
	Alternative B		The proposed project is not expected result in any indirect effects.	
	Alternative B	<ul style="list-style-type: none"> Interim Build: Noise impacts to 49 noise-sensitive land uses. Full Build: Noise impacts to 50 land uses. 		
Natural Resources	Terrestrial Resources	Alternative A	<ul style="list-style-type: none"> Forest fragmentation. Conversion of 53 acres of wildlife habitat to transportation right-of-way. 	Yes
		Alternative B	<ul style="list-style-type: none"> Forest fragmentation. Conversion of 51 acres of wildlife habitat to transportation right-of-way. 	
	Water Resources	Alternative A	<ul style="list-style-type: none"> Approximately 3,535 linear feet of impacts to streams. Approximately 1,940 linear feet of impacts to wet weather conveyances. Approximately 0.63 acre of impacts to wetlands. 	Yes
		Alternative B	<ul style="list-style-type: none"> Approximately 1,923 linear feet of impacts to streams. Approximately 1,704 linear feet of impacts to wet weather conveyances. Approximately 0.72 acre of impact to wetlands. 	
	Floodplains/ Floodways	Alternative A	<ul style="list-style-type: none"> 14.0 acres of floodplain impact 0.37 acre of floodway impact 	Yes
		Alternative B	<ul style="list-style-type: none"> 13.4 acres of floodplain impact 0.38 acre of floodway impact 	Yes
	Threatened and Endangered Species	Alternative A	<ul style="list-style-type: none"> Not likely to adversely affect the Indiana bat or the northern long-eared bat 	Yes
	Alternative B			
Cultural Resources	Historic Resources	Alternative A	<ul style="list-style-type: none"> No NRHP-listed or eligible historic architectural resources 	No
		Alternative B		No NRHP-listed or eligible historic architectural resources are located within the project's APE
	Archaeological Resources	Alternative A	<ul style="list-style-type: none"> 1 NRHP-eligible archaeological resource 	Yes
		Alternative B	<ul style="list-style-type: none"> 1 NRHP-eligible archaeological resource 	
Section 4(f) Resources	Alternative A	<ul style="list-style-type: none"> De minimis use-Foothills Parkway 	Yes	
	Alternative B			
Visual Resources	Alternative A	<ul style="list-style-type: none"> Changes in visual landscape 	Yes	
	Alternative B			

3.3 Step 2: Identify the Study Area Direction and Goals

The following sections describe current trends within the project area and growth/planning/economic development legislation, executive orders, plans, policies and tools for the area.

Population Trends

A review of U.S. census data ([Table 3-2](#)) shows that the population growth trend for Cocke County has increased and decreased over time with the current population growth trending downward. Based on population projections from the Boyd Center for Business and Economic Research, University of Tennessee, Knoxville (October 2019), the Cocke County population is predicted to increase less than 1.0 percent between 2018 and 2040 ([Appendix A](#)).

Table 3-2 Cocke County Population Trends: 1950 to 2040

Year	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000	2000-2010	2010-2018	2018 - 2040
Percent Change in Population	1.7%	8.1%	13.9%	1.2%	15.2%	6.2%	1.0%	<1.0%

Source: US Census Bureau Decennial Census, 1950, 1960, 1970, 1980, 1990, 2000, 2010; US Census Bureau 2019 ACS 5-Year Data; Boyd Center for Business and Economic Research, University of Tennessee, Knoxville, October 2019

Economic Trends and Conditions

The ARC, an economic development partnership agency of the federal government and 13 state governments that focuses on 420 counties across the Appalachian region has identified Cocke County as an economically distressed county. Each year, ARC prepares an index of county economic status for every county in the United States. Economic status designations are identified through a composite measure of each county's three-year average unemployment rate, per capita market income, and poverty rate. Based on these indicators, each county is then categorized as distressed, at-risk, transitional, competitive or attainment. Distressed counties rank among the 10 percent most economically distressed counties in the nation. Based on the American Community Survey (ACS) 2015 to 2019 5-Year Estimates, approximately 24 percent of the population in Cocke County is considered low-income.

According to data from the US Bureau of Labor Statistics, the Cocke County labor force has remained relatively stable since 2000 ([Table 3-3](#)). Since a high in 2010, unemployment rates in Cocke County have been trending downward ([Table 3-3](#)). In April 2020 the unemployment rate for Cocke County spiked to 25.6 percent, primarily as a result of the COVID-19 pandemic. According to the Tennessee Department of Labor and Workforce Development, the Cocke County unemployment rate for 2020 was 10 percent.

Tourism, until the recent pandemic, has been a vibrant and growing industry in Cocke County. Between 2009 and 2019, annual tourist spending rose steadily. According the Tennessee Department of Tourist Development (TDTD), travel expenditures (which include, among other things, lodging, food service, entertainment and recreation) in Cocke County were up approximately three percent in 2019 over 2018 and accounted for \$53.0 million in spending. The annual report for 2020 will not be available until late 2021. According to TDTD, in 2019 Cocke County ranked 32 out of the 95 Tennessee counties for the economic impact of tourism. As noted previously and discussed further in [Section 4.0](#), a number of the developments currently planned in or near the project area are recreational in nature.

Table 3-3 Labor and Employment: 2000-2019

Year	Labor Force	Employed	Unemployed	Unemployment Rate
2019	15,164	14,477	687	4.5%
2018	14,899	14,197	702	4.7%
2010	15,881	13,717	2,164	13.6%
2000	15,531	14,551	980	6.3%

Source: US Bureau of Labor Statistics (accessed 01.21.21)

Growth/Planning/Economic Development Legislation, Executive Orders, Plans, Policies and Tools

Legislation and policy focused on growth, planning and economic development; Executive Orders; local and regional land use, transportation and economic development plans; and economic development tools (e.g. opportunity zones) identify the goals of communities and regions and can help distinguish between planned growth and unplanned growth.

Cocke County has not adopted any zoning regulations and does not have a comprehensive land use plan. The City of Newport has a planning department and has zoning and land use controls. Cocke County is served by East Tennessee Development District (ETDD) and the East Tennessee South Rural Planning Organization (RPO). The RPO serves Roane, Loudon, Monroe, Blount, Sevier, Jefferson, and Cocke counties and is responsible for involving local stakeholders in the transportation planning and transportation decision-making process. The RPO considers multimodal transportation needs on a local and regional basis; reviews long-term needs and short-term funding priorities; and makes recommendations to TDOT.

Legislation, executive orders, plans, and policies related to Cocke County are described in [Table 3-4](#). A common thread that runs through many of the above plans is an identified need for infrastructure and economic development.

Cocke County Urban Growth Boundaries (UGBs), Planned Growth Areas (PGAs), and Rural Areas (RAs) are shown on [Figure 3-2](#). Cocke County Opportunity Zones are shown on [Figure 3-3](#).

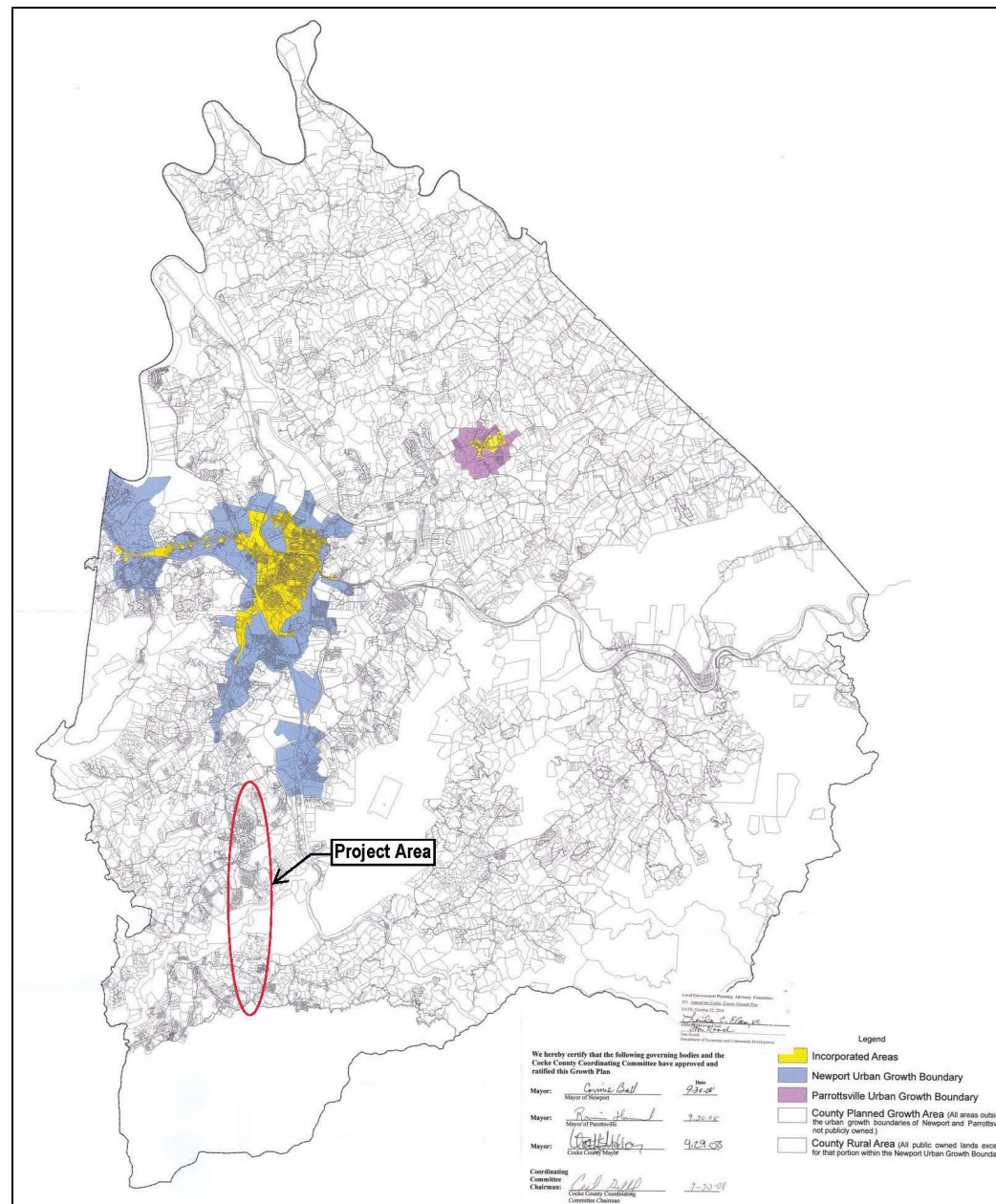
Table 3-4 Legislation, Executive Orders, Plans, Policies and Tools

Tennessee Legislation and Executive Orders	
<i>Tennessee Public Chapter 1101 Growth Policy Legislation</i>	Tennessee’s Growth Policy Act (GPA), adopted by the Tennessee Legislature in 1998 (Section 7(b) of Public Chapter 1101), mandates that each county and municipality cooperatively develop a county-wide 20-year growth plan, with each municipality identifying an Urban Growth Boundary (UGB) and each county identifying Planned Growth Areas (PGAs) and Rural Areas (RAs). Both PGAs and UGBs are areas that are deemed appropriate for higher density development than areas designated RA. As of August 2017, mapping prepared by the East Tennessee South RPO shows UGBs in Cocke County for the City of Newport and City of Parrottsville with some unincorporated areas within those UGBs. The remainder of the County is shown as a PGA for all privately-owned property, and a RA for all publicly owned property.
<i>Improving Manufacturing, Public Roads, and Opportunities for a Vibrant Economy (IMPROVE) Act</i>	The SR-32 project has been identified as an IMPROVE Act project. One of the main goals of the July 1, 2017 act, is “providing a safe, reliable, and debt-free transportation network...to ensure the next generation of Tennesseans will have a robust transportation system” (Governor Haslam, 2018).
<i>Executive Order (EO) No. 1: An Order Requiring A Statement Of Rural Impact And Recommendations For Better Serving Rural Tennesseans From All Executive Branch Departments</i>	In January 2019, Governor Bill Lee issued this EO directing all 22 state executive departments to assess their impact on distressed rural areas and provide recommendations on how they will accelerate plans to better serve rural Tennesseans. The EO prioritizes rural areas and targets plans to spur improvements in 15 rural distressed counties in Tennessee. Cocke County has been identified by the ARC as a distressed county.
Economic Development Plans, Programs, and Policies	
<i>Comprehensive Economic Development Strategy (CEDS), 2018-2021 (East Tennessee Development District)</i>	The CEDS is a strategic three-year plan that assesses current status and identifies resources and services that support regional economic and community stability and prosperity for the 16-county area, which includes Cocke County.
<i>Comprehensive Economic Development Strategy (CEDS), 2020 Annual Report (East Tennessee Development District)</i>	The 2020 annual report is an update of the CEDS on the performance goals, action plan, and Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis.
<i>State of Tennessee Four-Year Appalachian Development Plan (Tennessee Department of Economic & Community Development and Appalachian Regional Commission, October 2019)</i>	This plan establishes the process to develop and advance goals, objectives, strategies, priorities, and policies for Tennessee’s ARC region. It identifies broad issues and needs that the governor plans to address with ARC investments. The plan provides a comprehensive framework to enhance economic and community development in Appalachian Tennessee.
<i>Tennessee Appalachian Development Program Fiscal Year 2020 Strategy Statement (Tennessee Department of Economic & Community Development, August 2019)</i>	Each year the thirteen member states of the ARC submit strategy statements outlining their plans for the use of ARC funds in the region to the ARC. The 2020 statement identifies three key challenges facing Tennessee’s Appalachian counties: <ul style="list-style-type: none"> • Lack of adequate or outdated water and sewer, transportation and broadband infrastructure. • Lack of leadership. • High unemployment rate and lack of skilled workforce. The 2020 Strategy Statement identifies five funding priorities that align with ARC’s strategic plan: <ul style="list-style-type: none"> • Develop the infrastructure needed to create new jobs, including broadband infrastructure; • Provide training opportunities for the current and future workforce; • Invest in infrastructure that creates jobs in the industrial and tourism sectors; • Develop local and regional tourism assets; and • Build leadership capacity.
<i>East Tennessee South Rural Planning Organization Study Area Description (East Tennessee Development District, August 2017)</i>	This study provides land use, population, employment, commuting patterns and other information relevant to existing and future transportation needs in the region to be used as input into future transportation planning studies for the region.
<i>Investing in Appalachia’s Future: The Appalachian Regional Commission’s Five-Year Strategic Plan for Capitalizing on Appalachia’s Opportunities, 2016-2020 (Appalachian Regional Commission, November 2015)</i>	The ARC 2016-2020 Strategic Plan, <i>Investing in Appalachia’s Future</i> , established five goals: <ul style="list-style-type: none"> • Economic Opportunities - Invest in entrepreneurial and business development strategies that strengthen Appalachia’s economy. • Ready Workforce - Increase the education, knowledge, skills, and health of residents to work and succeed in Appalachia. • Critical Infrastructure - Invest in critical infrastructure, especially broadband; transportation, including the Appalachian Development Highway System; and water/wastewater systems. • Natural and Cultural Assets - Strengthen Appalachia’s community and economic development potential by leveraging the region’s natural and cultural heritage assets. • Leadership and Community Capacity - Build the capacity and skills of current and next-generation leaders and organizations to innovate, collaborate, and advance community and economic development.
Tennessee’s ThreeStar Program	The ThreeStar Program, which dates back to 1980, was designed by the Tennessee Department of Economic and Community Development (TNECD) to enhance the economic development of Tennessee communities. The program focuses on jobs and economic development, fiscal strength and efficient government, public safety, education and workforce development, and health and welfare. Participation in the ThreeStar program is encouraged and incentivized. Cocke County is an active participant in the ThreeStar program and has received several awards and monetary grants via the program.
Transportation Plans and Programs	
<i>Tennessee State Transportation Improvement Program (STIP)</i>	The STIP is a fiscally-constrained document that lists all regionally significant highway and public transit transportation projects proposed for funding under Title 23 United States Code (U.S.C.) (Highways) and Title 49 U.S.C. (Transit) as well as state and locally funded regionally significant transportation projects regardless of funding source. The STIP is developed every three years. The SR-32 project is included in the STIP for fiscal years 2017-2020 as STIP #1715020. The STIP for fiscal years 2020-2023 was approved December 2, 2019. The project is not currently listed in the 2020-2023 STIP; however the project has been identified as an IMPROVE Act project and will be added to the STIP prior to completion of the environmental review process.

Table 3-4 Legislation, Executive Orders, Plans, Policies and Tools (con't)

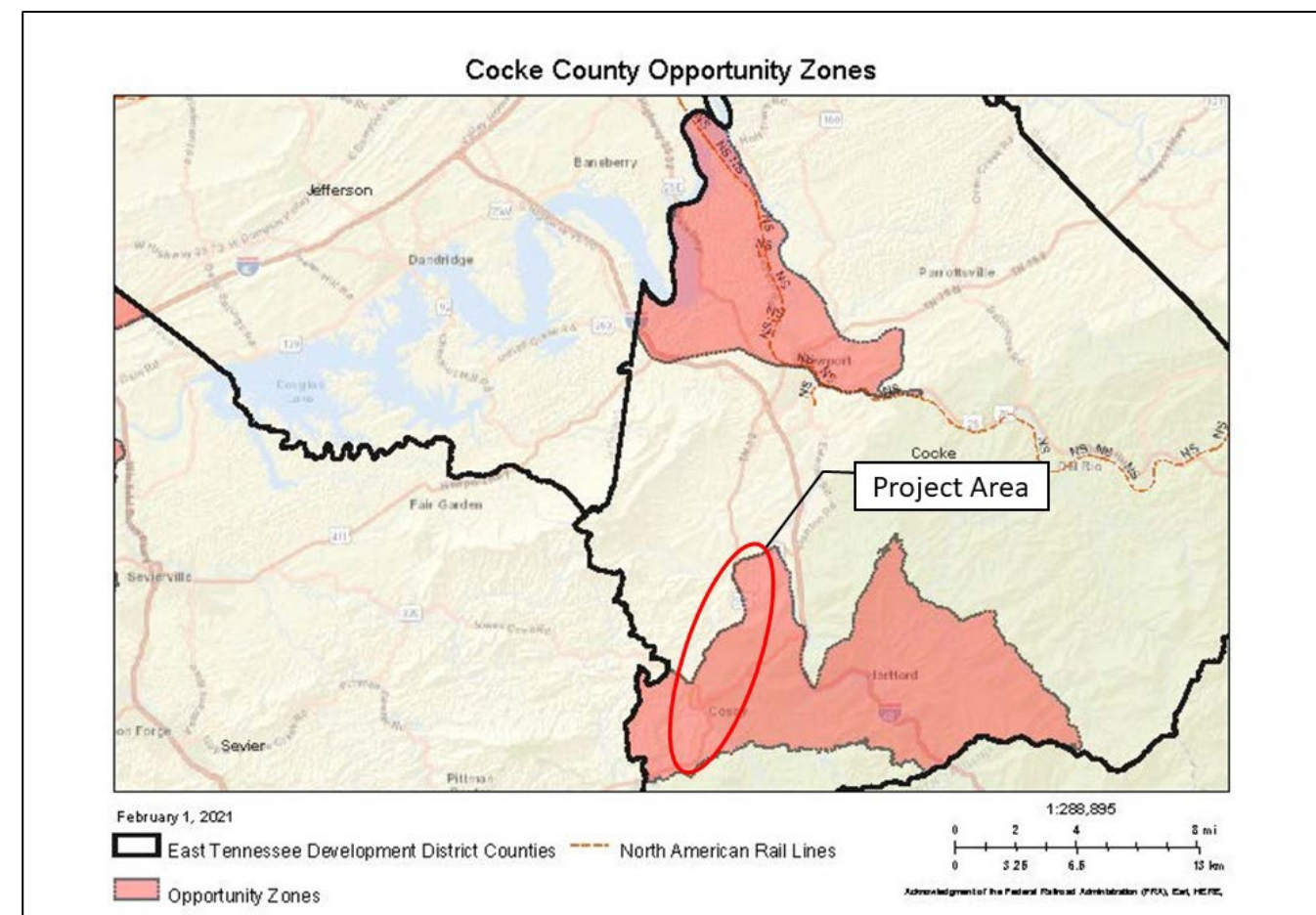
Tools	
Opportunity Zones	Opportunity zones were established by Congress in the Tax Cuts and Jobs Act of 2017. Opportunity zones are community development tools designed to drive long-term capital to low-income communities. The Act provides a federal tax incentive for investors to re-invest their capital gains into Opportunity Funds, which are specialized vehicles dedicated to investing in designated low-income areas. A locality qualifies as an Opportunity Zone if it has been nominated for that designation by the state and that nomination has been certified by the Secretary of the US Treasury. There are two designated Opportunity Zones in Cocke County. The Opportunity Zone that includes the SR-32 project area does not currently have any active projects. The Opportunity Zone north of Newport has one active project.

Figure 3-2 Cocke County Urban Growth Boundaries, Planned Growth Areas and Rural Areas



Source: Cocke County Growth Plan (October 1999)

Figure 3-5 Cocke County Opportunity Zones



Source: oz.tnecd.com/projects/

3.4 Step 3: Inventory Notable Features in the Study Area

Natural and human resources and socioeconomic conditions were evaluated to determine the notable features within the indirect effects study area. It should be noted that in order to have an indirect effect, the proposed project would need to have a direct effect on that resource. The proposed project is not anticipated to have a direct effect on the following resources; therefore, they were not analyzed for indirect effects:

- Environmental Justice
- Air Quality
- Historic Architectural Resources

3.4.1 Socioeconomic Resources

Residential and Commercial Land Uses

Residential land use within the project study area is scattered. The Stonebrook residential subdivision is located near the southern terminus of the project. Several smaller subdivisions and mobile home parks are also located along SR-32 within the study area. Commercial land uses within the study area include Carver's Apple Orchard and Restaurant; recreation-oriented businesses, including outfitters, campgrounds, vacation rentals; and small mom and pop retail stores.

The project is located within Census Tracts (CT) 9205.02 and 9207. According to the 2010 Census¹, 91.7 percent of CT 9205.02 and 100 percent of CT 9207 is classified as rural.

Figure 3-4 shows the land use in the project area.

Community Facilities

Community facilities within the project study area include two elementary schools, a high school, a US post office, a volunteer fire department, a Head Start center, a public library, two churches, a medical services facility, and a cemetery. The community facilities are shown on Figure 3-5.

3.4.2 Farmland

A review of the data contained in the US Census of Agriculture, which is conducted every five years, provides a picture of Coker County's farmland trends. 2017 is currently the most recent US Census of Agriculture data available. Between 1992 and 2012 the number of farms and the acres of land in farms trended toward fewer farms and less land being utilized as farmland, but the average size of farms increased. However, between 2012 and 2017 the number of farms and the acres of land being utilized as farmland saw an increase. Table 3-5 summarizes the trends in the county's farmland between 1992 and 2017.

Table 3-5 Farmland in Coker County: 1992-2017

	1992	1997	2002	2007	2012	2017	% Change (1992-2012)	% Change (2012-2017)
Number of Farms	995	886	880	705	625	645	(35.2%)	3.2%
Land in Farms (acres)	84,029	75,222	73,438	64,163	61,059	65,348	(22.2%)	7.0%
Average Size of Farm (acres)	84	85	83	91	98	101	20.2%	3.1%

¹ The US Census Bureau 2010 data is the most recent census data available for census tract information on rural versus urban classification.

Figure 3-8 Land Use in the Project Area

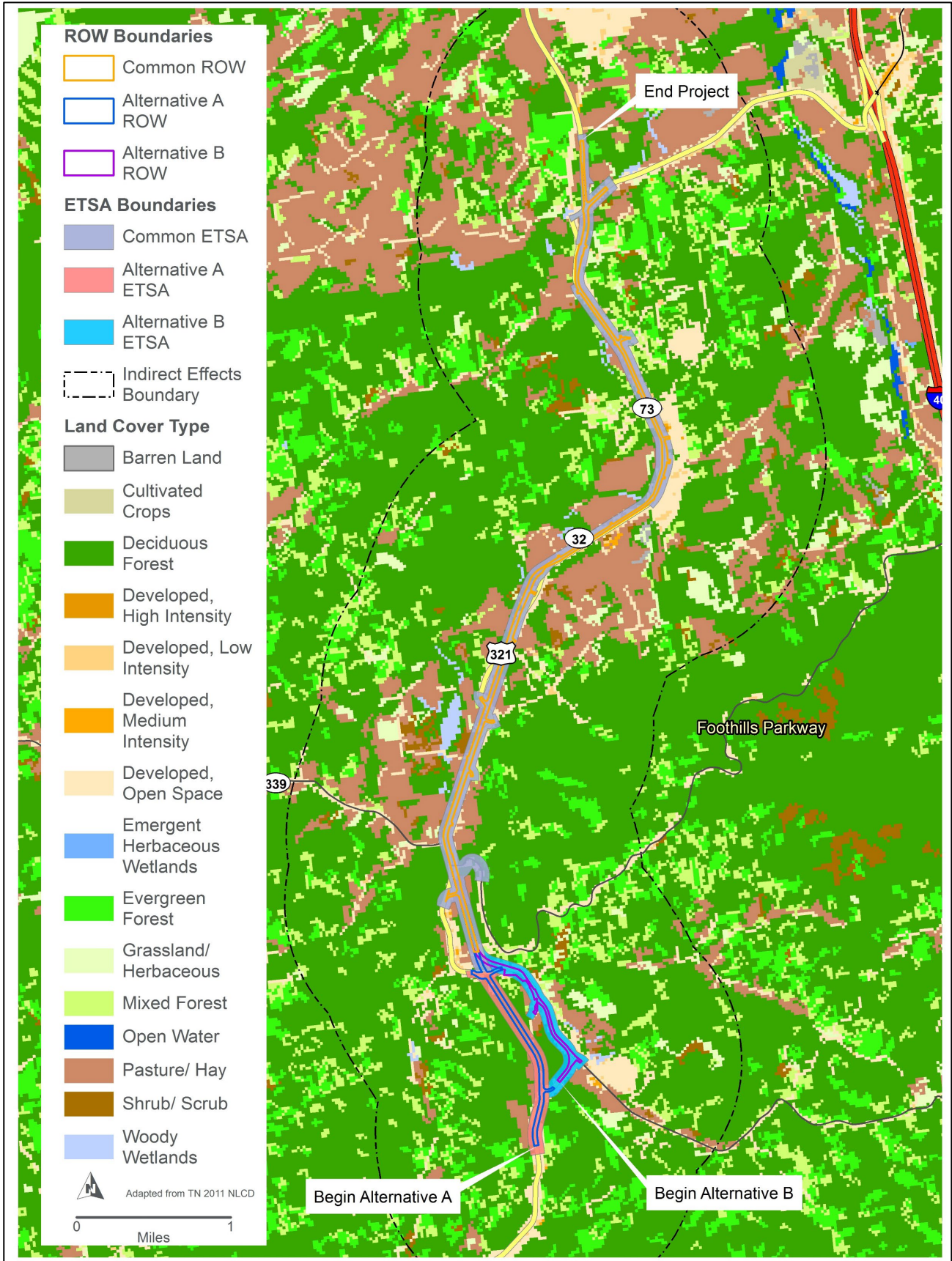
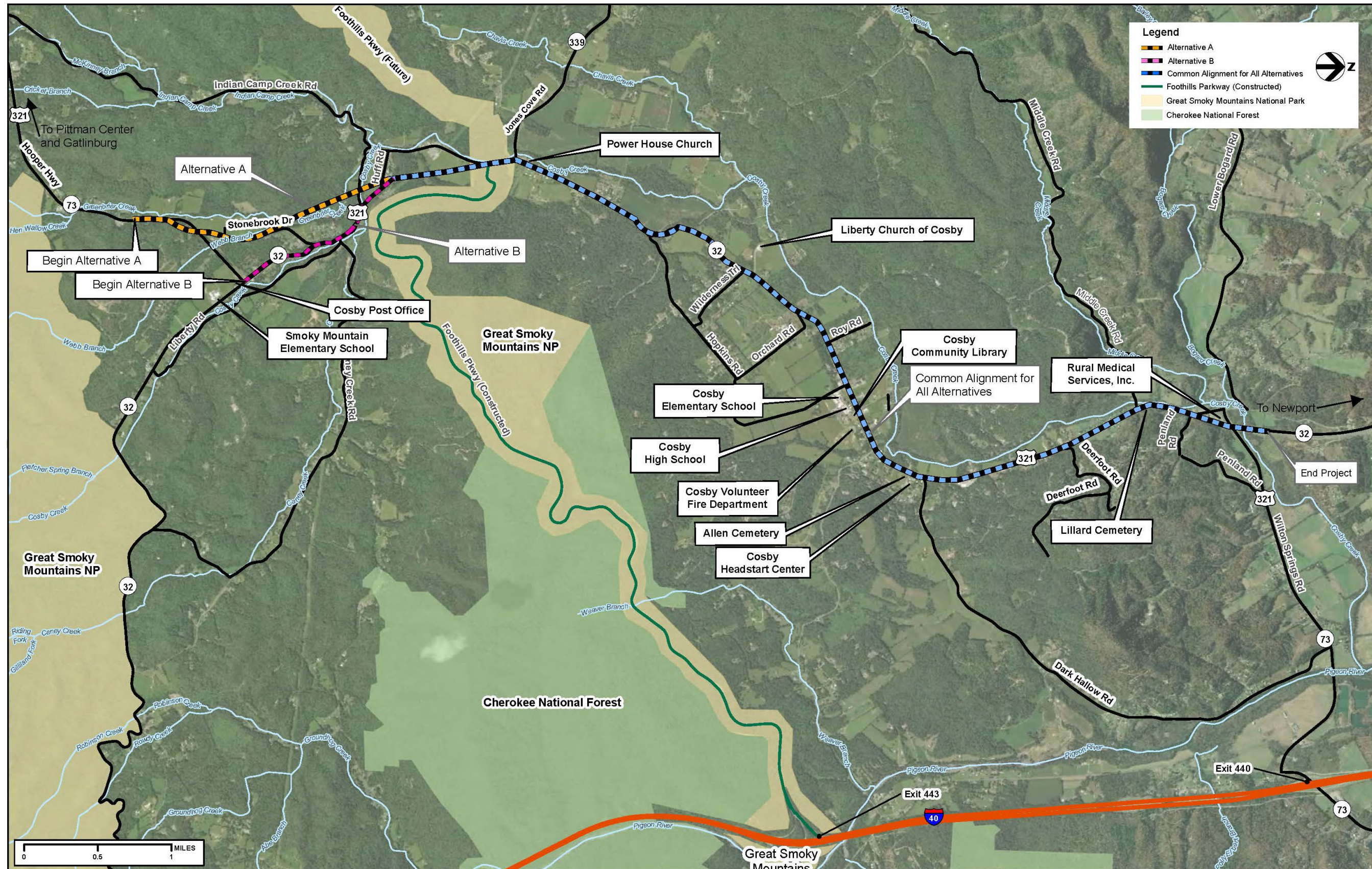


Figure 3-11 Community Facilities



3.4.3 Natural Resources

Terrestrial Resources

The project study area includes a variety of land cover including developed land (commercial, industrial, and residential); pasture, agricultural or early stages of old-field succession; and undeveloped forest and shrub/scrub thickets. Fifty-six percent of the land in the ETSA limits has been disturbed at some point through agricultural activities, roadway development, and real estate development. Forty-four percent of the land is undeveloped forest or shrub/scrub thickets. Currently, twenty-five percent of the project area is used as agricultural land, focused primarily on crop production or pasture. Most of the forested areas are located on steep slopes. Smaller portions of the project corridor have been developed as industrial, commercial, and residential lands which have limited habitat values. The forested habitats provide food, cover, nesting and/or roosting opportunities for numerous animal species, including bats and other mammals, as well as many types of reptiles, native birds, arachnids, and insects. Black bears also have sustained populations for many years in this area and sightings can be expected year-round. For more information on terrestrial resources, see *SR-32 Ecology Report* (KSWA, August 2021).

Water Resources

The proposed project is located within the Cosby Creek sub-watershed (12-digit HUC 060101060401) (**Figure 3-6**). The Cosby Creek sub-watershed encompasses approximately 12.3 percent of Cocke County. Approximately 21,000 linear feet of perennial and intermittent streams are located within the ETSA limits.

Three Exceptional Tennessee Waters (ETW) are located within the ETSA limits: Cosby Creek, Greenbrier Creek and Webb Branch. ETWs have the characteristics set forth in regulation by the Tennessee Water Quality Control Board. The characteristics of ETWs are good water quality, important ecological values, valuable recreational uses, and outstanding scenery. In ETWs, degradation cannot occur unless (1) there is no reasonable alternative to the proposed activity that would render it non-degrading and (2) the activity is in the economic or social interest of the public.

Approximately 2.25 acres of wetlands are located within the ETSA limits. Approximately 1.32 acres (approximately 59 percent) are forested palustrine wetlands, approximately 0.83 acre (approximately 37 percent) is emergent palustrine wetland, and approximately 0.10 acre (approximately 4 percent) is unconsolidated palustrine wetland.

For more information on water resources, see *SR-32 Ecology Report* (KSWA, August 2021).

Floodplains

One Federal Emergency Management Agency (FEMA)-regulated floodway is within the ETSA limits (**Figure 3-7**). Approximately 15 acres of floodway, which is associated with Cosby Creek, are within the ETSA limits. Approximately 78 acres of 100-year floodplain (Zone A, No Base Elevations Determined), associated with Cosby Creek, Caney Creek, and Indian Camp Creek, are located within the ETSA limits.

Threatened and Endangered Species

A review of the Tennessee Department of Environment and Conservation (TDEC) Rare Species Dataviewer was conducted in May 2020 for known observations of protected species within a one- to four-mile radius of the proposed project. The review did not identify any federally listed or candidate species within a one-mile radius of the project but identified one state-listed plant species of special concern, *Megaceros* (*Megaceros aenigmaticus*). The review did not identify any federally listed or candidate species within a one-mile to four-mile radius of the project. Eighteen state-listed species within the one-to four-mile radius were identified in the database (**Appendix B**). No state-listed species were observed during the field surveys conducted during 2019 for the ecology study.

Figure 3-14 Cosby Creek Sub-Watershed (HUC 060101060401)

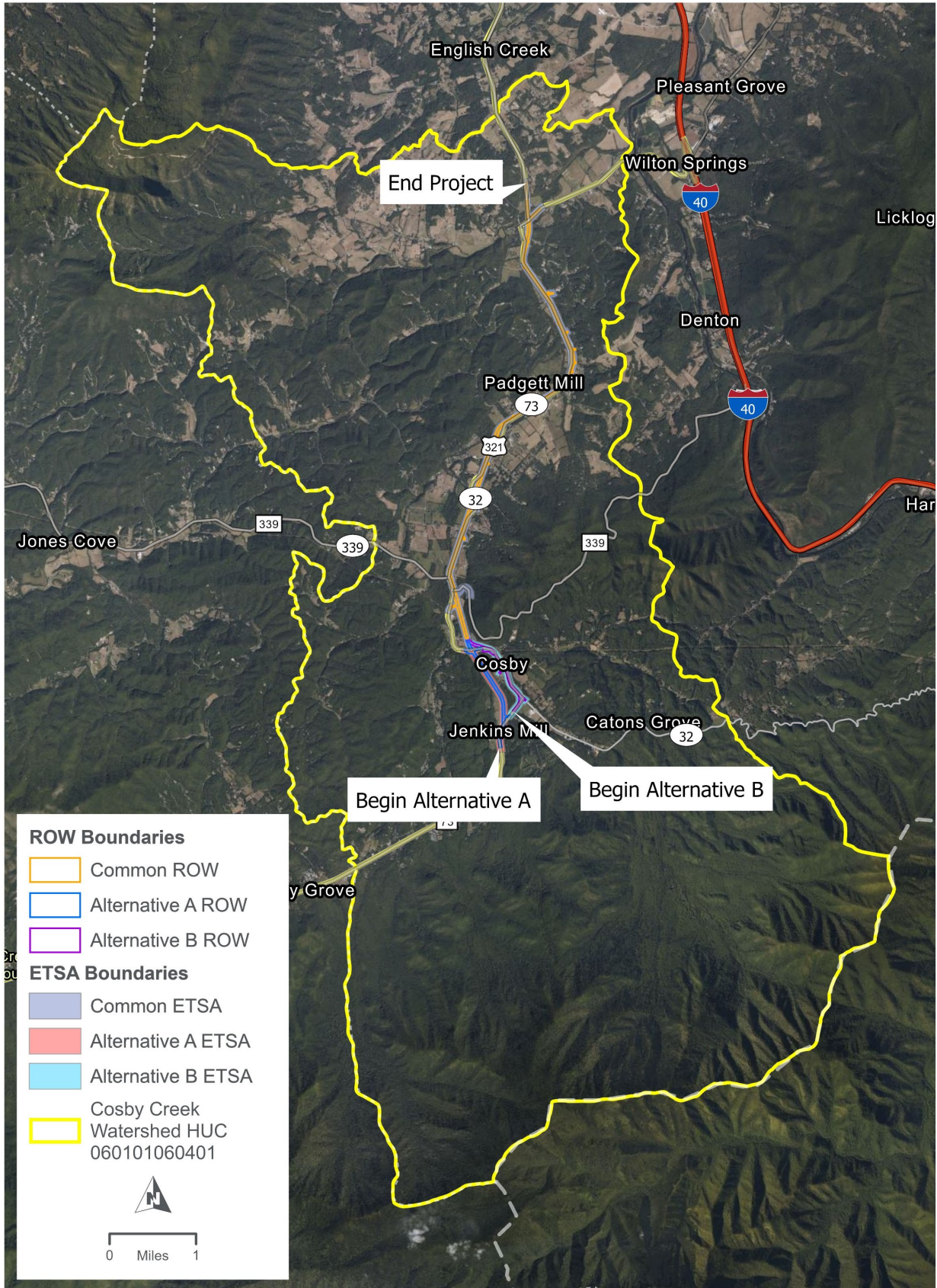
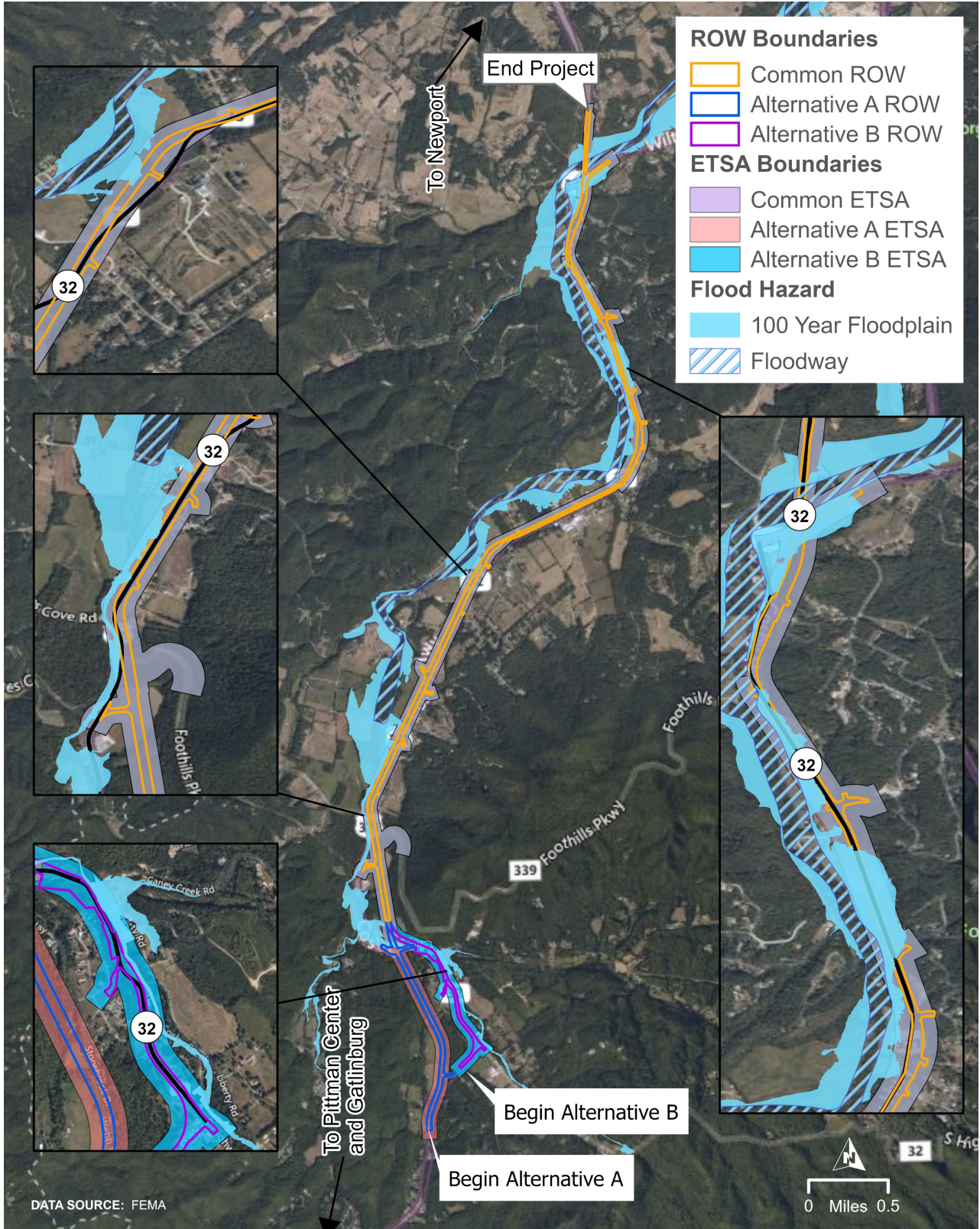


Figure 3-17 Floodways and Floodplains in Project Study Area



Pursuant to Section 7 of the Endangered Species Act, coordination was conducted with the US Fish and Wildlife Service (USFWS). The USFWS identified the potential for three federally protected species within the ETSA boundary of the project: gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*). A mist netting survey was performed during the period of June 8 and June 23, 2015, at 11 sites along the project corridor. Efforts resulted in the capture of 110 bats, including 49 federally endangered gray bats. No federally endangered Indiana bats or threatened northern long-eared bats were collected. In a letter dated July 25, 2018, the USFWS stated that they concurred with TDOT's determination of "not likely to adversely affect" for the Indiana bat and the northern long-eared bat. They also noted that the nearest gray bat cave is approximately 6.8 miles north of the project and that they were mainly concerned that water quality is maintained along travel/feeding corridors and that standard best management practices (BMPs) should be implemented to minimize potential for harm.

For more information on threatened and endangered species, see *SR-32 Ecology Report* (KSWA, July 2021).

3.4.4 Archaeological Resources

Results of the Phase II archaeological testing in the ETSA determined that one archaeological site (40CK248) is eligible for listing on the National Register of Historic Places (NRHP) since it has the potential to answer a number of research questions that would increase the knowledge of the Middle Woodland and Mississippian occupation of the Cosby Creek drainage.

3.4.5 Section 4(f) Resources

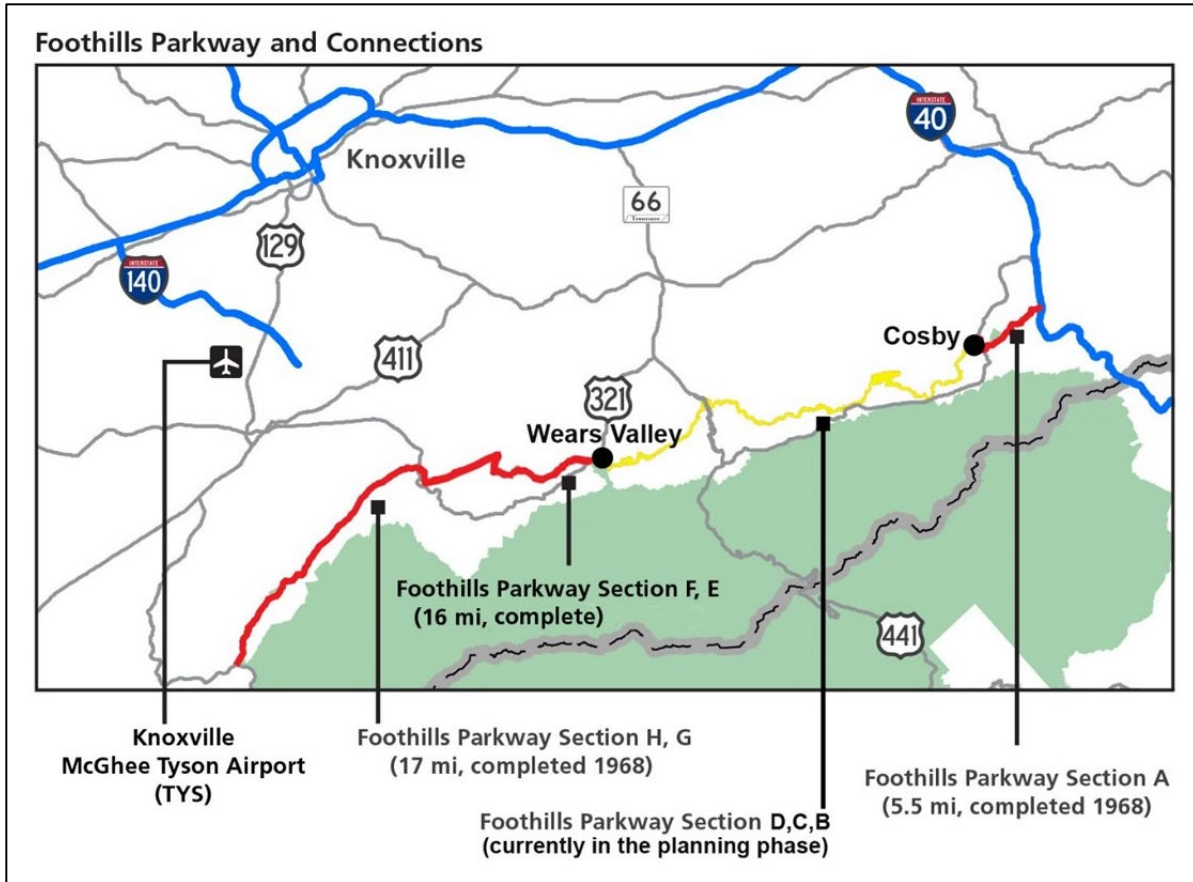
An investigation of the project area was conducted pursuant to Section 4(f) of the U.S. DOT Act of 1966 (49 USC 303), and FHWA's regulations (23 CFR 774). Section 4(f) protects publicly owned public parks, recreation areas, wildlife and waterfowl refuges, and public or private historic sites. Section 4(f) does not apply to NRHP eligible or listed archaeological sites that are important primarily because of what can be learned by data recovery and have minimal value for preservation in place. It has been determined that archaeological site 40CK248 is NRHP-eligible because of what can be learned from the site by data recovery, therefore, Section 4(f) does not apply to the site.

One Section 4(f) resource, the Foothills Parkway, was identified within the project ETSA. The project crosses the Foothills Parkway, which is part of the Great Smoky Mountains National Park (GSMNP). The Foothills Parkway which encompasses approximately 6000-7000 acres of GSMNP was one of seven scenic parkways authorized by congress in 1944, and the only one not fully constructed to date. The Foothills Parkway is managed by the NPS as part of GSMNP. Unlike other national parkways, Foothills Parkway is not a separate unit of the national park system. As planned, the 72-mile parkway follows the foothills of the Great Smoky Mountains along the western side of GSMNP from I-40 to US 129. **Figure 3-8** shows the completed and planned sections of Foothills Parkway. Right-of-way for the parkway was purchased many years ago and consists of a band ranging from 500 to 1000 feet wide.

To date, 38.5 miles of the parkway have been constructed and are open to traffic. This includes Section A, the 5.5-mile stretch at the northern end traversing Green Mountain in Cocke County from I-40 in the Pigeon River valley to SR-32 (US 321) in Cosby, and Sections E, F, G and H stretching 23 miles from the western terminus at US 129 along the Chilhowee Lake impoundment of the Little Tennessee River to US-321 in Wears Valley. The constructed portions represent the northern end and the western half of the proposed 72-mile parkway. When eventually constructed, Section B of the parkway would bridge across SR-32 and continue the parkway to the west. Section B, together with Sections C and D (also not yet constructed), would connect with the constructed Sections E through H in Wears Valley, thereby completing the parkway.

Access to the Cosby Campground and trail system, part of the GSMNP, is located on SR-32 south of the project terminus at SR-73.

Figure 3-20 Completed and Planned Sections of the Foothills Parkway



3.5 Step 4: Identify Impact-Causing Activities of Proposed Alternatives

Step 4 identifies the impact-causing activities of the proposed project so they may be compared with the goals and trends identified in Step 2 and the notable features identified in Step 3 to assess whether a potential for indirect effects exists (Step 5). The general types of impact-causing activities associated with the proposed project include earthwork (i.e. clearing, excavation, filling), erosion control, remediation, and changes in access. Impact-causing activities for the proposed project are summarized in [Table 3-6](#) and will be evaluated to identify the potential indirect effects in Step 5.

Table 3-6 Impact-Causing Activities for Proposed Project

Impact-Causing Activity	Project Specific Activity	Relevant Details
Socioeconomic resources		
Changes in traffic	<ul style="list-style-type: none"> Change in travel times 	<ul style="list-style-type: none"> Roadway improvements would improve traffic operations and travel times.
Land transformation and construction	<ul style="list-style-type: none"> Improved roadway facility 	<ul style="list-style-type: none"> Existing roadway would be widened in some area and roadway constructed on new location in others, transforming land from other uses to a transportation use. Temporary construction disturbance.
Right-of-way acquisition	<ul style="list-style-type: none"> Improved roadway facility 	<ul style="list-style-type: none"> Existing roadway would be widened in some areas and roadway constructed on new location in others, resulting in right-of-way acquisition and displacements.
Modification of roadway	<ul style="list-style-type: none"> Improved roadway facility 	<ul style="list-style-type: none"> Increased noise impacts.
Farmland		
Land transformation	<ul style="list-style-type: none"> Improved roadway facility 	<ul style="list-style-type: none"> Existing roadway would be widened in some area and roadway constructed on new location in others, transforming land from other uses to a transportation use.
Right-of-way acquisition	<ul style="list-style-type: none"> Improved roadway facility 	<ul style="list-style-type: none"> Existing roadway would be widened in some areas and roadway constructed on new location in others, resulting in right-of-way acquisition of farmland.
Natural Resources		
Land transformation and construction	<ul style="list-style-type: none"> Alteration of drainage; flow regime Reduced water quality Modification of FEMA floodplains/floodways 	<ul style="list-style-type: none"> Widening of existing roadway/construction on new location would increase impervious surface; increase runoff. Reduced quality of streams and wetlands due to reduced water quality. Loss or alteration of FEMA floodplains/floodways; attenuation of flood storage areas
Land alteration	<ul style="list-style-type: none"> Stream and wetland fill 	<ul style="list-style-type: none"> Fill could be placed in wetlands for construction of the roadway Culverts could be placed in streams for drainage.
Archaeological Resources		
Construction	<ul style="list-style-type: none"> Improved roadway facility 	Roadway would be constructed on new location, resulting in disturbance of archaeological resource.
Section 4(f) Resources		
Access alteration	<ul style="list-style-type: none"> Modification of access to Foothills Parkway 	<ul style="list-style-type: none"> Intersection improvements would improve access.

3.6 Step 5: Identify Indirect Effects for Analysis

As discussed in Section 2.1, indirect effects occur as induced growth effects or encroachment alteration effects.

3.6.1 Induced Growth Factors

In order for growth to occur in an area, several factors need to come together, only one of which is adequate and efficient roadway access. Other factors that influence the likelihood of an area to develop include sewer, water, internet access, appropriate zoning, and access to a skilled workforce. If an area is not zoned to allow for certain land uses, does not have public sewer or water, does not have an adequate source of skilled labor, and/or there is inadequate internet access, then businesses and industry are unlikely to choose that location for development even if there is adequate and efficient roadway access. The following sections discuss factors that are necessary for growth and factors that can constrain growth.

INDUCED GROWTH EFFECTS

Changes in the location, magnitude, or pace of future development that result from changes in accessibility caused by the project.

Project Purpose

The purpose of a project often provides an indication of a project's potential to cause indirect effects. If part of the purpose of the project is economic development, it is generally presumed that the project will induce growth. Even if a project does not have an explicit economic development purpose, it could still have the potential to induce growth by providing additional transportation capacity that fosters faster or more intense growth than would otherwise occur.

The purpose of the SR-32 project (Section 1.3) includes the following goals that could potentially result in induced growth:

- Improve connections/access to high tourism areas within the region**
In addition to serving local traffic in the Newport/Cosby area, SR-32 (US-321) serves as a regional facility, providing access to Pigeon Forge, Gatlinburg, the GSMNP, and other visitor attractions in the region. The main entrance to the GSMNP is located approximately 20 miles west of Cosby, Tennessee. The SR-32 (US-321) corridor is actively promoted by the Gatlinburg and Pigeon Forge Convention and Visitors Bureaus and various private recreational facilities as an alternative route to avoid congestion when traveling to these popular tourist destinations, particularly during the summer and fall seasons, Fourth of July, Thanksgiving, Christmas, and during major events. In addition to being promoted as a way to avoid congestion during peak travel seasons, the SR-32 (US-321) corridor is promoted as a scenic route to these popular tourist destinations.
- Meet the intent of the IMPROVE Act legislation**
One of the main goals of the IMPROVE Act is "providing a safe, reliable, and debt-free transportation network...to ensure the next generation of Tennesseans will have a robust transportation system" (Governor Haslam, 2018).
- Enhance economic development opportunities**
The project could support economic development anticipated in the project corridor. A number of planned developments are currently in the planning stages in or near the project study area. These planned developments are discussed in more detail in [Section 4.3.2](#).

Potential for Increased Mobility and Accessibility

The potential for travel time savings and/or increased accessibility is a key determinant of a project's potential to induce growth. If a project substantially reduces travel time or creates a new access point on a transportation facility, it may have the potential to induce growth (AASHTO, 2016).

A traffic analysis was conducted for the proposed SR-32 project for the No-Build Alternative and the two Build Alternatives (Alternatives A and B). The analysis included an operational analysis and a travel time analysis for 2020 (base year) and 2040 (design year). Since both Build Alternatives have similar geometries and typical sections, they would operate similarly. The results of the average travel speed and travel time analysis indicate that the proposed Build Alternatives are anticipated to increase travel speeds and improve travel time through the project limits (**Table 3-7, Table 3-8**). Additional information on the traffic analysis is detailed in the SR-32 *Traffic Operations and Safety Technical Memorandum* (HDR, June 2019).

Table 3-7 Comparison of Alternatives: 2020/2040 Travel Time

Alternative	Design Hour (Peak Hour) Travel Time (minutes)	Free Flow (Off-Peak) Travel Time (minutes)	Design Hour Travel Time Percent Improvement From No-Build	Free Flow Travel Time Percent Improvement From No-Build
2020				
No-Build	12.34	9.53		
Phase 1 Construction (Interim Build) Alternatives A and B	10.77	8.70	13%	9%
2040				
No-Build	12.58	9.45		
Phase 2 Construction (Full Build) Alternatives A and B	6.87	6.87	45%	27%

Source: SR-32 *Traffic Operations and Safety Technical Memorandum* (HDR, June 2020)

Table 3-8 Comparison of Alternatives: 2020/2040 Average Travel Speed

Segment	2020 No-Build Alternative	2020 Phase 1 Construction (Interim Build) Alternatives A and B	2040 No-Build Alternative	2040 Phase 2 Construction (Full Build) Alternatives A and B	Percent Change 2020 Phase 1 Construction (Interim Build) Alternatives A and B vs 2020 No-Build Alternative	Percent Change 2040 Phase 2 Construction (Full Build) Alternatives A and B vs 2040 No-Build Alternative
	Average Travel Speed (miles per hour)					
SR-73 to Stonebrook Drive	32.8	37.4	31.8	49.5	14.0%	55.7%
Stonebrook Drive to Caney Creek Road	37.1	42.4	36.2	49.5	14.3%	36.7%
Caney Creek Road to Huff Road	37.9	41.2	37.0	49.5	8.7%	33.8%
Huff Road to Foothills Parkway	35.7	42.4	34.7	49.5	18.8%	42.7%
Foothills Parkway to Jones Cove Road	37.1	42.4	36.2	49.5	14.3%	36.7%
Jones Cove Road to Hopkins Road	33.1	38.3	32.0	49.5	15.7%	54.7%
Hopkins Road to Wilderness Trail	35.8	42.5	34.7	49.5	18.7%	42.7%
Wilderness Trail to Roy Road	35.9	41.2	34.9	49.5	14.8%	41.8%
Roy Road to Penland Road	32.8	37.9	31.6	49.5	15.6%	56.7%
Penland Road to Wilton Springs Road ¹	29.4	47.0	28.2	49.5	59.9%	75.5%

¹The northern terminus of the project ties into the existing four-lane divided section of SR-32 north of Wilton Springs Road. The segment of the proposed project from Wilton Springs Road until it begins to transition for the tie-in has the same typical section as the segment from Penland Road to Wilton Springs Road. This segment was not included in the analysis since it was expected to perform similar to that segment.

Source: SR-32 Traffic Operations and Safety Technical Memorandum (HDR, November 2020).

Growth Trends and Projections

The basis for assessing induced growth is an understanding of the growth trends that would occur in the absence of the project (AASHTO, 2016).

- **Changes in Land Use**

Historic USGS 1:24000 topographic maps for the area ranging in dates from 1940 to 2003 and historic aerial photography from 1985 to 2015 (**Appendix C**) were reviewed to determine if and when land use changes occurred in the area. Based on a review of the historic topographic maps, land use in the area changed very little between 1940 and 1961. I-40 was constructed through the area in the late 1950s; however, the historic topographic maps from 1961 to 2003 and the historic aerial photography from 1985 to 2015 show that the land use in the majority of the area has remained relatively unchanged. Most of the change in land use over time area has been the conversion of forested land to agricultural land and scattered, low density residential and commercial uses, with most of the growth occurring in or around the City of Newport, which is the county seat. However, based on a July 15, 2020 discussion (**Appendix D**) with the president of the Cocke County Partnership, an organization that consists of the Newport/Cocke County Economic Development Commission, the Newport/Cocke County Chamber of Commerce, and the Newport/Cocke County Tourism Council, a number of recreational and commercial projects in varying stages of development are located in the vicinity of the SR-32 project, Newport, and Hartford as well as a proposed sewer plant. In addition to these proposed projects, a plan has been developed for a Cosby Festival and Event Center on SR-32 just north of the SR-73 (Hooper Highway)/SR-32 intersection. The known development projects within, immediately adjacent to, and near the SR-32 project are discussed in more detail in **Section 4.3.2**.

- **Population Trends**

As discussed in **Section 3.3**, the population growth trend for Cocke County has increased and decreased over time with the current population growth trending downward. Based on population projections from the Boyd Center for Business and Economic Research, University of Tennessee, Knoxville (October 2019), the Cocke County population is predicted to increase 1.4 percent between 2020 and 2030 and 0.6 percent between 2020 and 2040 (**Appendix A**).

- **Economic Trends and Conditions**

As discussed in **Section 3.3**, Cocke County has been identified by ARC as a distressed county. Based on the ACS 2015 to 2019 5-Year Estimates, approximately 24 percent of the population in Cocke County is considered low-income. The labor force has remained relatively stable until the recent COVID-19 pandemic. Tourism in the county was vibrant and growing until the recent COVID-19 pandemic. In 2019, Cocke County ranked 32 out of 95 Tennessee counties for the economic impact of tourism. As noted previously and discussed further in **Section 4.3.2**, a number of the developments currently planned in or near the project area are recreational in nature.

- **Growth/Planning/Economic Development Legislation, Executive Orders, Plans, Policies and Tools**

As discussed in **Section 3.3**, Cocke County has not adopted any zoning regulations and does not have a comprehensive land use plan. Legislation, executive orders, plans, and policies related to Cocke County are described in **Table 3-4**. A common thread that runs through many of the plans is an identified need for infrastructure and economic development.

Cocke County UGBs, PGAs, and RAs are shown on **Figure 3-2**. Cocke County Opportunity Zones are shown on **Figure 3-3**.

Constraints on Potential Growth

In order for growth to occur in an area, several factors need to come together, only one of which is adequate and efficient roadway access. Other factors that influence the likelihood of an area to develop include sewer, water, internet access, appropriate zoning, and access to a skilled workforce. If an area is not zoned to allow for certain land uses, does not have public sewer or water, does not have an adequate source of skilled labor, and/or there is inadequate internet access, then businesses and industry are unlikely to choose that location for development even if there is adequate and efficient roadway access.

In addition to the projected slow population growth, developable land within the county is limited due to the steep topography. Within the project limits, the developable land is even more limited due to the topography and the presence of the 100-year floodplains associated with Cosby Creek, Caney Creek and Indian Camp Creek and the floodways associated with Cosby Creek (**Figure 3-9**).

The *Comprehensive Economic Development Strategy (CEDS), 2020 Annual Report* prepared by ETDD is the latest annual update on the performance goals, action plan and SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis for the previous year. The report identified transportation, water and wastewater, and new public schools and additions as the top three infrastructure needs in Cocke County. The SWOT analysis for 2019 again identified the lack of broadband access as a weakness and noted that this weakness was exacerbated by the COVID-19 pandemic. The report stated that the lack of internet access is a hinderance for the workforce and for student populations in the ETDD region. Another weakness identified in the report was the impact that the COVID-19 pandemic had on the tourist industry, which prior to the pandemic was the second largest industry in Tennessee.

The high poverty rate in Cocke County and an opioid crisis in the county could also potentially be constraints on growth. According to the *CEDS 2020 Annual Report*, it is possible to show that higher per capita opioid prescription rates lead to higher county unemployment rates, lower rates of labor force participation and diminished employment to population ratios. As noted in the *CEDS 2020 Annual Report*, Cocke County ranks 20th in the nation for opioids prescribed per capita.

3.6.2 Encroachment Alteration Effects

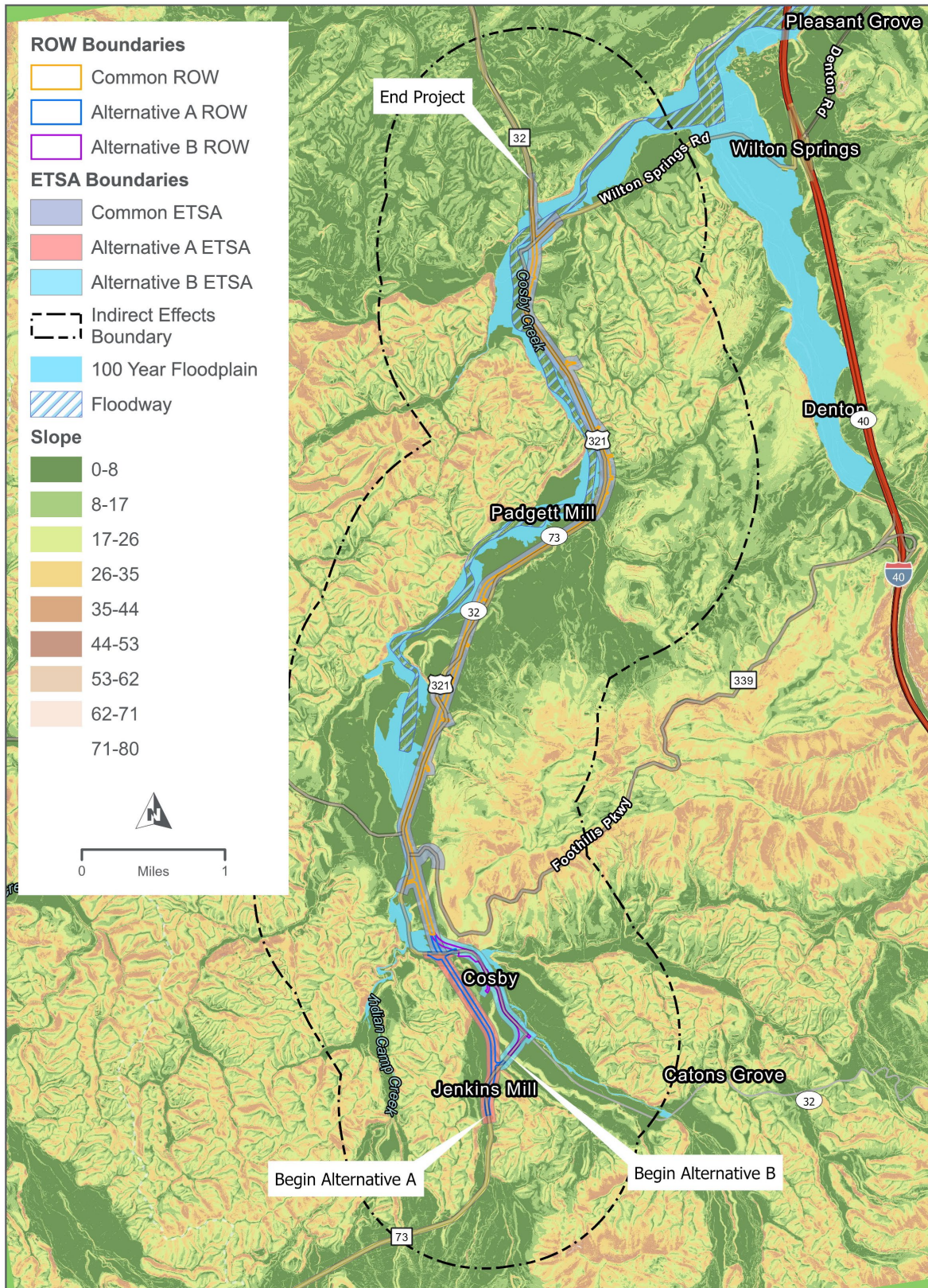
The proposed project involves the widening of existing SR-32 and the construction of some sections of the alignment on new location. Construction of the project has the potential to result in encroachment alteration effects on:

- Socioeconomic Resources
 - Residential/Business Resources
 - Community Facilities
- Farmland
- Natural Resources
 - Terrestrial Resources
 - Water Resources
 - Floodplains
 - Threatened and Endangered Species
- Archaeological Resources
- Section 4(f) Resources

ENCROACHMENT ALTERATION EFFECTS

Physical, chemical, or biological changes in the environment that occur as a result of the project but are removed in time or distance from the direct effects.

Figure 3-23 Constraints to Growth



3.7 Step 6: Analyze Indirect Effects and Evaluate Results

3.7.1 Potential for Induced Growth Effects

In this section, the data discussed for the five induced growth factors in Section 3.2 is analyzed using planning judgement to determine whether the project has the potential to induce growth. The potential for induced growth is rated as low, moderate, or high based on the criteria shown in Table 3-9.

Table 3-9 Criteria for Induced Growth

Potential for Induced Growth	Criteria
Low	<ul style="list-style-type: none"> • Travel time 2 minutes or less for an average trip¹ • Projected population growth less than 1.5 percent • Lack of adequate transportation, water, and/or wastewater infrastructure • Lack of skilled labor workforce² • Physical constraints to growth³
Moderate	<ul style="list-style-type: none"> • Travel time savings of 3 to 5 minutes for an average trip¹ • Projected population growth 1.5 to 3 percent • Transportation, water, and wastewater infrastructure exists and has capacity for growth or expansion • Adequate supply of skilled labor • Adequate land available for development
High	<ul style="list-style-type: none"> • Travel time savings more than 10 minutes for an average trip¹ • Projected population growth greater than 3 percent • Transportation, water, and wastewater infrastructure exists and has capacity for growth or expansion • Access to surplus of skilled labor • Land suitable for development is readily available

¹Average trip defined as approximately 10 miles one way.

²Segment of the workforce with specialized know-how, training, and experience to carry out more complex tasks.

³Physical constraints to growth include things such as presence of floodplains/floodways, steep slopes, lack of available land.

Project Purpose

While the purpose of the project is not explicitly economic development, it does include improving connections/access to high tourism areas within the region, enhancing economic development opportunities, and meeting the intent of the IMPROVE Act, which is focused on improving the economy, all items that would normally lead to a presumption that the project could induce growth.

Potential for Increased Mobility and Accessibility

The proposed project is projected to improve travel times along the 7.1-mile project in the Build Year (2020) by 1.57 minutes during peak hour and by 0.83 minute during off peak period. These travel time savings are based on construction of the Interim Build, which improves shoulders, straightens curves, improves sight distances, and adds climbing lanes and turn lanes but does not add capacity.

Travel times are projected to improve by 5.71 minutes during peak hour and 2.58 minutes during off peak period in the Design Year (2040). These travel time savings are based on construction of the Full Build, which would provide one additional travel lane in each direction, providing additional capacity.

Based on data presented in *NCRHP Project 25-25 Task 22: Forecasting Indirect Land Use Effects of Transportation Projects* (TRB, 2007), if the travel time savings is less than two minutes for an average trip, such as a trip between Wilton Springs Road and SR-73, the potential for land use change is none to very weak. If the travel time savings is between two to five minutes for that trip, then the potential for land-use change is low to moderate.

Part of the purpose of the proposed project is to improve connections/access to high tourism areas within the region, which in turn has the potential to induce growth. However, while the proposed project would improve an additional seven miles of the overall US-321 corridor between Newport and Gatlinburg, approximately 45 percent of the corridor would remain an unimproved two-lane roadway. The additional travel time savings that the proposed project would add to the overall corridor of less than six minutes would have a low potential to influence land-use change.

Growth Trends and Projections

The ARC has identified Cocke County as an economically distressed county that has a number of obstacles to overcome before growth occurs. Population growth between 2020 and 2040 is projected to stagnate, with a forecast increase of 0.6 percent during that 20-year time. Land use in the project area has remained relatively unchanged at least since the early 1980s. Most of the change that has occurred has been the conversion of forested land to agricultural land and scattered, low density residential and commercial uses, with most of the growth occurring in or around the City of Newport, which is the county seat. However, according to recent discussions with the Cocke County Partnership (2020) two large recreational projects and several small recreational and commercial projects are planned in the vicinity of the SR-32 project, Newport and Hartford and are in varying stages of development (see [Section 4.3.2](#) for more detail). These projects are not dependent on the SR-32 project.

Tourism in Cocke County, until the recent COVID-19 pandemic has been a growing industry. Since the majority of the planned development in and near the project is recreational in nature, it appears that tourism is driving the growth in the area, independent of any transportation improvements.

Based on the fact that the development that is currently planned for the area is moving forward regardless of whether the SR-32 project is built, population growth is stagnant, the poverty rate is high, and the county is economically distressed, the potential for the SR-32 project to induce growth is low.

Growth/Planning/Economic Development Legislation, Executive Orders, Plans, and Policies

The City of Newport has a planning department and has zoning and land use controls. Cocke County has not adopted any zoning regulations and does not have a comprehensive land use plan, factors that indicate a potential for unplanned growth. A number of plans that have been developed for the region focus on the need for economic development and infrastructure to support that development. The proposed project has been identified as an IMPROVE Act project, which also focuses on “is “providing a safe, reliable, and debt-free transportation network...to ensure the next generation of Tennesseans will have a robust transportation system” (Governor Haslam, 2018).

Based on the focus on economic development and infrastructure to support that development, growth in the area is a desired outcome. However, based on the physical constraints to growth, stagnant population growth, a high poverty rate, and a being an economically distressed county, induced growth is not expected to occur as a result of the proposed project and is therefore categorized as low according to [Table 3-9](#).

Constraints on Potential Growth

As noted in [Section 3.6.1](#), in order for growth to occur in an area, several factors need to come together, only one of which is adequate and efficient roadway access. A number of those factors are currently either lacking or very limited in Cocke County in general and in the project area specifically. The area will need access to efficient, reliable broadband, an adequate supply of skilled labor, access to healthcare, and improved transportation, water and wastewater infrastructure. Growth in the area is also constrained by the mountainous terrain. In addition to being constrained by the mountainous terrain, growth along the project corridor is further constrained due to the presence of the 100-year floodplains associated with Cosby Creek, Caney Creek and Indian Camp Creek and the floodways associated with Cosby Creek ([Figure 3-9](#)). The high poverty rate in Cocke County and an opioid crisis in the county could also potentially be constraints on growth. According to the *CEDS 2020 Annual Report*, it is possible to show that higher per capita opioid prescription rates lead to

higher county unemployment rates, lower rates of labor force participation and diminished employment to population ratios.

It should be noted that one of the planned projects in the immediate SR-32 project area is a sewer facility. The project is currently undergoing a feasibility study. As currently discussed, the facility would be able to treat up to 2,000 gallons a day. At this time, it is unknown whether the facility will be publicly or privately owned.

Given all of the current constraints on potential growth in the project area, it is not likely that the SR-32 project will induce growth, even if the sewer facility is constructed.

Summary

While the SR-32 project does have the potential to increase mobility and accessibility in the project corridor the improvement in travel time is not anticipated to be of a magnitude that has the potential to result in induced growth. The improvement in travel time is anticipated to benefit local traffic more than traffic traveling to Gatlinburg. The less than six-minute travel time savings in the trip between Newport and Gatlinburg is not likely to entice a traveler unless the other routes are heavily congested, or the traveler is looking for a more scenic route to travel. Overall, the project would only improve 7.1 miles of the 31-mile US-321 corridor between Newport and Gatlinburg. As shown in [Figure 1-2](#), there is still a large portion of that route that is an unimproved two-lane roadway with narrow shoulders. The limited travel time savings is not likely enough of a time savings to induce the development of bedroom communities² in the project area.

The tourist industry is a large economic driver in Cocke County. Much of the currently planned development in and near the project area is recreational in nature and is not dependent on the construction of the SR-32 project. The recreational development is being driven by tourist demand given the close proximity of the project area to the GSMNP and tourist attractions located in Sevierville/Gatlinburg and not by transportation improvements.

Due to the constraint of the mountainous terrain, lack of broadband, an adequate supply of skilled labor, the need for improved transportation and water and wastewater infrastructure, and limited travel time savings, the potential for induced growth as a result of the proposed project is low.

Because induced growth is not anticipated to occur as a result of the SR-32 project, effects on socioeconomic resources, farmland, natural resources, archaeological resources, and Section 4(f) resources from induced growth are not anticipated.

3.7.2 Potential for Encroachment Alteration Effects

As mentioned previously, encroachment alteration effects are Physical, chemical, or biological changes in the environment that occur as a result of the project but are removed in time or distance from the direct effects. The potential for the SR-32 project to result in encroachment effects is discussed in the following sections.

Socioeconomic Resources

- **Residential and Business Resources**

The project would convert land used for residential and commercial uses to transportation right-of-way and is anticipated to result in 21 to 24 residential relocations and 7 to 11 business relocations. Relocations would be completed in accordance with the rules, policies, and procedures set forth in the *Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended, the *Uniform Relocation Assistance Act of 1972*, implementing regulations, TCA 12-11-101 through 119, the *State of Tennessee Relocation Assistance Brochure* and Chapter IX of the State of Tennessee Department of Transportation *Right-of-Way Manual*. The proposed project would not divide any communities and, while there may be temporary disruptions to travel patterns during

² Bedroom communities are those residential communities where most of the people commute to a nearby city for work.

construction, there would be no long-term disruption to access. The project is not anticipated to result in any encroachment alteration effects to the existing residential and commercial land uses.

- **Community Facilities**

While there may be temporary disruptions to travel patterns during construction, there would be no long-term disruption to access. The project is not anticipated to result in any encroachment alteration effects to the existing community facilities.

- **Noise**

The noise analysis is for the design year 2040 and includes projected traffic volumes for the project as well as well as forecasted background traffic growth and other planned and programmed projects in the area. The widening and realignment of SR-32 could cause a redistribution of traffic on the surrounding roadway network and affect development and land use patterns in the project area. These situations could result in higher traffic volumes at locations near roadways beyond the project limits. However, a doubling of the traffic volume is required to increase the hourly equivalent sound level by 3 dBA, which is usually the smallest change in sound levels that people can detect without specifically listening for the change. Traffic volumes are not anticipated to double as a result of the redistribution of traffic or changes in development, so any increases in sound levels beyond the project would not be substantial according to TDOT's noise policy. As a result, the project is not predicted to result in any encroachment alteration effects.

Farmland

The project would convert farmland to transportation right-of-way. While much of the conversion involves slivers of farmland adjacent to existing right-of-way, there is the potential to split several farm fields. An encroachment effect could occur if, in the future, the impacts to the farm fields alter the way the farmer needs to farm the land. An example would be if a farm field was split by the roadway, resulting in additional expense to access the field.

Natural Resources

- **Terrestrial Resources**

Some forest fragmentation is anticipated as a direct result of the project. Fragmentation creates more edge habitat and has the potential to create barriers for some species. As a result, an encroachment alteration effect could result from fragmentation if it results in changes in species behavior and reduced biological diversity. Removal of the forest could also result in an encroachment alteration effect if it encourages the spread of opportunistic invasive species.

- **Water Resources**

Runoff from the constructed roadway could result in an encroachment alteration effect through the introduction of pollutants such as heavy metals, salts, organic compounds, and nutrients into nearby streams which could, over time, result in degradation of the aquatic habitat. The habitat degradation could result in changes in the microbenthic community structure and composition, which could in turn affect the fish and other amphibian populations that rely on them as a food source, as well as the birds and mammals that prey on the fish and amphibians.

Additionally, construction of the project could alter hydrology in the area, which could impact streams and wetlands outside the right-of-way limits and result in encroachment alteration effects. Changes in water flow regimes could result in changes to the natural stream channel such as increased erosion and destabilization of channel banks downstream.

- **Floodplains/Floodways**

Construction of the project could result in an encroachment alteration effect if it alters existing drainage patterns and flood flows.

- **Threatened and Endangered Species**

The primary encroachment effect the project could have on the federally-protected species would be degradation of water quality along the travel/feeding corridors. USFWS noted this as a main concern for the gray bat.

Archaeological Resources

In the section of the proposed project shared by both Build Alternatives, the proposed project would result in the disturbance of one NRHP-eligible archaeological resource within the proposed right-of-way. While the project would result in an adverse effect to the resource within the proposed right-of-way, the remainder of the resource outside of the right-of-way is anticipated to remain intact. The project is not anticipated to result in an encroachment alteration effect on the resource.

Section 4(f) Resources

In the section of the proposed project shared by both Build Alternatives, the proposed project would result in a realignment of SR-32 immediately south of the existing SR-32/Foothills Parkway intersection to remove an S-curve and improve the geometric curvature of the road to meet TDOT's current roadway design standards. The alignment of the proposed project would shift SR-32 to the east of its current location in the vicinity of the existing SR-32/Foothills Parkway intersection. A new alignment was designed for that section of the Foothills Parkway to accommodate its connection to re-aligned SR-32. The proposed design includes turn lanes, which currently do not exist.

Re-alignment and widening of SR-32 would result in a larger footprint for SR-32 as it crosses through the Foothills Parkway property (**Figure 3-10**). The acreage difference between the footprint of the existing SR-32 easement and that of the easement required for the proposed project is 4.08 acres. The encroachment on Foothills Parkway property would not adversely affect the qualities, activities, features, or attributes of the resource that qualify it for protection under Section 4(f). The new SR-32/Foothills Parkway intersection, with turn lanes, will result in improved access for recreational traffic.

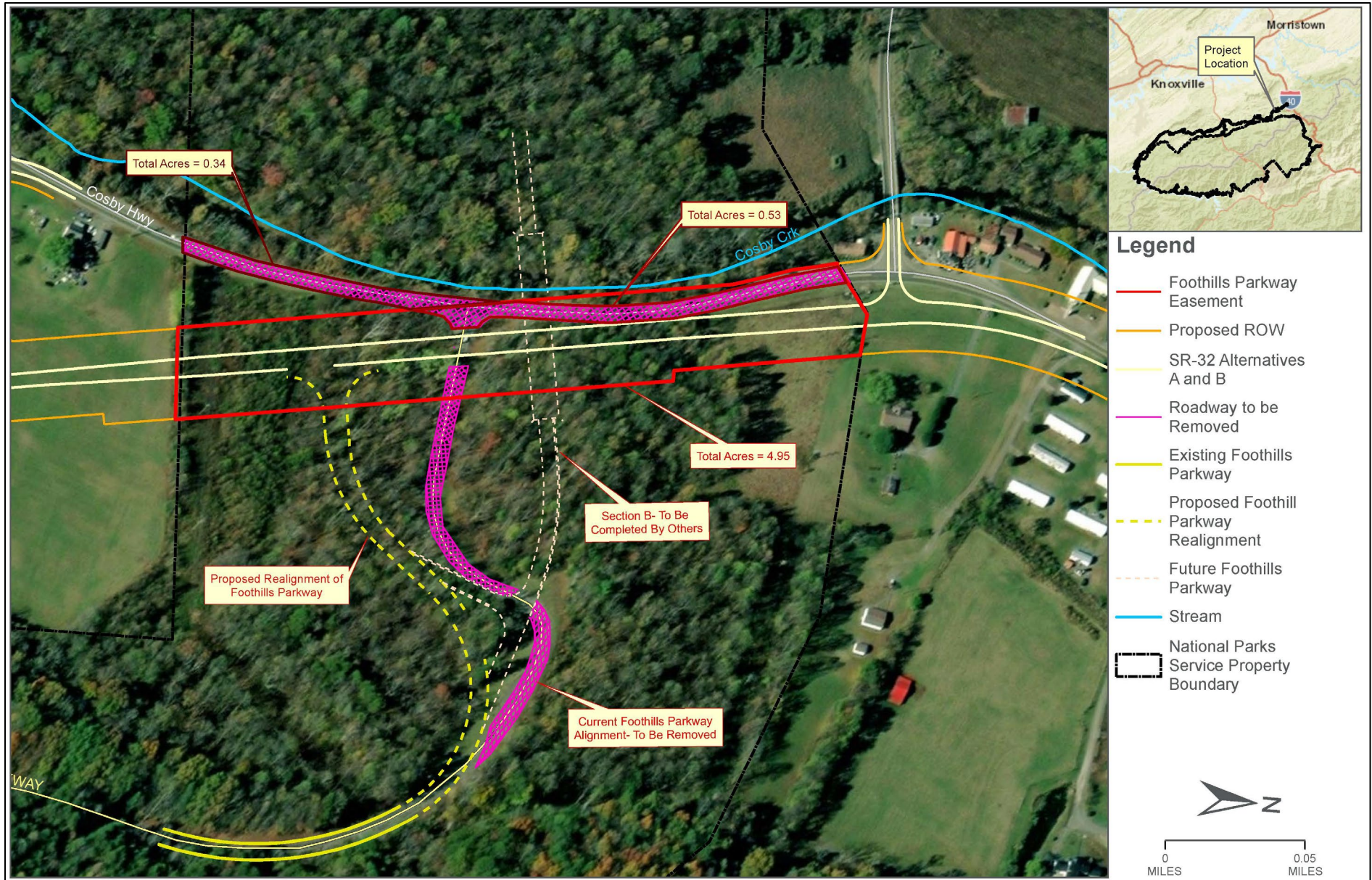
Visual Resources

The proposed project is likely to result encroachment alteration effects to the visual landscape due to potential changes in vegetation patterns over time in areas cleared for road construction and areas of cut and fill slopes, which could result in minimal to moderate impacts to the visual landscape.

Summary

The project could potentially result in encroachment effects to farmland, natural resources, Section 4(f) resources, and visual resources.

Figure 3-26 Proposed Realignment of Foothills Parkway Intersection



3.8 Step 7: Assess Consequences and Develop Mitigation

Although the identification of potential indirect effects can be made, insufficient data exist to fully assess the consequences of these indirect effects. For example, while it is reasonable to predict that direct impacts to water resources would indirectly affect water quality, there is not enough information to determine how far downstream such impacts would persist or if such impacts are related to project specific activities. The consequences of indirect effects related to the proposed project would be limited because:

- The proposed project would improve an existing transportation corridor within which potential induced growth is not anticipated due to the constraints discussed in the sections above. This, along with regulatory mechanisms, such as Executive Order 11988 to prevent development in floodplains, Section 404 of the Clean Water Act requiring wetland and stream impacts be avoided and minimized, and a Section 401 Water Quality Certification to protect water quality, limit the potential for substantial indirect impacts due to new encroachment and alteration.

Impacts of the proposed project can be minimized and mitigated in a number of ways, as discussed in the following sections.

Socioeconomic Resources

Temporary disruptions in access and travel patterns during construction would be minimized through advance notice to affected residents and businesses. Emergency and fire services would be coordinated to ensure that emergency routes are adequate during construction.

Farmland

Coordination with owners of farmland during design can potentially help minimize impacts through the development of design solutions that allow the land to continue to be farmed effectively.

Natural Resources

- **Terrestrial Resources**
 - Temporary impacts would be reduced through proper location and minimization of construction staging areas and construction access roads.
 - To prevent the spread of invasive species during construction, contractors would adhere to TDOT's specifications and any applicable regulations.
 - The use of native trees, shrubs, and warm season grasses, where practicable, would be implemented for the stabilization of disturbed areas and to prevent revegetation of disturbed areas by harmful exotic plants.
- **Water Resources**
 - Efforts to further minimize impacts to water resources would occur during final design.
 - Implementation of stringent BMPs would minimize potential water quality impacts.
 - Implementation of temporary and permanent stormwater management, erosion, and sediment controls during construction.
 - Appropriate design of roadway and culverts to avoid or minimize impacts to flow regimes.
 - Compensatory mitigation for unavoidable stream and wetland impacts.
- **Floodplains/Floodways**
 - Hydraulic analysis of floodplain/floodway crossings to meet the FEMA No-Rise requirements.

- **Threatened and Endangered Species**

- Implementation of BMPs.
- Prohibition on construction of the replacement of the SR-32 bridge over Cosby Creek just north of Wilton Springs Road between April 1 and August 14.

Section 4(f) Resources

Abandoned remnants of the old SR-32 and Foothills Parkway will be scarified and can be planted with native vegetation to revert to natural vegetative cover. While the easement will be acquired for a five-lane SR-32, vegetation will only be cleared to accommodate the initial interim build construction of the three-lane cross section; additional clearing will not be completed until the five-lane build out.

4.0 CUMULATIVE EFFECTS ANALYSIS

4.1 Methodology

An analysis of cumulative effects involves answering the following questions (FHWA, 2014):

- What is the geographic area affected by the project?
- What are the resources affected by the project?
- What are the other past, present, and reasonably foreseeable future actions that have had/could have an impact on these resources?
- What were those impacts?
- What is the overall impact on these various resources from the accumulation of the actions?

4.2 Affected Resources and Associated Geographic and Temporal Boundaries

Since a cumulative effects analysis is resource specific, individual resource boundaries were reviewed to determine appropriate cumulative effects boundaries. The affected resources considered for the cumulative effects analysis are listed in [Table 4-1](#). The geographic boundaries for the resources considered for the cumulative effects analysis are listed in [Table 4-2](#) and shown in [Figure 4-1](#) through [Figure 4-6](#).

The cumulative effects analysis must consider past, present and reasonably foreseeable future actions. The timeframe used for the analysis was 1970 to 2040. Selection of this timeframe was based on a review of available historic aerial photography ([Appendix C](#)) and US Census data from 1950 to 2018.

Table 4-1 Resources Considered for Cumulative Effects Analysis

Resource		Alternative	Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Included in Cumulative Effects Analysis? If No, Why Not?
Socioeconomic Resources	Residential and Commercial Land Uses and Community Facilities	Alternative A	<ul style="list-style-type: none"> 21 residential relocations 7 business relocations 1 non-profit relocation (church) 	<p>No</p> <p>The proposed project in not expected induced growth.</p>	Yes
		Alternative B	<ul style="list-style-type: none"> 24 residential relocations 11 business relocations 1 non-profit relocation (church) 		
	Environmental Justice	Alternative A	<ul style="list-style-type: none"> No EJ populations were identified within the project ETSA limits. 	<p>No</p> <p>No EJ populations identified within study limits.</p>	<p>No</p> <p>The Build Alternatives would not result in direct or indirect effects on EJ populations since no EJ populations were identified within study limits.</p>
		Alternative B			
Farmland	Alternative A	<ul style="list-style-type: none"> Conversion of 29 acres of prime farmland to transportation right-of-way 	<p>Yes</p> <p>Encroachment alteration effects due conversion of farmland to transportation right-of-way could include reduced viability of the farm fields.</p>	Yes	
	Alternative B	<ul style="list-style-type: none"> Conversion of 34 acres of prime farmland to transportation right-of-way 			
Economic Conditions	Alternative A	<ul style="list-style-type: none"> Improved travel time of 1.57 minutes in peak period and 0.83 minute in off-peak period for the Interim Build (2020) Improved travel time of 5.71 minutes in peak period and 2.58 minutes in off-peak period for the Full Build (2040) 	<p>No</p> <p>The proposed project is not expected to induce growth.</p>	<p>No</p> <p>The Build Alternatives are not anticipated to result in induced growth.</p>	
	Alternative B				
Air Quality	Alternative A	<ul style="list-style-type: none"> Cocke County is currently in attainment for all regulated pollutants. No adverse MSAT effects. 	<p>No</p> <p>The proposed project is not expected result in any indirect effects.</p>	<p>No</p> <p>The Build Alternatives would not result in direct and indirect effects on air quality.</p>	
	Alternative B				
Noise	Alternative A	<ul style="list-style-type: none"> Interim Build: Noise impacts to 55 noise-sensitive land uses. Full Build: Noise impacts to 59 land uses. 	<p>No</p> <p>The proposed project is not expected result in any indirect effects.</p>	<p>No</p> <p>The Build Alternatives would not result in indirect effects.</p>	
	Alternative B	<ul style="list-style-type: none"> Interim Build: Noise impacts to 49 noise-sensitive land uses. Full Build: Noise impacts to 50 land uses. 			
Natural Resources	Terrestrial Resources	Alternative A	<ul style="list-style-type: none"> Forest fragmentation. Conversion of 53 acres of wildlife habitat to transportation right-of-way. 	<p>Yes</p> <p>Encroachment alteration effects due to forest fragmentation and conversion of habitat to transportation right-of-way.</p>	Yes
		Alternative B			
	Water Resources	Alternative A	<ul style="list-style-type: none"> Approximately 3,535 linear feet of impacts to streams. Approximately 1,940 linear feet of impacts to wet weather conveyances. Approximately 0.63 acre of impacts to wetlands. 	<p>Yes</p> <p>Encroachment alteration effects due to changes in hydrology, introduction of pollutants.</p>	Yes
		Alternative B			

Table 4-1 Resources Considered for Cumulative Effects Analysis (con't)

Resource	Alternative	Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Included in Cumulative Impacts Analysis? If No, Why Not?	
Natural Resources	Floodplains/ Floodways	Alternative A	<ul style="list-style-type: none"> 14.0 acres of floodplain impact 0.37 acre of floodway impact 	Encroachment alteration effects due to alteration of drainage patterns and flood flows. Yes	Yes
		Alternative B	<ul style="list-style-type: none"> 13.4 acres of floodplain impact 0.38 acre of floodway impact 		
	Threatened and Endangered Species	Alternative A	<ul style="list-style-type: none"> Not likely to adversely affect the Indiana bat, northern long-eared bat, or the gray bat 	Encroachment alteration effects to water quality along bat travel/feeding corridors. Yes	Yes
		Alternative B			
Cultural Resources	Historic Resources	Alternative A	<ul style="list-style-type: none"> No NRHP-listed or eligible historic/architectural resources 	No	No The Build Alternatives would not result in direct and indirect effects to historic resources since no National Register of Historic Places-listed or eligible properties are located within the project's APE.
		Alternative B	<ul style="list-style-type: none"> No NRHP-listed or eligible historic/architectural resources 		
	Archaeological Resources	Alternative A	<ul style="list-style-type: none"> 1 NRHP-eligible resource 	No	Yes
		Alternative B	<ul style="list-style-type: none"> 1 NRHP-eligible resource 		
Section 4(f) Resources	Alternative A Alternative B	<ul style="list-style-type: none"> De minimis use-Foothills Parkway 	Acquisition of additional easement from Foothills Parkway necessary. Yes	Yes	
Visual Resources	Alternative A Alternative B	<ul style="list-style-type: none"> Minimal to moderate impacts 	Encroachment alteration effects due to potential changes in vegetation patterns. Yes	Yes	

Table 4-2 Geographic Boundaries for Cumulative Effects Analysis

Resource	Analysis Area
Residential and Commercial Land Uses and Community Facilities	5-mile radius of ETSA
Farmland	1-mile radius of ETSA
Terrestrial Resources	1-mile radius of ETSA
Water Resources	Cosby Creek Sub-Watershed (HUC 060101060401)
Floodways/Floodplains	Cosby Creek Sub-Watershed (HUC 060101060401)
Threatened and Endangered Species	4-mile radius of ETSA
Archaeological Resources	5-mile radius of ETSA
Section 4(f) Resources	Foothills Parkway: 1-40 to the east, 3 miles to the west
Visual Resources	Project viewshed

Figure 4-1 Cumulative Effects Boundary: Residential/Commercial Land Uses, Community Facilities, Archaeological Resources

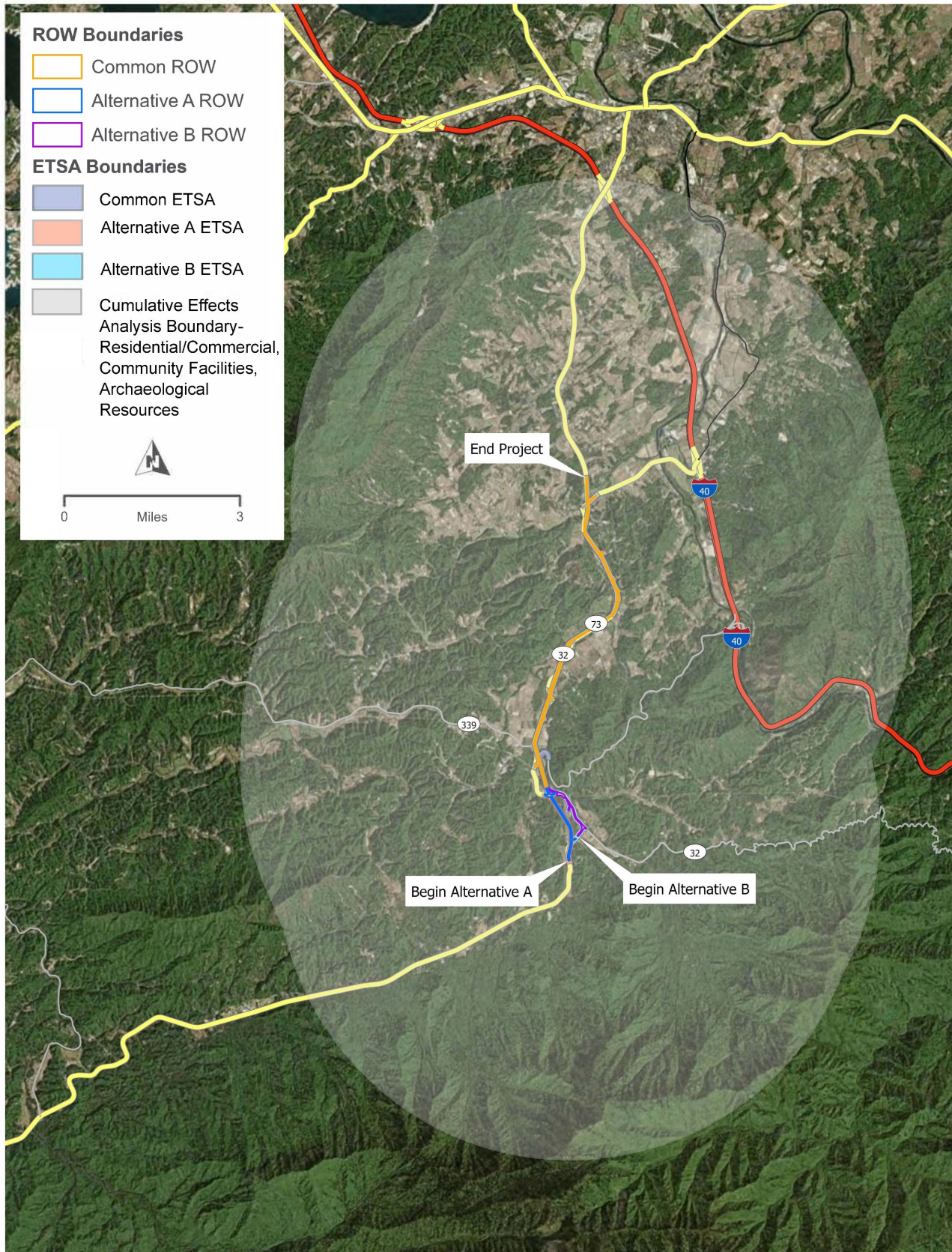


Figure 4-4 Cumulative Effects Boundary: Farmland and Terrestrial Resources

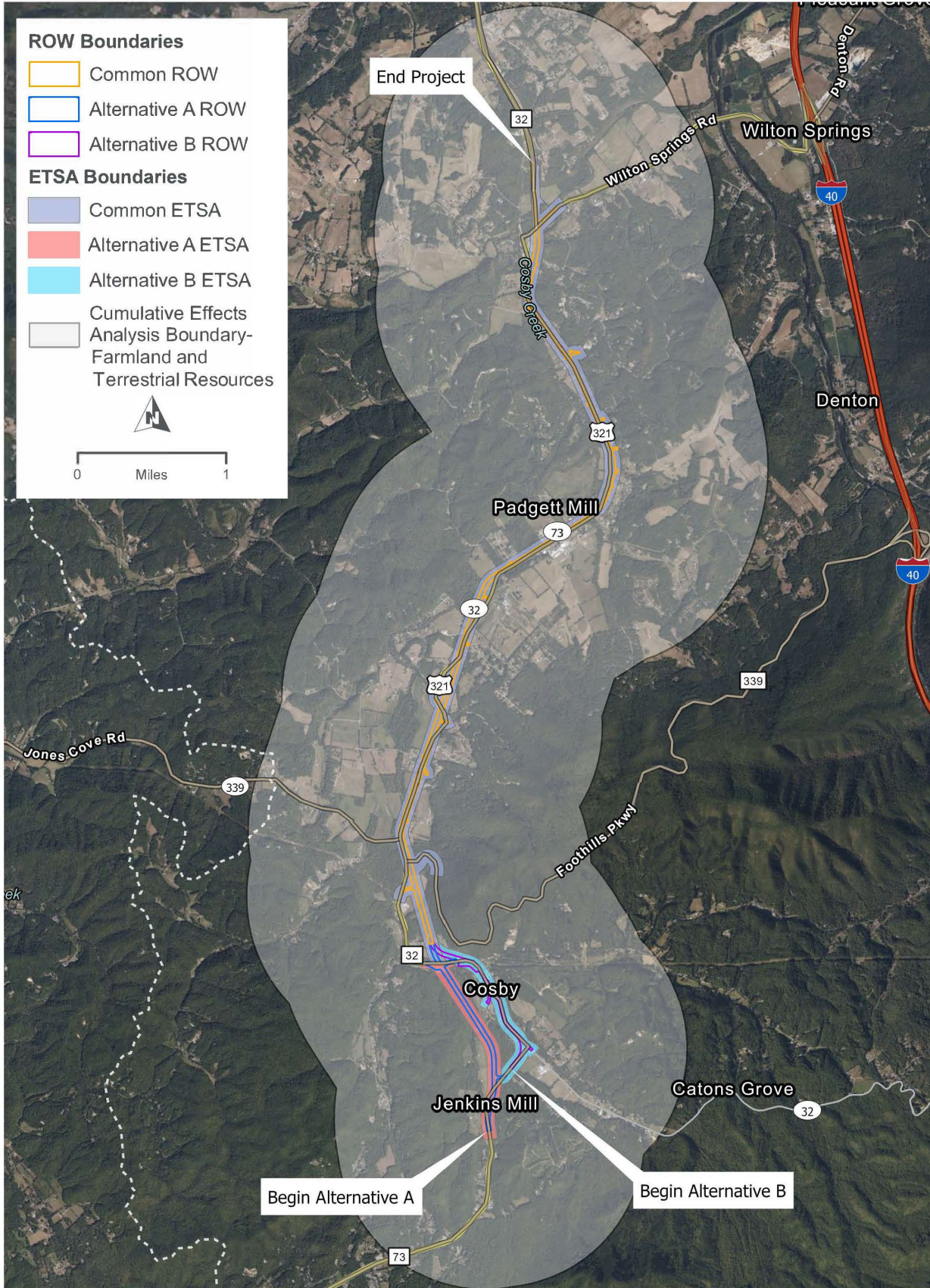


Figure 4-7 Cumulative Effects Boundary: Water Resources and Floodways/Floodplains

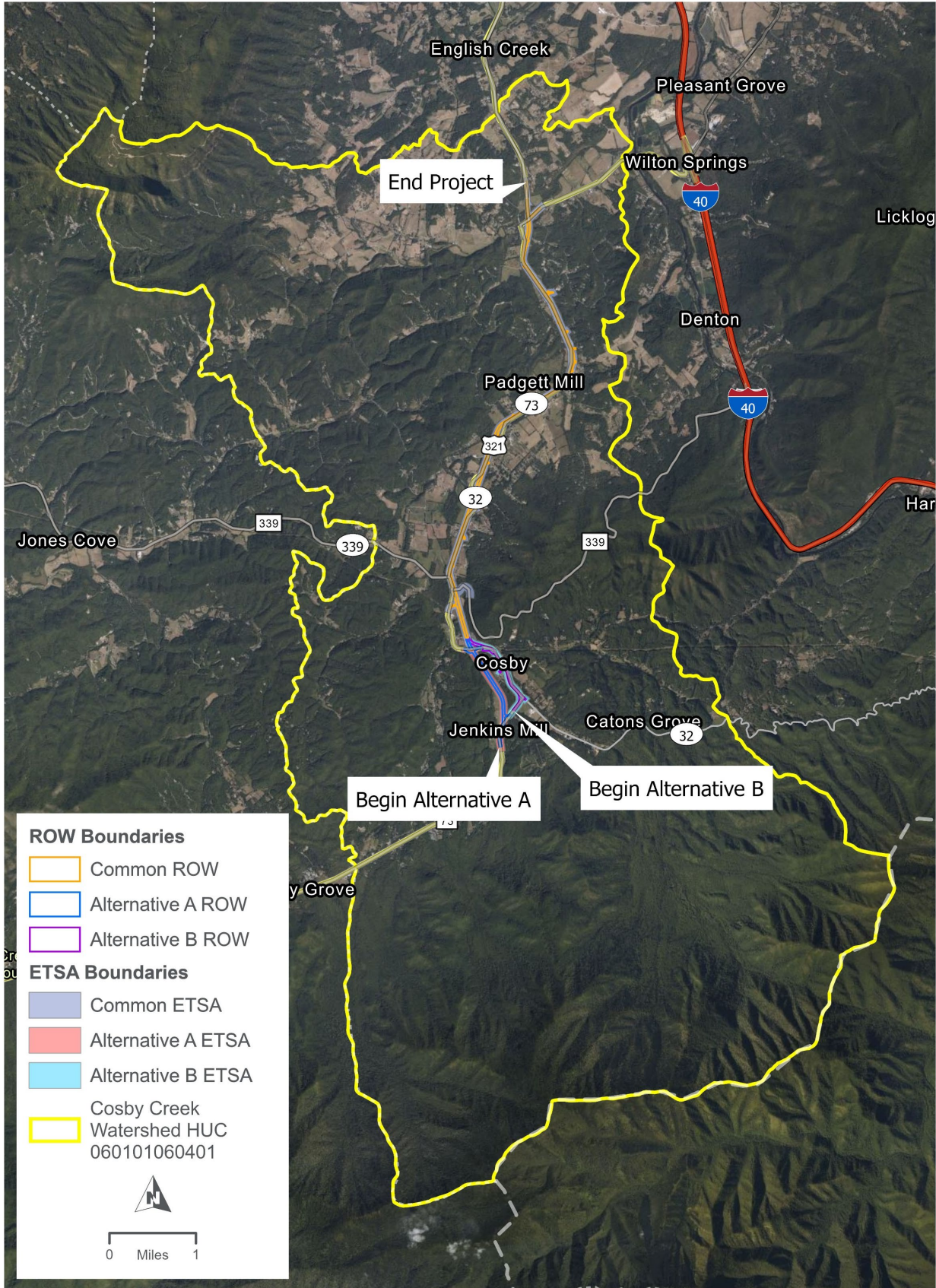


Figure 4-10 Cumulative Effects Boundary: Threatened and Endangered Species

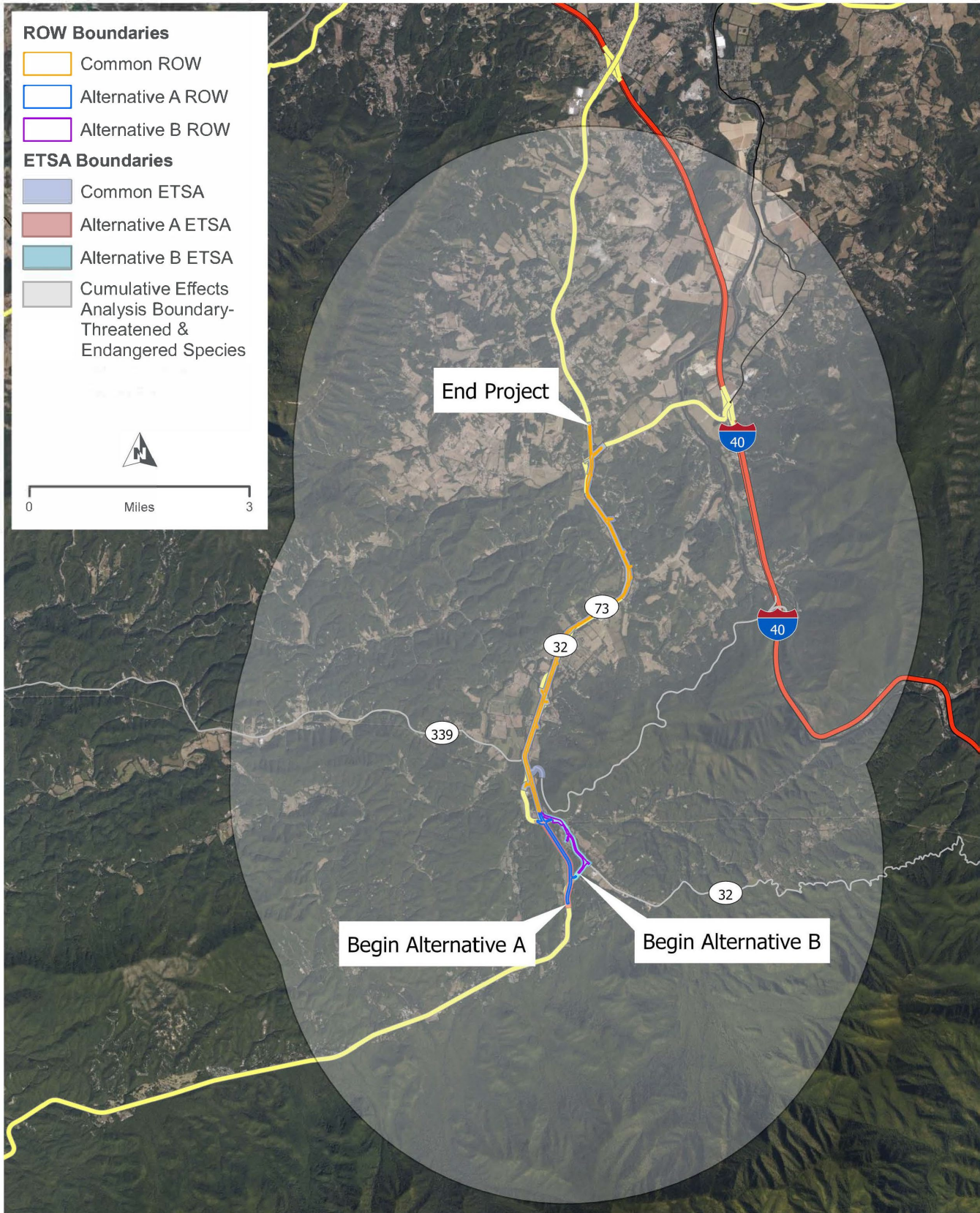


Figure 4-13 Cumulative Effects Boundary: Section 4(f)-Foothills Parkway

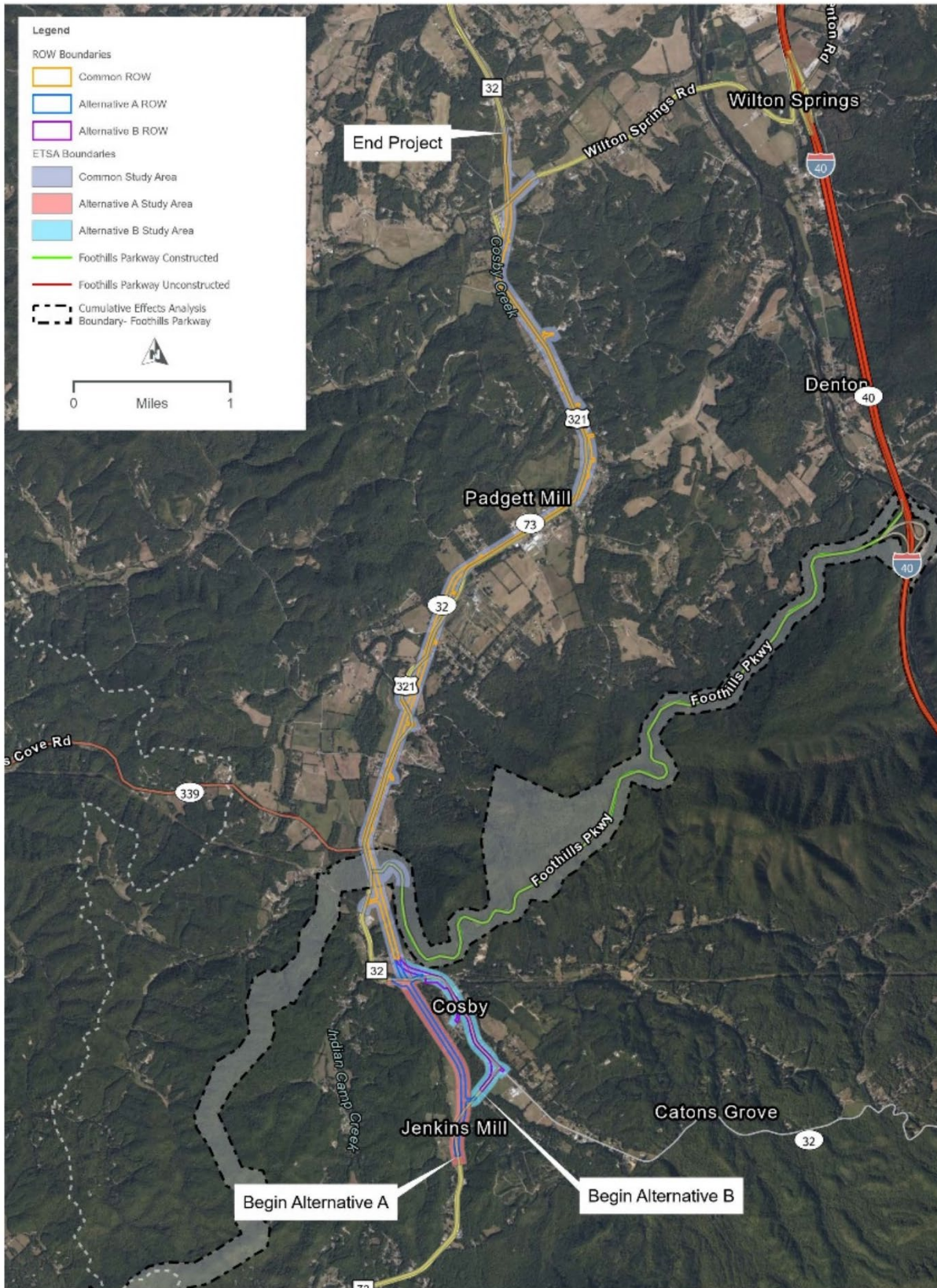
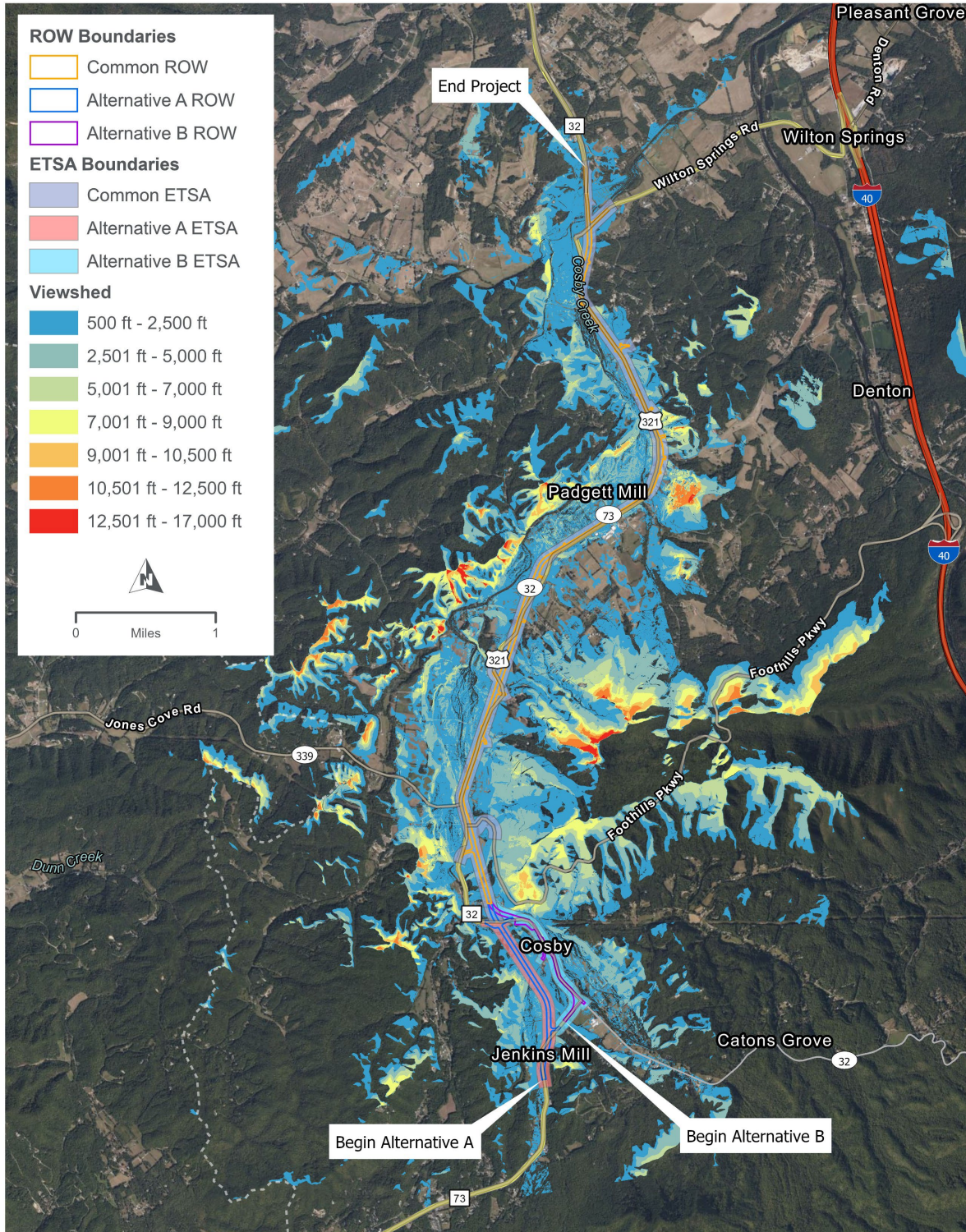


Figure 4-16 Cumulative Effects Boundary: Visual Resources



4.3 Other Past, Present, and Reasonably Foreseeable Future Actions That Have Impacted or May Impact the Affected Resources

4.3.1 Past Actions

As discussed in [Section 3.6.1](#), land use in the project area has remained relatively unchanged since the 1960s and did not see substantial growth from the 1940s to late 1950s when I-40 was constructed through the area.

4.3.2 Present and Reasonably Foreseeable Future Projects

Identified future land use within the area includes projects in TDOT's STIP and other private and public projects. Information on the Cosby Festival and Event Center was provided by the East Tennessee Foundation. Information on other private developments was provided by the Cocke County Partnership. Copies of correspondence with these agencies are included in [Appendix D](#).

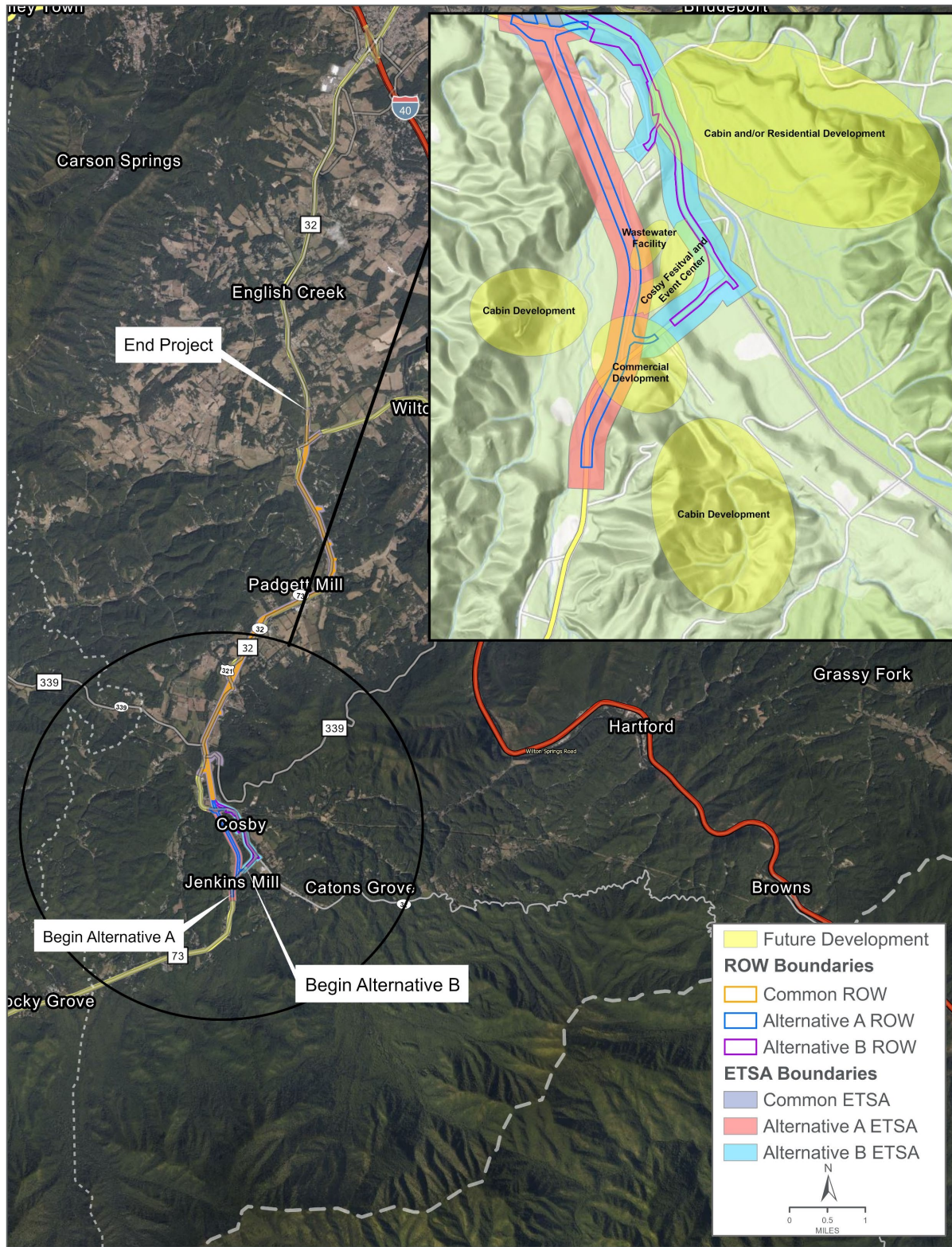
Transportation Projects in TDOT's 2020-2023 STIP in the Vicinity of the SR-32 Project (Figure 4-7)

- TDOT PIN #101399.00: SR-35 (US-321) Newport Bypass from SR-9 to Saint Tide Hollow Road, Newport, Cocke County. This 4.7-mile involves the construction of a new bypass around the City of Newport. This project is currently anticipated to be let to construction in 2021.
- TDOT PIN #124292.00: I-40 from Jefferson County Line to North Carolina State Line Intelligent Transportation System Development, Cocke County. This 21.9-mile project involves the deployment of an intelligent transportation system (ITS) along I-40 through Cocke County. This project is currently anticipated to be let to construction in 2022.
- TDOT PIN #100989.00: SR-73 from Buckhorn Road to Approximately 0.4 Mile East of SR-416. This 1.5-mile project involves reconfiguring the existing two-lane roadway to accommodate two travel lanes in the eastbound direction and constructing two westbound travel lanes on new location. This project is currently in the right-of-way phase and is anticipated to be let to construction in 2023.
- TDOT PIN #101401.01: SR 35 (US 411) Newport Highway from near Sims Road in Sevier County to near SR-92 (Dickey Road) in Jefferson County. This 4.5-mile project involves improvements to SR-32 (US-411). This project is currently anticipated to be let to construction in 2022.

Development Projects Within or Immediately Adjacent to the SR-32 Project (Figure 4-8)

- **Cosby Festival and Event Center:** Located on SR-32 north of the SR-32/SR-73 intersection, this project would develop a community center/visitor center with a festival/event area. This project is being led by the East Tennessee Foundation (ETF), a public charity and community foundation. A concept for the Cosby Festival and Event Center has been developed. The ETF has secured bids to prepare an environmental cost benefit study for the proposed center.
- **Sewer Plant:** Three sites in the immediate SR-32 project area are currently undergoing a sewer feasibility study. It is currently anticipated that the permit application will include all three sites as one sewer plant system and that the system could treat up to 2,000 gallons a day. Whether the plant will be publicly or privately owned is currently undecided. Newport Utilities will evaluate its options after the design is completed. Additionally, a private utility company has also expressed interest in developing and operating the plant.
- **Fast Food/Convenience Store/Gas Station Development:** There are options on three parcels of land in the vicinity of SR-73 and SR-32 at the southern end of the proposed SR-32 project for fast food/convenience store/gas station type of development. The developer is waiting to see which proposed SR-32 alternative is selected prior to proceeding.
- **Cabin Rental Development:** Development of an 83.5-acre site just south of the SR-32/SR-73 intersection for rental cabins is currently underway. The developer is currently in the process of hiring engineers to develop the site. As currently proposed, rental cabins would be at the top of the mountain and a hotel would be at the bottom.
- **Other Development:** Another landowner has four parcels that he is developing near Stonebrook Drive and near Liberty Road. The landowner has requested a sewer allotment for up to 200 units (cabins or single-family).

Figure 4-22 Future Developments Within One Mile of the ETSA Boundary



Source: Cocke County Partnership

Development Projects Within Five Miles of the SR-32 Project

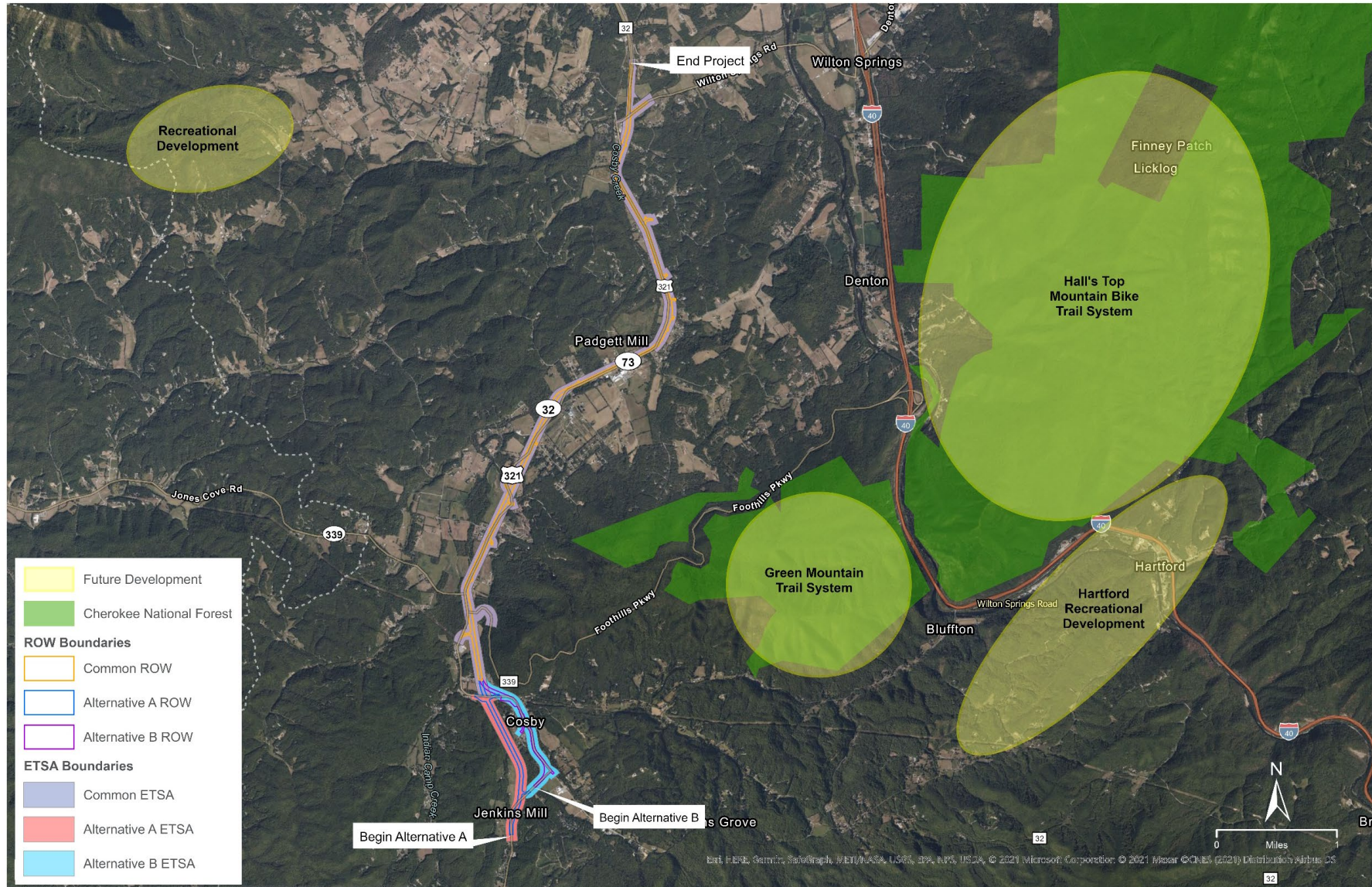
- **Project Hartford:** Development of a competition-quality mountain bike trail system and multi-use trail system is currently underway near Hartford (I-40 Exit 447) (**Figure 4-9**). In early 2020, Cocke County received a \$500,000 grant from ARC to design 50-75 miles of mountain bike and hiking trails in the vicinity of Green Mountain, Mill Creek, and Hall's Top (Green Mountain-Cosby Outdoor Recreation project). The grant will be matched with \$100,000 from local sources. The primary trail system will begin on Hall's Top, located on the east side of I-40 near Hartford and descend into the Hartford business district. The trail will continue through the Hartford business district and connect with a second trail head adjacent to Lindsay Gap Road at the base of Green Mountain. The trail system on Hall's Top will consist of competition-quality mountain bike trails in a concept similar to a ski route. It is anticipated that the Hall's Top trails will host downhill mountain bike competitions. The trails on Green Mountain will be multi-use (hiking, biking, horseback riding). Parking for the Hall's Top trail system will be located on the east side of I-40 at Exit 447. Parking for the Green Mountain trails will be located at the Lindsay Gap Road trail head. Trail design is anticipated to be completed by the end of 2021 with construction anticipated to be completed in 2023.

The majority of the trail system will be located within the Cherokee National Forest and along the Foothills Parkway and will be operated under a special use permit with the US Forest Service (USFS). In addition to the trails on Green Mountain and Hall's Top, private development associated with the trails, including retail and lodging, is planned in the vicinity of Exit 447.

- **Project Destination and Project Adventure:** Projects Destination and Adventure are two large adjoining recreational developments that are in the planning stages in the vicinity of English Mountain, southwest of Newport between US-411 and SR-32 (**Figure 4-4**). Both sites would be accessed via US-411. Destination is 1,000 acres in size. While a portion of Destination is located in Cocke County, the majority of the site is located in Sevier County. The developer of Destination is currently conducting an engineering study to determine whether to build an on-site wastewater treatment facility or tie into the sewer facility currently planned for Cosby (see above discussion). Destination is being designed/managed by a company that owns indoor water parks in other states. While this development is moving forward, no date for completion is currently available.

Project Adventure is 4,000 acres in size and located primarily in Cocke County. Planning for this recreational development is still in the preliminary stages. No date for completion is currently available.

Figure 4-26 Future Developments Near the SR-32 Project



Source: Cocke County Partnership

4.4 Potential Cumulative Impacts From Past, Present, and Reasonably Foreseeable Future Actions

In this section, past, present, and reasonably foreseeable future actions described in Section 4.3 are analyzed using planning judgement to determine potential cumulative impacts. The potential for cumulative impacts is rated as minor, moderate or high based on the criteria shown in [Table 4-3](#).

4.4.1 Socioeconomic Resources

As discussed in [Section 3.6.1](#), land use in Cocke County has not changed substantially over time. Much of the growth that has occurred in the county has occurred in or around the City of Newport, which is the county seat. The current low population projections, lack of public water and wastewater infrastructure, insufficient high speed internet access, lack of skilled labor, and the steep topography of the narrow valley can be viewed as stumbling blocks to development that need to be overcome before widespread development occurs in the area. That is not to say that growth is not occurring in the study area. As discussed in [Section 4.3.2](#), a number of developments are planned and moving forward in and near the SR-32 project. The development of a sewer plant near the southern terminus of the proposed SR-32 project could potentially induce growth within the SR-32 project area and adjacent areas, since availability of sewer is a key component to growth. The majority of the currently planned development within five miles of the SR-32 project is recreational, i.e. cabin rentals, recreational resorts, hiking/biking trails. These developments are likely to result in increased tourism, which could result in growth in residential development, particularly second/vacation home development, especially as sewer is implemented in the area. Mountain bike competitions on the Hall's Top trails are anticipated to generate increased traffic and congestion during events. The other planned developments, which are also tourism-focused, are likely to result in increased traffic, particularly on roadways that are not built to handle that increase in traffic, such as Lindsay Gap Road and I-40 Exit 447 at Hartford. According to the president of the Cocke County Partnership, he already receives numerous calls about RV traffic on Lindsay Gap Road, which is a difficult road for RVs to traverse. All of these developments are planned regardless of whether the SR-32 project is constructed.

As noted previously, the travel time savings predicted for the project during the Interim Build is less than two minutes during peak period and less than one-minute during off-peak period. Research indicates that when travel times savings are less than two minutes for an average trip the potential for land use change is none to weak (TRB, 2007). The travel time savings predicted for the project during the Full Build is six minutes during peak period and three minutes during off-peak period, which increases the potential for land use change to change from none to moderate. Part of the purpose of the project is to improve connections/access to high tourism areas in the region. The predicted travel time savings would not substantially reduce travel times for those longer trips, especially given that a large section of the SR-73/US-321 roadway west of the project terminus is currently a two-lane roadway with narrow shoulders and curves. In addition, TDOT does not have any current plans to improve the entire roadway between Cosby and Gatlinburg.

As discussed previously, Cocke County has been designated a distressed county by the ARC. The planned developments within a five-mile radius of the SR-32 project are likely to draw more tourists to the area, resulting in positive economic benefits for Newport, Cosby and Hartford as well as Cocke County as a whole. Since many of the current and reasonably foreseeable future projects are tourism-focused, the degree to which they will affect the social and economic resources within Cocke County depends in part on factors that are currently difficult to predict, particularly since travel has been disrupted by the COVID-19 pandemic.

The developments planned within the five-mile radius of the project are moving forward and will be constructed regardless of whether the SR-32 project is constructed. Because the project is not anticipated to induce growth, it would not contribute to the cumulative effects of the growth on socioeconomic resources.

Table 4-3 Criteria for Cumulative Impact Levels of Effect

Resource		Level of Effect			
		None	Minor	Moderate	High
Socio Economic Resources		<ul style="list-style-type: none"> Induce growth not anticipated 	<ul style="list-style-type: none"> Induced growth possible 	<ul style="list-style-type: none"> Induced growth anticipated 	<ul style="list-style-type: none"> Rapid rate of induced growth anticipated
Farmland		<ul style="list-style-type: none"> No direct or indirect impacts 	<ul style="list-style-type: none"> Farmland Conversion Impact Rating less than 160 Low rate of growth/minor development occurring 	<ul style="list-style-type: none"> Farmland Conversion Impact Rating less than 160 Moderate rate of growth occurring Induced growth anticipated 	<ul style="list-style-type: none"> Farmland Conversion Impact Rating greater than 160 High rate of growth occurring Induced growth anticipated
Natural Resources	Terrestrial Resources	<ul style="list-style-type: none"> No direct or indirect impacts 	<ul style="list-style-type: none"> Low rate of growth/minor development occurring Minor forest fragmentation and creation of edge habitat occurring 	<ul style="list-style-type: none"> Moderate rate of growth occurring Induced growth anticipated Increased forest fragmentation and habitat degradation 	<ul style="list-style-type: none"> High rate of growth occurring Induced growth anticipated Increased forest fragmentation and habitat degradation
	Water Resources	<ul style="list-style-type: none"> No direct or indirect impacts 	<ul style="list-style-type: none"> Federal and state regulations in place Implementation of BMPs sufficient to minimize impacts 	<ul style="list-style-type: none"> Federal and state regulations in place Implementation of BMPs sufficient to minimize impacts Moderate rate of growth occurring Induced growth anticipated 	<ul style="list-style-type: none"> Rapid growth occurring Lack of protective regulations in place Degradation prominent
	Floodplains/Floodways	<ul style="list-style-type: none"> No direct or indirect impacts 	<ul style="list-style-type: none"> Participation in the National Flood Insurance Program (NFIP) Federal, state, and local flood regulations in place No increase in flood elevation 	<ul style="list-style-type: none"> Minor increase in flood elevation 	<ul style="list-style-type: none"> FEMA Physical Map Revision (PMR) necessary (change in flood risk zones, floodplain and/or floodway delineations, flood elevations, and/or planimetric features)
	Threatened and Endangered Species	<ul style="list-style-type: none"> No direct or indirect impacts 	<ul style="list-style-type: none"> "May affect, but not likely to adversely affect" determination Implementation of BMPs sufficient to minimize impacts Protective federal and state regulations in place 	<ul style="list-style-type: none"> "May affect, but not likely to adversely affect" determination Habitat degradation present Protective federal and state regulations in place 	<ul style="list-style-type: none"> "May affect, and is likely to adversely affect" determination Rapid growth occurring
Archaeological Resources		<ul style="list-style-type: none"> No direct or indirect impacts 	<ul style="list-style-type: none"> Low rate of growth/minor development occurring 	<ul style="list-style-type: none"> Moderate rate of growth occurring Induced growth anticipated 	<ul style="list-style-type: none"> High rate of growth occurring Induced growth anticipated
Section 4(f) Resources (Foothills Parkway)		<ul style="list-style-type: none"> No direct or indirect impacts 	<ul style="list-style-type: none"> Improved access 	<ul style="list-style-type: none"> Improved access Recreational development 	<ul style="list-style-type: none"> Improved access Recreational development High rate of growth
Visual Resources		<ul style="list-style-type: none"> No direct or indirect impacts 	<ul style="list-style-type: none"> Few or no visually sensitive resources Few noticeable changes to the viewshed Low rate of growth/minor development occurring 	<ul style="list-style-type: none"> Changes to the existing viewshed that are noticeable but not substantial Moderate rate of growth occurring Induced growth anticipated 	<ul style="list-style-type: none"> Substantial changes to the existing viewshed High rate of growth occurring Induced growth anticipated No ridgetop development ordinances/regulations in place

4.4.2 Farmland

The project study area includes lands that are currently used for farming and agricultural purposes; some of the farmland is considered prime farmland by the Natural Resources Conservation Service (NRCS). Between 1992 and 2012 the number of farms and the acres of land in farms trended toward fewer farms and less land in farms, but the average size of farms increased. However, between 2012 and 2017 (the most recent available data) land in farms increased by 7.0 percent, the number of farms increased by 3.2 percent, and the average size of farms increased 3.1 percent. There is not enough data to determine whether this is an upward trend or an anomaly.

The project area is contained entirely within the designated PGA for Coker County, which is where planned growth is targeted. The study boundary for cumulative impacts to farmland encompasses the land within a one-mile radius of the project ETSA boundary. The study area is bounded by forested mountainous terrain. The larger planned developments are located outside that boundary and tend to be located in forested mountainous terrain and not on farmland. Several smaller planned developments are located within the one-mile boundary and have contributed to the conversion of farmland to developed land. The development of a sewer plant near the southern terminus of the proposed SR-32 project could potentially induce growth that could put development pressure on the farmland within the one-mile boundary.

The SR-32 project would convert between 29 and 34 acres of prime farmland to transportation right-of-way. While the project would not induce growth, it would have the potential to result in an indirect effect if, in the reasonably foreseeable future, the impacts to the farm fields alters the way the farmer needs to farm the land. The project's contribution to the cumulative effects on farmland would be minor. Overall cumulative effects on farmland resources would be minor.

4.4.3 Natural Resources

Terrestrial Resources

Cumulative effects on terrestrial resources were assessed based upon a one-mile radius of the ETSA boundary for the proposed project. Historically, growth in Coker County has been slow with primary effects being the clearing of forested land for farming and scattered residential and commercial development along the project corridor in the narrow valley area. Recently, some recreational cabin rental development and minor commercial development, as well as the development of a sewer plant have been planned either within the ETSA boundary or within a one-mile radius of the ETSA boundary. These planned developments are described in [Section 4.3.2](#). These planned developments would convert agricultural and forested land into developed land uses, resulting in additional loss of habitat for terrestrial species. They would also result in forest fragmentation and the creation of edge habitat.

The SR-32 project would convert approximately 83 acres of agricultural and forested land into developed land uses, resulting in additional loss of habitat for terrestrial species. The project would not result in induce growth so it would not contribute to development pressure that could impact terrestrial resources. The project could result in indirect effects due to forest fragmentation which could result in changes in species behavior, reduced biological diversity, and the spread of invasive species. The implementation of BMPs would help to minimize impacts on terrestrial resources. Overall cumulative effects on terrestrial resources would be minor.

Water Resources

The proposed project is located within the Cosby Creek sub-watershed (12-digit HUC 060101060401) ([Figure 3-6](#)). The Cosby Creek sub-watershed encompasses approximately 12.3 percent of Coker County. Cumulative effects on streams, springs, seeps, and other waterbodies and wetlands were assessed within the boundaries of the Cosby Creek sub-watershed (HUC 060101060401).

Past development within the project vicinity has resulted in bridging and culverting of streams. Cumulative effects on streams, springs, seeps, and other waterbodies within HUC 060101060401 could result from the proposed project in combination with future land development and transportation projects. Currently, the SR-32 project from SR-73 to north of Wilton Springs Road is the only TDOT roadway project proposed in the sub-watershed. Of the planned development projects discussed in [Section 4.3.2](#), only the planned developments shown on [Figure 4-9](#) are within the Cosby Creek sub-watershed.

As of 2011 (most recent data available), the United States Environmental Protection Agency (USEPA) EnviroAtlas indicates that approximately 0.25 percent of the sub-watershed is in impervious surface. Since less than one percent of the sub-watershed is covered by impervious surface, it is not likely that currently anticipated levels of development would substantially impact the amount of impervious surface within the sub-watershed. Future development could result in additional stormwater runoff, which could contain oil, grease, pesticides, and other chemicals, which could be carried to water bodies. The use of ineffective water pollution control measures during and/or following construction of developments could result in increased erosion, sedimentation, and total suspended solids.

The impacts to streams as a result of the project and planned development can be minimized by federal and state regulations that require erosion and sediment control plans, the implementation of BMPs, and various water quality permits that require water quality monitoring. As a result, the project's contribution to the cumulative effects on streams would be minor. Overall cumulative effects on streams would be minor.

According to information from the USFWS National Wetland Inventory (NWI), the Cosby Creek sub-watershed is comprised of approximately 705 acres of wetlands. A review of available aerial photography from 1985 to 2015 indicates a relatively stable land use pattern with a limited expansion of agricultural land and a limited conversion of undeveloped and agricultural land to developed land (i.e. residential, commercial, etc.) within the Cosby Creek sub-watershed. While the exact locations of the large planned developments shown on [Figure 4-10](#) are not known at this time, they appear to be outside the Cosby Creek sub-watershed.

Cumulative impacts to wetlands are likely to be minimized given the numerous federal and state, regulations currently in place that require impacts to be minimized and off-set through compensatory mitigation. Compensatory mitigation could be purchased from a mitigation bank or in-lieu fee program within the service area in which the project is located. Given the required permits and the protective measures that must be adhered to, cumulative effects on wetlands are anticipated to be minor.

Floodplains/Floodways

Cumulative effects on floodplains/floodways were assessed within the boundaries of the Cosby Creek sub-watershed (HUC 060101060401). Cocke County participates in the National Flood Insurance Program (NFIP) and all development must comply with floodplain regulations. Based on existing federal, state and local regulations and the County's participation in the NFIP, cumulative effects on floodplains are anticipated to be minor.

Threatened and Endangered Species

Cumulative effects to listed species were assessed within a four-mile radius of the ETSA boundary. The boundary is based on the standard TDEC four mile-radius since the project will not result in induced growth.

Coordination was conducted with the USFWS, and the Tennessee Wildlife Resources Agency (TWRA) to identify potential threatened and endangered species within the project vicinity. The USFWS identified three federally protected species within the ETSA boundary of the project: gray bat, Indiana bat, and northern long-eared bat.

The USFWS concurred that the project is "not likely to adversely affect" the Indiana bat and the northern long-eared bat. They noted that the nearest gray bat cave is approximately 6.8 miles north of the project. The USFWS did express concern about potential degradation of water quality along the bats' travel/feeding corridors.

The impacts to water quality will be minimized by federal and state regulations that require erosion and sediment control plans, the implementation of BMPs, and various water quality permits that require water quality monitoring. In addition, protective measures outlined in federal and state regulations would minimize any impacts to habitats and protected species. The implementation of BMPs was determined to be sufficient to minimize impacts to state-listed species.

Since protective measures outlined in federal and state regulations would minimize any cumulative impacts to water quality, habitats, and protected species, cumulative effects on threatened and endangered species are anticipated to be minor.

Archaeological Resources

Cumulative effects on archaeological resources were assessed based upon a five-mile radius of the ETSA boundary for the proposed project. The main factor that could affect archaeological resources would be development. Some growth is occurring however, the project would not result in induce growth so it would not contribute to development pressure that could impact archaeological resources. Therefore, cumulative effects on archaeological resources are anticipated to be minor.

Section 4(f) Resources

The SR-32 will improve access to the Foothills Parkway. Improved access in combination with the planned recreational developments in the area could increase traffic on the Foothills Parkway. The cumulative effects on the Foothills Parkway is anticipated to be moderate.

Visual Resources

Currently, there are several planned developments within the project viewshed. These projects are discussed in [Section 4.3.2](#) and shown on [Figure 4-9](#). These developments would alter the visual landscape by introducing new man-made elements and through the removal/alteration of natural elements, such as trees and farm fields. Since detailed plans for these developments are not yet available, it is not possible to determine the extent to which they would alter the visual landscape.

The visual impact from the SR-32 project is anticipated to be minor for most of its alignment since the project widens existing SR-32, which is already part of the viewshed. There are several areas where the Build Alternatives would travel on new location for short distances. In these areas, the visual impact is anticipated to be moderate since changes would be made to the viewshed that would be noticeable.

The cumulative effects on visual resources are anticipated to be minor to moderate.

Conclusion

Based on the information presented in the above sections, the potential cumulative effects for the majority of resources are anticipated to be minor. [Table 4-4](#) summarizes the potential cumulative effect on resources in the project area.

Table 4-4 Summary of Cumulative Effects on Resources in the Project Area

Resource	Cumulative Effect
Socioeconomic Resources	Minor
Farmland	Minor
Terrestrial Resources	Minor
Water Resources	Minor
Floodplains/Floodways	Minor
Threatened and Endangered Species	Minor
Archaeological Resources	Minor
Section 4(f) Resources (Foothills Parkway)	Moderate
Visual Resources	Minor to Moderate

APPENDIX A
CENSUS DATA

Indirect and Cumulative Effects Technical Memorandum
For
State Route 32
From State Route 73 at Cosby to North of Wilton Springs Road
Cocke County, Tennessee
PIN 101422.00

HISPANIC OR LATINO ORIGIN BY RACE

Note: This is a modified view of the original table produced by the U.S. Census Bureau. This download or printed version may have missing information from the original table.

Label	Block Group 3, Census Tract 9205.02, Cocke County, Tennessee		Block Group 2, Census Tract 9207, Cocke County, Tennessee		Block Group 3, Census Tract 9207, Cocke County, Tennessee	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
▼ Total:	1,938	±535	1,268	±275	1,193	±317
▼ Not Hispanic or Latino:	1,891	±513	1,243	±280	1,085	±328
White alone	1,841	±506	1,175	±233	1,076	±330
Black or African American alone	0	±12	0	±12	9	±16
American Indian and Alaska Native alone	0	±12	51	±81	0	±12
Asian alone	0	±12	0	±12	0	±12
Native Hawaiian and Other Pacific Islander alone	0	±12	0	±12	0	±12
Some other race alone	0	±12	0	±12	0	±12
▼ Two or more races:	50	±89	17	±39	0	±12
Two races including Some other race	0	±12	0	±12	0	±12
Two races excluding Some other race, and three or more races	50	±89	17	±39	0	±12
▼ Hispanic or Latino:	47	±66	25	±36	108	±115
White alone	47	±66	25	±36	108	±115
Black or African American alone	0	±12	0	±12	0	±12
American Indian and Alaska Native alone	0	±12	0	±12	0	±12
Asian alone	0	±12	0	±12	0	±12
Native Hawaiian and Other Pacific Islander alone	0	±12	0	±12	0	±12
Some other race alone	0	±12	0	±12	0	±12
▼ Two or more races:	0	±12	0	±12	0	±12
Two races including Some other race	0	±12	0	±12	0	±12
Two races excluding Some other race, and three or more races	0	±12	0	±12	0	±12

Table Notes

HISPANIC OR LATINO ORIGIN BY RACE

Survey/Program:

American Community Survey

Universe:

Total population

Year:

2019

Estimates:

5-Year

Table ID:

B03002

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

The 2015-2019 American Community Survey (ACS) data generally reflect the September 2018 Office of Management and Budget (OMB) delineations of metropolitan and micropolitan statistical areas. In certain instances, the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB delineation lists due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:

An "***" entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.

An "-" entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution, or the margin of error associated with a median was larger than the median itself.

An "-" following a median estimate means the median falls in the lowest interval of an open-ended distribution.

An "+" following a median estimate means the median falls in the upper interval of an open-ended distribution.

An "****" entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.

An "*****" entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.

An "N" entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.

An "(X)" means that the estimate is not applicable or not available.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS

Note: This is a modified view of the original table produced by the U.S. Census Bureau. This download or printed version may have missing information from the original table.

Label	Block Group 3, Census Tract 9205.02, Cocke County, Tennessee		Block Group 2, Census Tract 9207, Cocke County, Tennessee		Block Group 3, Census Tract 9207, Cocke County, Tennessee	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
▼ Total:	1,938	±535	1,259	±266	1,120	±260
Under .50	31	±47	47	±48	136	±86
.50 to .99	267	±232	135	±119	146	±96
1.00 to 1.24	61	±78	80	±54	53	±60
1.25 to 1.49	290	±266	36	±40	116	±88
1.50 to 1.84	278	±256	142	±81	31	±32
1.85 to 1.99	33	±51	99	±100	31	±37
2.00 and over	978	±304	720	±214	607	±170

HISPANIC OR LATINO ORIGIN BY RACE

Note: This is a modified view of the original table produced by the U.S. Census Bureau. This download or printed version may have missing information from the original table.

Label	Tennessee		Cocke County, Tennessee	
	Estimate	Margin of Error	Estimate	Margin of Error
▼ Total:	6,709,356	*****	35,552	*****
▼ Not Hispanic or Latino:	6,345,182	±221	34,715	*****
White alone	4,951,558	±1,511	33,154	±26
Black or African American alone	1,114,068	±3,182	494	±154
American Indian and Alaska Native alone	15,553	±961	256	±71
Asian alone	116,563	±1,460	67	±69
Native Hawaiian and Other Pacific Islander alone	3,387	±450	41	±58
Some other race alone	11,794	±1,559	0	±26
▼ Two or more races:	132,259	±3,581	703	±187
Two races including Some other race	4,307	±692	0	±26
Two races excluding Some other race, and three or more races	127,952	±3,446	703	±187
▼ Hispanic or Latino:	364,174	±221	837	*****
White alone	253,574	±4,175	533	±154
Black or African American alone	10,405	±1,367	168	±183
American Indian and Alaska Native alone	2,636	±560	72	±107
Asian alone	1,037	±360	0	±26
Native Hawaiian and Other Pacific Islander alone	384	±168	0	±26
Some other race alone	80,861	±3,790	20	±22
▼ Two or more races:	15,277	±1,436	44	±48
Two races including Some other race	7,831	±871	43	±48
Two races excluding Some other race, and three or more races	7,446	±928	1	±5

Table Notes

HISPANIC OR LATINO ORIGIN BY RACE

Survey/Program:

American Community Survey

Universe:

Total population

Year:

2019

Estimates:

5-Year

Table ID:

B03002

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

The 2015-2019 American Community Survey (ACS) data generally reflect the September 2018 Office of Management and Budget (OMB) delineations of metropolitan and micropolitan statistical areas. In certain instances, the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB delineation lists due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:

An "***" entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.

An "-" entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution, or the margin of error associated with a median was larger than the median itself.

An "-" following a median estimate means the median falls in the lowest interval of an open-ended distribution.

An "+" following a median estimate means the median falls in the upper interval of an open-ended distribution.

An "****" entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.

An "*****" entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.

An "N" entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.

An "(X)" means that the estimate is not applicable or not available.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS

Survey/Program:

American Community Survey

Universe:

Population for whom poverty status is determined

Year:

2019

Estimates:

5-Year

Table ID:

C17002

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

The 2015-2019 American Community Survey (ACS) data generally reflect the September 2018 Office of Management and Budget (OMB) delineations of metropolitan and micropolitan statistical areas. In certain instances, the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB delineation lists due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:

An "***" entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.

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Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS

Note: This is a modified view of the original table produced by the U.S. Census Bureau. This download or printed version may have missing information from the original table.

	Tennessee		Cocke County, Tennessee		
Label	≡	Estimate	Margin of Error	Estimate	Margin of Error
▼ Total:		6,542,792	±1,409	35,103	±144
Under .50		428,335	±7,288	3,365	±692
.50 to .99		568,595	±10,375	4,877	±855
1.00 to 1.24		326,823	±7,211	2,068	±415
1.25 to 1.49		318,150	±7,161	2,192	±577
1.50 to 1.84		451,579	±8,500	3,246	±796
1.85 to 1.99		192,414	±5,975	1,267	±455
2.00 and over		4,256,896	±19,624	18,088	±1,109

RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS

Survey/Program:

American Community Survey

Universe:

Population for whom poverty status is determined

Year:

2019

Estimates:

5-Year

Table ID:

C17002

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

The 2015-2019 American Community Survey (ACS) data generally reflect the September 2018 Office of Management and Budget (OMB) delineations of metropolitan and micropolitan statistical areas. In certain instances, the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB delineation lists due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:

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APPENDIX B
STATE LISTED SPECIES

Indirect and Cumulative Effects Technical Memorandum

For
State Route 32
From State Route 73 at Cosby to North of Wilton Springs Road
Cocke County, Tennessee
PIN 101422.00

Species Scientific and common names, followed by (A) for animal or (P) for plant	Status		Species is potentially present: 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 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
	Fed	TN				
<i>Microtus chorotorrhinus carolinensis</i> , Southern Rock Vole (A)		D	B		D	Forested wetland, Forest – Conifer, Forest – Mixed, Woodland – Conifer, Woodland – Mixed (Naturserve 2020). Last observed 1968-PRE
<i>Chrosomus tennesseensis</i> , Tennessee Dace, (A)		D	B		A	Habitat includes gravel-, sand-, and silt-bottomed pools of spring-fed headwaters (Page and Burr 2011); primarily cool and cold, clear, small creeks (first-order spring-fed streams) of the Ridge and Valley limestone region; species is most common a few hundred meters downstream of spring sources; streams range from less than 1 meter to 2 meters in width in faster flowing reaches (Starnes and Jenkins 1988, Etnier and Starnes 1993, Jenkins and Burkhead 1994). Last observed 1960.
<i>Adlumia fungosa</i> , Climbing Fumitory (P)		T		A		Rich mesic woods (TN Natural Heritage Program Rare Plant List 2012). Last observed 1969-PRE
<i>Trillium rugelii</i> , Southern Nodding Trillium (P)		T		A		Rich woodlands and forest over mafic or calcareous rocks (Weakley, In Progress), often found near (downslope) <i>Rhododendron catawbiense</i> (Wofford 1989). Last observed 1978.
<i>Buckleya distichophylla</i> , Piratebush (P)		T	B		D	Mountain woods at lower elevations (450-1100 m) within a variety of habitats including Virginia pine and white pine and acidic mixed-oak forests. Plants can be found scattered among host trees within opening of hemlock forests, but habitats also include south-facing slopes and chestnut oak forests (Mobray 1985). Last observed 2009.
<i>Carex ruthii</i> , Ruth's Sedge (P)		T	B		D	Seepage areas, in forest or open areas (Weakley, 1996). Last observed 1936.
<i>Cymophyllus fraserianus</i> , Fraser's Sedge (P)		S	B		D	Mixed mesophytic forests (Tennessee Natural Heritage Program Rare Plant list 2012). Last observed 2009.
<i>Corallorhiza maculate</i> , Spotted Coralroot (P)		T	B		D	Shady moist wood (TN Natural Heritage Program Rare Plant List 2012). Last observed 1995.
<i>Goodyera repens</i> , Dwarf Rattlesnake plantain (P)		S		A		Moist conifer/rhododendron woods (TN Natural Heritage Program Rare Plant List 2012). Last observed 1940.
<i>Etheostoma gutselli</i> , Tuckasegee Darter (A)		E	B		A	Habitat includes fast rocky riffles of creeks and small rivers (Page and Burr 2011), including an area where the Pigeon River flow has been diverted for hydropower and the water in the old river bed is from seepage and small streams (Etnier and Starnes 1993). Last observed 2008.
<i>Desmognathus abditus</i> , Cumberland Dusky Salamander (A)		Rare	B		A	Found near streams on a forested plateau. Individuals are most often found on land but within a meter of water; under rocks along small streams and under moss and debris on vertical rock faces behind cascades (Naturserve 2020). Last observed 1940.
<i>Percina aurantiaca</i> , Tangerine Darter (A)		D	B		A	Inhabits deeper riffles and runs with boulders, large rubble, and bedrock substrates, in clearer portions of headwater tributaries, moving to deeper pools for winter; juveniles often occur in pools with silty sand substrates (Etnier and Starnes 1993). Last observed in 2008.
<i>Streptopus roseus</i> , Rosy twisted stalk (P)		S		A		Moist woods and thickets in mtns. Often in <i>Tsuga canadensis</i> (hemlock) stands
<i>Abies fraseri</i> , Fraser Fir (P)		T		A		<i>Abies fraseri</i> occurs on high elevation peaks (>1500 m) in the southern Appalachians. It often occurs with red spruce (<i>Picea rubens</i>), but the relative dominance of fir increases above 1900 m, and <i>A. fraseri</i> occurs in almost pure forest stands on exposed summits and ridges (Naturserve 2020). Last observed 1997.
<i>Brachyelytrum aristosum</i> , Northern Shorthusk (P)		S		A		Moist high elevation forests (TN Natural Heritage Program Rare Plant List 2012). Last observed 2000.
<i>Carex bromoides ssp. Montana</i> , Blue Ridge Brome Sedge (P)		T		A		Mountain bogs and seeps (TN Natural Heritage Program Rare Plant List 2012). Last observed 2000.

Species Scientific and common names, followed by (A) for animal or (P) for plant	Status		Species is potentially prese Species is potentially present: A) It is listed by TDEC within ROW B) Habitat is present C) Observed during site visit Critical habitat present within ROW	Species is considered likely NOT present 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
	Fed	TN				
<i>Hypericum mitchellianum</i> , Blue Ridge St. John's-wort (P)		T		A		High elevation, moist woods (TN Natural Heritage Program Rare Plant List 2012). Last observed 2000.
<i>Juglans cinerea</i> , Butternut (P)		T	B		D	Rich mesophytic forest, lower slopes, ravines, and various types of bottomland, including banks and terraces of creeks and streams, and floodplain forests (Fernald 1950, Gleason and Cronquist 1991). Last observed 2001.

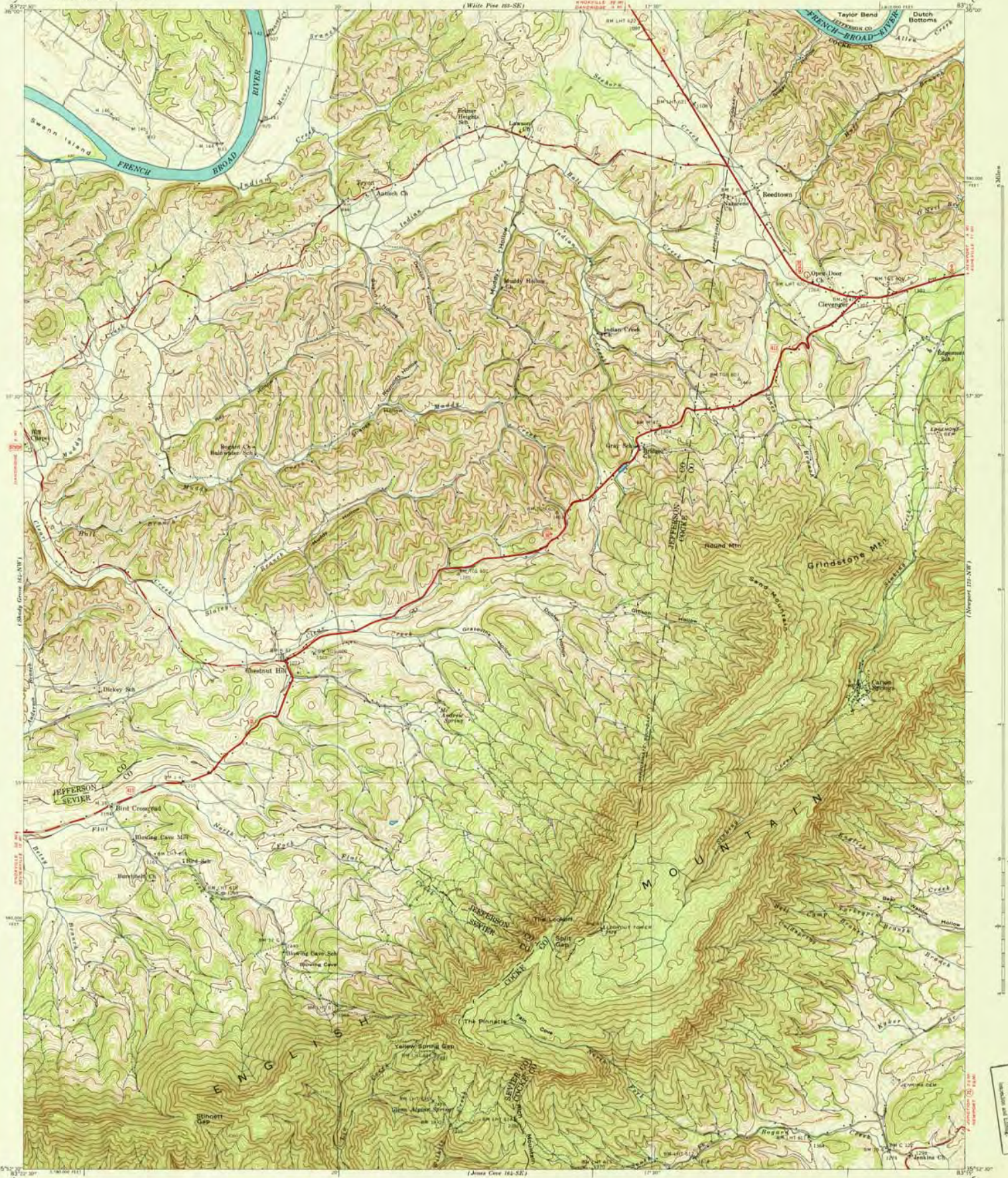
Source: TDEC database updated from online database search 05/04/2020 (original 06/29/2018). Agency coordination based on 06/29/2018 data.
D=Deemed in Need of Management; E=Endangered; S=Special Concern; T=Threatened

APPENDIX C
HISTORIC TOPOGRAPHIC MAPS
AND
HISTORIC AERIAL PHOTOGRAPHY

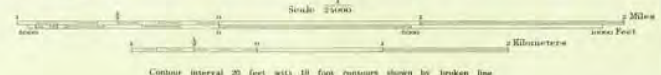
Indirect and Cumulative Effects Technical Memorandum
For
State Route 32
From State Route 73 at Cosby to North of Wilton Springs Road
Cocke County, Tennessee
PIN 101422.00

HISTORIC TOPOGRAPHIC MAPS

FILE COPY



Control by USCGS, USGS, and TVA.
Topography by Geological Survey from aerial
photographs by stereophotogrammetric methods.
Field examination by Tennessee Valley Authority, 1939.



Contour interval 20 feet with 10 foot contours shown by broken line
Elevation in mean sea level

USGS HISTORICAL FILE
TOPOGRAPHIC DIVISION

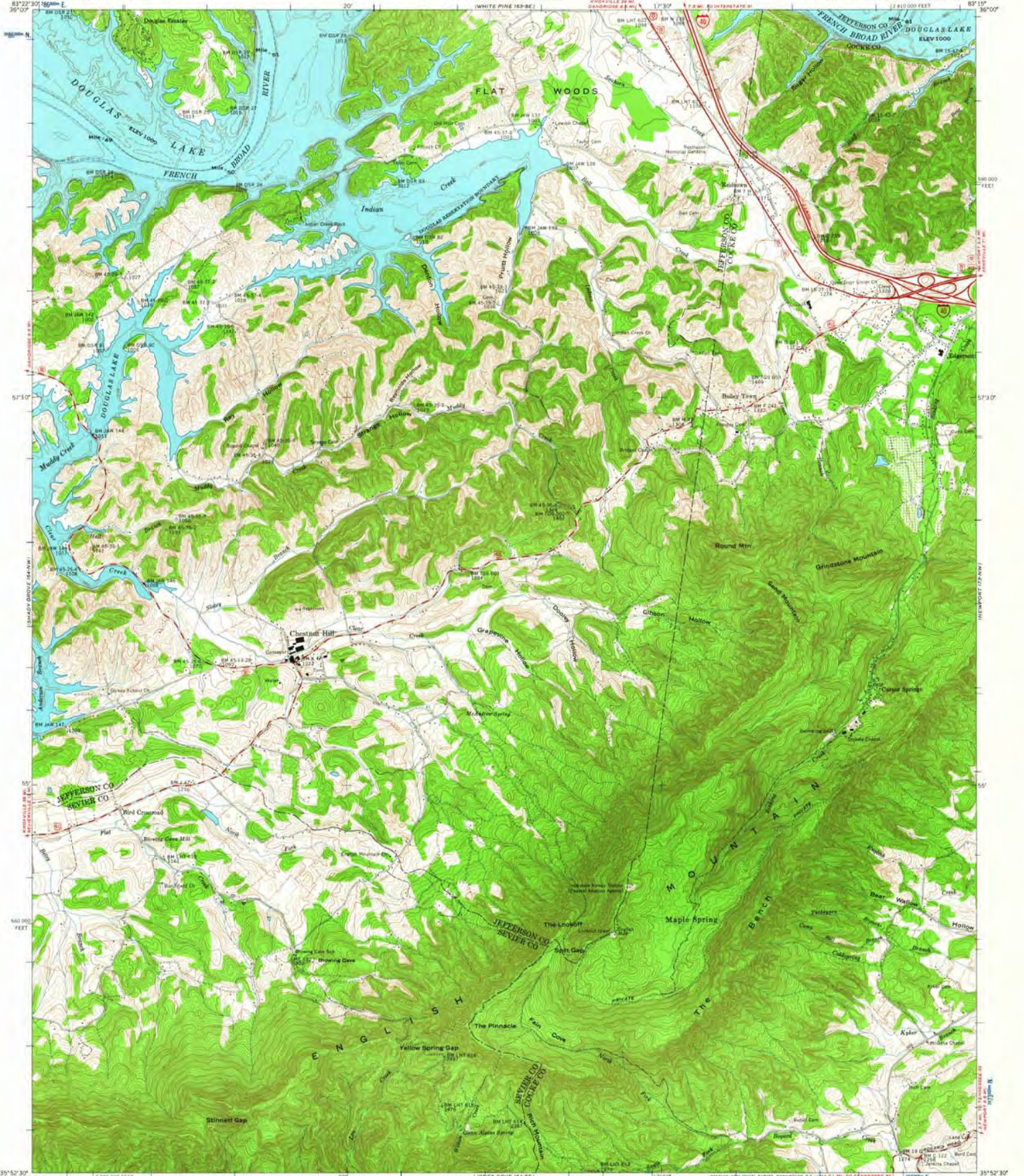
Map projection, 1817 North American System
12,000 feet and based on American
rectangular coordinate system
MADISON, GA. 1939
OTHER UNPUBLISHED EDITIONS, ETC.
U.S. GOVERNMENT PRINTING OFFICE

CLEVINGER, TENN.
164 - NE
Edition of 1940

202527-08215/27
UNLESS OTHERWISE SPECIFIED BY TITLE, ALL RIGHTS ARE RESERVED BY THE UNITED STATES GOVERNMENT

OCT 9 - 1940

FILE COPY



Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by USGAS, USGS, WPA, and TVA
Revised by TVA in 1961 by photogrammetric methods using
aerial photographs taken 1959 and by reference to TVA-USGS
quadrangle data 1939. Map field checked by TVA, 1961.
Polyconic projection, 1927 North American datum
63,000-foot grid based on Tennessee rectangular
coordinate system
1000 meter Universal Transverse Mercator Grid ticks,
Zone 17, shown in blue
Fine red dashed lines indicate salted fence and field lines
visible on aerial photographs. This information is unchecked

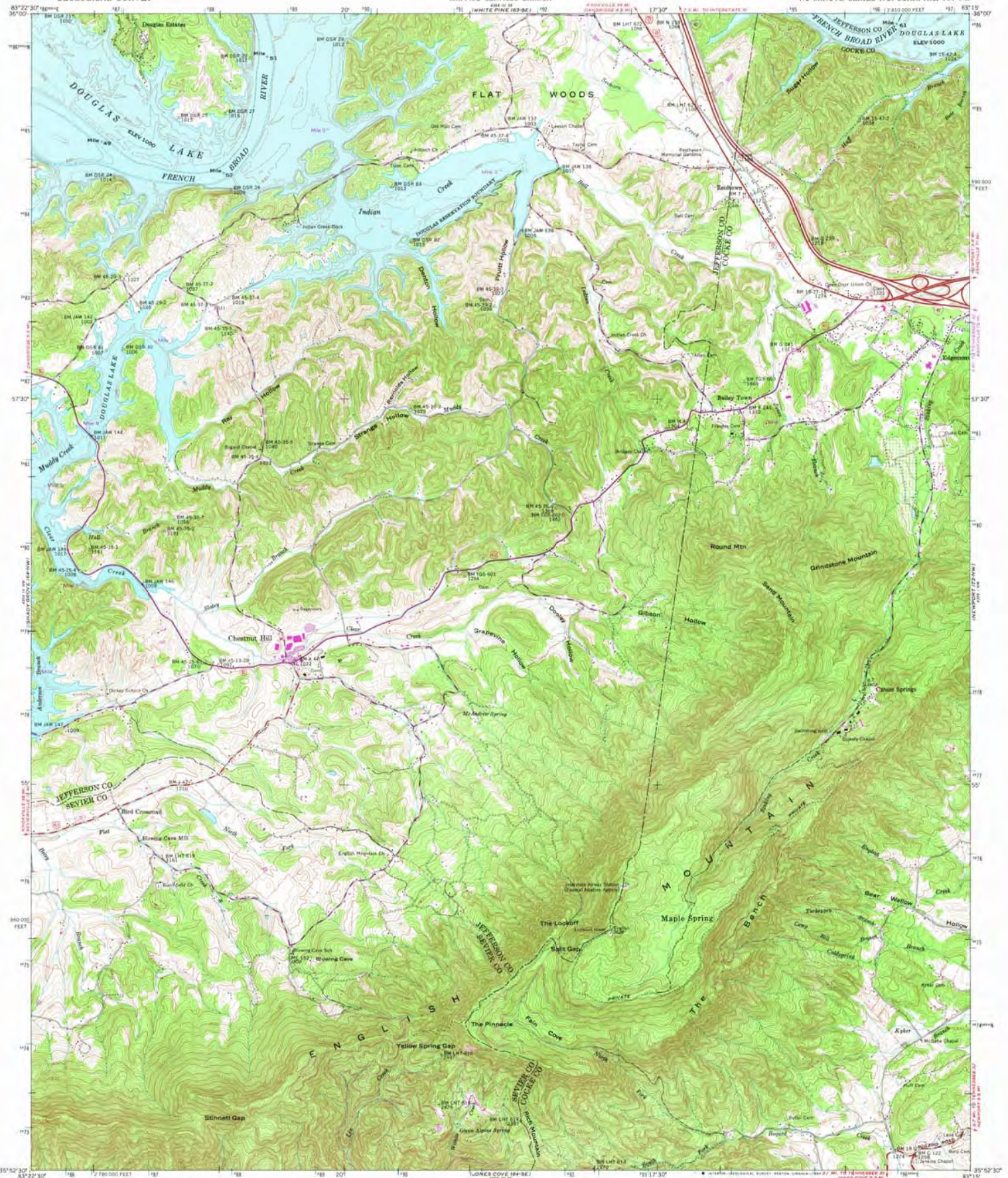
APPROXIMATE MEAN
DECLINATION 1961

SCALE 1:24,000

CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT HALF-INTERVAL CONTOURS
DATUM IS MEAN SEA LEVEL
THIS MAP COMPLEYS WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, WASHINGTON 25, D.C.
TENNESSEE DIVISION OF GEOLOGY, NASHVILLE, TENN.
U.S. TENNESSEE VALLEY AUTHORITY, CHATTANOOGA OR KNOXVILLE, TENN.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

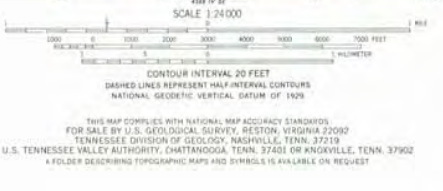


ROAD CLASSIFICATION
Heavy duty Floor motor road
Medium duty Wagon and jeep tracks
Light duty First trail
Interstate Route U. S. Route State Route
USGS HISTORICAL FILE TOPOGRAPHIC DIVISION
CHESTNUT HILL, TENN.
N3542.5-W8317.5
1961



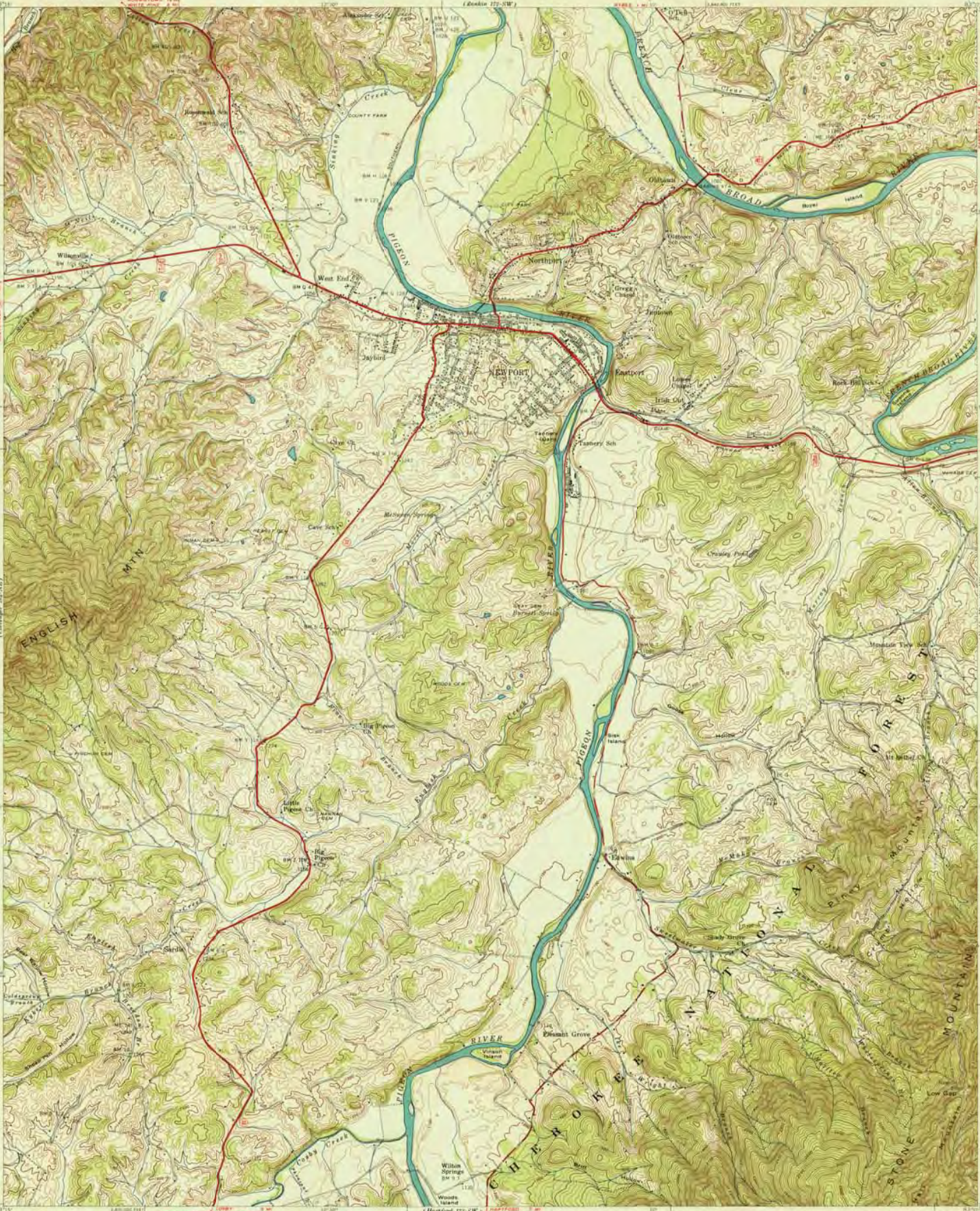
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by NCS/NOAA, USGS, WPA and TVA
Revised by TVA in 1961 by photogrammetric methods using
aerial photographs taken 1959 and by reference to TVA/USGS
quadrangle dated 1939. Map field checked by TVA, 1961.
Polyconic projection, 10,000-foot grid ticks based on Tennessee
coordinate system, 1000-meter Universal Transverse Mercator
grid ticks, zone 17 shown in blue, 1927 North American Datum
to place on the predicted North American Datum 1983 move
the projection lines, 7 meters south and 10 meters west as
shown by dashed corner ticks.
Fine red dashed lines indicate selected fence and field lines
visible on aerial photographs. This information is unchecked.

VIA SAIP AND 1965 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET
Revisions shown in purple and woodland compiled by
The Tennessee Valley Authority from aerial photographs
taken 1977 and other source data. This information
not field checked. Map edited 1980.



ROAD CLASSIFICATION (TVA 164-NE)
Primary highway, all weather, Light-duty road, all weather,
Fard surface, Improved surface
Secondary highway, all weather, Unimproved road, fair or dry
and surface, weather.
Interstate Route U.S. Route State Route
USGS
Historical
Topographic Division
CHESTNUT HILL, TENN.
N3952-5-W8157-5
1961
PHOTO/REVISED 1980
DMA 4355 IV NE SERIES 7841

DEC 9 1980
2100



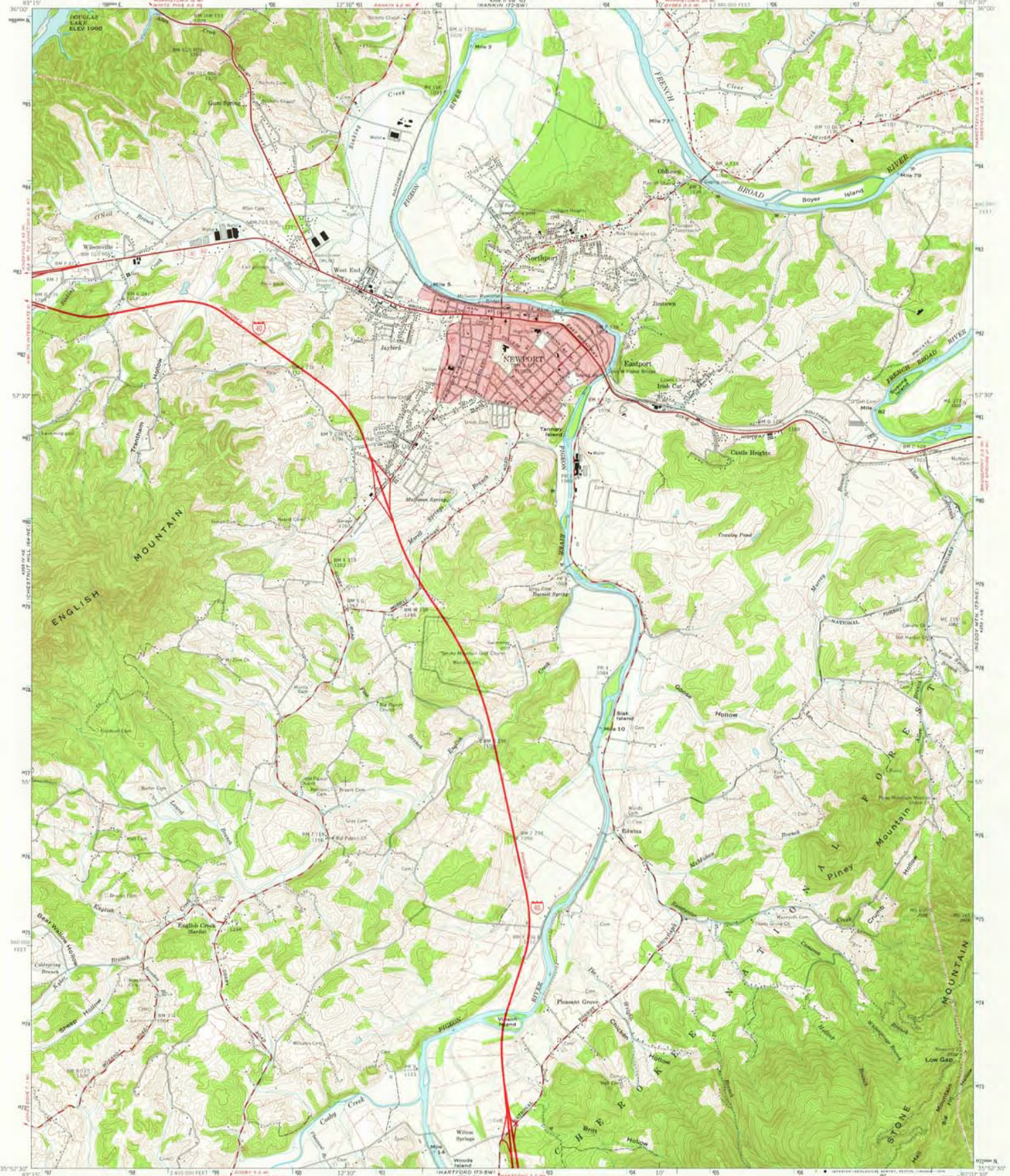
Control by USCGS, USGS, and TVA.
Topography by Geological Survey from aerial
photographs by stereophotogrammetric methods.
Field examination by Tennessee Valley Authority, 1943.



Contour interval 20 feet with 10-foot contours shown by broken line.
(Data in roman type only)

USGS
HISTORICAL FILE
TOPOGRAPHIC DIVISION

MADE IMPROVEMENTS:
OTHER SURVEY IMPROVEMENTS:
STATE ROUTE
NEWPORT TENN.
173 NW
Edition of 1946
N 4852 N NEWPT 3/75



Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by USGS, USGS, and TVA
Revised by TVA in 1961 by photogrammetric methods using
aerial photographs taken 1959 and by reference to TVA USGS
quadrangle dated 1940. Map field checked by TVA, 1961.
Photometric projection: 110° North American Datum
10,000-foot grid based on Tennessee rectangular
coordinate system.
1000-meter Universal Transverse Mercator Grid ticks,
Zone 17, shown in blue.
Fine red dashed lines indicate selected fence and field lines
visible on aerial photographs. This information is unchecked.
Red line indicates areas in which only landmark buildings are shown.



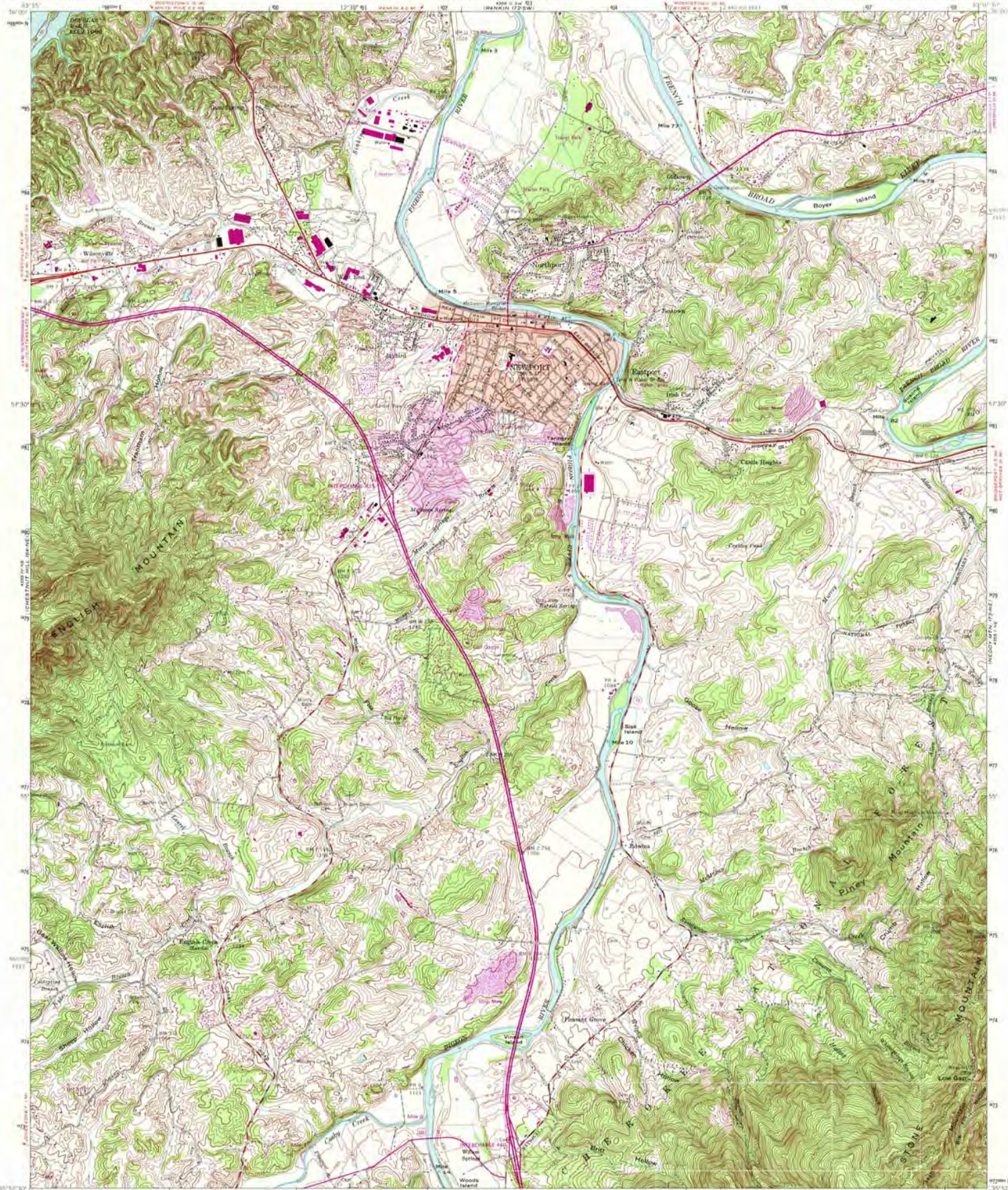
CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT HALF-INTERVAL CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON VIRGINIA 22092
TENNESSEE DIVISION OF GEOLOGY, NASHVILLE, TENN. 37219
U. S. TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENN. 37401 OR KNOXVILLE, TENN. 37902
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION
 Heavy duty ————— Four-lane road
 Medium duty ———— Two-lane road
 Light duty - - - - - Farm track
 Interstate Route ———— U. S. Route ———— State Route
 (in developed areas, only through roads are classified)

USGS
Historical File
Topographic Division

NEWPORT, TENN.
13552-5-8807A/7.1
1961
ARG. 4352-1 NW SERIES 1961

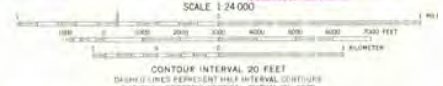


Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

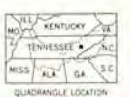
Control by NAD 83, USGS, and TVA
Revised by TVA in 1961 by photogrammetric methods
using aerial photographs taken 1959 and by reference
to TVA-USGS quadrangle dated 1940. Map field
checked by TVA, 1961.

Photonic projection, 10,000-foot grid based on
Tennessee coordinate system.
1000-meter Universal Transverse Mercator Grid ticks,
zone 17, shown in blue, 1927 North American Datum.
The difference between 1927 North American Datum
and North American Datum of 1983 (NAD 83) is 7.5
minute increments as given in USGS Bulletin 1875.
The NAD 83 is shown by dashed corner ticks.
Five red dashed lines indicate selected fence and field lines when
generally visible on aerial photographs. This information is unchecked.

UTM GRID AND 1983 MAGNETIC NORTH
ORIENTATION AT CENTER OF SHEET
Red tint indicates grid in which
only landmark buildings are shown



FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
TENNESSEE DEPARTMENT OF CONSERVATION, DIVISION OF GEOLOGY, NASHVILLE, TENN. 37243
AND U.S. TENNESSEE VALLEY AUTHORITY, CHATTANOOGA, TENN. 37402
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION
Primary highway all weather Light duty road all weather
hard surface improved surface
Secondary highway all weather Dismantled road, fair to dry
weather
Interstate Route U.S. Route State Route

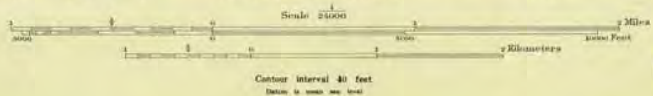
NEWPORT, TENN
35083-42-17-024

PHOTOENLARGED 1992
DMA 4355-1-NW-SERIES 0841





Control by USCGS, USGS, and TVA.
Topography by Geological Survey from aerial
photographs by stereophotogrammetric methods.
Field examination by Tennessee Valley Authority, 1940.



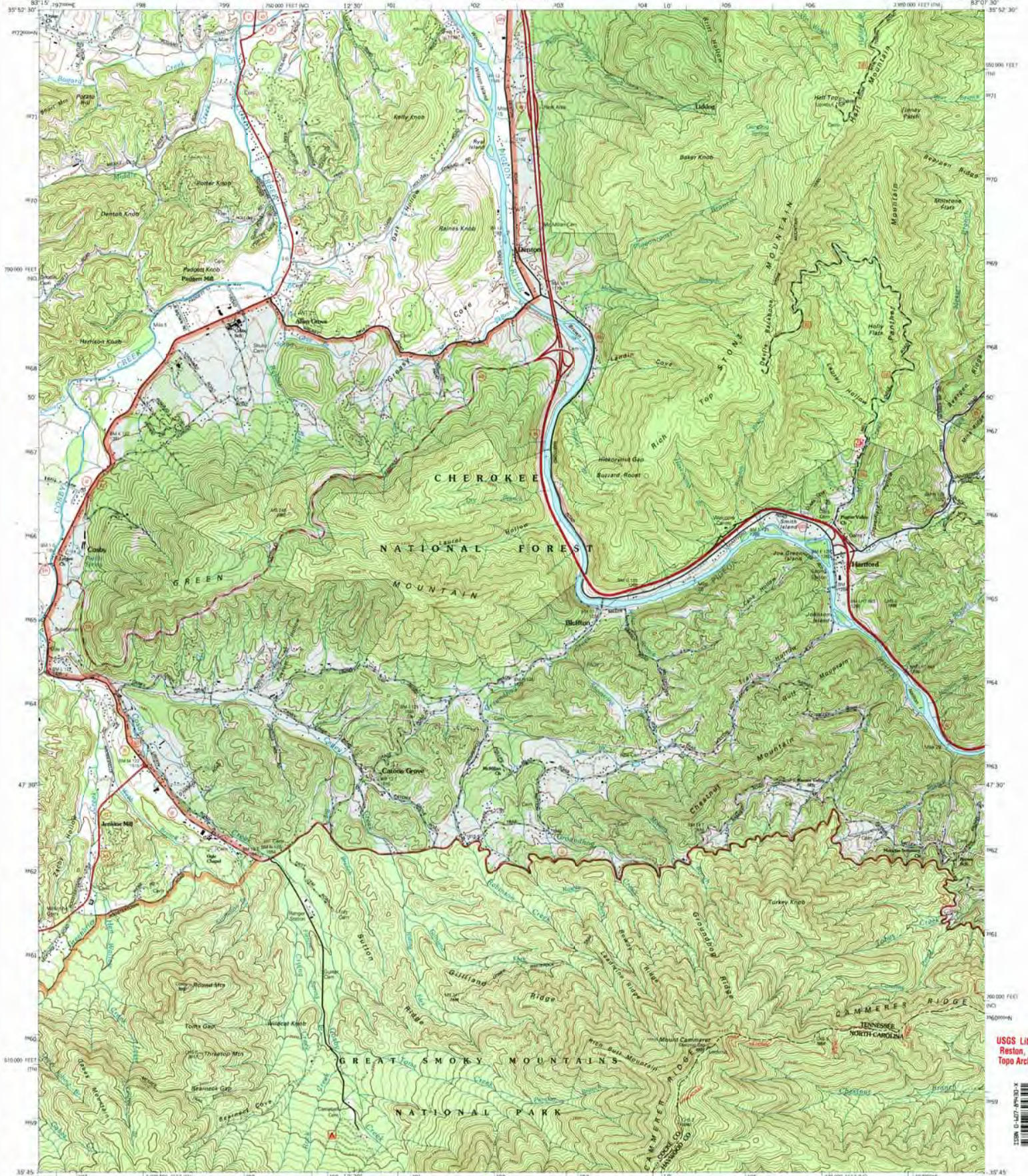
USGS
HISTORICAL FILE
TOPOGRAPHIC DIVISION

Formular prepared: 1927 North American datum.
10,000 foot grid based on Tennessee and North Carolina
rectangular coordinate system.
SOURCE: ORIGINAL U.S. TERRITORY

STATE ROUTE
U.S. ROUTE

HARTFORD, TENN.-N.C.
173-5W
Edition of 1940
16545-WS-173-5W

JAN 24 1941



Produced by the United States Geological Survey 1968
Revision by USDA Forest Service 2003
Topography compiled 1949. Elevation derived from imagery taken 1997 and other sources. Public Land Survey System and survey control current as of 2002. Boundaries current as of 2003.
North American Datum of 1927 (NAD 27). Projection: Tennessee coordinate system, Lambert conformal conic, 10 000-foot ticks; Tennessee coordinate system and North Carolina coordinate system.
Blue 1000-foot Universal Transverse Mercator ticks, zone 17.
North American Datum of 1983 (NAD 83) is shown by dashed center ticks. The values of the ticks between NAD 27 and NAD 83 for 7.5-minute increments are obtainable from National Geographic Society NADCON software.
Non-National Forest System lands within the National Forest boundaries may exist in other National or State ownership.
This map is not a legal document. Public lands are subject to change and leasing, and may have access restrictions; check with appropriate offices. Observe warnings before entering private lands.



SCALE 1:24 000
CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929 TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048
QUADRANGLE LOCATION
TENNESSEE
NORTH CAROLINA
This map complies with National Map Accuracy Standards
FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O. BOX 25286, DENVER, COLORADO 80225
AND TENNESSEE DEPARTMENT OF CONSERVATION, DIVISION OF GEOLOGY,
NASHVILLE, TENNESSEE 37243
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

HIGHWAYS AND ROADS

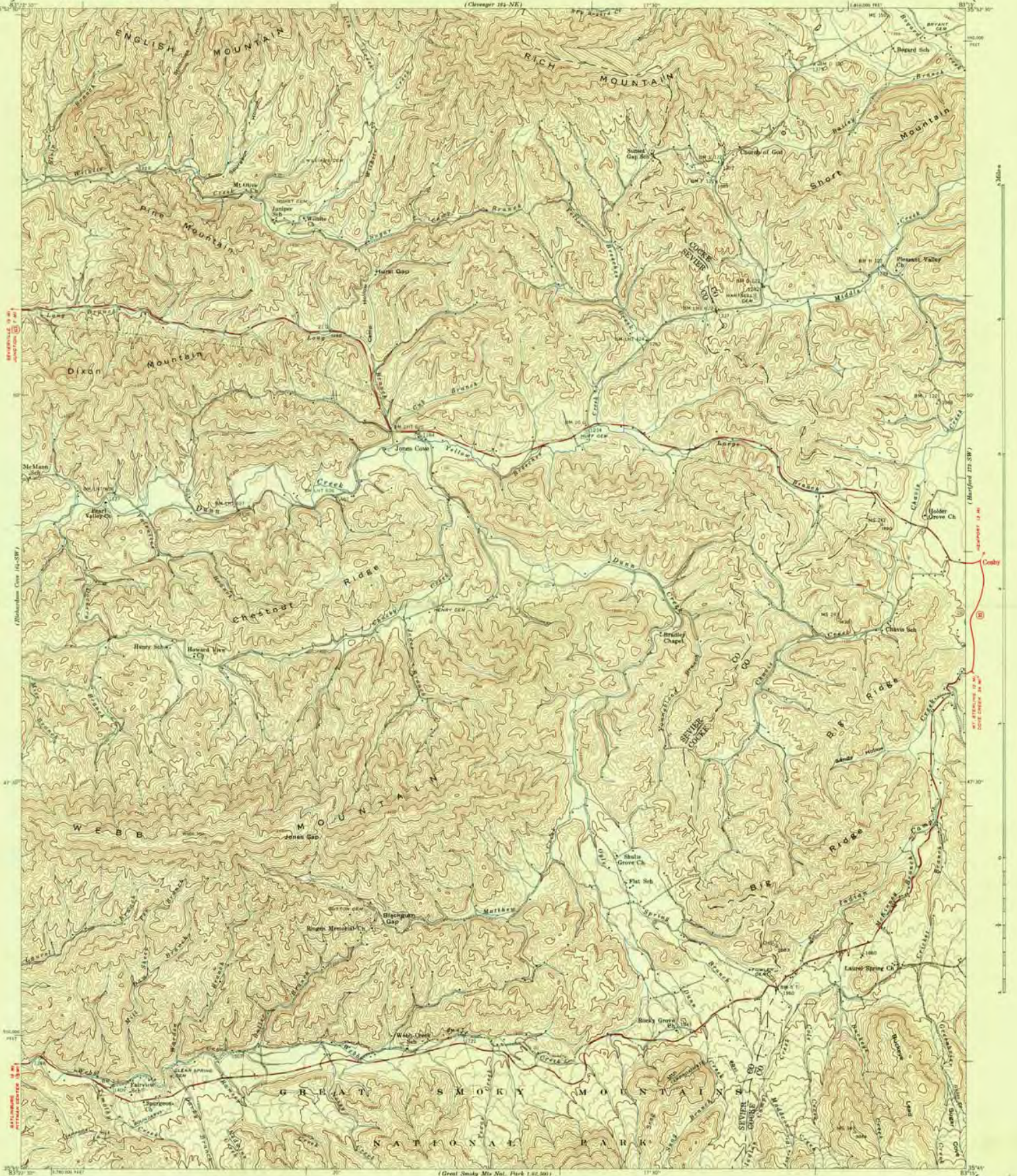
- Interstate
- U.S.
- State
- County
- National Forest, suitable for passenger cars
- National Forest, suitable for high clearance vehicles
- National Forest Trail
- Primary highway
- Secondary highway
- Light-duty road
- Unimproved
- Unimproved, 4 wheel drive
- Trail
- Game Buffer

HARTFORD, TN-NC
2003
35083-G2-TT-024
NGA 4355 158-SERIES V814

USGS Library
Reston, VA
Topo Archive

3 1516 00422524 7

(Cherokee 161-NE)



(Great Smoky Mts Nat. Park 1,82,500)

Scale 20,000

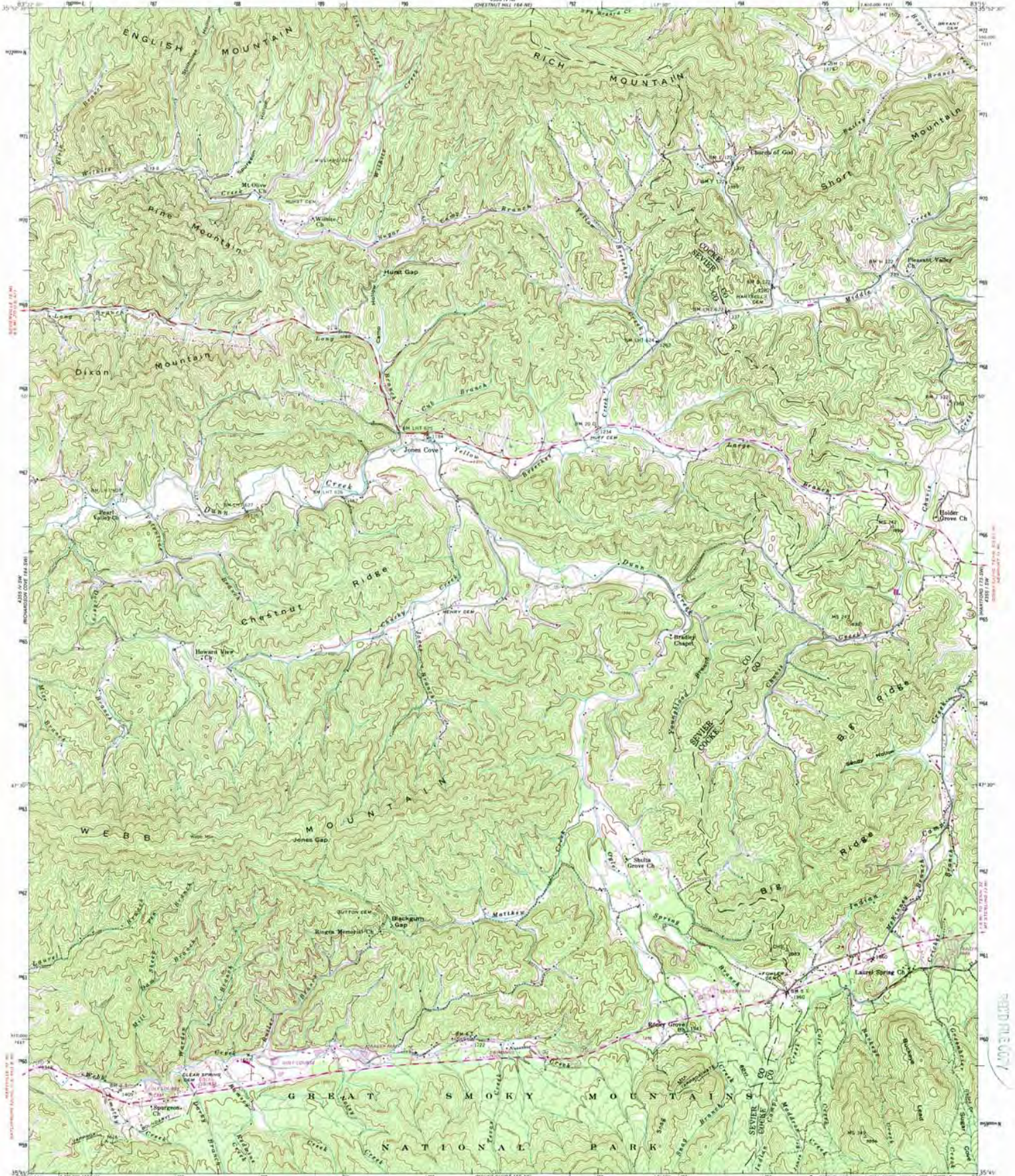
Contour Interval 40 feet
Datum is mean sea level

USGS
HISTORICAL
TOPOGRAPHIC SURVEY
Photolith and Printing

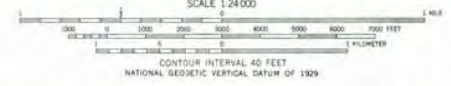
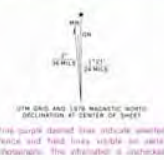
Projection: Spheroid - 1827 North American spheroid
22,500 meters based on Tennessee
rectangular coordinate system
HEIGHTS: USALLY TRAVELED
OTHER SURFACE IMPROVEMENTS:
STATE ROUTE
JONES COVE, TENN.
164-5E
Edition of 1960
N2545 W815 7/5
PUBLISHED AND PRINTED BY WILLIAM B. SMITH CO., WASHINGTON, D. C.

Control by USGS and TVA.
Topography by Geological Survey from aerial
photographs by stereophotogrammetric methods.
Field examination by Tennessee Valley Authority, 1940

NATIONAL MAP
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



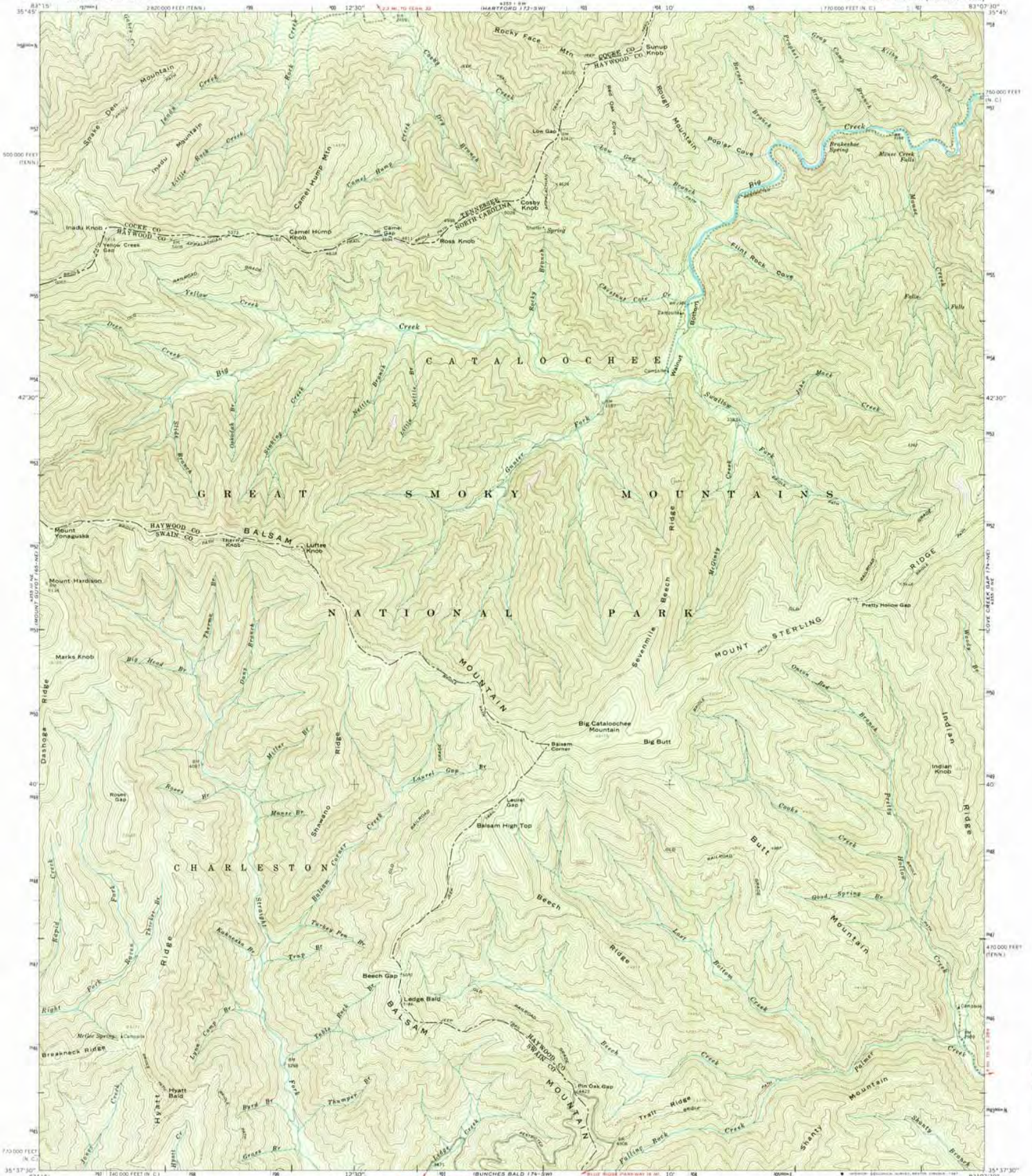
Maped, edited, and published by Geological Survey
Control by NGC-MDA, USGS, and TVA
Topography by USGS by photogrammetric methods
Map field checked by TVA, 1940
Polyconic projection, 1927 North American datum
10,000-foot grid based on Tennessee rectangular
coordinate system
1000 meter Universal Transverse Mercator Grid ticks,
Zone 17, shown in blue
Reservoirs shown in purple and reclamation of wooded areas
controlled by the Tennessee Valley Authority shown in green
Photographic base: 1976. This information not Standard
Map dated 1976



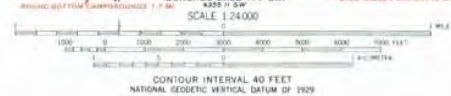
ROAD CLASSIFICATION
Heavy-duty — Floor motor road
Medium-duty — Wagon and jeep track
Light-duty — Foot trail
U.S. Route — State Route
In developed areas, only those roads are classified

JONES COVE, TENN.
38083431624
1940
PHOTOREVISED 1976
DMA 455 (V) 5E-SERIES, Y64

FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
TENNESSEE DEPARTMENT OF CONSERVATION, DIVISION OF GEOLOGY, NASHVILLE, TENN. 37219
AND U.S. TENNESSEE VALLEY AUTHORITY, CHATTANOOGA, TENN. 37401
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



Mapped, edited, and published by the Geological Survey
Control by USGS and USCAGS
Topography by photogrammetric methods, from aerial
photographs taken 1963. Field checked 1964.
Polyconic projection. 1927 North American datum.
10,000-foot grid based on North Carolina and Tennessee coordinate systems.
1000-meter Universal Transverse Mercator grid ticks,
zone 17, shown in blue.
To place on the predicted North American Datum 1983,
move the projection lines 8 meters south and
10 meters west as shown by dashed corner ticks.

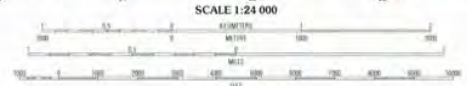


THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
TENNESSEE DIVISION OF GEOLOGY, NASHVILLE, TENNESSEE 37219
AND U. S. TENNESSEE VALLEY AUTHORITY, CHATTANOOGA 37401 OR KNOXVILLE, TENNESSEE 37902
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

LUFTEE KNOB, N. C.-TENN.
35083-F2-T-024
1964
DMA 4335 II NW-SERIES V842



Produced by the United States Geological Survey
Derived from imagery taken 1963 and other sources. Photostereoscopic
imagery used 2000; no major culture or drainage changes
observed. Survey control current as of 1964
Boundaries verified 2001
North American Datum of 1927 (NAD 27)
Projection: North Carolina coordinate system
(Lambert conformal conic)
10 000-foot ticks. North Carolina coordinate system and
Tennessee coordinate system
1000-meter Universal Transverse Mercator grid, zone 17
North American Datum of 1983 (NAD 83) is shown by dashed
corner ticks. The values of the shift between NAD 27 and NAD 83
for 7.5-minute intersections are obtainable from National Geodetic
Survey NADCON software
These may be private inholdings within the boundaries of
the National or State reservations shown on this map



ROAD CLASSIFICATION (1963 1:250,000)

Primary highway	Light-duty road, hard as improved surface
Secondary highway	Unimproved surface
Hard surface	Unimproved road
Interstate Route	U.S. Route
	State Route

THIS MAP COMPLES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O. BOX 25286, DENVER, COLORADO 80225
AND TENNESSEE DEPARTMENT OF CONSERVATION, DIVISION OF GEOLOGY,
NASHVILLE, TENNESSEE 37243
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ADJOINING 1:250,000 QUADRANGLE NAMES

1	2	3	1 Jones Cove 174-N
4	5	6	2 Mountain 174-N
7	8	9	3 Mountain 174-N
			4 Mountain 174-N
			5 Mountain 174-N
			6 Mountain 174-N

LUFTEE KNOB, NC-TN
2000
NIMA 155 II NW-SERIES V842

RECEIVED
OCT 31 2001
1 250 000 174-NW
7 5-MINUTE SERIES (TOPOGRAPHIC) 174-NW



Mapped, edited, and published by the Geological Survey
Control by USGS and USCGS
Topography by photogrammetric methods from aerial
photographs taken 1963. Field checked 1964
Polyconic projection; 1927 North American datum
10,000-foot grid based on Tennessee and North Carolina coordinate systems
1000 meter Universal Transverse Mercator grid lines,
zone 17, shown in blue

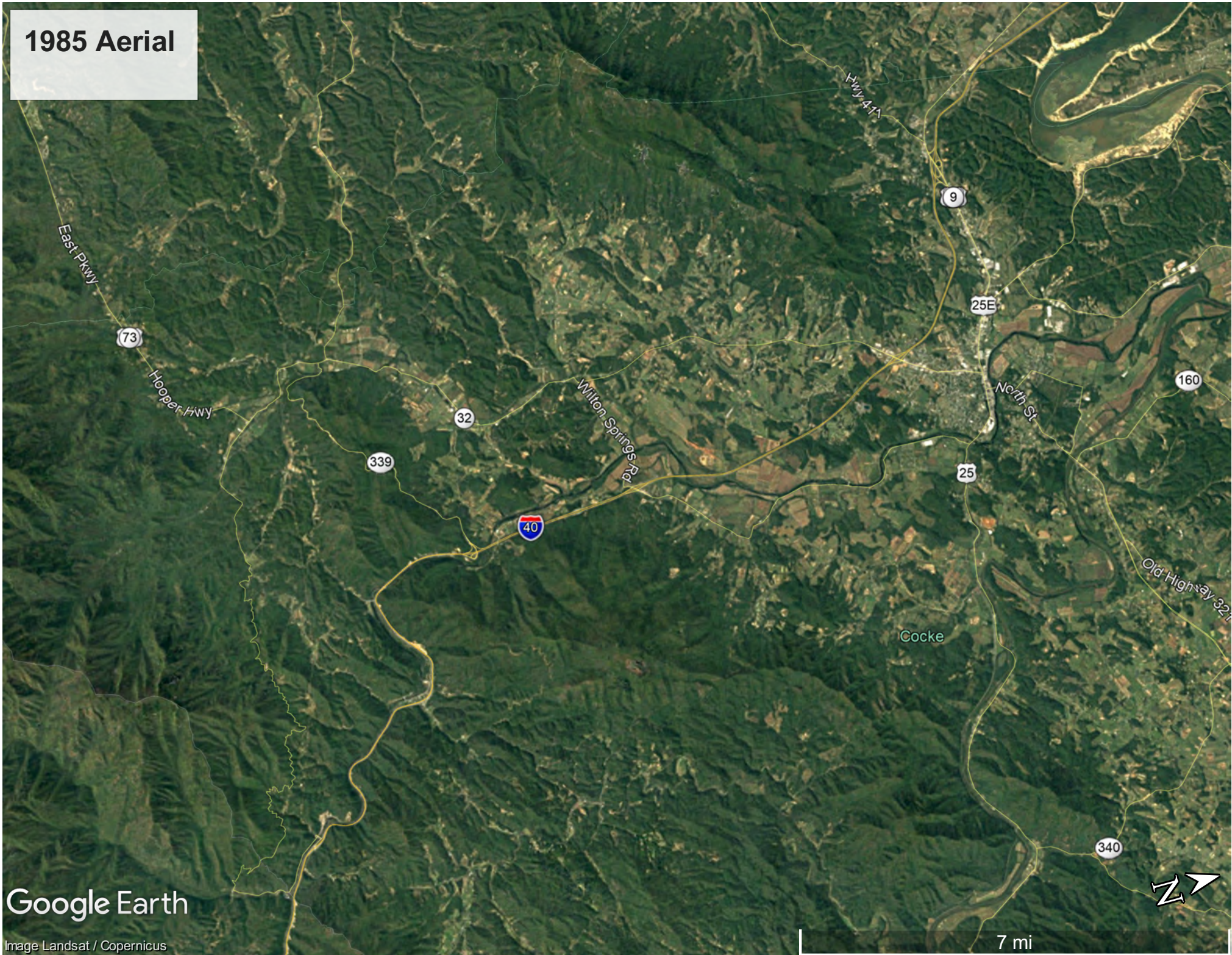


CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Unimproved dirt

HISTORIC AERIAL PHOTOGRAPHY

1985 Aerial



East Pkwy

73

Hooper Hwy

32

339

40

Wilton Springs Rd

Hwy 471

9

25E

North St

25

160

Cocke

Old Highway 321

340

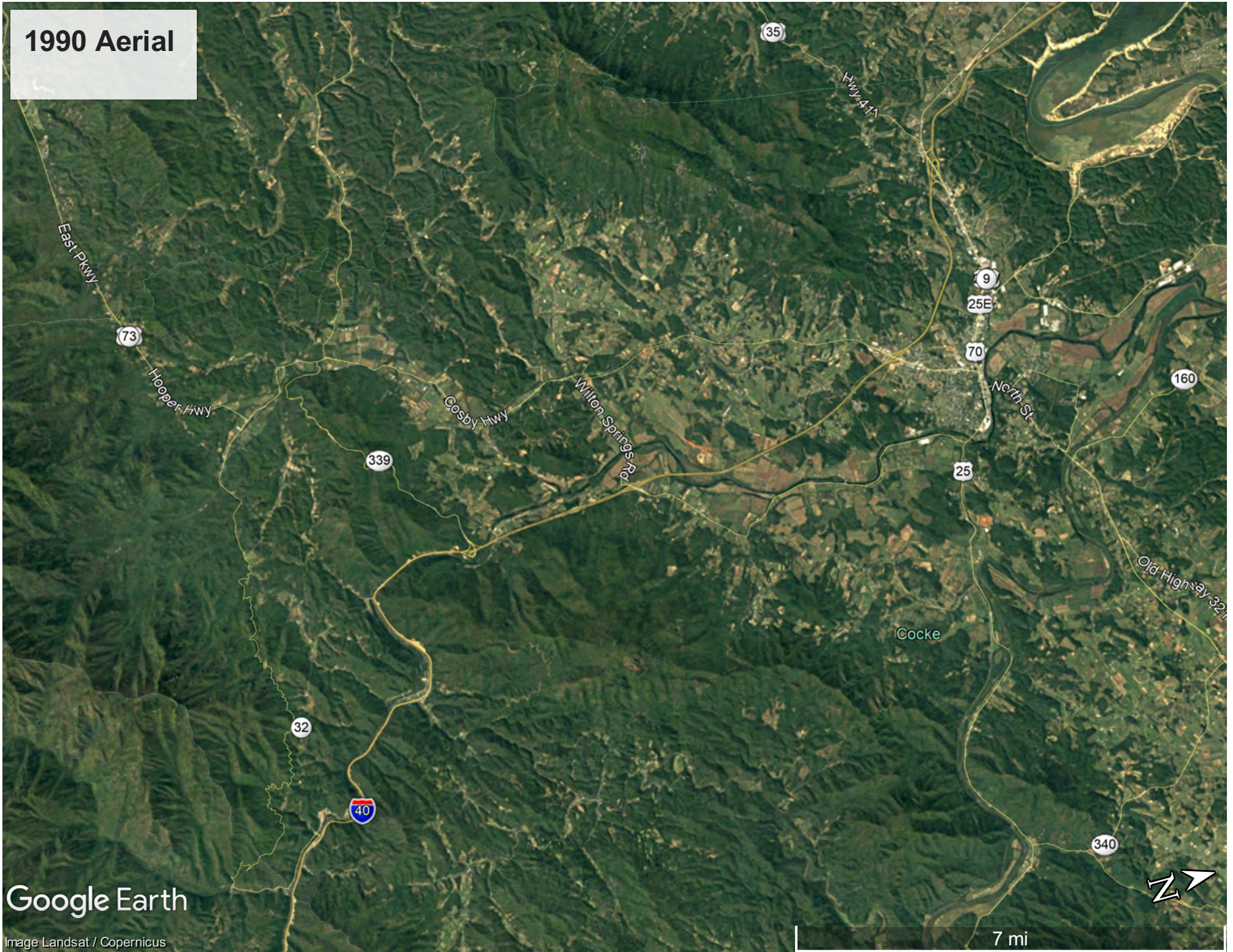
Google Earth

Image Landsat / Copernicus

7 mi



1990 Aerial

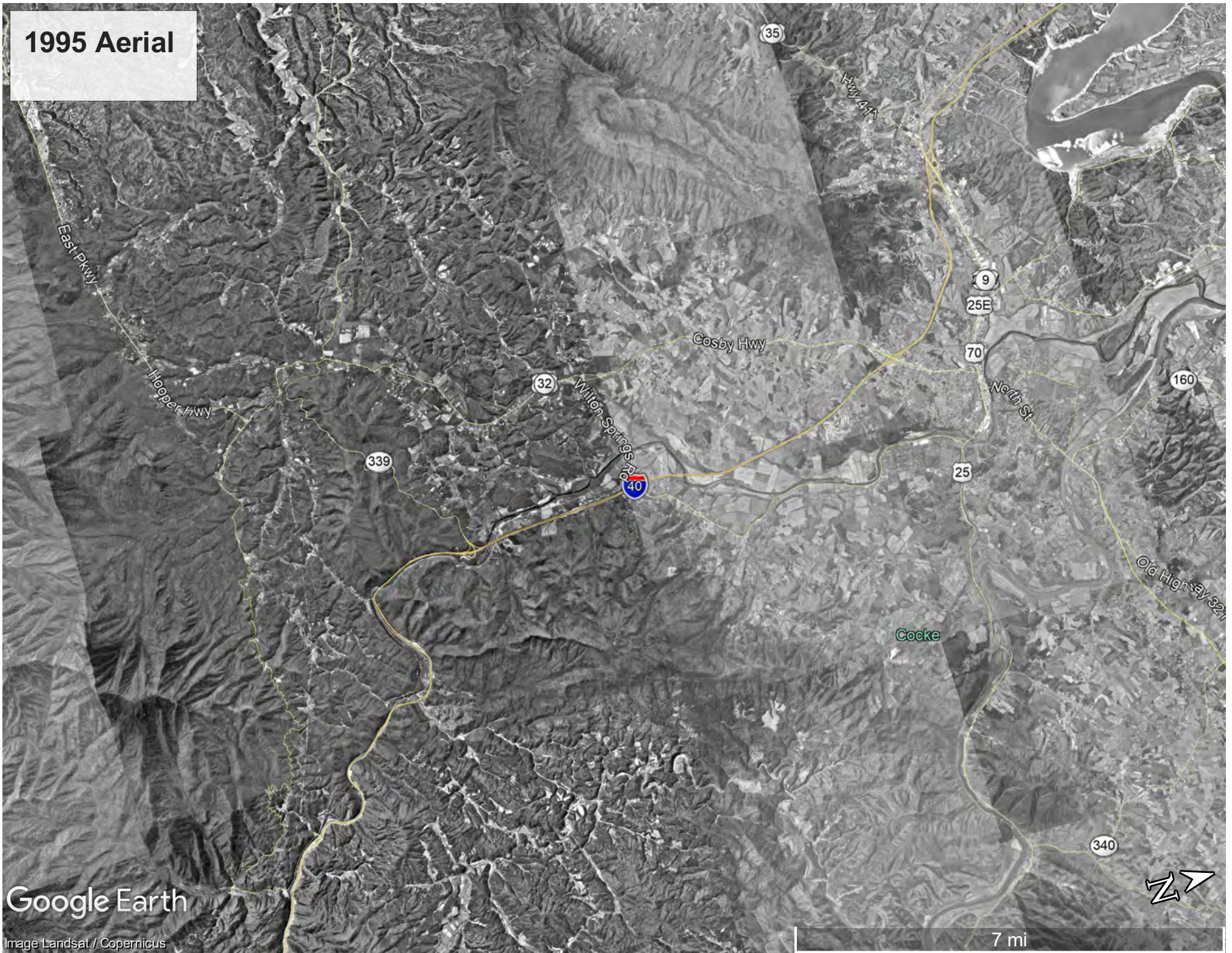


Google Earth

Image Landsat / Copernicus

7 mi

1995 Aerial

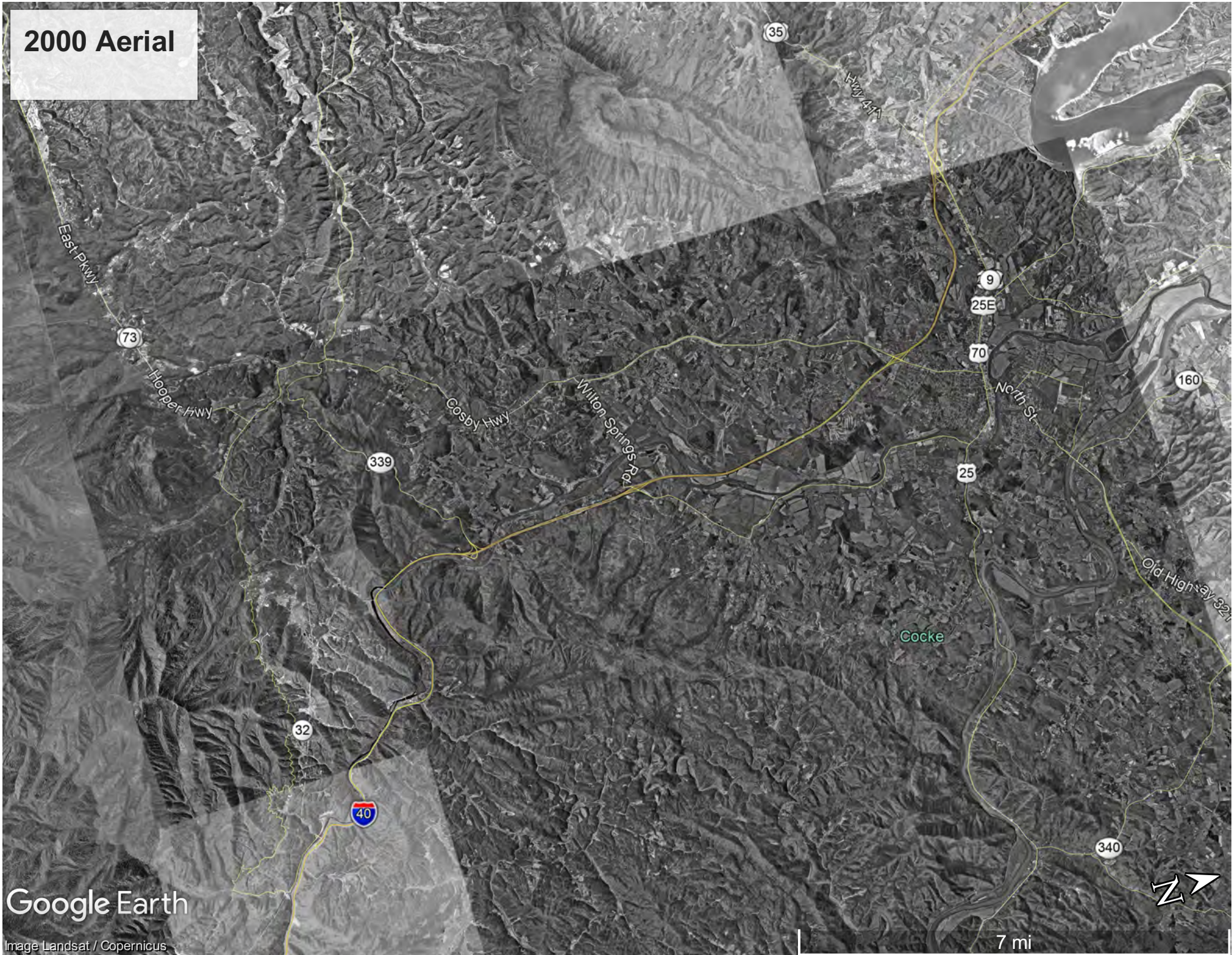


Google Earth

Image Landsat / Copernicus

7 mi

2000 Aerial

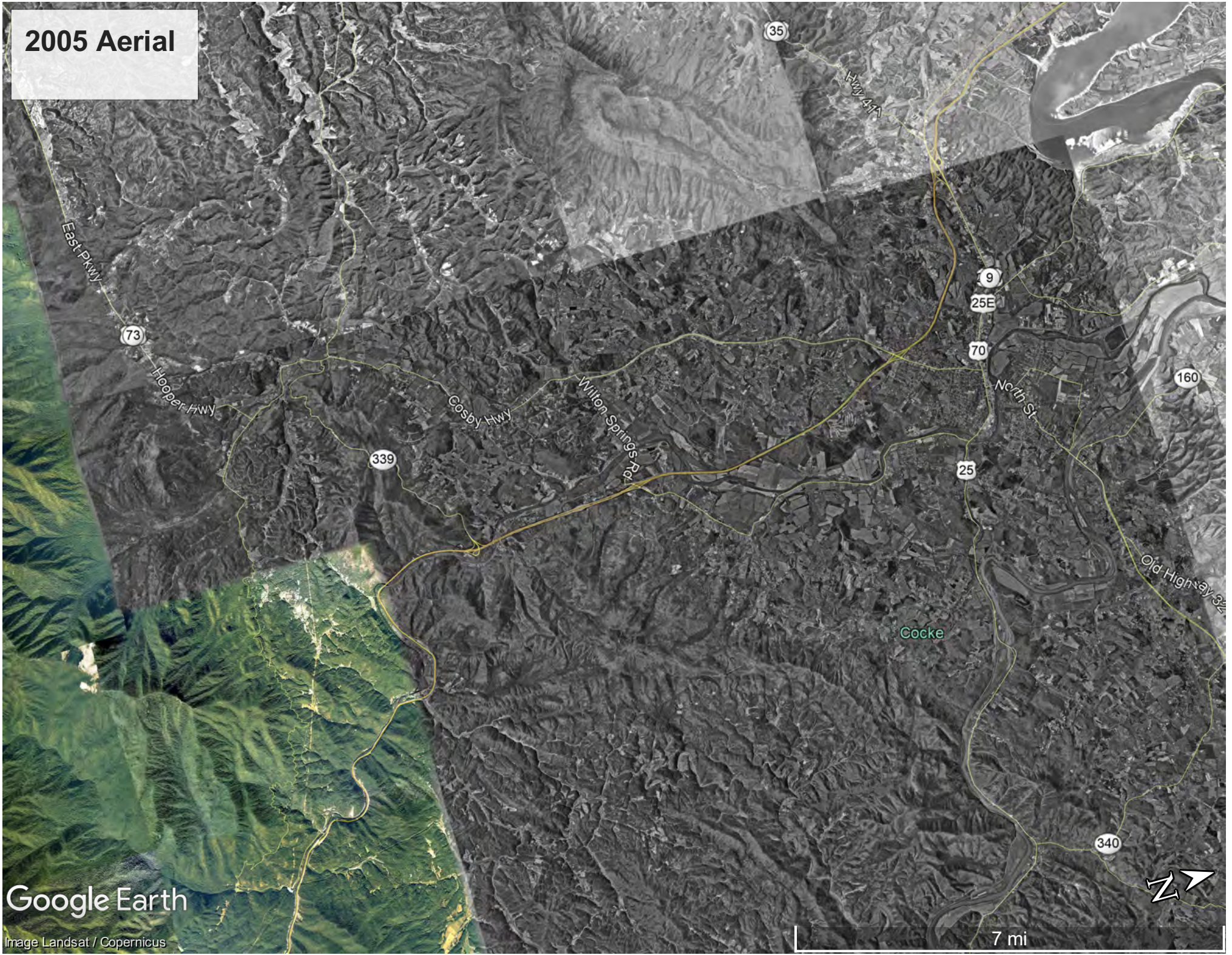


Google Earth

Image Landsat / Copernicus

7 mi

2005 Aerial



Google Earth

Image Landsat / Copernicus

7 mi

2010 Aerial

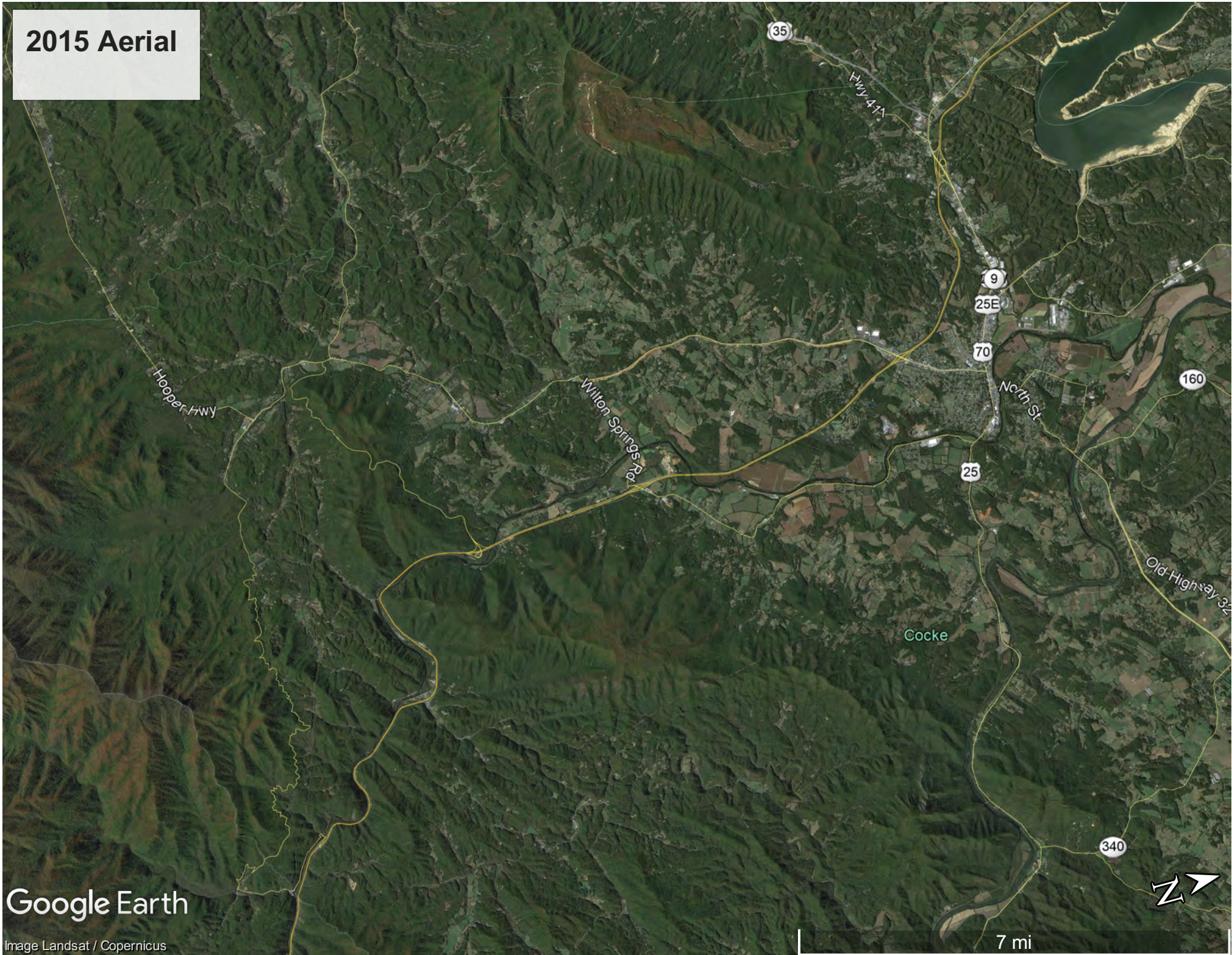


Google Earth

Image Landsat / Copernicus

7 mi

2015 Aerial



Google Earth

Image Landsat / Copernicus

7 mi

APPENDIX D
DEVELOPMENT CORRESPONDENCE

Indirect and Cumulative Effects Technical Memorandum

For
State Route 32
From State Route 73 at Cosby to North of Wilton Springs Road
Cocke County, Tennessee
PIN 101422.00



SR-32, Cocke County, From SR-73 to Wilton Springs Road, Cocke County, PIN 101422.00
Conference Call with Cocke County Partnership
July 15, 2020

Participants

Lucas Graham, President, Cocke County Partnership
Erick Hunt-Hawkins, Supervisor, NEPA Special Projects Section, TDOT Environmental Division
Meridith Krebs, Project Oversight, Kimley-Horn
Valerie Birch, NEPA Project Manager, HDR, Inc.

Purpose of Call

The purpose of the conference call was to update information on proposed developments in and near the SR-32 project area.

Call Summary

The meeting opened with Meridith Krebs providing a quick recap of TDOT's previous conversation with Lucas Graham in November 2018.

Lucas provided an update on the following developments:

Hartford/White

- Most inquired about project that involves a competition quality mountain bike trail system. Lucas sees this as the primary draw to the area besides the Great Smoky Mountain National Park.
- Vision is to create competition-quality trail system.
- Trails will be located in the Cherokee National Forest (special use permit).
- Trails will start at Halls Top summit.
- Trail concept is similar to a ski route-ascent downhill from the mountain.
- Red Bull corporate marketing team involved as advisors. Red Bull hosts Red Bull Rampage-a series of downhill mountain biking events.
- Received a \$600,000 Appalachian Regional Commission (ARC) grant for the design and engineering study for the trail system (based on newspaper article-\$500,000 ARC +\$100,000 local match).
- RFQ due out in July 2020 for trail design.
- Anticipate having the trail design complete within the next 14-16 months.
- Construction is expected to be complete in 2023.



Hall's Top/Mill Creek/Green Mountain Bike Trail

- Primary bike park will begin on Hall's Top located on the east side of I-40 on near Hartford (exit 447) and descend into Hartford business district. Trail will continue through the Hartford business district and connect with second trail head adjacent to Lindsey Gap Road at base of Green Mountain, adjoining SR-339 (Foothills Parkway).
- Parking for Hartford/White development will primarily occur on east side of I-40 at exit 447 for visitors and spectators of the bike park and Hartford retailers while Lindsey Gap trail head will be more reserved for visitors utilizing quieter multi-use trails (hikers, bikers, horseback).
- GPS routes tourists to this location via Lindsay Gap Road but the road can't accommodate campers and RVs.
- I-40 exit 447 was not designed for the amount of traffic that will be generated by these developments.

Sewer Plant

- Three sites currently undergoing a sewer "feasibility study"
 - 8-acre site off Stonebrook Drive south of Stonebrook subdivision
 - 10-acre site east side of SR-32 and Liberty Road
 - Site behind Smoky Mountain Elementary School)-east side of SR-73/west side of SR-32
- Looking at facility that can process 2,000 gallons per day.
- Currently expect the permit application to include all three sites as "one plant system."
- Anticipate design by mid fall 2020.

Fast Food/Convenience Store/Gas Station Developments near Cosby

- There are options on three properties in the vicinity of Stonebrook Drive and SR-73 (parcels 119 101.06, 119 101.04, and 119.125.00) for the development of fast food/convenience store/gas station type developments.
- They are waiting to see which SR-32 alternative is selected before proceeding.

Cabin Rental Development -Cosby

- Parcel 127 059.00, 83.53 acres owned by Jeff Green and Michael Gross.
- Located east side of SR-73/west side of SR-32.
- Currently hiring engineers to develop the site. Will be cabin rentals at the top of the mountain and a hotel below.
- Has applied for loan for roads and other infrastructure.

Fred Holt Properties

- Fred Holt has four parcels he is developing (119 102.00, 119 45.01, 119 46.01, 119 75.00, 119 77.00).
- He has contributed to the sewer plant development and has requested a sewer allotment for up to 200 units (cabins or single-family).



Destination Development

- Developer is DBVD, LLC.
- Development splits Cocke and Sevier County.
- Development is 1,000 acre in size (parcels 092 001.00, 092 002.00, 092 003.00).
- This development is still moving forward. Two weeks ago bids were put out to determine whether to build a sewer plant on site or tie into the one being developed in Cosby.
- Being designed/managed by the group that owns the Great Wolf Lodge in NC-an indoor water park.
- No definite timeline for completion. The developer is working on finalizing another project at the moment.

Adventure Development

- Parcel 072 002.00, approximately 4,000 acres adjacent to Destination.
- Access via I-40 exit 432, US 411 and Grapevine Hollow Road.
- No updates have been received by the Cocke County partnership since March 2020. This development appears to be the furthest out.

Developments in Newport

New Industrial Park

- Off the Newport Bypass.
- Approximately 97 acres in size.
- Eternal Beverage-a water bottling plant has committed to the new industrial park. Anticipate their building will be completed in 2021. Will employ approximately 38-50 people.
- Initial building is 60,000 square feet, with room for future expansion (bought a 15-acre site in the new industrial park).

Ole Smoky Distillery

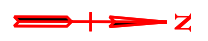
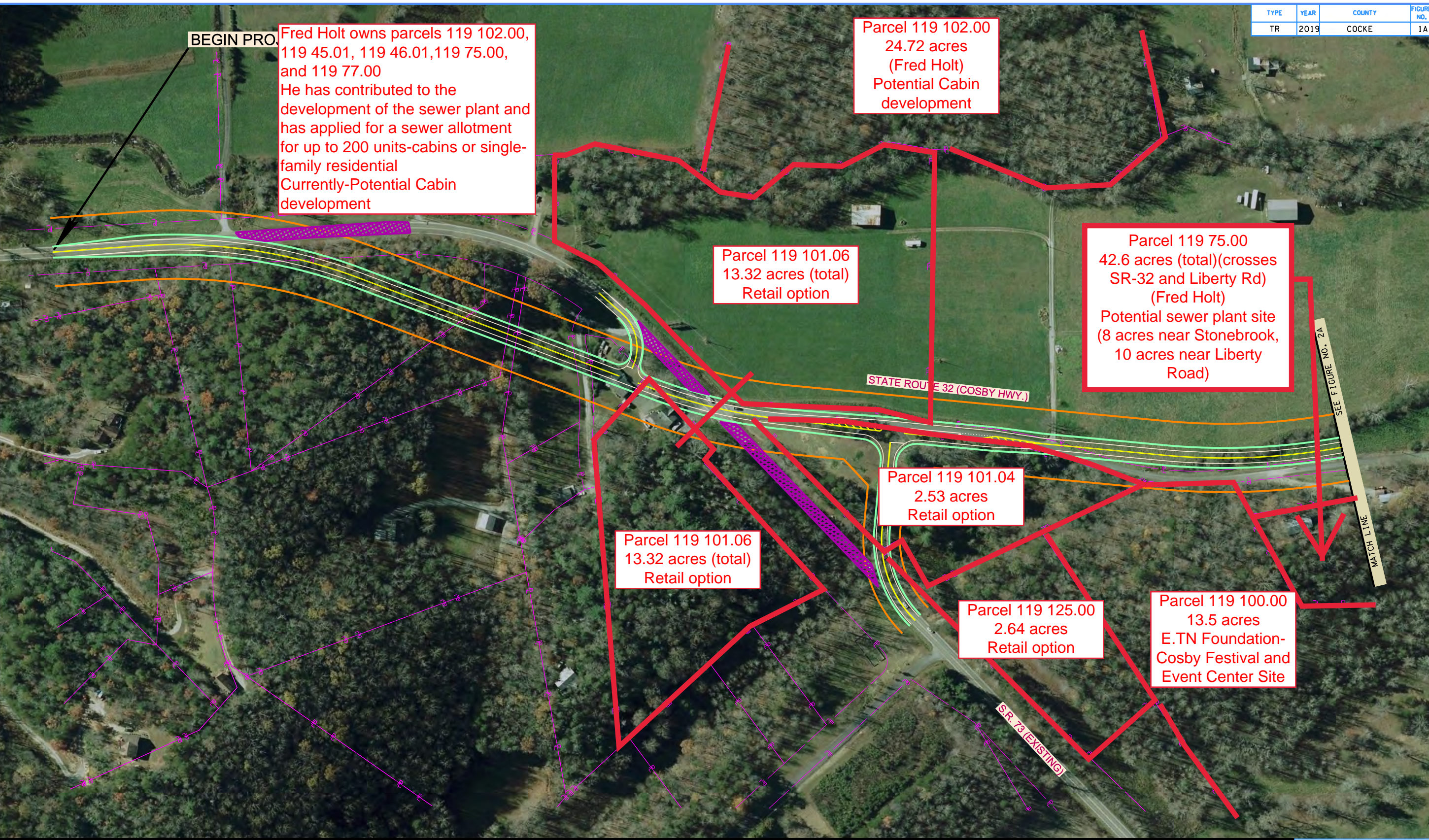
- Has been expanding its operations in the old industrial park (Lisage Avenue/Oliver Cromwell Drive) and has taken over most of the space in the park.
- Employs approximately 150 people.

Luv Travel Center

- 12-acre site off Mariner Road.
- Want to start groundwork in Fall 2020.
- Will increase truck traffic at I-40 exit 432.

Attachment

TYPE	YEAR	COUNTY	FIGURE NO.
TR	2019	COCKE	1A

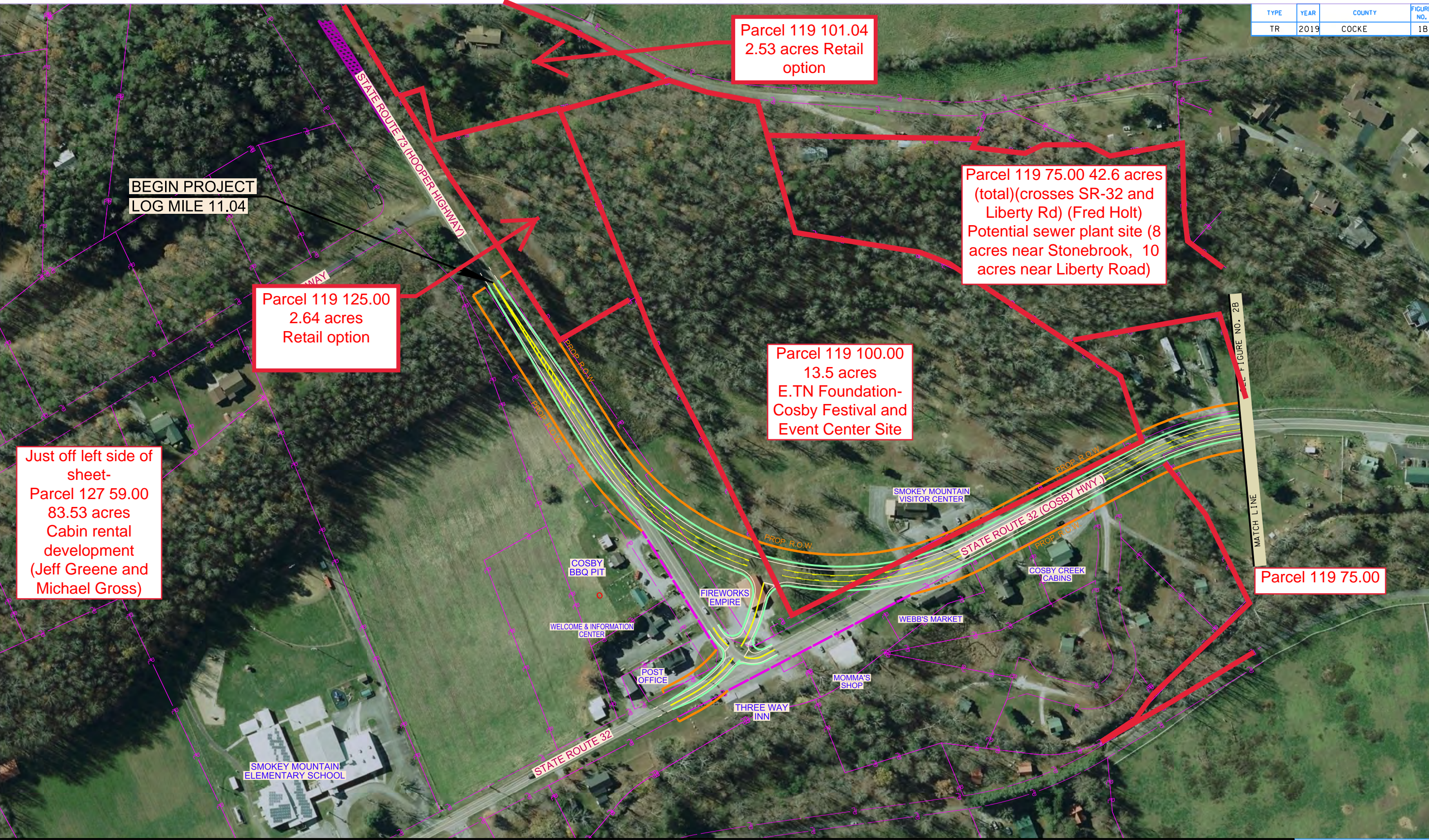


TECHNICAL REPORT

STATE ROUTE 32
L.M. 11.04 TO L.M. 18.40
COCKE COUNTY

TYPE	YEAR	COUNTY	FIGURE NO.
TR	2019	COCKE	1B

3/25/2020 2:45:48 PM
 X:\Expedited Project Delivery\2014 EPD Projects\Cocke\10422.00, SR 32, SR-73 @ Cosby to Wilton Springs Rd\Project Files\Microstation\DN Files\Public meeting 8-9-18\SHEET FILES\SR 32 - 2015 EPD Option SHT



BEGIN PROJECT
LOG MILE 11.04

Parcel 119 125.00
2.64 acres
Retail option

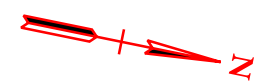
Parcel 119 101.04
2.53 acres Retail
option

Parcel 119 75.00 42.6 acres
(total)(crosses SR-32 and
Liberty Rd) (Fred Holt)
Potential sewer plant site (8
acres near Stonebrook, 10
acres near Liberty Road)

Parcel 119 100.00
13.5 acres
E.TN Foundation-
Cosby Festival and
Event Center Site

Just off left side of
sheet-
Parcel 127 59.00
83.53 acres
Cabin rental
development
(Jeff Greene and
Michael Gross)

Parcel 119 75.00

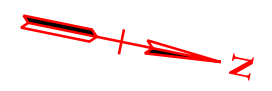
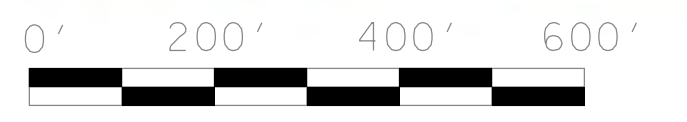
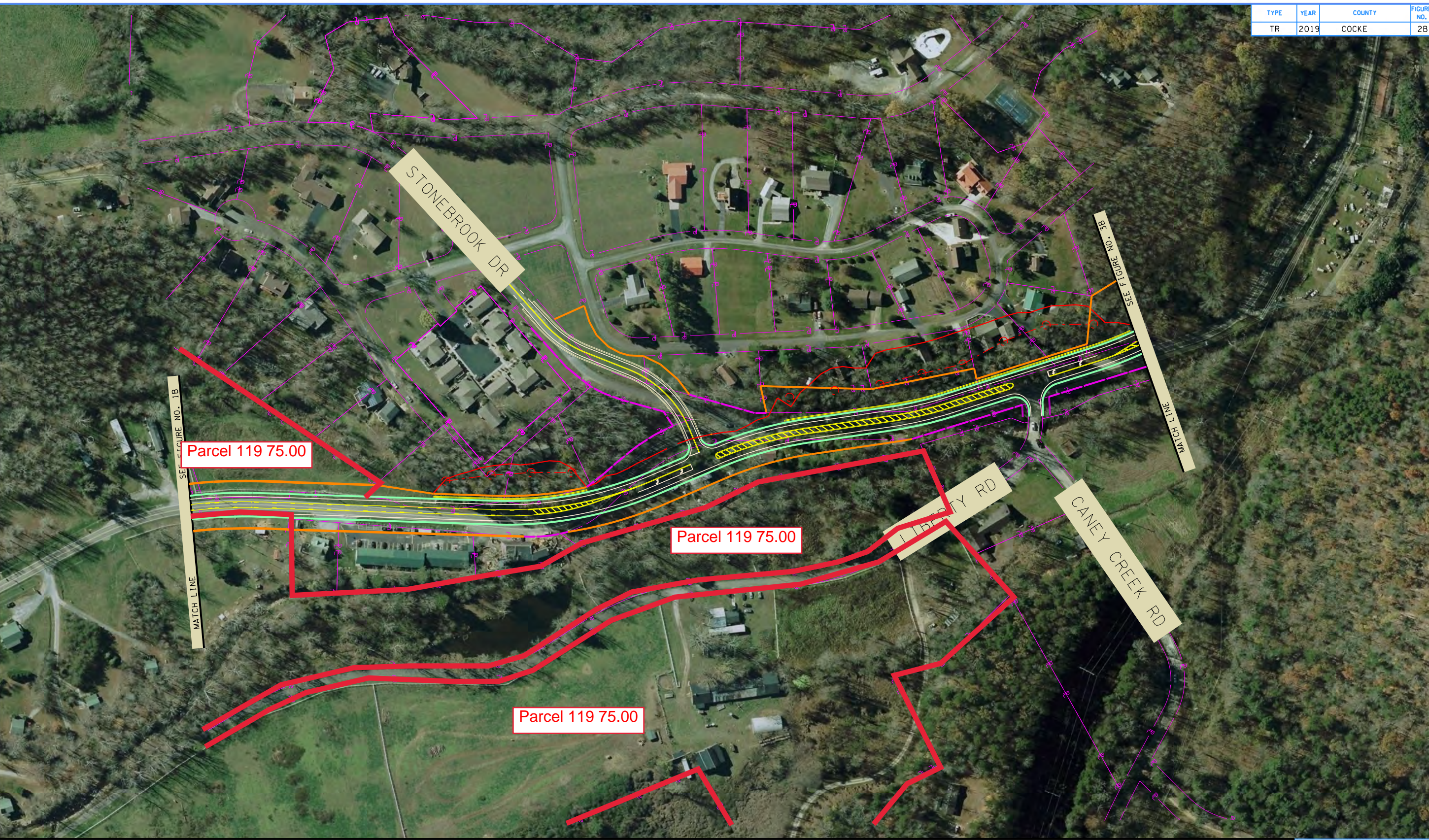


TECHNICAL REPORT

STATE ROUTE 32
L.M. 11.04 TO L.M. 18.40
COCKE COUNTY

TYPE	YEAR	COUNTY	FIGURE NO.
TR	2019	COCKE	2B

10/21/2019 3:13:42 PM
X:\Expedited Project Delivery\2014 EPD Projects\Cocke\10422.00_SR 32_SR-73_Cosby to Wilton Springs Rd\Project Files\Microstation\DN Files\Public meeting 8-9-18\SHEET FILES\SR 32 - 2015 EPD Option SHT



TECHNICAL REPORT

STATE ROUTE 32
L.M. 11.04 TO L.M. 18.40
COCKE COUNTY

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

FIGURE 2B
S.R. 32